CHAPTER

16

Impacts of IT on Organizations, Individuals, and Society

LEARNING OBJECTIVES

After studying this chapter, you will be able to:

1. Understand the major impacts of information technology on organizations, individuals, and society.
2. Consider some negative impacts of people by computers, and other potential negative impacts of information technology.
3. Identify the major impacts of information technology on the manager's job and on organizational structure, power, jobs, supervision, and decision making.
4. Discuss the impacts of IT and individuals at work.
5. Identify some of the major societal impacts of the Web including the digital divide and computer crime.
6. Describe the impacts of IT on social issues as a result of 9/11.
7. Understand the role and impact of virtual communities.

MP3.COM, NAPSTER, AND INTELLECTUAL PROPERTY RIGHTS

THE PROBLEM

Before the advent of the Web, people made audiotape copies of music and videos. They either gave these copies to friends and family or used them for their own personal enjoyment. Few individuals had either the interest or the means to create and distribute copies to larger populations. For the most part, these activities were ignored by the producers, distributors, and artists who had the legal rights to the content (Spaulding, 2000).

Then came the Web and a variety of enterprising sites such as MP3.com and Napster.com. MP3.com enabled users to listen to music from any computer with an Internet connection, without paying royalties. Using peer-to-peer (P2P) technology, Napster supported the distribution of music and other digitized content among millions of users. When asked whether they were doing anything illegal, MP3.com and Napster claimed that they were simply supporting what had been done for years and, like most private individuals, were not charging for their services. Other companies extended the concept to other digitizable media such as videos and movies.

The popularity of MP3.com and P2P services was too great for the content creators and owners to ignore. Music sales declined (and are still declining as of 2003). To the creators and owners, the Web was becoming a vast copying machine for pirated software, CDs, movies, and the like. If left undeterred, MP3.com's and Napster's services could result in the loss of many thousands of jobs and millions of dollars in revenue.

THE SOLUTION

In December 2000, EMusic (*emusic.com*) filed a copyright infringement lawsuit against MP3.com. They claimed ownership of the digital rights to some of the music made available at MP3.com. Other companies—Warner Brothers Music Group, EMI Group PLC, BMG Entertainment, and Sony Music Entertainment—followed suit. A year later, Napster faced similar legal claims, lost the legal battle, and was forced to pay royalties for each piece of music it supported. This resulted in its collapse. As described in previous chapters, some P2P companies moved to other countries, trying to escape U.S. copyright laws, but the legal problems follow them.

Copyright laws and copyright infringement cases have been in existence for decades. However, the legal system can be picky and slow to resolve legal difficulties and close loopholes. First, existing copyright laws were written for physical, not digital, content. Second, the Copyright Infringement Act states, "the defendant must have willfully infringed the copyright and gained financially." With respect to the second point, a MIT student named David LaMacchia was sued for offering free copies of Excel, Word, and other software titles on the Internet. The suit was settled in his favor because there was no financial gain. (Note: This loophole in the Copyright Infringement Act was later closed.)

THE RESULTS

In 1997, the No Electronic Theft Act (NET) was passed, making it a crime for anyone, including individuals, to reproduce and distribute copyrighted works.

The Act further clarified that it applies to reproduction or distribution accomplished by electronic means. It also stated that even if copyrighted products are distributed without charge, financial harm is experienced by the authors or creators of a copyrighted work.

Given the precedents and laws, MP3.com and Napster had little recourse but to capitulate. MP3.com suspended operations in April 2000 and settled the lawsuit against itself, paying the litigants $20 million each. Napster suspended service and settled its lawsuits for $26 million. With the backing of the record company Bertelsmann AG's BMG, Napster tried—with little success—to resurrect itself as an online music subscription service. Napster eventually filed for bankruptcy in June 2002. Its assets were purchased by Roxio (*roxio.com*). Roxio is planning to revive Napster, in a royalty-paying framework, in early 2004.

Sources: Spaulding (2000), Olavsrud (2000), and *roxio.com* (2002).

LESSONS LEARNED FROM THIS CASE

All commerce involves a number of legal, ethical, and regulatory issues. Copyright, trademark, and patent infringement, freedom of thought and speech, theft of property, and fraud are not new issues in the world of commerce. However, as this opening case illustrates, e-commerce adds to the scope and scale of these issues. It also raises a number of questions about what constitutes illegal behavior versus unethical, intrusive, or undesirable behavior.

E-commerce is one of many IT phenomena that have affected individuals, organizations, and society. This chapter examines the impacts IT has made on these groups. We present some of the legal and ethical issues related to the emerging electronic technologies and discuss various legal and technical remedies and safeguards. The chapter also looks at the impacts of IT and the Web and the growth of virtual communities.

16.1 DOES IT HAVE ONLY POSITIVE EFFECTS?

Concern about technology's effect on people, organizations, and society is not new. In the 1830s, English intellectuals expressed philosophical arguments about the effects on society of the Industrial Revolution that had begun some 60 to 70 years earlier. In Samuel Butler's 1872 book *Erewhon* (anagram for *nowhere*), a man loses his way in a strange land and wanders into a society that has rejected machines. The people have "frozen" technology at a predetermined level and outlawed all further technological development; they have made a conscious decision to reject new technology.

While there are many philosophical, technological, social, and cultural differences between society at the start of the Industrial Revolution and today, there are nevertheless people who do believe that humankind is threatened by the evolution of technology. Overall, though, our society has not rejected technology but, rather, has embraced it. Most of us recognize that computers and technology are essential to maintaining and supporting many aspects of our culture. We are involved in a symbiotic relationship with technology. All the same, we must be aware of its effect on us as individuals and as members of organizations and society.

Throughout this book, we have noted how information systems are being justified, constructed, used, and maintained. In all these discussions we have assumed that members of an organization will reap the fruits of new technology and that computers have no major negative impact.

But is this really true? There are people today who do reject the advances of technology—refusing to use the Internet, for example. A more critical issue, however, involves questions such as: Will society have any control over the decisions to deploy technology? Where will technology critics be able to make their voices heard? Who will investigate the costs and risks of technologies, and who is going to pay for that investigation? For discussion on these and similar items, see the Roundtable discussion organized by *Interactive Week* on January 10, 2000, at *zdnet.com/intweek/filter/@online*.

Information technology *has* raised a multitude of negative issues, ranging from illegal copying of software programs to surveillance of employees' e-mail files. Health and safety issues are also of major concern, as are the impact of IT on employment levels and the quality of life. One major area of concern is the impact of the Internet. Here are some examples:

- In the online environment, criminal acts can be performed with unusual speed, and without any physical contact. This has lead to a large increase in fraud and security crimes. *The Computer Crime and Security Survey* reported that fraud on the Web and other information security breaches are widespread and diverse. In one study, 92 percent of respondents reported attacks, with a total of over $200 million financial losses (Richardson, 2003 and Chapter 15). More information on Internet fraud can be found in *fraud.org/internet/intset.htm*.
- There are increasing reported cases of Internet addiction. A survey conducted by the Commission on Youth Protection (2001) found that up to 11 percent of the respondents report that they might be addicted to the Internet. Excessive Internet use can result in insomnia, nightmares, withdrawal from society, and stress. Addictions linked to online shopping and gambling have economic impacts. Some experts even worry that Internet addiction will seriously undermine students' ability to adapt to society. Moreover, teenagers can easily access poisonous information through the Internet. For example, 43 percent of 1,135 elementary students in Korea have visited pornography Web site (news item from *The Korean Times*, August 24, 2002). Negative impacts can be felt by organizations as well. One example is the non-work-related use of the Internet on company time.

In this chapter, some of these negative issues will be discussed as well as the many positive ones. We concentrate on the impact of IT on organizations, individuals at work, and society. Ethical issues, which are an important part of these impacts, have been discussed throughout the book as well as in the ethics appendix (Appendix 1A) and in the online Ethics Primer (see Online Chapter 1). (Also see Hamelink, 2001, and Spinello and Tavani, 2001.)

16.2 IMPACTS OF IT ON ORGANIZATIONS

The use of computers and information technology has brought many changes to organizations. These changes are being felt in different areas including the manager's job, structure, authority, power, and job content; employee career ladders and supervision. A brief discussion of these issues follows.

The Manager's Job

The most important task of managers is making decisions. IT can change the manner in which many decisions are made, and consequently change managers' jobs. The most probable areas of organizational change are:

- Automation of routine decisions (e.g., frontline employees, as discussed in Chapter 12).
- Less expertise required for many decisions.
- More rapid identification of problems and opportunities (Huber, 1990).
- Less reliance on experts to provide support to top executives.
- Empowerment of lower and middle levels of management due to knowledge bases.
- Decision making undertaken by nonmanagerial employees.
- Power redistribution among managers, and power shifts down the organization. Fewer organizational levels typically are required to authorize action (Huber, 1990).
- Organizational intelligence that is more timely, comprehensive, accurate, and available (Huber, 1990).
- Electronic support of complex decisions (the Web, intelligent agents, DSS).

Many managers have reported that the computer has finally given them time to "get out of the office and into the field." They also have found that they can spend more time planning activities instead of "putting out fires." The ability of IT to support the process of decision making changes the decision-making process and even decision-making styles. For example, information gathering for decision-making can be done much more quickly. Web-based intelligent agents can monitor the environment, and scan and interpret information (see Liu et al., 2000). Most managers currently work on a large number of problems simultaneously, moving from one to another as they wait for more information on their current problem or until some external event interrupts them. IT tends to reduce the time necessary to complete any step in the decision-making process. Therefore, managers can work on fewer tasks during each day but complete more of them.

Another possible impact on the manager's job is a change in leadership requirements. What are generally considered to be good qualities of leadership may be significantly altered with the use of IT. For example, when face-to-face communication is replaced by e-mail and computerized conferencing, leadership qualities attributed to physical appearance and dress codes could be minimized.

Structure, Authority, Power, Job Content, and Personnel Issues

The IT revolution may result in many changes in structure, authority, power, and job content, as well as personnel management and human resources management. Details of these changes are shown in Table 16.1.

In addition, other changes are expected in organizations. For example, as the corporate culture in the Internet age is changing (see Kleiner, 2000), IT managers assuming a greater leadership role in making business decisions (see Dalton, 1999). For a comprehensive analysis of business leadership in the information age, see Nevins and Stumpf (1999). Moreover, the impact goes beyond one company or one supply chain, to influence entire industries. For example, the use of profitability models and optimization is reshaping retailing, real estate, banking, transportation, airlines, and car renting, to mention just a few. For more on organizational issues see Mora (2002) and Huang (2001).

TABLE 16.1 Impacts of IT on Structure, Authority, Power, and Job Content

Impact	Effect of IT
Flatter organizational hierarchies	IT increases **span of control** (more employees per supervisor), increases productivity, and reduces the need for technical experts (due to expert systems). Fewer managerial levels will result, with fewer staff and line managers. Reduction in the total number of employees, reengineering of business processes, and the ability of lower-level employees to perform higher-level jobs may result in flatter organizational hierarchies.
Change in blue-to-white-collar staff ratio	The ratio of white- to blue-collar workers increases as computers replace clerical jobs, and as the need for information systems specialists increases. However, the number of professionals and specialists could *decline* in relation to the total number of employees in some organizations as intelligent and knowledge-based systems grow.
Growth in number of special units	IT makes possible technology centers, e-commerce centers, decision support systems departments, and/or intelligent systems departments. Such units may have a major impact on organizational structure, especially when they are supported by or report directly to top management.
Centralization of authority	Centralization may become more popular because of the trend toward smaller and flatter organizations and the use of expert systems. On the other hand, the Web permits greater empowerment, allowing for more decentralization. Whether use of IT results in more centralization or in decentralization may depend on top management's philosophy.
Changes in power and status	Knowledge is power, and those who control information and knowledge are likely to gain power. The struggle over who controls the information resources has become a conflict in many organizations. In some countries, the fight may be between corporations that seek to use information for competitive advantage and the government (e.g., Microsoft vs. the Justice Dept.). Elsewhere, governments may seek to hold onto the reins of power by not letting private citizens access some information (e.g., China's restriction of Internet usage).
Changes in job content and skill sets	*Job content* is interrelated with employee satisfaction, compensation, status, and productivity. Resistance to changes in job skills is common, and can lead to unpleasant confrontations between employees and management (see Routt, 1999).

These and other changes are impacting personnel issues, as shown in Table 16.2. Many additional personnel-related questions could surface as a result of using IT. For example: What will be the impact of IT on job qualifications and on training requirements? How can jobs that use IT be designed so that they

TABLE 16.2 Impacts of IT on Personnel Issues

Impact	Effect of IT
Shorter career ladders	In the past, many professionals developed their abilities through years of experience and a series of positions that exposed them to progressively more complex situations. The use of IT, and especially Web-based computer-aided instruction, may short-cut this learning curve.
Changes in supervision	IT introduces the possibility for greater electronic supervision. In general, the supervisory process may become more formalized, with greater reliance on procedures and measurable (i.e., quantitative) outputs and less on interpersonal processes. This is especially true for knowledge workers and telecommuters.
Job mobility	The Web has the potential to increase job mobility. Sites such as *techjourney.com* can tell you how jobs pay in any place in the U.S. Sites like *monster.com* offer places to post job offerings and resumes. Using videoconferencing for interviews and intelligent agents to find jobs is likely to increase employee turnover.

present an acceptable level of challenge to users? How might IT be used to personalize or enrich jobs? What can be done to make sure that the introduction of IT does not demean jobs or have other negative impacts from the workers' point of view? What principles should be used to allocate functions to people and machines, especially those functions that can be performed equally well by either one? Should cost or efficiency be the sole or major criterion for such allocation? All these and more issues could be encountered in any IT implementation.

16.3 IMPACTS OF IT ON INDIVIDUALS

Information systems affect individuals in various ways. What is a benefit to one individual may be a curse to another. This section discusses some of the ways that IT may affect individuals, their perceptions, and their behaviors.

