Chapter 15
Information Technology and E-Business

Chapter Outline

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Annotated Learning Objectives

After studying this chapter, students should be able to:

1. Describe the importance of information technology for organizations and the attributes of quality information.

   Information technology can be defined as the hardware, software, telecommunications, database management, and other information-processing technologies used to store, process, and deliver information. These technologies allow managers to generate and access complex databases of customer and organizational information. They enable employees throughout the organization to communicate in ways previously not possible. By providing managers with more information more quickly than ever before, information technologies improve efficiency and effectiveness at each stage of the strategic decision process.

   Important information attributes include time, content, and form. The time dimension includes timeliness, currency, and time period. The content dimension includes accuracy, relevance, completeness, and conciseness. The form dimension includes clarity, detail, and presentation.

2. Identify different types of information systems and discuss recent trends in information technology.

   Information systems are computer-based systems that draw on hardware, software, and human resources to support organizational information and communication needs. One way to distinguish among the many types of information systems is to focus on the functions they perform and the people they serve in an organization. Management information systems typically support strategic decision-making needs of top management. Operations information systems support information-processing needs of a business’ day-to-day operations as well as low-level operations management functions.

   A variety of systems, called operations information systems, support information processing needs related to a business’s day-to-day operations. Types of operations information systems include transaction-processing systems, process control systems and office automation systems. A transaction-processing system records and processes data resulting from business operations. Process control systems monitor and control ongoing physical processes. Office automation systems combine modern hardware and software such as word processors, desktop publishers, e-mail, and teleconferencing to handle the tasks of publishing and distributing information.

   Management information systems (MISs) are computer-based systems that provide information and support for effective managerial decision-making. Information reporting systems, the most common form of MIS, provide managers and decision makers with reports that support day-to-day decision-making needs. Decision support systems (DSS) are interactive computer-based information systems that rely on decision models and specialized databases to support decision makers. Through DSSs, managers can explore various alternatives and receive tentative information based on different sets of assumptions. Executive information systems (EISs) are
management information systems that facilitate the highest levels of strategic decision-making. EISs provide top management with quick access to relevant internal and external information and, if designed properly, can help them diagnose problems as well as develop solutions.

Recent trends in information technology include the ability to generate more information with technology that present a serious challenge to information technicians, managers, and other users of information. Data are raw facts and figures that in and of themselves may not be useful. To be useful, data must be processed into finished information—that is, data that have been converted into a meaningful and useful context for specific users.

Organizations depend on high-quality information to develop strategic plans, identify problems, and interact with other organizations. Information is of high quality if it has characteristics that make it useful for these tasks. The characteristics of useful information fall into three broad categories: time, content, and form.

3. **Tell how information systems support daily operations and decision-making.**

Operations information systems support daily operations and decision-making for low-level management. Transaction-processing systems (TPSs) record and process data resulting from business operations. These systems feed organizational databases that allow for the production of information products, such as customer statements and financial reports. Process control systems monitor and control ongoing physical processes such as temperature or pressure changes. Office automation systems such as word processors and e-mail transform manual procedures to electronic media.

4. **Summarize the key components of e-business and explain various e-business strategies.**

E-business can be defined as any business that takes place by digital processes over a computer network rather than in a physical space.

E-commerce is a more limited term that refers specifically to business exchanges or transactions that occur electronically.

The key components of e-business include the Internet, a global collection of computer networks linked together for the exchange of data and information.

The World Wide Web (WWW) is a collection of central servers for accessing information on the Internet.

The Intranet is an internal communications system that uses the technology standards of the Internet but is accessible only to people within the company.

The next component is a system that allows the separate companies to share data and information. Two options are an electronic data interchange network or an extranet. Electronic data interchange networks link the computer systems of buyers and sellers to allow the transmission of structured data primarily for ordering, distribution, and payables and receivables. An extranet is an external communications system that uses the Internet and is shared by two or more organizations.
E-business strategies include an In-House Internet division; setting up an in-house dot-com division offers tight integration between the Internet operation and the organization’s traditional operation.

Spin-Off to give the Internet operation greater organizational focus, autonomy, and flexibility, some organizations choose to create a separate spin-off company.

Strategic partnerships, whether through joint ventures or alliances, enable organizations to attain some of the advantages and overcome some of the disadvantages of the purely in-house or spin-off options.

5. Describe enterprise resource planning and customer relationship management systems.

Enterprise resource planning (ERP) systems integrate and optimize all the various business processes for the entire firm. An enterprise resource planning system can become the backbone of an organization’s operations. It collects, processes, and provides information about an organization’s entire enterprise, including orders, product design, production, purchasing, inventory, distribution, human resources, receipt of payments, and forecasting of future demand. When carefully implemented, ERP can cut costs, shorten cycle time, enhance productivity, and improve relationships with customers and suppliers.

