Chapter 4

Ethical and Social Issues in Information Systems

LEARNING OBJECTIVES

After reading this chapter, you will be able to answer the following questions:

1. What ethical, social, and political issues are raised by information systems?
2. What specific principles for conduct can be used to guide ethical decisions?
3. Why do contemporary information systems technology and the Internet pose challenges to the protection of individual privacy and intellectual property?
4. How have information systems affected everyday life?

CHAPTER OUTLINE

Interactive Sessions:

Life on the Grid: iPhone Becomes iTrack

Monitoring in the Workplace

ETHICAL ISSUES FACING THE USE OF TECHNOLOGIES FOR THE AGED COMMUNITY

The Australian government takes a strong interest in the use of IT for the direct and indirect care of the aged community. Indirect care includes the administrative aspects of aged care in nursing and aged care communities. No doubt, IT has the potential to improve the quality of lifestyle for the aged. For example, access to the Internet makes the aged feel more in touch with the rest of the world and, in many cases, can assist with day-to-day living such as online grocery purchases, online bill payment and checking bank statements. However, this is conditional upon various factors such as their feeling comfortable with computers, having the computer knowledge and skill and, of course, a trust in online transactions.

Increasingly, new ideas are generated through research and development in an effort to enhanceet chronic illnesses like heart conditions, and diabetes. It is particularly the use of these technologies that poses a plethora of ethical issues of concern to healthcare providers and consumers. The 'Smart House' is a Sydney initiative, designed to allow future generations to remain in their own homes while ageing. It uses a range of 'telecare' sensor technology.

"This Smart House technology includes passive infrared detectors and a door-entry system, which will allow the resident to see who is at the door, via their TV, and open the door remotely. The technology also features emergency pendants and pull cords to trigger an emergency monitoring system, along with bed and chair sensors. Future incorporations into the Smart House will include central locking systems, electric windows and doors, electric curtain and blind openers and other devices." (BCS, 2006).

A recurring ethical issue in the use of such technology is invasion of the aged consumers' privacy. Many may not feel comfortable about being monitored in their own homes, 24-hours a day, even though they may see the benefits of such systems. There is also the question of awareness, consent, ownership, and access of any data collected from these aged consumers. Health-related data is particularly very sensitive and, thus, should not be given public access without prior privacy, security, and safety considerations. Socially and culturally, these systems may also not be acceptable as a replacement for traditional human carers (most often close family members) who can produce a much more personalised level of care. In Australia, a number of aged care providers focus on different minority groups (for example Chinese and Koreans) and there is increasing awareness that the technology adopted for them must be socially acceptable and culturally competent, with the facility to adapt to the social and cultural needs of these minority groups (for example, use of appropriate language - voice or textual - interface, or exhibiting understanding of the living habits and preferences in the design of the technology).

Sources: BCS (2006). Smart House holds key to future aged care needs, Baptist Community Services NSW & ACT, Media Release, 1st May 2006, http://www.bcs.org.au/resource/R0058Corp.pdf.

Case contributed by Dr. Lesley Land, University of New South Wales

The opening case highlights a number of ethical issues that are specific to healthcare for the ageing population. However, some of these are recurring issues in other healthcare domains, or in organizations in general (such as privacy and security). For example, the data collected from the monitoring and tracking of consumers can be both beneficial from a business viewpoint (in the opening case, it can improve the quality of life, and/or the clinical care of the aged), but at the same time, it also creates opportunities for ethical abuse by invading the privacy of consumers. Such ethical dilemmas arise in the building of new information systems that potentially promise increased efficiency and effectiveness in business processes. In this chapter, we wish to highlight the need to be aware of the negative impact of information systems, alongside the positive benefits. In many cases, management needs to create an acceptable trade-off through the creation of appropriate policies and standards, as agreed upon by all stakeholders, prior to system implementation.

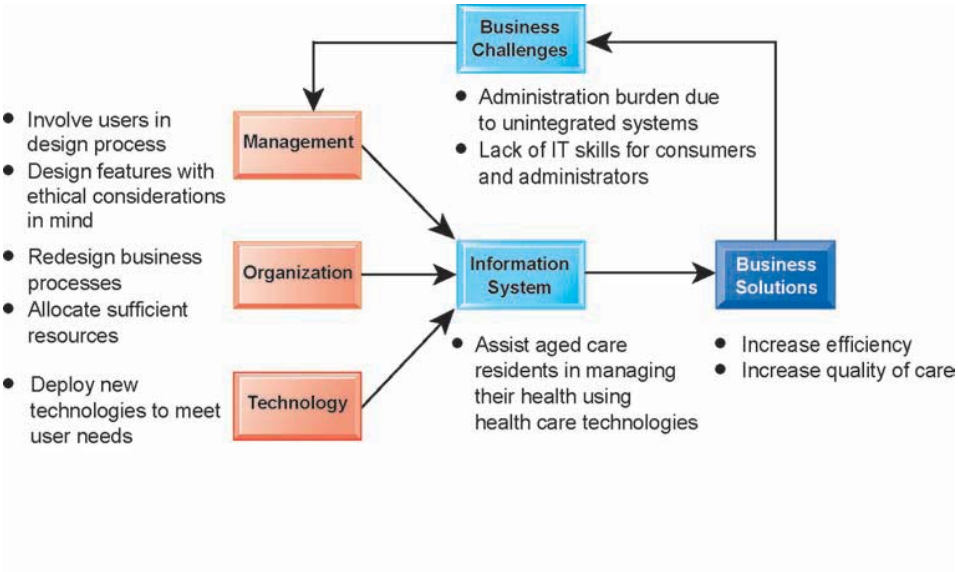
The following part of the case is contributed by Robert Manderson, University of Roehampton

The chapter-opening diagram highlights critical points raised by this case and this chapter. Sydney's 'Smart House' initiative demonstrates some of the potential for sensor-driven 'telecare' technology in its indirect, administrative, and direct, in-home, IT forms. Both administrators and consumers experienced the limitations of the current technology in the form of administration burden due to unintegrated systems, and lack of IT skills in both cases. In order to achieve increased efficiency in the delivery of 'telecare' technology and, at the same time, improve the consumer's in-home quality of care, further development of the health care technologies is required. However, as sensor technology, and information systems which make use of the data from these, evolve and become more integrated using the Internet and the developments in cloud computing, it has become increasingly apparent that major ethical considerations need to be taken into account which address the concerns of consumers, particularly in relation to privacy, security, safety, and increasingly cultural aspects.

The traditional approach to caring for the aged community within the healthcare system has been to increasingly support individuals through the use of health care professionals in dedicated health care facilities. Whilst this is expected to be a continuing practice into the foreseeable future, Sydney's 'telecare' initiative is an example of how technologies can support aged individuals in their own home for longer than has been possible hitherto, enabling an increase in the health care provider's quality of care and a reduction in the administration burden. As 'telecare' technologies continue to be developed, and increasingly used, major ethical and social issues need to be addressed to satisfy the concerns of the individuals in the aged community who will be offered these technologies to live normally at home. The Sydney 'Smart House' 'telecare' initiative has identified a number of processes that should be included in future information systems developments to address the ethical issues, including user-

involvement in the design of the information systems to incorporate features with the ethical concerns in-mind, redesign business processes which take account of the ethical concerns, allocate sufficient resources to include in the design the ethics informed features, and deploy new technologies to meet user needs.

Here are some questions to think about: What 'Smart Home' 'telecare' technologies were used as part of the Sydney initiative and how were they deployed to support the aged community at home? What were the ethical concerns associated with each 'telecare' technology and how were these being addressed?



4.1 Understanding Ethical and Social Issues Related to Systems

In the past 10 years, we have witnessed, arguably, one of the most ethically challenging periods for U.S. and global business. Table 4.1 provides a small sample of recent cases demonstrating failed ethical judgment by senior and middle managers. These lapses in ethical and business judgment occurred across a broad spectrum of industries.

In today's new legal environment, managers who violate the law and are convicted will most likely spend time in prison. U.S. federal sentencing guidelines adopted in 1987 mandate that federal judges impose stiff sentences

TABLE 4.1 RECENT EXAMPLES OF FAILED ETHICAL JUDGMENT BY SENIOR MANAGERS

Barclays Bank PLC (2012)	One of the world's largest banks admitted to manipulating its submissions for the LIBOR benchmark interest rates in order to benefit its trading positions and the media's perception of the bank's financial health. Fined $160 million.
GlaxoSmithKline LLC (2012)	The global health care giant admitted to unlawful and criminal promotion of certain prescription drugs, its failure to report certain safety data, and its civil liability for alleged false price reporting practices. Fined $3 billion, the largest health care fraud settlement in U.S. history and the largest payment ever by a drug company.
Walmart Inc. (2012)	Walmart executives in Mexico accused of paying millions in bribes to Mexican officials in order to receive building permits. Under investigation by the Department of Justice.
Minerals Management Service (U.S. Department of the Interior) (2010)	Government managers accused of accepting gifts and other favors from oil companies, letting oil company rig employees write up inspection reports, and failing to enforce existing regulations on offshore Gulf drilling rigs. Employees systematically falsified information record systems.
Pfizer, Eli Lilly, and AstraZeneca (2009)	Major pharmaceutical firms paid billions of dollars to settle U.S. federal charges that executives fixed clinical trials for antipsychotic and pain killer drugs, marketed them inappropriately to children, and claimed unsubstantiated benefits while covering up negative outcomes. Firms falsified information in reports and systems.
Galleon Group (2011)	Founder of the Galleon Group sentenced to 11 years in prison for trading on insider information. Found guilty of paying $250 million to Wall Street banks, and in return received market information that other investors did not get.
Siemens (2009)	The world's largest engineering firm paid over $4 billion to German and U.S. authorities for a decades-long, worldwide bribery scheme approved by corporate executives to influence potential customers and governments. Payments concealed from normal reporting accounting systems.
IBM (2011)	IBM settled SEC charges that it paid off South Korean and Chinese government officials with bags of cash over a 10-year period.
McKinsey & Company (2011)	CEO Rajat Gupta heard on tapes leaking insider information. The former CEO of prestigious management consulting firm McKinsey & Company was found guilty in 2012 and sentenced to two years in prison.
Tyson Foods (2011)	World's largest producer of poultry, beef, and pork agreed to pay $5 million in fines for bribing Mexican officials to ignore health violations.

on business executives based on the monetary value of the crime, the presence of a conspiracy to prevent discovery of the crime, the use of structured financial transactions to hide the crime, and failure to cooperate with prosecutors (U.S. Sentencing Commission, 2004).

Although business firms would, in the past, often pay for the legal defense of their employees enmeshed in civil charges and criminal investigations, firms are now encouraged to cooperate with prosecutors to reduce charges against the entire firm for obstructing investigations. These developments mean that, more than ever, as a manager or an employee, you will have to decide for yourself what constitutes proper legal and ethical conduct.

Although these major instances of failed ethical and legal judgment were not masterminded by information systems departments, information systems were instrumental in many of these frauds. In many cases, the perpetrators of these crimes artfully used financial reporting information systems to bury their decisions from public scrutiny in the vain hope they would never be caught.

We deal with the issue of control in information systems in Chapter 8. In this chapter, we talk about the ethical dimensions of these and other actions based on the use of information systems.

Ethics refers to the principles of right and wrong that individuals, acting as free moral agents, use to make choices to guide their behaviors. Information systems raise new ethical questions for both individuals and societies because they create opportunities for intense social change, and thus threaten existing distributions of power, money, rights, and obligations. Like other technologies, such as steam engines, electricity, the telephone, and the radio, information technology can be used to achieve social progress, but it can also be used to commit crimes and threaten cherished social values. The development of information technology will produce benefits for many and costs for others.

Ethical issues in information systems have been given new urgency by the rise of the Internet and electronic commerce. Internet and digital firm technologies make it easier than ever to assemble, integrate, and distribute information, unleashing new concerns about the appropriate use of customer information, the protection of personal privacy, and the protection of intellectual property.

Other pressing ethical issues raised by information systems include establishing accountability for the consequences of information systems, setting standards to safeguard system quality that protects the safety of the individual and society, and preserving values and institutions considered essential to the quality of life in an information society. When using information systems, it is essential to ask, "What is the ethical and socially responsible course of action?"

A MODEL FOR THINKING ABOUT ETHICAL, SOCIAL, AND POLITICAL ISSUES

Ethical, social, and political issues are closely linked. The ethical dilemma you may face as a manager of information systems typically is reflected in social and political debate. One way to think about these relationships is shown in Figure 4.1. Imagine society as a more or less calm pond on a summer day, a delicate ecosystem in partial equilibrium with individuals and with social and political institutions. Individuals know how to act in this pond because social institutions (family, education, organizations) have developed well-honed rules of behavior, and these are supported by laws developed in the political sector that prescribe behavior and promise sanctions for violations. Now toss a rock into the center of the pond. What happens? Ripples, of course.