Job Satisfaction, Dehumanization, and Information Anxiety

Although many jobs may become substantially more "enriched" with IT, other jobs may become more routine and less satisfying. For example, as early as 1970, researchers predicted that computer-based information systems would reduce managerial discretion in decision making and thus create dissatisfied managers. This dissatisfaction may be the result of perceived dehumanization.

DEHUMANIZATION AND OTHER PSYCHOLOGICAL IMPACTS. A frequent criticism of traditional data processing systems was their impersonal nature and their potential to *dehumanize* and depersonalize the activities that have been computerized. Many people felt, and still feel, a loss of identity, a **dehumanization,** because of computerization; they feel like "just another number" because computers reduce or eliminate the human element that was present in the noncomputerized systems. Some people also feel this way about the Web.

On the other hand, while the major objective of newer technologies, such as e-commerce, is to increase productivity, they can also create *personalized*, flexible systems that allow individuals to include their opinions and knowledge in the system. These technologies attempt to be people-oriented and user-friendly.

The Internet threatens to have an even more isolating influence than has been created by television. If people are encouraged to work and shop from their living rooms, then some unfortunate psychological effects, such as depression and loneliness, could develop. Some people have become so addicted to the Web that they have dropped out of their regular social activities, at school or work or home, creating new societal and organizational problems.

Another possible psychological impact relates to distance learning. In some countries, it is legal to school children at home through IT. Some argue, however, that the lack of social contacts could be damaging to the social, moral, and cognitive development of school-age children who spend long periods of time working alone on the computer.

INFORMATION ANXIETY. One of the negative impacts of the information age is **information anxiety.** This disquiet can take several forms, such as frustration with our *inability to keep up with the amount of data* present in our lives. Information anxiety can take other forms as well. One is frustration with the quality of the information available on the Web, which frequently is not up-to-date

or is incomplete. Another is frustration or guilt associated with not being better informed, or being informed too late ("How come others knew this before I did?"). A third form of information anxiety stems from information overload (too many online sources). For some Internet users, anxiety resulting from information overload may even result in inadequate or poor sleep. (For some possible solutions, see *sleepfoundation.org*.)

According to Wurman (2000), between 60 and 80 percent of the people searching for specific information on the Web cannot find what they want among the various types of information available. This adds to anxiety, as does the data glut that obscures the distinction between data and information, and between facts and knowledge. Wurman (2001) prescribes solutions to ease the problem of information anxiety, ranging from better access to data to better design of Web sites.

Impacts on Health and Safety

Computers and information systems are a part of the environment that may adversely affect individuals' health and safety. To illustrate, we will discuss the effects of three issues: *job stress, video display terminals*, and *long-term use of the keyboard*. (For further discussion see the *Wall Street Journal*, April 9, 1996, p. 1.)

JOB STRESS. An increase in workload and/or responsibilities can trigger job stress. Although computerization has benefited organizations by increasing productivity, it has also created an ever-increasing workload for some employees. Some workers, especially those who are not proficient with computers but who must work with them, feel overwhelmed and start feeling anxious about their jobs and their performance. These feelings of anxiety can adversely affect workers' productivity. Management's responsibility is to help alleviate these feelings by providing training, redistributing the workload among workers, or by hiring more individuals.

VIDEO DISPLAY TERMINALS. Exposure to video display terminals (VDTs) raises the issue of the risk of radiation exposure, which has been linked to cancer and other health-related problems. Exposure to VDTs for long periods of time is thought to affect an individual's eyesight, for example. Also, lengthy exposure to VDTs has been blamed for miscarriages in pregnant women. However, results of the research done to investigate these charges have been inconclusive.

REPETITIVE STRAIN (STRESS) INJURIES. Other potential health and safety hazards are repetitive strain injuries such as backaches and muscle tension in the wrists and fingers. *Carpal tunnel syndrome* is a painful form of repetitive strain injury that affects the wrists and hands. It has been associated with the long-term use of keyboards. According to Kome (2001), 6 million Americans suffered repetitive strain injuries on the job between 1991 and 2001.

LESSENING THE NEGATIVE IMPACT ON HEALTH AND SAFETY. Designers are aware of the potential problems associated with prolonged use of computers. Consequently, they have attempted to design a better computing environment. Research in the area of **ergonomics** (the science of adapting machines and work environments to people) provides guidance for these designers. For instance, ergonomic techniques focus on creating an environment for the worker that is safe, well lit, and comfortable. Devices such as antiglare screens have helped alleviate problems of fatigued or damaged eyesight, and chairs that contour the human body have helped decrease backaches (see *A Closer Look 16.1*).

A CLOSER LOOK

16.1 ERGONOMIC PRODUCTS AND CORRECT SITTING PROTECT COMPUTER USERS

Many products are available to improve working conditions for people who spend much of their time at a computer. The following pictures illustrate some ergonomic solutions:

Proper sitting position.

Wrist support.

Eye-protection filter (optically coated glass).

Adjustable foot rest.

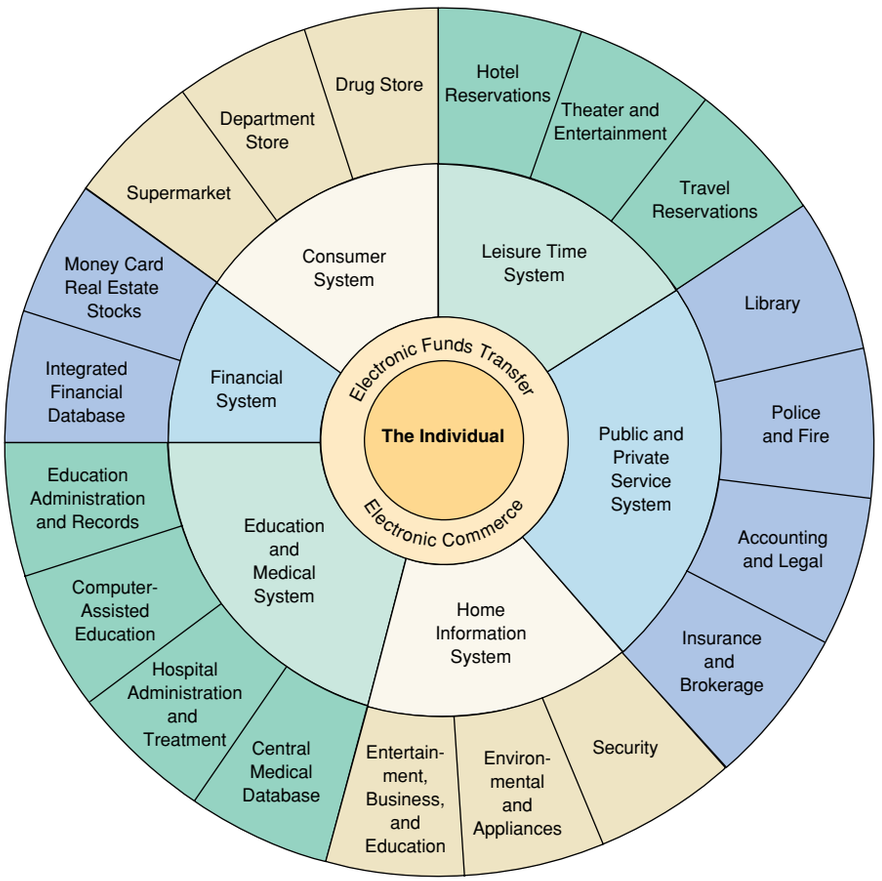


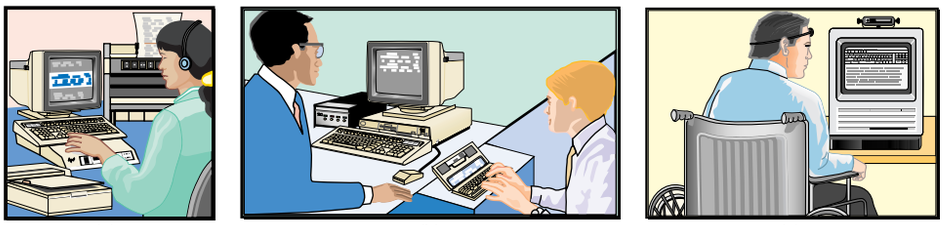
FIGURE 16.1 Information systems and the individual. (*Source:* Jerome Kanter, *Managing with Information,* 4th ed., 1992, p. 350. © Reprinted with permission of Pearson Education Inc., Upper Saddle River, NJ.)

Other Impacts

Interactions between individuals and computers are so numerous that entire volumes can be written on the subject. An overview of such interactions is provided by Kanter (1992) and illustrated in Figure 16.1. The figure shows the individual encircled by the electronic transfer of money (as in e-commerce and smart cards) that allows purchase of products and services. The intermediate rings identify six areas or systems of human activity affected by computers (consumerism, education, and so on). Finally, the outer ring gives some examples of specific products or services in each system. For a review of individual acceptance of information technologies, see Agarwal (2000).

16.4 Societal Impacts

Several positive and some negative social implications of IT could be far-reaching. IT has already had many direct beneficial effects on society, being used for complicated human and social problems such as medical diagnosis, computer-assisted instruction, government-program planning, environmental quality control, and law enforcement. For an overview see Lubbe and Van Heerden (2003). This section discusses a number of societal impacts.



(a) (b) (c)

FIGURE 16.2 Enabling people with disabilities to work with computers. (*Source:* J. J. Lazzaro, "Computers for the Disabled," *Byte*, June 1993.)

(*a*) *A PC for a sight-impaired user*, equipped with an Oscar optical scanner and a Braille printer, both by TeleSensory. The optical scanner converts text into ASCII code or into proprietary word processing format. Files saved on disk can then be translated into Braille and sent to the printer. Visually impaired users can also enlarge the text on the screen by loading a TSR software magnification program.

(*b*) *The hearing-impaired challenged user's PC* is connected to a telephone via an Ultratec Intele-Modem Baudot/ASCH modem. The user is sending and receiving messages to and from someone at a remote site who is using a telecommunications device for deaf people (right).

(*c*) *This motor-disabled person* is communicating with a PC using a Pointer Systems optical head pointer to access all keyboard functions on a virtual keyboard shown on the PC's display. The user can "strike" a key in one of two ways. He can focus on the desired key for a user-definable time period (which causes the key to be highlighted), or he can click an adapted switch when he chooses the desired key.

Opportunities for People with Disabilities

The integration of artificial intelligence technologies, such as speech and vision recognition, into a computer and especially into Web-based information systems, can create new employment opportunities for people with disabilities. For example, those who cannot type are able to use a voice-operated keyboard, and those who cannot travel can work at home.

Adaptive equipment for computers permits people with disabilities to perform tasks they would not normally be able to do. Figure 16.2 shows a PC for a user with hearing impairment, a PC for a visually-challenged user, and a PC for a motor-disabled user. In Thailand, 18-year-old students at the Na Yai Arm Vocational School, in Chantaburi province, developed a special telephone for sight-impaired people because they wanted to help them to live on more equal terms with the rest of society and not need to depend on help from others (Boonnoon, 2000). In Taiwan, a group of researchers designed portable communication aidsfor people who have both sight and hearing impairments. The system comprises two major parts: First, the person types the messages on a Braille terminal. The messages will be converted to Mandarin phonetic symbols, which are then displayed on an LCD display to be read by a sighted partner. The sighted person can then send messages back by typing on a simple keyboard. The messages will be displayed on a Braille display to be "read" by the message recipient (Su et al., 2001).

Other devices provide help improve quality of life for disabled people in more mundane, but useful, ways. A two-way writing telephone, a robotic page-turner, a hair-brusher, and a hospital-bedside video trip to the zoo or the museum.

Some countries have developed more extensive legislative requirements than others so as to protect the rights of people with disabilities. In the United

States, since the summer of 1994, companies with 15 or more employees must comply with the Americans with Disabilities Act. This act requires companies to take reasonable steps to ensure that employees with disabilities will be able to work with specially adapted computers as well as with other equipment. In many countries, however, notably those in the developing world, no such legislative measures exist, and those with disabilities are very much undervalued and underemployed members of society.

INTERNET IMPLICATIONS. E-commerce sites are studying how to handle people with disabilities, "encouraged" by the legal authorities, which have shut down several e-tailing stores for not complying with the law (news item *New York Times*, January 1, 2001). In the United States, 300,000 to 500,000 sight-impaired people rely on screen-reader software and a speech synthesizer, which turn words to sound and can interpret images. But many Web sites are not designed to be compatible with screen readers. People with impaired motor skills need a special mouse, and people with hearing impairments need to see messages. This can be done by using closed-captioning devices, but is usually not done.

Several organizations deal with IT and people with disabilities. An example is *abletowork.org* (see Exercise 5). For a comprehensive discussion of Web sites and the visually impaired, including software and hardware, see Rogers and Rajkumar (1999).

Quality of Life Improvements

On a broader scale, IT has significant implications for the **quality of life.** An increase in organizational efficiency may result in more leisure time for workers. The workplace can be expanded from the traditional nine-to-five job at a central location to twenty-four hours a day at any location. This expansion provides a flexibility that can significantly improve the quality of leisure time, even if the total amount of leisure time is not increased.

Of course there can be negative effects as well. None of us wants to work round the clock, twenty-four hours a day, seven days a week, 365 days a year, but the pressure to do so could be considerable if the facility exists. Indeed, another pressure may be to work antisocial hours—night shifts, for example, or weekends. Furthermore, not all of us necessarily want to spend more leisure time at home. One investigation showed that more time at home can contribute to increased domestic violence and divorces.

Nevertheless, our quality of life can be improved in various ways by IT. For example, Japanese auto manufacturers are leading the way in the development of onboard GIS-GPSpicture-map technology (e.g., see *toyota.com*), which makes it easier to drive to your destination. Some systems provide live data that is downloaded to you via a satellite link as you drive. Other systems require you to download information to a "card" before you start your trip, then to insert the card into the car's navigation system. (For more details, see Lubbe and Van Heerden, 2003, Kageyama, 2000, and Flamma, 1999.) The use of robots is another way to improve quality of life with IT in certain uncomfortable or dangerous environments.

