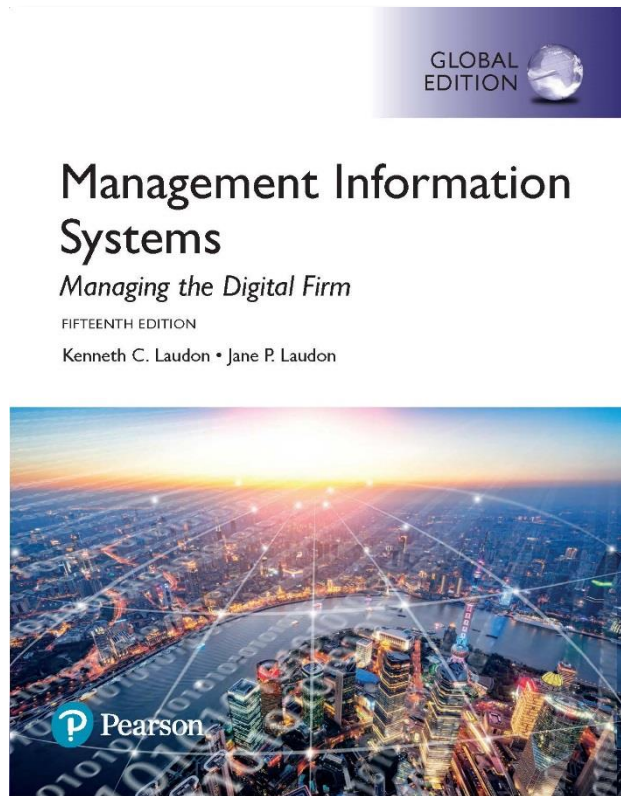# Management Information Systems: Managing the Digital Firm

Fifteenth edition

Chapter 4
Ethical and Social Issues in Information Systems

Lecturer:
Alireza Rezvanian

Courtesy:
Most slides are mainly adopted from:
- Kenneth C. Laudon and Jane P. Laudon. **Management Information Systems: Managing the Digital Firm**. 15th Edition. Pearson, 2018.
- Kenneth C. Laudon and Jane P. Laudon. **Essentials of Management Information Systems**.10th Edition, Pearson, 2013.

Learning Objectives

- **4-1** What **ethical**, **social**, and **political** issues are raised by information systems?

- **4-2** What specific **principles** for conduct can be used to guide **ethical decisions**?

- **4-3** Why do contemporary information systems technology and the Internet pose challenges to the protection of individual **privacy** and **intellectual property**?

