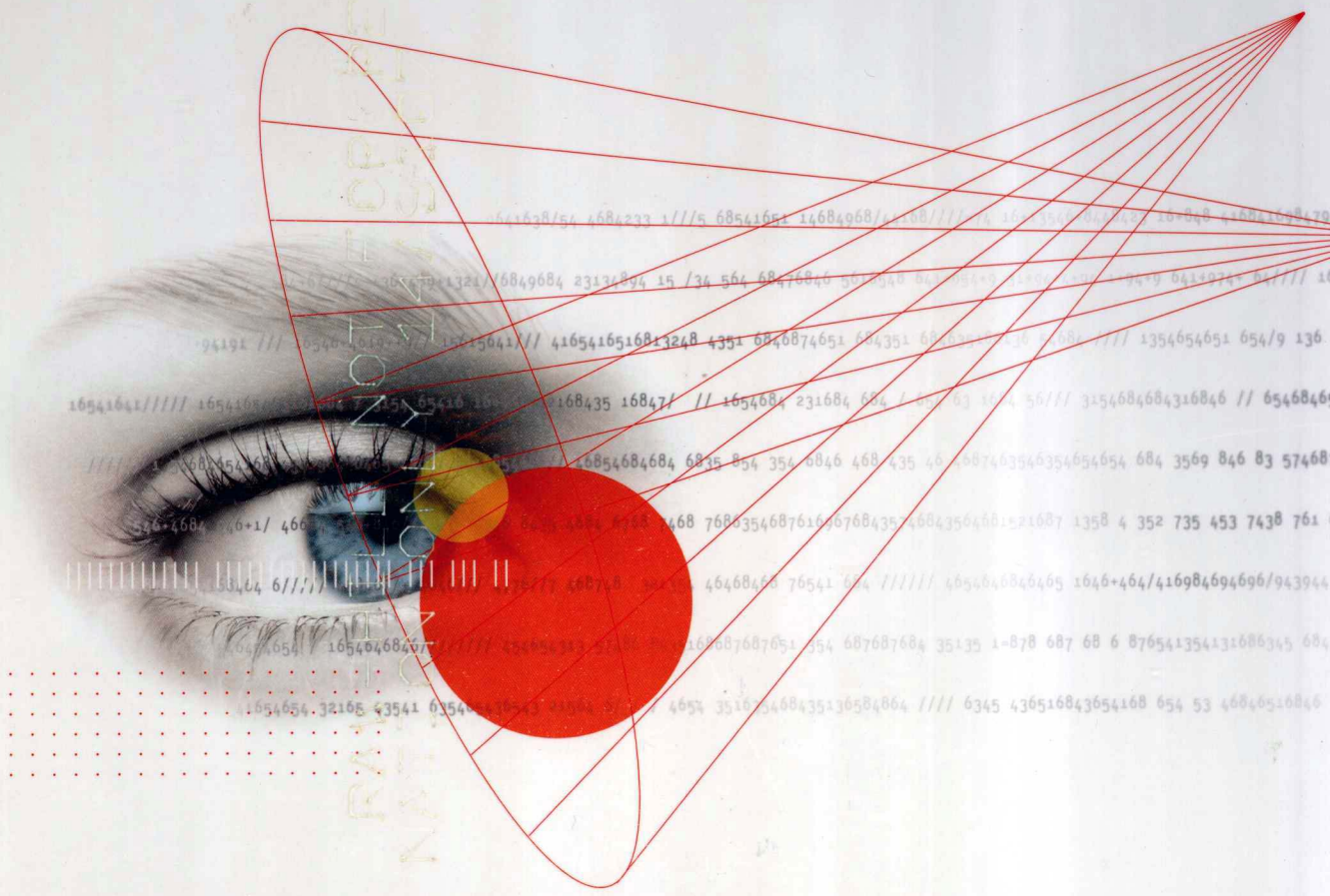

> Management Information Systems

for the Information Age > >

___Stephen Haag / Maeve Cummings / Amy Phillips ///

/// / Sixth Edition // // /

Management Information Systems

FOR THE INFORMATION AGE

SIXTH EDITION

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DANIELS COLLEGE OF BUSINESS
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MANAGEMENT INFORMATION SYSTEMS FOR THE INFORMATION AGE

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PREFACE

The sixth edition of *Management Information Systems for the Information Age* provides you the ultimate in flexibility to tailor content to the exact needs of your MIS or IT course. The nine chapters and thirteen Extended Learning Modules may be presented in logical sequence, or you may choose your own mix of technical topics and business/managerial topics.

The nine chapters form the core of material covering business and managerial topics, from strategic and competitive technology opportunities to the organization and management of information using databases and data warehouses. If you covered only the chapters and none of the modules, the focus of your course would be MIS from a business and managerial point of view.

The thirteen Extended Learning Modules provide a technical glimpse into the world of IT, covering topics ranging from building a Web site, to computer crimes and forensics, to how to use Microsoft Access. If you chose only the modules and none of the chapters, the focus of your course would be on the technical and hands-on aspects of IT.

Each module follows its corresponding chapter, but chapters and modules may usefully be presented independently. For example, Module H on computer crime and forensics follows logically after Chapter 8 on protecting people and information. But you can cover Chapter 8 and omit Module H—that's completely up to you. On the other hand, you can omit Chapter 8 and cover Module H—you have flexibility to do what suits your needs.

You can easily select a course format that represents your own desired blend of topics. While you might not choose to cover the technologies of networks, for example, you might require your students to build a small database application. In that case, you would omit Module E (Network Basics) and spend more time on Module C (Designing Databases and Entity-Relationship Diagramming) and Module J (Implementing a Database with Microsoft Access).

On the facing page, we've provided a table of the chapters and the modules. As you put your course together and choose the chapters and/or modules you want to cover, we would offer the following:

- Cover any or all of the chapters as suits your purposes.
- Cover any or all of the modules as suits your purposes.
- If you choose a chapter, you do not have to cover its corresponding module.
- If you choose a module, you do not have to cover its corresponding chapter.
- You may cover the modules in any order you wish.

Please note that your students will find Modules E, F, G, J, K, L, and M on the CD that accompanies the textbook. In the book, we provide a two-page introduction to these modules. All your students have to do is go to the CD to read the full modules.

The unique organization of this text gives you **complete flexibility** to design your course as you see fit.

THE CHAPTERS	THE EXTENDED LEARNING MODULES
CHAPTER 1	**Extended Learning Module A**
The Information Age in Which You Live	Computer Hardware and Software
CHAPTER 2	**Extended Learning Module B**
Major Business Initiatives	The World Wide Web and the Internet
CHAPTER 3	**Extended Learning Module C**
Databases and Data Warehouses	Designing Databases and Entity-Relationship Diagramming
CHAPTER 4	**Extended Learning Module D**
Decision Support and Artificial Intelligence	Decision Analysis with Spreadsheet Software
CHAPTER 5	**Extended Learning Module E***
Electronic Commerce	Network Basics
CHAPTER 6	**Extended Learning Module F***
Systems Development	Building a Web Page with HTML
CHAPTER 7	**Extended Learning Module G***
Enterprise Infrastructure and Integration	Object-Oriented Technologies
CHAPTER 8	**Extended Learning Module H**
Protecting People and Information	Computer Crime and Forensics
CHAPTER 9	**Extended Learning Module I**
Emerging Trends and Technologies	Building an e-Portfolio
	Extended Learning Module J*
	Implementing a Database with Microsoft Access
	Extended Learning Module K*
	Careers in Business
	Extended Learning Module L*
	Building Web Sites with FrontPage
	Extended Learning Module M*
	Programming in Excel with VBA

*The complete text for modules E, F, G, J, K, L, and M are on the CD that accompanies this text.

