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

Various Titles.Roles of Project Managers

<table>
<thead>
<tr>
<th>Title</th>
<th>Power/authority</th>
<th>Organization structure</th>
<th>Description of duties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project coordinator or project leader</td>
<td>Limited</td>
<td>Projects may be run within the departments, or projects may have a strong “lead developer” who controls the development of the end product.</td>
<td>Develops the plans. Coordinates activities. Keeps people informed of status and progress. Does not have “line” authority on the project deliverables.</td>
</tr>
<tr>
<td>Project manager, project officer, or team leader</td>
<td>Moderate</td>
<td>Projects are run within an IT department, but other business functions are independent.</td>
<td>May have both project management duties and some technical duties. Manages projects that are generally medium sized. May share project responsibility with clients.</td>
</tr>
<tr>
<td>Project manager or program manager</td>
<td>High to almost total</td>
<td>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.</td>
<td>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.</td>
</tr>
</tbody>
</table>

Figure 3-2
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
**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

- 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:**

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

Figure 3-5

Project Planning Activities

Figure 3-6

Project Planning Activities and their key questions

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

Figure 3-7
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

<table>
<thead>
<tr>
<th>Problem Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>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 2005 and is progressing on schedule. The second identified system is a customer support system (CSSS) 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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anticipated Business Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>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:</td>
</tr>
</tbody>
</table>
  - 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. |
  - Reduce turnover by tracking sales of popular items and slow movers. |
  - Increase level of customer satisfaction through extensive customer support and information. |

<table>
<thead>
<tr>
<th>System Capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>To obtain the business benefits listed previously, the customer support subsystem shall include the following capabilities:</td>
</tr>
</tbody>
</table>
  - Be a high-support system with online customer, order, back-order, and return 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 analyses. |
  - Provide a history of customer transactions for customer inquiry. |
  - 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
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)

Figure 3-10
Work Breakdown Structure (Adaptive)

Figure 3-11

Entering WBS into MS Project

Figure 3-12
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

Figure 3-15
## Entering Resources for Tasks

<table>
<thead>
<tr>
<th>Task Name</th>
<th>Duration</th>
<th>Start</th>
<th>Predecessors</th>
<th>Resource Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Project Planning Activity</td>
<td>27 days</td>
<td>Tue 1/5/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - Define the Problem</td>
<td>7 days</td>
<td>Tue 1/5/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 - Meet with users</td>
<td>3 days</td>
<td>Tue 1/5/10</td>
<td></td>
<td>Project Manager, Senior Analyst</td>
</tr>
<tr>
<td>4 - Determine scope</td>
<td>1 day</td>
<td>Thu 1/7/10</td>
<td></td>
<td>Project Manager, Senior Analyst</td>
</tr>
<tr>
<td>5 - Write problem description</td>
<td>1 day</td>
<td>Fri 1/8/10</td>
<td></td>
<td>Project Manager</td>
</tr>
<tr>
<td>6 - Identify business benefits</td>
<td>1 day</td>
<td>Mon 1/11/10</td>
<td></td>
<td>Project Manager, Senior Analyst</td>
</tr>
<tr>
<td>7 - Identify system capabilities</td>
<td>1 day</td>
<td>Mon 1/11/10</td>
<td></td>
<td>Senior Analyst</td>
</tr>
<tr>
<td>8 - Produce the project schedule</td>
<td>8 days</td>
<td>Thu 1/14/10</td>
<td></td>
<td>Service Analyst (50%)</td>
</tr>
<tr>
<td>9 - Develop VES</td>
<td>3 days</td>
<td>Thu 1/14/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 - Evaluate alternatives</td>
<td>1 day</td>
<td>Thu 1/14/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 - Define sequences</td>
<td>1 day</td>
<td>Wed 1/20/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 - Develop Gantt Chart</td>
<td>3 days</td>
<td>Thu 1/21/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 - Develop Gantt Chart (with l h )</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 - Confirm project feasibility</td>
<td>1 day</td>
<td>Mon 1/18/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 - Start the project</td>
<td>2 days</td>
<td>Fri 1/29/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 - Launch the project</td>
<td>6 days</td>
<td>Mon 2/2/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17 - Complete all planning/ training</td>
<td>0 days</td>
<td>Wed 2/10/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 - Analysis Activities</td>
<td>37 days</td>
<td>Thu 2/18/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 - Gather information</td>
<td>10 days</td>
<td>Thu 2/18/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 - Define requirements</td>
<td>60 days</td>
<td>Thu 3/25/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21 - Prioritize requirements</td>
<td>35 days</td>
<td>Thu 3/25/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22 - Prototype for feasibility</td>
<td>15 days</td>
<td>Thu 3/25/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23 - Generate and evaluate alternatives</td>
<td>10 days</td>
<td>Thu 3/25/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24 - Review recommendations with manager</td>
<td>5 days</td>
<td>Thu 3/31/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 - Design Activities</td>
<td>19 days</td>
<td>Tue 4/5/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26 - Design and integrate network</td>
<td>10 days</td>
<td>Tue 4/5/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27 - Design the application architecture</td>
<td>10 days</td>
<td>Tue 4/5/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28 - Design the user interface</td>
<td>10 days</td>
<td>Tue 4/5/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29 - Design the system interface</td>
<td>10 days</td>
<td>Tue 4/5/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 - Design and integrate the database</td>
<td>10 days</td>
<td>Tue 4/5/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31 - Design and integrate system details</td>
<td>10 days</td>
<td>Tue 4/5/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32 - Implementation Activities</td>
<td>12 days</td>
<td>Wed 4/5/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33 - Construct software components</td>
<td>10 days</td>
<td>Wed 4/5/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34 - Verify and test</td>
<td>5 days</td>
<td>Thu 4/5/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35 - Convert data</td>
<td>5 days</td>
<td>Thu 4/5/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36 - Test users and create documentation</td>
<td>5 days</td>
<td>Thu 4/5/10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37 - Install the system</td>
<td>10 days</td>
<td>Thu 4/5/10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Figure 3-16