- **4-4** How have information systems affected **laws** for establishing **accountability**, **liability**, and the quality of everyday life?
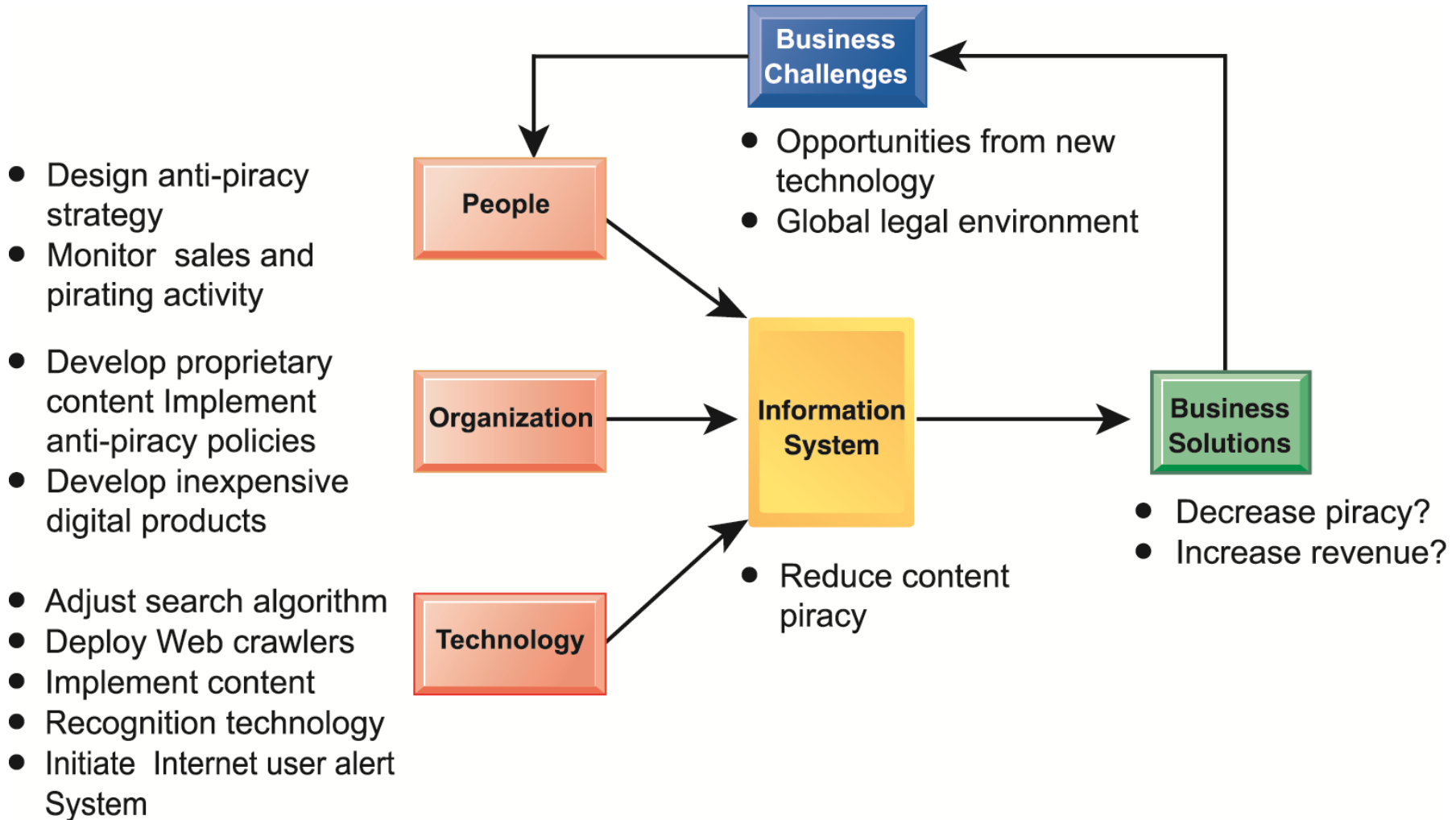
Content Pirates Sail the Web

- Problem: Pirated content costs the U.S. economy $58 billion a year, including lost jobs and taxes.

- Solutions: Search engine algorithms to prevent pirated content appearing on search engines

- Crawlers find pirated content and notify content users.

- New products and services to compete with the appeal of pirated content

Content Pirates Sail the Web

. NBC uses crawlers to find unauthorized content and block videos on YouTube; Internet service providers slow Web access and enforce penalties for downloaders.

. Demonstrates IT's role in both enabling and preventing content piracy.

. Illustrates the value of new IT-enabled products to counter the appeal of pirated content.

Content Pirates Sail the Web

- Design anti-piracy strategy
- Monitor sales and pirating activity

- Develop proprietary content Implement anti-piracy policies
- Develop inexpensive digital products

- Adjust search algorithm
- Deploy Web crawlers
- Implement content
- Recognition technology
- Initiate Internet user alert System

Business Challenges

- Opportunities from new technology
- Global legal environment

People

Organization

Technology

Information System

- Reduce content piracy

Business Solutions

- Decrease piracy?
- Increase revenue?

What Ethical, Social, and Political Issues Are Raised by Information Systems?

- Recent cases of failed ethical judgment in business
  - General Motors, Barclay's Bank, GlaxoSmithKline, Takata Corporation, Walmart
  - In many, information systems used to bury decisions from public scrutiny

- Ethics
  - 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 because they create opportunities for:
  - Intense social change, threatening existing distributions of power, money, rights, and obligations
  - New kinds of crime

A Model for Thinking about Ethical, Social, and Political Issues.

