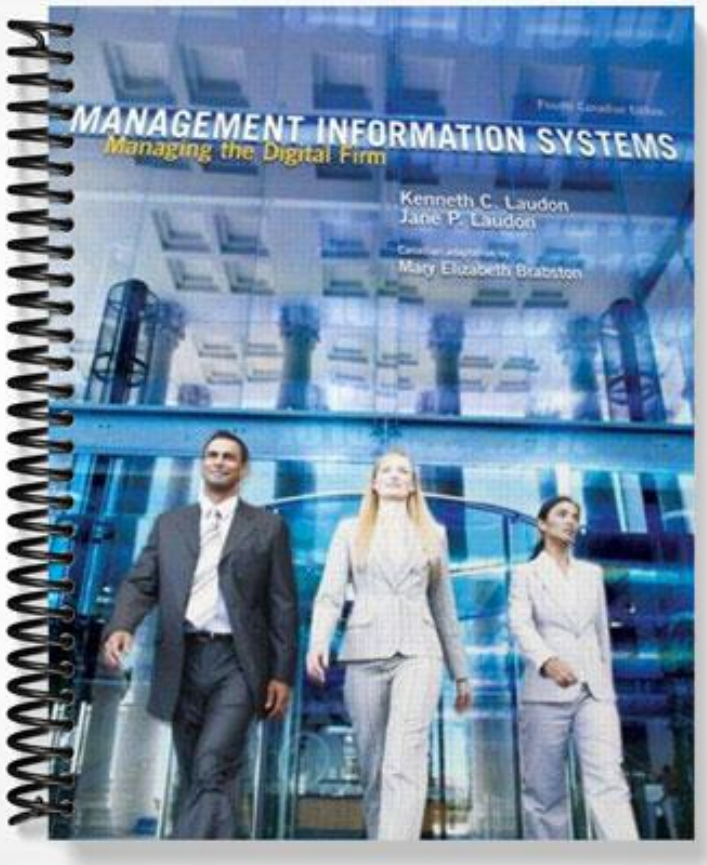
SOLUTIONS MANUAL



CHAPTER 1

Information Systems in Global Business Today

LEARNING OBJECTIVES

After reading this chapter, you will be able to:

1. Explain why information systems are so essential in business today.
2. Define an information system from both a technical and a business perspective.
3. Identify and describe the three dimensions of information systems.
4. Assess the complementary assets required for information technology to provide value to business.
5. Identify and describe complementary approaches to the study of information systems and distinguish between computer literacy and information systems literacy.

OPENING CASE: SMART SYSTEMS AND SMART WAYS OF WORKING HELP TOYOTA BECOME NUMBER ONE

Toyota has flourished in a highly competitive environment because it has created a set of finely-tuned business processes and information systems that simultaneously promote agility, efficiency, and quality. It can respond instantly to customers and changes in the marketplace as events unfold, while working closely with suppliers and retailers. The experience of Toyota and other companies described in this text will help you learn how to make your own business more competitive, efficient, and profitable.

The chapter-opening diagram highlights important points raised by this case and this chapter. As part of its ongoing effort to monitor quality, efficiency, and costs, Toyota management saw there was an opportunity to use information systems to improve business performance. Technology alone would not have provided a solution. Toyota had to carefully revise its business processes to support a build-to-order production model that based vehicle production on actual customer orders rather than "best guesses" of customer demand. Once that was accomplished, Oracle e-business software was useful

for coordinating the flow of information among disparate internal production, ordering, and invoicing systems within the company and with systems of retailers and suppliers.

By helping Toyota build only the cars customers have ordered, its vehicle order management system reduces inventory costs, because the company and its dealers do not have to pay for making and storing vehicles customers did not want. The system also increases customer satisfaction by making it easier for customers to buy exactly the model, make, and option they desire. Information provided by the system helps management monitor trends and forecast demand and production requirements more accurately. The system creates value for Toyota by making its ordering and production processes more efficient and effective. Electronically integrating key business processes in vehicle ordering and inventory management has made this company much more agile and adaptive to customer demands and changes in its supplier and dealer network.

The diagram at the beginning of the chapter can be used to show students how Toyota's vehicle orders management system helped them solve the business challenge presented by fierce competition and rapidly changing customer preferences. The diagram also illustrates how management, technology, and organizational elements work together to create the system.

1.1 THE ROLE OF INFORMATION SYSTEMS IN BUSINESS TODAY

Computers are changing every aspect of our lives from entertainment to shopping, from the work we do and where we do it, to how we communicate with friends and relatives. Even though we are still hearing negative news about the dot-com bubble from the late 1990s through 2001, the death of doing business on the Internet has been greatly exaggerated. Not only is it alive and well, but thriving. The difference between then and now is that many of the companies went bust primarily because of poor business planning or simply because their product wasn't viable to begin with. As you can see from the opening case in the text, many companies are remodeling their businesses and information systems with the Internet in mind.

Ask managers to describe their most important resources and they'll list money, equipment, materials, and people — not necessarily in that order. But more and more, managers consider information an important resource. As electronic business and electronic commerce grow in popularity and more firms digitize their operations, having useful information is becoming even more important to the global business community.

This chapter gives students an overview of many of the subjects we'll touch on in this course. It will help students understand how all firms today, large and small, local and global, use information systems to achieve important business objectives, such as operational efficiency, customer and supplier relationships, better decision making, and new products and services.

HOW INFORMATION SYSTEMS ARE TRANSFORMING BUSINESS

Technology has driven organizations to change the way they operate and that includes the way they manage. We're going to take an in-depth look at how organizations work and how they've been transformed by technology.

Information systems are the foundation for conducting business today. In many industries, survival and even existence is difficult without extensive use of information technology. No longer can we imagine going to work and conducting business without them. As a society we have come to rely extensively on the use of information appliances such as cell phones, BlackBerrys, handhelds, and other hardware. Communicating and conducting business is increasingly being carried out through the use of e-mail, online conferencing, and international teleconferencing over the Internet have all become essential tools of business.

In 2006, more than 38 percent of Canadian businesses had registered dot-com Web sites, and 56 of Canadian Internet users shop online. Information systems impact the workplace and the home, and increasingly bring businesses into the homes of Canadians.

GLOBALIZATION OPPORTUNITIES

Next time you purchase a product, any product, look at the fine print and see where it's made. It could be China, or the Philippines, or a South American company, or Canada. The Internet has supported international trade, allowing customers, suppliers and manufacturers to set up relationships online. Manufacturers can source the raw materials that they need from anywhere in the world; suppliers can consolidate online orders from multiple customers to take advantage of economies of scale; customers can compare costs of products from around the world. The global economy discussed in the text is being made possible by technology, and that's why it's so important that students understand how to use information systems technology instead of just computer technology. There's a big difference between the two, and we'll talk about it more.

