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Chapter 3: The Analyst as a Project Manager

Systems Analysis and Design in a Changing World, 3rd Edition

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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

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Learning Objectives (continued)

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

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Overview

- Fundamental principles of project management
  - Need both technical and management skills
- How information system projects initiated
  - Part of overall strategic plan
  - Respond to immediate business need
- Describe project planning phase of SDLC
  - Define scope of project
  - Compare estimated costs and benefits
  - Develop project schedule

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Project Management

- People
  - Organizing
  - Directing
- Planned result
  - Scheduling
  - Budgeting
- Management: Getting things done through other people

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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 cancelled, completed late, over budget, and/or limited in functionality
- Thus, project requires careful planning, control, and execution

Reasons for Project Failure

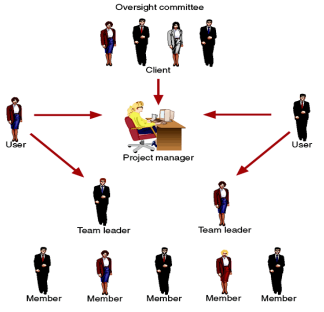
- Incomplete or changing requirements
- Limited user involvement
- Lack of executive support
- Lack of technical support
- Poor project planning
- Unclear objectives
- Lack of required resources

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

Participants in a System Development Project

FIGURE 3-1
Participants in a system development project.



Overlap of SDLC Phases with Ongoing Project Management Tasks

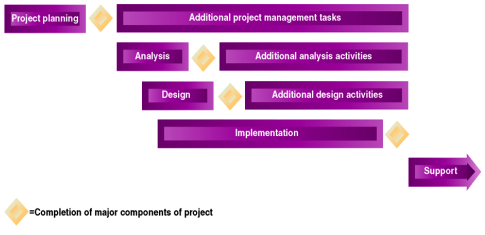


FIGURE 3-2
Overlap of SDLC phases with ongoing project management tasks.

Project Management Tasks Corresponding to Phases of the SDLC

FIGURE 3-3
Project management tasks corresponding to phases of the SDLC.

PROJECT MANAGEMENT TASKS		
Analysis phase	Design phase	Implementation phase
-Monitor and control scope	-Monitor and control scope	-Monitor and control scope
-Monitor and control progress	-Monitor and control progress	-Monitor and control progress
-Update schedule	-Monitor and control budget	-Monitor and control budget
-Conduct status reviews	-Conduct status reviews	-Conduct status reviews
-Organize teams	-Coordinate team member training	-Reorganize team assignments
-Provide leadership for teams	-Track open issues	-Coordinate with users/clients
-Coordinate with users/clients	-Encourage/lead team members	-Track testing and quality
-Evaluate risks	-Monitor technical problems	-Take corrective action
-Plan in detail design phase	-Reorganize team assignments	-Coordinate data conversion
-Make presentations	-Monitor subcontractors/vendors	-Conduct system installation
	-Plan in detail implementation phase	-Conduct postimplementation review

Project Management Body of Knowledge

- 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 cost/benefit initial 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 vendor performance

Project Initiation and the Project Planning Phase

- 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, on-line catalogs)
- Project charter describes key participants

RMO Project Charter

FIGURE 3-4
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 18 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

Activities of the Project Planning Phase

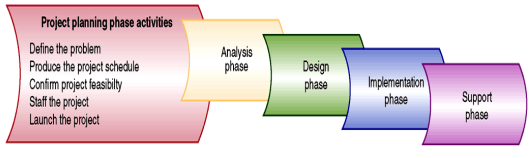


FIGURE 3-5
Activities of the project planning phase.

Activities of the Project Planning Phase and Their Key Questions

FIGURE 3-6
The activities of the project planning phase 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?

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

Context Diagram for Customer Support

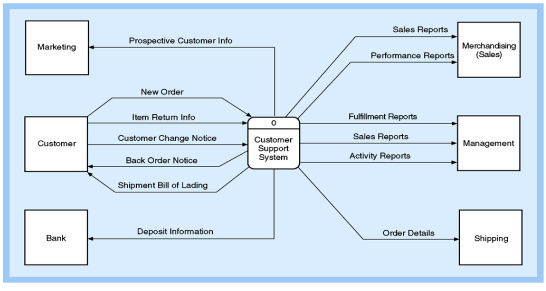


FIGURE 3-8
Context diagram for the customer support system.

Defining the Problem at RMO

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

Producing the Project Schedule

- Developing Work Breakdown Structure (WBS)
  - List of tasks and duration required for project
  - Similar to outline for research paper
  - WBS is foundation for project schedule
- Building a PERT/CPM Chart
  - Assists in assigning tasks
  - Critical path method
  - Gantt chart and tracking GANTT chart

Confirming Project Feasibility

- Economic
  - Cost/benefit analysis
  - Sources of funds (cash flow, long-term capital)
- Organizational and Cultural
- Technological
- Schedule
- Resource
- Feasibility Analysis – identify risks early to implement corrective measures

Economic Feasibility

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

Supporting Detail for Salaries and Wages for RMO

FIGURE 3-14
Supporting detail for salaries and wages.

SUPPORTING DETAIL FOR SALARIES AND WAGES	
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

Summary of Development Costs for RMO

FIGURE 3-15
Summary of development costs for RMO.

SUMMARY OF DEVELOPMENT COSTS FOR RMO	
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

Summary of Annual Operating Costs for RMO

FIGURE 3-16
Summary of annual operating costs for RMO.

SUMMARY OF ANNUAL OPERATING COSTS FOR RMO	
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

Sample Benefits for RMO

FIGURE 3-17
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, etc.)	$152,000.00	
Total annual benefits	$889,000.00	

RMO Cost Benefit Analysis

FIGURE 3-18
Net present value, payback period, and return on investment for RMO.

	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 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%						

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

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 to 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

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
  - Refine 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)