

Systems Analysis and Design Tenth Edition

Chapter Two: Analyzing the Business Case

A Guide to the Instructor's Manual:

We designed the Instructor's Manual to supplement and enhance your teaching experience with classroom activities and a cohesive chapter summary.

This document is organized chronologically, using the same main heading in **red** that you see in the textbook. Under each heading you will find (in order): Lecture Notes that summarize the section, Figures and Boxes found in the section, if any, Teaching Tips, and Classroom Activities. Pay special attention to teaching tips, and activities geared towards quizzing your students, and enhancing their critical thinking skills.

In addition to the Instructor's Manual, the Instructor's Resources also contain PowerPoint Presentations, Solutions to Exercises, Figures, Test Banks, and other materials to aid you as an instructor.

For Your Students:

The Tenth Edition includes Video Learning Sessions, an end-of-chapter exercise called Critical Thinking Challenge, and online CourseCasts that can keep your students posted on technology developments and trends.

- **Video Learning Sessions.** Eighteen multimedia Video Learning Sessions describe key systems analysis skills and concepts and provide students with a self-paced, interactive learning tool that reinforces the text. The sessions provide step-by-step explanations that are easy to follow and understand. Each session includes practice tasks, sample answers, and challenge tasks to keep students interested and engaged as they learn. A Your Turn feature in every Video Learning Session challenges students to apply their skills and check their work against sample answers. This hands-on practice can help students better handle actual assignments and tasks. Instructors may use the Video Learning Sessions as classroom presentations, distance-education support, student review tools, and exam preparation.
- **Critical Thinking Challenge.** This feature stresses critical thinking skills, including perception, organization, analysis, problem-solving, and decision-making. Students complete Practice Tasks, view sample answers, and then apply their skills to the Challenge Tasks.
- **CourseCasts.** Our online feature, CourseCasts, is a library of weekly podcasts designed to keep your students up-to-date with the latest in technology news. Direct your students to <http://coursecasts.course.com>, where they can download the most recent CourseCast to their mp3 player. Ken Baldauf, host of CourseCasts, is a faculty member of the Florida State University Computer Science Department where he is responsible for teaching technology classes to thousands of FSU students each year. Ken is an expert in emerging technology, and he highlights the most pertinent news and information. CourseCasts enable your students to spend their time enjoying technology, rather than trying to figure it out. We suggest that you open or close your lecture with a discussion based on the latest CourseCast.

Table of Contents

Objectives

48: Introduction

50: A Framework for IT Systems Development

52: Case In Point 2.1: Lo Carb Meals

54: Case In Point 2.2: Attaway Airlines, Part One

54: What Is a Business Case?

55: Information Systems Projects

56: Case In Point 2.3: Trent College

59: Evaluation of Systems Requests

61: Overview of Feasibility

64: Evaluating Feasibility

64: Setting Priorities

65: Case In Point 2.4: Attaway Airlines, Part Two

66: Preliminary Investigation Overview

75: A Question of Ethics

Key Terms

End of Chapter Material

Objectives

Students will have mastered the material in Chapter Two when they can:

- Explain the concept of a business case and how a business case affects an IT project
- Describe the strategic planning process and why it is important to the IT team
- Explain the purpose of a mission statement
- Conduct a SWOT analysis and describe the four factors involved
- Explain how the SDLC serves as a framework for systems development
- List reasons for systems projects and factors that affect such projects
- Describe systems requests and the role of the systems review committee
- Define operational, technical, economic, and schedule feasibility
- Describe the steps and the end product of a preliminary investigation

48: Introduction

LECTURE NOTES

- Briefly describe the systems planning phase of the SDLC
- Define business case, and explain that to analyze a business case, a company's strategic plans must be considered
- Tell how systems development typically starts
- Present the Preview Case: Mountain View College Bookstore on page 49; this introduction sets up the material developed in the chapter
- Review the background, participants, project status, and discussion topics for the case
- Discuss Figure 2-1

FIGURE: 2-1

TEACHING TIPS

Explain that during the planning phase:

- 1) Project requests are reviewed and approved
- 2) Project requests are prioritized
- 3) Resources, such as money, people, and equipment, are allocated
- 4) Project development teams are formed

CLASSROOM ACTIVITIES

1. Group Activity: Consider assigning students to each role in the Chapter Introduction Case: Mountain View College Bookstore on page 49 and having them enact the case dialogue.