ROBOT REVOLUTION ON THE WAY. Robots will become ubiquitous, or so some people think. "Cyberpooches," nursebots, and more may be our companions before we know it. Around the world, quasi-autonomous devices have become increasingly common on factory floors, in hospital corridors, and in farm fields. Military applications are being developed also: The Pentagon is researching

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THE WORKING LIVES OF ROBOTS

LAYING FIBER OPTIC CABLES. Cities around the world are transforming themselves to the digital era by replacing copper wires with fiber-optic cables or by installing fiber optics where there were no wires before. Because fiber-optic cables are a choice method to deliver high-speed voice and data communication (see Technology Guide 4), demand for them is expanding. Cities know that in order to attract and hold on to high-tech business they must provide fiber-optic access to all commercial buildings. You may have seen this activity many times without realizing it: Workers cut up the street, creating noise, dust, and traffic problems. But the worst part of it is that the disruption to people may take weeks, or even months, just to complete one city block. Now, robots are changing it all.

One company that invented a technology to improve the situation is City Net Telecommunications (*citynettelecom .com*). The idea is to use the existing sewer system to lay the cables. This way no trenches need to be dug in the streets. Pioneering work has been done in Albuquerque, New Mexico, Omaha, Nebraska, and Indianapolis, Indiana (in spring 2001). How do the robots help? Robots are waterproof and do not have noses, and so they are not bothered by working in the sewer. They do not complain, nor do they get sick. As a matter of fact, they work faster than humans when it comes to laying the fiber-optic cables inside the sewer system.

What does it cost? The company claims that laying the fiber-optic cable with robots costs about the same as the old method. The major advantage is that it can be done 60 percent faster and without disruption to people's lives.

CLEANING TRAIN STATIONS IN JAPAN. With growing amounts of rubbish to deal with at Japanese train stations and fewer people willing to work as cleaners, officials have started turning the dirty work over to robots. Since May 1993, the Central Japan Railway Company and Sizuko Company, a Japanese machinery maker, have been using robots programmed to vacuum rubbish. A railway official said the robots, which are capable of doing the work of ten people each, have been operating at the Sizuko station in Central Japan. The robots measure about 1.5 meters wide and 1.2 meters long. The railway and Sizuko spent 70 million yen to develop the machines and are planning to program them for other tasks, such as sweeping and scrubbing.

Sources: Compiled from the *New York Times* (March 6, 2001); from the *Wall Street Journal* (November 21, 2000); and from "Robots Used to Clean Train Station in Japan," the (Singapore) *Sunday Times* (June 6, 1993). See also "The Robot Revolution Is on the Way," *International Herald Tribune* (September 18, 2000).

For Further Exploration: If robots are so effective, what will be the impact on unemployment when more tasks are robotized? What will people do if robots take over?

self-driving vehicles and bee-like swarms of small surveillance robots, each of which would contribute a different view or angle of a combat zone.

Whether robots will be of R2D2 (the *Star Wars* android) quality is another issue. It probably will be a long time before we see robots making decisions by themselves, handling unfamiliar situations, and interacting with people. Nevertheless, robots are around that can do practical tasks. Carnegie Mellon University, for example, has developed self-directing tractors that harvest hundreds of acres of crops around the clock in California, using global positioning systems combined with video image processing that identifies rows of uncut crops. Robots are especially helpful in hazardous environments, as illustrated in the *IT at Work 16.1*.

IMPROVEMENTS IN HEALTH CARE. IT has brought about major improvements in health-care delivery, ranging from better and faster diagnoses, to expedited research and development of new drugs, to more accurate monitoring of critically ill patients. One technology that has made a special contribution is artificial intelligence. For example, expert systems support diagnosis of diseases, and

machine vision is enhancing the work of radiologists. Recently, surgeons started to use virtual reality to plan complex surgeries, and used a surgical robot to perform long distance surgery. Cardiologists also can interpret patients' hearts' vital signs from a distance (see *micromed.com*).

On June 26, 1998, the first China-America Internet medical video teleconferencing was initiated. Doctors in Xian Medical University communicated over the Internet with American doctors at Stanford Medical School. Now, doctors can discuss complex medical cases not only on the telephone, but also with the support of pictures and sound.

The medical industry has long been using advanced technologies to diagnose and treat health problems. For example, there is a small transistor that a sick person can wear on a necklace. If the person needs help, a computer chip automatically activates the telephone to notify an operator who can contact an emergency service or a physician. Of the thousands of other applications related to health care it is interesting to point out the administrative systems, which range from insurance fraud detection (e.g., by IBM's Fraud and Abuse Management System) to nursing scheduling and financial and marketing management. In 2002, the cardiac unit in Miami Children's Hospital introduced handheld organizers to doctors and nurses for recording and tracking diagnoses and treatment (*International Herald Tribune*, August 24–25, 2002). Many other improvements in healthcare delivery are related to advanced technologies. For additional examples, see Landro (2002) and Weiss (2002).

The Internet is a gold mine of medical information. For example, a site about cancer (*cancer.med.upenn.edu*) features a huge array of documents, reviews, descriptions of personal experiences, suggested diets, and links to global resources for people who suffer from cancer, or who are interested in oncology. It offers information on the latest research studies and cancer pain management. It also helps families cope with emotional and financial burdens. The Web site has won numerous awards for its design and functionality. In 2001, the site had over 2 million visitors *each day* from all over the world.

There are numerous Web sites devoted to all kinds of specific health topics. For instances, iEmily (*iEmily.com*) provides information on the physical and mental health of teenage girls. TeenGrowth (*teengrowth.com*), KidsHealth (*kidshealth.org*), and ZapHealth (*zaphealth.com*) articles on general, sexual, emotional health, as well as fitness, sports, family and safety issues. Organized like interactive magazines, these sites also offer discussion forums, chat rooms, and hyperlinks to other related resources.

Finally, the outbreak of Severe Acute Respiratory Syndrome (SARS) demonstrated the use of IT in supporting the social and psychological needs of patients. Technologies such as Web cameras, audiovideo phones, and Web-conferencing software enabled patients to stay in touch with their relatives and friends while under quarantine.

CRIME FIGHTING AND OTHER BENEFITS. Other quality of life improvements brought about by IT relate to crime fighting and other government-services benefits. Here are some examples of how computer applications can benefit society:

- Since 1997, information about sex offenders has been available on the Internet, so that people can be aware of whether previously convicted offenders are living in their localities.

- Los Angeles County has a sophisticated computer program for reporting and tracking over 150,000 gang members in the county. The program significantly helps reduce gang crime.
- Electronic imaging and electronic fax enhance searches for missing children. In addition to its Web site (*missingkids.com*), which attracts more than a million hits each day, the Center for Missing and Exploited Children can send high-quality photos plus text to many fax machines and to portable machines in police cars. Computers have improved the quality of fax transmission and increased the number of people who receive the announcements.
- A geographical information system helps the San Bernardino Sheriff's Department to better visualize crime patterns and allocate resources.
- Electronic Sensors and computers reduce traffic congestion in many major cities, from Los Angeles to Tokyo.
- A computerized voice-mail system used in Rochester, New York, helps homeless and other needy people find jobs, access health care resources, and gain independent living skills.
- Police can now track emergency (911) calls made from cell phones equipped with GPS systems (see Chapter 6, and Fujimoto, 2002).

Technology and Privacy

Throughout the book we have provided examples of invasion of privacy by IT applications. Here are some examples.

SCANNING CROWDS FOR CRIMINALS. One major debates involves situations in which police are using technology to reduce crime. In January 2001, for example, during the Super Bowl game in Tampa, Florida, video cameras took a picture of each of 100,000 fans when they entered the stadium. No one knew about it, so permissions were not obtained. Within seconds, thousands of photos were compared with digital portraits of known criminals and suspected terrorists; several matches were found. The technology is not new, but its magnitude and speed is. Never before had such a large number of people been photographed and the photos analyzed in such a short time. Is this technology Big Brother watching over you, or just a friendly uncle? The ACLU says it is Big Brother. The police say it is the uncle, trying to protect the public. Who do you think is right?

COOKIES AND INDIVIDUAL PRIVACY. A Microsoft product called *Passport* has raised some of the same concerns as cookies. Passport is an Internet strategy that lets consumers permanently enter a profile of information along with a password and use this information and password repeatedly to access services at multiple sites. Critics say that Passport affords the same opportunities as cookies to invade an individual's privacy by permitting unauthorized people (e.g., Microsoft employees or vendors) to look at your personal data. (Critics also feel that the product gives Microsoft an unfair competitive edge in EC.)

DIGITAL MILLENNIUM COPYRIGHT ACT AND PRIVACY CONCERNS. The Recording Industry Association of America (RIAA) blames online music piracy for falling sales of CDs and has tried to use the Digital Millennium Copyright Act (DMCA) to get ISPs to reveal the identity of customers who illegally swap

pirated files. This act has raised some public concern about giving too much power to copyright holders at the expense of Internet users.

For more on technology's relation to privacy see Buchholz and Rosenthal (2002) and Rykere et al. (2002). Tynan (2002) gives examples about how to protect your privacy, as do discussions in Chapters 5 and 6 of this textbook.

SOCIAL SERVICES AND PRIVACY. Conflicting public pressures may rise to suppress the use of IT because of concerns about privacy and "Big Brother" government. The absence of public pressure, or government intransigence, may see such concerns pushed aside. For example, for many years Hong Kong citizens have had to carry an identity card. One cogent justification for this requirement relates to the ongoing fight against illegal immigration into Hong Kong, as officers of the Hong Kong Police Force randomly spot-check ID cards in the street. The Hong Kong government now proposes to reissue all ID cards as smart ID cards—cards that will be able to capture significantly more data, such as driving permit and health information. Such a card may raise many privacy concerns. See the discussion at *pco.org.hk/*. While some can see many benefits, others are concerned about their privacy.

Virtual Society

The term **virtual society** refers to all components that are part of a society's culture based on a *functional* rather than a physical structure. It includes significant IT-enhanced effects or actions, behavior of nonphysical entities, and remotely located members. Companies no longer talk about "work at home" programs. Rather, they talk about "work anywhere, anytime," with laptops, fax machines, mobile devices, networks, e-mail, and voice mail transforming work and communication into a virtual society. Societal changes are coming with the new generation who has grown up online (Roberts-Witt, 2000). (For more on the IT-related implications of the transformation to a virtual society, see Igbaria, 1999.)

Information Technology and Employment Level

In the last 30 years, there has been an ongoing debate regarding the possibility of massive unemployment resulting from the increased use of IT. The debate is between economists who believe that massive IT-caused unemployment will occur and those who believe that it will not occur. Very prominent economists are marshalled on either side in this debate, including Nobel Prize recipients Leontief (1986) arguing for the massive unemployment and Simon (1977) arguing against it. The arguments are summarized in Table 16.3.

The debate about how IT will affect employment raises a few other questions: Is unemployment really socially undesirable? Should the government intervene more in the distribution of income and in the determination of the employment level? Can the "invisible hand" in the economy, which has worked so well in the past, continue to be successful in the future? Will IT make most of us idle? (Robots will do the work, and people will enjoy life.) Should the issue of income be completely separated from that of employment?

The answers to these questions will be provided in part by the developments in future IT, but they must also be influenced by cultural differences. While some countries have governments rich enough to make income taxes a thing of the past (e.g., Brunei), this is not the case for most. Some countries (or communities within countries) have unemployment rates of 50 percent or more (e.g., East Timor, Kosovo). While the rates in others may seem

TABLE 16.3 Is Mass Unemployment Coming? Arguments on Both Sides of the Question

Massive Unemployment Will Come	No Massive Unemployment
• Benefit/cost advantage of computers increases with time.	• New occupations and jobs have always been created by automation.
• Less skillful employees are needed.	• There is much less unemployment in countries that use more automation.
• Shifting displaced employees to services is getting difficult.	• Work can be expanded to accommodate everyone.
• Many employees lost their jobs in the 1990s.	• Conversion to automation is slow, and the economy can adjust.
• Hidden unemployment exists in many organizations.	• There will always be some areas where people are better than machines.
• Millions of help-desk employees will be replaced by intelligent agents.	• People will work less but will have more money.
• E-commerce will cause millions of intermediaries and agents to lose their jobs.	• E-commerce reduces the cost of many goods and services; thus their consumption will increase, resulting in more buying and more jobs.
• The unemployment levels in certain countries is high and is increasing.	• There is an upper limit to customer consumption.

low, these must be measured against the need of people in society for work, as well as the ability or intention of the government to provide a social safety net. For example, Hong Kong lacks such a comprehensive safety net, and many who would be eligible claimants believe it below their dignity to claim anyway—they would prefer to *earn* a living rather than to depend on the government. When unemployment reaches 3 or 4 percent in Hong Kong, as during the recent Asian financial crisis, this is considered a very high rate. In other countries, for example, in North America and Western Europe, 3 to 4 percent may be considered very low.

Digital Divide

The term **digital divide** refers to the gap in computer technology in general, and now in Web technology in particular, between those who have such technology and those who do not. A digital divide exists both within and among countries. According to UN and ITU reports, more than 90 percent of all Internet hosts are in developed countries, where only 15 percent of the world's population resides. In 2001, the city of New York, for example, had more Internet hosts than the whole continent of Africa. Venkat (2002) asserted that the digital divide has consistently followed the income divide all over the world. More than 96 percent of those with Internet access are in the wealthiest nations, representing 15 percent of the world's population. Nearly 60 percent of the U.S. population has Internet access, with a distribution highly correlated with household income (Venkat, 2002).