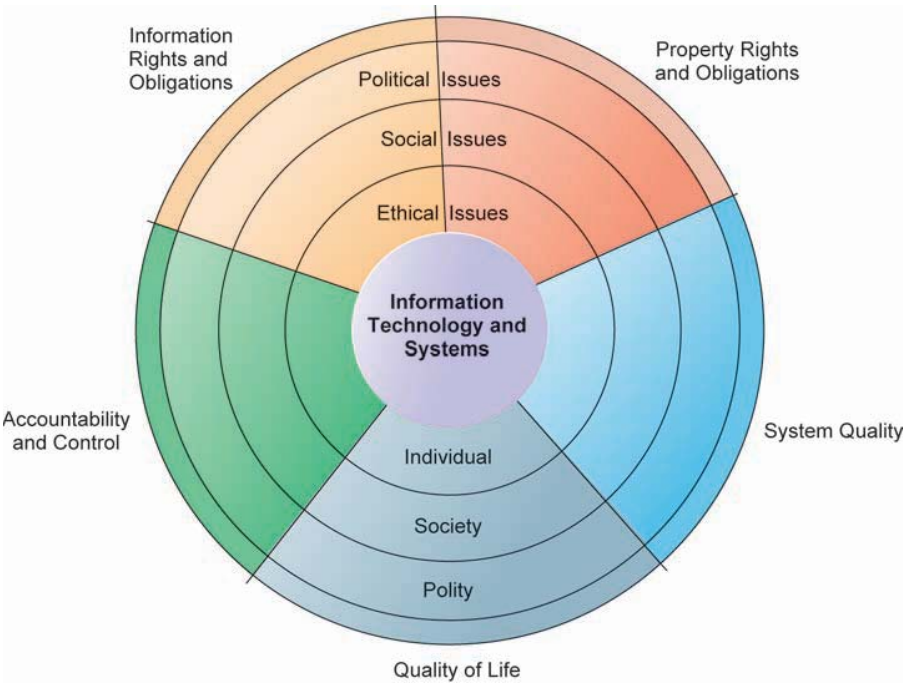
Imagine instead that the disturbing force is a powerful shock of new information technology and systems hitting a society more or less at rest. Suddenly, individual actors are confronted with new situations often not covered by the old rules. Social institutions cannot respond overnight to these ripples—it may take years to develop etiquette, expectations, social responsibility, politically correct attitudes, or approved rules. Political institutions also require time before developing new laws and often require the demonstration of real harm before they act. In the meantime, you may have to act. You may be forced to act in a legal gray area.

We can use this model to illustrate the dynamics that connect ethical, social, and political issues. This model is also useful for identifying the main moral dimensions of the information society, which cut across various levels of action—individual, social, and political.

FIVE MORAL DIMENSIONS OF THE INFORMATION AGE

The major ethical, social, and political issues raised by information systems include the following moral dimensions:

FIGURE 4.1 THE RELATIONSHIP BETWEEN ETHICAL, SOCIAL, AND POLITICAL ISSUES IN AN INFORMATION SOCIETY



The introduction of new information technology has a ripple effect, raising new ethical, social, and political issues that must be dealt with on the individual, social, and political levels. These issues have five moral dimensions: information rights and obligations, property rights and obligations, system quality, quality of life, and accountability and control.

- *Information rights and obligations.* What **information rights** do individuals and organizations possess with respect to themselves? What can they protect?
- *Property rights and obligations.* How will traditional intellectual property rights be protected in a digital society in which tracing and accounting for ownership are difficult and ignoring such property rights is so easy?
- *Accountability and control.* Who can and will be held accountable and liable for the harm done to individual and collective information and property rights?
- *System quality.* What standards of data and system quality should we demand to protect individual rights and the safety of society?
- *Quality of life.* What values should be preserved in an information- and knowledge-based society? Which institutions should we protect from violation? Which cultural values and practices are supported by the new information technology?

We explore these moral dimensions in detail in Section 4.3.

KEY TECHNOLOGY TRENDS THAT RAISE ETHICAL ISSUES

Ethical issues long preceded information technology. Nevertheless, information technology has heightened ethical concerns, taxed existing social arrangements, and made some laws obsolete or severely crippled. There are

TABLE 4.2 TECHNOLOGY TRENDS THAT RAISE ETHICAL ISSUES

TREND	IMPACT
Computing power doubles every 18 months	More organizations depend on computer systems for critical operations.
Data storage costs rapidly decline	Organizations can easily maintain detailed databases on individuals.
Data analysis advances	Companies can analyze vast quantities of data gathered on individuals to develop detailed profiles of individual behavior.
Networking advances	Copying data from one location to another and accessing personal data from remote locations are much easier.
Mobile device growth Impact	Individual cell phones may be tracked without user consent or knowledge.

four key technological trends responsible for these ethical stresses and they are summarized in Table 4.2.

The doubling of computing power every 18 months has made it possible for most organizations to use information systems for their core production processes. As a result, our dependence on systems and our vulnerability to system errors and poor data quality have increased. Social rules and laws have not yet adjusted to this dependence. Standards for ensuring the accuracy and reliability of information systems (see Chapter 8) are not universally accepted or enforced.

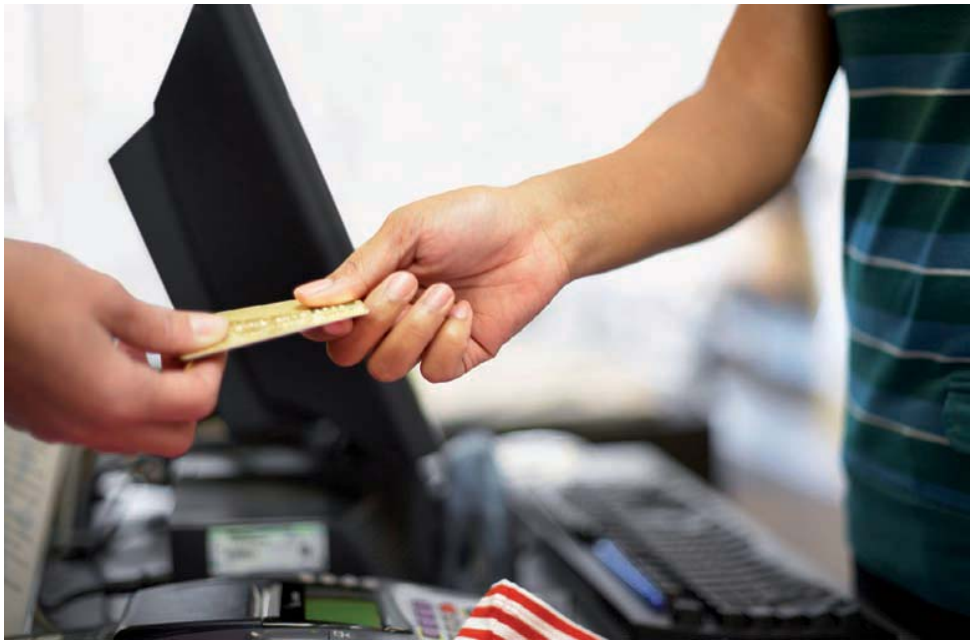
Advances in data storage techniques and rapidly declining storage costs have been responsible for the multiplying databases on individuals—employees, customers, and potential customers—maintained by private and public organizations. These advances in data storage have made the routine violation of individual privacy both cheap and effective. Very large data storage systems capable of working with terabytes of data are inexpensive enough for large firms to use in identifying customers.

Advances in data analysis techniques for large pools of data are another technological trend that heightens ethical concerns because companies and government agencies are able to find out highly detailed personal information about individuals. With contemporary data management tools (see Chapter 6), companies can assemble and combine the myriad pieces of information about you stored on computers much more easily than in the past.

Think of all the ways you generate computer information about yourself—credit card purchases, telephone calls, magazine subscriptions, video rentals, mail-order purchases, banking records, local, state, and federal government records (including court and police records), and visits to Web sites. Put together and mined properly, this information could reveal not only your credit information but also your driving habits, your tastes, your associations, what you read and watch, and your political interests.

Companies with products to sell purchase relevant information from these sources to help them more finely target their marketing campaigns. Chapters 5 and 10 describe how companies can analyze large pools of data from multiple sources to rapidly identify buying patterns of customers and suggest individual responses. The use of computers to combine data from multiple sources and create electronic dossiers of detailed information on individuals is called **profiling**.

For example, several thousand of the most popular Web sites allow DoubleClick (owned by Google), an Internet advertising broker, to track the



Credit card purchases can make personal information available to market researchers, telemarketers, and direct mail companies. Advances in information technology facilitate the invasion of privacy.

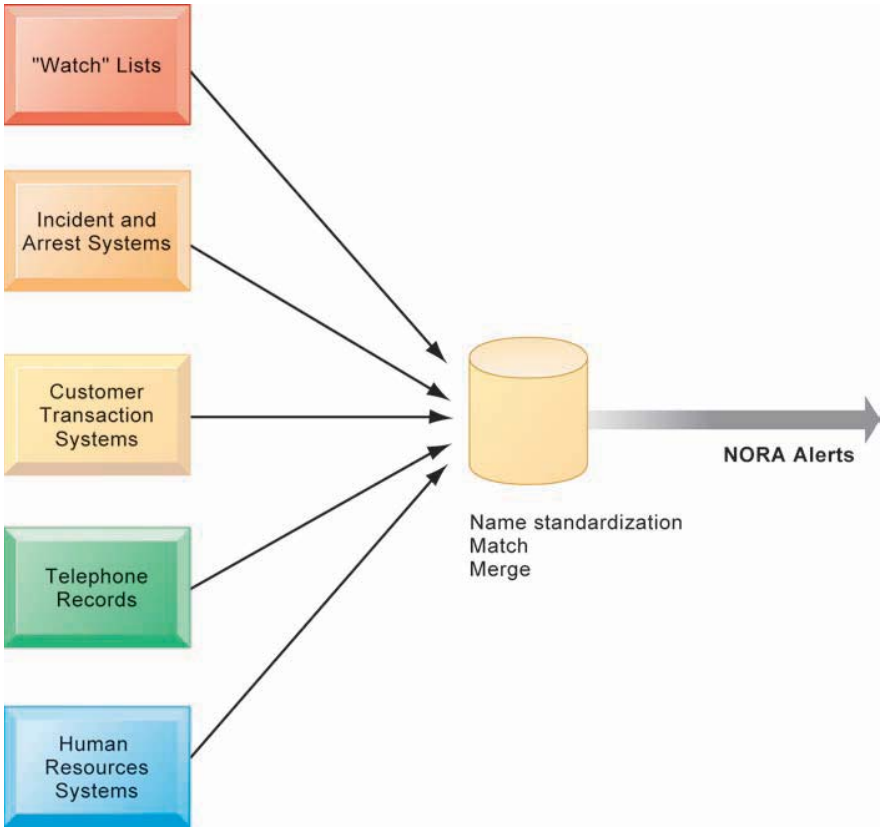
activities of their visitors in exchange for revenue from advertisements based on visitor information DoubleClick gathers. DoubleClick uses this information to create a profile of each online visitor, adding more detail to the profile as the visitor accesses an associated DoubleClick site. Over time, DoubleClick can create a detailed dossier of a person's spending and computing habits on the Web that is sold to companies to help them target their Web ads more precisely.

ChoicePoint gathers data from police, criminal, and motor vehicle records, credit and employment histories, current and previous addresses, professional licenses, and insurance claims to assemble and maintain electronic dossiers on almost every adult in the United States. The company sells this personal information to businesses and government agencies. Demand for personal data is so enormous that data broker businesses such as ChoicePoint are flourishing. In 2011, the two largest credit card networks, Visa Inc. and MasterCard Inc., were planning to link credit card purchase information with consumer social network and other information to create customer profiles that could be sold to advertising firms. In 2012, Visa will process more than 45 billion transactions a year and MasterCard will process more than 23 billion transactions. Currently, this transactional information is not linked with consumer Internet activities.

A new data analysis technology called **nonobvious relationship awareness (NORA)** has given both the government and the private sector even more powerful profiling capabilities. NORA can take information about people from many disparate sources, such as employment applications, telephone records, customer listings, and "wanted" lists, and correlate relationships to find obscure hidden connections that might help identify criminals or terrorists (see Figure 4.2).

NORA technology scans data and extracts information as the data are being generated so that it could, for example, instantly discover a man at an airline ticket counter who shares a phone number with a known terrorist before that person boards an airplane. The technology is considered a valuable tool for homeland security but does have privacy implications because it can provide such a detailed picture of the activities and associations of a single individual.

FIGURE 4.2 NONOBVIOUS RELATIONSHIP AWARENESS (NORA)



NORA technology can take information about people from disparate sources and find obscure, nonobvious relationships. It might discover, for example, that an applicant for a job at a casino shares a telephone number with a known criminal and issue an alert to the hiring manager.

Finally, advances in networking, including the Internet, promise to greatly reduce the costs of moving and accessing large quantities of data and open the possibility of mining large pools of data remotely using small desktop machines, permitting an invasion of privacy on a scale and with a precision heretofore unimaginable.

4.2 Ethics in an Information Society

Ethics is a concern of humans who have freedom of choice. Ethics is about individual choice: When faced with alternative courses of action, what is the correct moral choice? What are the main features of ethical choice?

BASIC CONCEPTS: RESPONSIBILITY, ACCOUNTABILITY, AND LIABILITY

Ethical choices are decisions made by individuals who are responsible for the consequences of their actions. **Responsibility** is a key element of ethical action. 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: It means that mechanisms are in place to determine who took responsible action, and who is responsible. Systems and institutions in which it is impossible to find out who took what action are inherently incapable of ethical analysis or ethical action. **Liability** extends the concept of responsibility further to the area of laws. Liability is a feature of political systems in which a body of laws is in place that permits individuals to recover the damages done to them by other actors, systems, or organizations. **Due process** is a related feature of law-governed societies and is a process in which laws are known and understood, and there is an ability to appeal to higher authorities to ensure that the laws are applied correctly.

These basic concepts form the underpinning of an ethical analysis of information systems and those who manage them. First, information technologies are filtered through social institutions, organizations, and individuals. Systems do not have impacts by themselves. Whatever information system impacts exist are products of institutional, organizational, and individual actions and behaviors. Second, responsibility for the consequences of technology falls clearly on the institutions, organizations, and individual managers who choose to use the technology. Using information technology in a socially responsible manner means that you can and will be held accountable for the consequences of your actions. Third, in an ethical, political society, individuals and others can recover damages done to them through a set of laws characterized by due process.

