

CHAPTER

3

**THE ANALYST AS A PROJECT
MANAGER**



Learning Objectives

- ◆ Explain the elements of project management and the responsibilities of a project manager
- ◆ Explain project initiation and the activities in the project planning phase of the SDLC
- ◆ Describe how the scope of the new system is determined

Learning Objectives (continued)

- ◆ Develop a project schedule using Gantt charts
- ◆ Develop a cost/benefit analysis and assess the feasibility of a proposed project
- ◆ Discuss how to staff and launch a project

Overview

- ◆ Fundamental principles of project management
 - Role of project manager
 - Project management as part of the SDLC
 - Project management knowledge areas
- ◆ How information system projects initiated
 - RMO project initiation

Overview (continued)

- ◆ The project planning activities within the SDLC
 - Planning the problem needing an IS solution
 - Developing a project schedule
- ◆ Confirming project feasibility
- ◆ Staffing and Launching a project
- ◆ Project planning at RMO

Project Success Factors

- ◆ Project management important for success of system development project
- ◆ 2000 Standish Group Study
 - Only 28% of system development projects successful
 - 72% of projects canceled, completed late, completed over budget, and/or limited in functionality
- ◆ Thus, project requires careful planning, control, and execution

Reasons for Project Failure

- ◆ Incomplete or changing requirements
- ◆ Limited user involvement
- ◆ Lack of executive support
- ◆ Lack of technical support
- ◆ Poor project planning
- ◆ Unclear objectives
- ◆ Lack of required resources

Reasons for Project Success

- ◆ Clear system requirement definitions
- ◆ Substantial user involvement
- ◆ Support from upper management
- ◆ Thorough and detailed project plans
- ◆ Realistic work schedules and milestones

Role of the Project Manager

- ◆ Project management – organizing and directing people to achieve a planned result within budget and on schedule
- ◆ Success or failure of project depends on skills of the project manager
 - Beginning of project – plan and organize
 - During project – monitor and control
- ◆ Responsibilities are both internal and external

Internal Responsibilities

- ◆ Identify project tasks and build a work breakdown structure
- ◆ Develop the project schedule
- ◆ Recruit and train team members
- ◆ Assign team members to tasks
- ◆ Coordinate activities of team members and subteams

Internal Responsibilities

- ◆ Assess project risks
- ◆ Monitor and control project deliverables and milestones
- ◆ Verify the quality of project deliverables

External Responsibilities

- ◆ Report the project's status and progress
- ◆ Establish good working relationships with those who identify the needed system requirements
 - The people who will use the system
- ◆ Work directly with the client (the project's sponsor) and other stakeholders
- ◆ Identify resource needs and obtain resources

Participants in a System Development Project

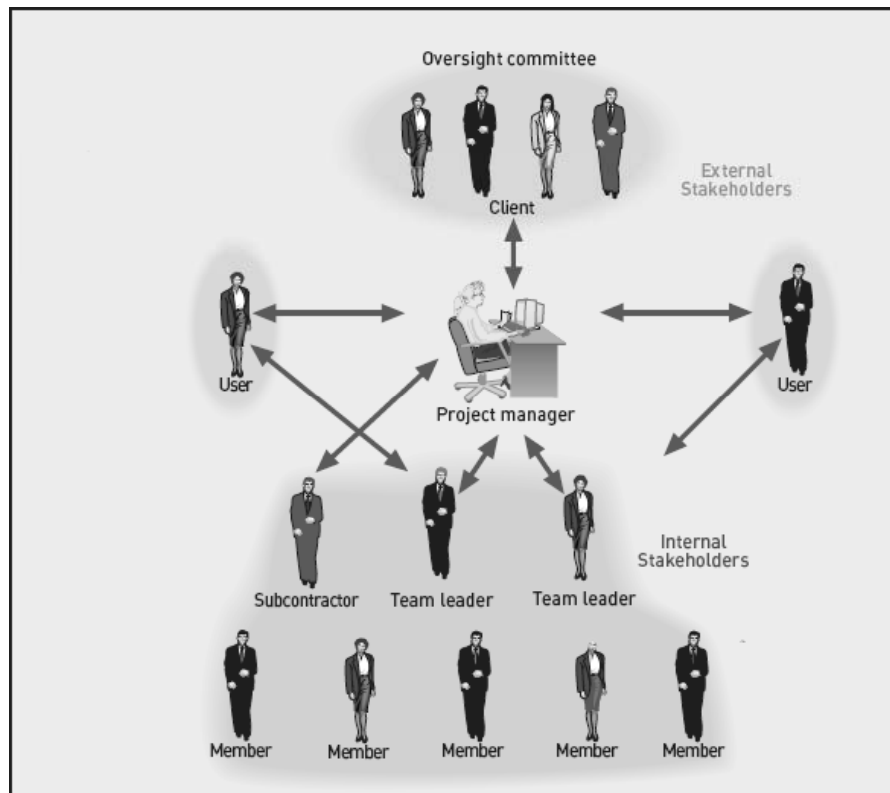


Figure 3-1

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Various Titles/Roles of Project Managers

Title	Power/authority	Organization structure	Description of duties
Project coordinator or project leader	Limited	Projects may be run within the departments, or projects may have a strong "lead developer" who controls the development of the end product.	Develops the plans. Coordinates activities. Keeps people informed of status and progress. Does not have "line" authority on the project deliverables.
Project manager, project officer, or team leader	Moderate	Projects are run within an IT department, but other business functions are independent.	May have both project management duties and some technical duties. Manages projects that are generally medium sized. May share project responsibility with clients.
Project manager or program manager	High to almost total	Project organization is a prime, high-profile part of the company. Company is organized around projects, or there is a large and powerful IT department.	Usually has extensive experience in technical issues as well as project management. Involved in both management decisions and technical issues. Frequently has support staff to do paperwork. Manages projects that can be big.