50: A Framework for IT Systems Development**LECTURE NOTES**

- Define strategic planning
- Discuss a mission statement and how critical success factors are high-priority objectives that must be achieved to fulfill the company's mission
- Explain how objectives lead to day-to-day business operations, which produce results that affect stakeholders
- Emphasize that strategic planning focuses on a company's long-range direction using Figure 2-2
- Tell why a systems analyst must know about strategic planning
- Discuss the strategic planning process using Figure 2-3
- Define SWOT analysis, and point out how questions regarding each component of SWOT analysis (strengths, weaknesses, opportunities, and threats) lead to IT-related issues
- Explain how SWOT analysis contributes to the strategic planning process
- Use Figure 2-4 to discuss SWOT analysis
- Consider the question of whether the IT department should perform an initial evaluation
- Discuss why strategic planning is essential for IT projects using Figure 2-5
- Use Figure 2-6, a tutorial screen from the Visible Analyst CASE tool, to illustrate the steps in the strategic planning process for IT projects
- Contrast the role of an IT department twenty years ago with the role of an IT department today
- Describe the future role of IT departments

FIGURES: 2-2, 2-3, 2-4, 2-5, 2-6

TEACHING TIPS

Explain that during strategic planning, company executives determine where the company is now, where they want the company to be, and what they have to do to get there. Strategic planning is critical — once a strategic plan is set, it drives all of a company's processes.

Describe how strategic planning for IT projects is important for IT project success. IT projects must have a well-defined scope and support overall business strategy and operations needs.

CLASSROOM ACTIVITIES

1. Projects to Assign: As an extra-credit assignment, have students locate and print the mission statements of companies in which they are interested.

2. Projects to Assign: Assign Projects 1 and 3 on page 77.
3. Quick Quiz:
 - 1) Assign Question 1 or 2 on page 77.
4. Critical Thinking: Assign Discussion Topics 3 and 4 on page 77.
5. Critical Thinking: Review the mission statement presented in Figure 2-2. What are the possible critical success factors and critical business issues for the company?

52: Case In Point 2.1: Lo Carb Meals

Lo Carb is a successful new company that has published several cookbooks and marketed its own line of low-carbohydrate meals. Joe Turner, Lo Carb's president, has asked your opinion. He wants to know whether a mission statement really is necessary. After you review the chapter material, write a brief memo with your views. Be sure to include good (and not-so-good) examples of actual mission statements that you find on the Web.

***Comments:** As the chapter points out, a mission statement describes a company for its stakeholders and briefly states the company's overall purpose, products, services, and values. Stakeholders include anyone affected by the company's operations, such as customers, employees, suppliers, stockholders, and members of the community. Most firms feel strongly that a mission statement is an important part of their identity. You should encourage students to do research on the Web to find examples of mission statements, to evaluate them, and to rate them.*

You also might ask students for examples of mission statements at firms where they are employed. You could point out that one risk of having a mission statement is that the firm has to live up to it, or else the company's credibility will be at risk, both internally and externally. If the mission statement really is based on the firm's purpose, vision, and values, as explained on page 50, this will not be a problem.

54: Case In Point 2.2: Attaway Airlines. Part One

You are the IT director at Attaway Airlines, a small regional air carrier. You chair the company's systems review committee, and you currently are dealing with strong disagreements about two key projects. Dan Esposito, the marketing manager, says it is vital to have a new computerized reservation system that can provide better customer service and reduce operational costs. Molly Kinnon, vice president of finance, is equally adamant that a new accounting system is needed immediately because it will be very expensive to adjust the current system to new federal reporting requirements. Molly outranks Dan, and she is your boss. The next meeting, which promises to be a real showdown, is set for 9:00 a.m. tomorrow. How will you prepare for the meeting? What questions and issues should be discussed?

***Comments:** The situation at Attaway Airlines is a common example of how systems projects compete for available resources. Although a systems review committee, which should be neutral, has been formed, students will notice that Molly is the boss. This should not influence the decision, but it could. The best course of action would be to apply a consistent set of standards when determining feasibility, especially if competing projects must be ranked. The real question is "What is the best course of action for the business?" Perhaps both projects could be addressed if the scope was redefined. It could be suggested that the committee review the short-term and long-term consequences of doing, or not doing,*

each project. Perhaps a weighted index of factors could be devised. In the end, this is a business decision, and it needs to be made carefully, rationally, and professionally. The systems analyst's job is to help make that happen.