The U.S. federal and state governments are attempting to close this gap within the country, by encouraging training and by supporting education and infrastructure improvements (see *ecommerce.gov*). Many other government and international organizations are also trying to close the digital divide around the world. As technologies

develop and become less expensive, the speed at which the gap can be closed will accelerate. For example, it is still expensive to have a DSL-based broadband line to access the Internet today (2003), but some predict that it could cost as little as $10/month in 2005. Yet even this amount would be expensive in some countries where wages are only several dollars a day. Cell phones will also increase inexpensive access to the Internet as will Web TV.

According to Narayana Murthy, CEO of Infosys Technologies of India, IT and the Web can turn poor countries such as India into economic powerhouses. They can also help dissolve rigid social barriers (see Bodwo, 2000). For other strategies and discussion about how to close the digital divide, see Iyer et al. (2002) and Compaine (2001).

CYBERCAFÉS AND PUBLIC WEB TERMINALS. One of the developments that can help close the digital divide is Internet kiosks in public places and cybercafés. For example, CityKi, an online kiosk installed in a Boston supermarket, aims to provide public access to the Internet for people who ordinarily would not have such access (Fox, 2002). In the United States, computers with Internet access usually are also available at public libraries.

Similarly, **cybercafés** are public places such as a coffee house in which Internet terminals are available, usually for a small fee. Cybercafés come in all shapes and sizes, ranging from a chain of cafés (*easyeverything.com*, and *easy.com*) that include hundreds of terminals in one location (e.g., 760 in one New York setting), to a single computer in a corner of many restaurants. When you travel today, even to remote places such as the town of Shigatze in Tibet, Phi Phi island in Thailand, or the country of Ghana in Africa, you are likely to see a sign: *Internet café,* or *cybercafé*. According to search engine *cybercaptive.com*, there were more than 6,000 cybercafés, public Internet access point, and kiosks in 169 countries, in 2003.

Computers have popped up in many other public locations: discos, laundromats, karaoke bars, bookstores, CD stores, hotel lobbies, and convenience stores. Some facilities give free access to patrons; others charge a small fee. The number of publicly accessed Wi-Fi's is increasing rapidly, and some do not charge fees (see Chapter 6).

International Impacts

As a result of advancements in information technology, such as the increased speed of communications and information flow, we are living in a shrinking world. In fact, more than 35 years ago, Marshall McLuhan coined the term "global village" to refer to this very concept. The power of the media is also growing as a result of cable television, electronic publishing, and networking through computer modems.

Many countries, willingly or unwillingly, knowingly or unknowingly, are being westernized as a result of information about western ways of life and values flowing freely across borders. This has the potential to fuel the fires of political unrest, especially in nondemocratic or poor countries. Access to IT technologyi such as facsimile machines, computer disks, and electronic publishing could be used to assist in planning revolts and attempting to overthrow governments. Therefore, how advancements in technology are viewed depends upon where one's affiliations lie.

As an example, in 1996 China blocked hundreds of western Web sites from being viewed on the Internet in China. This is not difficult to achieve, as the Chinese government maintains a strict control over Internet service providers

(ISPs). Any ISP that failed to follow government guidelines about which Web sites to block would at the very least lose its license to operate—and at the worst, its owners might be judged undesirable, reactionary, and antisocial elements. The punishment for such a charge varies from hard labor to execution, depending on the extent and severity of the crime. Following China's repressive Internet policies, several thousand Web sites, including pornography, violence, and in particular, criticism of China's Communist party, are blocked.

Free Speech versus Censorship

Several surveys indicate that the issue of censorship is one of the most important to Web surfers. Censorship usually ranks as the number one or number two concern in Europe and the United States; privacy is the other main issue (e.g., see the GVU User Surveys at *gvu.gatech.edu/user_surveys/*). On the Internet, *censorship* refers to government's attempt to control, in one way or another, material that is broadcast.

At a symposium on free speech in the information age, Parker Donham (1994) defined his own edict, called "Donham's First Law of Censorship." This semiserious precept states: "Most citizens are implacably opposed to censorship in any form—except censorship of whatever they personally happen to find offensive" (see *ei.cs.vt.edu/~wwbtb/book/chap5/opine1.html*).

Take, for example, the question, "How much access should children have to Web sites, newsgroups, and chat rooms containing 'inappropriate' or 'offensive' materials, and who should control this access?" This is one of the most hotly debated issues between the advocates of censorship and the proponents of free speech. The proponents of free speech contend that there should be no government restrictions on Internet content and that parents should be responsible for monitoring and controlling their children's travels on the Web. The advocates of censorship feel that government legislation is required to protect children from offensive material. According to Lee (2001), about 20 countries are filtering Internet pornography.

The Children's Online Protection Act (COPA) exemplifies the protection approach. Passed in 1998, this law required, among other things, that companies verify a viewer's age before showing online material that is deemed "harmful to minors" and that parental consent is required before personal information can be collected from a minor. The fact that the Act was ruled unconstitutional illustrates how hard it is to craft legislation that abridges freedom of speech in the United States. The fate of a modified Children's Internet Protection Act, which was ruled unconstitutional in Pennsylvania in 2001, is now in the hands of the U.S. Supreme Court.

In addition to concern for children, there is also a concern about hate sites (e.g., see Kopp and Suter, 2001), about defamation of character, and about other offensive material. On December 10, 2002, in a landmark case, Australia's highest court gave a businessman the right to sue in Australia for defamation over an article published in the Untied States and posted on the Internet. This reasoning basically equates the Net to any other published material. The publisher, Dow Jones & Co., said that it will defend those sued in a jurisdiction (Australia) that is far removed from the country in which the article was prepared (the United States).

The advocates of censorship also believe that it is the responsibility of ISPs to control the content of the data and information that flow across their networks and computers. The difficulty is that ISPs have no easy way of monitoring

A CLOSER LOOK
16.2 THE WORLD TRADE CENTER (WTC) DISASTER

The September 11, 2001, terrorists' attack on the World Trade Center (WTC) and Pentagon brought to our attention the impact of several IT topics. Here are some major ones.

THE ROLE OF THE INTERNET, SEARCH ENGINES, AND CHAT ROOMS, AND WEB LOGS (BLOGS). Following the disaster, the use of the Internet increased by about ten-fold, with some sites (e.g., CNN) facing a volume increase of over 150-fold. The Internet and search engines were used provide news to millions around the globe and to enable people to find other people, public agencies, emergency services, and other important disaster relief information. The Internet alsohelped survivors, relatives, and other concerned individuals feel somewhat encouraged that they were not suffering alone. People were trying to reach out to each other to share some sense of community, and to vent fears, frustrations, and anger to a virtual community. Many special chat areas were created, and the front pages of search engines (e.g., Alta Vista, Lycos) and portals such as Yahoo were drastically altered to meet the users' needs.

Several Web sites were virtually unavailable in the hours immediately after the attack, due to traffic overload. Several search engines were available but brought back no listings relevant to the WTC catastrophe, while content providers scrambled to pull together information. Also, several blogs (Chapter 4) devoted considerable amounts of space to comforting people and sharing concerns.

WHY THE STOCK MARKETS WERE CLOSED FOR DAYS. The IT operations of the New York Stock Exchange and Nasdaq were not damaged much because most of their facilities are outside New York and they had all the needed disaster recovery systems. Nasdaq, for example, had multiple communications carriers and a distributed IT infrastructure that helped keep its systems running after the attack (*InformationWeek.com*, Sept. 21, 2001).

However, the operations of many of the more than 100 securities-trading companies located in Manhattan were disrupted. Many of these had network problems, while

the content or determining the age of the person viewing the content. The only way to control "offensive" content is to block it from children and adults alike. This is the approach that America Online (AOL) has taken, for instance, in blocking sites pandering to hate crime and serial killer enthusiasts.

In general, in many societies it is believed that the right to freedom of speech needs to be balanced by a duty to protect people, or not to harm them. If in doubt, or if it is difficult to identify what types of material are likely to be harmful, people tend to err on the side of caution. Fundamentally, constitutions and their amendments are valid only so long as the majority of people in a given society believe that they are reasonable. At some point, they are changed as the society evolves and moves in new directions.

Controlling Spam

Spamming refers to the practice of indiscriminately broadcasting messages over the Internet (e.g., junk mail and pop-up screens). One major piece of U.S. legislation addressing marketing practices in EC is the Electronic Mailbox Protection Act, passed in 1997. The primary thrust of this law is that commercial speech is subject to government regulation, and secondly, that spamming, which can cause significant harm, expense, and annoyance, should be controlled.

At some of the largest ISPs, spam now comprises 25 to 50 percent of all e-mail (Black, 2002). This volume significantly impairs an already-limited bandwidth, slowing down the Internet in general and, in some cases, shutting down

others needed to relocate operations to backup centers. Therefore, despite the help provided by the exchanges to the trading partners, it took 5 days to restore the overall operations.

ONLINE CROOKS EXPLOIT WTC DISASTER. The disaster proved that even in times of national crisis, crime and unethical behavior does not come to a standstill. Several shameless con artists attempted to profit from the situation, even using the Internet to do so. Attempts were made to solicit donations for the survivors of the attacks and relatives of the victims. As an example, a widespread e-mail solicited donations for the Red Cross, but the link led to an imitation of the popular relief organization's Web site. There were also unethical and offensive uses of the Internet for spinning the attacks into marketing events, for example, selling life insurance. Some even were selling commemorative products related to the disaster.

PRIVACY VERSUS SECURITY. A dramatic shift in the debate over IT privacy was observed after September 11: Before, the issue was a tug of war between protectors of civil liberties on one side and government intelligence gatherers on the other. In September 2001 it became an emotional weighing of personal rights versus national security, with a shift in favor of stepping up government eavesdropping. Some of the immediate changes were:

- The Data Protection Act was relaxed so ISPs were able to provide traffic data to the police in several countries.
- A global request was made for encryption software makers to let government authorities crack their tools.
- New anti-terrorist legislation was introduced in the United States that would make it easier for the FBI to wiretap phones and e-mails.
- The use of disposable cell phones (preloaded with a finite number of calling minutes and then useless) and telephone cards became a security risk since anonymous calls are difficult to track.
- ID smart cards, which are very difficult to forge, are becoming mandatory in some countries. The U.S. Congress is deliberating the issue.

The tradeoff between security and privacy sparks debate. Many people favor lots of security and are willing to sacrifice some amount of privacy for that "public good." Others favor greater privacy even if it means somewhat less security.

ISPs completely. The Electronic Mailbox Protection Act requires those sending spam to identify it as advertising, to indicate the name of the sender prominently, and to include valid routing information. Recipients may waive the right to receive such information. Also, ISPs are required to offer spam-blocking software, and recipients of spam have the right to request termination of future spam from the same sender and to bring civil action if necessary. For further details see Turban et al. (2004, Chapter 5).

We close our discussion of the impacts of IT by looking at some of the IT impacts of the September 11, 2001, terrorists' attacks in the United States, as discussed in *A Closer Look 16.2*.

16.5 VIRTUAL COMMUNITIES

Our final topic in the chapter is virtual communities, which demonstrate a somewhat difference form of the impact of IT on society. A *community* is a group of people with some interest in common who interact with one another. A **virtual (Internet) community** is one in which the interaction among group members takes place by using the Internet. Virtual communities parallel typical physical communities such as neighborhoods, clubs, or associations, except that people do not meet face-to-face. Instead, they meet online. Virtual communities

TABLE 16.4 Elements of Interactions in Virtual Communities

Type of interaction	Elements that promote the interaction
Communication	Bulletin boards (discussion groups) Chat rooms/threaded discussions (string Q&A) E-mail and instant messaging Private mailboxes Newsletters, "netzines" (electronic magazines) Web postings Voting
Information	Directories and yellow pages Search engines Member-generated content Links to information sources Expert advice
E-commerce element	Electronic catalogs and shopping carts Advertisements Auctions of all types Bartering online Classified advertising

offer several ways for members to interact and collaborate (see Table 16.4). Similar to the click-and-mortar e-commerce model, many *physical communities* also have a Web site for Internet-related activities.

Characteristics of Communities

Pure-play Internet communities (those that exist solely online) may have thousands or even millions of members. This is one major difference from purely physical communities, which are usually smaller. Another difference is that offline communities are frequently confined to one geographical location, whereas only a few online communities are geographically constrained.

Virtual communities can be classified in several ways. One possibility is to classify members as *traders*, *players*, *just friends*, *enthusiasts*, or *friends in need*. The most common classification is the one proposed by Armstrong and Hagel (1996) and Hagel and Armstrong (1997). They recognized four types of Internet communities: communities of *transactions*, communities of *interest*, communities of *practice* (or relations), and communities of *fantasy*. Examples of these communities are provided in Table 16.5. (For different classifications see those proposed by Hummel and Lechner, 2002.)

Many thousands of communities exist on the Internet. Several communities are independent and are growing rapidly. For instance, GeoCities grew to 10 million members in less than 2 years and had over 45 million members in 2002 (*geocities.yahoo.com*). GeoCities members can set up personal homepages on the site, and advertisers buy ad space targeted to community members. A number of examples of online communities are presented in Table 16.6.

Rheingold (1993) thinks that the Web can be transformed from a communication and information-transfer tool into a *social Web* of communities. He thinks that every Web site should incorporate a place for people to chat. He believes that it should be a place where discussions may range over many controversial topics, making community sites a kind of virtual community center.

Many issues are related to the operation of communities. For example, Mowbray (2001) raised the issue of freedom of speech and its control in a

TABLE 16.5 Types of Virtual Communities

Community Type	Description
Transactions	Facilitates buying and selling (e.g., *ausfish.com.au*). Combines information portal with infrastructure for trading. Members are buyers, sellers, intermediaries, etc. Focused on a specific commercial area (e.g., fishing).
Purpose or interest	No trading, just exchange of information on a topic of mutual interest. Examples: Investors consult The Motley Fool (*fool.com*) for investment advice; music lovers go to *mp3.com*<URL; *Geocities.yahoo.com* is a collection of several areas of interest in one place.
Relations or practice	Members are organized around certain life experiences. For example *ivillage.com* caters to women. Professional communities also belong to this category for examples *isworld.org* for information systems faculty, students, and professionals.
Fantasy	Members share imaginary environments. Examples: sport fantasy teams at *espn.com*; Geocities members can pretend to be medieval barons at *geocities.com/timessquare/4076*.