Figure 3-2

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Project Management Tasks

- ◆ Beginning of project
 - Overall project planning
- ◆ During project
 - Project execution management
 - Project control management
 - Project closeout
- ◆ Project management approach differs for
 - Predictive SDLC
 - Adaptive SDLC

Project Management and SDLC Tasks for a Predictive Project

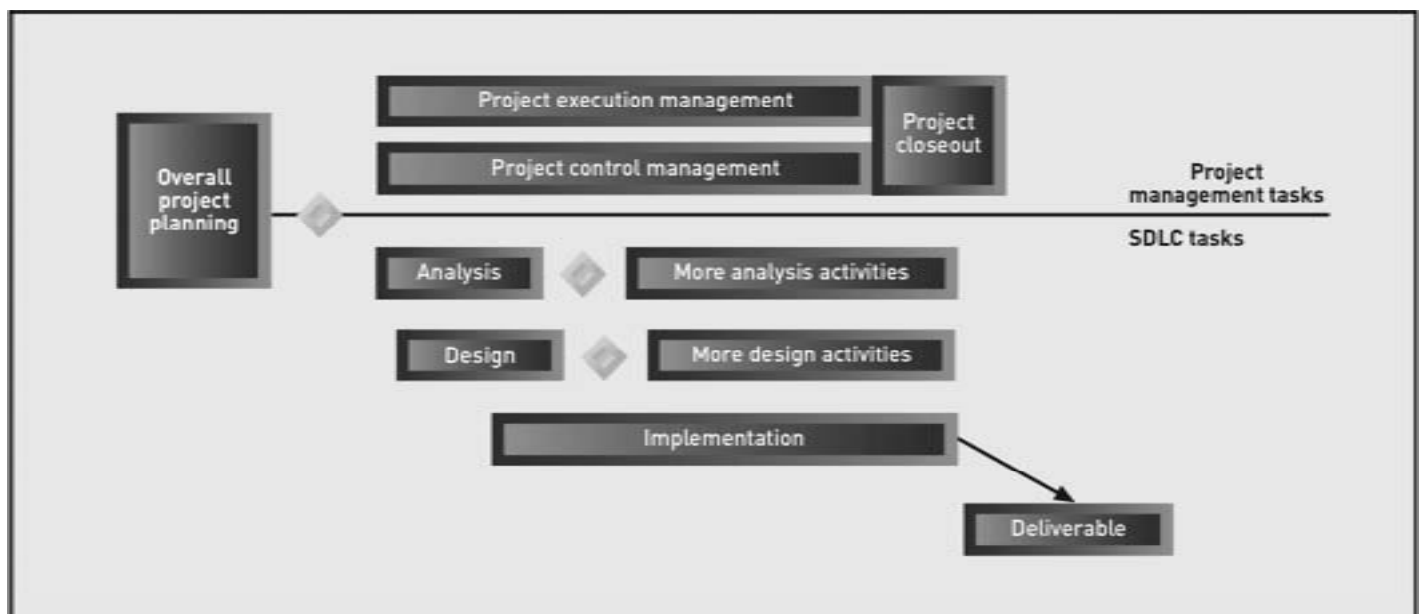


Figure 3-3

Project Management and SDLC Tasks for an Adaptive Project

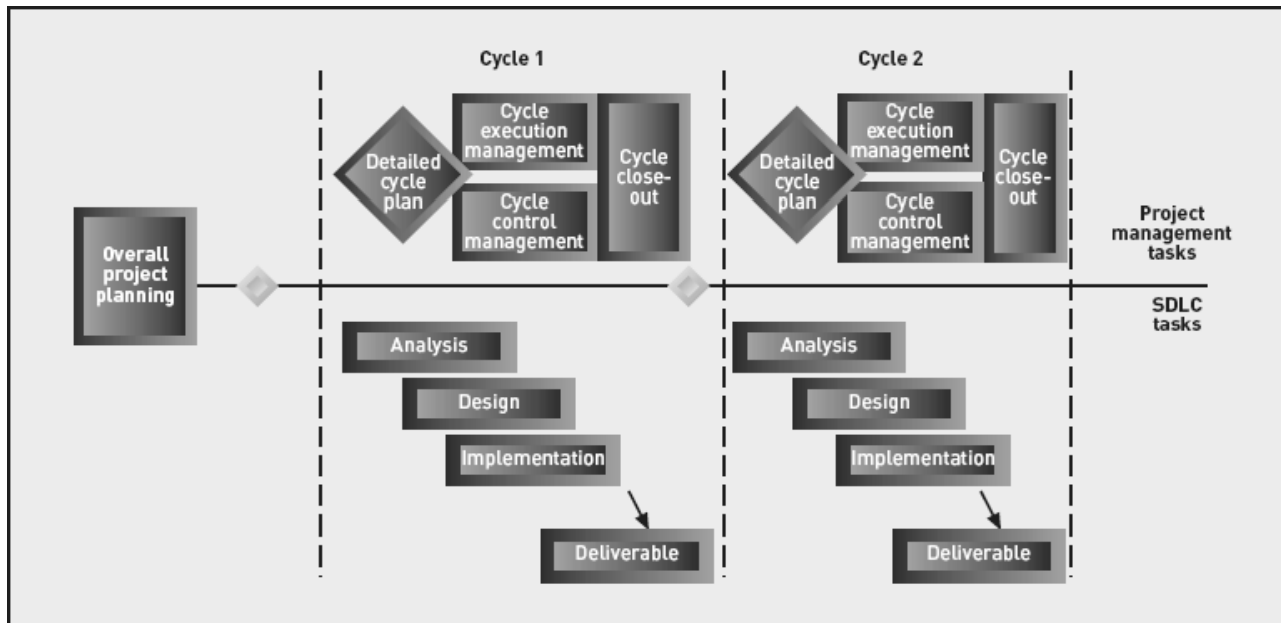


Figure 3-4

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Level of Formality

- ◆ Independent of type of project (predictive or adaptive)
- ◆ Independent of approach to development (structured or object-oriented)
- ◆ Highly formal projects
 - Formal status reports, formal requirements, etc.
- ◆ Less formal projects
 - Agile Software Development
 - ◆ Focus on the team, the users
 - ◆ Plan for change, be flexible

Project Management Body of Knowledge (PMBOK)

- ◆ Scope management
 - control functions included in system
 - control scope of work done by team
- ◆ Time management
 - Build detailed schedule of all project tasks
 - Monitor progress of project against milestones
- ◆ Cost management
 - Calculate initial cost/benefit analysis
 - Monitor expenses

Project Management Body of Knowledge (continued)

- ◆ Quality management
 - Establish quality plan and control activities for each project phase
- ◆ Human resource management
 - Recruit and hire project team members
 - Train, motivate, team build
- ◆ Communications management
 - Identify stakeholders and their communications
 - Establish team communications

Project Management Body of Knowledge (continued)

- ◆ Risk management
 - Identify and review risks for failure
 - Develop plans to reduce these risks
- ◆ Procurement management
 - Develop requests for proposals (RFPs)
 - Evaluate bids, write contracts, monitor performance
- ◆ Integration management

Project Initiation and Project Planning

- ◆ Driving forces to start project
 - Respond to opportunity
 - Resolve problem
 - Conform to directive
- ◆ Project initiation comes from
 - Long-term IS strategic plan (top-down) prioritized by weighted scoring
 - Department managers or process managers (bottom-up)
 - Response to outside forces (HIPAA)

Initiating Customer Support System RMO

- ◆ Strategic IS plan directs IS development's project priorities
- ◆ Customer support system (CSS) selected
 - John MacMurty – creates project charter
 - Barbara Halifax – project manager
 - Steven Deerfield – senior systems analyst
 - Goal is to support multiple types of customer services (ordering, returns, online catalogs)
- ◆ Project charter describes key participants

RMO Project Charter

Project Name: **Customer Support System**

Project Purpose: To provide increased level of customer support. Should include all customer-related functions from order entry to arrival of the shipment, including customer inquiries/catalog, order entry, order tracking, shipping, back order, returns, and sales analysis.

