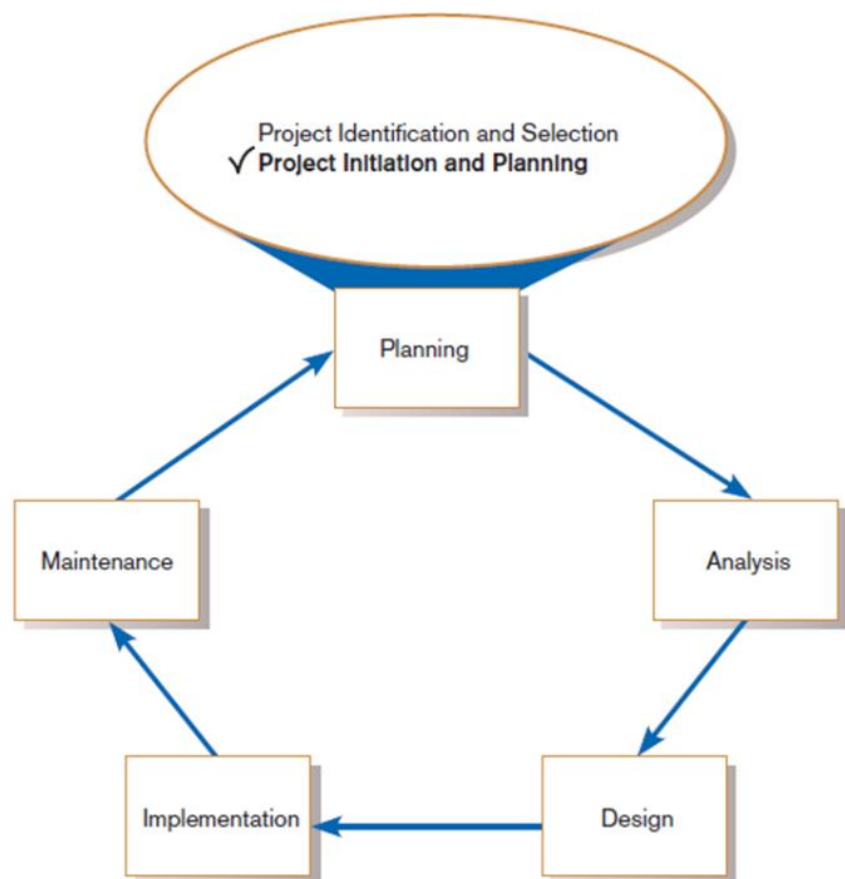# CH 5. Initiating and Planning Systems Development Projects

➢ 描述 the steps involved in the project initiation and planning process.

➢ 說明 the need for and the contents of a Project Scope Statement and Baseline Project Plan.

➢ 列出與描述 various methods for assessing project feasibility.

➢ 描述 the differences between tangible and intangible benefits and costs, and between one-time vs. recurring benefits and costs.

➢ 執行 cost-benefit analysis and 描述 what is meant by the time value of money, present value, discount rate, net present value, return on investment, and break-even analysis.

➢ 描述 the general rules for evaluating technical risks associated with a systems development project.

➢ 描述 the activities and participant roles within a structured walkthrough.(逐步指令)

Project Identification and Selection
✓ Project Initiation and Planning

Planning

Analysis

Design

Implementation

Maintenance

1. **Initiating and Planning Systems Development Projects**
   - <u>What must be considered</u> when making the decision on the division between project initiation and planning (PIP) and analysis?
     ⇨ How much effort should be expended on the PIP process?
       ✓ Size, scope, complexity, and experience
       ✓ 10%-20% of development effort

     ⇨ Who is responsible for performing the PIP process?
       ✓ An experienced system analyst or a team of analysts working with the proposed customers of the system and other technical development staff

     ⇨ Why is PIP such a challenging activity?
       ✓ PIP study is to transform vague system requests from different parties into a tangible project description

2. **Initiating IS Development Projects**
   - Project initiation focuses on activities designed to assist in organizing a team to conduct project planning.
     ✓ Establishing the Project Initiation Team (who ?)
     ✓ Establishing a Relationship with the Customer
     ✓ Establishing the Project Initiation Plan
     ✓ Establishing Management Procedures
     ✓ Establishing the Project Management Environment and Project Workbook
     ✓ Developing the Project Charter (see Ch 3)