- Management Focus—By focusing on the chapters, your class will take a managerial approach to MIS.
- Technical Focus—If hands-on, technical skills are more important, focus your MIS course on the modules.

Organization—The Haag Advantage

The separation of content between the chapters and the Extended Learning Modules is very simple. We can sum it up by saying:

- The **chapters** address what you want your students **to know.**
- The **modules** address what you want your students **to be able to do.**

Together, both combine to provide a well-balanced repository of important information aimed at developing a prospective business professional equipped with both foundational knowledge and application experience, ready to take on today's highly competitive job market.

Each chapter and module contains full pedagogical support:

- Student Learning Outcomes
- On Your Own Projects
- Team Work Projects
- Summary
- Key Terms and Concepts
- Short-Answer Questions
- Assignments and Exercises

The **chapters** focus on the *business and managerial* applications of MIS and information technology.

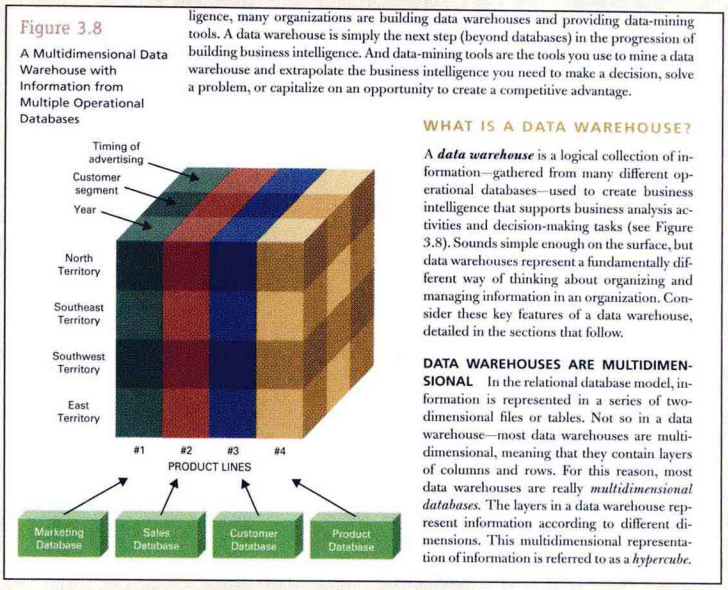


Figure 3.8

A Multidimensional Data Warehouse with Information from Multiple Operational Databases

ligence, many organizations are building data warehouses and providing data-mining tools. A data warehouse is simply the next step (beyond databases) in the progression of building business intelligence. And data-mining tools are the tools you use to mine a data warehouse and extrapolate the business intelligence you need to make a decision, solve a problem, or capitalize on an opportunity to create a competitive advantage.

WHAT IS A DATA WAREHOUSE?

A ***data warehouse*** is a logical collection of information—gathered from many different operational databases—used to create business intelligence that supports business analysis activities and decision-making tasks (see Figure 3.8). Sounds simple enough on the surface, but data warehouses represent a fundamentally different way of thinking about organizing and managing information in an organization. Consider these key features of a data warehouse, detailed in the sections that follow.

DATA WAREHOUSES ARE MULTIDIMENSIONAL In the relational database model, information is represented in a series of two-dimensional files or tables. Not so in a data warehouse—most data warehouses are multidimensional, meaning that they contain layers of columns and rows. For this reason, most data warehouses are really *multidimensional databases.* The layers in a data warehouse represent information according to different dimensions. This multidimensional representation of information is referred to as a *hypercube.*

The **modules** focus on giving your students real *hands-on-knowledge* they can apply in both their personal and professional experiences.

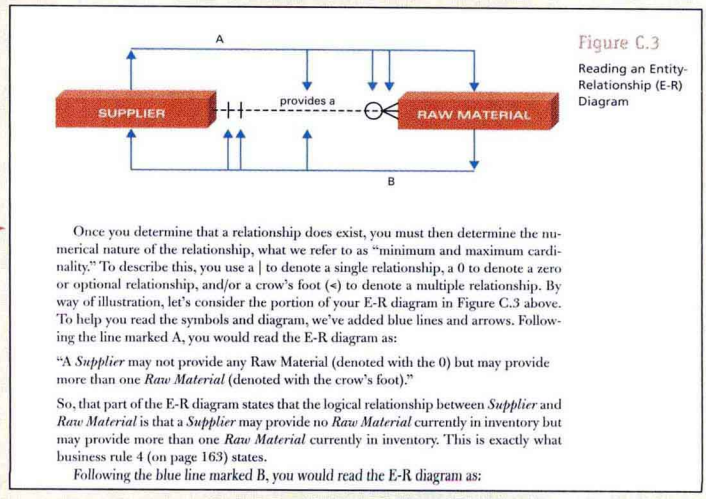


Figure C.3

Reading an Entity-Relationship (E-R) Diagram

Once you determine that a relationship does exist, you must then determine the numerical nature of the relationship, what we refer to as "minimum and maximum cardinality." To describe this, you use a | to denote a single relationship, a 0 to denote a zero or optional relationship, and/or a crow's foot (<) to denote a multiple relationship. By way of illustration, let's consider the portion of your E-R diagram in Figure C.3 above. To help you read the symbols and diagram, we've added blue lines and arrows. Following the line marked A, you would read the E-R diagram as:

"A *Supplier* may not provide any Raw Material (denoted with the 0) but may provide more than one *Raw Material* (denoted with the crow's foot)."

So, that part of the E-R diagram states that the logical relationship between *Supplier* and *Raw Material* is that a *Supplier* may provide no *Raw Material* currently in inventory but may provide more than one *Raw Material* currently in inventory. This is exactly what business rule 4 (on page 163) states.

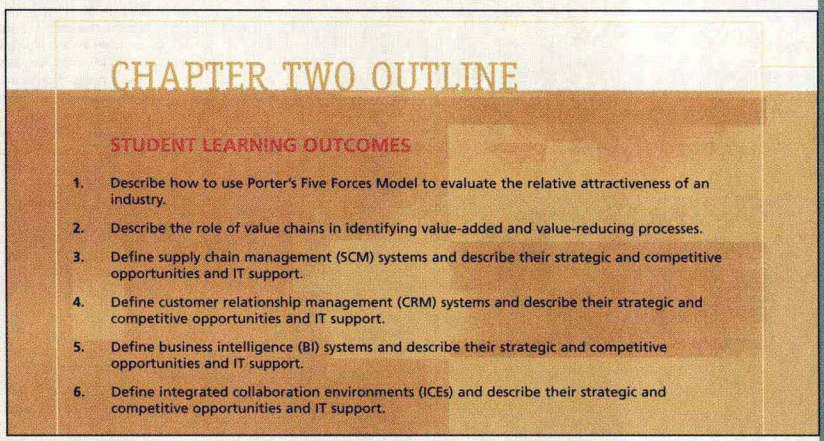
Following the blue line marked B, you would read the E-R diagram as:

Student Learning Outcomes and Summary

Student learning outcomes drive each chapter and module. We then summarize each chapter and module by revisiting the student learning outcomes. It's the old adage . . .