ETHICAL ANALYSIS

When confronted with a situation that seems to present ethical issues, how should you analyze it? The following five-step process should help:

1. *Identify and describe the facts clearly*. Find out who did what to whom, and where, when, and how. In many instances, you will be surprised at the errors in the initially reported facts, and often you will find that simply getting the facts straight helps define the solution. It also helps to get the opposing parties involved in an ethical dilemma to agree on the facts.
2. *Define the conflict or dilemma and identify the higher-order values involved.* Ethical, social, and political issues always reference higher values. The parties to a dispute all claim to be pursuing higher values (e.g., freedom, privacy, protection of property, and the free enterprise system). Typically, an ethical issue involves a dilemma: two diametrically opposed courses of action that support worthwhile values. For example, the chapter-ending case study illustrates two competing values: the need to improve health care record keeping and the need to protect individual privacy.
3. *Identify the stakeholders.* Every ethical, social, and political issue has stakeholders: players in the game who have an interest in the outcome, who have invested in the situation, and usually who have vocal opinions. Find out the identity of these groups and what they want. This will be useful later when designing a solution.
4. *Identify the options that you can reasonably take.* You may find that none of the options satisfy all the interests involved, but that some options do a better job than others. Sometimes arriving at a good or ethical solution may not always be a balancing of consequences to stakeholders.
5. *Identify the potential consequences of your options.* Some options may be ethically correct but disastrous from other points of view. Other options may work in one instance but not in other similar instances. Always ask yourself, "What if I choose this option consistently over time?"

CANDIDATE ETHICAL PRINCIPLES

Once your analysis is complete, what ethical principles or rules should you use to make a decision? What higher-order values should inform your judgment? Although you are the only one who can decide which among many ethical principles you will follow, and how you will prioritize them, it is helpful to consider some ethical principles with deep roots in many cultures that have survived throughout recorded history:

1. Do unto others as you would have them do unto you (the **Golden Rule**). Putting yourself into the place of others, and thinking of yourself as the object of the decision, can help you think about fairness in decision making.
2. If an action is not right for everyone to take, it is not right for anyone **(Immanuel Kant's Categorical Imperative)**. Ask yourself, "If everyone did this, could the organization, or society, survive?"
3. If an action cannot be taken repeatedly, it is not right to take at all **(Descartes' rule of change)**. This is the slippery-slope rule: An action may bring about a small change now that is acceptable, but if it is repeated, it would bring unacceptable changes in the long run. In the vernacular, it might be stated as "once started down a slippery path, you may not be able to stop."
4. Take the action that achieves the higher or greater value **(Utilitarian Principle)**. This rule assumes you can prioritize values in a rank order and understand the consequences of various courses of action.
5. Take the action that produces the least harm or the least potential cost **(Risk Aversion Principle).** Some actions have extremely high failure costs of very low probability (e.g., building a nuclear generating facility in an urban area) or extremely high failure costs of moderate probability (speeding and automobile accidents). Avoid these high-failure-cost actions, paying greater attention to high-failure-cost potential of moderate to high probability.
6. Assume that virtually all tangible and intangible objects are owned by someone else unless there is a specific declaration otherwise. (This is the **ethical "no free lunch" rule.)** If something someone else has created is useful to you, it has value, and you should assume the creator wants compensation for this work.

Actions that do not easily pass these rules deserve close attention and a great deal of caution. The appearance of unethical behavior may do as much harm to you and your company as actual unethical behavior.

PROFESSIONAL CODES OF CONDUCT

When groups of people claim to be professionals, they take on special rights and obligations because of their special claims to knowledge, wisdom, and respect. Professional codes of conduct are promulgated by associations of professionals, such as the American Medical Association (AMA), the American Bar Association (ABA), the Association of Information Technology Professionals (AITP), and the Association for Computing Machinery (ACM). These professional groups take responsibility for the partial regulation of their professions by determining entrance qualifications and competence. Codes of ethics are promises by professions to regulate themselves in the general interest of society. For example, avoiding harm to others, honoring property rights (including intellectual property), and respecting privacy are among the General Moral Imperatives of the ACM's Code of Ethics and Professional Conduct.

SOME REAL-WORLD ETHICAL DILEMMAS

Information systems have created new ethical dilemmas in which one set of interests is pitted against another. For example, many of the large telephone companies in the United States are using information technology to reduce the sizes of their workforces. Voice recognition software reduces the need for human operators by enabling computers to recognize a customer's responses to a series of computerized questions. Many companies monitor what their employees are doing on the Internet to prevent them from wasting company resources on non-business activities. Facebook monitors its subscribers and then sells the information to advertisers and app developers (see the chapter-ending case study).

In each instance, you can find competing values at work, with groups lined up on either side of a debate. A company may argue, for example, that it has a right to use information systems to increase productivity and reduce the size of its workforce to lower costs and stay in business. Employees displaced by information systems may argue that employers have some responsibility for their welfare. Business owners might feel obligated to monitor employee e-mail and Internet use to minimize drains on productivity. Employees might believe they should be able to use the Internet for short personal tasks in place of the telephone. A close analysis of the facts can sometimes produce compromised solutions that give each side "half a loaf." Try to apply some of the principles of ethical analysis described to each of these cases. What is the right thing to do?

4.3 The Moral Dimensions of Information Systems

In this section, we take a closer look at the five moral dimensions of information systems first described in Figure 4.1. In each dimension, we identify the ethical, social, and political levels of analysis and use real-world examples to illustrate the values involved, the stakeholders, and the options chosen.

INFORMATION RIGHTS: PRIVACY AND FREEDOM IN THE INTERNET AGE

Privacy is the claim of individuals to be left alone, free from surveillance or interference from other individuals or organizations, including the state. Claims to privacy are also involved at the workplace: Millions of employees are subject to electronic and other forms of high-tech surveillance. Information technology and systems threaten individual claims to privacy by making the invasion of privacy cheap, profitable, and effective.

The claim to privacy is protected in the U.S., Canadian, and German constitutions in a variety of different ways and in other countries through various statutes. In the United States, the claim to privacy is protected primarily by the First Amendment guarantees of freedom of speech and association, the Fourth Amendment protections against unreasonable search and seizure of one's personal documents or home, and the guarantee of due process.

Table 4.3 describes the major U.S. federal statutes that set forth the conditions for handling information about individuals in such areas as credit reporting, education, financial records, newspaper records, and electronic communications. The Privacy Act of 1974 has been the most important of

TABLE 4.3 FEDERAL PRIVACY LAWS IN THE UNITED STATES

GENERAL FEDERAL PRIVACY LAWS	PRIVACY LAWS AFFECTING PRIVATE INSTITUTIONS
Freedom of Information Act of 1966 as Amended (5 USC 552)	Fair Credit Reporting Act of 1970
Privacy Act of 1974 as Amended (5 USC 552a)	Family Educational Rights and Privacy Act of 1974
Electronic Communications Privacy Act of 1986	Right to Financial Privacy Act of 1978
Computer Matching and Privacy Protection Act of 1988	Privacy Protection Act of 1980
Computer Security Act of 1987	Cable Communications Policy Act of 1984
Federal Managers Financial Integrity Act of 1982	Electronic Communications Privacy Act of 1986
Driver's Privacy Protection Act of 1994	Video Privacy Protection Act of 1988
E-Government Act of 2002	The Health Insurance Portability and Accountability Act of 1996 (HIPAA)
	Children's Online Privacy Protection Act (COPPA) of 1998
	Financial Modernization Act (Gramm-Leach-Bliley Act) of 1999

these laws, regulating the federal government's collection, use, and disclosure of information. At present, most U.S. federal privacy laws apply only to the federal government and regulate very few areas of the private sector.

Most American and European privacy law is based on a regime called **Fair Information Practices (FIP)** first set forth in a report written in 1973 by a federal government advisory committee and updated most recently in 2010 to take into account new privacy-invading technology (FTC, 2010; U.S. Department of Health, Education, and Welfare, 1973). FIP is a set of principles governing the collection and use of information about individuals. FIP principles are based on the notion of a mutuality of interest between the record holder and the individual. The individual has an interest in engaging in a transaction, and the record keeper—usually a business or government agency—requires information about the individual to support the transaction. Once information is gathered, the individual maintains an interest in the record, and the record may not be used to support other activities without the individual's consent. In 1998, the FTC restated and extended the original FIP to provide guidelines for protecting online privacy. Table 4.4 describes the FTC's Fair Information Practice principles.

TABLE 4.4 FEDERAL TRADE COMMISSION FAIR INFORMATION PRACTICE PRINCIPLES

1.	Notice/awareness (core principle). Web sites must disclose their information practices before collecting data. Includes identification of collector; uses of data; other recipients of data; nature of collection (active/inactive); voluntary or required status; consequences of refusal; and steps taken to protect confidentiality, integrity, and quality of the data.
2.	Choice/consent (core principle). There must be a choice regime in place allowing consumers to choose how their information will be used for secondary purposes other than supporting the transaction, including internal use and transfer to third parties.
3.	Access/participation. Consumers should be able to review and contest the accuracy and completeness of data collected about them in a timely, inexpensive process.
4.	Security. Data collectors must take responsible steps to assure that consumer information is accurate and secure from unauthorized use.
5.	Enforcement. There must be in place a mechanism to enforce FIP principles. This can involve self-regulation, legislation giving consumers legal remedies for violations, or federal statutes and regulations.

The FTC's FIP principles are being used as guidelines to drive changes in privacy legislation. In July 1998, the U.S. Congress passed the Children's Online Privacy Protection Act (COPPA), requiring Web sites to obtain parental permission before collecting information on children under the age of 13. The FTC has recommended additional legislation to protect online consumer privacy in advertising networks that collect records of consumer Web activity to develop detailed profiles, which are then used by other companies to target online ads. In 2010, the FTC added three practices to its framework for privacy. Firms should adopt "privacy by design," building products and services that protect privacy. Firms should increase the transparency of their data practices. And firms should require consumer consent and provide clear options to opt out of data collection schemes (FTC, 2010). Other proposed Internet privacy legislation focuses on protecting the online use of personal identification numbers, such as social security numbers; protecting personal information collected on the Internet that deals with individuals not covered by COPPA; and limiting the use of data mining for homeland security.

Beginning in 2009 and continuing through 2012, the FTC extended its FIP doctrine to address the issue of behavioral targeting. The FTC held hearings to discuss its program for voluntary industry principles for regulating behavioral targeting. The online advertising trade group Network Advertising Initiative (discussed later in this section), published its own self-regulatory principles that largely agreed with the FTC. Nevertheless, the government, privacy groups, and the online ad industry are still at loggerheads over two issues. Privacy advocates want both an opt-in policy at all sites and a national Do Not Track list. The industry opposes these moves and continues to insist on an opt-out capability being the only way to avoid tracking. In May 2011, Senator Jay D. Rockefeller (D-WV), Chairman of the Senate Commerce Subcommittee on Consumer Protection, Product Safety, and Insurance, held hearings to discuss consumer privacy concerns and to explore the possible role of the federal government in protecting consumers in the mobile marketplace. Rockefeller supports the Do-Not-Track Online Act of 2011, which requires firms to notify consumers they are being tracked and allows consumers to opt out of the tracking (U.S. Senate, 2011). Nevertheless, there is an emerging consensus among all parties that greater transparency and user control (especially making opt-out of tracking the default option) is required to deal with behavioral tracking.

Privacy protections have also been added to recent laws deregulating financial services and safeguarding the maintenance and transmission of health information about individuals. The Gramm-Leach-Bliley Act of 1999, which repeals earlier restrictions on affiliations among banks, securities firms, and insurance companies, includes some privacy protection for consumers of financial services. All financial institutions are required to disclose their policies and practices for protecting the privacy of nonpublic personal information and to allow customers to opt out of information-sharing arrangements with nonaffiliated third parties.

The Health Insurance Portability and Accountability Act (HIPAA) of 1996, which took effect on April 14, 2003, includes privacy protection for medical records. The law gives patients access to their personal medical records maintained by health care providers, hospitals, and health insurers, and the right to authorize how protected information about themselves can be used or disclosed. Doctors, hospitals, and other health care providers must limit the disclosure of personal information about patients to the minimum amount necessary to achieve a given purpose.

The European Directive on Data Protection

In Europe, privacy protection is much more stringent than in the United States. Unlike the United States, European countries do not allow businesses to use personally identifiable information without consumers' prior consent. On October 25, 1998, the European Commission's Directive on Data Protection went into effect, broadening privacy protection in the European Union (EU) nations. The directive requires companies to inform people when they collect information about them and disclose how it will be stored and used. Customers must provide their informed consent before any company can legally use data about them, and they have the right to access that information, correct it, and request that no further data be collected. **Informed consent** can be defined as consent given with knowledge of all the facts needed to make a rational decision. EU member nations must translate these principles into their own laws and cannot transfer personal data to countries, such as the United States, that do not have similar privacy protection regulations. In 2009, the European Parliament passed new rules governing the use of third-party cookies for behavioral tracking purposes. These new rules were implemented in May 2011 and require that Web site visitors must give explicit consent to be tracked by cookies. Web sites will be required to have highly visible warnings on their pages if third-party cookies are being used (European Parliament, 2009).

In January 2012, the E.U. issued significant proposed changes to its data protection rules, the first overhaul since 1995 (European Commission, 2012). The new rules would apply to all companies providing services in Europe, and require Internet companies like Amazon, Facebook, Apple, Google, and others to obtain explicit consent from consumers about the use of their personal data, delete information at the user's request (based on the "right to be forgotten"), and retain information only as long as absolutely necessary. The proposed rules provide for fines up to 2% of the annual gross revenue of offending firms. In the case of Google, for instance, with annual revenue of $38 billion, a maximum fine would amount to $760 million. The requirement for user consent includes the use of cookies and super cookies used for tracking purposes across the Web (third-party cookies), and not for cookies used on a Web site. Like the FTC's proposed framework, the EU's new proposed rules have a strong emphasis on regulating tracking, enforcing transparency, limiting data retention periods, and obtaining user consent.

