Apply Your Knowledge

This section contains four mini-cases. Each case describes a situation, explains your role, and requires you to apply what you learned in the chapter.

1 Sandy Shores Time Shares

Sandy Shores Time Shares is one of the largest time-sharing and rental brokers for vacation cottages along the North Carolina coast. After 10 successful years of matching up owners and renters, Sandy Shores decided to acquire a computerized reservation and booking system. Tim Burns, the owner of Sandy Shores, read an article about software packages, and he asked you, as an IT consultant, for your advice.

Tasks

1. Would the new reservation and booking system be a horizontal or a vertical application? Explain your answer.
2. What software development and acquisition strategies should Sandy Shores consider?
3. Conduct an Internet search for online reservation systems, software, and services that Sandy Shores might consider. Describe your findings.
4. As a systems analyst, what would your role be in helping Sandy Shores develop a new system? Would the acquisition strategy affect your role? Why or why not?

2 Atrium Bio-Medical Supply, Inc.

Atrium Bio-Medical Supply is a medium sized regional supplier of medical and laboratory equipment. Since starting the company 12 years ago, Victoria Dawn has built Atrium into a competitive supply company across several metro areas, but her growth potential is limited because the firm does not have an integrated sales and logistics system. Victoria asked you to evaluate Atrium's options for acquiring a new system.

Tasks

1. What options does Atrium have for acquiring a new system?
2. What are the pros and cons of in-house development versus purchasing a system?
3. If the decision is made to purchase a new system, what are three options for customizing the software?
4. Based on Part C of the Systems Analyst's Toolkit, what financial analysis tools should you use to evaluate the software acquisition options for Atrium? Explain how you would apply each of the tools.

3 Leading Edge Climbing Equipment

Leading Edge Climbing Equipment is a retail rock climbing equipment vendor that is planning to install a new order entry and transaction processing system. As Leading Edge's IT manager, you are preparing for a follow-up meeting to confirm the owner's decision to move forward with the system.

Tasks

1. In deciding on your proposal, what options do the owners have?
2. If the owners decide to purchase or customize a software package, what steps will you take?
3. Explain the difference between logical and physical design.
4. Describe the steps typically performed in systems design.

4 IT News and Views

You are a staff writer at IT News and Views, a popular online newsletter aimed at IT professionals. Your editor has asked you to prepare a special report for next week's edition. Specifically, she wants you to research the subject of software outsourcing, and other significant trends that might affect software development in the future. She wants you to cite specific sources for your information, including current IT employment statistics and employment forecasts from the U.S. Bureau of Labor Statistics.

Tasks

1. Search for information about software outsourcing generally, using the search techniques described in Part D of the Systems Analyst's Toolkit.
2. Visit the Bureau of Labor Statistics site at **www.bls.gov** and search for information about employment trends affecting systems analysts, computer programmers, and software engineers.
3. Does the Bureau of Labor Statistics offer any comments or insights into the subject of outsourcing generally? What conclusions does it reach?
4. In your report, comment on whether the offshore outsourcing of IT jobs is just another step in the progression that began with manufacturing jobs, or represents a whole new trend. Be sure to cite Web research sources and your own reasons.

Case Studies

Each chapter includes a Chapter Case, a Continuing Case, a Capstone Case, and an Online Case Simulation. You can learn more about the Online Case Simulation in the MIS CourseMate Features section.

Chapter Case: Campus Bikes (Part 2)

In Chapter 6, you learned that Campus Bikes is a popular bicycle shop located near a major university. The shop sells several brands of new bikes, including everything from high-end racing models to beach cruisers. In addition to sales of new bikes and accessories, Mark's service department is always busy. The staff includes Mark himself, a bookkeeper, two part-time sales reps, a full-time mechanic, and several part-time service helpers who assemble bikes.

Background

Until now, the owner, Mark Turner, kept the business records on his personal computer. He created a simple database to keep track of inventory, but it is not always up-to-date. He also developed spreadsheets to track expenses and payroll. The business has grown and Mark wants to install a new computer system to handle all business functions.