Anticipated Completion: Within 10 months of project initiation

Approved Budget: Up to \$1,500,000

Key Participants:

Participant	Position	Primary responsibilities
Barbara Halifax	Project manager	Manage the entire project
John MacMurty	Director	Supervise project manager Check status weekly Serve on oversight committee
Mac Preston	Chief information officer (CIO)	Serve on oversight committee
William McDougal	Senior VP marketing/sales	Direct project sponsor Approve budget, schedule Serve on oversight committee
Robert Schneider	Director of catalog sales	Serve on oversight committee Provide user support/resources
Brian Haddock	Director of operations	Serve on oversight committee Provide user support/resources
Jason Nadold	Manager of shipping	Provide user support/resources

Figure 3-5

Project Planning Activities

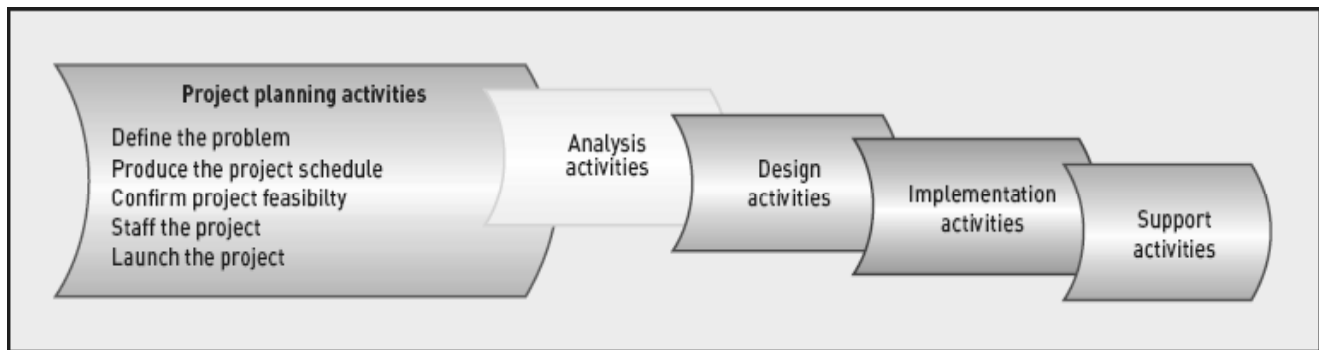


Figure 3-6

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Project Planning Activities and their key questions

Project planning phase activities	Key questions
Define the problem	Do we understand what we are supposed to be working on?
Produce the project schedule	Can the project be completed on time given the available resources?
Confirm project feasibility	Is it still feasible to begin working on this project?
Staff the project	Are the resources available, trained, and ready to start the project?
Launch the project	Are we ready to start the project?

Figure 3-7

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Defining the Problem

- ◆ Review business needs
 - Use strategic plan documents
 - Consult key users
 - Develop list of expected business benefits
- ◆ Identify expected system capabilities
 - Define scope in terms of requirements
- ◆ Create system scope document
- ◆ Build proof of concept prototype
- ◆ Create context diagram

System Scope Document

System Scope Document
Customer Support System

Problem Description

Catalog sales began in Rocky Mountain Outfitters as a small experiment that soon developed into a rapidly growing division of the company. Support was initially provided by manual procedures with some simple off-the-shelf programs to assist in order taking and fulfillment. By 2006, the growth of catalog sales, including Internet sales, was stretching the capabilities of the current system. As a result of a long-term strategic plan, RMO decided to initiate two major system development projects. The first, the supply chain management (SCM) system, was started in 2006 and is progressing on schedule. The second identified system is a customer support system (CSS) to provide sales, marketing, and a full range of customer support functionality. This project is an integral part of the total long-term strategic plan of RMO to continue to grow and maintain its leadership position in the sportswear industry.

Anticipated Business Benefits

The primary business benefit to be obtained from the new system is for RMO to maintain its leadership position in the sportswear industry. More immediate benefits include the following:

- ◆ Reduce errors caused by manual processing of orders.
- ◆ Expedite order fulfillment due to more rapid order processing.
- ◆ Maintain or reduce staffing levels in mail-order and phone-order processing.
- ◆ Dramatically increase Internet sales through a highly interactive Web site.
- ◆ Increase turnover by tracking sales of popular items and slow movers.
- ◆ Increase level of customer loyalty through extensive customer support and information.

System Capabilities

To obtain the business benefits listed previously, the customer support subsystem shall include the following capabilities:

- ◆ Be a high-support system with online customer, order, back-order, and returns information.
- ◆ Support traditional telephone and mail catalog sales with rapid-entry screens.
- ◆ Include Internet customer and catalog sale capability, including purchase and order tracking.
- ◆ Maintain adequate database and history information to support market analysis.
- ◆ Provide a history of customer transactions for customer query.
- ◆ Be able to handle substantial increases in volume (300 percent or more) without degradation.
- ◆ Support 24-hour shipment of new orders.
- ◆ Coordinate order shipment from multiple warehouses.
- ◆ Maintain history to support analysis of sales and forecasting of market demand.