THE EMERGING DIGITAL FIRM

A **digital firm** is one in which nearly all of the organization's significant business relationships with customers, suppliers, and employees are digitally enabled, and key corporate assets are managed through digital means.

Digital means that the information can be coded in such a way to allow it to be transmitted over computer networks, like the Internet, and stored on a computer medium, like a CD or a computer hard drive.

When a firm goes digital, it's not about just adding a computer system to the mix. Throwing a computer system at outdated **business processes** is exactly the wrong thing to do. A truly digital firm has several characteristics that distinguish it from most of the firms claiming to be digitized:

- Significant business relationships with customers, suppliers, and employees are digitally enabled and mediated.
- Core business processes are accomplished through digital networks and span the entire organization or link multiple organizations.
- Key corporate assets — intellectual property, core competencies, and financial and human assets — are managed through digital means.
- Internal and external environments are quickly recognized and dealt with.

And the number one reason digital firms experience greater opportunities for success and profits is because they view information technology as the "core of the business and the primary management tool."

The opening case about Toyota describes some of these features. Other companies such as Dell Computers use the Internet to allow customers to customize their computers, and to communicate with suppliers. Most organizations have some aspects of "being digital," whether it is communicating with employees, customers, or suppliers.

The Window on Organizations section describes Accenture, a consulting company that operates in 48 countries, with no traditional headquarters. Employees and managers use information technologies to work and communicate.

Bottom Line: Information systems do matter because of the increased need for capital management, the increased productivity that arises from their use, the strategic opportunities and advantages they offer, and because they are becoming the foundation of doing business around the world.

STRATEGIC BUSINESS OBJECTIVES OF INFORMATION SYSTEMS

Although many managers are familiar with the reasons why managing their typical resources such as equipment and people are important, it is worthwhile to take a moment to examine the growing interdependence between a firm's ability to use information technology and its ability to implement corporate strategies and achieve corporate goals. Specifically, business firms invest heavily in information to achieve six strategic business objectives:

- Operational excellence

- New products, services, and business models
- Customer and supplier intimacy
- Improved decision making
- Competitive advantage
- Survival

Operational Excellence

Businesses seek to improve the efficiency of their operations in order to achieve higher profitability. Information systems and technologies are some of the most important tools available to managers for achieving higher levels of efficiency and productivity in business operations, especially when coupled with changes in business practices and management behaviour.

WINDOW ON ORGANIZATIONS: VIRTUAL MANAGEMENT AT ACCENTURE

Accenture is a global consulting services and outsourcing firm with over 129 000 employees serving clients in 48 different countries. It has no operational headquarters and no formal branches, encouraging its employees to move from location to location to work on projects at client sites. Accenture is a networked organization in which groups of professionals come together — face to face or electronically — for short periods of time to accomplish a specific task; once the task is accomplished, the individuals join other task forces. Managers use e-mail, phones, the Web, and other information technologies to manage virtually, often while they are traveling themselves.

TO THINK ABOUT QUESTIONS

1. **What are the advantages of working in a virtual environment like the one created by Accenture? What are the disadvantages?**

   Advantages:

   - Consultants can work from virtually any location.
   - No operational headquarters and no formal branches.
   - No overhead costs required to maintain physical infrastructures.
   - Corporate data on the company's internal Web site can be accessed from anywhere in the world.
   - Increased communication capabilities.
   - Build and maintain closer client relationships while conducting work in the field.
   - Increased employee productivity.

- Elimination of unwanted "pop ins" from co-workers.
- Project work greatly enhanced and continues around the clock.
- Projects teams can be quickly formed and dissolved.
- Realization of time and space shifting.
- Outsourcing enables employees to concentrate on what they do best.
- Ability to determine the physical location of every traveling employee.
- Time spent in the field enables managers to obtain pertinent information from lower-level employees that they would not obtain otherwise.
- Managers build closer relationship with lower-level employees by visiting them at their work site.
- Manager visits to client sites helps to cement better client relationships.
- Flatter and leaner organizational levels. Especially lean management.

Disadvantages:

- Staff in constant motion. Productivity can be affected as employees suffer from the effects of jet leg.
- Isolates employees from their co-workers and managers.
- Lack of informal meetings can have negative effects.
- Disruptions on the personal lives of project team members located through the different time zones.
- Vulnerable and dependent on the abilities of outside firms to keep the systems running smoothly.
- Virtual executives are traveling around the clock, which could result in "burn out."
- Lack of feeling like there is a "home-base."
- Disruptive to personal lives.
- Staff may feel that because of their lack of physical presence in the workplace environment that they do not know where their careers are heading.

2. Would you like to work in a company like Accenture? Why or why not? Explain your answer.

Answers will vary in response to this question. Some may embrace the thought of working for a company like Accenture. The "rolling stone gathers no moss" type of environment appeals to some individuals. Others may seek the comfort of knowing that they have a home base, close family and personal relationships with colleagues, and a feeling of being in one place. Some students may state that they would like to see the world and this would be an excellent way to do it. Others may want to do that for a short period of time and then have a more grass-roots type of life.

3. **What kinds of companies could benefit from being run virtually like Accenture? Could all companies be run virtually like Accenture?**

   Any company that does not require a physical infrastructure could benefit from being run virtually like Accenture. Most likely, Accenture would be classified as a digital company. They are using technology to forge close digital integration with their suppliers, customers, and employees. Some quick suggestions to this answer may include firms such as large legal firms, architectural, exploration or drilling companies. Clearly, not all companies can be run like Accenture. Many firms still require a physical presence in most business operations.

MIS IN ACTION QUESTIONS

1. Go to the Accenture.com Web site (http://www.accenture.com/countries/canada). On the home page, Accenture promises to help its clients achieve "high performance." According to Accenture, how does information technology help create high performance organizations? Hint: Click on the "High Performance Business" link on the home page, or enter "information technology" in the search box on the home page, and read one of the articles linking IT with high-performance businesses. Write several paragraphs on Accenture's definition of a "high-performance" organization and the role of information systems in enabling such organizations.

2. OK, it's time to look for a job. What kinds of business and information system skills is Accenture looking for in recent college graduates? Hint: Click on the Careers tab and review the desired skills for customer care and SAP-related positions in Canada. Make a list of these skills in electronic presentation software for your class.

New Products, Services, and Business Models

Information systems and technologies are a major enabling tool for firms to create new products and services, as well as entirely new business models. A **business model** describes how a company produces, delivers, and sells a product or service to create wealth.