1. Tell them what you're going to tell them.
2. Tell them.
3. Tell them what you told them.

At the beginning of each chapter and module, you'll find a list of **Student Learning Outcomes,** providing your students with a road map of what they should learn and accomplish while reading a chapter or module.



CHAPTER TWO OUTLINE

STUDENT LEARNING OUTCOMES

1. Describe how to use Porter's Five Forces Model to evaluate the relative attractiveness of an industry.
2. Describe the role of value chains in identifying value-added and value-reducing processes.
3. Define supply chain management (SCM) systems and describe their strategic and competitive opportunities and IT support.
4. Define customer relationship management (CRM) systems and describe their strategic and competitive opportunities and IT support.
5. Define business intelligence (BI) systems and describe their strategic and competitive opportunities and IT support.
6. Define integrated collaboration environments (ICEs) and describe their strategic and competitive opportunities and IT support.

Summary: Student Learning Outcomes Revisited

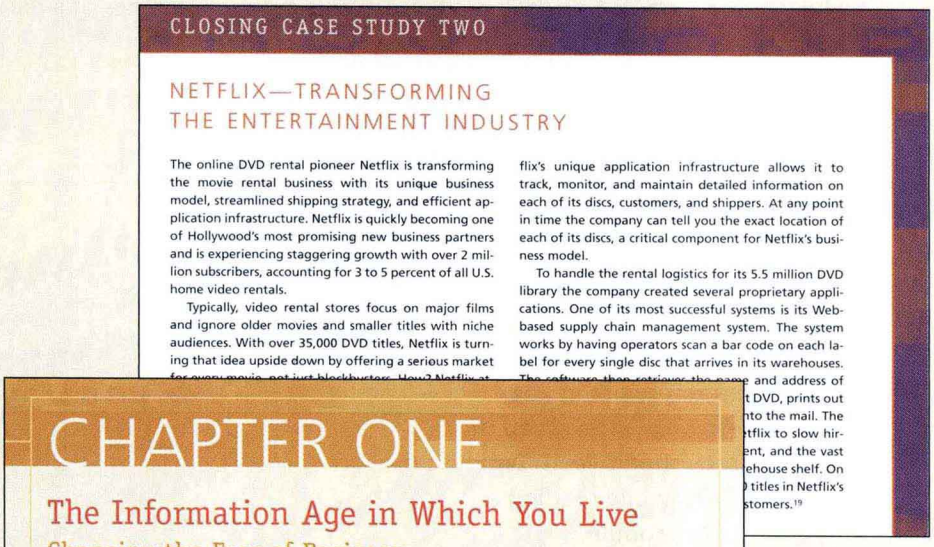
1. **Describe business intelligence and its role in an organization.** ***Business intelligence*** is knowledge—knowledge about your customers, your competitors, your partners, your competitive environment, and your own internal operations—that gives you the ability to make effective, important, and often strategic business decisions. Business intelligence is much more than just a list of your products or to whom you've sold them. It might combine your product information with your advertising strategy information and customer demographics, for instance, to help you determine the effectiveness of various advertising media on demographic groups segmented by location.
2. **Differentiate between databases and data warehouses with respect to their focus on online transaction processing and online analytical processing.** A ***database*** is a collection of information that you organize and access according to the logical structure of that information. Databases support both online transaction processing (OLTP) and online analytical processing (OLAP). Databases that support OLTP are often referred to as ***operational databases.*** These databases contain detailed information about transactions that have taken place. And using various data manipulation tools, you can query a database to extract meaningful information. A ***data warehouse*** is a collection of information—gathered from many different operational databases—used to create business intelligence that supports business analysis activities and decision-making tasks. So, data warehouses support only OLAP, not OLTP.
3. **List and describe the key characteristics of a relational database.** The ***relational database*** model uses a series of logically related two-dimensional tables or files to store information in the form of a database. Key characteristics include
   - A collection of information—Composed of many files or tables of information that are related to each other
   - Contain logical structures—You care only about the logical information and not about how it's physically stored or where it's physically located
   - Have logical ties among the information—All the files in a database are related in that some primary keys of certain files appear as foreign keys in others
   - Possess built-in integrity constraints—When creating the data dictionary for a database, you can specify rules by which the information must be entered (e.g., not blank, etc.)
4. **Define the five software components of a database management system.** The five software components of a database management system include
   - ***DBMS engine***—Accepts logical requests from the various other DBMS subsystems, converts them into their physical equivalent, and actually accesses the database and data dictionary as they exist on a storage device
   - ***Data definition subsystem***—Helps you create and maintain the data dictionary and define the structure of the files in a database
   - ***Data manipulation subsystem***—Helps you add, change, and delete information in a database and query it for valuable information
   - ***Application generation subsystem***—Contains facilities to help you develop transaction-intensive applications
   - ***Data administration subsystem***—Helps you manage the overall database environment by providing facilities for backup and recovery, security management, query optimization, concurrency control, and change management
5. **List and describe the key characteristics of a data warehouse.** The key characteristics of a data warehouse include
   - Multidimensional—While databases store information in two-dimensional tables, data warehouses include layers to represent information according to different dimensions
   - Support decision making—Data warehouses, because they contain summarized information, support business activities and decision-making tasks, not transaction processing

A **Summary** of these outcomes appears with the EOC elements per chapter/module, providing an invaluable tool for your students as they prepare to take an exam.

Case Studies

Opening Case

Each chapter begins with a one-page opening case study, highlighting how an organization has successfully implemented many of that chapter's concepts.



CLOSING CASE STUDY TWO

NETFLIX—TRANSFORMING THE ENTERTAINMENT INDUSTRY

The online DVD rental pioneer Netflix is transforming the movie rental business with its unique business model, streamlined shipping strategy, and efficient application infrastructure. Netflix is quickly becoming one of Hollywood's most promising new business partners and is experiencing staggering growth with over 2 million subscribers, accounting for 3 to 5 percent of all U.S. home video rentals.

Typically, video rental stores focus on major films and ignore older movies and smaller titles with niche audiences. With over 35,000 DVD titles, Netflix is turning that idea upside down by offering a serious market

flix's unique application infrastructure allows it to track, monitor, and maintain detailed information on each of its discs, customers, and shippers. At any point in time the company can tell you the exact location of each of its discs, a critical component for Netflix's business model.