Customer relationship management (CRM) systems help companies track customers’ interactions with the firm and allow employees to call up a customer’s past sales and service records, outstanding orders, or unresolved problems. CRM stashes away in a database all the customer information that small-town storeowners would keep in their heads. CRM helps to coordinate sales, marketing, and customer service departments so that all are smoothly working together to best serve customer needs.

6. Explain the importance of knowledge management in today’s organizations.

Knowledge management is the process of systematically gathering knowledge, making it widely available throughout the organization, and fostering a culture of learning. Within a couple of years, intellectual capital will be the primary way in which businesses measure their value. Therefore, managers see knowledge as an important resource to manage, just as they manage cash flow, raw materials, and other resources. An effective knowledge management system may incorporate a variety of technologies, supported by leadership that values learning, an organizational structure that supports communication and information sharing and processes for managing change. Three specific technologies that facilitate knowledge management are data warehousing, data mining, and corporate intranets or networks.

7. Identify specific management implications of information technology.

Two relatively new techniques of knowledge management are data warehousing and data mining. The concept of data warehouse is not really new. The modern
meaning of data warehousing is the use of a huge database that combines all of a company’s data and allow business users to access the data directly, create reports, decision-making processes to search raw data for patterns and relationships that may be significant. Users of these tools can identify sets of products that particular market segments purchase, patterns of transactions that signal possible fraud, or patterns of product performance that may indicate defects.

Lecture Outline

Suggested Opening Remarks

Bountiful Mazda was looking for a way to use new Internet technology to increase effectiveness. Owner Michel MacDonald decided to participate in a Mazda-supported remake of its dealership (the company kicks in around $350,000 and plans to overhaul 200 dealerships by 2008). A big part of the makeover is to invite customers to do their price research on new and used cars right inside the dealership. Unlike some dealers that keep their on-site PCs locked down to the maker’s own website, Mazda encourages users to browse anywhere they want and even catch up on e-mail or personal business. A separate Internet café near the showroom is off-limits to sales staff members unless they’re invited inside by a customer to discuss terms or draw up paperwork. Gone are the high pressure sales pitches and the “closing booths,” where customers are often pressed into paying higher prices.

Bountiful has a fleet of washed, waxed, and polished vehicles gassed up and ready to take for a spin the minute a customer walks on the lot. Talk comes later, with both customer and salesperson armed with on-the-spot information from the Web. The new friendlier approach and open information via the Internet has translated into some big results. Customers tend to let their guard down in this open atmosphere, enabling the salesperson to upsell, cross-sell and accessorize. A customer who feels she’s getting the lowest price on the car is often willing to tack on a $2,800 warranty package or a $2,000 in-dash global positioning system (GPS). Overall, the Bountiful store and Mazda’s five other revamped showrooms are seeing 32 percent jumps in annual sales and generating twice the profit of older dealerships.

1. INFORMATION TECHNOLOGY

   How has information technology and e-business changed the way people work?

   There is a growing use of the Internet and e-business: e-business strategies, business-to-business marketplaces, information technology in business operations and knowledge management.

   Information technology can be defined as the hardware, software, telecommunications, database management, and other technologies used to store data, and make it available in the form of information for organizational decision-making.
By providing managers with more information more quickly, information technology improves efficiency and effectiveness at each stage of the strategic decision process.

A. Data versus Information

The ability to generate more information with technology presents a serious challenge to information technicians, managers, and other users of information. They must sort through overwhelming amounts of data to identify only necessary information for a particular purpose.

*Data* are raw facts and figures that in and of themselves may not be useful; data is the plural of datum. To be useful, data must be processed into finished information.

*Information* is data that has been converted into a meaningful and useful context for the receiver.

The magnitude of the job of transforming data into useful information is reflected in organizations’ introduction of the chief information officer (CIO) position.

CIOs are responsible for managing organizational databases and implementing new information technology. CIOs integrate old and new technology to support organizational decision making, operations, and communication.

B. Characteristics of Useful Information

Organizations depend on high-quality information to develop strategic plans, support decision-making, identify problems, and interact with other organizations.

Information is of high quality if it has characteristics that make it useful for these tasks; the characteristics of useful information fall into three broad categories:

- **Time.** Information should be up-to-date, provided when needed, and related to the appropriate time period (past, present, or future).

- **Content.** Information is free of error, suited to the user’s needs, complete, concise, relevant, and an accurate measure of performance.

- **Form.** Information is provided in an easily understandable form and meets the user’s needs for the level of detail.

**Discussion Question #1:** Why is it important for managers to understand the difference between data and information?

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II. **TYPES OF INFORMATION SYSTEMS**

Managers appreciate the value of making information available in some kind of formal, computer-based information system.
Information systems are computer-based systems that draw on hardware, software, and human resources to support organizational information and communication needs. 

One way to distinguish among the many types of information systems is to focus on the functions they perform and the people they serve in an organization. 

*Operations information systems* support information processing needs of a business’s day-to-day operations as well as low-level operations management functions. 

Management information systems typically support strategic decision-making needs of top management. 