Apple Inc. transformed the traditional business model of buying music at physical stores when they developed the iPod, and started selling music online at iTunes. NetFlix, which uses the Internet to take orders from customers and distributes movies via the post office, has challenged the traditional Blockbuster online. Wal-Mart maintains its traditional brick-and-mortar existence, but has introduced new products, services on the Internet that supports its competitiveness and profitability.

Customer and Supplier Intimacy

When a business really knows its customers, and serves them well, the way they want to be served, the customers generally respond by returning and purchasing more. This raises revenues and profits. Likewise with suppliers: the more a business engages its suppliers, the better the suppliers can provide vital inputs. This lowers costs.

Fairmont Hotels and Resorts is an excellent example of how the use of information systems and technologies are extensively used to better serve their suppliers and retail customers. These hotels use information systems to keep track of guest preferences, and analyze their customer data to identify their best customers and create individualized marketing campaigns.

Improved Decision Making

Information systems and technologies have made it possible for managers to use real-time data from the marketplace when making decisions. Previously, managers did not have access to accurate and current data and as such relied on forecasts, best guesses, and luck. The inability to make informed decision resulted in raising costs and lost customers.

Competitive Advantage

Doing things better than your competitors, charging less for superior products, and responding to customers and suppliers in real time all add up to higher sales and higher profits that your competitors cannot match. Dell Computers and Wal-Mart are prime examples of how these companies used information systems and technologies to separate themselves from their competition. Dell remains the most efficient producer of PCs in the world. Wal-Mart is the most efficient retail store in the industry.

Survival

Firms also invest in information systems and technologies because they are necessities of doing business. In most businesses, information systems and technology is the core to survival. In the text, Citibank is described as the first banking firm to introduce ATMs. In doing so, they had a major competitive advantage over their competitors. In order to remain and survive in the retail banking industry, other banks had no choice but to provide ATM services to banking customers.

New federal and provincial statutes and regulations have resulted in giving firms no choice but to turn to information systems and technologies in order to comply with requirements for keeping records on many aspects of their business, including employee and financial records.

Bottom Line: Information systems help improve decision making, improve customer relationships, and can provide competitive advantage for organizations. In many cases organizations (accounting, universities) have no choice but to use information systems to maintain records and comply with government regulations. Other organizations will use information systems to position themselves above their competition (e.g. amazon.com, wal-mart.com)

1.2 PERSPECTIVES ON INFORMATION SYSTEMS

Information technology (IT) consists of all the hardware and software that a firm needs to use in order to achieve its business objectives.

WHAT IS AN INFORMATION SYSTEM?

This section defines many of the terms used in the textbook.

Information technology (IT) is described as the hardware (including computers, printers, handheld devices, etc.) and software (operating systems, productivity software such as Word, and other programs).

Students should also be introduced to the term **ICT**, information and communications technology.

A distinction is made between **data** (raw facts) and **information** (data that have been shaped into a meaningful form), although in many cases the terms are used interchangeably. In some recent literature, it has been proposed that the distinction is pedantic, and the distinction can be ignored. As an instructor, you can decide whether the distinction is critical in your class.

One area of discussion where it is useful to have the distinction is when you discuss the activities in an information system: **input**, **processing**, **output,** and **feedback.**

Figure 1-5 shows that data are captured during the input function, and are processed before information is output to the people who will use it to make decisions.

Feedback completes the information processing loop. This is output that is used to evaluate and correct, if needed, the input activity.

You might want to use an example to illustrate the activities. One example is a student registration system, where the input data are the student number, course number, time slot. The data are processed to determine if there is seat availability in the course, and the output would include a class list (for the professor) and an email confirmation (to the student). Feedback might include a message that the student is not registered, or has outstanding fees, and cannot be processed.

This example can also be used to discuss the elements of a computer based information system, such as the hardware components (scanners, processors, printers, and display monitors), the software components (the programs that compare the registration request with the availability; the programs that check for valid registration).

DIMENSIONS OF INFORMATION SYSTEMS

There is a distinct difference between possessing **information systems literacy** and **computer literacy**. Many students may consider themselves to be computer literate; they are familiar with the Internet, online gaming, storing music on their computers, and using PowerPoint and Word. This is a good time to distinguish between IS and computers, and describe the field of management information systems (MIS). The question can be asked "What is MIS?" and students may give different answers.

It is important to emphasize that the study of **management information systems** (MIS) deals with behavioural issues as well as technical issues surrounding the development, use, and impact of information systems used by managers and employees in the firm. As such, MIS is defined as the study of information systems focusing on their use in business and management. Figure 1-6 can be used to lead the discussion, and to understand the dimensions of information systems, and that they are "more than computers."

FIGURE 1-6 *Information systems are more than computers*

Using information systems effectively requires an understanding of the organization, management, and information technology shaping the systems. An information system creates value for the firm as an organizational and management solution to challenges posed by the environment.

Organizations

Each organization tends to have its own individual personality and yet share many things in common with other organizations. Students can look at some of the organizations with which they may be associated — softball team, student union/council, health club, or a company for which they work. Each has its own structure that reveals its hierarchy.

In every organization you'll find **senior managers** making long-range decisions, **middle managers** carrying out the plans and goals set by senior managers, and **operational managers** handling the day-to-day operations of the company. As we'll see, information systems output must be geared to each of these levels of management.

Just as every softball team needs good players at different positions, a business organization requires different employees to help it succeed. **Knowledge workers** help create new knowledge for the organization and **data workers** help process the paperwork

necessary to keep an organization functioning. **Production and service workers** allow the company to create its products and services, and get them to the customer?

Students may have some difficulty in understanding knowledge work, and you can use examples from organizations: engineers (plans for buildings/bridges), professors (creating knowledge through research), and architects (house designs). You can discuss how IS can support this type of work; this will also be discussed in more detail in later chapters.

The larger the organization, the more formal the management structure, including the need for standard operating procedures (SOPs). SOPs can help streamline standard business processes so that managers and employees can properly complete their tasks in a more efficient manner. Many companies now integrate these business processes into their information systems to ensure uniformity, consistency, and compliance. As we'll see in upcoming chapters, many companies are even incorporating the informal work processes into their information systems in an effort to capture as much corporate knowledge as possible.

Each organization also has a unique **culture**, or fundamental set of assumptions, values, and ways of doing things, that has been accepted by most of its members. Many students would agree that the professors probably know more than them, and that one reason they attend university is to learn from them.

Management

Students will understand that managers are needed to make decisions and plan for the future. Think about how IS at a university can support day-to-day planning (e.g., how many classrooms are needed to handle student enrollments) and long term planning (e.g., how to recruit more international students). Other examples can come from organizations where students may have worked (e.g., fast food industry: how many burgers to produce, and where to build a new location).