Pine Valley Furniture   Prepared: November 2, 2014
Project Charter

Project Name: Customer Tracking System
Project Manager: Jim Woo (jwoo@pvf.com)

Customer: Marketing
Project Sponsor: Jackie Judson (jjudson@pvf.com)
Project Start/End (projected):   10/2/14–2/1/15

Project Overview:

This project will implement a customer tracking system for the marketing department. The purpose of this system is to automate the . . . to save employee time, reduce errors, have more timely information . . . .

Objectives:
- Minimize data entry errors
- Provide more timely information
- . . .

Key Assumptions:
- System will be built in house
- Interface will be a Web browser
- System will access customer database
- . . .

Stakeholders and Responsibilities:

Stakeholder	Role	Responsibility	Signatures
Jackie Judson	VP Marketing	Project Vision, Resources	*Jackie Judson*
Alex Datta	CIO	Monitoring, Resources	*Alex Datta*
Jim Woo	Project Manager	Planning, Monitoring, Executing Project	*Jim Woo*
James Jordan	Director of Sales	System Functionality	*James Jordan*
Mary Shide	VP Human Resources	Staff Assignments	*Mary Shide*

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- The <u>key activity of project planning</u> is the process of defining clear, discrete activities and the work needed to complete each activity within a single project.

- The <u>objective of the project planning process </u>is the development of a Baseline Project Plan (BPP), the Project Scope Statement (PSS), and Business Case

3. Elements of Project Planning
- Describe project scope, alternatives, feasibility.
- Divide project into tasks.
- Estimate resource requirements and create resource plan.
- Develop preliminary schedule.
- Develop communication plan.
- Determine standards and procedures.
- Identify and assess risk.
- Create preliminary budget.
- Develop a statement of work.
- Set baseline project plan.

4. Deliverables and Outcomes
- **Baseline Project Plan (BPP)**
  - ✓ A major outcome and deliverable from the PIP phase
  - ✓ Contains the best estimate of a project's scope, benefits, costs, risks, and resource requirements

- **Project Scope Statement (PSS)**
  - ✓ A document prepared for the customer
  - ✓ Describes what the project will deliver
  - ✓ Outlines at a high level all work required to complete the project

- **Business Case**
  - ✓ Justification for an information system
  - ✓ Presented in terms of the tangible and intangible economic benefits and costs

✓ The technical and organizational feasibility of the proposed system

5. Building the Baseline Project Plan

- A **Baseline Project Plan (BPP)** is a document intended primarily to guide the development team.

- Sections:
  ✓ Introduction
  ✓ System description
  ✓ Feasibility assessment
  ✓ Management issues

- System description section outlines possible alternative solutions.
  ✓ E.g., Web-based online system, mainframe with central DB, LAN with decentralized DB, batch data input with online retrieval, purchasing of a prewritten package, ……

- Feasibility assessment section outlines issues related to project costs and benefits, technical difficulties, and other such concerns.
  ✓ A high-level project schedule should also be specified
  ✓ Greatest amount of project planning effort

- Management issues section outlines a number of managerial concerns related to the project.

BASELINE PROJECT PLAN REPORT

1.0 Introduction
  A. Project Overview—Provides an executive summary that specifies the project's scope, feasibility, justification, resource requirements, and schedules. Additionally, a brief statement of the problem, the environment in which the system is to be implemented, and constraints that affect the project are provided.
  B. Recommendation—Provides a summary of important findings from the planning process and recommendations for subsequent activities.

2.0 System Description
  A. Alternatives—Provides a brief presentation of alternative system configurations.
  B. System Description—Provides a description of the selected configuration and a narrative of input information, tasks performed, and resultant information.