Working with the European Commission, the U.S. Department of Commerce developed a safe harbor framework for U.S. firms. A **safe harbor** is a private, self-regulating policy and enforcement mechanism that meets the objectives of government regulators and legislation but does not involve government regulation or enforcement. U.S. businesses would be allowed to use personal data from EU countries if they develop privacy protection policies that meet EU standards. Enforcement would occur in the United States using self-policing, regulation, and government enforcement of fair trade statutes.

Internet Challenges to Privacy

Internet technology has posed new challenges for the protection of individual privacy. Information sent over this vast network of networks may pass through many different computer systems before it reaches its final destination. Each of these systems is capable of monitoring, capturing, and storing communications that pass through it.

Web sites track searches that have been conducted, the Web sites and Web pages visited, the online content a person has accessed, and what items that person has inspected or purchased over the Web. This monitoring and tracking

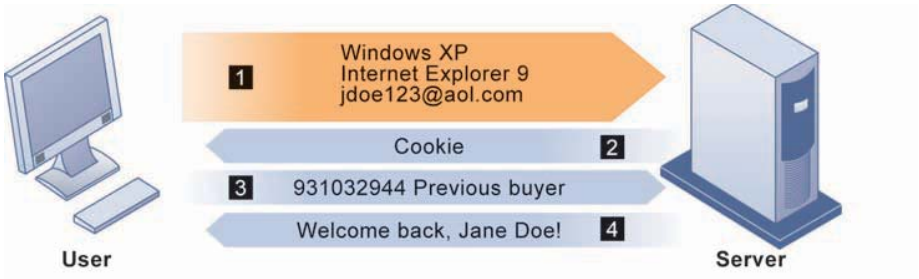
of Web site visitors occurs in the background without the visitor's knowledge. It is conducted not just by individual Web sites but by advertising networks such as Microsoft Advertising, Yahoo, and DoubleClick that are capable of tracking personal browsing behavior across thousands of Web sites. Both Web site publishers and the advertising industry defend tracking of individuals across the Web because doing so allows more relevant ads to be targeted to users, and it pays for the cost of publishing Web sites. In this sense, it's like broadcast television: advertiser-supported content that is free to the user. The commercial demand for this personal information is virtually insatiable.

Cookies are small text files deposited on a computer hard drive when a user visits Web sites. Cookies identify the visitor's Web browser software and track visits to the Web site. When the visitor returns to a site that has stored a cookie, the Web site software will search the visitor's computer, find the cookie, and know what that person has done in the past. It may also update the cookie, depending on the activity during the visit. In this way, the site can customize its content for each visitor's interests. For example, if you purchase a book on Amazon.com and return later from the same browser, the site will welcome you by name and recommend other books of interest based on your past purchases. DoubleClick, described earlier in this chapter, uses cookies to build its dossiers with details of online purchases and to examine the behavior of Web site visitors. Figure 4.3 illustrates how cookies work.

Web sites using cookie technology cannot directly obtain visitors' names and addresses. However, if a person has registered at a site, that information can be combined with cookie data to identify the visitor. Web site owners can also combine the data they have gathered from cookies and other Web site monitoring tools with personal data from other sources, such as offline data collected from surveys or paper catalog purchases, to develop very detailed profiles of their visitors.

There are now even more subtle and surreptitious tools for surveillance of Internet users. So-called "super cookies" or Flash cookies cannot be easily

FIGURE 4.3 HOW COOKIES IDENTIFY WEB VISITORS



1. The Web server reads the user's Web browser and determines the operating system, browser name, version number, Internet address, and other information.
2. The server transmits a tiny text file with user identification information called a cookie, which the user's browser receives and stores on the user's computer hard drive.
3. When the user returns to the Web site, the server requests the contents of any cookie it deposited previously in the user's computer.
4. The Web server reads the cookie, identifies the visitor, and calls up data on the user.

Cookies are written by a Web site on a visitor's hard drive. When the visitor returns to that Web site, the Web server requests the ID number from the cookie and uses it to access the data stored by that server on that visitor. The Web site can then use these data to display personalized information.

deleted and can be installed whenever a person clicks on a Flash video. These so-called "Local Shared Object" files are used by Flash to play videos and are put on the user's computer without their consent. Marketers use Web beacons as another tool to monitor online behavior. **Web beacons**, also called *Web bugs* (or simply "tracking files"), are tiny software programs that keep a record of users' online clickstream and report this data back to whomever owns the tracking file invisibly embedded in e-mail messages and Web pages that are designed to monitor the behavior of the user visiting a Web site or sending e-mail. Web beacons are placed on popular Web sites by third-party firms who pay the Web sites a fee for access to their audience. So how common is Web tracking? In a path-breaking series of articles in the *Wall Street Journal* in 2010 and 2011, researchers examined the tracking files on 50 of the most popular U.S Web sites. What they found revealed a very widespread surveillance system. On the 50 sites, they discovered 3,180 tracking files installed on visitor computers. Only one site, Wikipedia, had no tracking files. Some popular sites such as Dictionary.com, MSN, and Comcast, installed more than 100 tracking files! Two-thirds of the tracking files came from 131 companies whose primary business is identifying and tracking Internet users to create consumer profiles that can be sold to advertising firms looking for specific types of customers. The biggest trackers were Google, Microsoft, and Quantcast, all of whom are in the business of selling ads to advertising firms and marketers. A follow-up study in 2012 found the situation had worsened: tracking on the 50 most popular sites had risen nearly five fold! The cause: growth of online ad auctions where advertisers buy the data about users' Web browsing behavior.

Other **spyware** can secretly install itself on an Internet user's computer by piggybacking on larger applications. Once installed, the spyware calls out to Web sites to send banner ads and other unsolicited material to the user, and it can report the user's movements on the Internet to other computers. More information is available about intrusive software in Chapter 8.

About 75 percent of global Internet users use Google Search and other Google services, making Google the world's largest collector of online user data. Whatever Google does with its data has an enormous impact on online privacy. Most experts believe that Google possesses the largest collection of personal information in the world—more data on more people than any government agency. The nearest competitor is Facebook.

After Google acquired the advertising network DoubleClick in 2007, Google has been using behavioral targeting to help it display more relevant ads based on users' search activities and to target individuals as they move from one site to another in order to show them display or banner ads. Google allows tracking software on its search pages, and using DoubleClick, it is able to track users across the Internet. One of its programs enables advertisers to target ads based on the search histories of Google users, along with any other information the user submits to Google such as age, demographics, region, and other Web activities (such as blogging). Google's AdSense program enables Google to help advertisers select keywords and design ads for various market segments based on search histories, such as helping a clothing Web site create and test ads targeted at teenage females. A recent study found that 88 percent of 400,000 Web sites had at least one Google tracking bug.

Google has also been scanning the contents of messages received by users of its free Web-based e-mail service called Gmail. Ads that users see when they read their e-mail are related to the subjects of these messages. Profiles are developed on individual users based on the content in their e-mail. Google now

displays targeted ads on YouTube and on Google mobile applications, and its DoubleClick ad network serves up targeted banner ads.

The United States has allowed businesses to gather transaction information generated in the marketplace and then use that information for other marketing purposes without obtaining the informed consent of the individual whose information is being used. An **opt-out** model of informed consent permits the collection of personal information until the consumer specifically requests that the data not be collected. Privacy advocates would like to see wider use of an **opt-in** model of informed consent in which a business is prohibited from collecting any personal information unless the consumer specifically takes action to approve information collection and use. Here, the default option is no collection of user information.

The online industry has preferred self-regulation to privacy legislation for protecting consumers. The online advertising industry formed the Online Privacy Alliance to encourage self-regulation to develop a set of privacy guidelines for its members. The group promotes the use of online seals, such as that of TRUSTe, certifying Web sites adhering to certain privacy principles. Members of the advertising network industry, including Google's DoubleClick, have created an additional industry association called the Network Advertising Initiative (NAI) to develop its own privacy policies to help consumers opt out of advertising network programs and provide consumers redress from abuses.

Individual firms like Microsoft, Mozilla Foundation, Yahoo, and Google have recently adopted policies on their own in an effort to address public concern about tracking people online. Microsoft has promised to ship its new Internet Explorer 10 Web browser with the opt-out option as the default in 2012. AOL established an opt-out policy that allows users of its site to not be tracked. Yahoo follows NAI guidelines and also allows opt-out for tracking and Web beacons (Web bugs). Google has reduced retention time for tracking data.

In general, most Internet businesses do little to protect the privacy of their customers, and consumers do not do as much as they should to protect themselves. For commercial Web sites that depend on advertising to support themselves, most revenue derives from selling customer information. Of the companies that do post privacy polices on their Web sites, about half do not monitor their sites to ensure they adhere to these policies. The vast majority of online customers claim they are concerned about online privacy, but less than half read the privacy statements on Web sites. In general, Web site privacy policies require a law degree to understand and are ambiguous about key terms (Laudon and Traver, 2013).

In one of the more insightful studies of consumer attitudes towards Internet privacy, a group of Berkeley students conducted surveys of online users, and of complaints filed with the FTC involving privacy issues. Here are some of their results: people feel they have no control over the information collected about them, and they don't know who to complain to. Web sites collect all this information, but do not let users have access, the Web site policies are unclear, and they share data with "affiliates" but never identify who the affiliates are and how many there are. Web bug trackers are ubiquitous and users are not informed of trackers on the pages users visit. The results of this study and others suggest that consumers are not saying "Take my privacy, I don't care, send me the service for free." They are saying "We want access to the information, we want some controls on what can be collected, what is done with the information, the ability to opt out of the entire tracking enterprise, and some clarity on what the policies really are, and we don't want those

policies changed without our participation and permission." (The full report is available at knowprivacy.org.)

Technical Solutions

In addition to legislation, there are a few technologies that can protect user privacy during interactions with Web sites. Many of these tools are used for encrypting e-mail, for making e-mail or surfing activities appear anonymous, for preventing client computers from accepting cookies, or for detecting and eliminating spyware. For the most part, technical solutions have failed to protect users from being tracked as they move from one site to another.

Because of growing public criticism of behavioral tracking and targeting of ads, and the failure of industry to self-regulate, attention has shifted to browsers. Many browsers have Do Not Track options. For users who have selected the Do Not Track browser option, their browser will send a request to Web sites requesting the user's behavior not be tracked. Both Internet Explorer 9 and Mozilla's Firefox browsers implement this opt-out option. However, these browsers are shipped with tracking turned on as the default. And most consumers never visit the Options Privacy tab in their browser. The online advertising industry has bitterly opposed Microsoft's plans and warns that Web sites are not obligated to follow users' requests to Do Not Track. There is no online advertising industry agreement on how to respond to Do Not Track requests, and currently no legislation requiring Web sites to stop tracking.

The Interactive Session on Technology, *Life on the Grid: iPhone Becomes iTrack*, describes how mobile phones are used to track the location of individuals.

PROPERTY RIGHTS: INTELLECTUAL PROPERTY

Contemporary information systems have severely challenged existing laws and social practices that protect private intellectual property. **Intellectual property** is considered to be intangible property created by individuals or corporations. Information technology has made it difficult to protect intellectual property because computerized information can be so easily copied or distributed on networks. Intellectual property is subject to a variety of protections under three different legal traditions: trade secrets, copyright, and patent law.

Trade Secrets

Any intellectual work product—a formula, device, pattern, or compilation of data—used for a business purpose can be classified as a **trade secret**, provided it is not based on information in the public domain. Protections for trade secrets vary from state to state. In general, trade secret laws grant a monopoly on the ideas behind a work product, but it can be a very tenuous monopoly.

Software that contains novel or unique elements, procedures, or compilations can be included as a trade secret. Trade secret law protects the actual ideas in a work product, not only their manifestation. To make this claim, the creator or owner must take care to bind employees and customers with nondisclosure agreements and to prevent the secret from falling into the public domain.

The limitation of trade secret protection is that, although virtually all software programs of any complexity contain unique elements of some sort, it is difficult to prevent the ideas in the work from falling into the public domain when the software is widely distributed.

INTERACTIVE SESSION: TECHNOLOGY

LIFE ON THE GRID: IPHONE BECOMES ITRACK

Do you like your smartphone? Living on the grid has its advantages. You can access the Internet, visit your Facebook page, get Twitter feeds, watch video, and listen to music all with the same "communication and media device." Less well known is that living on the grid means near continuous tracking of your whereabouts, locations, habits, and friends. At first, the Web made it possible for you to search for and find products, and some friends. Now the mobile Web grid tracks you and your friends to sell you products and services.

New technologies found on smartphones can identify where you are located within a few yards. And there's a great deal of money to be made knowing where you are. Performing routine actions using your smartphone makes it possible to locate you throughout the day, to report this information to corporate databases, retain and analyze the information, and then sell it to advertisers. A number of firms have adopted business models based on the ability of smartphones to report on your whereabouts, whether or not you choose to do so. Most of the popular apps report your location. Law enforcement agencies certainly have an interest in knowing the whereabouts of criminals and suspects. There are, of course, many times when you would like to report your location either automatically or on your command. If you were injured, for instance, you might like your cell phone to be able to automatically report your location to authorities, or, if you were in a restaurant, you might want to notify your friends where you are and what you are doing. But what about occasions when you don't want anyone to know where you are, least of all advertisers and marketers?