Figure 3-8

Context Diagram for Customer Support

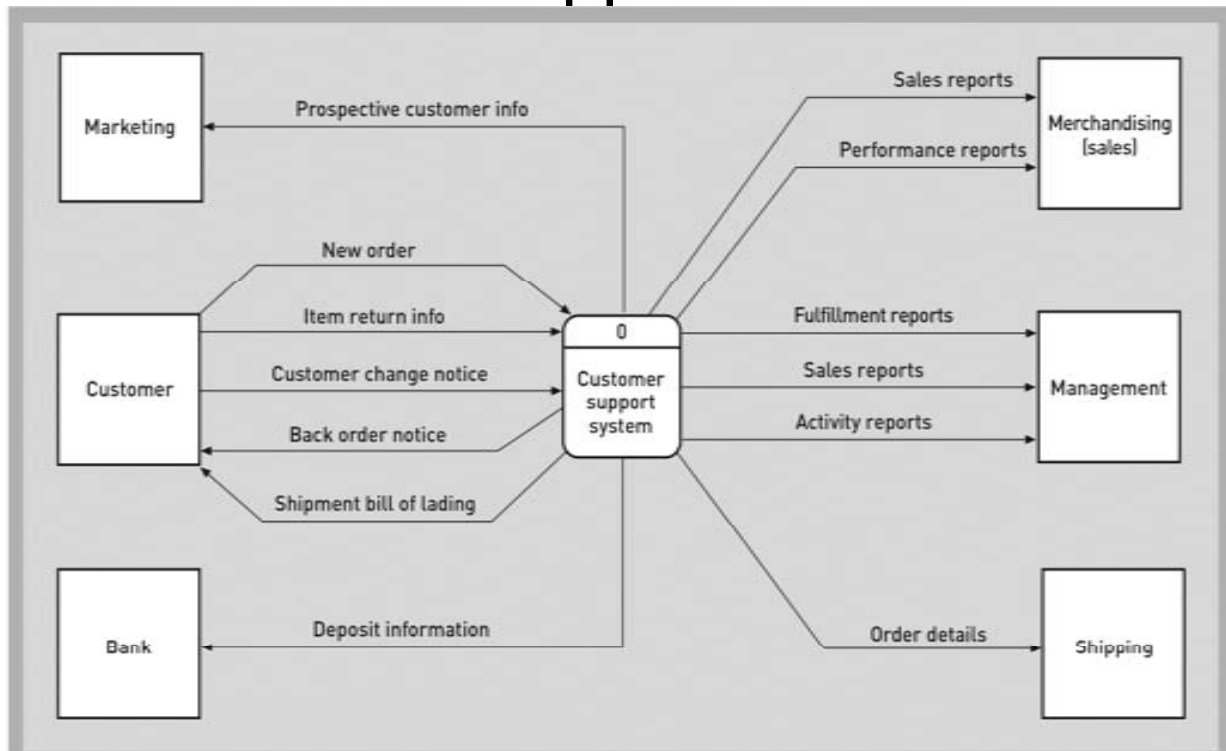


Figure 3-9

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Defining the Problem at RMO

- ◆ Barbara – Completed problem definition statement
- ◆ Steve – Conducted preliminary research on alternative solutions
- ◆ Barbara, Steve, and William McDougal – Proceeded with analysis before making solution decisions
- ◆ Barbara and Steve – Began schedule, budget, feasibility statement for new system

Producing the Project Schedule

- ◆ Develop work breakdown structure (WBS)
- ◆ Build a schedule using Gantt chart
- ◆ Develop resource requirements and the staffing plan

Work Breakdown Structure (Predictive)

Task Name
1 Project Planning
1.1 Define the Problem
1.1.1 Meet with users
1.1.2 Determine scope
1.1.3 Write problem description
1.1.4 Identify business benefits
1.1.5 Identify system capabilities
1.1.6 Develop context diagram
1.2 Produce the project schedule
1.2.1 Develop WBS
1.2.2 Estimate durations
1.2.3 Determine sequences
1.2.4 Develop Gantt Chart
1.3 Confirm project feasibility
1.3.1 Identify intangible cost/benefits
1.3.2 Estimate tangible benefits
1.3.3 Calculate cost/benefit
1.3.4 Organizational feasibility
1.3.5 Technical feasibility
1.3.6 Evaluate resource availability
1.3.7 Risk analysis
1.4 Staff the project
1.4.1 Develop resource plan
1.4.2 Procure project team
1.4.3 Procure user liaisons
1.4.4 Conduct training
1.5 Launch the project
1.5.1 Make executive presentation
1.5.2 Procure facilities
1.5.3 Procure support resources
1.5.4 Conduct kickoff meeting

Figure 3-10

Work Breakdown Structure (Adaptive)

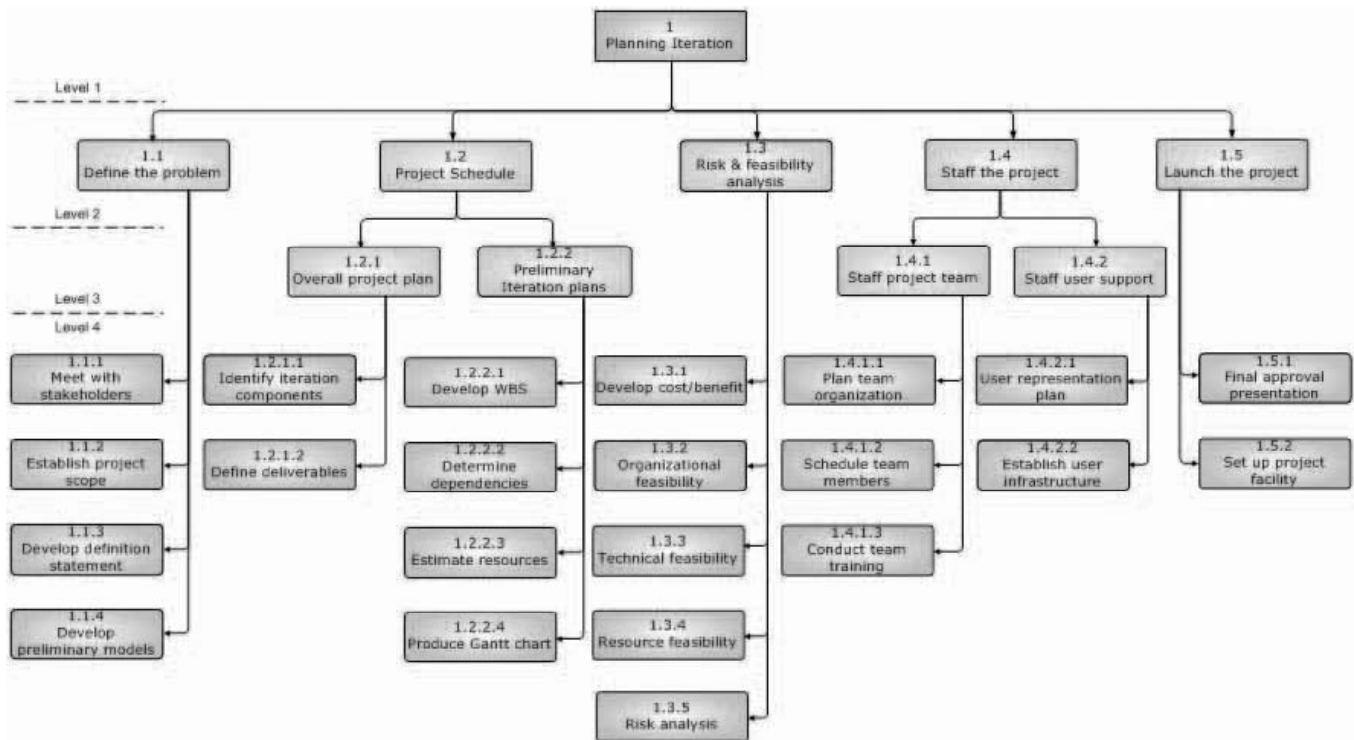


Figure 3-11

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Entering WBS into MS Project