Sources: Compiled from Armstrong and Hagel (1996) and Hagel and Armstrong (1997).

community. Malhotra (2002) raised the issue of knowledge exchange among community members. Blanchard and Markus (2002) examined the role of a sense of belonging in an online community.

Commercial Aspects of Communities

Virtual communities have commercial as well as social aspects. A logical step as a community site grows in number of members and influence may be to turn it into a commercial site. Examples of such community-commercial sites include *ivillage.com* and *geocities.yahoo.com*.

Virtual communities can be closely related to EC. For example, Champy et al. (1996) and Zetlin and Pfleging (2002) describe online, consumer-driven markets in which most of the consumers' needs, ranging from finding a mortgage to job hunting, are arranged from a community Web site. This gathering of needs in one place enables vendors to sell more and community members to get discounts. Internet communities will eventually have a massive impact on almost every

TABLE 16.6 Examples of Communities

Type of Communities	Examples
Search communities	*classmates.com, match.com, monster.com*
Education communities	*smartforce.com*
Association communities	*aria.com.au*
Ethnic communities	*elsitio.com, hongkong.com, sohu.com*
Gender communities	*women.com, she.com*
Affinity portals	*workingfamilies.com*
Catering to young people (teens and people in their early 20s)	*alloy.com, bolt.com, blueskyfrog.com*
Online gaming communities	*netfun.com, thesimsonline.com*
Mega communities	*geocities.com, MSN.com*
B2B online communities	*commerceone.com, exp.com, keen.com*

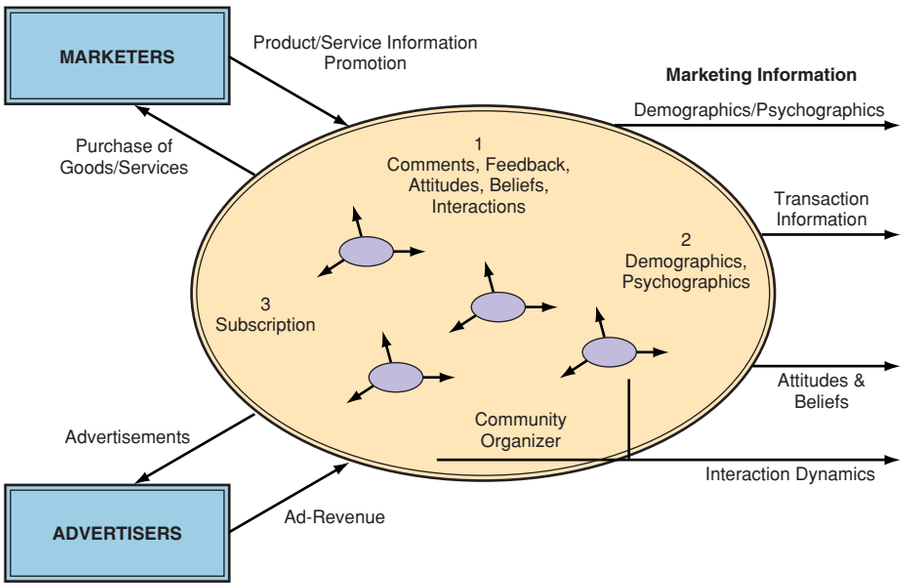

FIGURE 16.3 Value creation in virtual communities. (*Source:* Kannen et al., 1998, *Communications of the ACM.* P. K. Kannen © 1998 Association for Computing Machinery, Inc. Reprinted by permission.)

company that produces consumer goods or services, and they could change the nature of corporate advertising and community sponsorship strategies and the manner in which business is done. Although this process of change is slow, some of the initial commercial development changes can be observed.

Electronic communities can create value in several ways. This value-creation process is summarized in Figure 16.3. Members input useful information to the community in the form of comments and feedback, elaborating on their attitudes and beliefs and information needs. This information can then be retrieved and used by other members or by marketers. The community organizers may also supply their own content to communities, as AOL does.

Also, some communities charge members content fees for downloading certain articles, music, or pictures, thus producing sales revenue for the site. Finally, because many community members create their own homepages, it is easy to learn about them and reach them with targeted advertising and marketing. For more on this topic, see Lechner et al. (2001) and *A Closer Look 16.3*, which lists suggestions for transforming a community site into a commercial one.

Financial Viability of Communities

The revenue model of communities can be based on sponsorship, membership fees, sales commissions, and advertising, or some combination of these. The operating expenses for communities are very high due to the need to provide fresh content and free services. In addition, most communities initially provide free membership. The objective is to have as many registered members as possible and to build a strong brand in order to attract advertisers (see McWilliam, 2000, and Zetlin and Pfleging, 2002).

The model of self-financing communities (i.e., those without a sponsor) has not worked very well. Several communities that were organized for profit, such as *ivillage.com*, *china.com*, and *elsitio.com*, sustained heavy losses. Several other communities ceased operations in 2000 and 2001 (e.g., *esociety.com* and *renren .com*). However, the trend toward mergers and acquisitions among communities, started in 2001, is expected to improve the financial viability of some communities.

A CLOSER LOOK

16.3 HOW TO MAKE THE TRANSFORMATION FROM A COMMUNITY SITE TO A COMMERCIAL ONE

- Understand a particular niche industry, its information needs, and the step-by-step process by which it does the research needed to do business and try to match the industry with a potential or existing community.
- Build a site that provides that information, either through partnerships with existing information providers or by gathering it independently, or identify a community that can be sponsored.
- Set up the site to mirror the steps a user goes through in the information-gathering and decision-making process (e.g., how a chip designer whittles down the list of possible chips that will fit a particular product).
- Build a community that relies on the site for decision support (or modify an existing one).
- Start selling products and services that fit into the decision-support process (such as selling sample chips to engineers who are members of the community).

IT at Work 16.2 demonstrates how an online game company successfully generates profit through building an online community.

For more details and discussion of communities, see Raisch (2000), Preece (2000), Duffy (1999), and McWilliam (2000).

IT at Work 16.2

NET FUN: ONLINE GAME PLAYER COMMUNITY

Net Fun (*netfun.com*) is an online entertainment Web site founded in 1994. In 1996, the firm launched its flagship product, CyberCity. Installing CyberCity on the user's PC enables the user to access the variety of online games available from the Web site. CyberCity also provides other functions such as chat rooms, scoreboards, and searching for online game playing partners. The site provides a three-dimensional (3-D) virtual reality interface between the user and the games and other facilities available on the Web site.

Membership shot up quickly, reaching 180,000 within two years. At that time, the total Internet user population was only around one million. However, the firm was incurring substantial losses. By 1997 losses had mounted up to over US$2.56 million, and the firm changed ownership. In 1998, the new owner of the firm, Peggy Chan, changed its revenue model from advertising-based to subscription-based. Membership dropped rapidly by almost 95 percent to a low of 10,000 but then gradually picked up again to 25,000 in 1999, 34,000 in May 2001, and about 45,000 in July 2003. As of April 2002, Net Fun became a profitable firm with a digital product delivered online.

Net Fun operates in the Chinese multi-players online games (MPOG) industry. Although there are numerous players operating in the MPOG industry and many of them offer free online games, surprisingly almost none focus exclusively on classical Chinese games (e.g., Mahjong). The global Chinese online game player community is the target of Net Fun, as the user market was huge, and the competition was not keen.

In addition, the interactive multi-player nature of most online games would be conducive to the building up of an interactive online community. Indeed, Net Fun not only provides games, but it is also a virtual community in which game players can interact with each other through game competitions, chat rooms, private messaging, and even online voice messaging. The high level of customer "stickiness" to the online games Web site helped the firm successfully switch a failing advertising-based revenue model to a successful subscription-based model.

Sources: Lee (2002) and *netfun.com* (2003).

For Further Exploration: Why are advertisement revenue models generally ineffective (see Chapter 5)? Are the community aspects helpful? Why or why not? How could such a site be even more profitable?

MANAGERIAL ISSUES

1. ***Supporting people with disabilities.*** Lawsuits against employers for repetitive strain injuries are on the increase under the U.S. Federal Disabilities Act. Because this law is relatively new, court cases may be very costly.
2. ***Culture is important.*** Multinational corporations face different cultures in the different countries in which they are doing business. What might be ethical in country A may be unethical in country B—even if it is technically legal in both. Therefore, it is essential to develop a country-specific ethics code in addition to a corporate-wide one. Also, managers should realize that in some countries there is no legislation specifically concerned with computers and data.
3. ***The impact of the Web.*** The impacts of e-commerce and the Internet can be so strong that the entire manner in which companies do business will be changed. Impacts on procedures, people, organizational structure, management, and business processes may be significant.
4. ***IT can cause layoffs.*** The spread of IT may result in massive layoffs in some companies. Management should be aware of this possibility and have a contingency plan regarding appropriate reaction.
5. ***Making money from electronic communities.*** Electronic communities are not just a social phenomena. Many of these communities provide an opportunity for a business to generate sales and profits.
6. ***Information anxiety may create problems.*** Make sure that your employees do not suffer from information anxiety. Companies provide considerable on-site recreational facilities to ease stress and anxiety.

KEY TERMS

Cybercafés •••
Dehumanization •••
Digital divide •••
Ergonomics •••
Information anxiety •••
Quality of life •••
Span of control •••
Virtual community •••
Virtual society •••

CHAPTER HIGHLIGHTS (Numbers Refer to Learning Objectives)

1. IT has significant impacts on organization (structure, operations, etc.), on individuals (negative and positive), and on society (positive and negative).
2. The major negative impacts of IT are in the areas of invasion of privacy, unemployment, and dehumanization.
3. Because of IT, organizational structure is changing, organizations are getting flatter, teams play a major role, power is redistributed (more power to those that control IT), jobs are restructured, supervision can be done from a distance, and decision making is supported by computers.
4. Information technology can change lines of authority, job content, and status of employees. As a result, the manager's job and methods of supervision and decision making may drastically change.
4. Dehumanization is a major concern that needs to be overcome by proper design and planning of information systems.
4. Computers can increase health risks to eyes, backs, bones, and muscles. Ergonomically designed computing facilities can greatly reduce the health risks associated with computers.
5. Many positive social implications can be expected from IT. They include providing opportunities to people with disabilities, improving health care, fighting crime, increasing productivity, and reducing people's exposure to hazardous situations.

5 In one view, IT will cause massive unemployment because of increased productivity, reduced required skill levels, and the potential reduction of employment in all sectors of the economy.

5 In another view, IT will increase employment levels because automation makes products and services more affordable, thus increasing demand; and the process of disseminating automation is slow enough to allow the economy to adjust to information technologies.

5 Quality of life, both at work and at home, is likely to improve as a result of IT.

6 The disaster of 9/11 revealed the importance of the Internet as a source of news and a medium of support as well as the importance of blogging. It also showed that some people exploit even national disasters by committing fraud.

6 People have become more tolerant of government invasion of privacy in order to increase national security and safety.

7 Virtual communities of different types are spreading over the Web, providing opportunities to some companies to increase revenues and profit.

QUESTIONS FOR REVIEW

1. Describe how IT can have negative effects on people.
2. Describe the impact of IT on the manager's job.
3. Describe the organizational impacts caused by IT.
4. What are some of the major impacts of IT on individuals?
5. Describe some of the potential risks to human health caused by extensive use of computers.
6. How does the use of IT relate to health and safety? What is information anxiety?
7. Discuss the following organizational impacts: flatter organizations, increased span of control, power redistribution, supervision, and decision making.
8. List the major societal impacts of IT that are described in this chapter, and categorize each of them as either negative or positive.
9. Present three major arguments of those who believe that IT will result in massive unemployment.
10. Present three major arguments of those who believe that IT will *not* result in massive unemployment.
11. How can IT improve the quality of life?
12. Define digital divide.
13. Define virtual society.
14. Define the Internet community and list four types of communities.

QUESTIONS FOR DISCUSSION

1. Consider the design features for a picture-map–based navigation system for private car owners. What kind of constraints exist? Is there a universal standard for user-friendliness? How safe is such a system—that is, do you have to stop concentrating on driving in order to use it? What ethical concerns might be raised through such a system? How could it be abused?
2. Clerks at 7-Eleven stores enter data regarding customers (gender, approximate age, and so on) into the computer. These data are then processed for improved decision making. Customers are not informed about this nor are they asked for permission. (Names are *not* keyed in.) Do you see any problems with the clerks' actions?
3. Will those managers whose jobs can be automated be eliminated?
4. Many hospitals, health maintenance organizations (HMOs), and federal agencies are converting, or plan to convert, all patients' medical records from paper to electronic storage (using imaging technology). Once completed, electronic storage will enable quick access to most records. However, the availability of these records in a database and on networks may allow people, some of whom are unauthorized, to view one's private data. To protect privacy fully may cost too much money and/or may considerably slow accessibility to the records. What policies could health-care administrators use in such situations? Discuss.
5. Discuss the relationship of IT and robots. Why is this issue controversial?
6. Northeast Utilities (Hartford, CT) has its meter readers gather information about services needed on its customers' homes, such as a driveway or fence requiring repairs. It sells the data to companies that would stand to gain from the information. Customers are then solicited via direct mail, telemarketing, and so on for the services that the meter readers record as being needed. While some customers welcome this approach, others consider it an annoyance because they are not interested in the particular repairs. Assess the value of the company's IT initiative against the potential negative effects of adverse public reaction.

