



Unit-7

Ethical & Social Issues in the digital firm

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UNDERSTANDING ETHICAL AND SOCIAL ISSUES RELATED TO SYSTEMS

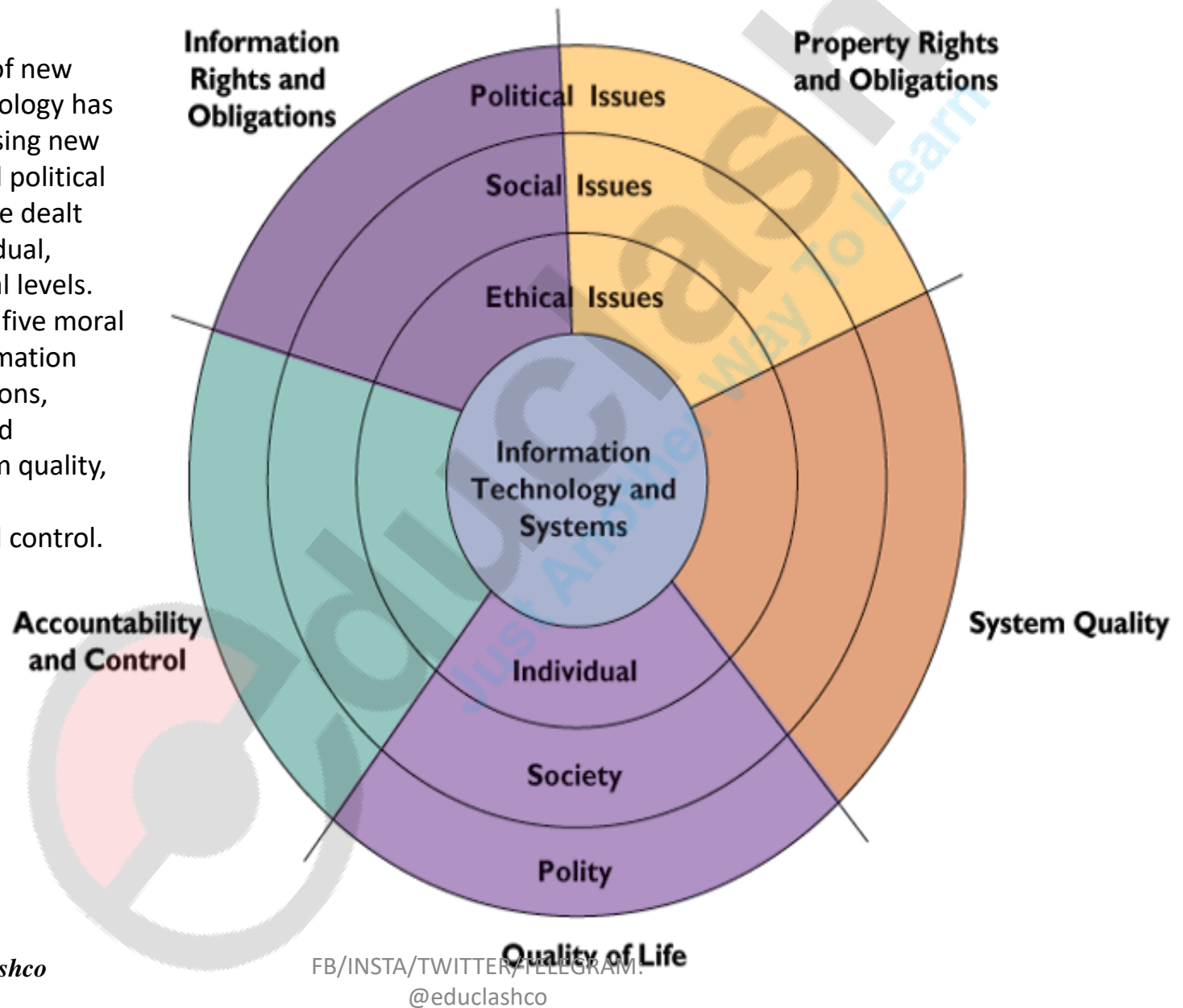
- Recent cases of failed ethical judgment in business
- Lehman Brothers, Minerals Management Service, Pfizer
- In many, information systems used to bury(secret) decisions from public scrutiny(analysis)
- Ethics :Principles of right and wrong that individuals, acting as free moral agents, use to make choices to guide their behaviors
- IT and information systems raise new ethical questions for both individuals and societies as they create opportunities for intense social change and thus threaten existing distributions of power, money, rights and obligations.
- IT can be used to achieve social progress, but can also be used to commit crimes.