Technology

You should discuss the main aspects of technology including hardware and software, but also include networks and telecommunications technology and database technology.

To describe the IT infrastructure of an organization, you can use an example such as the UPS "Windows on Technology" which follows, or use an example such as the university library. The library will have examples of databases (catalogue, online journals, statistical databases), and use the Internet or other networks to connect students to these databases. The university library will also have a Web page that provides an interface for the student to access the library resources, and may also provide links to other offsite resources. This example can also be used to illustrate the difference between intranets (e.g., information only available to registered students) and extranets (e.g., information available to select external partners, perhaps alumni or other university partners).

All these technologies along with the people who manage and run them (and create them) constitute the organization's **information technology (IT) infrastructure**.

WINDOW ON TECHNOLOGY: UPS COMPETES GLOBALLY WITH INFORMATION TECHNOLOGY

The Window on Technology describes some of the typical technologies used in computer-based information systems today. United Parcel Services (UPS) invests heavily in information systems technology to make its business more efficient and customer oriented. It uses an array of information technologies.

TO THINK ABOUT QUESTIONS

1. What are the inputs, processing, and outputs of UPS's package tracking system?

Inputs: The inputs include package information, customer signature, pickup, delivery, time-card data, current location (while en route), and billing and customer clearance documentation.

Processing: The data are transmitted to a central computer and stored for retrieval. Data are also reorganized so that they can be tracked by customer account, date, driver, and other criteria such as the consolidation of orders for efficient final delivery of packages.

Outputs: The outputs include pickup and delivery times, location while en route, and package recipient. The outputs also include various reports, such as all packages for a specific account or a specific driver or route, as well as summary reports for management.

2. What technologies are used by UPS? How are these technologies related to UPS's business strategy?

Technologies consist of handheld computers (DIADs), bar-code scanners, wired and wireless communications networks, desktop computers, UPS's central computer, storage technology for the package delivery data, UPS in-house package tracking software, and many different pieces of software to access the Internet and many different pieces of software for tracking packages, calculating fees, maintaining customer accounts, and managing logistics.

The Web serves as the foundation for new kinds of information systems such as their Web-based package tracking system. Through the use of DIADs, the UPS drivers automatically capture customers' signatures along with pickup, delivery, and time-card information. UPS's information systems use these data to track packages while they are being transported. The result is an information system solution to the business challenge of providing a high level of service with low prices in the face of mounting competition.

UPS has used the same strategy for over 90 years. Its strategy is to provide the "best service and lowest rates." One of the most visible aspects of technology is the customer's ability to track his/her package via the UPS Web site. However, technology also enables data to seamlessly flow throughout UPS and helps streamline the workflow at UPS. Thus, the technology described in the scenario enables UPS to be more competitive, efficient, and profitable. UPS's culture has been centered on placing service to the customer first. This company philosophy can clearly be found in their package tracking systems.

3. **What problems do UPS's information systems solve? What would happen if these systems were not available?**

   UPS is able to quickly access up-to-date information on which to make better decisions. Information systems help UPS managers to make better decisions. Through the use of information technology, UPS has made their business processes more efficient, which in turn has resulted in higher revenues.

   These technologies also provide value for the company because they are seen as an asset from the customers' perspective. The technologies are seen as helping the customers' complete their tasks more efficiently, which in turn is seen as value-added services as opposed to increasing the cost of sending packages.

   Arguably, UPS might not be able to compete effectively without the technology. If the technology were not available, then UPS would, as it has through most of its history, attempt to provide that information to its customers, but at higher prices.

MIS IN ACTION

Explore the UPS Web site http://www.ups.ca and answer the following questions:

1. What kinds of information and services does the Web site provide for individuals, small businesses and large businesses? List these services and write several paragraphs describing one of them, such as UPS Trade Direct or Automated Shipment Processing. Explain how you or your business would benefit from the service.

2. Explain how the Web site helps UPS achieve some or all of the strategic business objectives we described earlier in this chapter. What would be the impact on UPS's business if this Web site was not available?

IT ISN'T JUST TECHNOLOGY: A BUSINESS PERSPECTIVE ON INFORMATION SYSTEMS

From a business perspective, an information system provides a solution to a problem or challenge facing a firm and provides real economic value to the business. The decision to build or maintain an information system assumes that the returns on this investment will be superior to other investments in buildings, machines, or other assets. These superior returns will be expressed as:

- Increased productivity
- Increased revenues
- Enhanced organizational performance

From a business perspective, an information system is an important instrument for creating value for the firm. Information systems enable the firm to increase its revenue or decrease its costs by providing information that helps managers make better decisions or that improves the execution of business processes.

COMPLEMENTARY ASSETS: ORGANIZATIONAL CAPITAL AND THE RIGHT BUSINESS MODEL

This section can be used to have students give examples of companies that have used information systems to achieve better results than others. Some examples might be Blockbuster versus Netflix, and UPS versus Canada Post.

You can also reveal the discussion in the literature and popular media around the question whether investment in IT really produces value (especially increases in productivity and shareholder value).

This discussion will reveal that it has been found that organizations need to invest in **complementary** assets as well as technology in order to produce value: a firm must invest in building new business models and processes, changing management behaviour and organizational culture, emphasizing employee training in technology, and creating new partnerships with suppliers, customers, and even competitors. Table 1-2 describes some of the complementary social, managerial, and organizational assets that an organization needs in order to realize returns from IT investments.

Notice the emphasis on training, management support and teamwork, etc. This can be a foundation for the rest of the book: the course emphasizes that managers must consider broad organizational and managerial dimensions to derive benefits from information system investments.

TABLE 1-2 *Complementary Social, Managerial, and Organizational Assets Required to Optimize Returns from Information Technology Investments*

ORGANIZATIONAL ASSETS	Supportive organizational culture that values efficiency and effectiveness
	Efficient business processes
	Appropriate business model
	Decentralized authority
	Distributed decision-making rights
	Strong IS development team
MANAGERIAL ASSETS	Strong senior management support for technology investment and change
	Incentives for management innovation
	Teamwork and collaborative work environments
	Training programs to enhance management decision skills
	Management culture that values flexibility and knowledge-based decision making
SOCIAL ASSETS	The Internet and telecommunications infrastructure
	IT-enriched educational programs raising labour force computer literacy
	Standards (both government and private sector)
	Laws and regulations creating fair, stable market environments
	Technology and service firms in adjacent markets to assist implementation

Bottom Line: Information literacy is more than just clicking a mouse, pounding the computer keyboard, or surfing the Web. It's about integrating the various elements of an organization, technical and nontechnical, into a successful enterprise. As a successful manager you must concentrate on all the dimensions (organizations, IT, management) and integrate them into a single, cohesive system that serves the needs of the organization, the wants of the customer, and the desires of the employees. The more complex the system, the harder to manage, but the greater the payoff.

