

## THE INFORMATION AGE IN WHICH YOU LIVE

### Changing the Face of Business

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#### THE CHAPTER IN SHORT FORM...

This chapter introduces your students to the use of information technology (IT) and management information systems (MIS) within today's fast-paced, dynamic, and global business environment.

After a few definitions of such key terms as knowledge workers and MIS, the chapter then launches into a discussion of today's economic environment, including such topics as:

- The e.economy (key terms - *electronic commerce*, *telecommuting*, and the *virtual workplace*)
- The "now" economy (key term - *m-commerce*)
- The global economy (key terms - *global economy* and *transnational firm*)
- The arriving digital economy (key term - *digital economy*)

The next three sections provide an introduction to the three most important resources within MIS including:

1. Information
2. People
3. Information technology

Those three sections include such key terms as *ethics*, *hackers*, *decentralized computing*, *intranets*, *shared information*, and *information granularity*.

In the final section, we introduce your students to the 6 roles and goals of information technology. They include:

1. Increase employee productivity
2. Enhance decision making
3. Improve team collaboration
4. Create business partnerships and alliances
5. Enable global reach
6. Facilitate organizational transformation

#### STUDENT LEARNING OUTCOMES

1. Describe the information age and the role of knowledge workers within it.
2. Define management information systems (MIS).
3. Describe key factors shaping today's economic environment.
4. Validate information as a key resource and describe both personal and organizational dimensions of information.
5. Define how people are the most important organizational resource, their information and technology literacy challenges, and their ethical responsibilities.
6. Describe the important characteristics of information technology (IT) as a key organizational resource.
7. List and describe the six roles and goals of information technology in any organization.

**LECTURE OUTLINE**

**INTRODUCTION (p. 4)**

**TODAY'S ECONOMIC ENVIRONMENT (p. 5)**

1. The Economy
2. The "Now" Economy
3. The Global Economy
4. The Arriving Digital Economy

**INFORMATION AS A KEY RESOURCE (p. 9)**

1. Data Versus Information
2. Personal Dimensions of Information
3. Organizational Dimensions of Information

**PEOPLE AS A KEY RESOURCE (p. 13)**

1. Information and Technology Literacy
2. Your Ethical Responsibilities

**INFORMATION TECHNOLOGY AS A KEY RESOURCE (p. 17)**

1. Key Technology Categories
2. Decentralized Computing and Shared Information

**ROLES AND GOALS OF INFORMATION TECHNOLOGY (p. 21)**

1. Increase Employee Productivity
2. Enhance Decision Making
3. Improve Team Collaboration
4. Create Business Partnerships and Alliances
5. Enable Global Reach
6. Facilitate Organizational Transformation

**END OF CHAPTER (p. 29)**

1. Summary: Student Learning Outcomes Revisited
2. Closing Case Study One
3. Closing Case Study Two
4. Key Terms and Concepts
5. Short-Answer Questions
6. Short-Question Answers
7. Assignments and Exercises
8. Discussion Questions
9. Real HOT Electronic Commerce

## KEY TERMS AND CONCEPTS

KEY TERMS AND CONCEPTS	TEXT PAGE	IM PAGE
Application software	19	1-15
Artificial intelligence (AI)	24	1-20
Banner ad	26	1-22
Central processing unit (CPU)	19	1-15
Collaboration system	24	1-21
Culture	27	1-23
Customer-integrated system (CIS)	22	1-19
Data	9	1-10
Decentralized computing	20	1-17
Digital economy	8	1-9
Electronic commerce	5	1-7
Electronic data interchange (EDI)	26	1-22
Ethics	15	1-14
Executive information system (EIS)	23	1-20
External information	13	1-11
Global economy	8	1-8
Group document database	24	1-21
Groupware	24	1-21
Hacker	17	1-14
Hardware	17	1-15
Information	9	1-10
Information age	4	1-6
Information granularity	12	1-11
Information-literate knowledge worker	14	1-13
Information technology (IT)	17	1-15
Input device	17	1-15
Internal information	13	1-11
Interorganizational system (IOS)	25	1-22
Intranet	10	1-10
Knowledge worker	4	1-6
Management information systems (MIS)	4	1-6
M-commerce	7	1-8
Neural network	24	1-20
Objective information	13	1-11
Online analytical processing (OLAP)	23	1-20
Online transaction processing (OLTP)	22	1-19
Operating system software	19	1-15
Operational management	12	1-11
Output device	18	1-15
RAM (random access memory)	19	1-15
Shared information	20	1-17
Software	17	1-15