### A. Operations Information Systems 

Operations information systems support and the information processing needs related to a business’s day-to-day operations. 

*Transaction-processing systems* (TPS) record and process data resulting from business operations such as record sales to customers, purchases from suppliers, inventory changes, and wages to employees. 

TPSs collect data from these transactions and store them in a database; employees use the database to produce reports and other information. 

Most reports are generated from these databases; TPSs identify, collect, and organize the fundamental information from which the firm operates. 

A *process control system* is a computer system that monitors and controls ongoing physical processes, such as temperature or pressure changes. 

The system relays the measurements or sensor-detected data to a computer for processing. 

*Office automation systems* such as word processing, desktop publishing, e-mail, and teleconferencing are also classified as operations information systems. 

These systems transform manual procedures to electronic media and streamline office tasks, reduce errors, and improve customer service. 

**Discussion Question #2:** *In what ways might access to an MIS change the way decisions are made at a large package-delivery company?*

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### B. Management Information Systems (MIS) 

The introduction of computers using silicon chip circuitry allowed for more processing power per dollar; computers could be used for decision-making. 

*MISs* are computer-based systems that provide information and support for effective managerial decision-making. 

*Information reporting systems* are the most common form of MIS; it organizes information in the form of reports that managers use in decision-making.
Decision Support Systems (DSS) are interactive, computer-based information systems that rely on decision models and specialized databases to support decision-makers.

With electronic spreadsheets and other decision support software, users can pose a series of what-if questions to test alternatives they are considering.

Executive Information System (EIS) is a management information system designed to facilitate strategic decision-making at the highest levels of management.

These systems help diagnose problems as well as develop solutions; they enable top executives to view a dashboard of performance indicators at their desktops.

MANAGER’S SHOPTALK

Executive Dashboard Can Put Control at Your Fingertips

Simply collecting more data and information doesn’t help managers make better decisions. What really matters is how well the organization’s systems make sense of endless data and transform it into knowledge and intelligence that managers can use to make the right choices and act in a unified way. The executive dashboard is a visual display that creates a context for information and gives top managers the big picture about where the organization stands. Much like an automobile or airplane instrument panel, the dashboard gives executives real-time information so they can determine at a glance where their company is and where it is headed. Specifics such as how much cash is on hand, how many products are on back-order, or how product returns have affected the bottom line are all displayed in easy-to-read charts, graphs, and tables.

Groupware is software that works on a computer network or the Internet to facilitate information sharing, collaborative work, and group decision-making.

This software enables managers or team members to share information and work simultaneously on the same document, chart, or diagram and see changes and comments as others make them.

Groupware supports virtual and global teamwork by facilitating efficient and accurate sharing of ideas and simultaneous task execution.

Team members in different geographical areas with varied expertise can work together almost as easily as if they were in the same room.

Discussion Question #3: In what ways might access to an MIS change the way decisions are made at a large package-delivery company?

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III. THE INTERNET AND E-BUSINESS

Exhibit 20.4
Most organizations have incorporated the Internet as part of their information technology strategy.

The Internet is a global collection of computer networks linked together for the exchange of data and information.

The World Wide Web is a collection of central servers for accessing information on the Internet.

E-business can be defined as any business that takes place by digital processes over a computer network rather than in physical space.

E-commerce is a more limited term that refers specifically to business exchanges or transactions that occur electronically.

Exhibit 20.5

Intranet is an internal communications system that uses the technology and standards of the Internet but is accessible only to people within the company.

A system allows the separate companies to share data and information; two options include:

Electronic Data Interchange (EDI) networks link the computer systems of buyers and sellers to allow the transmission of structured data primarily for ordering, distribution, and payables and receivables.

Extranet is an external communications system that uses the Internet and is shared by two or more organizations.

The final piece of the overall system is the Internet, available to the public through their Web sites, which may include products and services for sale.

A. E-business Strategies

The first step toward a successful e-business is to determine why managers need such a business; failure to align the e-business with corporate strategy leads to failure.

Two basic strategic approaches for traditional organizations setting up an Internet operation are illustrated in Exhibit 20.6.

Some embrace e-business to expand into new markets and reach new customers; others use e-business to increase productivity and cost efficiency.

Strategies are implemented by setting up an in-house Internet division or by partnering with other organizations to handle online activities.

1. Market Expansion

An in-house Internet division offers direct links to customers and allows a company to expand into new markets.

The organization can provide access around the clock to a worldwide market and thus reach new customers.

An e-business division also enables customization of offerings at significantly lower costs than traditional distribution channels.
The market expansion strategy is competitively sustainable because the e-business division works in conjunction with the established bricks-and-mortar company.

National Public Radio simulcasts pictures on its Web site connected to radio shows such as *Morning Edition*, serving to increase listener traffic to the show.

REI, an outdoor equipment retailer, uses its online business for market expansion.

Online customers can pick up their items at the nearest store and save shipping costs; once in the store, customers spent about $90 more on other items.