A model for thinking about Ethical, social and Political issues

- Ethical , social and political issues are closely linked.
- Imagine society as a calm pond
- IT as rock dropped in pond, creating ripples of new situations not covered by old rules
- Social and political institutions cannot respond overnight to these ripples—it may take years to develop etiquette, expectations, social responsibility, “politically correct” attitudes or approval rules.
- Political institutions also require time before developing new laws .

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.



Five moral dimensions of the information age

1. Information rights and obligations
2. Property rights and obligations
3. Accountability and control
4. System quality
5. Quality of life

- **Information rights and obligations.** What information rights do individuals and organizations possess with respect to information about themselves? What can they protect? What obligations do individuals and organizations have concerning this information?
- **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?

Key technology trends that raise ethical issues

- IT has heightened ethical concerns, put stress on existing social arrangements and made existing laws obsolete.
- Following trends are responsible for these ethical stresses:
 1. Doubling of computer power
 2. Rapidly declining data storage costs
 3. Networking advances and the Internet
 4. Advances in data analysis techniques

- Doubling of computer power
 - Doubling of computer power every 4 months has made it possible for most organizations to use info 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.
- Rapidly declining data storage costs
 - Advances in data storage have made the routine violation of individual privacy both cheap & effective.

- Networking advances and the Internet
 - Copying data from one location to another and accessing personal data from remote locations are much easier.
- Networking advances and the Internet
 - Advances in data analysis techniques for large pools of data are a third technological trend that heightens ethical concerns, because they enable companies to find out much detailed personal info about individuals.
 - Companies can analyze vast quantities of data gathered on individuals to develop detailed profiles of individual behavior.

NORA

- A new data analysis technology called non obvious relationship awareness (NORA) has given both 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