3.0 Feasibility Assessment
  A. Economic Analysis—Provides an economic justification for the system using cost-benefit analysis.
  B. Technical Analysis—Provides a discussion of relevant technical risk factors and an overall risk rating of the project.
  C. Operational Analysis—Provides an analysis of how the proposed system solves business problems or takes advantage of business opportunities in addition to an assessment of how current day-to-day activities will be changed by the system.
  D. Legal and Contractual Analysis—Provides a description of any legal or contractual risks related to the project (e.g., copyright or nondisclosure issues, data capture or transferring, and so on).
  E. Political Analysis—Provides a description of how key stakeholders within the organization view the proposed system.
  F. Schedules, Time Line, and Resource Analysis—Provides a description of potential time frame and completion date scenarios using various resource allocation schemes.

4.0 Management Issues
  A. Team Configuration and Management—Provides a description of the team member roles and reporting relationships.
  B. Communication Plan—Provides a description of the communication procedures to be followed by management, team members, and the customer.
  C. Project Standards and Procedures—Provides a description of how deliverables will be evaluated and accepted by the customer.
  D. Other Project-Specific Topics—Provides a description of any other relevant issues related to the project uncovered during planning.

- Task Responsibility Matrix

Project: WebStore		Prepared by: Juan Gonzales			Legend: P = Primary		
Manager: Juan Gonzales		Page: 1 of 1			S = Support		
		Responsibility Matrix					
Task ID	Task	Jordan	James	Jackie	Jeremy	Kim	Juan
A	Collect Requirements	P	S				S
B	Develop Data Model			P		S	S
C	Develop Program Interface			P		S	S
D	Build Database			S		P	S
E	Design Test Scenarios	S	S	S	P	S	S
F	Run Test Scenarios	S	S	S	S	S	P
G	Create User Documentation	P	S				S
H	Install System	S	P			S	S
I	Develop Customer Support	S	P			S	S

- The Project Communication Matrix

Stakeholder	Document	Format	Team Contact	Date Due
Team Members	Project Status Report	Project Intranet	Juan and Kim	First Monday of Month
Management Supervisor	Project Status Report	Hard Copy	Juan and Kim	First Monday of Month
User Group	Project Status Report	Hard Copy	James and Kim	First Monday of Month
Internal IT Staff	Project Status Report	E-Mail	Jackie and James	First Monday of Month
IT Manager	Project Status Report	Hard Copy	Juan and Jeremy	First Monday of Month
Contract Programmers	Software Specifications	E-Mail/Project Intranet	Jordan and Kim	October 4, 2014
Training Subcontractor	Implementation and Training Plan	Hard Copy	Jordan and James	January 10, 2015

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6. Reviewing the Baseline Project Plan

- **Structured Walkthroughs(逐步確認)**: a peer-group review of any

  product created during the system development process

  ✓ Roles in a walkthrough meeting: coordinator, presenter, user, secretary, standard-bearer, maintenance oracle

  ✓ Can be applied to BPP, system specifications, logical and physical designs, program code, test procedures, manuals and documentation

Pine Valley Furniture Walkthrough Review Form

Session Coordinator:

Project/Segment:

Coordinator's Checklist:

1. Confirmation with producer(s) that material is ready and stable: _____
2. Issue invitations, assign responsibilities, distribute materials: [ ] Y [ ] N
3. Set date, time, and location for meeting:

   Date: ___ /___ /___   Time: _____ A.M. / P.M. (circle one)

   Location: _____

Responsibilities	Participants	Can Attend	Received Materials
Coordinator	_____	[ ] Y [ ] N	[ ] Y [ ] N
Presenter	_____	[ ] Y [ ] N	[ ] Y [ ] N
User	_____	[ ] Y [ ] N	[ ] Y [ ] N
Secretary	_____	[ ] Y [ ] N	[ ] Y [ ] N
Standards	_____	[ ] Y [ ] N	[ ] Y [ ] N
Maintenance	_____	[ ] Y [ ] N	[ ] Y [ ] N

Agenda:
____ 1. All participants agree to follow PVF's Rules of a Walkthrough
____ 2. New material: walkthrough of all material
____ 3. Old material: item-by-item checkoff of previous action list
____ 4. Creation of new action list (contribution by each participant)
____ 5. Group decision (see below)
____ 6. Deliver copy of this form to the project control manager

Group Decision:
_____ Accept product as-is
_____ Revise (no further walkthrough)
_____ Review and schedule another walkthrough