**Discussion Question #10:** How is e-business affecting the way organizations are structured and the ways jobs are designed?

**Notes**

2. Productivity and Efficiency

The e-business initiative is seen as a way to improve the bottom line by increasing productivity and cutting costs.

An automaker might use e-business to reduce the cost of ordering and tracking parts and supplies and to implement just-in-time manufacturing.

Productivity gains from businesses using the Internet are projected to reach $450 billion a year by 2005.

Even small companies can realize gains; rather than buying parts from a local supplier, a small firm can access a global market to find the best price.

Service firms can benefit too; the City of Madison, Wisconsin reduced the costs of paperwork and staff time by getting all the city’s agencies online.

3. Implementing E-Business Strategies

One approach to integrating bricks and clicks—traditional operations with an Internet initiative—is to set up an *in-house division*.

This approach offers tight integration between online business and the company’s traditional operation.

This approach allows for piggybacking, including brand recognition, leverage with suppliers, shared customer information, and marketing opportunities.

A second approach is through *partnerships*, such as joint ventures or alliances.

Safeway partnered with Tesco to establish its online grocery business in the U.S.; after trying it alone, Safeway needed an experienced online partner.

**Discussion Question #5:** What are some competitive issues that might lead an organization to take a market expansion approach to e-business? Why are partnerships important to e-business?
B. E-Marketplaces

The biggest boom in e-commerce is in business-to-business (B2B) transactions, or buying and selling between companies.

A significant trend is the development of B2B marketplaces, in which an intermediary sets up an electronic marketplace where buyers and sellers meet, acting as a hub for B2B commerce.

Conducting business through a Web marketplace can mean lower transaction costs, more favorable negotiations, and productivity gains for both buyers and sellers. Ebay, which started out as a marketplace primarily for consumers, has rapidly expanded into B2B commerce.

E-marketplaces can bring efficiencies to many operations, but some companies find that they don’t offer the personal touch their business needs.

Discussion Question #6: Discuss some possible advantages for an automaker using a public B2B marketplace.

C. Enterprise Resource Planning Systems (ERP)

A key e-business component for many companies is a new approach to information management called enterprise resource planning.
Enterprise resource planning (ERP) systems integrate and optimize all the various business processes across the entire firm.

An enterprise resource planning system can become the backbone of an organization’s operations.

It collects, processes, and provides information about an organization’s entire enterprise, including orders, product design, production, purchasing, inventory, distribution, human resources, receipt of payments, and forecasting of future demand.

The system replicates organizational processes in software, guides employees through the processes step-by-step, and automates as many of them as possible.

ERP can cut costs, shorten cycle time, enhance productivity, and improve relationships with customers and suppliers.

One organization that is reaping benefits from an ERP system is Medecins du Monde (Doctors of the World), the international aid organization.

D. Customer Relationship Management (CRM)  

Better internal information management and information sharing with suppliers and other organizations, companies are using e-business solutions to build stronger customer relationships.

Customer relationship management (CRM) systems help companies track customers’ interactions with the firm and allow employees to call up a customer’s past sales and service records, outstanding orders, or unresolved problems.

What distinguishes an organization from its competitors are its knowledge resources, such as product ideas and the ability to identify and find solutions to customers’ problems.

CRM can shorten the distance between customers and the organization, contributing to organizational success through customer loyalty, superior service, better information gathering, and organizational learning.

Discussion Question #7: Customer relationship management (CRM) software can dramatically improve customer service and satisfaction, as illustrated in Exhibit 20.9. Can you think of ways an ERP system could also provide a competitive advantage in the areas listed in Exhibit 20.9?

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E. Knowledge Management

The Internet also plays a key role in the recent emphasis managers are putting on knowledge management.

Knowledge management is the efforts to systematically gather knowledge, make it widely available throughout the organization, and foster a culture of learning.

Two specific technologies that facilitate knowledge management are business intelligence software and corporate intranets or networks.
New business intelligence software helps organizations make sense out of huge amounts of data; these programs combine related pieces of information to create knowledge.

Knowledge that can be codified, written down, and contained in databases is referred to as *explicit knowledge*.

Much organization knowledge is unstructured and resides in people’s heads; *tacit knowledge* cannot be put in a database, making it hard to formalize and transmit.

Intranets and knowledge sharing networks can support the spread of tacit knowledge.

1. Business Intelligence

Organizations can collect and store tremendous amounts of data. Some companies use *data warehousing*, the use of a huge database that combines a company’s data and allows business users to access the data directly, create reports, and obtain answers to “what if” questions.

Business intelligence (BI) refers to the high-tech analysis of data from multiple sources to identify patterns and relationships that might be significant.

Also called *data mining*, BI refers to searching out and analyzing data from sources across and outside the enterprise to identify patterns and relationships.

Business intelligence tools are the hottest area of software, with companies spending $4 billion in 2003, with spending projected to double by 2006.

Anheuser-Busch makes profitable use of business intelligence with BudNet, a data network through which distributors and sales reps report everything in excruciating detail.