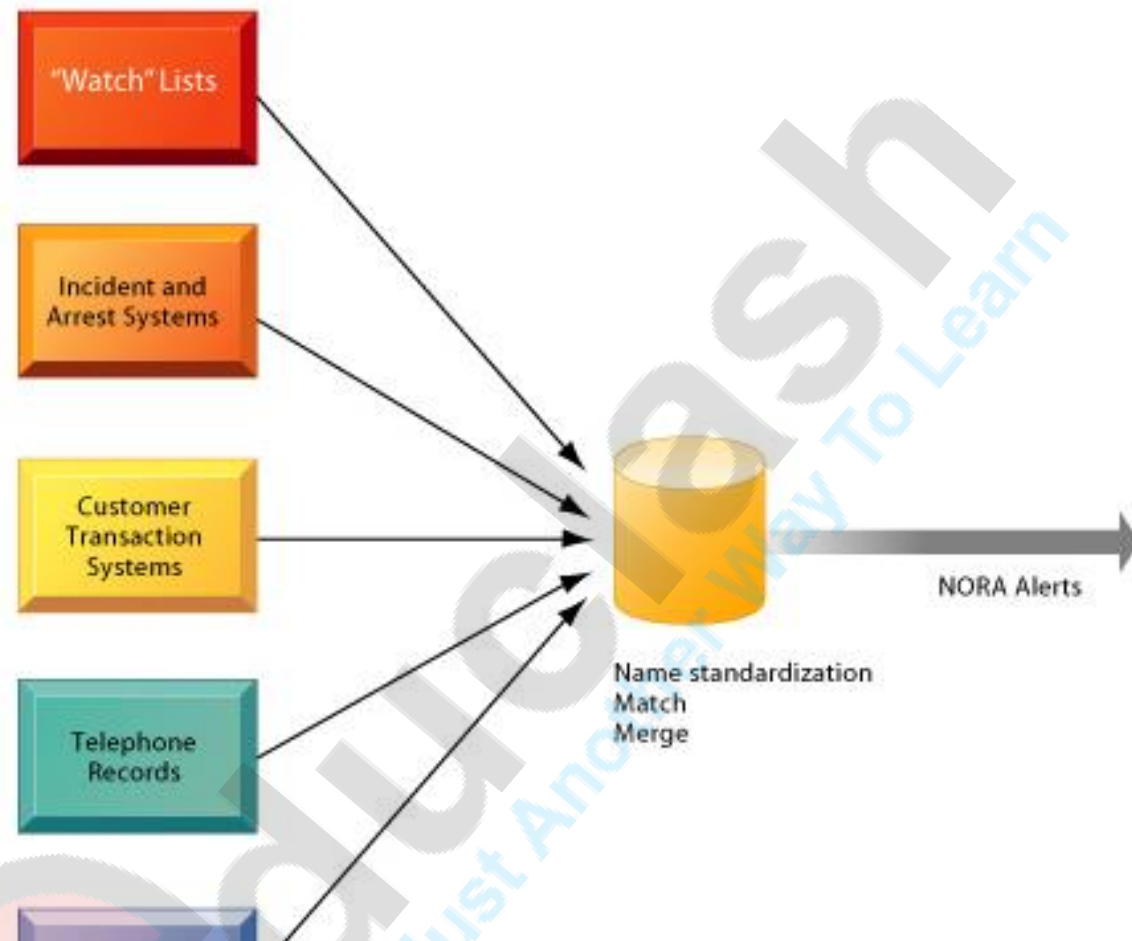


FIGURE Nonobvious Relationship Awareness (NORA)

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.

- 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

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

- 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, 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 info systems .
- Firstly, Whatever information system impacts exist are products of institutional, organizational and individual actions and behaviors.
- Second, Using IT 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.

MIS in action: Manager's Tool kit

Ethical analysis

- A five-step process
 1. Identify and clearly describe the facts
 - I. Find out who did what to whom, where , when and how.
 - II. Simply getting straight helps define the solution.
 2. Define the conflict or dilemma and identify the higher-order values involved
 - I. Ethical, social and political issues always reference higher values.
 - II. The parties to a dispute all claim higher values(eg. Freedom, privacy, protection of property).
 - III. Typically, an ethical issue involves a dilemma: two diametrically opposed courses of action that support worthwhile values.
 3. Identify the stakeholders
 - I. Players in the game who have interest in the outcome, who have invested in the situation, and usually who have vocal opinion.

4. Identify the options that you can reasonably take
 - I. Some options do a better job than others.
 - II. 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
 - I. Some options may be ethically correct, but disastrous from other points of view.

Six Candidate Ethical Principles

1. Golden Rule

- Do unto others as you would have them do unto you.
- 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. Immanuel Kant's Categorical Imperative

- If an action is not right for everyone to take, it is not right for anyone
“If everyone did this, could the organization, or society, survive?”

3. Descartes' Rule of Change

- If an action cannot be taken repeatedly, it is not right to take at all
- This is the slippery-slope rule: An action may bring about a small change now that is acceptable, but if repeated 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. Utilitarian Principle

- Take the action that achieves the higher or greater value
- This rule assumes you can prioritize values in a rank order and understand the consequences of various courses of action.

5. Risk Aversion Principle

- Take the action that produces the least harm or least potential cost

6. Ethical “no free lunch” Rule

- Assume that all tangible and intangible objects are owned by someone else, unless shown the contrary. If someone has created something of value to you, that person probably wants compensation for your use

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 code of conduct are Promulgated by associations such as the American Medical Association (AMA), and the American Bar Association (ABA), The Association of IT Professionals(AITP) and the Association of 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.