Gantt Chart for Entire Project (with overlapping phases)

### Figure 3-17

Gantt Chart for Entire Project (with overlapping phases)
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)
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

**Table: Supporting detail for salaries and wages for RMO customer support system project**

<table>
<thead>
<tr>
<th>Team member</th>
<th>Salary/wage for project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project leader</td>
<td>$101,340.00</td>
</tr>
<tr>
<td>Senior systems analyst</td>
<td>$90,080.00</td>
</tr>
<tr>
<td>Systems analyst</td>
<td>$84,980.00</td>
</tr>
<tr>
<td>Programmer analysts</td>
<td>$112,240.00</td>
</tr>
<tr>
<td>Programmers</td>
<td>$58,075.00</td>
</tr>
<tr>
<td>Systems programmers</td>
<td>$49,285.00</td>
</tr>
<tr>
<td>Total salaries and wages</td>
<td>$496,000.00</td>
</tr>
</tbody>
</table>

Figure 3-20

Summary of Development Costs for RMO

**Table: Summary of development costs for RMO customer support system project**

<table>
<thead>
<tr>
<th>Expense category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries/wages</td>
<td>$496,000.00</td>
</tr>
<tr>
<td>Equipment/installation</td>
<td>$385,000.00</td>
</tr>
<tr>
<td>Training</td>
<td>$79,000.00</td>
</tr>
<tr>
<td>Facilities</td>
<td>$57,000.00</td>
</tr>
<tr>
<td>Utilities</td>
<td>$152,000.00</td>
</tr>
<tr>
<td>Support staff</td>
<td>$38,000.00</td>
</tr>
<tr>
<td>Travel/miscellaneous</td>
<td>$112,000.00</td>
</tr>
<tr>
<td>Licenses</td>
<td>$18,000.00</td>
</tr>
<tr>
<td>Total</td>
<td>$1,336,000.00</td>
</tr>
</tbody>
</table>

Figure 3-21
### Summary of Annual Operating Costs for RMO

<table>
<thead>
<tr>
<th>Recurring expense</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connectivity</td>
<td>$60,000.00</td>
</tr>
<tr>
<td>Equipment maintenance</td>
<td>$40,000.00</td>
</tr>
<tr>
<td>Programming</td>
<td>$65,000.00</td>
</tr>
<tr>
<td>Help desk</td>
<td>$28,000.00</td>
</tr>
<tr>
<td>Amortization</td>
<td>$48,000.00</td>
</tr>
<tr>
<td><strong>Total recurring costs</strong></td>
<td><strong>$241,000.00</strong></td>
</tr>
</tbody>
</table>

Figure 3-22


### Sample Benefits for RMO

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

Figure 3-23

Figure 3-24

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)