To handle the rental logistics for its 5.5 million DVD library the company created several proprietary applications. One of its most successful systems is its Web-based supply chain management system. The system works by having operators scan a bar code on each label for every single disc that arrives in its warehouses.

and address of
t DVD, prints out
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ent, and the vast
ehouse shelf. On
titles in Netflix's
stomers.[19]

CHAPTER ONE

The Information Age in Which You Live

Changing the Face of Business

OPENING CASE STUDY:
DISRUPTIVE TECHNOLOGIES DISRUPT BLOCKBUSTER LATE FEES

The term "disruptive technologies" almost makes technology sound like a bad thing, but it isn't. A disruptive technology is any technology that causes a business (or person) to dramatically change the way that it (or she or he) works. The recording industry, for example, is undergoing significant transformation because of technological advances. Fewer people are buying complete CDs or albums, in favor of purchasing only music selections and songs they want via the Internet. The Internet, peer-to-peer file sharing systems, and Web sites such as Apple's iTunes (www.apple.com/itunes) are disruptive technologies causing the recording industry to rethink

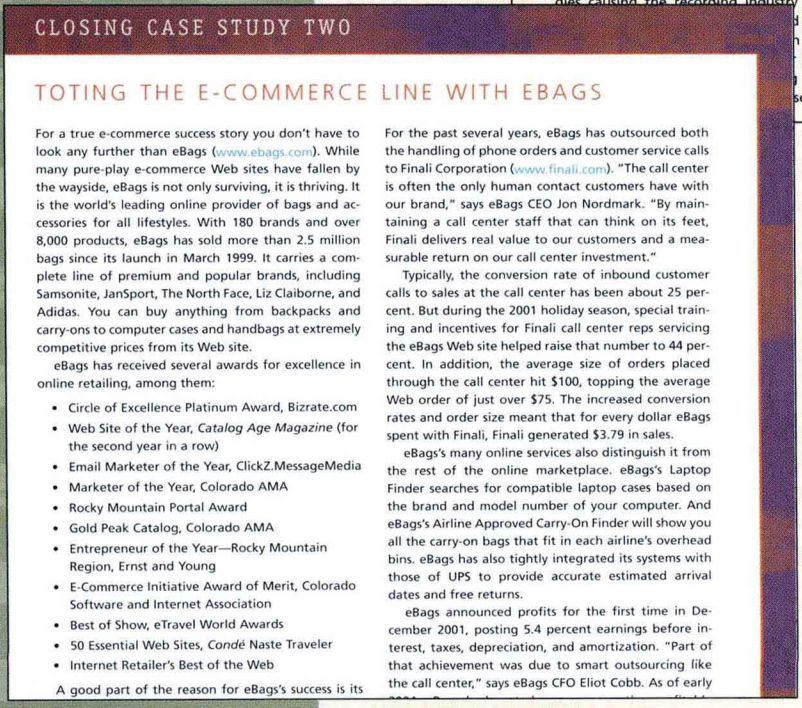
d sells music.
the video
dominated
32 percent
se of disrup-

And don't forget Netflix. Its Internet model of renting videos to people for as long as they want with no late fees is definitely affecting Blockbuster. Netflix predicted that it would have 2.65 million customers by the end of 2004.

What is Blockbuster doing to save its market share? A Blockbuster initiative in January 2004 was to no longer assess late fees if a customer returns a movie anytime within a week. After a week, Blockbuster automatically sells the movie to the customer at retail price minus the rental fee. If the customer doesn't want to buy it though and returns the movie after a week, Blockbuster charges only a $1.25 restocking fee.

All types of new and disruptive technology challenge organizations (1) to rethink how they do business and (2) to embrace the technology and determine how best to use it to create a competitive advantage.

That's the focus of this text. We will introduce you to a wide array of technology terms and concepts and teach you the technology, but we want you always to keep in mind the essential challenge of how to apply the technology to create a



CLOSING CASE STUDY TWO

TOTING THE E-COMMERCE LINE WITH EBAGS

For a true e-commerce success story you don't have to look any further than eBags (www.ebags.com). While many pure-play e-commerce Web sites have fallen by the wayside, eBags is not only surviving, it is thriving. It is the world's leading online provider of bags and accessories for all lifestyles. With 180 brands and over 8,000 products, eBags has sold more than 2.5 million bags since its launch in March 1999. It carries a complete line of premium and popular brands, including Samsonite, JanSport, The North Face, Liz Claiborne, and Adidas. You can buy anything from backpacks and carry-ons to computer cases and handbags at extremely competitive prices from its Web site.

eBags has received several awards for excellence in online retailing, among them:

- Circle of Excellence Platinum Award, Bizrate.com
- Web Site of the Year, *Catalog Age Magazine* (for the second year in a row)
- Email Marketer of the Year, ClickZ.MessageMedia
- Marketer of the Year, Colorado AMA
- Rocky Mountain Portal Award
- Gold Peak Catalog, Colorado AMA
- Entrepreneur of the Year—Rocky Mountain Region, Ernst and Young
- E-Commerce Initiative Award of Merit, Colorado Software and Internet Association
- Best of Show, eTravel World Awards
- 50 Essential Web Sites, *Condé* Naste Traveler
- Internet Retailer's Best of the Web

A good part of the reason for eBags's success is its

For the past several years, eBags has outsourced both the handling of phone orders and customer service calls to Finali Corporation (www.finali.com). "The call center is often the only human contact customers have with our brand," says eBags CEO Jon Nordmark. "By maintaining a call center staff that can think on its feet, Finali delivers real value to our customers and a measurable return on our call center investment."

Typically, the conversion rate of inbound customer calls to sales at the call center has been about 25 percent. But during the 2001 holiday season, special training and incentives for Finali call center reps servicing the eBags Web site helped raise that number to 44 percent. In addition, the average size of orders placed through the call center hit $100, topping the average Web order of just over $75. The increased conversion rates and order size meant that for every dollar eBags spent with Finali, Finali generated $3.79 in sales.

eBags's many online services also distinguish it from the rest of the online marketplace. eBags's Laptop Finder searches for compatible laptop cases based on the brand and model number of your computer. And eBags's Airline Approved Carry-On Finder will show you all the carry-on bags that fit in each airline's overhead bins. eBags has also tightly integrated its systems with those of UPS to provide accurate estimated arrival dates and free returns.

eBags announced profits for the first time in December 2001, posting 5.4 percent earnings before interest, taxes, depreciation, and amortization. "Part of that achievement was due to smart outsourcing like the call center," says eBags CFO Eliot Cobb. As of early

Closing Cases

To help your students apply what they have just learned, you'll find two closing case studies at the end of each chapter. Each case has a set of questions that are great for class discussion.

Team Work and On Your Own Projects

There are now 82 Team Work and On Your Own projects spread throughout the text, in both the chapters and modules. Many of these can be used as break-out exercises, and just as many can be assigned as homework. In the Instructor's Manual, you'll find our discussions of and solutions to each of these projects.

TEAM WORK

WRITING TEST CONDITIONS

Your manager has asked you to test the cut and paste functionality for a word processing application. Write 10 detailed test conditions using the template below. Be sure to think about cutting and pasting such things as different fonts, varying font sizes, bold and italic fonts, graphics, etc. We have provided a sample for you. Once you have completed your test conditions, estimate how many test conditions would be required to completely test the cut and paste functionality for Microsoft Word.

Test Condition Number	Date	Tester Name	Test Condition	Expected Result	Actual Result	Pass/Fail
1	5/27/2005	McLeod	Highlight text	Highlighted text	Highlighted text	Pass

On Your Own

Assign these to students for individual reflection and work.

TEAM WORK

WHAT'S THE BIG DEAL WITH FREQUENCIES?