Location data gathered from cell phones has extraordinary commercial value because advertising companies can send you highly targeted advertisements, coupons, and flash bargains, based on where you are located. This technology is the foundation for many location-based services, which include smartphone maps and charts, shopping apps, and social apps that you can use to let your friends know where you are and what you are doing. Revenues from the global location-based services market are projected to reach $3.8 billion by the end of 2012, and will rise to $10.3 billion in 2015, according to Gartner.

But where does the location data come from, who collects it, and who uses it? In April 2011, the Wall Street Journal published the results of its research on smartphone tracking technology and individual private location data. They discovered that both Apple's iPhone and Google's Android phones were collecting personal, private location data, for a variety of reasons. Both firms are building massive databases that can pinpoint your location, and although Google is already a leader in search across most platforms, Apple is also trying to establish itself in the mobile advertising marketplace. Advertising firms will pay Apple and Google for that information and for distributing their mobile ads.

Apple transmits your location data back to central servers once every 12 hours, and it also stores a copy of your locations on the iPhone. Android phones transmit your location data continuously. Apple's files on the iPhone device can be stored for many months. Both Apple and Google have denied that they share this information with third parties, as well as that the information can identify individuals (as opposed to cell phones), and claim the information is being used only to identify the location of cell phones for Wi-Fi–connected phones, and to improve the customer experience of location-based services. Apple's technology reads the signal strength of nearby Wi-Fi transmitters, identifies and maps their location, and then calculates the location of the iPhone device. The result is a very large database of Wi-Fi hotspots in the United States, and a method for locating iPhones that is not dependent on global positioning system (GPS) signals. Both companies say the location information is needed for them to improve their services. And location tracking is itself improving: newer tracking technologies can automatically detect the places you visit, know when you arrive or leave, track how many times you've been to that location, and even know whether you've been sitting, walking, or driving. Several companies, including Alohar Mobile, Skyhook, Wifarer, and Broadcom, are developing this type of next-generation tracking technology, which will add even more value to the data you generate by using your smartphone.

Smartphone apps that provide location-based services are also sources of personal, private location information based on the smartphone GPS

capability. Foursquare is a popular mobile social application that allows users to "check in" to a restaurant or other location, and the app automatically lets friends on Facebook and other programs learn where you are. If you're in a new town, the app transmits your location and sends you popular spots close by, with reviews from other Foursquare users. After starting up Foursquare on a smartphone, you'll see a list of local bars and restaurants based on your cell phone's GPS position, select a location, and "check in," which sends a message to your friends. Foursquare has a widely accepted loyalty program. Each check-in awards users points and badges, which can be used later for discounts at various venues. Visitors to places compete to become "Mayors" of the venue based on how many times they have checked in over a month's time. Mayors receive special offers.

As the popularity of location-based services like Foursquare has grown, so too have concerns about the privacy of individual subscribers, and their friends on Facebook and Twitter who may not be members. Many observers fear these services will operate automatically, without user permission or awareness. The revelation in 2011 that Apple and Google were surreptitiously and continuously collecting personal, private, and location data spurred privacy groups and Congress to launch investigations. Most cell phone users are unaware that their locations and travels are readily available to law enforcement agencies through a simple e-mail request, and without judicial review, and at the expense of the carriers. In June 2012, a U.S. District Judge in California ruled that Apple must defend against a lawsuit accusing it of secretly tracking location data on millions of its iPhone and iPad users, and the Supreme Court ruled that law enforcement may not use GPS devices planted on a car to track suspects without a warrant.

To date, wireless location-based services remain largely unregulated. In 2011, the Federal Communications Commission in cooperation with the Federal Trade Commission sponsored a forum to discuss with industry and privacy groups the social impact of location-based services, both positive and negative. Industry representatives from Facebook, Google, and Foursquare argued that existing apps as well as corporate policies were adequate to protect personal privacy because they rely on user permissions to share location data (opt-in services). The industry argued as well that consumers get real benefits from sharing location data, otherwise they would not voluntarily share this data. Privacy experts asked if consumers knew they were sharing their location information and what kind of "informed consent" was obtained. Privacy advocates pointed out that 22 of the top 30 paid apps have no privacy policy, that most of the popular apps transmit location data to their developers after which the information is not well controlled, and that these services are creating a situation where government agencies, marketers, creditors, and telecommunications firms will end up knowing nearly everything about citizens including their whereabouts. The biggest danger they described are services that locate people automatically and persistently without users having a chance to go off the grid, and without being able to turn off the location features of their phones.

Sources: "Apple Fails to Fend Off Mobile Tracking Lawsuit," Reuters, June 14, 2012; Christina DesMarais, "Location Tracking of Mobile Devices Gets Really Nosy," *PC World*, June 2, 2012; "This Smart Phone Tracking Tech Will Give You the Creeps," *PC World*, May 22, 2012; Andy Greenberg, "Reminder to Congress: Cops' Cell Phone Tracking Can Be Even More Precise than GPS," Forbes.com, May 17, 2012; Noam Cohen, "It's Tracking Your Every Move and You May Not Even Know," *The New York Times*, March 26, 2011; Robert Hotz, "The Really Smart Phone," *The Wall Street Journal*, April 23, 2011; Peter Swire, "Wrap Up on Privacy and Location Based Services" and Matt Blaze, "Technology and Privacy," FCC Forum: "Helping Consumers Harness the Potential of Location Based Services," June 28, 2011; Julia Angwin and Jennifer Valentino-Devries, "Apple, Google Collect User Data," *The Wall Street Journal*, April 22, 2011; "When a Cell Phone Is More Than a Phone: Protecting Your Privacy in the Age of the Smartphone," Privacy Rights Clearinghouse, http://www.privacyrights.org.

CASE STUDY QUESTIONS

1. Why do mobile phone manufacturers (Apple, Google, and BlackBerry) want to track where their customers go?
2. Do you think mobile phone customers should be able to turn tracking off? Should customers be informed when they are being tracked? Why or why not?
3. Do you think mobile phone tracking is a violation of a person's privacy? Why or why not?

Copyright

Copyright is a statutory grant that protects creators of intellectual property from having their work copied by others for any purpose during the life of the author plus an additional 70 years after the author's death. For corporate-owned works, copyright protection lasts for 95 years after their initial creation. Congress has extended copyright protection to books, periodicals, lectures, dramas, musical compositions, maps, drawings, artwork of any kind, and motion pictures. The intent behind copyright laws has been to encourage creativity and authorship by ensuring that creative people receive the financial and other benefits of their work. Most industrial nations have their own copyright laws, and there are several international conventions and bilateral agreements through which nations coordinate and enforce their laws.

In the mid-1960s, the Copyright Office began registering software programs, and in 1980, Congress passed the Computer Software Copyright Act, which clearly provides protection for software program code and for copies of the original sold in commerce, and sets forth the rights of the purchaser to use the software while the creator retains legal title.

Copyright protects against copying of entire programs or their parts. Damages and relief are readily obtained for infringement. The drawback to copyright protection is that the underlying ideas behind a work are not protected, only their manifestation in a work. A competitor can use your software, understand how it works, and build new software that follows the same concepts without infringing on a copyright.

"Look and feel" copyright infringement lawsuits are precisely about the distinction between an idea and its expression. For instance, in the early 1990s, Apple Computer sued Microsoft Corporation and Hewlett-Packard for infringement of the expression of Apple's Macintosh interface, claiming that the defendants copied the expression of overlapping windows. The defendants countered that the idea of overlapping windows can be expressed only in a single way and, therefore, was not protectable under the merger doctrine of copyright law. When ideas and their expression merge, the expression cannot be copyrighted.

In general, courts appear to be following the reasoning of a 1989 case—*Brown Bag Software v. Symantec Corp*—in which the court dissected the elements of software alleged to be infringing. The court found that similar concept, function, general functional features (e.g., drop-down menus), and colors are not protectable by copyright law (*Brown Bag Software v. Symantec Corp.*, 1992).

Patents

A **patent** grants the owner an exclusive monopoly on the ideas behind an invention for 20 years. The congressional intent behind patent law was to ensure that inventors of new machines, devices, or methods receive the full financial and other rewards of their labor and yet make widespread use of the invention possible by providing detailed diagrams for those wishing to use the idea under license from the patent's owner. The granting of a patent is determined by the United States Patent and Trademark Office and relies on court rulings.

The key concepts in patent law are originality, novelty, and invention. The Patent Office did not accept applications for software patents routinely until a 1981 Supreme Court decision that held that computer programs could be a part of a patentable process. Since that time, hundreds of patents have been granted and thousands await consideration.

The strength of patent protection is that it grants a monopoly on the underlying concepts and ideas of software. The difficulty is passing stringent criteria of

nonobviousness (e.g., the work must reflect some special understanding and contribution), originality, and novelty, as well as years of waiting to receive protection.

In what some call the patent trial of the century, in 2011, Apple sued Samsung for violating its patents for iPhones, iPads, and iPods. On August 24, 2012, a California jury in federal district court delivered a decisive victory to Apple and a stunning defeat to Samsung. The jury awarded Apple $1 billion in damages. The decision established criteria for determining just how close a competitor can come to an industry-leading and standard-setting product like Apple's iPhone before it violates the design and utility patents of the leading firm. The same court ruled that Samsung could not sell its new tablet computer (Galaxy 10.1) in the United States. This was not just a loss for Samsung but a warning shot across the bow for Google, which developed the Android operating system, and all other makers of Android phones, including Google's newly purchased Motorola Mobile Devices, makers of Motorola Mobility phones.

Challenges to Intellectual Property Rights

Contemporary information technologies, especially software, pose severe challenges to existing intellectual property regimes and, therefore, create significant ethical, social, and political issues. Digital media differ from books, periodicals, and other media in terms of ease of replication; ease of transmission; ease of alteration; difficulty in classifying a software work as a program, book, or even music; compactness—making theft easy; and difficulties in establishing uniqueness.

The proliferation of electronic networks, including the Internet, has made it even more difficult to protect intellectual property. Before widespread use of networks, copies of software, books, magazine articles, or films had to be stored on physical media, such as paper, computer disks, or videotape, creating some hurdles to distribution. Using networks, information can be more widely reproduced and distributed. The Ninth Annual Global Software Piracy Study conducted by International Data Corporation and the Business Software Alliance reported that the rate of global software piracy climbed to 42 percent in 2011, representing $63 billion in global losses from software piracy. Worldwide, for every $100 worth of legitimate software sold that year, an additional $75 worth was obtained illegally (Business Software Alliance, 2012).

The Internet was designed to transmit information freely around the world, including copyrighted information. With the World Wide Web in particular, you can easily copy and distribute virtually anything to thousands and even millions of people around the world, even if they are using different types of computer systems. Information can be illicitly copied from one place and distributed through other systems and networks even though these parties do not willingly participate in the infringement.

Individuals have been illegally copying and distributing digitized MP3 music files on the Internet for a number of years. File-sharing services such as Napster, and later Grokster, Kazaa, and Morpheus, sprung up to help users locate and swap digital music files, including those protected by copyright. Illegal file sharing became so widespread that it threatened the viability of the music recording industry and, at one point, consumed 20 percent of Internet bandwidth. The recording industry won the legal battles for shutting these services down, but it has not been able to halt illegal file sharing entirely.

While illegal file sharing still goes on, it has actually declined since the opening of the iTunes Store in 2001. As legitimate online music stores expanded, and more recently as Internet radio services like Pandora expanded, illegal file sharing has declined. Technology has radically altered the prospects for intellectual

property protection from theft, at least for music, videos, and television shows (less so for software). The Apple iTunes Store legitimated paying for music and entertainment, and created a closed environment where music and videos could not be easily copied and widely distributed unless played on Apple devices. Amazon's Kindle also protects the rights of publishers and writers because its books cannot be copied to the Internet and distributed. Streaming of Internet radio, on services such as Pandora and Spotify, and Hollywood movies (at sites such as Hulu and Netflix) also inhibits piracy because the streams cannot be easily recorded on separate devices. Moreover, the large Web distributors like Apple, Google, and Amazon do not want to encourage piracy in music or videos simply because they need these properties to earn revenue.

The Digital Millennium Copyright Act (DMCA) of 1998 also provides some copyright protection. The DMCA implemented a World Intellectual Property Organization Treaty that makes it illegal to circumvent technology-based protections of copyrighted materials. Internet service providers (ISPs) are required to take down sites of copyright infringers they are hosting once the ISPs are notified of the problem. Microsoft and other major software and information content firms are represented by the Software and Information Industry Association (SIIA), which lobbies for new laws and enforcement of existing laws to protect intellectual property around the world. The SIIA runs an antipiracy hotline for individuals to report piracy activities, offers educational programs to help organizations combat software piracy, and has published guidelines for employee use of software.

ACCOUNTABILITY, LIABILITY, AND CONTROL

Along with privacy and property laws, new information technologies are challenging existing liability laws and social practices for holding individuals and institutions accountable. If a person is injured by a machine controlled, in part, by software, who should be held accountable and, therefore, held liable? Should a public bulletin board or an electronic service, such as America Online, permit the transmission of pornographic or offensive material (as broadcasters), or should they be held harmless against any liability for what users transmit (as is true of common carriers, such as the telephone system)? What about the Internet? If you outsource your information processing, can you hold the external vendor liable for injuries done to your customers? Some real-world examples may shed light on these questions.

Computer-Related Liability Problems

For a week in October 2011, millions of BlackBerry users around the world began experiencing disruption to their e-mail service, the most vital service provided by the smartphone maker Research in Motion (RIM). The three-day blackout of e-mail involved users in Asia, Europe, the Middle East, and the Americas, a substantial part of BlackBerry's installed base of 70 million users. The BlackBerry, until recently, had the dominant position in the corporate smartphone market because it provided excellent e-mail security, and integrated well with corporate mail servers. The iPhone and Android smartphones championed by employees now account for more than half of all new corporate mobile devices. The outage is expected to encourage more corporations to abandon the BlackBerry. On the positive side, police departments around the world reported a significant drop in urban car accidents during the outage because drivers could no longer text or telephone using their BlackBerry (Austen, 2011).