Task ID	Task Name	Duration	Start	Finish
1	Project Planning	1 day?	Tue 1/5/10	Tue 1/5/10
2	Define the Problem	1 day?	Tue 1/5/10	Tue 1/5/10
3	Meet with users	1 day?	Tue 1/5/10	Tue 1/5/10
4	Determine scope	1 day?	Tue 1/5/10	Tue 1/5/10
5	Write problem description	1 day?	Tue 1/5/10	Tue 1/5/10
6	Identify business benefits	1 day?	Tue 1/5/10	Tue 1/5/10
7	Identify system capabilities	1 day?	Tue 1/5/10	Tue 1/5/10
8	Develop context diagram	1 day?	Tue 1/5/10	Tue 1/5/10
9	Produce the project schedule	1 day?	Tue 1/5/10	Tue 1/5/10
10	Develop WBS	1 day?	Tue 1/5/10	Tue 1/5/10
11	Estimate durations	1 day?	Tue 1/5/10	Tue 1/5/10
12	Determine sequences	1 day?	Tue 1/5/10	Tue 1/5/10
13	Develop Gantt Chart	1 day?	Tue 1/5/10	Tue 1/5/10
14	Confirm project feasibility	1 day?	Tue 1/5/10	Tue 1/5/10
15	Identify intangible cost/benefits	1 day?	Tue 1/5/10	Tue 1/5/10
16	Estimate tangible benefits	1 day?	Tue 1/5/10	Tue 1/5/10
17	Calculate cost/benefit	1 day?	Tue 1/5/10	Tue 1/5/10
18	Organizational feasibility	1 day?	Tue 1/5/10	Tue 1/5/10
19	Technical feasibility	1 day?	Tue 1/5/10	Tue 1/5/10
20	Evaluate resource availability	1 day?	Tue 1/5/10	Tue 1/5/10
21	Risk analysis	1 day?	Tue 1/5/10	Tue 1/5/10
22	Staff the project	1 day?	Tue 1/5/10	Tue 1/5/10
23	Develop resource plan	1 day?	Tue 1/5/10	Tue 1/5/10
24	Procure project team	1 day?	Tue 1/5/10	Tue 1/5/10
25	Procure user liaisons	1 day?	Tue 1/5/10	Tue 1/5/10
26	Conduct training	1 day?	Tue 1/5/10	Tue 1/5/10
27	Launch the project	1 day?	Tue 1/5/10	Tue 1/5/10
28	Make executive presentation	1 day?	Tue 1/5/10	Tue 1/5/10
29	Procure facilities	1 day?	Tue 1/5/10	Tue 1/5/10

Figure 3-12

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Using a Split Window for Duration and Predecessor Information

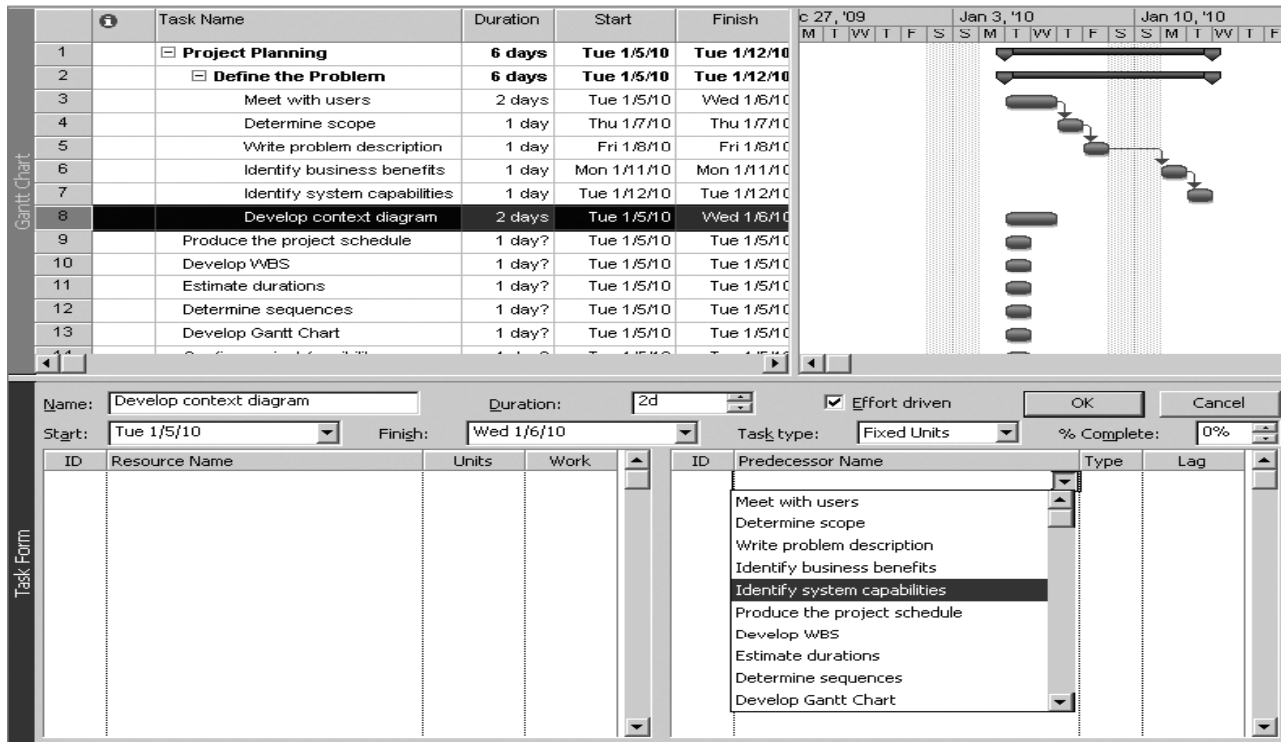


Figure 3-13

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Task Definitions

- ◆ Critical path is the sequence of connected tasks that cannot be delayed without causing the project to be delayed
- ◆ Slack time is that amount of time a task can be delayed without delaying the project
- ◆ Float – another term used to define slack time
- ◆ Milestone is a definite completion point that is marked by a specific deliverable or event