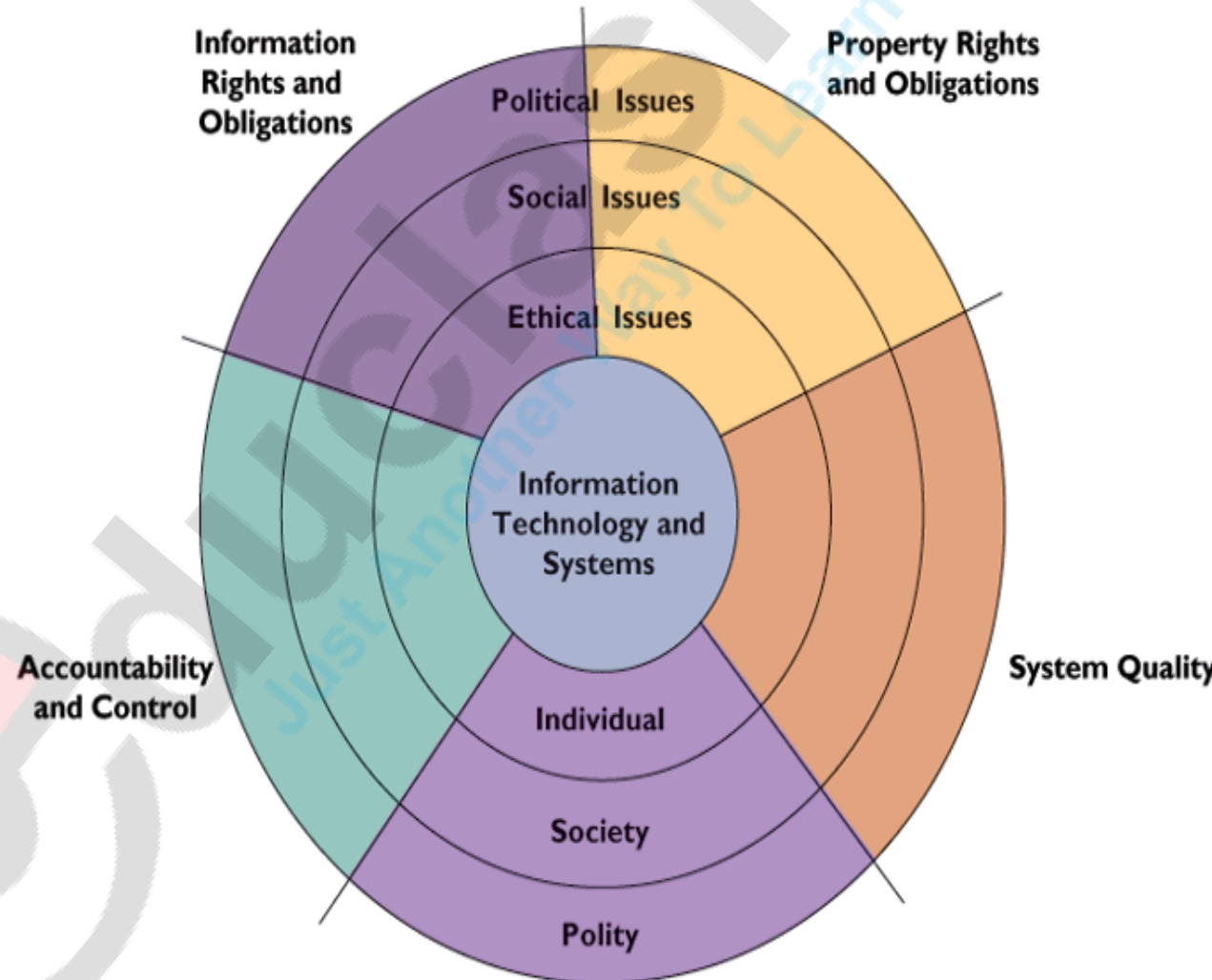
Some Real-World IT Ethical Dilemmas

- Information systems have created new ethical dilemmas in which one set of interests is pitted against another. Eg .
 - Many of the large telephone companies in the US are using IT 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.
- Using systems to increase efficiency, and causing layoffs and personal hardships
- Using systems to monitor employee e-mail to protect valuable assets, but decreasing employee privacy
- Monitoring employee use of the Internet at work, to prevent them from wasting company resources on nonbusiness activities thus decreasing employee privacy.
- Xerox corp. fired 40 workers in 1999 for spending too much of their work surfing the web.

- In each instance you can find competing values at work, with groups lined on either side of a debate. For eg.
 - A company may argue, that it has a right to use info systems to increase productivity and reduce the size of its workforce to lower costs and stay in business.
 - Employees displaced by info systems may argue that employers have some responsibility for their welfare.

THE MORAL DIMENSIONS OF INFORMATION SYSTEMS

- we take a closer look at the five moral dimensions of information systems first described in Figure .
- 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.