After the outage, Research in Motion CTO for Software David Yach said a backlog of messages to Europe created a cascading outage effect around the world.

The company determined the root cause of the initial European BlackBerry e-mail service and said there was no evidence that a hack or security breach was involved.

RIM customers in Europe had been suffering from major outages for days, but it wasn't until the Americas caught the bug that BlackBerry customers started complaining on Twitter of mail delays and lack of access to their BlackBerry devices. Yach described the initial outage as a failure of one of RIM's core switches. However, the real trouble began when RIM's redundant systems failed as well. "The failover did not function as expected," Yach said, "despite the fact that we regularly test failover systems." This led to a significant backup of mail.

Who is liable for any economic harm caused to individuals or businesses that could not access their e-mail during this three-day period? If consumers pay for cell phone service, come to rely on it, and then are denied service for a significant period of time, is the cell phone provider liable for damages?

This case reveals the difficulties faced by information systems executives who ultimately are responsible for any harm done by systems they have selected and installed. Beyond IT managers, insofar as computer software is part of a machine, and the machine injures someone physically or economically, the producer of the software and the operator can be held liable for damages. Insofar as the software acts like a book, storing and displaying information, courts have been reluctant to hold authors, publishers, and booksellers liable for contents (the exception being instances of fraud or defamation), and hence courts have been wary of holding software authors liable for software.

In general, it is very difficult (if not impossible) to hold software producers liable for their software products that are considered to be like books, regardless of the physical or economic harm that results. Historically, print publishers, books, and periodicals have not been held liable because of fears that liability claims would interfere with First Amendment rights guaranteeing freedom of expression.

What about software as a service? ATM machines are a service provided to bank customers. Should this service fail, customers will be inconvenienced and perhaps harmed economically if they cannot access their funds in a timely manner. Should liability protections be extended to software publishers and operators of defective financial, accounting, simulation, or marketing systems?

Software is very different from books. Software users may develop expectations of infallibility about software; software is less easily inspected than a book, and it is more difficult to compare with other software products for quality; software claims actually to perform a task rather than describe a task, as a book does; and people come to depend on services essentially based on software. Given the centrality of software to everyday life, the chances are excellent that liability law will extend its reach to include software even when the software merely provides an information service.

Telephone systems have not been held liable for the messages transmitted because they are regulated common carriers. In return for their right to provide telephone service, they must provide access to all, at reasonable rates, and achieve acceptable reliability. But broadcasters and cable television stations are subject to a wide variety of federal and local constraints on content and facilities. In the United States, with few exceptions, Web sites are not held liable for content posted on their sites regardless if it was placed their by the Web site owners or users.

SYSTEM QUALITY: DATA QUALITY AND SYSTEM ERRORS

The debate over liability and accountability for unintentional consequences of system use raises a related but independent moral dimension: What is an acceptable, technologically feasible level of system quality? At what point should system managers say, "Stop testing, we've done all we can to perfect this software. Ship it!" Individuals and organizations may be held responsible for avoidable and foreseeable consequences, which they have a duty to perceive and correct. And the gray area is that some system errors are foreseeable and correctable only at very great expense, an expense so great that pursuing this level of perfection is not feasible economically—no one could afford the product.

For example, although software companies try to debug their products before releasing them to the marketplace, they knowingly ship buggy products because the time and cost of fixing all minor errors would prevent these products from ever being released. What if the product was not offered on the marketplace, would social welfare as a whole not advance and perhaps even decline? Carrying this further, just what is the responsibility of a producer of computer services—should it withdraw the product that can never be perfect, warn the user, or forget about the risk (let the buyer beware)?

Three principal sources of poor system performance are (1) software bugs and errors, (2) hardware or facility failures caused by natural or other causes, and (3) poor input data quality. A Chapter 8 Learning Track discusses why zero defects in software code of any complexity cannot be achieved and why the seriousness of remaining bugs cannot be estimated. Hence, there is a technological barrier to perfect software, and users must be aware of the potential for catastrophic failure. The software industry has not yet arrived at testing standards for producing software of acceptable but imperfect performance.

Although software bugs and facility catastrophes are likely to be widely reported in the press, by far the most common source of business system failure is data quality. Few companies routinely measure the quality of their data, but individual organizations report data error rates ranging from 0.5 to 30 percent.

QUALITY OF LIFE: EQUITY, ACCESS, AND BOUNDARIES

The negative social costs of introducing information technologies and systems are beginning to mount along with the power of the technology. Many of these negative social consequences are not violations of individual rights or property crimes. Nevertheless, these negative consequences can be extremely harmful to individuals, societies, and political institutions. Computers and information technologies potentially can destroy valuable elements of our culture and society even while they bring us benefits. If there is a balance of good and bad consequences of using information systems, who do we hold responsible for the bad consequences? Next, we briefly examine some of the negative social consequences of systems, considering individual, social, and political responses.

Balancing Power: Center Versus Periphery

An early fear of the computer age was that huge, centralized mainframe computers would centralize power in the nation's capital, resulting in a Big Brother society, as was suggested in George Orwell's novel *1984*. The shift toward highly decentralized computing, coupled with an ideology of empowerment of thousands of workers, and the decentralization of decision making to

lower organizational levels, have reduced the fears of power centralization in government institutions. Yet much of the empowerment described in popular business magazines is trivial. Lower-level employees may be empowered to make minor decisions, but the key policy decisions may be as centralized as in the past. At the same time, corporate Internet behemoths like Google, Apple, Yahoo, Amazon, and Microsoft have come to dominate the collection and analysis of personal private information of all citizens. In this sense, power has become more centralized into the hands of a few private oligopolies.

Rapidity of Change: Reduced Response Time to Competition

Information systems have helped to create much more efficient national and international markets. Today's more efficient global marketplace has reduced the normal social buffers that permitted businesses many years to adjust to competition. Time-based competition has an ugly side: The business you work for may not have enough time to respond to global competitors and may be wiped out in a year, along with your job. We stand the risk of developing a "just-in-time society" with "just-in-time jobs" and "just-in-time" workplaces, families, and vacations.

Maintaining Boundaries: Family, Work, and Leisure

Parts of this book were produced on trains and planes, as well as on vacations and during what otherwise might have been "family" time. The danger to ubiquitous computing, telecommuting, nomad computing, mobile computing, and the "do anything anywhere" computing environment is that it is actually coming true. The traditional boundaries that separate work from family and just plain leisure have been weakened.

Although authors have traditionally worked just about anywhere (typewriters have been portable for nearly a century), the advent of information systems, coupled with the growth of knowledge-work occupations, means that more and more people are working when traditionally they would have been playing or communicating with family and friends. The work umbrella now extends far beyond the eight-hour day into commuting time, vacation time, and leisure time.

Even leisure time spent on the computer threatens these close social relationships. Extensive Internet use, even for entertainment or recreational purposes, takes people away from their family and friends. Among middle school and teenage children, it can lead to harmful anti-social behavior, such as the recent upsurge in cyberbullying.

Weakening these institutions poses clear-cut risks. Family and friends historically have provided powerful support mechanisms for individuals, and they act as balance points in a society by preserving private life, providing a place for people to collect their thoughts, allowing people to think in ways contrary to their employer, and dream.

Dependence and Vulnerability

Today, our businesses, governments, schools, and private associations, such as churches, are incredibly dependent on information systems and are, therefore, highly vulnerable if these systems fail. Secondary schools, for instance, increasingly use and rely on educational software. Test results are often stored off campus. If these systems were to shut down, there is no backup educational structure or content that can make up for the loss of the system. With systems now as ubiquitous as the telephone system, it is startling to remember that there are no regulatory or standard-setting forces in place that are similar to

telephone, electrical, radio, television, or other public utility technologies. The absence of standards and the criticality of some system applications will probably call forth demands for national standards and perhaps regulatory oversight.

Computer Crime and Abuse

New technologies, including computers, create new opportunities for committing crime by creating new valuable items to steal, new ways to steal them, and new ways to harm others. **Computer crime** is the commission of illegal acts through the use of a computer or against a computer system. Computers or computer systems can be the object of the crime (destroying a company's computer center or a company's computer files), as well as the instrument of a crime (stealing computer lists by illegally gaining access to a computer system using a home computer). Simply accessing a computer system without authorization or with intent to do harm, even by accident, is now a federal crime. How common is computer crime? One source of information is the Internet Crime Complaint Center ("IC3"), a partnership between the National White Collar Crime Center and the Federal Bureau of Investigation. The IC3 data is useful for gauging the types of e-commerce crimes most likely to be reported by consumers. In 2011, the IC3 processed almost 315,000 Internet crime complaints, the second-highest number in its 11-year history. Over half the complainants reported a financial loss, with the total reported amount at almost $500 million. The average amount of loss for those who reported a financial loss was more than $4,100. The most common complaints were for scams involving the FBI, identity theft, and advance fee fraud (National White Collar Crime Center and the Federal Bureau of Investigation, 2012). The Computer Security Institute's annual *Computer Crime and Security Survey* is another source of information. In 2011, the survey was based on the responses of 351 security practitioners in U.S. corporations, government agencies, financial institutions, medical institutions, and universities. The survey reported that 46 percent of responding organizations experienced a computer security incident within the past year. The most common type of attack experienced was a malware infection (67%), followed by phishing fraud (39%), laptop and mobile hardware theft (34%), attacks by botnets (29%), and insider abuse (25%). The true cost of all computer crime is estimated to be in the billions of dollars.

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Although some people enjoy the convenience of working at home, the "do anything anywhere" computing environment can blur the traditional boundaries between work and family time.

INTERACTIVE SESSION: ORGANIZATIONS

MONITORING IN THE WORKPLACE

There may be only 11 players on the pitch during a match, but the Blackburn Rovers Football Club in the UK employs more than 800 people. As with any modern organization, computers are at the heart of running an efficient business. Most of the club's computers are housed with the administration department at the Ewood Park office, but others can be found at the club's training center and soccer academy.

The club decided to install a software product called Spector 360, which it obtained from the Manchester-based company Snapguard. According to Snapguard's sales literature, the product enables company-wide monitoring of employee PC and Internet usage. Previously, the club had tried to introduce an acceptable use policy (AUP), but initial discussions with employees stalled, and the policy was never implemented. Early trials of Spector 360 showed that some employees were abusing the easygoing nature of the workplace to spend most of their day surfing the Web, using social networking sites, and taking up a huge amount of bandwidth for downloads.

Before officially implementing the monitoring software, the AUP was resurrected. It was sent out as an e-mail attachment and added to the staff handbook. The policy was also made part of the terms and conditions of employment. Understandably, some employees were annoyed at the concept of being watched, but the software was installed anyway. According to Ben Hayler, senior systems administrator at Blackburn Rovers, Spector 360 has definitely restored order, increasing productivity and reducing activity on non-business apps.

Reports provided by Spector 360 can show managers the following: excessive use of Facebook, Twitter, and other social networking sites; visits to adult sites or shopping sites; use of chat services; the printing or saving of confidential information; and staff login and logout times. Managers can also use the software to drill-down to look at patterns of usage, generate screen snapshots, or even log individual keystrokes.

The software can also be used to benefit employees. For example, because it can log exactly what an employee is doing, the system can help in staff training and troubleshooting, because it is easy to track exactly what caused a particular problem to occur.

Another important benefit of the software is that it helps the club to stay compliant with the Payment Card Industry (PCI) Data Security Standard. PCI standards require access to credit card information. As Spector 360 tracks and records all data to do with credit card transactions, the information can be easily recovered.

However, what is the wider view of the monitoring of employees in the workplace? According to the Citizens Advice Bureau (a free information and advice service for UK residents), the following are some of the ways that employers monitor their employees in the workplace: recording the workplace on CCTV cameras; opening mail or e-mail; using automated software to check e-mail; checking telephone logs or recording telephone calls; checking logs of Web sites visited; videoing outside the workplace; getting information from credit reference agencies; and collecting information from point-of-sale terminals.

Although this list may look formidable, there is no argument that the employer has a right to ensure that his or her employees are behaving in a manner that is not illegal or harmful to the company. However, under UK data protection law the employer must ensure that the monitoring is justified and take into account any negative effects the monitoring may have on staff. Monitoring for the sake of it is not allowed. Secret monitoring without employees' knowledge is usually illegal.

In a case that went before the European Court of Human Rights in 2007 (Copeland v the United Kingdom), Ms. Copeland, who was an employee of Carmarthenshire College, claimed that her privacy had been violated. She was a personal assistant to the principal and also worked closely with the deputy principal, who instigated monitoring and analysis of her telephone bills, Web sites visited, and e-mail communication. The deputy principal wanted to determine whether Copeland was making excessive use of the college's services. The European Court ruled in her favor, stating that her personal Internet usage was deemed to be under the definitions of the Convention for the Protection of Rights, covered as "private life." Note that although this case came to the court in 2007, the monitoring took place in 1999, prior to the introduction into English and Welsh law of the Regulation of Investigatory Powers Act 2000 and the Telecommunications (Lawful Business Practice) Regulations 2001, which seek to clarify regulations about the interception of communications.

The major fault of Carmarthenshire College was in not having a usage policy in place. Employers and employees should have an agreed-upon policy as part of the contract of employment that clarifies what is and is not acceptable computer usage in the workplace. The employer can then follow normal disciplinary procedures if an employee is using workplace equipment in a manner that is not permitted in the contract of employment.