54: What Is a Business Case?

LECTURE NOTES

- Redefine the term business case
- Use Figure 2-7 in a discussion of the questions that a business case should answer, such as those listed in the text on pages 54–55

FIGURE: 2-7

BOXES

1. Toolkit Time: Refer students to the Financial Analysis Tools in Part C of the Systems Analyst's Toolkit that follows Chapter 12.

CLASSROOM ACTIVITIES

1. Critical Thinking: Assign Project 2 on page 77.

55: Information Systems Projects

LECTURE NOTES

- Mention that reasons for the project, factors that affect the project, systems request forms, and project management tools are part of every information systems project
- Define systems request
- Use Figure 2-8 to identify the six main reasons for systems requests
- Note ways in which systems requests can aim for improved service
- Explain how new products and services often require new types or levels of IT support
- Explain how performance limitations can affect a company's effectiveness
- List examples of how insufficient or incomplete information can impact a company
- Explain why a system must have effective controls
- Define encryption and biometric devices
- Discuss biometric devices using Figure 2-9
- Explain how reduced costs can initiate a systems development project
- Use Figure 2-10 to identify the main internal and external factors that affect IT systems projects
- List internal factors that affect IT systems projects
- Explain how a strategic plan impacts IT projects, and that a long-term strategic plan often is a catalyst for information systems development
- Tell how directives from top managers can be a source of information systems projects
- Explain how user requests can start IT projects, and that user requests often ask for enhancements to a current system
- Point out how an IT department can be a source of project requests, noting that proposals can be technical or business oriented
- Tell how errors or problems in existing systems can trigger project requests
- Note the importance of identifying the underlying causes of problems
- Define legacy systems, and let students know that they will be learning more about migrating to a new system from an older one, and converting existing data in later chapters

- List external factors that affect IT systems projects
- Give examples of how changing technology affects business and society in general
- Define electronic product code (EPC)
- Point out how electronic data interchange (EDI) has changed relationships with suppliers
- Describe just-in-time (JIT) inventory systems, and discuss Figure 2-11
- Tell why information systems that interact with customers are given top priority
- Describe customer relationship management (CRM) systems
- Discuss the replacement of bar code technology with electronic product code (EPC) technology and RFID tags in Figure 2-12
- Discuss electronic proof of delivery (EPOD) as a technology-related cost control
- Explain how competition drives information systems decisions
- Note the influence of economic activity on corporate information management
- Tell how government affects the design of corporate information systems; projects mandated by a governing body receive high priority

FIGURES: 2-8, 2-9, 2-10, 2-11, 2-12

TEACHING TIPS

Point out that a systems request can ask for an improvement or a correction in a current system, or an entirely new system. Three general forces drive systems requests:

- 1) Reaction to an opportunity
- 2) Resolution of a problem
- 3) Response to a directive

Explain that because passwords can be forgotten, and both passwords and encryption codes can be guessed, many organizations are turning to biometric devices to ensure security. Biometric devices authenticate a person's identity by verifying a personal characteristic, called a biometric identifier. Biometric identifiers include fingerprints, hand geometry, facial features, voice, signatures, and retinal (eye) patterns. Explain how controls can improve the accuracy of data. Mention that controls must be effective without being excessive.

As you discuss competition, offer this anecdote: Don Wetzel, developer of the ubiquitous ATM machine, says that competition among banks drove early ATM sales. "Be the first!" he would tell bank managers. "Get those machines in, you have something the other banks don't have, and all you need is x-number and you have a real winner. And that's why the majority of the early users bought. Then it was follow the leader. 'If he's got it, then we had better get it.' So the next bank ordered it."

CLASSROOM ACTIVITIES

1. Class Discussion: Ask students how internal factors are different from external factors. Which would have a greater impact on systems projects? Why?
2. Group Activity: Ask students to suggest examples of technological changes that probably triggered information systems requests.
3. Critical Thinking: Assign Discussion Topic 2 on page 77.