Signatures		

7. Factors in Determining Scope

- Organizational units affected by new system
- Current systems that will interact with or change because of new system
- People who are affected by new system
- Range of potential system capabilities
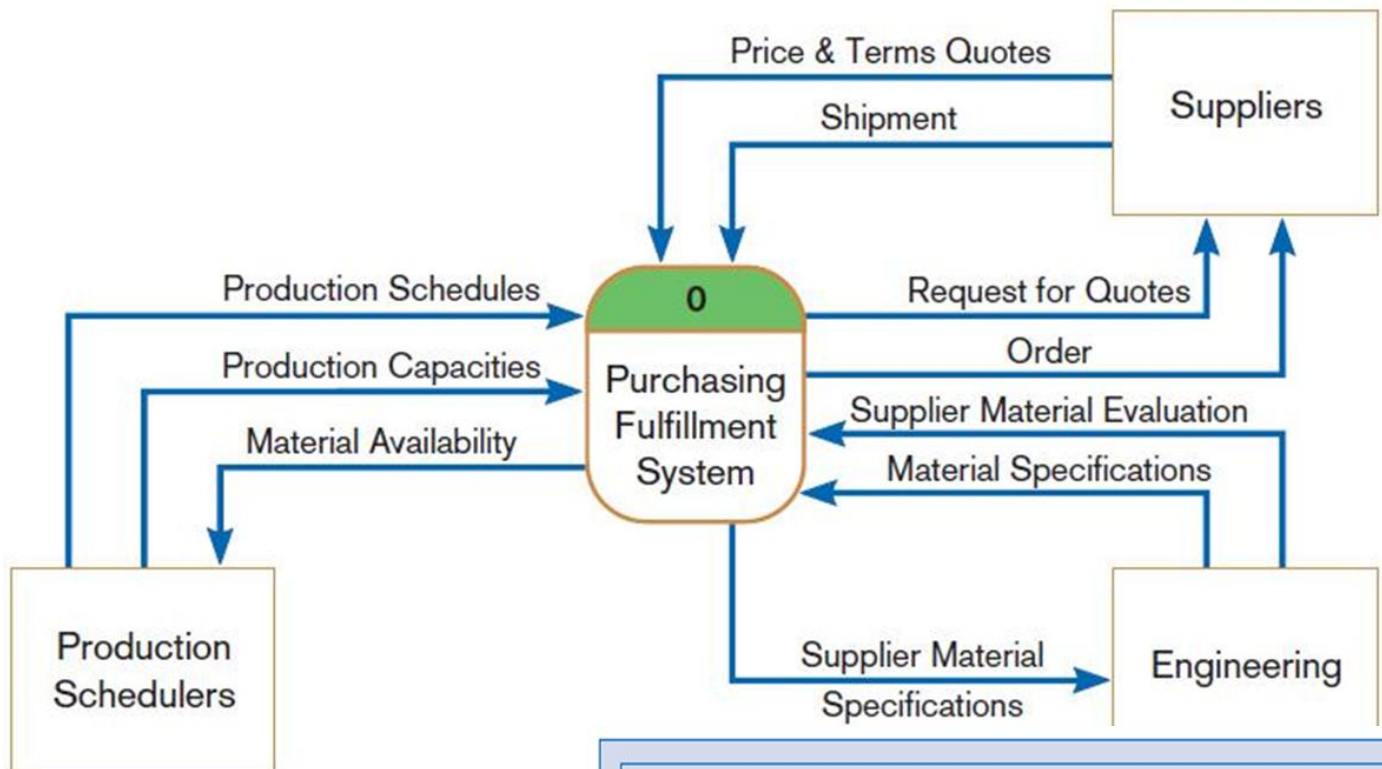
8. Assessing Project Feasibility

- ➢ Economic
- ➢ Technical
- ➢ Operational
- ➢ Scheduling
- ➢ Legal and contractual
- ➢ Political