1. Information Rights: Privacy and Freedom in the Internet Age

- **Privacy:** Claim of individuals to be left alone, free from surveillance or interference from other individuals, organizations, or the state. The claim to be able to control information about yourself
- **Fair information practices:** Set of principles governing the collection and use of information on the basis of U.S. and European privacy laws

U.S. Federal Privacy Laws

- **General federal privacy laws:**
 - Freedom of Information Act, 1966 Privacy Act of 1974
 - Electronic Communications Privacy Act of 1986
 - Computer Matching and Privacy Protection Act of 1988
 - Computer Security Act of 1987
 - Federal Managers Financial Integrity Act of 1982

The Fair Information Practices (FIP) Doctrine

- Developed in the early 1970s, FIP is the predominant U.S. doctrine
- Is a set of principles governing the collection and use of info about individuals .
- FIP principles are based on the notion of a “mutuality of interest” between the record holder and the individual.
- Federal trade commission fair information practice principles are:
 - Notice/awareness (core principle)
 - Choice/consent (core principle)
 - Access/participation
 - Security
 - Enforcement

1. Notice/awareness (core principle)

- Web sites must disclose practices before collecting data.

2. Choice/consent (core principle)

- Consumers must be able to choose how information is used for secondary purposes.

3. Access/participation

- Consumers must be able to review and contest accuracy of personal data.

4. Security

- Data collectors must take steps to ensure accuracy, security of personal data.

5. Enforcement

- Must be mechanism to enforce FIP principles.

The European Directive on Data Protection

Informed consent:

- All uses of personal private information (PII) require the informed consent of data subjects, and require the data gatherer to provide the data subject with all facts needed to make a rational decision.
- The directive requires companies to inform people when they collect info about them and disclose how it will be stored and used.
- EU member nations must translate these principles into their own laws and cannot transfer personal data to countries such as US that don't have similar privacy protection regulations.

Internet Challenges to Privacy

- Info sent over vast networks may pass through many different computer systems before it reaches its final destination.
- Each of these system is capable of monitoring, capturing and storing communications that pass through it.
- Much of the monitoring and tracking of web site visitors occur in the background without visitor's knowledge.

Internet Challenges to Privacy

- Cookies
 - Identify browser and track visits to site
 - Super cookies (Flash cookies)
- Web beacons (Web bugs)
 - Tiny graphics embedded in e-mails and Web pages
 - Monitor who is reading e-mail message or visiting site
- Spyware
 - Surreptitiously installed on user's computer
 - May transmit user's keystrokes or display unwanted ads
- Google services and behavioral targeting

Cookies:

- Tiny files deposited on a hard drive
- Used to identify the visitor and track visits to the Website
- May or may not be used to gather personal private information
- In some cases, only a visitors customer number is maintained, not any personal information. In other cases, personal information can be gathered

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.

Web bugs

- Tiny graphic files embedded in e-mail messages and Web pages. When the user views the e-mail, or views the page, a message is sent to the server, or to a third-party server without the knowledge of the user.
- Designed to monitor online Internet user behavior. In the case of e-mail, the e-mail address is known to the server.

Spyware

- Software downloaded onto a user's computer—usually without knowledge—that tracks Web behavior and reports that behavior to a third-party server
- Spyware is also used to call for ads from third party servers, or to divert customers from one site to a preferred site.
- For example, you enter www.LLBean.com and the spyware program takes you to www.eddiebauer.com and displays a discount coupon for Eddie Bauer.

Google service

- Google has been using tools to scan 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. Google's service offers users 1 gigabyte of storage space—far more than any of its competitors—but privacy advocates find the practice offensive

Two Models of Providing Web Privacy

(1) U.S. Opt-out model:

- Informed consent means permitting sites to collect personal information unless the user explicitly chooses to opt out by unclicking a box or taking some action. The default is to assume consent is given.

(2) European Opt-in model:

- Informed consent means prohibiting an organization from collecting any personal information unless the users specifically requests to allow such use by clicking a box. The default is to assume consent is not given.
- What do you think works best to protect the privacy of individuals?

Technical Solutions

- New technologies are available to 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.
- **P3P(Platform for Privacy Preferences Project):**
 - Industry standard designed to give users more control over personal information



1. The user with P3P Web browsing software requests a Web page.
2. The Web server returns the Web page along with a compact version of the Web site's policy and a pointer to the full P3P policy. If the Web site is not P3P compliant, no P3P data are returned.
3. The user's Web browsing software compares the response from the Web site with the user's privacy preferences. If the Web site does not have a P3P policy or the policy does not match the privacy levels established by the user, it warns the user or rejects the cookies from the Web site. Otherwise, the Web page loads normally.

FIGURE The P3P standard

P3P enables Web sites to translate their privacy policies into a standard format that can be read by the user's Web browser software. The user's Web browser software evaluates the Web site's privacy policy to determine whether it is compatible with the user's privacy preferences.