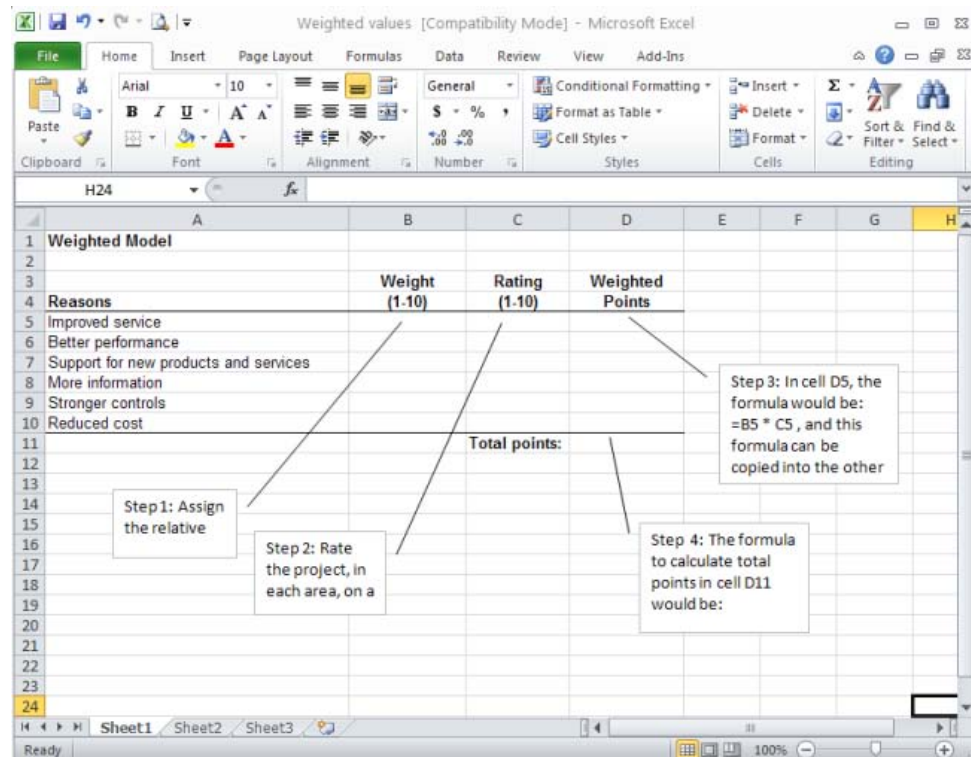
4. Critical Thinking: What kind of business benefits result from improved service? From increased support for new services and products? From better performance? From information? From stronger controls? From reduced costs?
5. Critical Thinking: Considering the reasons for systems projects, is it possible to have too much of a good thing? Can service ever be too good? Can performance be too strong? Can there ever be too much information? Can controls be too strong? Can costs be reduced too much? Why or why not? If so, where should a line be drawn?

56: Case In Point 2.3: Trent College

Trent College is a private school in a small Maryland town. The college has outgrown its computerized registration system and is considering a new system. Althea Riddick, the college president, has asked you to list the reasons for systems projects, which are described on pages 55–56, and assign a relative weight to each reason, using a scale of 1–10, low to high. She said to use your best judgment, and support your conclusions in a brief memo to her. She also wants you to create a Microsoft Excel spreadsheet that will calculate the weighted values automatically for each reason.

***Comments:** The main reasons for systems requests are improved service to customers, better performance, support for new products and services, more information, stronger controls, and reduced cost. The objective is to assign a relative weight, on a scale of 1–10, for each item. Answers will vary, but students should be encouraged to think about the context — a small college — and to come up with reasons for their responses. For example, in a college setting, improved service might include an online course registration system, off-campus access to computing lab facilities, or a student — faculty network to facilitate communications and homework submissions.*

Whatever the ratings, students should be able to construct a simple spreadsheet that can serve as a weighted model. A sample spreadsheet might look like this:



59: Evaluation of Systems Requests

LECTURE NOTES

- Define system review committee
- Use Figure 2-13 to discuss how many organizations use a special form for systems requests such as this online form
- Note the characteristics of an effective systems request form
- Describe how most IT departments receive more systems requests than they can handle
- Explain how many organizations assign responsibility for evaluating systems requests
- Discuss the functions of a systems review committee or a computer resources committee
- Tell how a systems request form is dealt with when it is received
- Recall that most large companies have a systems review committee evaluate systems requests
- Consider the advantages and disadvantages of using a systems review committee
- Mention circumstances when a single person reviews systems requests
- Emphasize that the goal of a systems review is to evaluate requests and set priorities, explaining that a systems request form often makes these tasks easier by ensuring consistency among systems requests

FIGURE: 2-13

TEACHING TIPS

Explain that in small organizations, a systems request can be made in a telephone conversation or as part of an e-mail message. Most large organizations, however, use a systems request form.