Pine Valley Furniture
System Service Request

REQUESTED BY _____ Jackie Judson _____   DATE: August 20, 2014 _____

DEPARTMENT _____ Marketing _____

LOCATION _____ Headquarters, 570c _____

CONTACT _____ Tel: 4-3290   FAX: 4-3270   E-Mail: jjudson _____

TYPE OF REQUEST   URGENCY
[X] New System   [   ] Immediate: Operations are impaired or opportunity lost
[   ] System Enhancement   [   ] Problems exist, but can be worked around
[   ] System Error Correction   [X] Business losses can be tolerated until new system installed

PROBLEM STATEMENT

Sales growth at PVF has caused a greater volume of work for the marketing department. This volume of work has greatly increased the volume and complexity of the data we need to deal with and understand. We are currently using manual methods and a complex PC-based electronic spreadsheet to track and forecast customer buying patterns. This method of analysis has many problems: (1) we are slow to catch buying trends as there is often a week or more delay before data can be taken from the point-of-sales system and manually enter it into our spreadsheet; (2) the process of manual data entry is prone to errors (which makes the results of our subsequent analysis suspect); and (3) the volume of data and the complexity of analyses conducted in the system seem to be overwhelming our current system—sometimes the program starts recalculating and never returns, while for others it returns information that we know cannot be correct.

9. Assessing Economic Feasibility

- **Economic feasibility:** a process of identifying the <u>financial benefits</u> and <u>costs</u> associated with a development project

  - ✓ Often referred to as a cost-benefit analysis
  - ✓ Project is reviewed after each SDLC phase in order to decide whether to continue, redirect, or kill a project

10. Determining Project Benefits

- **Tangible benefits** refer to <u>items that can be measured in dollars and with certainty.</u>
  E.g.,
  - ✓ reduced personnel expenses
  - ✓ lower transaction costs, or
  - ✓ higher profit margins.

- Most tangible benefits will fit within the following categories:
  - ✓ Cost reduction and avoidance
  - ✓ Error reduction
  - ✓ Increased flexibility
  - ✓ Increased speed of activity
  - ✓ Improvement of management planning and control
  - ✓ Opening new markets and increasing sales opportunities

TANGIBLE BENEFITS WORKSHEET Customer Tracking System Project	
	Year 1 through 5
A. Cost reduction or avoidance	$ 4,500
B. Error reduction	2,500
C. Increased flexibility	7,500
D. Increased speed of activity	10,500
E. Improvement in management planning or control	25,000
F. Other _____	0
TOTAL tangible benefits	**$50,000**

TABLE 5-4 Possible Information Systems Costs

Type of Cost	Examples	Type of Cost	Examples
Procurement	Hardware, software, facilities infrastructure Management and staff Consulting and services	Project	Infrastructure replacement/improvements Project personnel Training Development activities Services and procurement Organizational disruptions Management and staff
Start-Up	Initial operating costs Management and staff Personnel recruiting	Operating	Infrastructure replacement/improvements System maintenance Management and staff User training and support

(*Source:* Based on King and Schrems, 1978; Sonje, 2008.)

- **Intangible benefits** are benefits derived from <u>the creation of an information system that cannot be easily measured in dollars or with certainty.</u>
    - ✓ May have direct organizational benefits, such as the improvement of employee morale

    - ✓ May have broader societal implications, such as the reduction of waste creation or resource consumption

11. **Determining Project Costs**
    - **Tangible cost:** a cost associated <u>with an information system that can be measured in dollars and with certainty</u>
    - IS development tangible costs include:
        - ✓ Hardware costs, Labor costs, or Operational costs, including employee training and building renovations.

TABLE 5-3 Intangible Benefits from the Development of an Information System

- Competitive necessity
- More timely information
- Improved organizational planning
- Increased organizational flexibility
- Promotion of organizational learning and understanding
- Availability of new, better, or more information
- Ability to investigate more alternatives
- Faster decision making

- More confidence in decision quality
- Improved processing efficiency
- Improved asset utilization
- Improved resource control
- Increased accuracy in clerical operations
- Improved work process that can improve employee morale or customer satisfaction
- Positive impacts on society
- Improved social responsibility
- Better usage of resources ("greener")

(*Source:* Based on Parker and Benson, 1988; Brynjolfsson and Yang, 1997; Keen, 2003; Cresswell, 2004.)