You are a lab assistant in the computer information department at the college. You earned a computer science degree at a two-year school, and you recently decided to work toward your four-year degree. Mark recently asked you to help him plan a system for Campus Bikes. You used an object-oriented approach to create a model of the business functions and actors involved.

Now Mark wants you to do a "make or buy" analysis. Specifically, you will look into the pros and cons of in-house development versus purchase of a software package. Your research indicates that the most popular bike shop package is offered by a vendor called BikeData.

In your last meeting, Mark said that tangible savings for a new system would be hard to measure, but improved customer care, better service department records, and increased productivity are expected. Mark estimates that these benefits will add up to about $3,000 per year, whether the system is developed in-house, or purchased from BikeData.

You decide to compare relative costs to establish a total cost of ownership (TOC) over the useful life of the system. Based on your research, you put together the following summary:

Costs for Option A: Develop In-house

- The system will have a six-year useful life, be very flexible, and easiest to maintain.
- It will cost $15,000 to develop, install, and configure the system, and $1,000 to load existing data.
- Mark and the bookkeeper can handle day-to-day support with no added expense.

Costs for Option B: Purchase BikeData Software Package

- This is a vertical package with a four-year useful life.
- The software is less flexible than an in-house system and some customizing will be needed.
- It will cost $8,000 to purchase, $1,500 to install and configure, $2,500 to load existing data, and $1,000 additional hardware will be needed
- Support is free for the first year, then there is a $2,000 annual fee

Benefits for Both Options: $3,000 per year

Tasks

1. Prepare a detailed list of pros and cons of in-house versus software purchase.
2. Calculate ROI for both options.
3. Calculate NPV for both options. Use an 8% discount factor.
4. Create a PowerPoint presentation for Mark showing the results of your analysis, including recommendations and reasons.

Continuing Case: Personal Trainer, Inc.

Personal Trainer, Inc. owns and operates fitness centers in a dozen Midwestern cities. The centers have done well, and the company is planning an international expansion by opening a new "supercenter" in the Toronto area. Personal Trainer's president, Cassia Umi, hired an IT consultant, Susan Park, to help develop an information system for the new facility. During the project, Susan will work closely with Gray Lewis, who will manage the new operation.

Background

During data and process modeling, Susan Park developed a logical model of the proposed system. She drew an entity-relationship diagram and constructed a set of leveled and balanced DFDs. Now Susan is ready to consider various development strategies for the new system. She will investigate traditional and Web-based approaches and weigh the pros and cons of in-house development versus other alternatives. Before you begin, you should review the background information and facts contained in Chapters 2, 4, and 5 of the case study.

Tasks

1. What options does Personal Trainer have for developing a new system? What are some specific issues and options that Susan should consider in making a decision?
2. Susan has been asked to prepare a system requirements document and deliver a presentation to the management team. What should be the main elements of the system requirements document?
3. Based on the suggestions in Part A of the Systems Analyst's Toolkit, what visual aids should Susan use during her presentation?
4. Susan wants to prepare a presentation that will calculate the total cost of ownership for the system. What financial analysis tools are available to her, and what are the advantages (and possible disadvantages) of each tool?

Capstone Case: New Century Wellness Group

New Century Wellness Group offers a holistic approach to healthcare with an emphasis on preventive medicine as well as traditional medical care. In your role as an IT consultant, you will help New Century develop a new information system.

Background

Based on your earlier recommendations, New Century decided to continue the systems development process for a new information system. Now, at the end of the systems analysis phase, you are ready to prepare a system requirements document and give a presentation to the New Century associates. Many of the proposed system's advantages were described during the fact-finding process. Those include smoother operation, better efficiency, and more user-friendly procedures for patients and New Century staff.

You also must examine tangible costs and benefits to determine the economic feasibility of several alternatives. If New Century decides to go ahead with the development process, the main options are to develop the system in-house or purchase a vertical package and configure it to meet New Century's needs. You have studied those choices and put together some preliminary figures.