It would be interesting to discuss the potential conflicts of interest that might arise during the review of systems requests by a systems review committee. For example, what conflicts might arise if a committee member favors projects requested by their own departments?

CLASSROOM ACTIVITIES

1. Class Discussion: With the advantages and disadvantages of using a systems review committee in mind, ask students when it is better for systems requests to be reviewed by a committee, and when requests are better reviewed by an individual. Does the answer depend on the size of the company? The anticipated impact of the system? The anticipated expense of the system? When evaluating a systems request, what criteria should be applied and how should priorities be determined?
2. Group Activity: Consider assigning students to different roles on a systems review committee as discussed on page 60. Have them discuss how their roles might introduce bias or create internal conflict when evaluating and prioritizing systems requests.
3. Quick Quiz:
 - 1) Assign Question 3 on page 77.

61: Overview of Feasibility

LECTURE NOTES

- Define feasibility study
- Use Figure 2-14 to identify four yardsticks used to measure feasibility
- Mention factors that determine the complexity of a feasibility study and the amount of effort that goes into a feasibility study
- Point out the fact-finding activities that can be used to obtain more information about a systems request
- Define operational feasibility, and list questions considered when assessing operational feasibility
- Define technical feasibility, and list points considered when assessing technical feasibility
- Define economic feasibility and total cost of ownership (TCO), and list areas in which an analyst must make cost estimates when determining TCO
- Differentiate between tangible costs and intangible costs, and between tangible benefits and intangible benefits
- List examples of tangible and intangible benefits
- Define schedule feasibility, and list issues that relate to schedule feasibility.
- Mention that project management tools and techniques will be covered in a future chapter

FIGURE: 2-14

BOXES

1. Video Learning Sessions: Introduce the Video Learning Session on Payback Analysis and encourage students to visit the Web site mentioned for more information about financial tools.
2. Toolkit Time: Refer students to the Financial Analysis tools that can be used to assess economic feasibility in Part C of the Systems Analyst's Toolkit that follows Chapter 12.

TEACHING TIPS

Instructors who teach online will be especially interested in the Video Learning Session in this section, on financial tools, as a resource to which they can send their distance-learning students.

Some organizations also employ a fifth yardstick — organizational and cultural feasibility — when deciding whether a project is worthwhile. Organizational and cultural feasibility attempts to determine if a proposed project is consistent with corporate norms.

Explain that operational feasibility measures how well a proposed system will work. When evaluating operational feasibility, the central theme is to determine the impact of a proposed system on people.

Technical feasibility measures whether the company has, or can obtain, the necessary hardware, software, and people to deliver and support the proposed project. Generally, technical considerations are fairly straightforward, and solutions to possible problems are clear. For most systems, the technology exists; the challenge is to obtain the funds to pay for the resources. This leads to economic feasibility.

When assessing economic feasibility, another consideration is whether the company has adequate cash flow to fund the project during its development. Assessing economic feasibility requires cost/benefit analysis. Cost/benefit analysis consists of estimating development and operational costs, estimating anticipated benefits (preferably in terms of dollars), and then comparing the two. Costs also can be intangible. For example, reduced employee morale would be an intangible cost.

Explain that schedule feasibility measures whether the established deadlines for a proposed project are reasonable. Note the relationship between time and cost. Because scheduling often requires a number of assumptions and estimates based on incomplete information, assessing schedule feasibility usually is a high-risk task. When a schedule proves unreasonable, either the schedule is revised or the scope of the project is modified.

CLASSROOM ACTIVITIES

1. Projects to Assign: Point out the Toolkit Time. Refer students to Part C of the four-part Toolkit that follows Chapter 12. Discuss how costs and benefits can be used to determine a project's economic feasibility.

2. Quick Quiz:

- 1) Assign Question 4 on page 77.

3. Critical Thinking: How do intangible benefits lead to tangible benefits? Can tangible benefits lead to intangible benefits?

64: Evaluating Feasibility**LECTURE NOTES**

- Point out that the first step in evaluating feasibility is to reject projects that are not feasible
- Explain when a request may be feasible, but unnecessary
- Mention that requests currently infeasible may be feasible in the future, and requests currently feasible may be infeasible in the future

- Emphasize that feasibility analysis is an ongoing task

TEACHING TIPS

Explain that for a project to be feasible, it must pass all feasibility tests. Some systems analysts believe that when a project's feasibility is in doubt, the best solution is to do nothing — for now. Beginning a project that is bound to fail can negatively impact a company and all those involved.