- **One-time cost:** a cost associated with project start-up and development or system start-up

  e.g.
  - ✓ Systems development,
  - ✓ New hardware and software purchases,
  - ✓ User training,
  - ✓ Site preparation, and
  - ✓ Data or system conversion.

ONE-TIME COSTS WORKSHEET Customer Tracking System Project	Year 0
A. Development costs	$20,000
B. New hardware	15,000
C. New (purchased) software, if any	
1. Packaged applications software	5,000
2. Other _____	0
D. User training	2,500
E. Site preparation	0
F. Other _____	0
TOTAL one-time costs	$42,500

- **Recurring cost:** a cost resulting from the ongoing evolution and use of a system

  e.g.
  - ✓ Application software maintenance
  - ✓ Incremental data storage expenses
  - ✓ Incremental communications
  - ✓ New software and hardware leases, and
  - ✓ Supplies and other expenses (i.e., paper, forms, data center personnel).

```
                    RECURRING COSTS WORKSHEET
                    Customer Tracking System Project

                                            Year 1 through 5

    A. Application software maintenance              $25,000
    B.  Incremental data storage required: 20 GB × $50   1000
        (estimated cost/MB = $50)
    C. Incremental communications (lines, messages, . . .)   2000
    D. New software or hardware leases                   0
    E.  Supplies                                        500
    F.  Other _____              0
    TOTAL recurring costs                           $28,500
```

- Both one-time and recurring costs can consist of items that are fixed or variable in nature.

> ➤ **Fixed costs** are billed or incurred at a regular interval and usually at a fixed rate.
> ✓ E.g., facility lease payment

> ➤ **Variable costs** are items that vary in relation to usage.
> ✓ E.g., long-distance phone charges

TABLE 5-5   Guidelines for Better Cost Estimating

1. Have clear guidelines for creating estimates.
2. Use experienced developers and/or project managers for making estimates.
3. Develop a culture where all project participants are responsible for defining accurate estimates.
4. Use historical data to help in establishing better estimates of costs, risks, schedules, and resources.
5. Update estimates as the project progresses.
6. Monitor progress and record discrepancies to improve future estimates.

(*Source:* Based on Lederer and Prasad, 1992; Hubbard, 2007; Sonje, 2008.)

12. **The Time Value of Money**
    - **Time value of money (TVM):** the concept that <u>money available today is worth more than the same amount tomorrow</u>

- E.g.,
  Suppose you want to buy a used car from an acquaintance and she asks that you make 3 payments of $1500 for 3 years, beginning next year, for a total of $4500
  If she would agree to a single lump-sum payment at the time of sale, what amount do you think she would agree to? Should the single payment be $4500? Should it be more or less?

  ⇨ Most of us would gladly accept $4500 today rather than 3 payments of $1500, why?

  ✓ Cost of capital: the rate at which money can be borrowed or invested, and is called the **discount rate(折現率)** for TVM calculation

  ➢ **Discount rate**: the rate of return used to compute the present value of future cash flows (the cost of capital)

  ✓ **Present value**: the current value of a future cash flow

$$PV_n = Y \times \frac{1}{(1+i)^n}$$

>>

$$PV_1 = 1500 \times \frac{1}{(1+.10)^1} = 1500 \times .9091 = 1363.65$$

$$PV_2 = 1500 \times \frac{1}{(1+.10)^2} = 1500 \times .8264 = 1239.60$$

$$PV_3 = 1500 \times \frac{1}{(1+.10)^3} = 1500 \times .7513 = 1126.95$$

✓ **Net Present Value**

➢ NPV = sum of PVs across years.