Tracking Gantt Chart for Project Plan

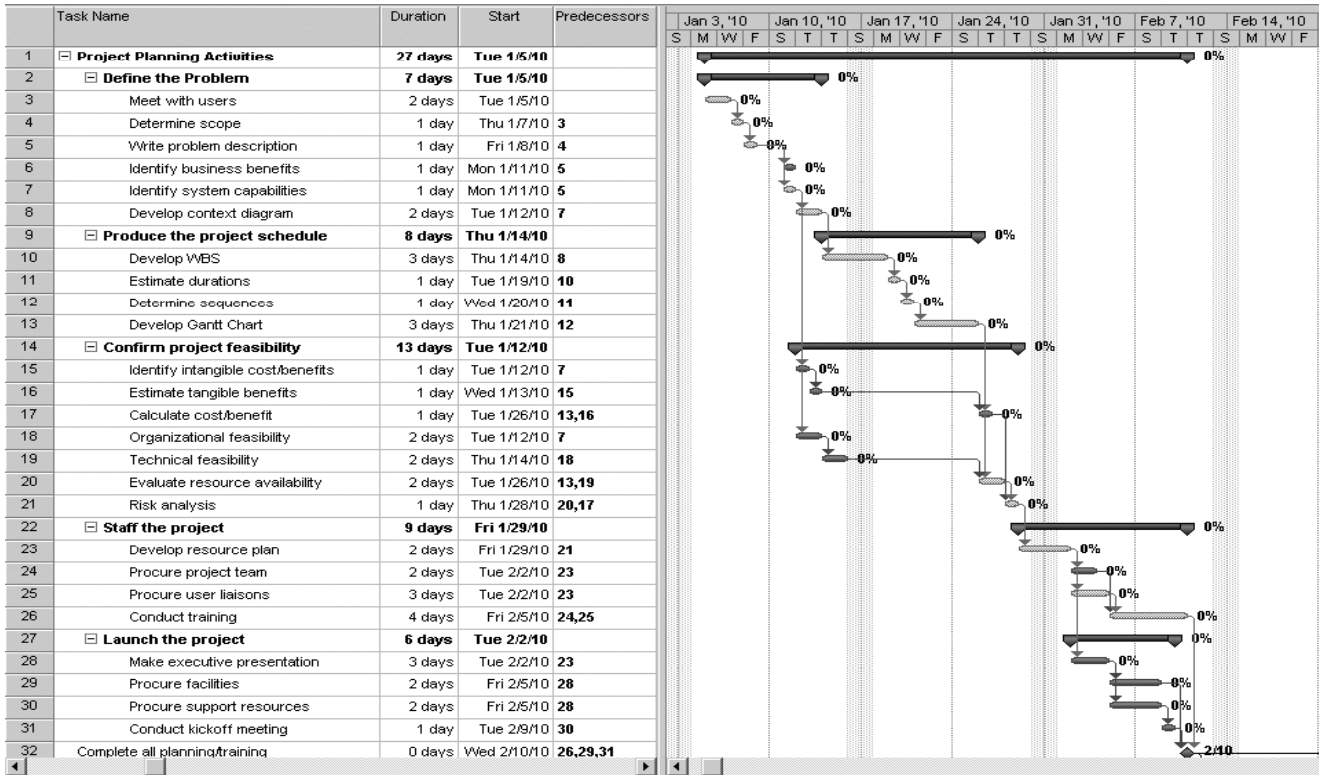


Figure 13-14

Resource Sheet with Two Resources

	Resource Name	Type	Material Label	Initials	Group	Max. Units	Std. Rate	Ovt. Rate	Cost/Use	Accrue At	Base Calendar
1	Project Manager	Work		P		100%	\$75.00/hr	\$100.00/hr	\$0.00	Prorated	Standard
2	Senior Analyst	Work		S		200%	\$50.00/hr	\$75.00/hr	\$0.00	Prorated	Standard

Figure 3-15

Entering Resources for Tasks

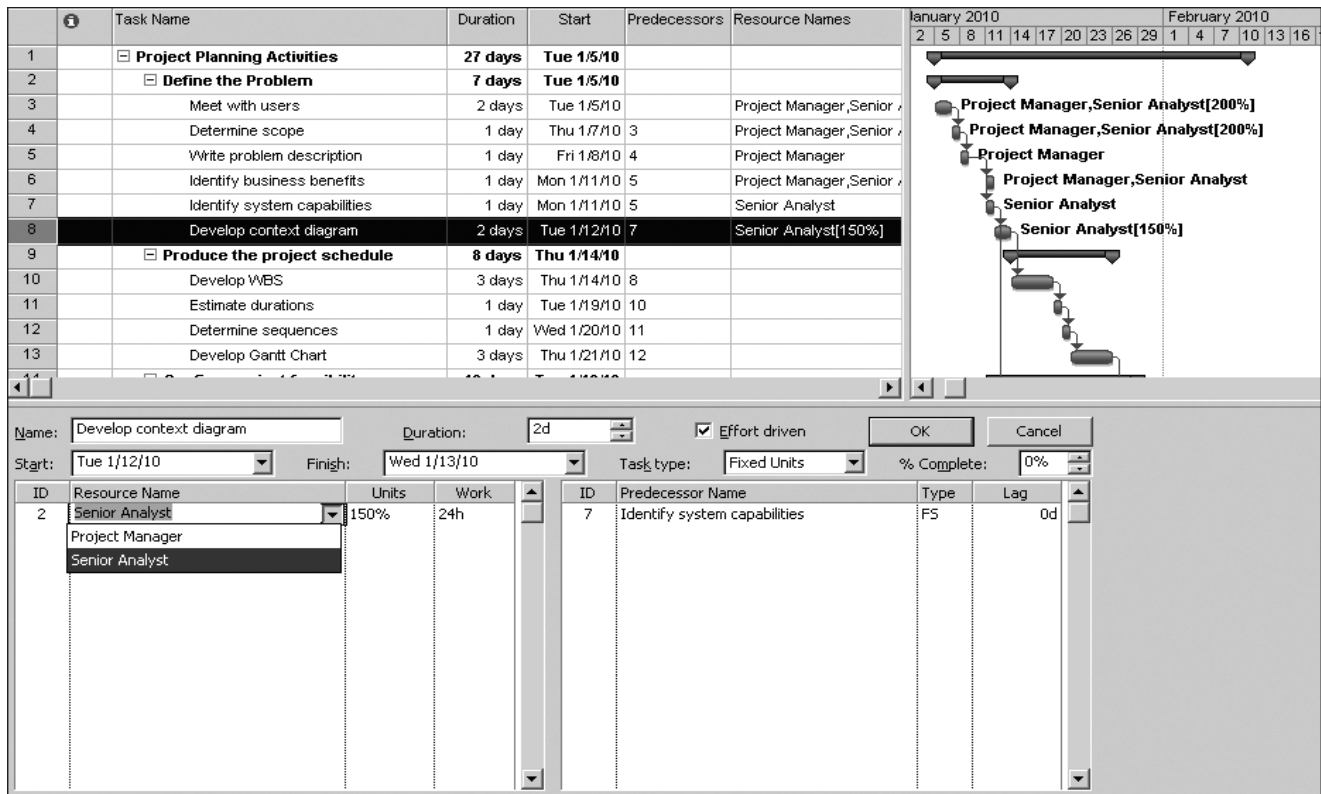


Figure 3-16

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Gantt Chart for Entire Project (with overlapping phases)