CLASSROOM ACTIVITIES

1. Critical Thinking: Assign Discussion Topic 1 on page 77.

64: Setting Priorities

LECTURE NOTES

- Characterize projects that receive the highest priority
- List factors that should be considered when assessing priorities, pointing out that projects may not score high in all areas
- Emphasize the importance, whenever possible, of evaluating priority based on tangible costs and benefits
- Point out how intangible costs and benefits also can influence priorities
- Differentiate between discretionary projects and nondiscretionary projects, and list examples of nondiscretionary projects that are predictable

TEACHING TIPS

Explain that, sometimes, intangible benefits can be more important than tangible benefits. For example, a simpler ordering system may do little to reduce costs or increase revenues (tangible benefits), but it may result in greater customer satisfaction (an intangible benefit), which in the future may lead to greater revenues (a tangible benefit).

Mention that nondiscretionary projects can result from internal factors (e.g., decisions by top managers) or external factors (e.g., laws by federal or local governments).

65: Case In Point 2.4: Attaway Airlines, Part Two

Back at Attaway Airlines, the morning meeting ended with no agreement between Dan Esposito and Molly Kinnon. In fact, a new issue arose. Molly now says that the new accounting system is entitled to the highest priority because the federal government soon will require the reporting of certain types of company-paid health insurance premiums. Because the current system will not handle this report, she insists that the entire accounting system is a nondiscretionary project. As you might expect, Dan is upset. Can part of a project be nondiscretionary? What issues need to be discussed? The committee meets again tomorrow, and the members will look to you, as the IT director, for guidance.

***Comments:** If Molly's project really is mandatory, then it must be pursued before Dan's. Even though the atmosphere might be tense, you should attempt to learn whether any other options are available. Perhaps a stand-alone reporting module would satisfy government requirements and then Attaway could reach a decision based on business-related factors rather than external reporting requirements. Perhaps some type of compromise is possible. The real objective is to strike a sensible balance that is in the best interest of Attaway, not an individual department.*

66: Preliminary Investigation Overview

LECTURE NOTES

- Describe a preliminary investigation
- Use Figure 2-15 to illustrate a model of a preliminary investigation
- Emphasize that the end product of a preliminary investigation is a report to management
- Explain why it is important to meet with managers and users
- Note ways in which a systems project can change company operations and how these changes can affect employees
- Use Figure 2-16 to identify the steps in a preliminary investigation
- Point out when a systems analyst might need to develop a business profile, as explained in Chapter 1
- Mention that a change in one system can affect other systems, and tell how a systems request can reveal only a symptom of a problem instead of the underlying problem itself
- Use Figure 2-17 to describe a fishbone diagram, or Ishikawa diagram
- Define project scope, pointing out that the project scope should be specific
- Give examples of both general and specific project scopes, and define project creep
- Discuss how to avoid project creep
- Define constraint, and list examples of constraints and types of constraints: present versus future, internal versus external, and mandatory versus desirable
- Use Figure 2-18 to discuss examples of various constraints
- Emphasize the importance of identifying constraints early and defining the project scope and constraints clearly
- Contrast present constraints and future constraints
- Compare internal constraints and external constraints
- Distinguish between mandatory constraints and desirable constraints, referring to Figure 2-18
- Mention that fact-finding is a process of indefinite length and complexity, and list techniques used in fact-finding
- Explain the value of analyzing organization charts, which provide important background for other fact-finding activities
- Use Figure 2-19 to point out that organization charts can be constructed if they are unavailable
- Note the need to verify the accuracy of organization charts, as sometimes, organization charts do not reflect recent changes in staffing
- Mention that organization charts do not show important informal relationships
- List the seven steps in the interview process; these seven steps are explained in a later chapter
- Use Figure 2-20 to discuss how observation is a good way to uncover facts
- Mention the analyst's role in an interview and the need to prepare a standard set of questions
- Consider the value of open-ended questions
- Describe reviewing documentation
- Emphasize the importance of making sure documentation is current and accurate
- Point out different ways to observe operations
- Note the value of sampling system inputs and outputs
- Describe conducting a survey
- Note the advantage, and disadvantage, of a survey when compared to an interview
- Use the Pareto chart in Figure 2-21 to illustrate the visualization of issues that need attention, and compare it to the use of the XY chart (scatter diagram) in Figure 2-22 in terms of problem-solving