A radio wave is an electromagnetic wave sent out by an antenna. Radio waves have different frequencies, and by tuning a radio receiver, a cell phone (which has a receiver), or a baby monitor (which also has a receiver) to a certain frequency you can pick up a specific signal. Frequencies are measured in KHz (kilohertz—thousands of cycles per second), MHz (megahertz—millions of cycles per second), and GHz (gigahertz—billions of cycles per second).

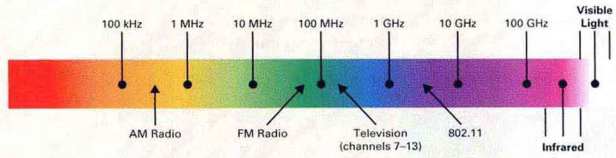
You may have heard that there is a fixed number of frequencies and competition for control of those available is fierce. All wireless devices require a radio frequency to transmit and receive, so communications companies spend billions of dollars for the rights to part of the spectrum that's for sale. Other parts are designated for public use (like the WiFi part), and still others are set aside for government agencies like the Department of Defense.

The figure below shows the part of the spectrum in common use for wireless information delivery. Here are some common frequency bands:

- FM radio: 88 megahertz to 108 megahertz
- AM radio: 535 kilohertz to 1.7 megahertz
- Television stations: 174 to 220 megahertz for channels 7 through 13.

Place on the spectrum the following wireless services:

A. WiFi
B. GPS devices
C. Microwave ovens
D. Police radar guns
E. TV channels 2–6
F. Wildlife tracking collars
G. CB radio
H. Aviation navigation
I. Cordless phones



Team Work

These are designed for small groups of two to four. Many are great for in-class assignments.

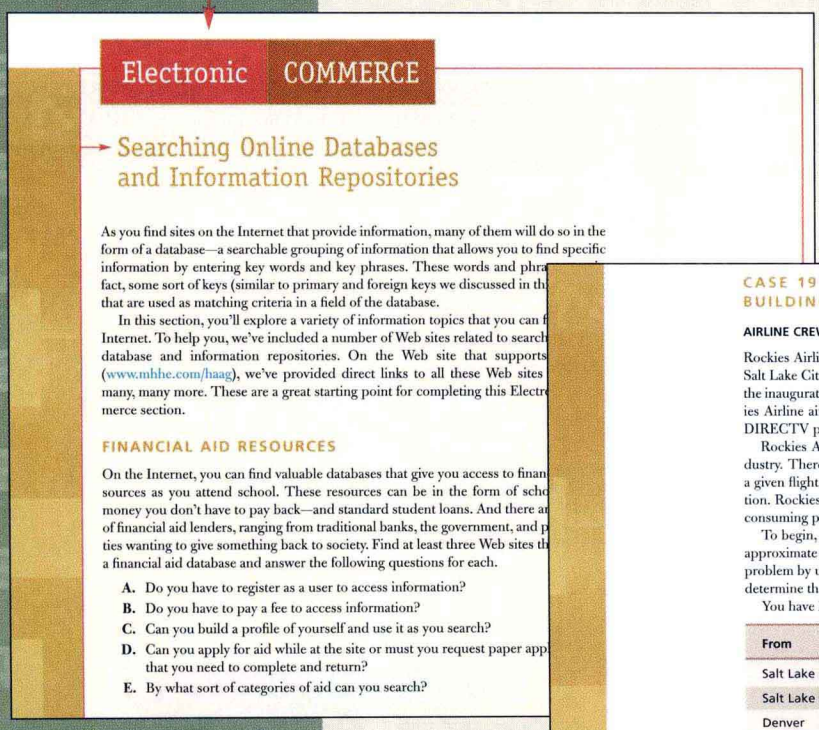
Electronic Commerce and Group Projects

Electronic Commerce

These projects are designed to impart to your students hands-on technological experiences, many requiring Web exploration. You'll find an Electronic Commerce project at the end of each chapter. To support these projects, we've provided more than 1,000 links on the Web site for this text at www.mhhe.com/haag.

Group Projects

After the last module in the text, you'll find 22 Group Projects. These require your students to use technology to solve a problem or take advantage of an opportunity. A quick warning to instructors: Some of these take an entire weekend to solve. Be careful not to assign too many at one time.



Electronic COMMERCE

Searching Online Databases and Information Repositories

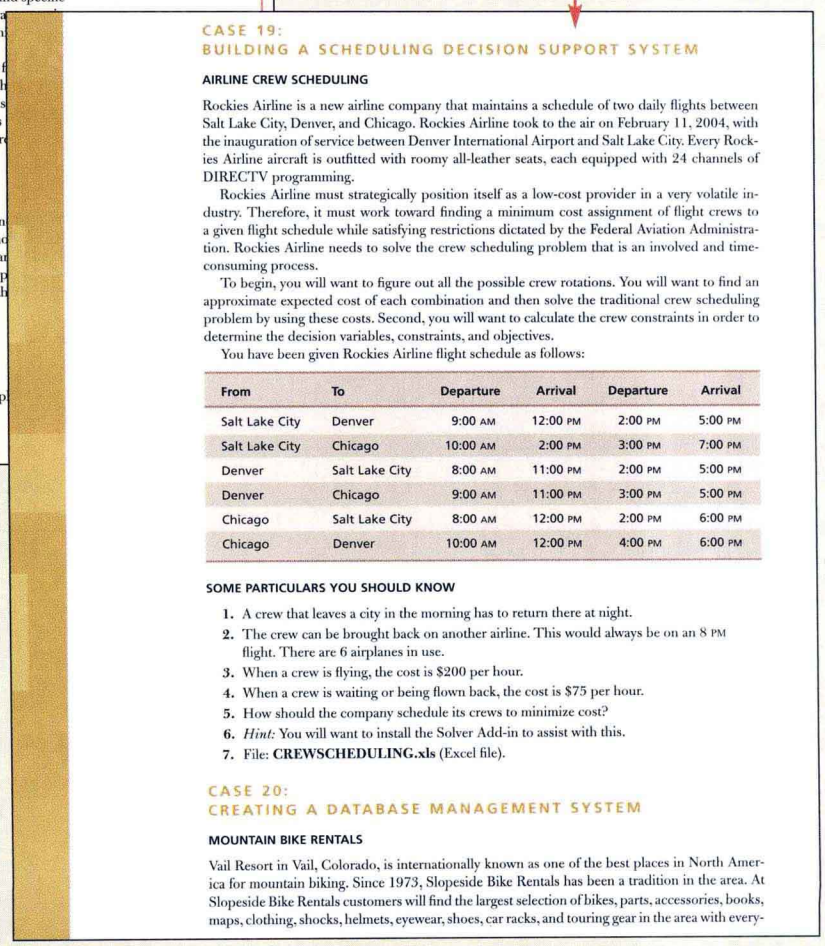
As you find sites on the Internet that provide information, many of them will do so in the form of a database—a searchable grouping of information that allows you to find specific information by entering key words and key phrases. These words and phra... fact, some sort of keys (similar to primary and foreign keys we discussed in th... that are used as matching criteria in a field of the database.

In this section, you'll explore a variety of information topics that you can f... Internet. To help you, we've included a number of Web sites related to search... database and information repositories. On the Web site that supports ... (www.mhhe.com/haag), we've provided direct links to all these Web sites ... many, many more. These are a great starting point for completing this Electr... merce section.