7. IT may have both positive and negative societal effects in the *same situation*. Give two examples, and explain how to reconcile such a case.
8. It is said that IT has raised many new privacy issues. Why is this so?
9. Relate virtual communities to virtual society.
10. Several examples in this book illustrate how information about individuals can help companies improve their businesses and also benefit customers. Summarize some examples, and explain why they may result in invasion of privacy.
11. Robots take jobs away from people. Describe the considerations that management will be faced with when it needs to decide whether to use robots in an organization.
12. Explore the effects of the U.S. Americans with Disabilities Act on productivity and cost as it relates to IT. Should this act also exist in all other countries around the world? Discuss.
13. Explain why organizations are becoming flatter, and what the implications are for management practices.
14. Discuss the benefits of a virtual community to its members, society, and agents of e-commerce.

EXERCISES

1. Review the wearable computers case in Chapter 6.
   a. Identify all the issues in this case that involve changes to the way people work.
   b. Advise Bell Canada's president as to any sensitivities that she or he may need to consider if extending this pilot program to the whole company.
2. Schafer (1996) pointed out that companies in industries such as the fishing industry must take advantage of IT to become intensely efficient. But as a result, they simply may run out of scarce natural resources. So, the technology that was a savior may wipe many people out of business. Discuss the dilemma, and examine the situation in other industries such as oil and coal. What are the possible solutions?
3. You want to set up a personal Web site. Using legal sites such as *cyberlaw.com*, prepare a report summarizing the types of materials you can and cannot use (e.g., logos, graphics, etc.) without breaking copyright law.
4. Visit the following virtual communities: *wbs.net*, *geocities.com*, *well.com*, *electricminds.com*, and *espn.go.com/malu.html*. Join one of the communities. Become a member of the community and report on your experiences.
5. Will the Web "eat" your job? Read Baatz's (1996) paper. What types of jobs are most likely to disappear or be drastically reduced? Why?
6. Research the status of IT helping people with disabilities. Visit the following sites: *abletowork.org*, *usdoj.gov./crt/ada/adahom1.htm*, *halftheplanet.com*, and *ican.com*. Write a status report on the latest innovations in this area.
7. Download freeware from *junkbuster.com* and learn how to prohibit unsolicited e-mail. Describe how your privacy is protected.

GROUP ASSIGNMENTS

1. China has strengthened its control of the Internet with an extension of its criminal laws to cover the revealing of state secrets and spreading of computer viruses. The new laws were drafted in order "to promote the healthy development of the Internet and protect national security." They also make it an offense "to use the Internet to promote religious cults, hurt national unity, or undermine the government." (*Source:* William Kazer, writing for the *South China Morning Post*, December 30, 2000.)

   These laws raise as many concerns as they solve existing problems. Clearly governments have a strong need to protect their vital interests, but the new laws seem quite sweeping. The vagueness of expressions like "hurting national unity" may be particularly awkward—the intention is to prevent secession, but what constitutes a "nation" is itself arguable.

   a. What impacts do you think these new laws will have for citizens of China?
   b. Are the laws really enforceable? (Check the products of Safe Web Corporation that allow you to break Internet blockades.)
   c. Do we need laws to promote the healthy development of the Internet? What aspects of Internet development do you find unhealthy? Would you want to regulate the Internet's development? Create groups that will debate these issues.
2. The State of California maintains a database of people who allegedly abuse children. (The database also includes names of the alleged victims.) The list is made available to dozens of public agencies, and it is considered in cases of child adoption and employment decisions. Because so many people have access to the list, its content is easily disclosed to outsiders. In 1996, an alleged abuser and her child, whose case was dropped but whose names had remained on the list, sued the State of California for invasion of privacy.

With the class divided into groups, debate the issues involved. Specifically:

a. Is there a need to include names of people on the list in cases that were dismissed or declared unfounded?

b. Who should make the decision about what names should be included, and what should the criteria be?

c. What is the potential damage to the abusers (if any)?

d. Should the State of California abolish the list? Why or why not?

INTERNET EXERCISES

1. There is considerable talk about the impact of the Internet on society. Concepts such as a global village, an Internet community, the Internet society, and the like are getting much attention (e.g., see *Harvard Business Review*, May/June 1996, and *Business Week*, May 5, 1997). Surf the Internet (e.g., try *google.com*), and prepare a report on the topic. How can companies profit from Internet communities?
2. The Internet and intranets are playing an important role in providing opportunities to people with disabilities. Find more about the topic by surfing the Internet.
3. Enter *internetwk.com/links*.
   a. Get a listing of industry organizations with privacy initiatives.
   b. Check out the W3C's Privacy Preferences Project (*w3c.org*).
4. Enter communities such as the following: *earthweb.com*, *dobedo.co.uk*, *hearme.com*, and *webmed.com*. Find common elements.
5. Investigate the services provided at *clubs.yahoo.com*.
6. Enter *google.com* and go to sources that deal with the "digital divide." Prepare a report on activities done within three countries.
7. Enter *china.com* and find the unique services provided there to members.
8. Enter *fool.com*. Why is this site considered to be a community?

Minicase 1

The Australian Fishing Community

Recreational fishing in Australia is popular both for residents and for international visitors. Over 700,000 Australians regularly fish. The Australian Fishing Shop (AFS) (*ausfish.com.au*) is a small e-tailer, founded in 1994, initially as a hobby site carrying information about recreational fishing. During the last few years the site has evolved into a fishing portal, and it has created a devoted community behind it.

A visit to the site will immediately show that the site is not a regular storefront, but that it actually provides considerable information to the recreational fishing community. In addition to sale of products (rods, reels, clothing, boats, and fishing-related books, software, and CDROMs) and services (fishing charters and holiday packages), the site provides the following information:

- Hints and tips for fishing
- What's new
- A photo gallery of people's catches
- Chat boards—general and specialized
- Directions of boat builders, tackle manufacturing, etc.
- Recipes for cooking fish
- Information about newsgroups and a mailing list
- Free giveaways, competitions
- Links to fishing-related government bodies, other fishing organizations (around the globe and in Australia), and daily weather maps and tides reports
- General information site and FAQs
- List of fishing sites around the globe
- Contact details by phone, post, and e-mail
- Free e-mail Web page hosting

In addition there is an auction mechanism for fishing equipment, and answers are provided to inquiries.

The company is fairly small (gross income of about AU$500,000 a year). How can such a small company

survive? The answer can be found in its strategy of providing value-added services to the recreational fishing community. These services attract over 1.6 million visitors each month, from all over the world, of which about 1 percent make a purchase. Also, several advertisers sponsor the site. This is sufficient to survive. Another interesting strategy is to aim at the *global market*. Most of the profit is derived from customers in the United States and Canada who buy holiday and fishing packages.

In terms of products, the company acts basically as a referral service to vendors, so it does not have to carry an inventory. When AFS receives an order, it orders the products from its suppliers. It then manually aggregates the orders from the suppliers and packs and sends them via a service delivery to customers. Some orders are shipped directly from vendors to the customers.

Source: Based on information found at *ausfish.com.au* (site accessed July 2003).

Questions for Minicase 1

1. Why is this considered an Internet community?
2. How does the community aspect facilitate revenue?
3. What is the survival CSF (critical success factor) of this company?
4. What is the advantage of being a referral service? What is the disadvantage?
5. Compare the services offered at the AFS Web site with services offered by companies in other countries such as: *daytickets.co.uk*, *fishing-boating.com*, *pvisuals.com/fishing/online*, and *fishingtackleonline.co.nz*.

Minicase 2

American Stock Exchange Seeks Wireless Trades

For about 120 years, traders at the American Stock Exchange (Amex) used hand signals to relay information about their trades. But in April 1993 Amex introduced a pilot project to test the use of handheld computers in trading. Previous attempts by the Chicago Board of Trade and by the Chicago Mercantile Exchange were not successful. Amex is using simple, off-the-shelf equipment instead of the highly customized terminals used by the Chicago exchanges. The project was the first in series designed to make Amex a paperless trading floor.

Omer F. Sykan, director of technical planning at Amex, said that the biggest benefit is to get a real-time position analysis to the 462 members of the exchange. Experiments are being done with two different devices. One device is used by market specialists to transmit option trades to a PC-based risk-analysis system. The second device is used for equity (stock) trading.

Wireless technologies are expected to be faster and more cost-effective than hand signals and the paper-and-pencil trading mechanism that has been in use for the past 70 years. In the old system, specialists receive orders by hand signals and scribble their trades on an order slip. Then a clerk manually enters the data into the computer. If the

The American Stock Exchange's handheld computer.

markets are moving rapidly, the information that the clerk gathers from the floor is often obsolete by the time it is put into the computers. Handheld devices transmit information instantaneously.

While the devices are extremely easy to use, many traders do not welcome them. "We old guys are faster than most of these computers," says Jack Maxwell, a veteran of 26 years with Amex. "To hell with it; I don't need the handhelds." Attitudes of traders like Maxwell are a big problem facing expanded use of computers.

By 1996, the Amex was in the process of implementing the system, first on a voluntary basis.

Sources: Based on *Computerworld* (May 17, 1993), p. 6; *Wall Street Journal* (July 19, 1993), p. C1; and *Fortune* (October 28, 1996), p. 52.

Questions for Minicase 2

1. As a consultant to Amex, you need to identify the problems of implementing the handheld computers. How would you approach your task?
2. The president of Amex was considering laying off traders like Maxwell. Would you support such a decision or not?
3. Find the status of the computerization that is going on in several stock and commodity exchanges in several countries.
4. How would you convince a trader, who may soon lose his or her job, to use the new device?

Virtual Company Assignment

Impacts of IT

It's been a fantastic internship—you've learned quite a lot about the application of information technologies in a small enterprise, and you've become somewhat of an expert on the restaurant business. Many of your IT recommendations are being considered by the owners, and you are anticipating a systems-related job offer from them after you graduate. As you consider the changes you have recommended and how the new systems would make The Wireless Café more efficient and effective, you also pause to think about some of the social consequences of these changes.

Instructions

1. Many people in the hospitality industry are people-oriented, and they enjoy the person-to-person interaction and helping people to enjoy themselves. Many of the recommended systems, such as the SCM, CRM, decision support, and intelligent applications you have recommended appear to dehumanize tasks. What are some of the social consequences of these changes, and how should Jeremy and Barabara address them with their employees?
2. What social opportunities do the new information systems at The Wireless Café present to management to contribute to their community? For example, can employment opportunities be expanded to people with disabilities who wouldn't otherwise be successful there? Can The Wireless Café provide Web site information and activities that would benefit community members on the "other side" of the digital divide? Propose some ways that you, as a member of a local civic organization, could leverage The Wireless Café's new technologies for the benefit of the community.
3. Discuss the expectations regarding responsibility, accountability, and liability for information by the waitstaff, the head cook, and the owners. *Responsibility* means that you accept the potential costs, duties, and obligations for the decisions you make. *Accountability* is a feature of systems and social institutions that allows the determination of who is responsible. *Liability* is a feature of political systems that permits individuals to recover damages done to them by responsible individuals or organizations.

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Technology Solutions Products

Title	WebCT	Bb	eGrade	eGrade Plus
Business				
Accounting				
Jiambalvo, *Managerial Accounting, 2e*	Dec.	Dec.		
Jiambalvo, *Managerial Accounting*	✓	✓		
Kieso, *Intermediate Accounting, 11/e*	✓	✓		
Kieso, *Fundamentals of Intermediate Acc.*	✓	✓		
Kimmel, *Financial Accounting, 3/e*	✓	✓	✓	
Kimmel, *Principles of Financial Accounting, 1/e*			Demo 1/04	
Pratt, *Financial Accounting 5/e*	✓	✓		
Weygandt, *Accounting Principles, 6/e*	✓	✓		
Weygandt, *Financial Accounting, 4/e*	✓	✓		
Weygandt, *Managerial Accounting, 2/e*	✓	✓		
Decision Sciences				
Meredith, *Operations Management WSJ, 1/e*	Testbank only			
Pelosi, *Doing Stats for Business, 1/e*			✓	
Reid, *Operations Management, 1/e*	✓	✓		
Information Systems				
Dennis, *Systems Analysis & Design, 2/e*	✓	✓		
Turban, *Intro to Information Technology, 2/e*	✓	✓		
Turban, *Info Technology for Management 3/e*	✓	✓		
Computer Science				
Horstmann, Big Java			✓	
Horstmann, *Computing Concept Java Essentials, 3/e*			✓	
Engineering (courses denoted w/ an asterisk below are using the general fluid or circuits test bank)				
Callister, *Materials Science and Eng, 6/e*			✓	
Callister, *Fundamentals of Material Science*			✓	
*Crowe, *Engineering Fluid Mechanics, 7/e*			✓	
*Dorf, *Introduction to Electric Circuits, 6/e*			✓	
*Fox, *Introduction to Fluid Mechanics, 6/e*			✓	
*Irwin, *Basic Engineering Circuit Analysis, 7/e*			Ch 1–14 Avail.	
*Meriam, *Engineering Mechanics: Dynamics, 5/e*			✓	
*Meriam, *Engineering Mechanics: Statics, 5/e*			✓	
Montgomery, *Engineering Statistics, 2/e*			✓	
Montgomery, *Applied Stats & Probability, 3/e*			✓	
*Munson, *Fundamentals of Fluid Mechanics, 4/e*			✓	
*Paul, *Fundamentals of Electric Circuit Analysis*			✓	
*Smits, *Physical Intro to Fluid Mechanics*			✓	
*Street, *Elementary Fluid Mechanics, 7/e*			✓	
*Thomas, *Analysis and Design of Linear Circuits, 4/e*			✓	
*Young, *A Brief Intro Fluid Mechanics, 2/e*			✓	
Management/Finance				
Jones, *Investment, 8/e*	✓	✓		
Schermerhorn, *Organizational Behavior, 8/e*	✓	✓		
Schermerhorn, *Management, 7e*	✓	✓		

(*continued*)

Visit www.wiley.com/college/solutions for up-to-date information on technology products, access to demos, adoption forms and much more!