You know that New Century's current workload requires six hours of office staff overtime per week at a base rate of $15 per hour. In addition, based on current projections, New Century will need to add another full-time clerical position in about six months. Neither the overtime nor the additional job will be needed if New Century implements the new system. The current manual system also causes an average of three errors per day, and each error takes about 20 minutes to correct. The new system should eliminate those errors.

(continues)

Capstone Case: New Century Wellness Group

You estimate that by working full-time you could complete the project in about 12 weeks. Your consulting rate, which New Century agreed to, is $35 per hour. If you design the new system as a database application, you can expect to spend about $2,500 for a networked commercial package. After the system is operational and the staff is trained, New Century should be able to handle routine maintenance tasks without your assistance.

As an alternative to in-house development, a vertical software package is available for about $12,000. The vendor offers a lease-purchase package of $4,000 down, followed by two annual installments of $4,000 each. If New Century buys the package, it would take you about four weeks to install, configure, and test it, working full-time. The vendor provides free support during the first year of operation, but then New Century must sign a technical support agreement at an annual cost of $600. Although the package contains many of the features that New Century wants, most of the reports are pre-designed and it would be difficult to modify their layouts.

No matter which approach is selected, New Century probably will need you to provide about 10 hours of initial training and support each week for the first three months of operation. After the new system is operational, it will need routine maintenance, file backups, and updating. These tasks will require about four hours per week and can be performed by a clinic staff member. In both cases, the necessary hardware and network installation will cost about $12,500.

In your view, the useful life of the system will be about five years, including the year in which the system becomes operational.

You are scheduled to deliver a presentation to New Century next week, and you will submit a system requirements document at that time. To prepare yourself, you reviewed the skills described in Part A of the Systems Analyst's Toolkit, and you listed tips to remember, as follows:

Presentation Tips

- Use suitable visual aids.
- Use presentation software, if possible.
- Distribute handouts before, during, or after the presentation.
- Follow the guidelines in Part A of the Systems Analyst's Toolkit.
- Keep your presentation to 30 minutes, including 5 minutes for questions.

System Requirements Document Tips

- Follow the guidelines in Part A of the Systems Analyst's Toolkit.
- Include charts, graphs, or other helpful visual information in the document. Also include other material to help the audience understand the new system and decide on the next step.
- Spell check and carefully proofread the entire document.
- For readability, try to keep the Flesch Reading Ease score above 60, and aim for a Flesch-Kincaid Grade Level of 8.0 to 9.0.

Tasks

1. Provide an overview of the proposed system, including costs and benefits, with an explanation of the various cost-benefit types and categories.
2. Develop an economic feasibility analysis, using payback analysis, ROI, and present value (assume a discount rate of 10%).
3. Prepare a context diagram and diagram 0 for the new system.
4. Provide a brief explanation of the various alternatives that should be investigated if development continues, including in-house development and any other possible strategies.

CASE Tool Workshop

Systems analysts use CASE tools to help them plan, build, and maintain information systems. To learn more about CASE tools, turn to Part B of the Toolkit that follows Chapter 12. You can complete these tasks with the Visible Analyst® CASE tool, which is available with this textbook, or a similar tool.

Background

Suppose your company wants to create a logical model of a proposed information system, and then decide whether to develop the system in-house and purchase a software package. You have been asked to use a CASE tool to construct the model.

Tasks

1. After you perform fact-finding, you begin to work on the model. What diagrams will you create, and why? Will you use DFDs, object models, or both? Will you create an entity-relationship diagram? Explain your answers.
2. Most CASE tools can generate program code directly from diagrams and a central repository, and some tools are able to export the repository to a database management program, where the design can be implemented. Since you don't know whether the new system will be developed in-house, it would be helpful to know more about this in advance. Perform research on the CASE tool you are using to learn what code-generation and export features are available, and describe your findings.