1.3 CONTEMPORARY APPROACHES TO INFORMATION SYSTEMS

The study of information systems deals with issues and insights contributed from technical and behavioural disciplines. The disciplines that contribute to the technical approach are computer science, management science, and operations research. The disciplines contributing to the behavioural approach are psychology, sociology, and economics.

TECHNICAL APPROACH

Some students may think that this course will follow a technical approach. You can clarify that it is the disciplines of computer science, management science, and operations research are those that contribute to the technical aspects of information systems, but that this course is not singularly technical.

BEHAVIOURAL APPROACH

It is interesting to point out that there is much research in the information systems field that looks at behavioural aspects of information systems. You can give examples of some of this research, such as looking at how people's brains process information, and how humans best use graphical user interfaces (such as icons on a desktop).

APPROACH OF THIS TEXT: SOCIOTECHNICAL SYSTEMS

An organization can't afford to view its information resources as belonging to either the techies (technical approach) or the non-techies (behavioural approach). Responsibility for information belongs to everyone in the organization. This is the **sociotechnical** approach — a combination of the two approaches. Everyone has to work together to ensure that information systems serve the entire organization.

To help you understand the importance of viewing management information systems using the sociotechnical approach, look at what trade journals have said. David Haskin, writing in the April 1999 issue of *Windows* Magazine, quotes Steve Roberts, vice president of information technology for Mind Spring Enterprises, an Atlanta-based Internet service provider: "The gap in understanding between technical and nontechnical people is the biggest challenge I've seen." Haskin goes on to say, "Because technology is the bedrock on which successful businesses are built, the stakes in making this relationship work are high. Failing to use the correct technology can put you at a competitive disadvantage, and glitches in existing technologies can bring a business to a grinding halt."

Bottom Line: Information systems and the use of technology belong to *everyone* in an organization. This concept is best carried out through a sociotechnical approach to viewing information systems, which allows both the technical and behavioural approaches to be combined for the good of the organization.

SUMMARY

1. ***Explain why information systems are so essential in business today.***

Information systems are a foundation for conducting business today. In many industries, survival and even existence is difficult without extensive use of information technology. Information systems have become essential for helping organizations operate in a global economy. Organizations are trying to become more competitive and efficient by transforming themselves into digital firms where nearly all core business processes and relationships with customers, suppliers, and employees are digitally enabled. Businesses today use information systems to achieve six major objectives: operational excellence; new products, services, and business models; customer/supplier intimacy; improved decision making; competitive advantage; and day-to-day survival.

2. ***Define an information system from both a technical and a business perspective.***

From a technical perspective, an information system collects, stores, and disseminates information from an organization's environment and internal operations to support organizational functions and decision making, communication, coordination, control, analysis, and visualization. Information systems transform raw data into useful information through three basic activities: input, processing, and output. From a business perspective, an information system provides a solution to a problem or challenge facing a firm and provides real economic value to the business.

3. ***Identify and describe the three dimensions of information systems.***

An information system represents a combination of management, organization, and technology elements. The management dimension of information systems involves leadership, strategy, and management behaviour. The technology dimensions consist of computer hardware, software, data management technology, and networking/telecommunications technology (including the Internet). The organization dimension of information systems involves the organization's hierarchy, functional specialties, business processes, culture, and political interest groups.

4. ***Assess the complementary assets required for information technology to provide value to a business.***

An information system is part of a series of value-adding activities for acquiring, transforming, and distributing information to improve management decision making, enhance organizational performance, and, ultimately, increase firm profitability. Information technology cannot provide this value unless it is accompanied by supportive changes in organization and management called complementary assets. These complementary assets include new business models, new business processes, a supportive organizational culture, incentives for management support and innovation, training, and social assets such as standards, laws and regulations, and

telecommunications infrastructure. Firms that make appropriate investments in these complementary assets, also known as organizational and management capital, receive superior returns on their information technology investments.

5. ***Identify and describe contemporary approaches to the study of information systems and distinguish between computer literacy and information systems literacy.***

   The study of information systems deals with issues and insights contributed from technical and behavioural disciplines. The disciplines that contribute to the technical approach are computer science, management science, and operations research. The disciplines contributing to the behavioural approach are psychology, sociology, and economics.

   Information systems literacy requires an understanding of the organizational and management dimensions of information systems as well as the technical dimensions addressed by computer literacy. Information systems literacy draws on both technical and behavioural approaches to studying information systems. The field of management information systems (MIS) promotes information systems literacy by combining all of these disciplines with a practical orientation toward developing system solutions to real-world problems and managing information technology resources.

KEY TERMS

The following alphabetical list identifies the key terms discussed in this chapter.

Business functions — specialized tasks performed in a business organization, including manufacturing and production, sales and marketing, finance and accounting, and human resources.

Business model — an abstraction of what an enterprise is and how the enterprise delivers a product or service, showing how the enterprise creates wealth.

Business processes — the unique ways in which organizations coordinate and organize work activities, information, and knowledge to produce a product or service.

Complementary assets — additional assets required to derive value from a primary investment.

Computer hardware — physical equipment used for input, processing, and output activities in an information system.

Computer literacy — knowledge about information technology, focusing on understanding how computer-based technologies work.

Computer software — detailed, preprogrammed instructions that control and coordinate the work of computer hardware components in an information system.

Culture — fundamental set of assumptions, values, and ways of doing things that has been accepted by most members of an organization.

Data — streams of raw facts representing events occurring in organizations or the physical environment before they have been organized and arranged into a form that people can understand and use.

Data management technology — the software that governs the organization of data on physical storage media.

Data workers — people such as secretaries or bookkeepers who process the organization's paperwork.

Digital firm — organization in which nearly all significant business processes and relationships with customers, suppliers, and employees are digitally enabled and key corporate assets are managed through digital means.

Extranets — private intranet that is accessible to authorized outsiders.

Feedback — output that is returned to the appropriate members of the organization to help them evaluate or correct input.

Information — data that have been shaped into a form that is meaningful and useful to human beings.

Information system — interrelated components working together to collect, process, store, and disseminate information to support decision making, coordinate, control, analysis, and visualization in an organization.

I*nformation systems literacy* — broad-based understanding of information systems that includes behavioural knowledge about organizations and individuals using information systems as well as technical knowledge about computers.

Information technology (IT) — all the hardware and software technologies that a firm needs to use in order to achieve its business objectives.

Information technology (IT) infrastructure — computer hardware, software, data, storage technology, and networks providing a portfolio of shared IT resources for the organization.

Input — the capture or collection of raw data from within the organization or from its external environment for processing in an information system.