Note: ✓= full + demo course available.

These are icons to come

TS 16W34 to TS 16W47 has been keyed.

Title	WebCT	Bb	Grade	Grade
Science				
Biology & Anatomy/Physiology				
Benjamini, *Immunology, 4/e*	✓			
Black, *Microbiology, 5/e*	✓	✓		
Tortora, *Principles of Anatomy & Physiology, 10/e*	✓	✓		
Tortora, *Principles of Human Anatomy, 9/e*	✓	✓		
Pruitt, *BioInquiry*	✓			
Chemistry				
Brady, *Chemistry: The Study of Matter, 4/e*			Demo	Demo
Brady, *Chemistry: The Study of Matter, 3/e*			✓	
Hein, *Foundations of College Chemistry, 11/e*			✓	
Malone, *Basic Concepts of Chemistry, 7/e*			✓	
Olmsted, *Chemistry, 3/e*	✓	Demo	✓	
Snyder, *Extraordinary Chemistry, 1/e*			✓	
Solomons, *Organic Chemistry, 8/e*			Ch 1–17 Avail.	
Voet, *Fundamentals of Biochemistry, 2/e*			✓	
Physics				
Cummings, Physics 1e				Demo 1/04
Cutnell, *Physics, 6/e*	✓	✓	✓	✓
Halliday, *Fundamentals of Physics, 6/e*	✓		✓	Demo 1/04
Trefil, *The Sciences, 3/e*	✓			
Social Science				
Education				
Ruddell,*Teaching Content Reading & Writing, 3/e*	✓			
Modern Languages				
Dawson, *Dicho y hecho, 7/e*	✓	✓		
Dawson, *Dicho y hecho, 6/e*	✓			
Psychology				
Davison, *Abnormal Psychology, 9/e*	✓	✓		
Huffman, *Psychology in Action, 7/e*	✓	✓		
Minium, *Statistical Reasoning in Psychology*			✓	
Westen, *Psychology*	✓	✓		
Witte, *Statistics, 7/e*			✓	
Mathematics & Statistics				
Advanced Math				
Anton, *Elementary Linear Algebra: Apps and 8e*			✓	
Anton, *Contemporary Linear Algebra, 1/e*			✓	
Epperson, *Intro Numerical Meth Anlys*			✓	
Math				
Anton, *Calculus: ET, 7/e (Brief)*			✓	
Anton, *Calculus: LT, 7/e (Brief)*			✓	
Anton, *Calculus: ET, 7/e* Update			✓	
Anton, *Calculus: LT, 7/e* Update			✓	
Anton, *Multivariable Calculus, 7/e* Update			✓	
Connally, *Functions Modeling (Pre-Calc) 1/e*			✓	
Connally, *Functions Modeling (Pre-Calc) 2/e*			more content Jan.	
Gilbert, *Math Beyond the Numbers, 2/e*			Jan.	
Himonas, *Calculus: Ideas and Applications 1/e*			Cancelled	
Hughes Hallett, *Applied Calc, 2/e*			✓	
Hughes Hallett *Calculus SV, 3/e*			✓	
Hughes Hallett *Calculus Multi, 3/e*			✓	

(*continued*)

Title	WebCT	Bb	Grade	Grade
Hughes Hallett *Calculus SV, 3/e* Update			✓	
Hughes Hallett *Calculus Multi, 3/e* Update			✓	
Kime, *Expl College Algebra, 2/e*			✓	
McCallum, Hughes Hallett, *MV Calculus, 3/e*			✓	
Musser, *Math for Elementary Teachers Update, 6/e*			✓	
Musser, *Essentials of Math for Elementary Teachers, 6e*			✓	
Salas, *Calculus One/Several Variables, 9/e*			Semester 1 Nov. Semester 2 Jan.	
Statistics				
Black, *Business Statistics, 4/e*	✓	✓	✓	
Chase, *General Statistics, 4/e*			✓	
Mann, *Introductory Statistics 5/e*			more content Jan.	

Demo Central Demos
http://www.wiley.com/college/democentral

Calculus Machina
Cutnell & Johnson, Physics, 6/e eGrade Plus Demo
Cutnell & Halliday, Wiley Interactive Homework Editions
Cutnell & Halliday, Wiley Physics New Media (Instructor's CD, WebCT, eGrade, Simulations)
Dorf/Svaboda, Introduction to Electronic Circuits, 5/e
e-Grade Demo
Gries/Gries, ProgramLive in Java
Lancraft, Interactions: Exploring the Function of the Human Body
Olmsted/Williams, Chemistry, 3/e
Pruitt et al., BioInquiry: Making Connections in Biology, 2/e
Solomons/Fryhle, Organic Chemistry, 7/e
Voet/Voet/Pratt, Fundamentals of Biochemistry
Weygandt/Kieso/Kimmel, *Accounting Principles, 6/e*

Blackboard Usernames & Passwords:

Student: wileystudent/wileystudent
Instructor: wileypub/wileypub

WebCT Usernames & Passwords:

Student: guest/guest
Instructor: universal/instructor

Business Extra Select = www.wiley.com/college/bxs
Sample CoursePack ISBN: 0-471-49996-X

Username: rep[123] "rep" followed by last three digits of territory number

Password: wileysales

Website Username & Password for Reps (Student Companion Sites)
Username: highered
Password: eu1he5xy

Student Learning Guide ISBN's (stand-alone)

Item	ISBN	Price
eGrade SLG	0471226289 (1 term)	$15 net; $5 in packages/sets—check CPR for set ISBN's
eGrade SLG	0471265411 (2 term)	$15 net; $5 in packages/sets—check CPR for set ISBN's
WebCT SLG	0471169102	$15 net; FREE in packages/sets—check CPR for set ISBN's
Blackboard SLG	0471168653	$15 net; FREE in packages/sets—check CPR for set ISBN's
eGrade Plus SLG for Cutnell, 6e	0471468878 (1 term)	$30 net; FREE in packages/sets—check CPR for set ISBN's
eGrade Plus SLG for Cutnell, 6e	0471468886 (2 term)	$60 net; FREE in packages/sets—check CPR for set ISBN's
IHE SLG (Halliday, 6e)	0471294365 (1 term)	$15 net; $5 in packages/sets—check CPR for set ISBN's
IHE SLG (Halliday, 6e)	0471269077 (2 term)	$15 net; $5 in packages/sets—check CPR for set ISBN's
IHE SLG (order on-line)	Halliday (1 term)	$30 net http://www.wiley.com/marketbasket.cgi?isbn=0471447307

*Cutnell, Physics, 6e—eGrade Plus Demo CD 047146323X

Showcase Sites

Site	URL
Brady, *Chemistry Matter and It's Changes 4e*	http://www.wily.com/college/sc/brady
Comer, *Fund. of Electronic Circuit Design*	http://www.wiley.com/college/sc/comer/
Cutnell, *Physics, 6e*	http://www.wiley.com/legacy/college/sc/cutnell/
DeBlij, *Concepts*	http://www.wiley.com/college/sc/deblij
Dennis, *Systems Analysis & Design, 2/e*	http://www.wiley.com/college/sc/dennis
eLearning Showcase Site	http://www.wiley.com/legacy/college/sc/elearning/
Education website	http://www.wiley.com/college/sc/education
Galloway, *Vision y voz*	http://www.wiley.com/college/sc/vision/
Gallego, *Mas Alla* **(NEW)**	http://www.wiley.com/college/sc/gallego/
Horstmann Showcase Site	http://www.wiley.com/college/sc/horstmann/
Irwin, *Basic Engineering Circuit Analysis, 7/e*	http://www.wiley.com/college/sc/irwin/
Kieso, *Fundamentals of Intermediate Acct*	http://www.wiley.com/college/sc/kiesofund/
Lancraft, *Interactions*	http://www.wiley.com/college/sc/interactions/
Mann, *Intro Statistics,* 5/e	http://www.wiley.com/college/sc/mann/
McKeown, *Visual Basic.Net* **(NEW)**	http://www.wiley.com/college/sc/mckeown/
Meriam, *Engineering Mechanics*	http://www.wiley.com/college/sc/meriam/
Moran, *Fund. Eng. Thermodynamics, 5e*	http://www.wiley.com/legacy/college/sc/moran/
Musser, *Test Drive Site*	http://www.wiley.com/college/sc/musser
Olmsted, *Chemistry, 3/e*	http://www.wiley.com/college/sc/olmsted/
Pelosi, *Doing Stats for Business 2e*	http://www.wiley.com/college/sc/pelosi
Pruitt, *BioInquiry*	http://www.wiley.com/college/sc/bioinquiry/
Reys, Helping Children Learn Math, 7/e	http://www.wiley.com/college/sc/reys/
Schermerhorn, *Management 7e Ethical Leadership Update*	http://www.wiley.com/college/sc/scherm
Turban, *IT for Management, 4/e* **(NEW)**	http://www.wiley.com/college/sc/tmw/
Turban, *Introduction to Information Tech, 2/e*	http://www.wiley.com/college/sc/turban/
Weygandt, *Financial Accounting, 4/e*	http://www.wiley.com/college/sc/wkkfin/
Weygandt, *Managerial Accounting*	http://www.wiley.com/college/sc/wkkman/

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Associate Director—Instructional Design—Brian Wilson (28835)
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ISBN	Title/Notes	Release	Format	Price
	Accounting			
471467006	FINANCIAL ACCOUNTING (INSTRUCTOR)	9/24/03	CD	N/S
471467014	FINANCIAL ACCOUNTING (STUDENT-comp restricted) **IMPORTANT NOTE—as a special introductory promotion the price listed will be discounted 50%. This offer lasts through April 2004.**	9/24/03	CD	99.95L
471647241	ACCOUNTING SALES DEMONSTRATION CD (includes Financial, Managerial, and Intermediate sample courses)	9/24/03	CD	N/S
471576220	INTERMEDIATE ACCOUNTING (INSTRUCTOR)	9/24/03	CD	N/S
471477702	INTERMEDIATE ACCT. (STUDENT-comp restricted) **IMPORTANT NOTE—as a special introductory promotion the price listed will be discounted 50%. This offer lasts through April 2004.**	9/24/03	CD	99.95L
471647241	ACCOUNTING SALES DEMONSTRATION CD (Includes Financial, Managerial, and Intermediate sample courses)	9/24/03	CD	N/S
471467073	MANAGERIAL ACCOUNTING (INSTRUCTOR)	9/24/03	CD	N/S
471467065	MANAGERIAL ACCOUNTING (STUDENT-comp restricted) **IMPORTANT NOTE—as a special introductory promotion the price listed will be discounted 50%. This offer lasts through February 2004.**	9/24/03	CD	99.95L
471647241	ACCOUNTING SALES DEMONSTRATION CD **(Includes Financial, Managerial, and Intermediate sample courses)**	9/24/03	CD	N/S
	Business Management			
471467022	MANAGEMENT (INSTRUCTOR)	10/06/03	CD	N/S
471467030	MANAGEMENT (STUDENT-comp restricted) **IMPORTANT NOTE—as a special introductory promotion the price listed will be discounted 50%. This offer lasts through April 2004.**	10/06/03	CD	84.95L
471647233	MANAGEMENT DEMONSTRATION CD	9/24/03	CD	N/S
471467545	ORGANIZATIONAL BEHAVIOR (INSTRUCTOR)	10/31/03	CD	N/S
471467537	ORGANIZATIONAL BEHAVIOR (STUDENT-comp restricted) **IMPORTANT NOTE—as a special introductory promotion the price listed will be discounted 50%. This offer lasts through February 2004.**	10/31/03	CD	84.95L
TBD	ORGANIZATIONAL BEHAVIOR SALES DEMONSTRATION CD			

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ISBN	Title/Notes	Release	Format	Price
471466980	PROJECT MANAGEMENT (INSTRUCTOR)	10/22/03	CD	N/S
471466999	PROJECT MANAGEMENT (STUDENT-comp restricted) **IMPORTANT NOTE—as a special introductory promotion the price listed will be discounted 50%. This offer lasts through April 2004.**	10/22/03	CD	84.95L
TBD	PROJECT MANAGEMENT DEMONSTRATION CD	10/22/03		
	Computer Science			
471453536	INTRODUCTION TO PROGRAMMING WITH JAVA (INSTRUCTOR)	10/06/03	CD	N/S
471453528	PROGRAMMING WITH JAVA (STUDENT-comp restricted) **IMPORTANT NOTE—as a special introductory promotion the price listed will be discounted 50%. This offer lasts through April 2004.**	10/06/03	CD	76.95L
471647225	PROGRAMMING WITH JAVA SALES DEMONSTRATION CD	9/24/03	CD	N/S
471467049	INTRODUCTION TO PROGRAMMING WITH C++ (INSTRUCTOR)	10/31/03	CD	N/S
471467057	PROGRAMMING WITH C++ (STUDENT-comp restricted) **IMPORTANT NOTE—as a special introductory promotion the price listed will be discounted 50%. This offer lasts through April 2004.**	10/31/03	CD	76.95L
TBD	PROGRAMMING WITH C++ SALES DEMONSTRATION CD	10/31/03	CD	N/S

Technology Solutions Quick Reference Guide—August 2003

Product	Description
Wiley Logo to come Book Companion Sites www.wiley.com/college/**author name**	**Book Companion Sites** are book-specific websites containing instructor and student resources such as chapter objectives, self-assessment quizzes, web-based activities & links, Power Point slides, test banks, etc.
Business Logo to come Business Extra Select wiley.com/college/bxs	**Business Extra Select** is a custom publishing program that allows instructors to combine copyright cleared readings, articles, & cases from leading business publications with Wiley content in either a printed or digital CoursePack.
Web CT & Bb icon to come WebCT wiley.com/college/webct Blackboard wiley.com/college/blackboard	**WebCT e-Packs** & **Blackboard Course Cartridges** have book-specific content specially formatted to work in **WebCT** & **Blackboard's** easy-to-use course management software. They typically contain resources such as quiz & test banks, Power Point slides, Instructor Manuals, Solution Manuals, and links to other online resources.
e-grade icon to come eGrade wiley.com/college/egrade	**eGrade** is a web-based homework & quiz management system that automates the assigning & grading of homework, quizzes, and exams using questions from a book's testbank and/or end-of-chapter material.
e-grade plus icon to come eGrade Plus wiley.com/college/democentral	**eGrade Plus** is a web-based platform that integrates the eGrade online homework and quiz management system with a multimedia version of the textbook.
e-Learning icon to come eLearning Courseware wiley.com/college/sc/elearning	**eLearning** is a new multimedia program that provides a full set of course material on a CD-ROM (Courseware). Courseware is a shift away from traditional textbook materials to a new "active learning content model" that integrates interactive content, dynamic feedback, self-assessment and a powerful learning management tool.