➢ The NPV of the three $1500 payments

NPV = PV1 + PV2 + PV3 = 1363.65+1239.60+1126.95
= 3730.20

In other words, the seller could accept a lump-sum payment of $3730.20 as equivalent to the three payments of $1500, given a discount rate of 10%
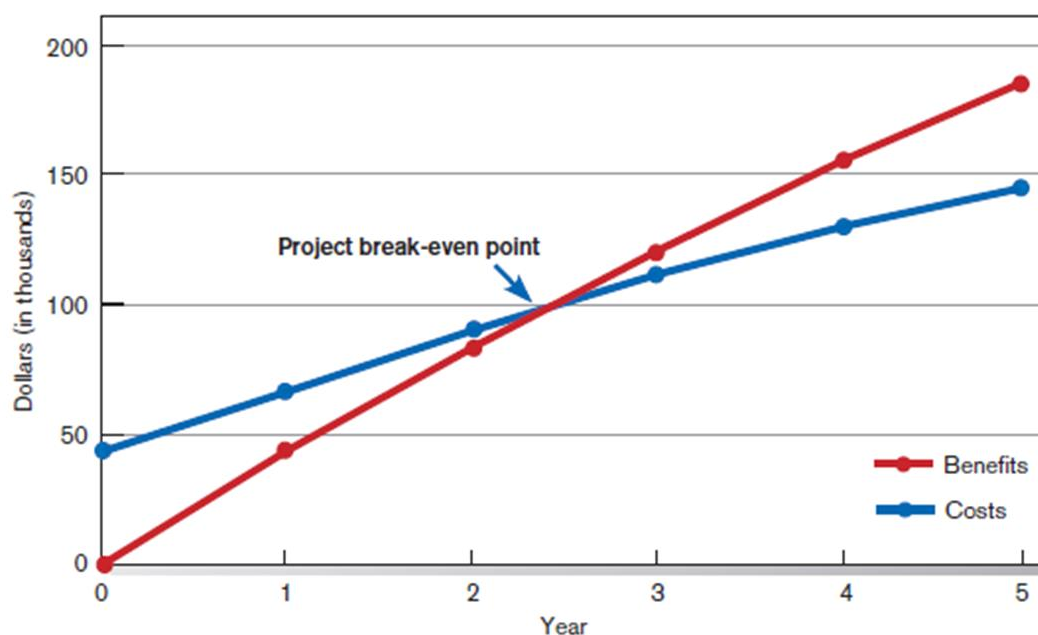
- **Return on Investment (ROI)**
  ⇨ Ratio of cash receipts to cash outlays

- **Break-Even Analysis (BEA)**

  ⇨ Amount of time required for cumulative cash flow to equal initial and ongoing investment
  ⇨ A type of cost-benefit analysis to identify at what point (if ever) benefits equal costs

$$\text{Break-Even Ratio} = \frac{\text{Yearly NPV Cash Flow} - \text{Overall NPV Cash Flow}}{\text{Yearly NPV Cash Flow}}$$

13. Assessing Technical Feasibility

- **Technical feasibility**: a process of <u>assessing the development organization's ability to construct a proposed system</u>

- The potential consequences of **not** assessing and managing risks can include:
  - ✓ Failure to attain expected benefits from the project
  - ✓ Inaccurate project cost estimates.
  - ✓ Inaccurate project duration estimates.
  - ✓ Failure to achieve adequate system performance levels.
  - ✓ Failure to adequately integrate the new system with existing hardware, software, or organizational procedures.

- **Four general rules** emerged as technical risk assessments:

  (1) Larger projects are riskier than smaller projects.
  (2) A system in which the requirements are easily obtained and highly structured will be less risky than one in which requirements are messy, ill structured, ill defined, or subject to the judgment of an individual.
  (3) The development of a system employing commonly used or standard technology will be less risky than one employing novel or nonstandard technology.
  (4) A project is less risky when the user group is familiar with the systems development process and application area than if unfamiliar.

		Low Structure	High Structure
High Familiarity with Technology or Application Area	Large Project	(1) Low risk (very susceptible to mismanagement)	(2) Low risk
	Small Project	(3) Very low risk (very susceptible to mismanagement)	(4) Very low risk
Low Familiarity with Technology or Application Area	Large Project	(5) Very high risk	(6) Medium risk
	Small Project	(7) High risk	(8) Medium-low risk

14. Assessing Other Feasibility Concerns

- ➢ Operational
  - ⇨ Does the proposed system solve problems or take advantage of opportunities?
- ➢ Scheduling
  - ⇨ Can the project time frame and completion dates meet organizational deadlines?
- ➢ Legal and Contractual
  - ⇨ What are the legal and contractual ramifications of the proposed system development project?
- ➢ Political
  - ⇨ How do key stakeholders view the proposed system?