Internet — international network of networks that is a collection of hundreds of thousands of private and public networks.

Intranets — an internal network based on Internet and World Wide Web technology and standards.

Knowledge workers — people, such as engineers or architects, who design products or services and create knowledge for the organization.

Management information systems (MIS) — the study of information systems focusing on their use in business and management.

Middle management — people in the middle of the organizational hierarchy who are responsible for carrying out the plans and goals of senior management.

Network — the linking of two or more computers to share data or resources, such as a printer.

Networking and telecommunications technology — physical devices and software that link various pieces of hardware and transfer data from one physical location to another.

Operational management — people who monitor the day-to-day activities of the organization.

Organizational and management capital — investments in organization and management such as new business processes, management behaviour, organizational culture, or training.

Output — the distribution of processed information to the people who will use it or to the activities for which it will be used.

Processing — the conversion, manipulation, and analysis of raw input into a form that is more meaningful to humans.

Production or service workers — people who actually produce the products or services of the organization.

Senior management — people occupying the top most hierarchy in an organization who are responsible for making long-range decisions.

Sociotechnical view — design to produce information systems that blend technical efficiency with sensitivity to organizational and human needs.

World Wide Web (WWW) — a system with universally accepted standards for storing, retrieving, formatting, and displaying information in a networked environment.

REVIEW QUESTIONS

1. Describe three ways in which information system are transforming business.

- Communication — cell phones, BlackBerrys, handhelds, e-mail, online conferencing, and international teleconferencing over the Internet have all become essential tools of business.
- Media markets — access to news online, reading and writing blogs, and increases in e-commerce and Internet advertising.
- Data warehouses and data mining — allowing companies to understand and target their customers, and also spurring the growth of privacy legislation to protect the rights of individuals.

2. Describe the qualities of a digital firm. Why are digital firms so powerful?

A digital firm is one in which nearly all of the organization's significant business relationships with customers, suppliers, and employees are digitally enabled and mediated. Qualities of a digital firm include:

- Core business processes are accomplished through digital networks spanning the entire organization or linking multiple organizations.
- Key corporate assets – intellectual property, core competencies, and financial and human assets – are managed through digital means.
- Digital firms sense and respond to their environments far more rapidly than traditional firms, giving them more flexibility to survive in turbulent times.
- Digital firms offer extraordinary opportunities for more flexible and global organization and management.
- In digital firms, both time shifting and space shifting are the norm.

Digital firms are powerful because they extensively use Internet technology for electronic commerce and electronic business to manage their internal processes and relationships with customers, suppliers, and other external entities. Because a digital firm relies heavily on information technology to enable, mediate, and streamline its internal and external operations, the firm is more flexible, profitable, competitive, and efficient than a traditional firm.

Supply chain management systems, customer relationship management systems, enterprise systems, and knowledge management systems are the four principal systems driving the movement toward digital firms. As the textbook suggests, these four systems are where corporations are digitally integrating information flows and making significant information systems investments.

3. List and describe six reasons why information systems are so important for business today.

Six reasons why information systems are so important for business today include:

- Operational excellence
- New products, services, and business models
- Customer and supplier intimacy
- Improved decision making
- Competitive advantage
- Survival

Information systems are the foundation for conducting business today. In many industries, survival and even existence without extensive use of IT is inconceivable, and IT plays a critical role in increasing productivity. Although information technology has become more of a commodity, when coupled with complementary changes in organization and management, it can provide the foundation for new products, services, and ways of conducting business that provide firms with a strategic advantage.

4. What is an information system? What activities does it perform?

The textbook defines an information system as interrelated components that work together to collect, process, store, and disseminate information to support decision making, coordination, control, analysis, and visualization in an organization. A computer is the physical equipment used for input, processing, and output activities in an information system. Computer programs provide the computer with necessary instructions on how to process the data into information. Data are raw facts; these raw facts, in their current form, are not in a useful format. Information is data that have been processed into a useful, meaningful form.

It is important for students to recognize that a computer and an information system are not equivalent. It is important to stress that information systems have management, organization, and technology dimensions. Computers and programs are technology components of an information system. Without addressing the organization and management dimensions, the technology components are relatively useless. For instance, you can purchase a computer and software, but unless you have determined how the technology will be used to help manage and organize your work, you essentially have a decorative box for your desk.

5. What is the difference between data and information?

Data are streams of raw facts representing events occurring in organizations or the physical environment before they have been organized and arranged into a form that people can understand and use.

Information is data that have been shaped into a form that is meaningful and useful to human beings.

6. What is information systems literacy? How does it differ from computer literacy?

Information literacy is more concerned with creating information useful to an organization and its employees, whereas computer literacy addresses the simple use of computers. As technology uses spread beyond traditional computers, information literacy enables employees and organizations to gain an edge over their competition

7. List and describe the organizational, management, and technology dimensions of information systems.

Organization: The organization dimension of information systems involves issues such as the organization's hierarchy, functional specialties, business processes, culture, and political interest groups.

Management: The management dimension of information systems involves issues such as training, job attitudes, and management behaviour.

Technology: The technology dimension consists of computer hardware, software, data management technology, and networking/telecommunications technology.

8. What are the Internet and the World Wide Web? How have they changed the role played by information systems in organizations?

The *Internet* is the world's largest and most widely used network. It is a global "network of networks" that uses universal standards to connect millions of different networks with more than 350 million host computers (public and private networks) in over 200 countries around the world. Over 500 million people working in science, education, government, and business connect to the Internet ever day. Individuals and organizations use the Internet to exchange information and perform business transactions with other individuals and organizations around the globe. It should be noted that the digital firm uses the Internet as its primary technology platform. The Internet has created a new "universal" technology platform on which to build new products, services, strategies, and business models. For most business firms today, using Internet technology is both a business necessity and a competitive advantage.

The *World Wide Web* is a system with universally accepted standards for storing, retrieving, formatting, and displaying information in a networked environment. The Web is a part of the Internet that provides a graphically-based system of pages for storing information on the Internet. Web pages contain text, graphics, animations, sound and video and are linked to other Web pages. By clicking on highlighted words or buttons on a Web page, you can link to related pages to find additional information and links to other locations on the Web.

The Internet and World Wide Web have had a tremendous impact on the role information systems play in organizations. The Internet and World Wide Web are

responsible for the increased connectivity and collaboration within and outside the organization. The Internet, World Wide Web, and other technologies have led to the redesign and reshaping of organizations. The Internet and World Wide Web have helped transform the organization's structure, scope of operations, reporting and control mechanisms, work practices, work flows, and products and services.

9. What is the purpose of an information system from a business perspective? What role does it play in the business information value chain?