FINANCIAL AID RESOURCES

On the Internet, you can find valuable databases that give you access to finan... sources as you attend school. These resources can be in the form of scho... money you don't have to pay back—and standard student loans. And there ar... of financial aid lenders, ranging from traditional banks, the government, and p... ties wanting to give something back to society. Find at least three Web sites th... a financial aid database and answer the following questions for each.

A. Do you have to register as a user to access information?
B. Do you have to pay a fee to access information?
C. Can you build a profile of yourself and use it as you search?
D. Can you apply for aid while at the site or must you request paper app... that you need to complete and return?
E. By what sort of categories of aid can you search?



CASE 19:
BUILDING A SCHEDULING DECISION SUPPORT SYSTEM

AIRLINE CREW SCHEDULING

Rockies Airline is a new airline company that maintains a schedule of two daily flights between Salt Lake City, Denver, and Chicago. Rockies Airline took to the air on February 11, 2004, with the inauguration of service between Denver International Airport and Salt Lake City. Every Rockies Airline aircraft is outfitted with roomy all-leather seats, each equipped with 24 channels of DIRECTV programming.

Rockies Airline must strategically position itself as a low-cost provider in a very volatile industry. Therefore, it must work toward finding a minimum cost assignment of flight crews to a given flight schedule while satisfying restrictions dictated by the Federal Aviation Administration. Rockies Airline needs to solve the crew scheduling problem that is an involved and time-consuming process.

To begin, you will want to figure out all the possible crew rotations. You will want to find an approximate expected cost of each combination and then solve the traditional crew scheduling problem by using these costs. Second, you will want to calculate the crew constraints in order to determine the decision variables, constraints, and objectives.

You have been given Rockies Airline flight schedule as follows:

From	To	Departure	Arrival	Departure	Arrival
Salt Lake City	Denver	9:00 AM	12:00 PM	2:00 PM	5:00 PM
Salt Lake City	Chicago	10:00 AM	2:00 PM	3:00 PM	7:00 PM
Denver	Salt Lake City	8:00 AM	11:00 PM	2:00 PM	5:00 PM
Denver	Chicago	9:00 AM	11:00 PM	3:00 PM	5:00 PM
Chicago	Salt Lake City	8:00 AM	12:00 PM	2:00 PM	6:00 PM
Chicago	Denver	10:00 AM	12:00 PM	4:00 PM	6:00 PM

SOME PARTICULARS YOU SHOULD KNOW

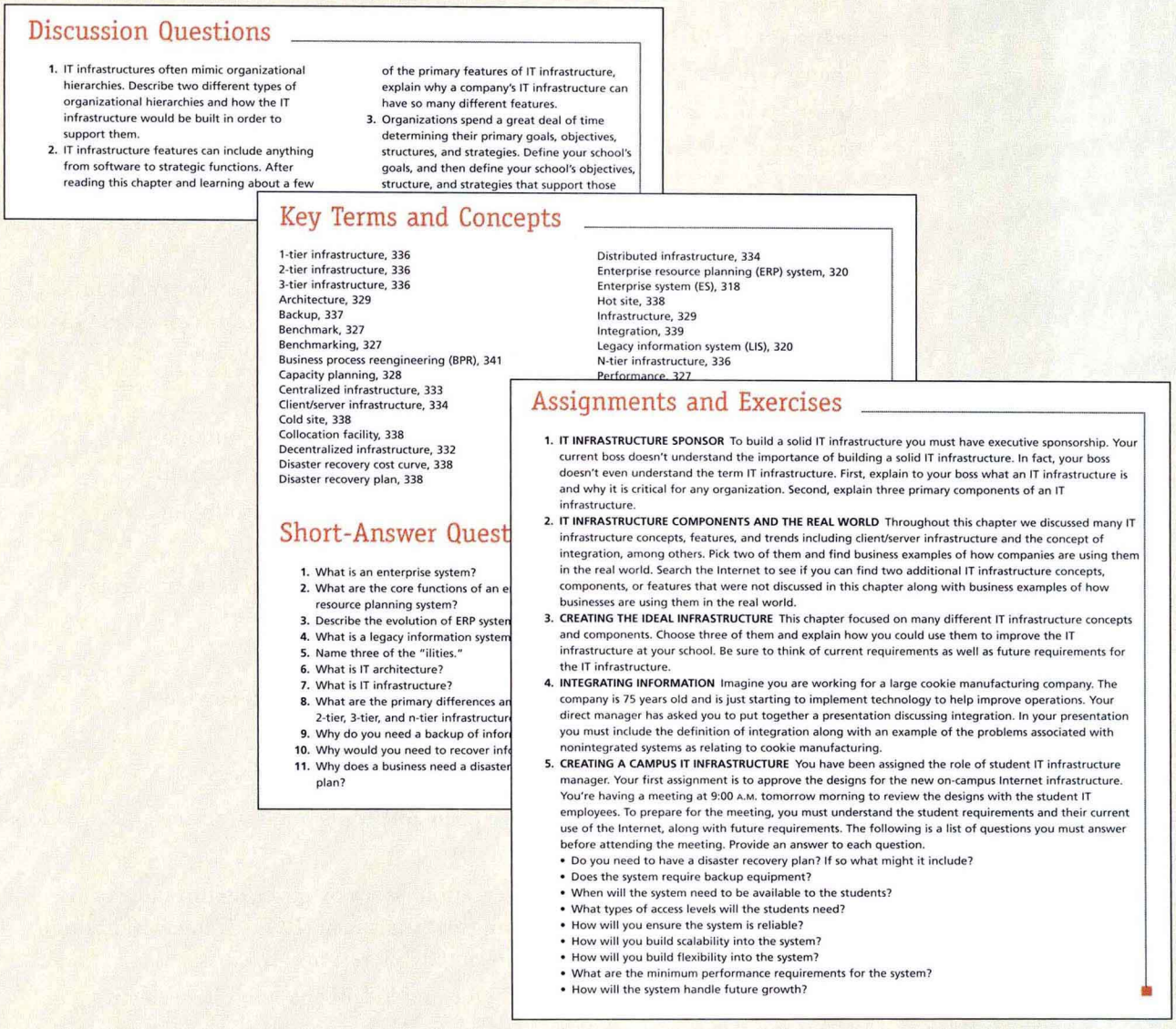
1. A crew that leaves a city in the morning has to return there at night.
2. The crew can be brought back on another airline. This would always be on an 8 PM flight. There are 6 airplanes in use.
3. When a crew is flying, the cost is $200 per hour.
4. When a crew is waiting or being flown back, the cost is $75 per hour.
5. How should the company schedule its crews to minimize cost?
6. *Hint:* You will want to install the Solver Add-in to assist with this.
7. File: **CREWSCHEDULING.xls** (Excel file).