- Ethical Issues:
 - Under what conditions should I(you) invade privacy of others.
- Social Issues:
 - The social issue of privacy concerns the development of “expectations of privacy” or privacy norms, as well as public attitudes.
- Political issues:
 - The political issue of privacy concerns the development of statutes that govern the relations between record keepers and individuals.

2. Property Rights: Intellectual Property

- Intellectual property: Intangible property of any kind created by individuals or corporations
- Three main ways that intellectual property is protected:
 - Trade secret: Intellectual work or product belonging to business- a formula, device, pattern or compilation of data, provided it is not based on info in the public domain.
 - s/ws that contains novel elements, procedures or compilations.
 - Trade secret law protects the actual ideas in a work product.

– Copyright:

- Statutory grant protecting intellectual property from being copied for the life of the author, plus 70 years.
- Copyright protection has been extended to books, periodicals, lectures, dramas, musical compositions, maps, drawings, artwork of any kind, and motion pictures.

– Patents:

- A grant to the creator of an invention granting the owner an exclusive monopoly on the ideas behind an invention for 20 years
- The key concept in patent law are originality, novelty and invention.
- The strength of patent protection is that it grants a monopoly on the underlying concepts and ideas of s/w.

Challenges to Intellectual Property Rights

- s/w pose a severe challenge 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 replications;
 - ease of transmission
 - Ease of alteration
 - Difficulty classifying a s/w work as a program, book or even music
 - Compactness- making theft easy
 - Difficulties in establishing uniqueness.
- Internet along with WWW has made difficult to protect intellectual property.
- With WWW, one can easily copy and distribute virtually anything to thousands and even millions of people around the world.
- The manner in which info is obtained and presented on the web further challenges intellectual property protection.
- Web pages can be constructed from bits of texts, graphics, sound, or video that may come from different sources.
- Each item may belong to a different entity, creating complicated issues of ownership and compensation.

LOGO
artist, design firm,
or Web site publisher

TEXTUAL CONTENT
writer or newspaper
publisher

ARTICLE EXCERPT
writer or newspaper
publisher

BUSINESS
stock exchanges,
wire service, or
database publisher

PHOTOGRAPH
freelance photographer,
wire service, photo
agency, photo library,
or newspaper
publisher

COLUMN
writer, syndication
service, or newspaper
publisher



- Example: Publishers sued Xerox corporation because users copied books and magazines. The publishers lost.
- Example: The Motion Picture Industry Association sued Sony because users of its VCRs make illegal copies of Hollywood movies. MPIA lost.
- Question: what is an ethical solution to this dilemma?.

- Ethical issues:
 - The central ethical issue concerns the protection of intellectual property such as s/w digital books , digital music or digitized video
 - Should I(you) copy for my own use a piece of s/w or other digital content protected by trade secret, copyright and/or patent law.

- Social issues:
 - The ease with s/w and digital content can be copied contributes to making us a society of lawbreakers.
- Political issues:
 - The main property related political issue concerns the creation of new property protection measures to protect investments made by creators of new s/w.

3.IT: Accountability, Liability, and Control

- IT can challenge our ability to identify who is responsible for actions involving systems that injure people.
- If a person is injured by as/w, who should be held responsible and liable.
- Should a public bulletin board or an electronic service permit the transmission of offensive material.
- IT can make it difficult to assign liability and restore injured persons.
- IT raises issues about who should control information systems that have the potential for injuring citizens.

- Example: ChoicePoint.com is a leading provider of decision-making information to businesses and government agencies that helps reduce fraud and mitigate risk. It lost to criminal business firms 130,000 personal records of California residents in February 2005. This loss may result in the victims losing credit, being denied an apartment, losing employment, or experiencing an identity theft.
- What are the issues of accountability, liability, and control in this case?

- Ethical issues:
 - The central liability- related ethical issue raised by new info technologies is whether individuals and organizations that create, produce and sell systems are morally responsible for the consequence of their use.
- Social issues:
 - The central liability-related social issue concerns the expectations that society should allow to develop around service providing info systems.
- Political issues:
 - The leading liability-related political issue is the debate between info providers of all kinds.