Information systems facilitate the acquisition, transformation, and distribution of information. Information systems can improve decision making, enhance organizational performance, and help increase firm profitability, thus contributing to corporate value.

10. Why do some firms obtain greater value from their information systems than others? What role do complementary assets and organizational and management capital play?

Firms must rely on supportive values, structures, and behaviour patterns to obtain a greater value from their IT investments. Value must be added through complementary assets such as new business processes, management behaviour, organizational culture, and training. The complementary assets and organizational and management capital provide the necessary business culture that values efficiency and effectiveness, decentralized authority, highly-distributed decision rights, and a strong IS development team.

11. Distinguish between a behavioural and a technical approach to information systems in terms of the questions asked and the answers provided. What major disciplines contribute to an understanding of information systems?

A behavioural approach to information systems focuses on questions such as strategic business integration, behavioural problems of systems utilization, system design and implementation, social and organizational impacts of information systems, political impacts of information systems, and individual responses to information systems. Solutions to problems created by information technology are primarily changes in attitudes, management, organizational policy, and behaviour.

A technical approach to information systems emphasizes mathematically-based models to study information systems and the physical technology and formal capabilities of information systems. Students should know the differences between computer science (theories of computability, computation methods, and data storage and access methods), management science (development of models for decision making and managerial practice), and operations research (mathematical techniques for optimizing organizational parameters such as transportation, inventory control and transaction costs).

DISCUSSION QUESTIONS

1. **Information systems are too important to be left to computer specialists. Do you agree? Why or why not?**

   Although student answers will vary, this is a good place to reiterate that information systems are more than just technology. Information systems development and usage involves organization, management, and technology dimensions. It is important to understand who will use the information systems and how the information systems will be used to facilitate decision making and control within the organization. Computer specialists understand the technology and definitely play an important role within the development and maintenance of information systems. Computer specialists have an in-depth technology background, but may not be well versed in the business or its operations. This is why computer specialists should function as part of a team, and this team should have the hybrid strength of many different skills and personalities. The team should definitely understand the business, the business requirements, and the goals for the information systems. The opening case and the case study are good examples to reinforce the answer to this question.

2. **It has been said that Toyota's most valuable asset is "The Toyota Way." Discuss the implications of this statement for the role of information systems in that company.**

   Although Opening Case on Toyota does not make reference to the statement "The Toyota Way", students should have no difficulty answering the question. A good starting point is to use Table 1-1 on page 15 to flush out some suggestions. The critical element in this answer is by outlining the important role that information systems play at Toyota to encompass several of their business processes. As the text points out, Toyota has been successful in this highly competitive environment because they have created a set of finely-tuned business processes and information systems that simultaneously promote agility, efficiency, and quality. It can respond instantly to customers and changes in the marketplace as events unfold, while working closely with suppliers and retailers. By redesigning their business operations to take advantage of new information system technologies they were able to outperform their competitors. Toyota based its business processes and information systems on the principles of just-in time inventory, quality, and continuous improvement. By organizing their business principles around these three principles, Toyota is able to deliver value to their customers at a competitive price. Toyota is able to respond to rapidly changing customer demand, reduce inventories to the lowest possible levels, and achieve higher levels of operational efficiency.

3. **Read the Learning Track Module of Nicholas Carr's article on whether or not information systems matter. Discuss whether or not you think that information systems are mere commodities or utilities, such as electricity or water, or whether they add value and if so, how.**

   One good way to discuss this topic is to have students take either side of the question, and form the class as a debate. In order for the activity to have meaning, students should understand that IT can be used at different levels of the organization. For instance, at the operational level, students may agree that IT is a commodity and a standard cost-of-doing-business. However, at the strategic level, some businesses use IT to create an advantage over their competition. Examples include Citibank (ATMs), Amazon (online ordering technology), and Dell computers (customizing computer orders). The question becomes whether or not competitive advantage can be sustained, or if competitors can copy the technology and compete. This is Carr's argument. It has also been borne out by the examples of most companies. However, organizations that use technology for sustained competitive advantage find new ways of using technology to create competitive advantage. In summary, although technology can be copied and replicated, there are always new ways to use technology to create competitive advantages.

4. **How has the advent of online computing influenced your school? Think of specific information systems that are used by your school. How much computer literacy does your school require of its students? Its employees? Why are these requirements mandated for most (certainly not all) jobs?**

   Some examples of IS include:

   - Library system (online journals, book requests, talk to a librarian online)
   - Registration system
   - Online classes
   - Financial system (tuition, fees)
   - Human resources (payroll, hiring)
   - Student recruitment system
   - Student services
     - Residence/housing system
     - Scholarships
     - Student societies
   - Alumni services
     - Donations
     - Events
     - Communications

   Most universities require students to have an email account for official communications, and to be able to access services such as registration, library and student services. Some universities only allow online registrations.

Employees need to use the information systems to apply for new jobs and transfers, access their vacation records, and their pension and benefits statements.

Email is the standard mode of communications at most universities.

Universities, like many other organizations, are moving their processes online and more-and-more are delivered using Internet technologies (Web, intranets). People will need to be computer literate to access services.

TEAMWORK: ANALYZING A BUSINESS SYSTEM

In a group with three or four classmates, find a description in a computer or business magazine of an information system used by an organization. Look for information about the company on the Web to gain further insight into the company, and prepare a brief description of the business. Describe the system in terms of its inputs, processes, and outputs and in terms of its organization, management, and technology features and the importance of the system to the company. If possible, use presentation software to present your analysis to the class.

The purpose of this project is to visualize and understand the main components of an information system and to understand the organizational context of an information system. Students' responses will vary, but you can direct them to online magazines such as www.cio.com, www.businessweek.com, or www.canadianbusiness.com. There will be many examples of companies, some of which are implementing ERPs. You could ask them to choose a particular industry sector (e.g. grocery stores, retail stores, education, stock brokers, banks) to allow students to compare results.

For example, if the system is a payroll system, inputs might include employee personal information (such as name, address, state, dependent names), tax information, special deductions (such as employee pension plan, medical insurance), pay type (hourly, weekly, salary, commission), pay period, and hours worked. Processes would include calculating gross pay, deductions, taxes and net pay, and updating employee information such as deductions. Outputs include updated employee records, pay stubs and cheques (or pay stubs and direct deposit tape), and perhaps retrieval through an online system.

Technology includes the types of computers, storage mediums, the payroll software used, and the database technology. An organizational description might include the size and type of staff required to run the system. It might also include the place of the payroll system within the larger organization (Human Resources function or Accounting function, for example).

Management might include payroll management problems the system solved or is designed to solve. For example, it may have been installed to expedite pay, eliminate paper, or solve a government regulatory problem.