CASE 20:
CREATING A DATABASE MANAGEMENT SYSTEM

MOUNTAIN BIKE RENTALS

Vail Resort in Vail, Colorado, is internationally known as one of the best places in North America for mountain biking. Since 1973, Slopeside Bike Rentals has been a tradition in the area. At Slopeside Bike Rentals customers will find the largest selection of bikes, parts, accessories, books, maps, clothing, shocks, helmets, eyewear, shoes, car racks, and touring gear in the area with every-

End-of-Chapter Elements



Discussion Questions

1. IT infrastructures often mimic organizational hierarchies. Describe two different types of organizational hierarchies and how the IT infrastructure would be built in order to support them.
2. IT infrastructure features can include anything from software to strategic functions. After reading this chapter and learning about a few of the primary features of IT infrastructure, explain why a company's IT infrastructure can have so many different features.
3. Organizations spend a great deal of time determining their primary goals, objectives, structures, and strategies. Define your school's goals, and then define your school's objectives, structure, and strategies that support those

Key Terms and Concepts

1-tier infrastructure, 336
2-tier infrastructure, 336
3-tier infrastructure, 336
Architecture, 329
Backup, 337
Benchmark, 327
Benchmarking, 327
Business process reengineering (BPR), 341
Capacity planning, 328
Centralized infrastructure, 333
Client/server infrastructure, 334
Cold site, 338
Collocation facility, 338
Decentralized infrastructure, 332
Disaster recovery cost curve, 338
Disaster recovery plan, 338
Distributed infrastructure, 334
Enterprise resource planning (ERP) system, 320
Enterprise system (ES), 318
Hot site, 338
Infrastructure, 329
Integration, 339
Legacy information system (LIS), 320
N-tier infrastructure, 336
Performance, 327

Short-Answer Quest

1. What is an enterprise system?
2. What are the core functions of an e
resource planning system?
3. Describe the evolution of ERP systen
4. What is a legacy information system
5. Name three of the "ilities."
6. What is IT architecture?
7. What is IT infrastructure?
8. What are the primary differences ar
2-tier, 3-tier, and n-tier infrastructur
9. Why do you need a backup of infor
10. Why would you need to recover inf
11. Why does a business need a disaster
plan?

Assignments and Exercises

1. **IT INFRASTRUCTURE SPONSOR** To build a solid IT infrastructure you must have executive sponsorship. Your current boss doesn't understand the importance of building a solid IT infrastructure. In fact, your boss doesn't even understand the term IT infrastructure. First, explain to your boss what an IT infrastructure is and why it is critical for any organization. Second, explain three primary components of an IT infrastructure.
2. **IT INFRASTRUCTURE COMPONENTS AND THE REAL WORLD** Throughout this chapter we discussed many IT infrastructure concepts, features, and trends including client/server infrastructure and the concept of integration, among others. Pick two of them and find business examples of how companies are using them in the real world. Search the Internet to see if you can find two additional IT infrastructure concepts, components, or features that were not discussed in this chapter along with business examples of how businesses are using them in the real world.
3. **CREATING THE IDEAL INFRASTRUCTURE** This chapter focused on many different IT infrastructure concepts and components. Choose three of them and explain how you could use them to improve the IT infrastructure at your school. Be sure to think of current requirements as well as future requirements for the IT infrastructure.
4. **INTEGRATING INFORMATION** Imagine you are working for a large cookie manufacturing company. The company is 75 years old and is just starting to implement technology to help improve operations. Your direct manager has asked you to put together a presentation discussing integration. In your presentation you must include the definition of integration along with an example of the problems associated with nonintegrated systems as relating to cookie manufacturing.
5. **CREATING A CAMPUS IT INFRASTRUCTURE** You have been assigned the role of student IT infrastructure manager. Your first assignment is to approve the designs for the new on-campus Internet infrastructure. You're having a meeting at 9:00 A.M. tomorrow morning to review the designs with the student IT employees. To prepare for the meeting, you must understand the student requirements and their current use of the Internet, along with future requirements. The following is a list of questions you must answer before attending the meeting. Provide an answer to each question.
   - Do you need to have a disaster recovery plan? If so what might it include?
   - Does the system require backup equipment?
   - When will the system need to be available to the students?
   - What types of access levels will the students need?
   - How will you ensure the system is reliable?
   - How will you build scalability into the system?
   - How will you build flexibility into the system?
   - What are the minimum performance requirements for the system?
   - How will the system handle future growth?

Each chapter and module contains complete pedagogical support in the form of:

- **Summary of Student Learning Outcomes** These mirror the chapter's or module's opener.
- **Two Closing Case Studies** Reinforcing important concepts with prominent examples from businesses and organizations (chapters only).
- **Key Terms and Concepts** With page numbers where discussions of them are found.
- **Assignments and Exercises** One full page of problems designed to give your students the chance to apply key concepts of the text.
- **Discussion Questions** Challenging questions aimed at promoting an atmosphere of critical thinking in your classroom (chapters only).

Changes for the Sixth Edition

The content changes for the sixth edition were driven by:

- Instructor feedback from the fifth edition.
- Changes that have occurred in the business world.
- Advances that have occurred in the technology arena.
- Changes made by our competitors.

As a group of authors and contributors working together, we carefully sifted through all the competitive scanning information we could gather to create a sixth edition that builds on the success of the fifth edition.

Throughout the text, you'll find new or updated opening and closing case studies, Industry Perspectives, Global Perspectives, Group Projects, and Team Work and On Your Own projects, as well as new or expanded coverage of such topics as:

- Ubiquitous computing
- Top-line versus bottom-line considerations
- Run-Grow-Transform (RGT) framework
- Value chains
- Inter-modal transportation
- Fuzzy logic
- Biomimicry
- Agent-based modeling
- Swarm intelligence
- E-government
- Onshore outsourcing
- Nearshore outsourcing
- Offshore outsourcing
- ERP systems
- Business process outsourcing
- Pfishing
- RFID
- Software-as-a-service
- F2b2C
- Haptic interfaces

Most important, we're pleased to have been able to respond to reviewer suggestions and provide the following:

- More IT and business strategy integration issues by covering top-line versus bottom-line considerations, the run-grow-transform (RGT) framework, Porter's Five Forces Model, and value chains in Chapters 1 and 2.
- New *Extended Learning Module L* on using FrontPage to build Web sites.
- New *Extended Learning Module M* on programming in Excel with VBA.
- Updated Chapter 4 on decision support and artificial intelligence with more focus on agent-based modeling and swarm intelligence.
- Updated *Extended Learning Module E* on networks including such topics as T1 and DS3 lines.
- Updated Chapter 5 on electronic commerce with expanded coverage of e-government.
- Updated Chapter 6 on systems development with expanded coverage of onshore, nearshore, and offshore outsourcing.
- Updated Chapter 7 on infrastructures and architectures with more focus on enterprise and ERP systems.
- Updated Chapter 9 on emerging trends and technologies including software-as-a-service and RFID technologies.

The Support Package

We realize that no text is complete without a well-rounded and value-added support package. Our support package is designed to ease your teaching burden by providing you with a Web site full of valuable information, a test bank with more than 2,000 questions and easy-to-use test generating software, an Instructor's Manual that walks you through each chapter and module and provides value-added teaching notes and suggestions, and PowerPoint presentations.

Supplements:

- Online Learning Center
- Instructor's Manual
- Test Bank
- PowerPoint Presentations
- Student CD
- MISource CD
- Classroom Performance System
- Problem Solving Video Vignettes
- MBA MIS Cases
- Application Cases for MIS

ONLINE LEARNING CENTER AT WWW.MHHE.COM/HAAG

As in previous editions, the Web site for the sixth edition contains a wealth of valuable information and supplements for both the instructor and the student.