## KEY TERMS AND CONCEPTS

KEY TERMS AND CONCEPTS	TEXT PAGE	IM PAGE
Storage device	18	1-15
Strategic management	11	1-11
Subjective information	13	1-11
System software	19	1-15
Tactical management	12	1-11
Technology-literate knowledge worker	14	1-13
Telecommunications device	19	1-15
Telecommuting	6	1-7
Transaction processing system (TPS)	22	1-19
Transnational firm	8	1-8
Utility software	19	1-16
Virtual workplace	6	1-7

## OPENING CASE STUDY (p. 3) Can Technology Catch You Having an Affair?

The opening case study, while humorous, is a powerful one.

It discusses how technology was inadvertently used to catch a man having an affair. Commerce City, Colorado, had installed photo equipment at various stop lights to capture images of automobiles as they ran through red lights. Those photos, along with a traffic citation, were sent to the home of the owner.

Well, our man was driving around with a woman with whom he was having an affair. The photo equipment captured both him and his companion.

### Key Points:

- Technology is certainly both pervasive and invasive in our lives today.
- Technology can inadvertently be used for “bad” purposes.
- It can also be used with malicious intent for “bad” purposes.
- Your goal is to use technology only for “good” purposes.

## SUPPORT

### Extended Learning Modules

- **XLM/A** – if your students have little previous exposure to technology, cover this module which introduces a variety of technology hardware and software terms.
- **XLM/B** – this is a great module to cover if your students need an introduction to the World Wide Web and Internet.
- **XLM/C** – if you require your students to build a small database application as a class project, cover this module on designing a database and entity-relationship (E-R) diagramming.
- **XLM/F** – if you require your students to build a Web site as a class project, cover this module on creating a Web site with HTML.
- **XLM/I** – if your students already know how to build a Web site, consider covering this module which teaches your students how to build an e-portfolio for the purpose of advertising themselves on the Web.

### Real HOT Group Projects

1. **Assessing the Value of Information** – use spreadsheet software to redefine an auto mechanics shop.
2. **Assessing the Value of Information** – use spreadsheet software to determine where to sell homes.

### Web Support ([www.mhhe.com/haag](http://www.mhhe.com/haag))

- Job databases
- Searching newspapers for job ads
- Locating internships
- Interviewing and negotiating tips
- Organization sites and job postings
- Employment opportunities with the government

## INTRODUCTION

It truly is the information age – a time when knowledge is power.

Key Points:

- Knowledge workers dominate the information age by more than a four-to-one margin.
- All business students are preparing to be knowledge workers.
- What businesses don't know can put them out of business (in a very big hurry).
- In the information age, MIS is key because it deals with the coordinated use of three very important organizational resources – information, information technology, and people.

Key Term: *Information age* - a time when knowledge is power.

Key Term: *Knowledge worker* - works with and produces information as a product.

Key Term: *Management information systems (MIS)* - deals with the planning for, development, management, and use of information technology tools to help people perform all tasks related to information processing and management.

**Concept Reinforcement: Adding Value – Class Participation**

- Ask your students to discuss how you, as a teacher, are a knowledge worker.
- You create exams and assignments (these are information-based products).
- Most importantly, you are a vehicle of knowledge through which your students learn. Learning is an information-based activity.

## TODAY'S ECONOMIC ENVIRONMENT

To be successful today, your students must understand the dynamics of the business environment in which they work.

In this section, we discuss the dynamic and changing business environment.

### The E.conomy (p. 5-6)

#### Key Points:

- We are certainly moving into an electronic economy.
- Don't dwell too much on the past here – many of your students have probably spent the better part of their adulthood on the Internet, chatting with friends, buying products, etc.
- The key to electronic commerce is not “electronic,” but rather the use of sound business principles in an electronic environment (this is the “commerce” aspect).