15. Project Risk Factors

- Project size
  - ⇨ Team size, organizational departments, project duration, programming effort

- Project structure
  - ⇨ New vs. renovated system, resulting organizational changes, management commitment, user perceptions

- Development group's experience with the AP and tech area
  - ⇨ Familiarity with platform, software, development method, application area, development of similar systems

- User group's experience with projects and AP area
  - ⇨ Familiarity with IS development process, application area, use of similar systems

16. Example

TABLE 5-8 Guidelines for Making an Effective Presentation

Presentation Planning

Who is the audience?	To design the most effective presentation, you need to consider the audience (e.g., What do they know about your topic? What is their education level?).
What is the message?	Your presentation should be designed with a particular objective in mind.
What is the presentation environment?	Knowledge of the room size, shape, and lighting is valuable information for designing an optimal presentation.

Presentation Design

Organize the sequence	Organize your presentation so that like elements or topics are found in one place, instead of scattered throughout the material in random fashion.
Keep it simple	Make sure that you don't pack too much information onto a slide so that it is difficult to read. Also, work to have as few slides as possible; in other words, only include information that you absolutely need.
Be consistent	Make sure that you are consistent in the types of fonts, font sizes, colors, design approach, and backgrounds.
Use variety	Use both textual and graphical slides to convey information in the most meaningful format.
Don't rely on the spell checker alone	Make sure you carefully review your presentation for typographical and wording errors.
Use bells and whistles sparingly	Make sure that you use familiar graphical icons to guide and enhance slides; don't lose sight of your message as you add bells and whistles. Also, take great care when making transitions between slides and elements so that "special effects" don't take away from your message.
Supplemental materials	Take care when using supplemental materials so that they don't distract the audience. For example, don't provide handouts until you want the audience to actually read this material.
Have a clear beginning and end	At the beginning, introduce yourself and your teammates (if any), thank your audience for being there, and provide a clear outline of what will be covered during the presentation. At the conclusion, have a concluding slide so that the audience clearly sees that the presentation is over.

Presentation Delivery

Practice	Make sure that you thoroughly test your completed work on yourself and others to be sure it covers your points and presents them in an effective manner within the timeframe required.
Arrive early and cue up your presentation	It is good practice, when feasible, to have your presentation ready to go prior to the arrival of the audience.
Learn to use the "special" software keys	Using special keys to navigate the presentation will allow you to focus on your message and not on the software.
Have a backup plan	Have a backup plan in case technology fails or your presentation is lost when traveling.
Delivery	To make an effective presentation, you must become an effective public speaker through practice.
Personal appearance	Your appearance and demeanor can go a long way toward enhancing how the audience receives your presentation.

TABLE 5-9 Web-Based System Costs

Cost Category	Examples
Platform Costs	• Web-hosting service • Web server • Server software • Software plug-ins • Firewall server • Router • Internet connection
Content and Service	• Creative design and development • Ongoing design fees • Web project manager • Technical site manager • Content staff • Graphics staff • Support staff • Site enhancement funds • Fees to license outside content • Programming, consulting, and research • Training and travel
Marketing	• Direct mail • Launch and ongoing public relations • Print advertisement • Paid links to other websites • Promotions • Marketing staff • Advertising sales staff

TABLE 5-10 PVF WebStore: Project Benefits and Costs

Tangible Benefits	Intangible Benefits
• Lower per-transaction overhead cost • Repeat business	• First to market • Foundation for complete Web-based IS • Simplicity for customers

Tangible Costs (one-time)	Intangible Costs
• Internet service setup fee • Hardware • Development cost • Data entry	• No face-to-face interaction • Not all customers use Internet

Tangible Costs (recurring)	
• Internet service hosting fee • Software • Support • Maintenance • Decreased sales via traditional channels	

TABLE 5-11   PVF WebStore: Feasibility Concerns

Feasibility Concern	Description
Operational	Online store is open 24/7/365
	Returns/customer support
Technical	New skill set for development, maintenance, and operation
Schedule	Must be open for business by Q3
Legal	Credit card fraud
Political	Traditional distribution channel loses business