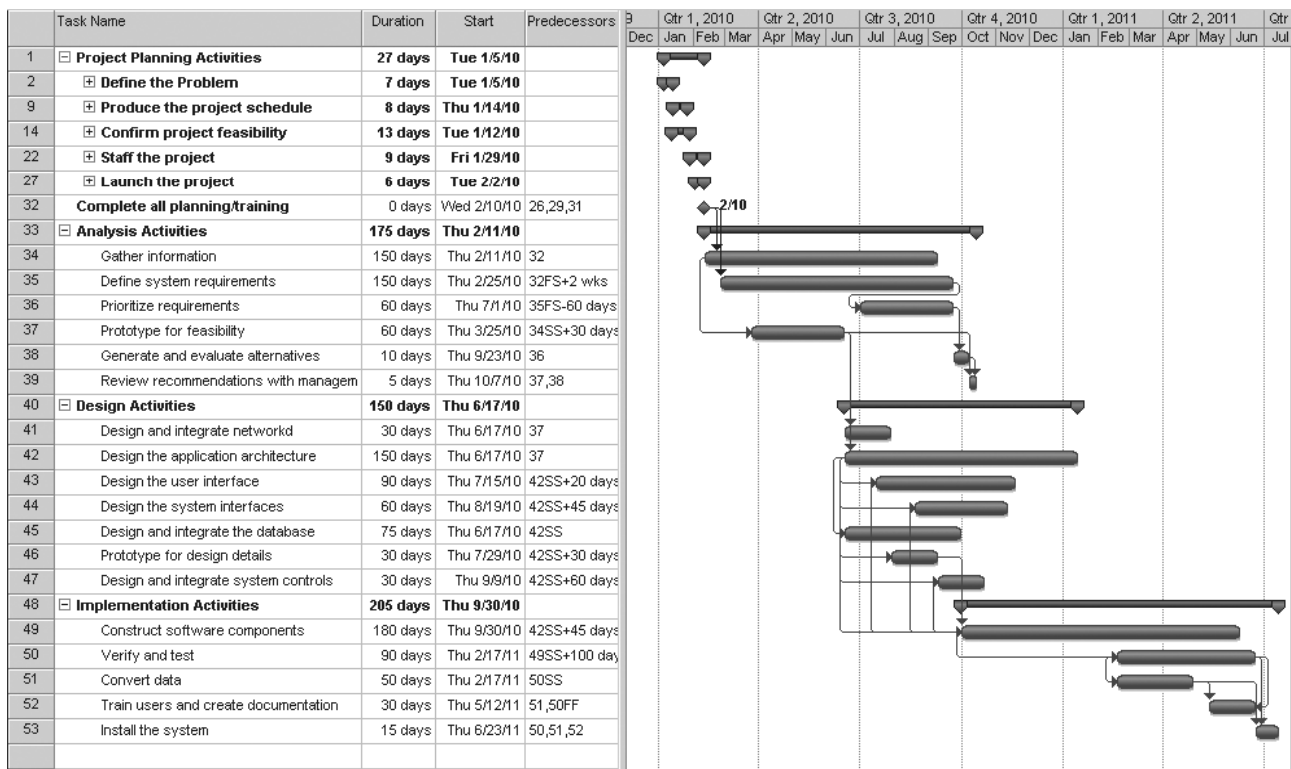


Figure 3-17

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Gantt Chart for Iterative Project

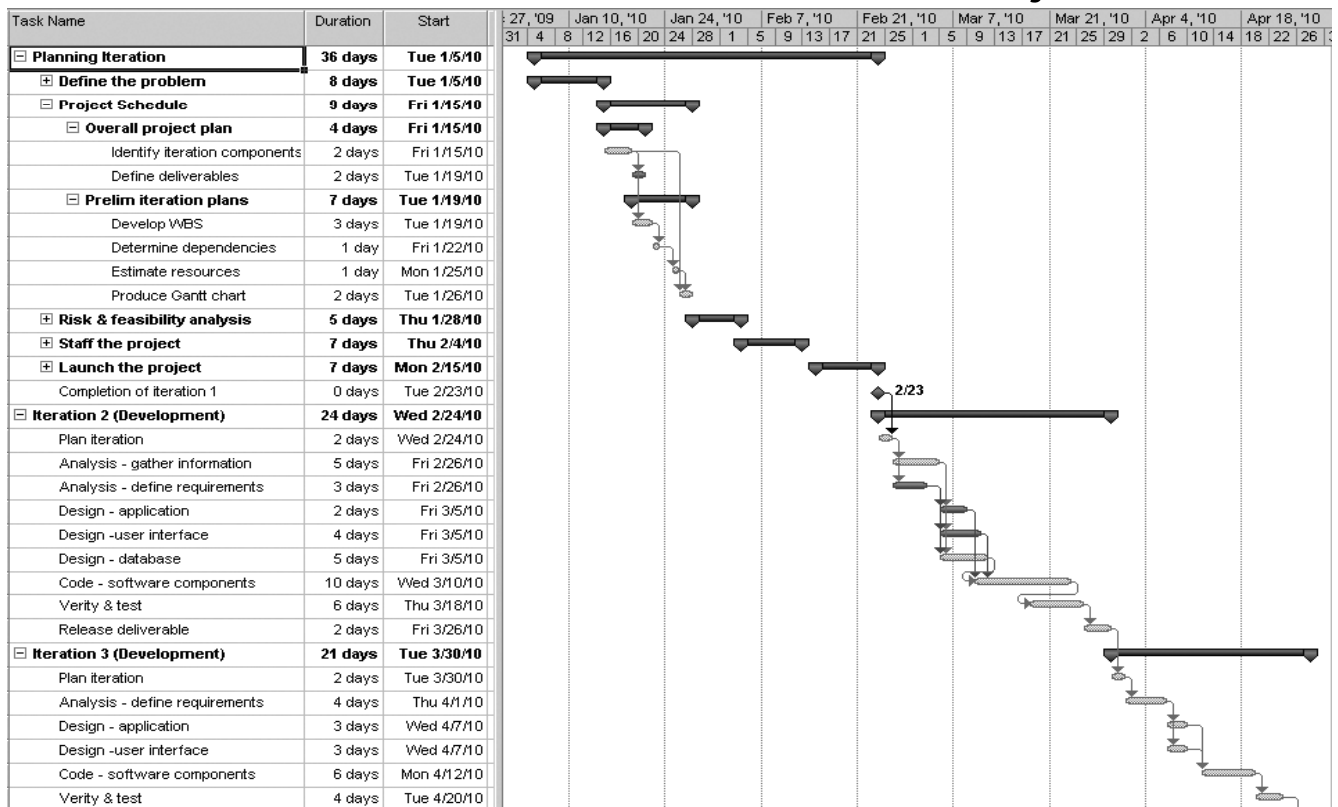


Figure 3-18

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Identifying Risks and Confirming Project Feasibility

- ◆ Risk management
- ◆ Organizational and cultural feasibility
- ◆ Technological feasibility
- ◆ Schedule feasibility
- ◆ Resource feasibility
- ◆ Economic feasibility
 - Cost/benefit analysis
 - Sources of funds (cash flow, long-term capital)

Risk Analysis

Risk description	Potential impact on project (high, medium, low)	Likelihood of occurrence (high, medium, low)	Difficulty of timely anticipation (hard, medium, easy)	Overall threat (high, medium, low)
Critical team member (expert) not available	High	Medium	Medium	High
Changing legal requirements	High	Low	Hard	Low
Organization employees not computer savvy	Medium	Medium	Easy	Medium