Store-level data has become the lifeblood of Anheuser-Busch’s business.

2. Intranets.

An increasing number of companies are building knowledge management “portals” on the corporate intranet.

A *knowledge management portal* is a single point of access for employees to multiple sources of information that provides personalized access on the corporate intranet.

Intranets can give employees access to explicit knowledge that may be stored in databases, but the greatest value of intranets for knowledge management is increasing the transfer of tacit knowledge.

Organizations typically combine several technologies to facilitate the sharing and transfer of both tacit and explicit knowledge.

Managers can use business intelligence and other decision tools to identify performance gaps and make changed as needed.

Tacit knowledge is transferred through an intranet-based document management system and Web conferencing systems, whereby global experts can exchange ideas.
Discussion Question #8: Define the difference between explicit knowledge and tacit knowledge and give an example of each from your own experience. How can knowledge management systems be designed to promote the sharing of both explicit and tacit knowledge?

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VI. MANAGEMENT IMPLICATIONS OF INFORMATION TECHNOLOGY

➢ What are the management implications of information technology?

Information technology and e-business can enable managers to be better connected with employees, the environment, and each other.

Information technology allows for improved employee effectiveness, increased efficiency, empowered employees, information overload, and enhanced collaboration.

A. Improved Employee Effectiveness

Information technology can provide employees with data on customers, competitors, markets, and service.

Time and geographic boundaries are dissolving; a management team can work throughout the day in Switzerland, and a team in the U.S can continue while they sleep.

Advanced information technology allows managers to design jobs to provide employees with more intellectual engagement and more challenging work.

The availability of IT can have a dramatic influence on employee effectiveness; at Siemens information division employees collaborated with the medical division employees.

B. Increased Efficiency

New information technology offers significant promise for speeding work processes, cutting costs, and increasing efficiency.

IBM’s automated customer service helped reduce the number of call center employees and saved $750 million in one year alone.

Sweeping away administrative paperwork and automating mundane tasks is another advantage of new technology.

C. Empowered Employees

Information technology is profoundly affecting the way organizations are structured.

Low-level employees are increasingly challenged with more information and are expected to make decisions previously made by supervisors.

Nurses, bellhops, truck drivers, utility repair workers, and warehouse staffers all need access to information to do their jobs in today’s fast-paced environment.
D. Information overload

*Information overload* is associated with technology in that companies become a quagmire of information, with employees so overwhelmed that they cannot sort out the valuable from the useless.

In many cases, the ability to produce data and information is outstripping employees’ ability to process it.; this has been termed *Information Fatigue Syndrome.*

Suppliers of information and managers must identify the kinds of questions they must answer and the kinds of data and information they really need.

Specialists often overlook the need to provide small amounts of quality information in a timely and useful manner for decision making.

Top executives should set limits by focusing the organization on key strategies and on the critical questions that must be answered to pursue those strategies.

**Discussion Question #9:** *Do you believe information overload is a problem for today’s students? For employees? What could you do to deal more effectively with information overload?*

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E. Enhanced Collaboration.

Information technology enhances collaboration both within the organization and with customers, suppliers, and partners.

Intranets and other networks, knowledge management systems, and groupware can connect employees around the world for sharing and exchange of information and ideas.

Extranets are increasingly important for linking companies with contract manufacturers and outsourcers, supporting the development of a virtual network.

The emphasis on IT rather than personal travel for collaboration has increased in response to reduced travel budgets, fear of terrorism, and health epidemics.

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**UNLOCKING CREATIVE SOLUTIONS THROUGH TECHNOLOGY**

*General Motors: On the Road to Smoother Collaboration*

It used to take General Motors at least 12 weeks to complete a full mock-up of a new car design. Today, it takes just two. The complete design cycle time has been cut from 44 months to just 18. By using collaborative product development technologies, GM employees around the world can collaborate with one another and with external auto parts suppliers in real time to share product design information. By the end of 2004, employees in Asia, Europe, Latin America, and the U.S. are scheduled to begin working together in virtual reality studios.
Discussion Question #4: How might the organizers of an upcoming Olympics use an extranet to get all the elements of the event up and running on schedule?

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V. IT TRENDS

➢ Name the current IT trends.

Some current trends in information technology that are having the greatest impact in the new workplace are wireless applications, peer-to-peer technology, blogs and wikis, and international expansion.

A. Wireless Internet.

Wireless Internet or Wi-Fi advocates suggest that the technology will change the way we work and play on the Web.

Employees can gain access to bits of data and information over handheld devices exactly when and where they need it, bypassing the cumbersome pages of the Web.

Wireless technologies are becoming critical for helping people be more efficient and effective outside of the office.

At Starbucks, 600 district managers access Wi-Fi in Starbucks stores, enabling them to spend more time in the field and less at headquarters.

B. Peer-to-Peer File Sharing.

Peer-to-Peer file sharing (P2P), allows PC’s to communicate directly with one another over the Internet, bypassing central databases, servers, control points, and Web pages.