- Note the need to provide managers with estimates of the cost impact and timetable
- Point out the alternatives available at this stage
- Characterize the report submitted to management at the conclusion of the preliminary investigation
- Note that the format of a preliminary investigation report varies
- Define case for action
- Describe the eight sections in a typical preliminary investigation report: Introduction, Systems Request Summary, Findings, Case for Action, Project Roles, Time and Cost Estimates, Expected Benefits, and Appendix
- Discuss Figure 2-23 and mention that an oral presentation may be necessary
- Point out that Part A of the Systems Analyst's Toolkit gives suggestions on presentations

FIGURES: 2-15, 2-16, 2-17, 2-18, 2-19, 2-20, 2-21, 2-22, 2-23

BOXES

1. Toolkit Time: Refer students to the Communication Tools in Part A of the four-part Toolkit that follows Chapter 12.

TEACHING TIPS

Emphasize the importance of employee attitudes and reactions. Unhappy or disgruntled employees can sabotage even the best systems development project. Point out that when interacting with users, it is better to stress new features or enhancements than problems.

Figure 2-17 shows a fishbone or Ishikawa diagram, which is a popular tool used to identify the root causes of a problem. This type of diagram shows the possible causes of a problem as a graphical outline and is helpful during preliminary investigation to reveal actual causes rather than just symptoms of problems.

Interviewing stakeholders is the most important fact-finding technique and the most effective way to understand business functions. Offer that closed-ended questions (e.g., How many forms a day do you process?) that have simple, factual answers can be important to obtain specific facts. Generally, however, open-ended questions are best to get an interview started and encourage an interviewee to explain his or her perception of the project.

Some documentation is external, such as industry wide journals, studies, or reports. Professional organizations sometimes conduct "best practice" studies that can be invaluable. Other documentation is internal, such as company reports, forms, procedural manuals, and work descriptions. Analysts should ask for copies of all documentation currently used.

Share with students that the old saying, "a picture is worth a thousand words," also is true in systems analysis. Observing operations helps clarify current business processes and can help an analyst visualize a new system. Operations can be as casual as a quick walk through an area or as detailed as being trained as a user and actually working at the job. By their very presence, observers can change what they are observing. Workers can become nervous or overcautious when they are being watched, changing the way they usually perform their jobs. Observers should be as unobtrusive as possible and sensitive to the needs and feelings of workers. Sampling techniques are described in a later chapter.

Surveys can contain closed-ended questions (e.g., How many telephone calls do you receive?) and open-ended questions (e.g., What would you like the new system to do?). In general, surveys should contain a limited number of open-ended questions because stakeholders often will not take the time to complete surveys with many open-ended questions.

Sometimes, management will indicate, either directly or indirectly, cost and time limitations. This information can color a systems analyst's estimates, often with disastrous consequences. Estimates should be made without any preconceived notions and then, if necessary, compared to management directives. If the estimates are different from directives, either the cost and time limitations can be revised or the project scope can be altered.

CLASSROOM ACTIVITIES

1. Group Activity: Have students draw a fishbone diagram for a problem with which they are familiar. They should include a main bone to represent the problem, sub-bones to indicate possible reasons for the problem, and horizontal sub-bones to indicate possible causes. Does the diagram help clarify the problem? How? How can the diagram be used to solve the problem?
2. Group Activity: Have students suggest instances of present and future constraints. For example, a present constraint may be that an order entry system must accept input from 15 remote sites. A future constraint may be that the system eventually should be able to accept input from 50 remote sites.
3. Group Activity: Have students suggest instances of internal and external constraints. For example, an internal constraint may be that an order entry system must join the sales, warehousing, and transportation departments. An external constraint may be that the system must log all sales for tax purposes.
4. Group Activity: Have students suggest instances of mandatory and desirable constraints. For example, a mandatory constraint may be that an order entry system must maintain records of individual item sales for inventory purposes. A desirable constraint may be that the system track individual customer purchases for promotional purposes.
5. Class Discussion: Using Figure 2-18, ask students to suggest problems that might arise in each example if the constraints are not identified.
6. Projects to Assign: Point out the Toolkit Time. Refer students to Part A of the four-part Toolkit that follows Chapter 12 to learn more about the communication tools in the Systems Analyst's Toolkit.
7. Quick Quiz:
 - 1) Assign Questions 5 through 10 on page 77.
8. Projects to Assign: Assign Project 4 on page 77.
9. Critical Thinking: Ask students why an interview should include open-ended questions. What is the advantage of open-ended questions? What are possible disadvantages?