Whatever the legal situation, it is clear where potential problems can occur in the workplace regarding information technology use. An e-mail, once sent, becomes a legally published document that can be produced as evidence in court cases involving issues of libel, breach of contract, and so on. Most businesses rely on their company data to keep ahead of the competition. Therefore, the loss, theft, or sabotage of data is potentially more dangerous than similar problems with hardware. If a stick is lost in a bar parking lot, replacing the hardware will cost a few dollars, but if it contains the company's confidential data, then its loss could put the company out of business!

Many companies place great focus on employee productivity. It is relatively easy to block access to certain sites (e.g., YouTube, Facebook, etc.), but a blanket blocking of such sites could cause problems if an employee has a legitimate need to access a site. In addition, should sites be blocked during lunch hour? In any case, blocking such sites on the desktop computer is becoming less of a guarantee of increased productivity nowadays (if it ever was), as more and more employees will just use their smartphones to access these sites anyway.

Sources: Information Commissioners Office, "Employment Practices Data Protection Code-Supplementary Guidance" (www.ico.gov.uk/upload/documents/library/data_protection/practical_application/coi_html/english/supplementary_guidance/monitoring_at_work_3.html, accessed October 25, 2010); "Spector 360 Helps Blackburn Rovers Show Red Card to PC and Internet Abuse," Snapguard (www.snapguard.co.uk/blackburn_fc.html, accessed October 25, 2010); "Citizens Advice Bureau Advice Guide, Basic Rights at Work," Adviceguide (www.adviceguide.org.uk/index/your_money/employment/basic_rights_at_work.htm, accessed October 25, 2010); "Employee Monitoring in the Workplace: What Constitutes 'Personal Data'?" Crowell and Moring (www.crowell.com/NewsEvents/ Newsletter.aspx?id=654, accessed October 25, 2010).

Case contribued by Andy Jones, Staffordshire University.

CASE STUDY QUESTIONS

1. Do you consider the approach taken by Blackburn Rovers to be too strict on employees, too lenient, or just right?
2. Consider the five moral dimensions described in the text. Which are involved in the case of Copeland v. the United Kingdom?
3. Consider the following scenario. Your 14-year-old son attends a soccer academy. While there, he downloads unsuitable images, which he later sells to his friends. He would not have been able to download the images at home, because you have installed parental control software. Who is to blame for his indiscretion?
4. Why is the digital divide problem an ethical dilemma?

Computer abuse is the commission of acts involving a computer that may not be illegal but that are considered unethical. The popularity of the Internet and e-mail has turned one form of computer abuse—spamming—into a serious problem for both individuals and businesses. **Spam** is junk e-mail sent by an organization or individual to a mass audience of Internet users who have expressed no interest in the product or service being marketed. Spammers tend to market pornography, fraudulent deals and services, outright scams, and other products not widely approved in most civilized societies. Some countries have passed laws to outlaw spamming or to restrict its use. In the United States, it is still legal if it does not involve fraud and the sender and subject of the e-mail are properly identified.

Spamming has mushroomed because it costs only a few cents to send thousands of messages advertising wares to Internet users. The percentage of all e-mail that is spam is estimated at around 72 percent in 2012 (Symantec, 2012). Most spam originates from bot networks, which consist of thousands of captured PCs that can initiate and relay spam messages. Spam volume has declined somewhat since authorities took down the Rustock botnet in 2011. Spam is seasonally cyclical,

and varies monthly due to the impact of new technologies (both supportive and discouraging of spammers), new prosecutions, and seasonal demand for products and services. Spam costs for businesses are very high (estimated at over $50 billion per year) because of the computing and network resources consumed by billions of unwanted e-mail messages and the time required to deal with them.

Internet service providers and individuals can combat spam by using spam filtering software to block suspicious e-mail before it enters a recipient's e-mail inbox. However, spam filters may block legitimate messages. Spammers know how to skirt around filters by continually changing their e-mail accounts, by incorporating spam messages in images, by embedding spam in e-mail attachments and electronic greeting cards, and by using other people's computers that have been hijacked by botnets (see Chapter 8). Many spam messages are sent from one country while another country hosts the spam Web site.

Spamming is more tightly regulated in Europe than in the United States. On May 30, 2002, the European Parliament passed a ban on unsolicited commercial messaging. Electronic marketing can be targeted only to people who have given prior consent.

The U.S. CAN-SPAM Act of 2003, which went into effect on January 1, 2004, does not outlaw spamming but does ban deceptive e-mail practices by requiring commercial e-mail messages to display accurate subject lines, identify the true senders, and offer recipients an easy way to remove their names from e-mail lists. It also prohibits the use of fake return addresses. A few people have been prosecuted under the law, but it has had a negligible impact on spamming in large part because of the Internet's exceptionally poor security and the use of offshore servers and botnets. In 2008, Robert Soloway, the so-called Seattle "Spam King," was sentenced to 47 months in prison for sending over 90 million spam messages in just three months off two servers. In 2011, the so-called Facebook "Spam King," Sanford Wallace, was indicted for sending over 27 million spam messages to Facebook users. He is facing a 40-year sentence because of prior spamming convictions.

Another negative impact of computer technology is the growing use of information technology to conduct surveillance of employees and ordinary citizens not engaged in any illegal behavior but nevertheless considered worth watching. The Interactive Session on Organizations explores this topic.

Employment: Trickle-Down Technology and Reengineering Job Loss

Reengineering work is typically hailed in the information systems community as a major benefit of new information technology. It is much less frequently noted that redesigning business processes has caused millions of mid-level managers and clerical workers to lose their jobs. One economist has raised the possibility that we will create a society run by a small "high tech elite of corporate professionals . . . in a nation of the permanently unemployed" (Rifkin, 1993). In 2011, some economists have sounded new alarms about information and computer technology threatening middle-class, white-collar jobs (in addition to blue-collar factory jobs). Erik Brynjolfsson and Andrew P. McAfee argue that the pace of automation has picked up in recent years because of a combination of technologies including robotics, numerically controlled machines, computerized inventory control, pattern recognition, voice recognition, and online commerce. One result is that machines can now do a great many jobs heretofore reserved for humans including tech support, call center work, X-ray examiners, and even legal document review (Brynjolfsson and McAfee, 2011).

Other economists are much more sanguine about the potential job losses. They believe relieving bright, educated workers from reengineered jobs will

result in these workers moving to better jobs in fast-growth industries. Missing from this equation are unskilled, blue-collar workers and older, less well-educated middle managers. It is not clear that these groups can be retrained easily for high-quality (high-paying) jobs. Careful planning and sensitivity to employee needs can help companies redesign work to minimize job losses.

Equity and Access: Increasing Racial and Social Class Cleavages

Does everyone have an equal opportunity to participate in the digital age? Will the social, economic, and cultural gaps that exist in the United States and other societies be reduced by information systems technology? Or will the cleavages be increased, permitting the better off to become even more better off relative to others?

These questions have not yet been fully answered because the impact of systems technology on various groups in society has not been thoroughly studied. What is known is that information, knowledge, computers, and access to these resources through educational institutions and public libraries are inequitably distributed along ethnic and social class lines, as are many other information resources. Several studies have found that poor and minority groups in the United States are less likely to have computers or online Internet access even though computer ownership and Internet access have soared in the past five years. Although the gap is narrowing, higher-income families in each ethnic group are still more likely to have home computers and Internet access than lower-income families in the same group.

A similar **digital divide** exists in U.S. schools, with schools in high-poverty areas less likely to have computers, high-quality educational technology programs, or Internet access availability for their students. Left uncorrected, the digital divide could lead to a society of information haves, computer literate and skilled, versus a large group of information have-nots, computer illiterate and unskilled. Public interest groups want to narrow this digital divide by making digital information services—including the Internet—available to virtually everyone, just as basic telephone service is now.

In recent years, ownership of computers and digital devices has broadened, but the digital divide still exists. Today's digital divide is not only based on access to digital technology but also on how that technology is being used.

Health Risks: RSI, CVS, and Technostress

The most common occupational disease today is **repetitive stress injury (RSI)**. RSI occurs when muscle groups are forced through repetitive actions often with high-impact loads (such as tennis) or tens of thousands of repetitions under low-impact loads (such as working at a computer keyboard).

The single largest source of RSI is computer keyboards. The most common kind of computer-related RSI is **carpal tunnel syndrome (CTS)**, in which pressure on the median nerve through the wrist's bony structure, called a carpal tunnel, produces pain. The pressure is caused by constant repetition of keystrokes: in a single shift, a word processor may perform 23,000 keystrokes. Symptoms of carpal tunnel syndrome include numbness, shooting pain, inability to grasp objects, and tingling. Millions of workers have been diagnosed with carpal tunnel syndrome.

RSI is avoidable. Designing workstations for a neutral wrist position (using a wrist rest to support the wrist), proper monitor stands, and footrests all contribute to proper posture and reduced RSI. Ergonomically correct keyboards are also an option. These measures should be supported by frequent rest breaks and rotation of employees to different jobs.

Repetitive stress injury (RSI) is the leading occupational disease today. The single largest cause of RSI is computer keyboard work.

RSI is not the only occupational illness computers cause. Back and neck pain, leg stress, and foot pain also result from poor ergonomic designs of workstations. **Computer vision syndrome (CVS)** refers to any eyestrain condition related to display screen use in desktop computers, laptops, e-readers, smartphones, and handheld video games. CVS affects about 90 percent of people who spend three hours or more per day at a computer (Beck, 2010). Its symptoms, which are usually temporary, include headaches, blurred vision, and dry and irritated eyes.

The newest computer-related malady is **technostress**, which is stress induced by computer use. Its symptoms include aggravation, hostility toward humans, impatience, and fatigue. According to experts, humans working continuously with computers come to expect other humans and human institutions to behave like computers, providing instant responses, attentiveness, and an absence of emotion. Technostress is thought to be related to high levels of job turnover in the computer industry, high levels of early retirement from computer-intense occupations, and elevated levels of drug and alcohol abuse.

The incidence of technostress is not known but is thought to be in the millions and growing in the United States. Computer-related jobs now top the list of stressful occupations based on health statistics in several industrialized countries.

In addition to these maladies, computer technology may be harming our cognitive functions or at least changing how we think and solve problems. Although the Internet has made it much easier for people to access, create, and use information, some experts believe that it is also preventing people from focusing and thinking clearly.

The computer has become a part of our lives—personally as well as socially, culturally, and politically. It is unlikely that the issues and our choices will become easier as information technology continues to transform our world. The growth of the Internet and the information economy suggests that all the ethical and social issues we have described will be heightened further as we move into the first digital century.

Learning Track Module

The following Learning Track provides content relevant to topics covered in this chapter.

1. Developing a Corporate Code of Ethics for Information Systems

Review Summary

1. *What ethical, social, and political issues are raised by information systems?*

   Information technology is introducing changes for which laws and rules of acceptable conduct have not yet been developed. Increasing computing power, storage, and networking capabilities—including the Internet—expand the reach of individual and organizational actions and magnify their impacts. The ease and anonymity with which information is now communicated, copied, and manipulated in online environments pose new challenges to the protection of privacy and intellectual property. The main ethical, social, and political issues raised by information systems center around information rights and obligations, property rights and obligations, accountability and control, system quality, and quality of life.

2. *What specific principles for conduct can be used to guide ethical decisions?*

   Six ethical principles for judging conduct include the Golden Rule, Immanuel Kant's Categorical Imperative, Descartes' rule of change, the Utilitarian Principle, the Risk Aversion Principle, and the ethical "no free lunch" rule. These principles should be used in conjunction with an ethical analysis.

3. *Why do contemporary information systems technology and the Internet pose challenges to the protection of individual privacy and intellectual property?*

   Contemporary data storage and data analysis technology enables companies to easily gather personal data about individuals from many different sources and analyze these data to create detailed electronic profiles about individuals and their behaviors. Data flowing over the Internet can be monitored at many points. Cookies and other Web monitoring tools closely track the activities of Web site visitors. Not all Web sites have strong privacy protection policies, and they do not always allow for informed consent regarding the use of personal information. Traditional copyright laws are insufficient to protect against software piracy because digital material can be copied so easily and transmitted to many different locations simultaneously over the Internet.

4. *How have information systems affected everyday life?*

   Although computer systems have been sources of efficiency and wealth, they have some negative impacts. Computer errors can cause serious harm to individuals and organizations. Poor data quality is also responsible for disruptions and losses for businesses. Jobs can be lost when computers replace workers or tasks become unnecessary in reengineered business processes. The ability to own and use a computer may be exacerbating socioeconomic disparities among different racial groups and social classes. Widespread use of computers increases opportunities for computer crime and computer abuse. Computers can also create health problems, such as RSI, computer vision syndrome, and technostress.

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Review Questions

1. What ethical, social, and political issues are raised by information systems?
   - Explain how ethical, social, and political issues are connected and give some examples.
   - List and describe the key technological trends that heighten ethical concerns.
   - Differentiate between responsibility, accountability, and liability.
2. What specific principles for conduct can be used to guide ethical decisions?
   - List and describe the five steps in an ethical analysis.
   - Identify and describe six ethical principles.
3. Why do contemporary information systems technology and the Internet pose challenges to the protection of individual privacy and intellectual property?
   - Define privacy and fair information practices.
   - Explain how the Internet challenges the protection of individual privacy and intellectual property.
   - Explain how informed consent, legislation, industry self-regulation, and technology tools help protect the individual privacy of Internet users.
   - List and define the three different regimes that protect intellectual property rights.
4. How have information systems affected everyday life?
   - Explain why it is so difficult to hold software services liable for failure or injury.
   - List and describe the principal causes of system quality problems.
   - Name and describe four quality-of-life impacts of computers and information systems.
   - Define and describe technostress and RSI and explain their relationship to information technology.