Key Term: *Electronic commerce* - commerce, but it is commerce accelerated and enhanced by information technology, in particular, the Internet. It enables customers, consumers, and companies to form powerful new relationships that would not otherwise be possible without the enabling technologies.

#### Key Points:

- Commerce isn't just about buying and selling goods.
- It's about going “e” in each and every phase of business.
- This includes telecommuting and enabling the virtual workplace.
- Today, more than 35 million people in the U.S. telecommute.
- That number is expected to grow by 20% over the next several years.
- Figure 1.1 on page 6 is great for illustrating the growing importance and use of telecommuting.

Key Term: *Telecommuting* - the use of communications technologies (such as the Internet) to work in a place other than a central location.

Key Term: *Virtual workplace* - a technology-enabled workplace. No walls. No boundaries. Work anytime, anyplace, linked to other people and information you need, wherever they are.

#### Concept Reinforcement: Adding Value – Class Participation

- Take a quick informal survey in your class.
- Ask your students the following questions:
  1. How many of you use the Web on a daily basis?
  2. Do you participate in chat rooms?
  3. Do you buy physical products such as books and CDs?
  4. Do you buy event tickets for concerts and the like?
  5. Do you download software?
  6. Has your amount of junk e-mail increased because of your use of the Web?
- Based on their answers, show percentages on the board.

**The "Now" Economy" (p. 6-7)****Key Points:**

- People want immediate access to the ordering of products and services.
- ATMs allow you access to your money anytime and anywhere.
- B2C Web sites allow you to order almost anything at anytime (and usually have it within a couple of days).
- Closely related is the concept of a wants-based economy in which people buy based on wants and not necessarily needs.
- Technology can certainly facilitate a business achieving a strategic advantage by (1) offering customers the ability to buy anything anytime anywhere (through m-commerce) and (2) providing technologies that allow businesses to monitor and project customer wants-based spending habits.

**Key Term:** *M-commerce* - describes electronic commerce conducted over a wireless device such as a cell phone or personal digital assistant.

**Concept Reinforcement: Team Work – I Want It! (p. 7)**

- This project requires your students to identify products that are purely wants-based such as elaborate pet treats and tennis shoes with rear lights.
- Break your class into groups of 4 to 6 and require this as a homework exercise.
- What your students will quickly realize is that a large portion of consumer purchases are wants-based.
- Examples include rollerblades (and other types of fun-fitness equipment), Rolex watches, video games, and so on.
- The real point of this project is to get your students to think about (1) who would buy these products, (2) why they would buy them, (3) how organizations can identify those consumer segments, and (4) what role technology could play in identifying those consumer segments.
- In conjunction with this project, talk about such key concepts as customer relationship management, marketing mixes, and advertising strategies.

**The Global Economy (p. 8)****Key Points:**

- The world of business is certainly global.
- There are over 287,000,000 consumers in the U.S.
- But there are over 6.2 billion worldwide.
- Businesses can be successful on a worldwide basis as transnational firms.
- Figure 1.2 on page 8 shows the gradual increase in the number of non-U.S. based companies that comprise the world's largest 50.

**Key Term:** *Global economy* - one in which customers, businesses, suppliers, distributors, and manufacturers all operate without regard to physical and geographical boundaries.

**Key Term:** *Transnational firm* - a firm that produces and sells products and services in countries all over the world.

**Concept Reinforcement: Adding Value – Class Participation**

- This is a great time to discuss with your students the need to learn a foreign language.
- Your school may or may not have a foreign language requirement.
- If it doesn't, encourage your students to take a foreign language as an elective.
- You might also want to poll your class to determine how many students can speak more than one language.

**The Arriving Digital Economy (p. 8-9)****Key Points:**

- We are in the information age.
- The next age will be the digital age.
- In the digital age, we will move all forms of information (including physiological information) digitally.
- This will usher in a whole new era of doing business.
- Technologies in the digital age will include virtual reality, voice recognition systems (on a wide scale), and 3-D holographic devices, just to name a few.

**Key Term:** *Digital economy* - will be one marked by the electronic movement of all types of information, not limited to numbers, words, graphs, and photos but including physiological information such as voice recognition and synthesization, biometrics (your retina scan and breath for example), and 3-D holograms.