10. Critical Thinking: According to a study in Hawthorne, Illinois, when people were observed they often performed above and beyond their usual levels. This finding, which was dubbed the Hawthorne Effect, states that the mere act of observing behavior can impact that behavior. Ask students if they feel the Hawthorne Effect is legitimate. Why? If the Hawthorne Effect is real, does it lessen the value of observation? Why or why not? What can be done to reduce the impact of the Hawthorne Effect?

75: A Question of Ethics

As a new systems analyst at Premier Financial Services, you are getting quite an education. You report to Mary, the IT manager, who also chairs the systems review committee. Several months ago, the committee rejected a request from Jack, the finance director, for an expensive new accounts payable system, because the benefits did not appear to outweigh the costs.

Yesterday, Mary's boss called her in and asked her to reconsider Jack's request, and to persuade the other members to approve it. Mary wanted to discuss the merits of the request, but he cut her off rather abruptly. Mary happens to know that Jack and her boss are longtime friends.

Mary has confided in you. She is very uncomfortable about the meeting with her boss, and she believes that his request would undermine the integrity of the systems review process. Mary feels it would be unethical to grant preferred treatment just because a friendship is involved. She is thinking of submitting a request to step down as review committee chair, even though that might harm her career at the company.

Is this an ethical question, or just a matter of office politics? What would you say to Mary?

***Comments:** This is a gray area — it is difficult to apply black-and-white rules in this fact situation. First of all, the systems review process is not 100% scientific — it is a business process, and like all other business operations, it is influenced by many factors, including personal relationships, degrees of trust, and personal credibility. However, if Jack is making a decision that is clearly wrong for the firm, simply because of a personal friendship, that would strike most people as highly unethical. Perhaps the larger problem is that Jack does not want to allow a full review of the request. That position seems to undermine the integrity of the process itself and, unless there is a very compelling reason (such as an urgent time line or crisis situation), Mary is right to be concerned. What should she do? This is a classical problem that many employees face at one time or another. It is really a question of degree. If she is unhappy about the decision, and does not want to be in this role long-term, then maybe she should let this pass and not disrupt her focus on other matters. On the other hand, if she has strong feelings and has lost respect for Jack, then it might be more dangerous for her to stay in the role.*

Instructors should encourage students to relate any similar situations they might have faced, and how they responded.

Key Terms

- biometric devices 56
- business case 48
- case for action 74
- computer resources committee 59
- constraint 68
- critical success factor 51
- customer relationship management (CRM) 58
- discretionary projects 65

- economic feasibility *61, 63*
- electronic product code (EPC) *58*
- electronic proof of delivery (EPOD) *59*
- encryption *56*
- fishbone diagram *67*
- intangible benefits *63*
- intangible costs *63*
- Ishikawa diagram *67*
- just-in-time (JIT) *58*
- mission statement *50*
- nondiscretionary projects *65*
- operational feasibility *62*
- Pareto chart *71*
- preliminary investigation *66*
- project creep *68*
- project scope *67*
- scatter diagram *72*
- schedule feasibility *64*
- strategic planning *50*
- SWOT analysis *51*
- systems request *55*
- systems review committee *59*
- tangible benefits *63*
- tangible costs *63*
- technical feasibility *62*
- total cost of ownership (TCO) *63*
- XY chart *72*

End of Chapter Material

- **Chapter Exercises** The Chapter Exercises include short exercises and review questions that reinforce concepts and provide opportunities to practice skills.
- **Apply Your Knowledge** The Apply Your Knowledge exercises let students apply their knowledge of systems analysis and design in four mini-cases.
- **Case Studies** In each assignment, realistic business scenarios are presented, requiring students to answer questions of varying difficulty.
- **CASE Tool Workshop** These tasks can be completed using the Visible Analyst CASE tool to help students practice planning, building, and maintaining information systems.
- **MIS CourseMate Features** This section directs students to Web-based exercises, which include Online Case Simulations, Critical Thinking Challenges, Video Learning Sessions, and a set of Learn It Online activities.

[Top of Document](#)