Peer-to-peer software allows for the sharing of PC files directly between two PC’s eliminating the need for setting up and managing huge central storage systems.

GlaxoSmithKline uses P2P technology to let its employees and researchers share their drug test data digitally and work collaboratively on new projects.

C. Blogs and Wikis

A blog is a running Web log that allows an individual to post opinions and ideas on anything from products to management.

Internal blogs can serve as superb horizontal and bottom-up communication tools, enabling people to get a better picture of what’s going on in a firm.

Blogs contribute to collaboration and knowledge sharing as well; the simplicity of blogs make them and easy and comfortable medium for people to share ideas.

An extension of blogs is an emerging collaboration tool called wikis; wikis are free-form, allowing visitors to edit what they find on the site or add content to it.
Wiks haven’t caught on yet, but technology watchers expect this to be a growing approach to communication, collaboration, and knowledge sharing.

D. Going International

Organizations that want to succeed with international e.-business are tailoring their Web sites to address language differences, regulations, payment systems, and consumer preferences worldwide.

Yahoo, Amazon, Dell, the National Football League, and Walt Disney have all set up country-specific sites in the local language.

The Washington post.com gives its news a broader global flavor during the overnight hours when international readers frequent the site.

Companies with online stores find that they need to offer a different product mix and discounts tailored to local tastes.

The Internet is a powerful way to reach customers and partners around the world, and managers are learning to address cross-national challenges.

**Discussion Question #11:** Have you ever used peer-to-peer sharing technology? Discuss your experience, positive or negative with P2P.

**Lecture Example File**

**Objexis sets new pathways by helping companies manage knowledge within the context of everyday business**

In recent years; knowledge management (KM) has grown as a distinct discipline within the information technology world. Companies have been striving to develop solutions to organize and simplify access to the wealth of knowledge that lies latent in the corporation. Despite promising initial efforts, many firms have headed back to the drawing board to determine how to improve knowledge management.

In the process, firms are discovering that knowledge management must be considered as more than just a compartmentalized discipline. In fact, all people within an organization are knowledge managers. In the course of daily business, people throughout an organization must share knowledge to manage projects, teams, products, and operational processes.

As a pioneer in the area of knowledge sharing, Objexis Corporation specializes in bringing knowledge management down from the lofty realms of IT specialization and into everyday business management.

**Knowledge in context**

To provide value to companies, knowledge management must involve more than organizing and distributing bits of information. In fact, companies require processes and
tools to make knowledge accessible within the context of everyday business management.

By implication, a company does not need separate processes and software solutions for team performance, knowledge sharing, project management, and business strategy - these can all be integrated within one business solution, with a common set of processes and tools.

**One common solution for business management**

Objexis solutions optimizes knowledge sharing within any business area, whether it involves managing people, products, projects, and processes. In the course of everyday work, companies rely upon Objexis processes and tools to:

- develop a knowledge management structure which directly corresponds to the team / organizational structure of their business;
- compile knowledge dedicated to specific functional areas and strategic concerns;
- develop and share working files and documents, both internally and with external partners, in the context of regular business activity;
- personalize information access to specific individuals, groups and teams;
- highlight and disseminate knowledge of particular interest to team members and functional areas;
- create knowledge dashboards with summary strategic overviews to aid in strategic decision-making.

As a result, companies are able to share knowledge that is:
- Personalized to the particular needs of each individual
- Relevant to the business context
- Valuable for the acquisition of functional expertise
- Critical for the development of business strategy
- Easily accessible, timely, and ready to be acted upon

Companies working with Objexis Corporation report significant improvements in terms of their strategic management, as a result of the seamless integration of knowledge sharing with strategic planning and team performance management across the organization.

**Answers to End-of-Chapter Discussion Questions**

1. *Why is it important for managers to understand the difference between data and information?*

   It is important for managers to understand the difference of data and information. Data are raw facts and figures that in and of themselves may not be useful. To be useful, data must be processed into finished information—that is, data that have been converted into a meaningful and useful context for specific users. An increasing challenge for managers is being able to effectively identify and access useful information.
2. In what ways would the role of the CIO of a hospital be important?

The magnitude of the job of transforming data into useful information is reflected in organizations’ introduction of the chief information officer (CIO) of a hospital. CIOs are responsible for managing organizational databases and implementing new information technology. As they make decisions involving the adoption and management of new technologies, hospital CIOs integrate old and new technology to support organizational decision making, operations, and communication. The purchase options in hardware, software, networking, and telecommunications products can be overwhelming to hospital information officers. The enormous amount of data that combinations of this technology can produce is equally overwhelming. Despite these challenges, the hospital CIO manages the infrastructure so that it will place the necessary information in the right place at the right time. Ideally, this means the hospital CIO combines knowledge of information technology (IT) with the ability to help managers and employees identify their information needs as well as ways the organization can use its IT capabilities in support of its strategy.