(*continued*)

Faculty Issues/Needs it Addresses	Student Issues/Needs it Addresses	Questioning Strategy?
Book Companion Sites provide easy online access to a book's supplement package such as Instructor's Manuals, Solutions, and Test Banks.	Student Companion Sites provide web-based self-assessments (allowing students to quickly determine their understanding of course material prior to their exams) and other online student resources in a single location.	As an instructor, do you use website resources that accompany your textbook and if so, what resources are most valuable? Do your students use the website resources that accompany the textbook? Are the student website resources required or optional?
Business Extra Select allows a professor to quickly and easily supplement their Wiley textbook content with real-world readings cases, and articles. The advantage over similar programs is the seamless process by which professors can combine Wiley content with these copyright cleared resources.	Shows the relevance of the concepts being covered in class and the textbook to real-world applications.	Do you use outside readings or cases in your class? Have you created some of your own course materials? Do you adopt publisher-created content? Would you like to combine all of your course materials in one simple, reasonably priced resource?
WebCT e-Packs and **Blackboard Course Cartridges** provide instructors (teaching at schools with a **WebCT/Bb** license) with ready-to-go content for the online component of their course. They can easily be customized as professors become familiar with using WebCT/Bb's software.	Centrally stores all of a student's course materials in one location (solutions manuals, self-assessments, etc.)	Does your school have a license to WebCT or Blackboard? Do you currently use a Course Management System such as WebCT or Blackboard? Is book-specific content that has been preloaded into this software appealing to you?
eGrade saves professors hours each week grading homework and quizzes, allowing a professor to focus on analyzing the results of individual students or their entire class to determine areas or topics that may require additional instruction.	Provides students with immediate feedback & scoring on their work, helping them identify topics that require further study or instruction. Provides students with drill & practice assignments for self-assessment.	Do you have difficulty finding time for grading your students' homework? Would you be interested in providing your students with a tool they can use for self-assessment? Do you currently offer online quizzing/homework for your students?
eGrade Plus helps students conquer problem-solving obstacles at the point of contact for immediate reinforcement. Places all instructor resources (such as the Instructor manual, Power Point slides, quiz & test banks) in one easy to use interface for maximum convenience and easy integration with Wiley content.	Integration of multimedia book with problem sets provide students with context-sensitive help, helping them develop problem-solving skills and conquer obstacles at the point of contact.	What are your biggest challenges in teaching Physics? Would you be interested in a text-specific solution that is aimed at getting students to read their book and complete their homework? **See eGrade Plus interview guide for more detailed probe questions!**

(*continued*)

Faculty Issues/Needs it Addresses	Student Issues/Needs it Addresses	Questioning Strategy?
eLearning Courseware has "Ready-to-go" courses with simple customization tools, making it easier to create and online course. Learning management tools help track student interaction/success with material to address retention issues.	CD delivery eliminates any bandwidth constraints for rich content, combined with web-based synchronization for true "anytime/anywhere" learning (online-offline access). Performance-based interactive content with dynamic feedback designed around student outcomes—compensating for the lack of face-to-face classroom interaction.	Would you like your online class to be taught with the same core materials as in the classroom? Are you using a Course Management System? Are you looking for more innovative ways to teach online? Are you looking for tools that will help your students stay engaged and on task? Do your students need new tools to compensate for the lack of face-to-face interaction?

Technology Solutions Quick Reference Guide—August 2003

Product	Sales Resources & Walk Throughs
Wiley Logo to come Book Companion Sites www.wiley.com/college/ **author name**	Use you camps username and password to access instructor companion sites.
Business Logo to come Business Extra Select wiley.com/college/bxs	**Business Extra Select** **1)** Sales folder (hard copy sheets & PDF versions on In Site) **2)** BXS walkthrough on In Site **3)** Listing of all available and forthcoming courses on Tech Solutions **4)** Links to correlated CoursePacks from relevant Title Landing Pages
Web CT & Bb icon to come WebCT wiley.com/college/webct Blackboard wiley.com/college/blackboard	**WebCT e-Packs & Blackboard Course Cartridges** Listing of available and forthcoming titles on Tech Solutions Individual Title Landing Pages with course descriptions, text/SLG ISBNs, product-specific demos and class trial & adoption forms
e-grade icon to come eGrade wiley.com/college/egrade	**eGrade** PowerPoint presentation on Demo Central Demo of eGrade question types on Tech Solutions Walkthrough on In Site Listing of all available and forthcoming courses on Tech Solutions Individual Title Landing Pages with course descriptions, text/SLG ISBNs, product-specific demos and class trial & adoption forms
e-grade plus icon to come eGrade Plus wiley.com/college/democentral	**eGrade Plus** Self-running demo on Demo Central/CD-ROM
e-Learning icon to come eLearning Courseware wiley.com/college/sc/elearning	**eLearning Courseware** Self-running product overview demo on showcase site www.wiley.com/college/sc/elearning/demo.html

(*continued*)

Pricing and Packaging Options	Adoption Fulfillment	Who to call for what?
Student subscription to **Book Companion Sites** come packaged free of charge with new books. Students who purchase a used book can purchase access online for $10.	Professor registers for access on Instructor Companion Site, rep approves via Prof Val.	Instructor Companion Site Registration Troubleshooting: Reps use ProfVal Admin in Camps.com (Find Professor Module)
The digital/online price for **Business Extra Select** material is automatically calculated and is based on the amount and type of content selected. Print version is extra, price is confirmed by Wiley Custom Services. Print version is purchased in college bookstore. Access to digital form can either be purchased in the bookstore or online.	Adoption form on BXS website. Printed CoursePacks will be shipped to the college bookstore. Online CoursePacks can be accessed from any computer with web access.	**Fulfillment:** Wiley Custom Services **Rep Support:** Online Marketing & David Maltby (816.415.2015, dmaltby@xanedu.com) **Customer Support:** Xanedu customer support 800-521-0600 × 5204 **Training:** N/A
Student Access Code is contained in the **WebCT/Bb** Student Learning Guide and is free when packaged with a new book. $15 net when SLG is purchased as a stand-alone item. WebCT Access Codes can also be purchased online at WebCT website.	Professor submits an "Adopt Now" form via the Title Landing Page.	**Fulfillment:** Online Marketing **Rep Support:** Online Marketing **Customer Support:** wiley.com/techsupport **Training:** FRN & Online Marketing
Student Access Code is contained in the **eGrade** Student Learning Guide. $5 when the SLG is packaged with a new copy of the text. $15 when it is sold as a stand-alone item.	Professor submits an "Adopt Now" form via the Title Landing Page.	**Fulfillment:** Online Marketing **Rep Support:** Online Marketing **Customer Support:** wiley.com/techsupport **Training:** FRN & Online Marketing
Student access code contained in **eGrade Plus** Student Learning Guide and is free when the SLG is packaged with a new book. $60 when purchased as a stand-alone item. $30 for one semester access when purchased online.	Professor submits an "Adopt Now" form via the Title Landing Page. Rep approves in Camps via Prof Val.	**Fulfillment:** Online Marketing **Rep Support:** Online Marketing **Customer Support:** wiley.com/techsupport **Training:** FRN & Online Marketing
eLearning Courseware has an introductory special price of 50% off for full courseware. Standard Courseware pricing is $75–99. Students who purchase Courseware can buy companion textbook at 50% discount at www.wiley.com (bundled discount offer).	CDs ordered through bookstore or www.wiley.com. Special bundled discount companion textbooks sold through wiley.com	**Fulfillment:** WeL Group **Rep Support:** WeL Group **Customer Support:** wiley.com/techsupport **Training:** FRN & WeL Group

Technology Solutions Fulfillment Reference Sheet—August 2003

Adopt	Alert	Approve	Notify	Follow-Up
Black board logo to come Professor fills out and submits an **"Adopt Now"** form for one of our ***Blackboard*** Course Cartridges, which is accessed through a book's Title Landing Page. **Note:** You may also submit an adoption request on behalf of your professor. If you do just be sure to include your name, phone number, email address, and territory # where it is asked for. Submitting a request on behalf of your professor will eliminate the "Approve" step.	Rep receives an email **alert** from online marketing containing the professor's name school, contact info, and title of Course Cartridge being adopted.	Rep verifies and **approves** the adoption request. Upon approval, online marketing processes the request.	An email **notification** is sent to the professor with instructions for adding the adopted Course Cartridge to their ***Blackboard*** course. The rep will be copied on this email.	**Follow up** with your professors and make sure they have the correct ISBN for their bookstore order, which is the textbook + ***Blackboard*** Student Learning Guide (SLG). The ISBN is located in your CPR as well as the ***Blackboard*** Title Landing Page for that book. ***Students will not be able to enter their course without an Access Code, which is contained in the Blackboard SLG!!!***
WebCT Logo to come Professor fills out and submits an **"Adopt Now"** form for one of our ***WebCT*** e-Packs, which can be accessed either through a book's Title Landing Page, or via ***WebCT's*** Content Showcase (it is the same form). You may also submit a request on behalf of your professor by completing the above form.	Rep receives an email **alert** from the online marketing group, containing the professor's name, school, contact info and title of e-Pack being adopted.	Rep verifies and **approves** the adoption request. Upon approval, online marketing processes the request.	An email **notification** is sent to the professor with instructions for downloading the e-ack (if the professor teaches at a school with a ***WebCT*** license) or accessing the hosted course (if the professor does not teach at a school with a ***WebCT*** license and requires ***WebCT*** to host his course for them).	**Follow up** with your professors and make sure they have the correct ISBN for their bookstore order, which is the textbook + ***WebCT*** Student Learning Guide (SLG). The ISBN is located in your CPR as well as the ***WebCT*** Title Landing Page for that book. ***Students will not be able to enter their course without an Access Code, which is contained in the WebCT SLG!!!***

(*continued*)

Adopt	Alert	Approve	Notify	Follow-up
eGrade Logo to come Professor or rep fills out and submits **"Adopt Now"** form for one of our ***eGrade*** courses. This form can be accessed through the Title Landing Pages of any books available with eGrade.	Rep receives an email **alert** from online marketing, containing the professor's name, school, contact info, and title, and title of the ***eGrade*** course being adopted.	Rep verifies and **approves** the adoption request. Upon approval, online marketing processes the request.	An email **notification** is sent to the professor with instructions for accessing their ***eGrade*** course. The rep will be copied on this email.	**Follow up** with your professors and make sure they have the correct ISBN for their bookstore order, which is the textbook + ***eGrade*** Students Learning Guide (SLG). The ISBN is located in your CPR as well as the ***eGrade*** Title Landing Page for that book. ***Students will not be able to enter their course without an Access Code, which is contained in the eGrade SLG!!!***
eGrade plus Logo to come Professor fills out and submits **"Adopt Now"** form for one of our ***eGrade Plus*** courses. This form can be accessed through the Title Landing Pages of any books available with eGrade Plus.	→	Rep **approves** pending requests in Camps.	An email **notification** is sent to the professor with instructions on adopting his ***eGrade Plus*** course the rep will be copied on this email.	**Follow up** with your professors and make sure they have the correct ISBN for their bookstore order, which is the textbook + ***eGrade Plus*** Student Learning Guide (SLG). The ISBN is located in your CPR as well as the ***eGrade Plus*** Title Landing Page for that book. ***Students will not be able to enter their course without an Access Code, which is contained in the eGrade Plus SLG!!!***

Technology Solutions Fulfillment Reference Sheet—August 2003

Business Logo
to come

BXS adoption process: Registration → Work-in-progress → Adoption

1. Professor registers for access to the Business Extra Select (BXS) website and you receive an email notification from David Maltby with professor name, school, contact info, etc.
2. The next step in *advancing the sale* is to get that professor to begin customizing his/her own CoursePack, called a "Work-in-Progress" (WIP). Professor starts a WIP. Rep receives an email notification from David Maltby, containing the same information as above plus the title of WIP that has been started. Rep follows up to encourage the professor to adopt.
3. The next step is to close the sale! Professor adopts CoursePack by clicking on the "Adopt" button in one of our CoursePacks and fills out & submits the online form. Rep receives an email from David Maltby.
4. **Rep follows up with the professor and verifies the specifics:**
   a. Course start date
   b. Format the professor wants the CoursePack in(print or digital)
   c. Expected enrollment, etc.
5. **Rep fills out the WCS *Project Information Profile* and sends it to Jay Beck.**
6. Jay Beck
   a. Activates the ISBN
   b. Confirms the price
   c. Confirms the order specifics (print and/or digital access, bundled with a Wiley text or stand-alone, etc)
7. The WCS office will provide the ISBN and price to the professor and to you. The professor will need to place their bookstore order for the CoursePack in the same manner that they place orders for all of their textbooks. **Rep follows up with professor to see that the order is placed in bookstore.**

NOTE ON REP SUPPORT: If you run into any issues or question at any point in this process you should contact David Maltby—who will help you!

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