Discussion Questions

1. Should producers of software-based services, such as ATMs, be held liable for economic injuries suffered when their systems fail?
2. Should companies be responsible for unemployment caused by their information systems? Why or why not?
3. Discuss the pros and cons of allowing companies to amass personal data for behavioral targeting.

Hands-On MIS Projects

The projects in this section give you hands-on experience in analyzing the privacy implications of using online data brokers, developing a corporate policy for employee Web usage, using blog creation tools to create a simple blog, and using Internet newsgroups for market research.

Management Decision Problems

1. USAData's Web site is linked to massive databases that consolidate personal data on millions of people. Anyone with a credit card can purchase marketing lists of consumers broken down by location, age, income level, and interests. If you click on Consumer Lists to order a consumer mailing list, you can find the names, addresses, and sometimes phone numbers of potential sales leads residing in a specific location and purchase the list of those names. One could use this capability to obtain a list, for example, of everyone in Peekskill, New York, making $150,000 or more per year. Do data brokers such as USAData raise privacy issues? Why or why not? If your name and other personal information were in this database, what limitations on access would you want in order to preserve your privacy? Consider the following data users: government agencies, your employer, private business firms, other individuals.

2. As the head of a small insurance company with six employees, you are concerned about how effectively your company is using its networking and human resources. Budgets are tight, and you are struggling to meet payrolls because employees are reporting many overtime hours. You do not believe that the employees have a sufficiently heavy work load to warrant working longer hours and are looking into the amount of time they spend on the Internet.

Each employee uses a computer with Internet access on the job. Review a sample of your company's weekly report of employee Web usage, which can be found in MyMISLab.

- Calculate the total amount of time each employee spent on the Web for the week and the total amount of time that company computers were used for this purpose. Rank the employees in the order of the amount of time each spent online.
- Do your findings and the contents of the report indicate any ethical problems employees are creating? Is the company creating an ethical problem by monitoring its employees' use of the Internet?
- Use the guidelines for ethical analysis presented in this chapter to develop a solution to the problems you have identified.

Achieving Operational Excellence: Creating a Simple Blog

Software skills: Blog creation
Business skills: Blog and Web page design

In this project, you'll learn how to build a simple blog of your own design using the online blog creation software available at Blogger.com. Pick a sport, hobby, or topic of interest as the theme for your blog. Name the blog, give it a title, and choose a template for the blog. Post at least four entries to the blog, adding a label for each posting. Edit your posts, if necessary. Upload an image, such as a photo from your hard drive or the Web to your blog. Add capabilities for other registered users, such as team members, to comment on your blog. Briefly describe how your blog could be useful to a company selling products or services related to the theme of your blog. List the tools available to Blogger that would make your blog more useful for business and describe the business uses of each. Save your blog and show it to your instructor.

Improving Decision Making: Using Internet Newsgroups for Online Market Research

Software Skills: Web browser software and Internet newsgroups
Business Skills: Using Internet newsgroups to identify potential customers

This project will help develop your Internet skills in using newsgroups for marketing. It will also ask you to think about the ethical implications of using information in online discussion groups for business purposes.

You are producing hiking boots that you sell through a few stores at this time. You would like to use Internet discussion groups interested in hiking, climbing, and camping both to sell your boots and to make them well known. Visit groups.google.com, which stores discussion postings from many thousands of newsgroups. Through this site you can locate all relevant newsgroups and search them by keyword, author's name, forum, date, and subject. Choose a message and examine it carefully, noting all the information you can obtain, including information about the author.

- How could you use these newsgroups to market your boots?
- What ethical principles might you be violating if you use these messages to sell your boots? Do you think there are ethical problems in using newsgroups this way? Explain your answer.
- Next use Google or Yahoo to search the hiking boots industry and locate sites that will help you develop other new ideas for contacting potential customers.
- Given what you have learned in this and previous chapters, prepare a plan to use newsgroups and other alternative methods to begin attracting visitors to your site.

Video Cases

Video Cases and Instructional Videos illustrating some of the concepts in this chapter are available. Contact your instructor to access these videos.

Collaboration and Teamwork Project

In MyMISLab, you will find a Collaboration and Teamwork Project dealing with the concepts in this chapter. You will be able to use Google Sites, Google Docs, and other open source collaboration tools to complete the assignment.

Facebook: It's About the Money
CASE STUDY

Over the course of less than a decade, Facebook has morphed from a small, niche networking site for mostly Ivy League college students into a publicly traded company estimated to be worth at least $50 billion. Facebook boasts that it is free to join and always will be, so where's the money coming from to service 1 billion subscribers? Just like its fellow tech titan and rival Google, Facebook's revenue comes almost entirely from advertising. Facebook does not have a diverse array of hot new gadgets, a countrywide network of brick-and-mortar retail outlets, or a full inventory of software for sale; instead, it has your personal information, and the information of hundreds of millions of others with Facebook accounts.

Advertisers have long understood the value of Facebook's unprecedented trove of personal information. They can serve ads using highly specific details, like relationship status, location, employment status, favorite books, movies, or TV shows, and a host of other categories. For example, an Atlanta woman who posts that she has become engaged might be offered an ad for a wedding photographer on her Facebook page. When advertisements are served to finely targeted subsets of users, the response is much more successful than traditional types of advertising. A growing number of companies both big and small have taken notice: in 2011, Facebook made $3.2 billion in advertising revenue, which constituted 85 percent of its total revenue. The rest comes from the sale of virtual goods and services, principally Zynga games.

That was good news for Facebook, which launched its IPO (initial public stock offering) in May 2012 and is expected to continue to increase its revenue in coming years. But is it good news for you, the Facebook user? More than ever, companies like Facebook and Google, which made approximately $36.5 billion in advertising revenue in 2011, are using your online activity to develop a frighteningly accurate picture of your life. Facebook's goal is to serve advertisements that are more relevant to you than anywhere else on the Web, but the personal information they gather about you both with and without your consent can also be used against you in other ways.

Facebook has a diverse array of compelling and useful features. Facebook's partnership with the Department of Labor helps to connect job seekers and employers; Facebook has helped families find lost pets after natural disasters, such as when tornadoes hit the Midwest in 2012; Facebook allows active-duty soldiers to stay in touch with their families; it gives smaller companies a chance to further their e-commerce efforts and larger companies a chance to solidify their brands; and, perhaps most obviously, Facebook allows you to more easily keep in touch with your friends. These are the reasons why so many people are on Facebook.

However, Facebook's goal is to get its users to share as much data as possible, because the more Facebook knows about you, the more accurately it can serve relevant advertisements to you. Facebook CEO Mark Zuckerberg often says that people want the world to be more open and connected. It's unclear whether that is truly the case, but it is certainly true that Facebook wants the world to be more open and connected, because it stands to make more money in that world. Critics of Facebook are concerned that the existence of a repository of personal data of the size that Facebook has amassed requires protections and privacy controls that extend far beyond those that Facebook currently offers.

Facebook wanting to make more money is not a bad thing, but the company has a checkered past of privacy violations and missteps that raise doubts about whether it should be responsible for the personal data of hundreds of millions of people. There are no laws in the United States that give consumers the right to know what data companies like Facebook have compiled. You can challenge information in credit reports, but you can't even see what data Facebook has gathered about you, let alone try to change it. It's different in Europe: you can request Facebook to turn over a report of all the information it has about you. More than ever, your every move, every click, on social networks is being used by outside entities to assess your interests, and behavior, and then pitch you an ad based on this knowledge. Law enforcement agencies use social networks to gather evidence on tax evaders, and other criminals; employers use social networks to make decisions about prospective candidates for jobs; and data aggregators are gathering as much information about you as they can sell to the highest bidder.

In a recent study, *Consumer Reports* found that of 150 million Americans on Facebook, at least 4.8

million are willingly sharing information that could be used against them in some way. That includes plans to travel on a particular day, which burglars could use to time robberies, or Liking a page about a particular health condition or treatment, which insurers could use to deny coverage. 13 million users have never adjusted Facebook's privacy controls, which allow friends using Facebook applications to unwittingly transfer your data to a third party without your knowledge. Credit card companies and other similar organizations have begun engaging in "weblining", taken from the phrase redlining, by altering their treatment of you based on the actions of other people with profiles similar to yours.

Ninety-three percent of people polled believe that Internet companies should be forced to ask for permission before using your personal information, and 72 percent want the ability to opt out of online tracking. Why, then, do so many people share sensitive details of their life on Facebook? Often it's because users do not realize that their data are being collected and transmitted in this way. A Facebook user's friends are not notified if information about them is collected by that user's applications. Many of Facebook's features and services are enabled by default when they are launched without notifying users. And a study by Siegel + Gale found that Facebook's privacy policy is more difficult to comprehend than government notices or typical bank credit card agreements, which are notoriously dense. Next time you visit Facebook, click on Privacy Settings, and see if you can understand your options.

Facebook's value and growth potential is determined by how effectively it can leverage the personal data is aggregated about its users to attract advertisers. Facebook also stands to gain from managing and avoiding the privacy concerns raised by its users and government regulators. For Facebook users that value the privacy of their personal data, this situation appears grim. But there are some signs that Facebook might become more responsible with its data collection processes, whether by its own volition or because it is forced to do so. As a publicly traded company, Facebook now invites more scrutiny from investors and regulators because, unlike in the past, their balance sheets, assets, and financial reporting documents are readily available.

In August 2012, Facebook settled a lawsuit with the FTC in which they were barred from misrepresenting the privacy or security of users' personal information. Facebook was charged with deceiving its users by telling them they could keep their information on Facebook private, but then repeatedly allowing it to be shared and made public. Facebook agreed to obtain user consent before making any change to that user's privacy preferences, and to submit to bi-annual privacy audits by an independent firm for the next 20 years. Privacy advocate groups like the Electronic Privacy Information Center (EPIC) want Facebook to restore its more robust privacy settings from 2009, as well as to offer complete access to all data it keeps about its users. Facebook has also come under fire from EPIC for collecting information about users who are not even logged into Facebook or may not even have accounts on Facebook. Facebook keeps track of activity on other sites that have Like buttons or "recommendations" widgets, and records the time of your visit and your IP address when you visit a site with those features, regardless of whether or not you click on them.

While U.S. Facebook users have little recourse to access data that Facebook has collected on them, users from other countries have made inroads in this regard. An Austrian law student was able to get a full copy of his personal information from Facebook's Dublin office, due to the more stringent consumer privacy protections in Ireland. The full document was 1,222 pages long and covered three years of activity on the site, including deleted Wall posts and messages with sensitive personal information and deleted e-mail addresses.

It isn't just text-based data that Facebook is stockpiling, either. Facebook is also compiling a biometric database of unprecedented size. The company stores more than 60 billion photos on its servers and that number grows by 250 million each day. A recent feature launched by Facebook called Tag Suggest scans photographs using facial recognition technology. When Tag Suggest was launched, it was enabled for many users without opting in. This database has value to law enforcement and other organizations looking to compile profiles of users for use in advertising. EPIC also has demanded that Facebook stop creating facial recognition profiles without user consent.

In 2012, as part of the settlement of another class-action lawsuit, Facebook agreed to allow users to opt in to its Sponsored Stories service, which serves advertisements that highlight products and businesses that your Facebook friends are using. Now, users can control and see which of their actions on Facebook generate advertisements that their friends will see. Sponsored Stories are one of the most effective forms of advertising on Facebook because they don't seem like advertisements at all to most users. Facebook had previously argued that

users were giving "implied consent" every time they clicked a Like button on a page. Users are now confronted with an opt-in notice that analysts speculate may cost Facebook up to $103 million in advertising revenue.

Additionally, in response to the increased scrutiny brought about by its IPO, Facebook has improved its archive feature to include more categories of information that the company makes available to users that request copies of their personal data. In Europe, 40,000 Facebook users have already requested their data, and European law requires that Facebook respond to these requests within 40 days. Still, even after Facebook's improvements, they will offer users access to 39 data categories, while the company supposedly maintains at least 84 categories about each user. And, despite the increased emphasis on privacy and data disclosure, European lawmakers are unlikely to hamper Facebook's ability to offer highly customized advertisements, which is the backbone of Facebook's business model.

Perhaps sensing that privacy concerns represent a long-term threat to its profitability, Facebook is working to develop revenue streams beyond display advertising. Facebook is now a strong second to Google in the United States in display advertising, with 28 percent of all display ads served on Facebook, but the company hopes to become more of an online marketplace, facilitating the selling of goods and services, potentially challenging Amazon and eBay. Still, it's likely that the personal data of hundreds of millions of users will always be Facebook's most valuable asset. How responsibly it manages that asset will guide its path into the future.

Sources: "Selling You on Facebook," Julia Angwin and Jeremy Singer-Vine, *The Wall Street Journal*, April 7, 2012; Consumer Reports, "Facebook and Your Privacy," May 3, 2012; "Facebook Is Using You," Lori Andrews, *The New York Times*, Feb. 4, 2012; "Personal Data's Value? Facebook Set to Find Out," Somini Sengupta and Evelyn M. Rusli, *The New York Times*, Jan. 31, 2012; "Facebook, Eye on Privacy Laws, Offers More Disclosure to Users," Kevin J O'Brien, *The New York Times*, April 13, 2012; "To Settle Lawsuit, Facebook Alters Policy for Its 'Like' Button," Somini Sengupta, *The New York Times*, June 21, 2012.

CASE STUDY QUESTIONS

1. Perform an ethical analysis of Facebook. What is the ethical dilemma presented by this case?
2. What is the relationship of privacy to Facebook's business model?
3. Describe the weaknesses of Facebook's privacy policies and features. What management, organization, and technology factors have contributed to those weaknesss?
4. Will Facebook be able to have a successful business model without invading privacy? Explain your answer. Are there any measures Facebook could take to make this possible?