3. What types of information technology do you use as a student on a regular basis? How might your life be different if you did not have this technology available to you?

Students could use, on a regular basis, a computer, internet, and groupware applications. If computers are not utilized, having the necessary hardware and software availability, students would be required to perform tasks manually.

4. How might the organizers of an upcoming Olympics use an extranet to get all the elements of the event up and running on schedule?

The organizers of an upcoming Olympics event would use the extranet to permit users at a variety of locations to participate with whatever computers and operating systems they have. They are also an efficient way to create a network that links people on an international scale. In creating this linkage, events and activities can be scheduled more precisely in different geographic areas.

5. How might groupware be useful to a worldwide restaurant chain such as McDonald’s?

A worldwide chain such as McDonald’s would utilize groupware to design systems to take on the characteristics of face-to-face interaction, allowing people to collaborate in real time. Several users who are scattered around the world can be hooked to a network, for example, and collaborate on a project almost as easily as if they were sitting around a conference table. Groupware is a type of software that displays a document on more than one user’s screen and allows all the users to see changes or comments as they are made by one person. This interaction would improve the flow of information for McDonald’s management and thus improve decision-making.
6. In what ways might access to an MIS change the way decisions are made at a large package-delivery company?

In a large package-delivery company an MIS would perform a key or primary function in becoming user friendly in the management hierarchy. MISs typically support strategic decision-making needs of midlevel and top management. However, as technology becomes more widely accessible, more employees are wired into networks, and organizations push decision making downward in the hierarchy, these kinds of systems are seeing use at all levels of the organization. A systems approach that is open would depend upon the flow of information top-down, bottom-up, and horizontal throughout the organization structure.

7. Do you think that a geographic information system would be beneficial to a large mail-order company such as L. L. Bean or Spiegel? Why or why not?

A large mail-order company such as L. L. Bean or Spiegel would benefit from a geographic information system. A geographic information system (GIS) is a type of decision support system that provides users with layers of information expressed visually through maps. Users of such a system might combine maps with data to identify the areas with the greatest concentration of customers or the history of the most rainfall, for instance, or they might use a GIS to plan the most efficient routes to their customers, quickly modifying their plans as customers place or cancel orders.

8. Why is knowledge management an important consideration in the use of information technology?

Knowledge management is not a technology. Rather, information technology— together with leadership that values learning, an organizational structure that supports communications, and processes for managing change—supports knowledge management. Among the existing technologies that support knowledge management are information systems, the Internet, groupware, and planning tools such as ERP systems. Two relatively new techniques are data warehousing and data mining.

9. Do you believe information overload is a problem for today’s students? For employees? Discuss.

Information overload is an important concern for today’s college student and operative employees working within an automated system such as MIS. One problem associated with advances in technology is that the company and the academic institution can become a quagmire of information, with employees and students so overwhelmed by the sheer volume that they are unable to sort out the valuable from the useless. The problem is so pervasive that it has inspired a whole series of metaphors: infobog, infoglut, data slam, a tidal wave or a deluge or a flood of information. As employees and students simultaneously dry themselves off and extricate themselves from the bog, they may be unable to do the tasks that the access to information is supposed to be helping them with.
10. *How is information technology affecting the way organizations are structured and the ways jobs are designed?*

A major impact is on the creation of new departments to manage the information technology, a smaller number of administrators in the management structure, and improved coordination among diverse departments and divisions. Some companies evolve into cluster organizations, where teams of workers from locations around the world can be created in infinite combinations to solve particular problems, communicating via electronic mail and group decision support systems. Another change that sometimes occurs is the adoption of telecommuting, which enables employees to stay at home and perform their work via terminals that connect them with the office.

**Teaching Note for Experiential Exercise**

**What is Your Management Information-Processing Style?**

The advantage of the MIS processing style inventory is to help future managers understand what their own needs are for creating a productive organization. Too often technology itself becomes the dictator on what is used. It is what is called the *technological imperative*. That is, if the technology is there, you had better use it. This inventory, though, helps students to understand that their own individual needs are important, as well. To invest in an expensive system of information processing, simply because it looks snappy and has lots of bells and whistles, and besides, the salesperson said it was a good system—that is not a good use of resources. There are too many cases of companies spending a lot of money on fancy technology only to have it underutilized and, therefore, wasted.

**Teaching Note for Ethical Dilemma**

**Manipulative or Not?**

While student responses may vary in regards to this ethical dilemma one may elect to choose any of three options. The majority of students would select option two which states begin talking with other managers and try to build a coalition in support of some stricter controls, such as requiring parental permission to enter areas of the site that offer Crisp Cash in exchange for personal information. The rationale for this decision option is it is the most ethical approach for management to pursue because of the coalition building and stricter controls by requiring parental permission.