4. Ethics and System Quality: Data Quality and System Errors

- No software program is perfect, errors will be made, even if the errors have a low probability of occurring.
- Errors in Windows operating systems were notorious.
- Three principal sources of poor system performance are s/w bugs and errors, h/w or facility failure and poor i/p data quality.
- At what point should software “be shipped?” What kind of disclaimer statements might be appropriate?
- No database is without errors. In fact, most consumer and government personal information databases have errors ranging from 10-20% of the data records being either inaccurate, incomplete, or ambiguous.
- How should decision makers treat this kind of information in order to be fair to data subjects?

- Ethical issues:
 - At what point should I (you) release s/w or services for consumption by others.
 - To conclude the s/w to be of adequate quality.
- Social issues:
 - As a society do we want to encourage people to believe that systems are infallible, that data errors are impossible?
- Political issues:
 - It concerns the laws of responsibility and accountability.

IT and Quality of Life Issues: Equity, Access, and Boundaries

- **Balancing Power: Center Versus Periphery:** Is IT centralizing decision-making power in the hands of a few, or is it allowing many more people to participate in decisions that affect their lives?
- **Rapidity of change: Reduced response time to competition:** The business you work for may not be able to respond to rapidly changing IT-enabled market places. There goes your job offshore!
- 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:** “Do anything anywhere” environment blurs the boundaries between work, vacation, and family time
- **Dependence and vulnerability:** There are few regulatory standards to protect us from the failure of complex electrical, communications, and computer networks upon which we all depend

- **Computer crime:** Commission of illegal acts through the use of a computer or against a computer system is on the increase. Spam is now illegal (a federal and state felony offense), and phishing to defraud people is also a felony. But 70% of e-mail is now spam, and phishing crimes are the fastest growing Internet fraud.
- **Computer abuse:** Unethical but not necessarily illegal acts. Adware programs that alter a person's browser are not illegal but most of us would not want this to happen (without knowing about it)

- **Employment:** Trickle-down technology and reengineering job loss: The rapid development of the Internet has made it possible to offshore hundreds of thousands of jobs from high-wage countries to low-wage countries. Reengineering existing jobs using IT also results in few jobs (generally). While this benefits low-wage countries enormously, the costs are paid by high-wage country workers
- **Equity and access:** While 500 million people worldwide are on the Internet, billions of others are not. Within the United States, the digital divide has declined among ethnic groups, but still persists. The divide between men and women has largely disappeared.

Health Risks: RSI, CVS, and Technostress

- IT has been the source of several diseases

Repetitive Stress Injury (RSI):

- Occupational disease
- Muscle groups are forced through repetitive actions with high-impact loads or thousands of repetitions with low-impact loads.

Carpal Tunnel Syndrome (CTS):

- Type of RSI
- Pressure on the median nerve through the wrist's bony carpal tunnel structure produces pain.

Computer Vision Syndrome (CVS):

- Eyestrain condition
- Related to computer display screen usage
- Symptoms include headaches, blurred vision, and dry and irritated eyes

Technostress:

- Stress induced by computer use
- Symptoms include aggravation, hostility toward humans, impatience, and fatigue.

Management Actions: A corporate Code of Ethics

- Some corps. Have developed far-reaching corporate IS codes of ethics including FedEx, IBM etc.
- Most of the organizations have not developed these codes of ethics, leaving their employees in the dark about expected correct behavior.

Solution Guidelines:

- *Information rights and obligations.* A code should cover topics such as employee e-mail and Internet privacy, workplace monitoring, treatment of corporate information, and policies on customer information.
- *Property rights and obligations.* A code should cover topics such as software licenses, ownership of firm data and facilities, ownership of software created by employees on company hardware, and software copyrights. Specific guidelines for contractual relationships with third parties should be covered as well.
- *System quality.* The code should describe the general levels of data quality and system error that can be tolerated, with detailed specifications left to specific projects. The code should require that all systems attempt to estimate data quality and system error probabilities.
- *Quality of life.* The code should state that the purpose of systems is to improve the quality of life for customers and for employees by achieving high levels of product quality, customer service, and employee satisfaction and human dignity through proper ergonomics, job and workflow design, and human resources development.
- *Accountability and control.* The code should specify a single individual responsible for all information systems, and reporting to this individual should be others who are responsible for individual rights, the protection of property rights, system quality, and quality of life (e.g., job design, ergonomics, and employee satisfaction). Responsibilities for control of systems, audits, and management should be clearly defined. The potential liabilities of systems officers and the corporation should be detailed in a separate document.