INSTRUCTOR'S MANUAL

The Instructor's Manual is provided to you in an effort to help you prepare for your class presentations. In its new format, you will find a separate box for each PowerPoint slide. In that box, you will find an overview of the slide and a list of key points to cover. This presentation enables you to prepare your class presentation by working solely with the Instructor's Manual because you also see the PowerPoint slide presentations. We've also provided embedded links within each Instructor's Manual document to the various in-text pedagogical elements including:

- **On Your Own** and **Team Work projects**—when to use them, how to grade them, how long they should take, etc.
- **The Global** and **Industry Perspectives boxes**—how to introduce them, key points to address, possible discussion questions to ask, etc.

At the beginning of each Instructor's Manual document you'll find other useful information including the appropriate author to contact if you have questions or comments, a list of the Group Projects that you can cover, and a list of any associated data files.

We've provided the Instructor's Manual files in Word format and placed them on both the Instructor's CD and the text's Web site.

TEST BANK

For each chapter and module, there are approximately 125 multiple-choice, true/false, and fill-in-the-blank questions aimed at challenging the minds of your students. McGraw-Hill's EZ Test is a flexible and easy-to-use electronic testing program. The program allows instructors to create tests from book-specific items. It accommodates a wide range of question types and instructors may add their own questions. Multiple versions of the test can be created and any test can be exported for use with course management systems such as WebCT, BlackBoard, or PageOut. EZ Test Online is a new service and gives you a place to easily administer your EZ Test–created exams and quizzes online. The program is available for Windows and Macintosh environments.

POWERPOINT PRESENTATIONS

The PowerPoint presentations are ready for you to use in class. In preparing to use these, you simply work through the Instructor's Manual which includes thumbnails of each slide and important points to cover. Of course, we realize that you'll probably want to customize some of the presentations. So, we've made available to you most of the images and photos in the text. You can find these on your Instructor's CD as well as the text's Web site at www.mhhe.com/haag.

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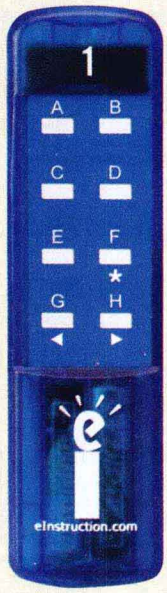

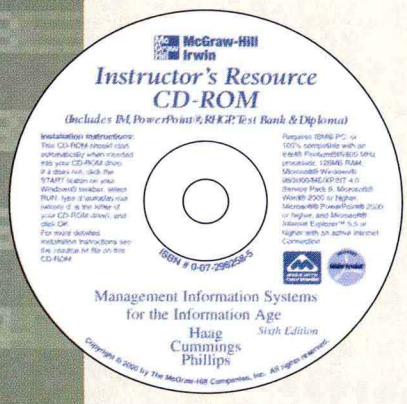

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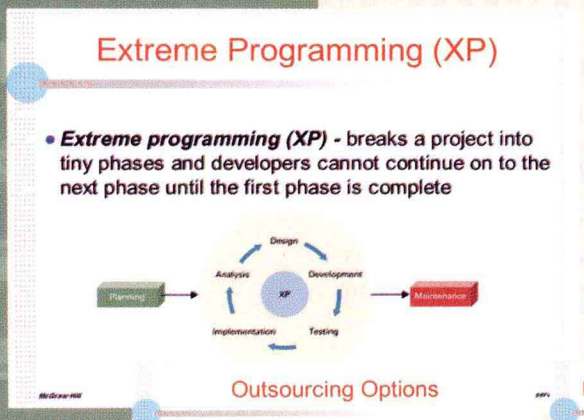

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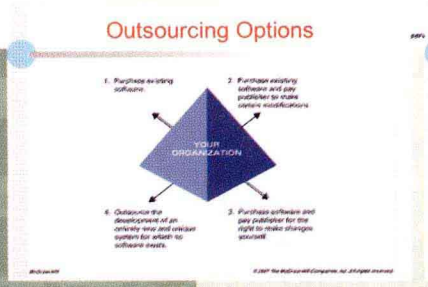
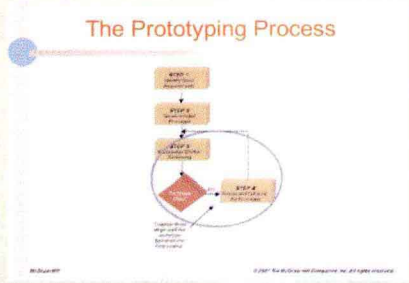
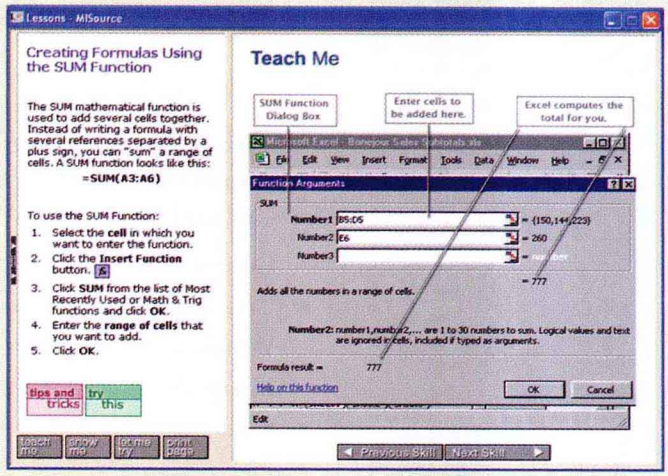




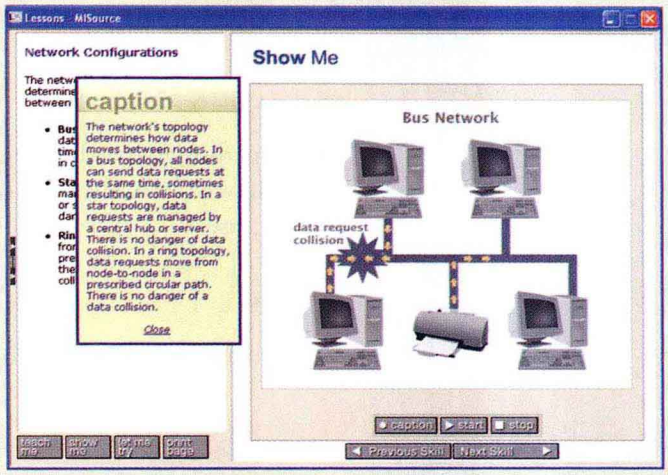
MISOURCE

Software Skills & Computer Concepts

MISource provides animated tutorials and simulated practice of the core skills in Microsoft Excel, Access, and PowerPoint. MISource also animates 47 important computer concepts.



Spend less time reviewing software skills and computer literacy. Each text includes a copy of MISource.



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ACKNOWLEDGMENTS

As we present our sixth edition of this text, we remember how things began and the people who have helped us along the way. In 1995, the Web was very much in its infancy, cell phones were used only in case of an emergency, and terms such as pfishing and pfarming had yet to be invented. It's been a fast 10 years and we have many people to thank.

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