**Concept Reinforcement: Adding Value – Class Participation**

- Most, if not all, your students will be able to relate to the coming digital economy through the movies.
- Take some time and ask your students to identify movies that electronically move physiological information.
- Some movies include *Star Trek* (with the holodeck), *Virtuosity* (virtual reality), and *The Matrix* (a wide and wild variety).

## INFORMATION AS A KEY RESOURCE

Information is one of the three key components of MIS, along with people and information technology.

We are also in the information age, a time when knowledge is power. So, information is indeed important even outside the context of MIS.

### Data Versus Information (p. 9)

#### Key Points:

- Data and information are quite different.
- Data are raw facts while information has meaning within a specific context.

Key Term: *Data* - raw facts that describe a particular phenomenon.

Key Term: *Information* - simply data that have a particular meaning within a specific context.

#### **Concept Reinforcement: Real HOT Group projects #1 and #2**

- Technology can certainly turn data into information.
- To help your students understand this, assign either Real HOT Group project #1 or #2. Both deal with using spreadsheet software to analyze information and require your students to differentiate between data and useful information.
- For example, project #2 requires your students to use spreadsheet software to evaluate 600 real estate transactions to determine where to focus sales efforts.
- However, some of the data is just data and not important to the decision at hand, so it isn't information.

### Personal Dimensions of Information (p. 9-11)

#### Key Points:

- There are three personal dimensions of information: time, location, and form.
- Time encompasses two aspects: (1) having access to information when you need it and (2) having information that describes the time period you're considering.
- Location deals with having access to information no matter where you are.
- Form encompasses two aspects: (1) having information in a form that is usable and (2) having accurate information (i.e., free of errors).
- Figure 1.3 on page 9 illustrates the three personal dimensions of information.

Key Term: *Intranet* - an internal organizational Internet that is guarded against outside access by a special security feature called a firewall (which can be software, hardware, or a combination of the two).

**Concept Reinforcement: Global Perspective – Overcoming Language Barriers on the Internet (p. 10)**

- This Global Perspective broadly addresses the issue of overcoming language barriers on the Internet.
- Most importantly, it talks about SYSTRAN Enterprise, a suite of software that performs language translations.
- You should definitely take your students to SYSTRAN's site ([www.systransoft.com](http://www.systransoft.com)). There, you can type in phrases and sentences in one language and have them translated into another language. If you try idiomatic phrases, you'll find that the software doesn't work that well.
- The point is not that SYSTRAN's software isn't any good – it is some of the best on the market. The point is that computers have a difficult time translating from one language to another.

**Organizational Dimensions of Information (p. 11-13)****Key Points:**

- Organizations also have dimensions or perspectives of information, including information flows, what information describes, information granularity, and how information is used (the latter is discussed in the next section).
- Information flows include upward, downward, horizontally, and outward as Figure 1.4 on page 11 illustrates.
- Information granularity refers to the extent of detail within the information (from highly summarized to very detailed).
- Information can describe many aspects of a business – internal (its operations), external (what's going around the organization), objective (something that is known), and subjective (something that is unknown).

**Key Term:** *Strategic management* - provides an organization with overall direction and guidance.

**Key Term:** *Tactical management* - develops goals and strategies outlined by strategic management.

**Key Term:** *Operational management* - manages and directs the day-to-day operations and implementations of the goals and strategies.

**Key Term:** *Information granularity* - refers to the extent of detail within the information.

**Key Term:** *Internal information* - describes specific operational aspects of the organization.

**Key Term:** *External information* - describes the environment surrounding the organization.

**Key Term:** *Objective information* - quantifiably describes something that is known.

**Key Term:** *Subjective information* - attempts to describe something that is unknown.

**Concept Reinforcement: Industry Perspective – Michael Dell Preaches Immediate Information Access (p. 13)**

- This industry perspective has some great quotes from Michael Dell, CEO and founder of Dell Computer, concerning the need to have immediate access to information.
- Because of immediate access to information, Dell carries only 3 to 4 days of inventory (the standard is about 45 days).
- Michael also states that having immediate access to information takes the “guess work” out of running a business – a goal for everyone.