Figure 3-19

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Organizational and Cultural Feasibility

- ◆ Each company has own culture
 - New system must fit into culture
- ◆ Evaluate related issues for potential risks
 - Low level of computer competency
 - Computer phobia
 - Perceived loss of control
 - Shift in power
 - Fear of job change or employment loss
 - Reversal of established work procedures

Technological Feasibility

- ◆ Does system stretch state-of-the-art technology?
- ◆ Does in-house expertise presently exist for development?
- ◆ Does an outside vendor need to be involved?
- ◆ Solutions include
 - Training or hiring more experienced employees
 - Hiring consultants
 - Changing scope and project approach

Schedule Feasibility

- ◆ Estimates needed without complete information
- ◆ Management deadlines may not be realistic
- ◆ Project managers
 - Drive realistic assumptions and estimates
 - Recommend completion date flexibility
 - Assign interim milestones to periodically reassess completion dates
 - Involve experienced personnel
 - Manage proper allocation of resources

Resource Feasibility

- ◆ Team member availability
- ◆ Team skill levels
- ◆ Computers, equipment, and supplies
- ◆ Support staff time and availability
- ◆ Physical facilities

Economic Feasibility

- ◆ Cost/benefit analysis
 - Estimate project development costs
 - Estimate operational costs after project
 - Estimate financial benefits based on annual savings and increased revenues
 - Calculate using table of costs and benefits
- ◆ Uses net present value (NPV), payback period, return on investment (ROI) techniques

Supporting Detail for Salaries and Wages for RMO

Supporting detail for salaries and wages for RMO customer support system project	
Team member	Salary/wage for project
Project leader	\$101,340.00
Senior systems analyst	\$90,080.00
Systems analyst	\$84,980.00
Programmer analysts	\$112,240.00
Programmers	\$58,075.00
Systems programmers	\$49,285.00
Total salaries and wages	\$496,000.00

Figure 3-20

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Summary of Development Costs for RMO

Summary of development costs for RMO customer support system project	
Expense category	Amount
Salaries/wages	\$496,000.00
Equipment/installation	\$385,000.00
Training	\$78,000.00
Facilities	\$57,000.00
Utilities	\$152,000.00
Support staff	\$38,000.00
Travel/miscellaneous	\$112,000.00
Licenses	\$18,000.00
Total	\$1,336,000.00

Figure 3-21

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Summary of Annual Operating Costs for RMO

Summary of estimated annual operating costs for RMO customer support system	
Recurring expense	Amount
Connectivity	\$60,000.00
Equipment maintenance	\$40,000.00
Programming	\$65,000.00
Help desk	\$28,000.00
Amortization	\$48,000.00
Total recurring costs	\$241,000.00

Figure 3-22

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Sample Benefits for RMO

Sample benefits for RMO		
Benefit/cost saving	Amount	Comments
Increased efficiency in mail-order department	\$125,000.00	5 people @ \$25,000
Increased efficiency in phone-order department	\$25,000.00	1 person @ \$25,000
Increased efficiency in warehouse/shipping	\$87,000.00	
Increased earnings due to Web presence	\$500,000.00	Increasing at 50%/year
Other savings (inventory, supplies, and so on)	\$152,000.00	
Total annual benefits	\$889,000.00	

Figure 3-23

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RMO Cost Benefit Analysis

	RMO cost/benefit analysis	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1	Value of benefits	\$ -	\$ 889,000	\$ 1,139,000	\$ 1,514,000	\$ 2,077,000	\$ 2,927,000	
2	Discount factor (10%)	1	0.9091	0.8264	0.7513	0.6830	0.6209	
3	Present value of benefits	\$ -	\$ 808,190	\$ 941,270	\$ 1,137,468	\$ 1,418,591	\$ 1,817,374	\$6,122,893
4	Development costs	\$(1,336,000)						\$(1,336,000)
5	Ongoing costs		\$(241,000)	\$(241,000)	\$(241,000)	\$(241,000)	\$(241,000)	
6	Discount factor (10%)	1	0.9091	0.8264	0.7513	0.6830	0.6209	
7	Present value of ongoing costs	\$ -	\$(219,093)	\$(199,162)	\$(181,063)	\$(164,603)	\$(149,637)	\$(913,559)
8	PV of net of benefits and costs	\$(1,336,000)	\$ 589,097	\$ 742,107	\$ 956,405	\$ 1,253,988	\$ 1,667,737	
9	Cumulative NPV	\$(1,336,000)	\$(746,903)	\$(4,769)	\$951,609	\$2,205,597	\$ 3,873,334	
10	Payback period	2 years + 4796 / (4796 + 951,609) = 2 + .005 or 2 years and 2 days						
11	5-year return on investment	$[6,122,893 - (1,336,000 + 913,559)] / (1,336,000 + 913,559) = 172.18\%$						

Figure 3-24

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Intangibles in Economic Feasibility

- ◆ Intangible benefits cannot be measured in dollars
 - Increased levels of service
 - Customer satisfaction
 - Survival
 - Need to develop in-house expertise
- ◆ Intangible costs cannot be measured in dollars
 - Reduced employee morale
 - Lost productivity
 - Lost customers or sales

Staffing and Launching the Project

- ◆ Develop resource plan for the project
- ◆ Identify and request specific technical staff
- ◆ Identify and request specific user staff
- ◆ Organize the project team into workgroups
- ◆ Conduct preliminary training and team building exercises
- ◆ Key staffing question: “Are the resources available, trained, and ready to start?”

Launching Project

- ◆ Scope defined, risks identified, project is feasible, schedule developed, team members identified and ready
- ◆ Oversight committee finalized, meet to give go-ahead, and release funds
- ◆ Formal announcement made to all involved parties within organization
- ◆ Key launch question: “Are we ready to start?”

Recap of Project Planning for RMO

- ◆ Created schedule and plans for CSS
- ◆ Addressed all aspects of project management (project planning and scope)
- ◆ Included project communication and quality
- ◆ Identified desired team members
 - Refined internal working procedures
 - Taught tools and techniques used on project
- ◆ Planned kickoff meeting to officially launch

Summary

- ◆ Project management tasks
 - Start at SDLC project planning phase
 - Continue throughout each SDLC phase
- ◆ Organizing and directing other people
 - Achieve planned result
 - Use predetermined schedule and budget
- ◆ Knowledge areas needed
 - Scope, time, cost, quality, human resources, communications, risk, procurement

Summary (continued)

◆ Project initiation

- Information system needs are identified and prioritized in strategic plans

◆ Project planning phase

- Define problem (investigation and scope)
- Produce project schedule (WBS)
- Confirm project feasibility (evaluate risks)
- Staff project (know people's skills)
- Launch project (executive formal approval)