The description of inputs, processes, and outputs are important. Most systems are critical for the organizations' operations; some will provide competitive advantage within their industry.

LEARNING TRACK MODULE

How Much Does IT Matter? In May 2003, Nicholas Carr, an editor at *Harvard Business Review*, wrote an article titled "IT Doesn't Matter." This and subsequent articles with a similar theme created a vigorous debate about the potential and actual role of information technology and systems in creating business strategic advantage. If you would like to participate in this debate and learn more about it, you will find a Learning Track Module on this topic at the MyMISLab site for this chapter. You can also find more information about the current state of this debate on the Web. Just Google "IT doesn't matter" and read several rebuttals, one of the best being an article by Robert M. Metcalfe, inventor of Ethernet, a major networking technology, called "Why I.T. Matters," (*MIT Technology Review*, January 2004). It's free at Technologyreview.com on the Internet. IT really does matter!

HANDS-ON MIS: APPLICATION EXERCISES

UNDERSTANDING INFORMATION SYSTEMS REQUIREMENTS: DIRT BIKES CANADA

Software skills: Presentation software
Business skills: Management analysis and information system recommendations

At the MyMISLab site, students will find information on Dirt Bikes Canada, including the company history and organizational chart. Students should review these files and answer the following questions.

1. **What are the company's goals and culture?**

   Dirt Bikes appears to have a very democratic, employee-friendly culture, emphasizing ongoing learning, quality, attention to detail, and employee contributions.

2. **What products and services does Dirt Bikes Canada provide? How many types of products and services are available to customers? How does Dirt Bikes sell its products?**

   Dirt Bikes specializes in off-road and motocross motorcycles that emphasize racing performance, styling, and best quality parts sourced from all over the world. It is a small company producing only four models. Dirt Bikes sells through a network of authorized dealers. Its sales department is responsible for working with these distributors and finding ways to promote Dirt Bikes.

3. **How many employees are managers, production workers, or knowledge or information workers? Are there levels of management?**

   The company is very small and not very hierarchical. Most of the employees are in production. Many of its departments have less than ten people. Production is probably the only department that warrants more than one manager. One might expect to see separate managers for Service, Shipping and Receiving, Parts, and Design and Engineering and perhaps several additional managers for Manufacturing.

4. **What kinds of information systems and technologies would be the most important for a company such as Dirt Bikes? (Optional) Use electronic presentation software to summarize for management your analysis of Dirt Bikes Canada's performance.**

   One would expect to see information systems supporting manufacturing and production and sales and marketing being the most important for this company. Such systems would help the company monitor work on the assembly line, obtain parts from suppliers, monitor orders from distributors, and provide parts and servicing information. A company Web site to publicize the unique features of this brand and its connection to motorcycle racing events would also be very valuable.

IMPROVING DECISION MAKING: USING DATABASES TO ANALYZE SALES TRENDS

Software skills: Database querying and reporting
Business Skills: Sales trend analysis

The MyMISLab for Chapter 1 contains an MS-Access database of sales transactions on weekly store sales of computer equipment in various sales regions. The data for this exercise is in the file named Database_Q.mdb, which is in the Chapter 1 folder.

This exercise helps students understand how a raw file of sales transactions can be analyzed using database software to produce valuable information for managers. The solutions provided here were created using the query wizard and report wizard capabilities of Microsoft Access. Students can, of course, create more sophisticated reports if they wish, but much valuable information can be obtained from simple query and reporting functions. The main challenge is to get students to ask the right questions about the information. Some questions which can be analyzed include:

1. **Which products should be restocked?**
2. **Which stores and sales regions would benefit from a promotional campaign and additional marketing?**
3. **When (what time of year) should products be offered at full price, and when should discounts be used?**

The answers to the above questions can be found in the file named Database_S.mdb, which is in the Chapter 1 folder.

ACHIEVING OPERATIONAL EXCELLENCE: USING INTERNET SOFTWARE TO BUDGET FOR SHIPPING COSTS

Software skills: Internet-based software
Business Skills: Information-driven decision making and cost management

Compare three shippers, such as Federal Express (www.fedex.ca), UPS (www.ups.ca), and Canada Post (www.canadapost.ca). Consider not only costs but also such issues as delivery speed, pickup schedules, drop-off locations, tracking ability, and ease of use of the Web site. Which service did you select? Explain why in a slide presentation.

Although student answers will vary, a Microsoft Excel spreadsheet was created as a guide for the services and prices of each of the three shippers. Please see the file named Shipping_S.xls in the Chapter 1 folder.

After examining the solution, you may direct students to discuss whether being the low cost shipper is always the best, or should the value-added services, such as an easy Web site, be factored into the equation. There will be times in business when the lowest cost is the only decision factor while at other times, customer service, etc. will be more critical.

CASE STUDY: HOW THE ROYAL CANADIAN GOLF ASSOCIATION CUT COSTS AND IMPROVED CUSTOMER SERVICE

1. **Why did RCGA invest in information technology?**

   The system that the RCGA used was housed on a single, unnetworked computer. If any change in a schedule was needed, it could only be made at that single computer. In addition, players had to apply for a tournament using a paper form that was mailed or faxed to the computer site, where it was entered by hand.

   They wanted to improve the efficiency for registrations and schedule-creation, as well as allow players to register, using a Web site. This would provide anyplace, anytime access to the information for the RCGA, as well as allowing players to register online.

   In summary, they invested in technology to improve operational efficinces for the organization, and better customer service for the players.

2. **What were the disadvantages of the old system?**

   Problems included:

- Inability to access or change tournament information offsite from the computer system
- No customer (player) self-service
- Data entry centralized at one site, resulting in
  - slow data updates,
  - lack of current information for organizers, and
  - increased costs (volunteers) of inputting data

3. What do you think might have been the obstacles to overcome in developing the new tournament application?

- Costs
- Time
- Determining the requirements of the new system
- Transferring data to new system
- Training volunteers
- Advertising the site to users
- Finding a Web site developer and ensuring the Web site meets the needs of both the RCGA and the players
- Registering domain names
- Maintaining security and privacy of player data

4. How do you think the new Web sites help the RCGA to fulfill its mission and strategy?

The system cut costs of mailing and printing. It reduced the need for volunteers to enter player data, making the volunteers' job more enjoyable. It also allowed customers (players) to control their data and find information online. Therefore, it met the needs of the RCGA to be cost efficient.

It meets the strategic needs of the RCGA by having multiple Web sites that helps them develop relationships with golfers across Canada. It helps the RCGA to develop junior golfers and to create awareness of the RCGA with these young golfers. It also creates relationships with clubs. This can improve awareness of the RCGA, which translates into more volunteers, better tournaments, more entries, improved communications between members, and better service to its members.