**Surf the Net**
1. **Decision Support Systems.** Student responses as to the selection of a company may vary. SAS Institutes product line includes software applications that can be customized to individual clients needs. SAS Institute's solution for rapid applications development provides a syntax-free environment for building user-friendly enterprise information systems. It also provides an object-oriented programming environment for developing powerful enterprise wide applications. Business analysts can quickly build prototype applications--and gather preliminary user feedback--before the applications design is finalized. The prototypes can then be easily extended into powerful client/server applications for use across the enterprise. The SAS object-oriented environment empowers applications developers with a library of packaged classes for building application components that can be sub-classed and tailored to meet specific customer needs. Working hand-in-hand with other integrated SAS software tools, the SAS applications development solution offers a range of capabilities--such as RAD, OLAP, data access, data management, Web integration, and analytical tools--that are unmatched in the industry. All from a single vendor. MultiVendor Architecture (MVA) is another unique strength of the SAS applications development solution. It allows you to develop and deploy applications on multiple platforms virtually simultaneously. You can port applications between environments with only minimal changes, making it easier to distribute client/server applications to take advantage of the unique strengths of each platform.

2. **Knowledge Management.** Student responses may vary depending on the newspaper or trade journal selected. Knowledge Management caters to the critical issues of organizational adaptation, survival and competence in face of increasingly discontinuous environmental change. Essentially, it embodies organizational processes that seek synergistic combination of data and information processing capacity of information technologies, and the creative and innovative capacity of human beings. The item selected is the Knowledge Executives Network™. The Knowledge Executives Network™ (KEN™) aims to serve the needs of executives in Knowledge Management and related professions in major worldwide organizations. Here you are anticipated to have access to a network of worldwide KM executives. In addition, you are expected to have access to Knowledge Management related forums, events, news, views, studies and reports meant exclusively for top executives.

3. **Data Warehousing.** Student responses will vary based on articles selected, case study, white papers, or WEB site accessed. The idea behind data warehousing is simple: Make sure all company data works together so users can see more, learn more, and make the organization work better. Utilize the resources TechNet has to offer. We can help you identify trends, find answers to your business questions, and derive meaning from historical and operational data - all of which enhance decision support in the enterprise. Data Warehousing in the Enterprise. The goal of data warehousing is to help users identify trends, find answers to business questions, and derive meaning from historical and operational data, all of which enhance decision support in the enterprise. Microsoft’s Data Warehousing Strategy. Companies deploying data marts usually want a fast, flexible system at a comparatively low cost. Today, many of them are choosing Microsoft SQL Server running on the
Microsoft Windows NT® Server network operating system because its 
price/performance and capabilities satisfy these priorities. Microsoft offers strategic 
technologies to help an enterprise economically implement a data warehouse or data 
mart. In fact, a May 1996 survey by Data Warehouse Institute that covered more 
than 1500 organizations that have data warehousing projects under way showed that 
Microsoft Windows NT is used in nearly half of those sites. Many organizations are 
concerned about the security and reliability necessary for high-volume data 
processing. The Microsoft BackOffice® family, a set of integrated application 
services running on Windows NT, includes the Microsoft SQL Server relational 
database management system, Internet Information Server, Exchange Mail Server, 
and SNA Server. SQL Server is not only the fastest database for Windows NT—as 
proven by Transaction Processing Performance Council —but is also one of the most 
secure and reliable. Using BackOffice products also allows organizations to take 
advantage of their connectivity, messaging, intranet/Internet, and network 
management efforts more effectively.

Case for Critical Analysis Solution.

Clarklift/FIT

1. *With its newfound reliance on information technology, do you think that
Clarklift/FIT might fall into an information overload trap? Why or why not?*

At Clarklift/FIT there is not an information overload trap for managers. The 
decision to implement the software application Monarch (a much needed 
information system to improve inventory control and the sales department 
efficiency) was a wise decision. The information quality was vastly improved by 
turning the data into information printed on neat, readable spreadsheets. The 
technology improved the efficiency of the sales activity by allowing the entry of 
sales figures directly into the customer’s file. Also, when the salesperson gives a 
quote to a client, he or she E-mails the quote to Wayne Reece, head of Clarklift/FIT. 
Finally, the information technology has improved through the computer generation 
of a list of past due customers and the automatic printing out of the appropriate 
collection letters when the monthly invoices are printed.

2. *How does information technology contribute to Clarklift’s knowledge management?
What other strategic advantages does it provide?*

Information technology being reintroduced permitted Clarklift/FIT to procure a $5 
million dollar loan from Citicorp. Due to information technology, Reece and Ken 
Daley discovered over $100,000 worth of unused parts that could be returned to 
manufacturers. Another strategic advantage is Reece and Daley being able to see at 
a moment’s notice how the company is performing.

3. *What steps might Clarklift/FIT take to evaluate the success of IT information 
technology systems?*
The steps Clarklift/FIT would take to evaluate its new information technology system would be the following: (1) Each phase of the information technology system must be evaluated as to benefits versus costs. (2) Another step would be asking employees and customers for feedback. (3) Finally, a step that would evaluate the return on investment could be implemented.