- 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, laws
  - Requires understanding of ethics to make choices in legally gray areas

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

Property Rights and Obligations

Political Issues

Social Issues

Ethical Issues

Information Technology and Systems

Accountability and Control

System Quality

Individual

Society

Polity
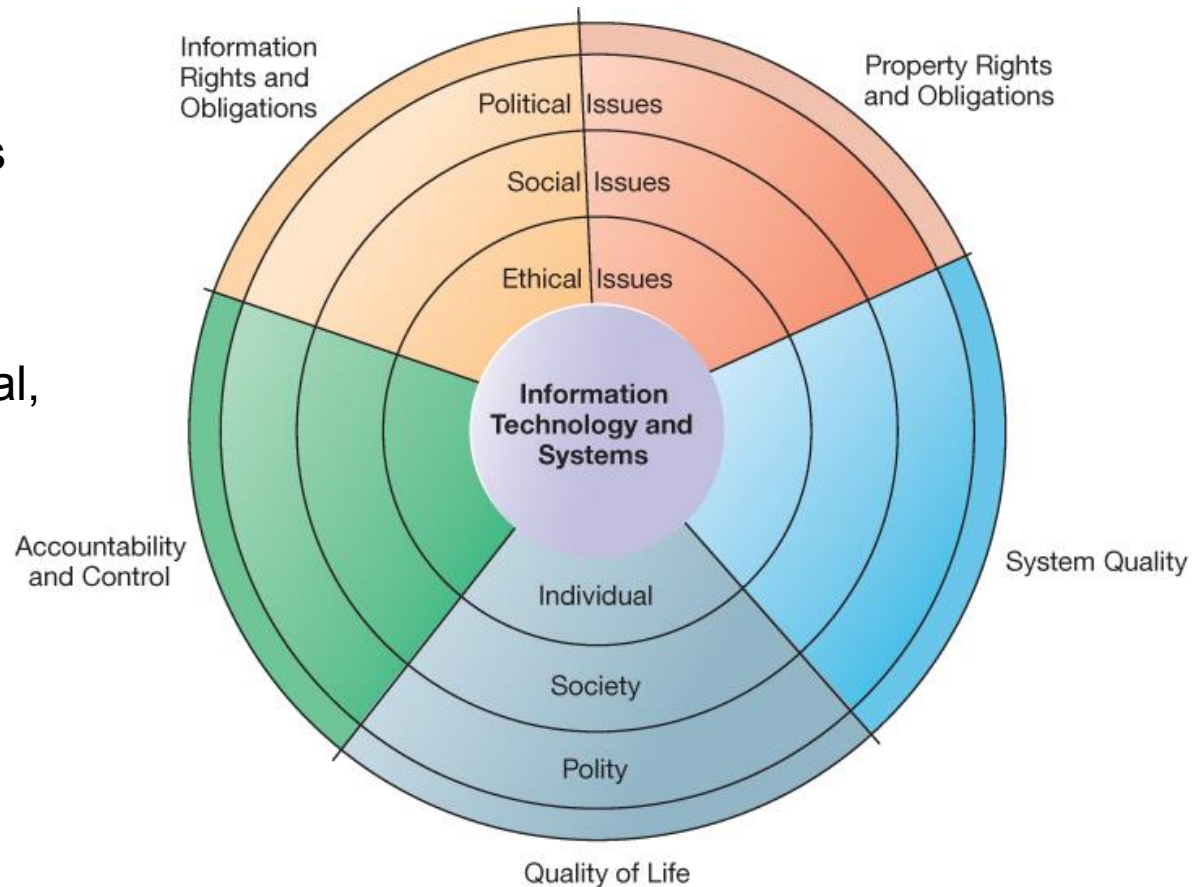
Quality of Life

Five Moral Dimensions of the Information Age

- Information rights and obligations

- Property rights and obligations

- Accountability and control

- System quality

- Quality of life

Key Technology Trends that Raise Ethical Issues

- ## 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.
- ## Networking advances
  - Copying data from one location to another and accessing personal data from remote locations are much easier.
- ## Data analysis advances
  - Profiling
    - Combining data from multiple sources to create dossiers of detailed information on individuals
  - Nonobvious relationship awareness (NORA)
    - Combining data from multiple sources to find obscure hidden connections that might help identify criminals or terrorists
  - Mobile device growth
    - Tracking of individual cell phones

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.
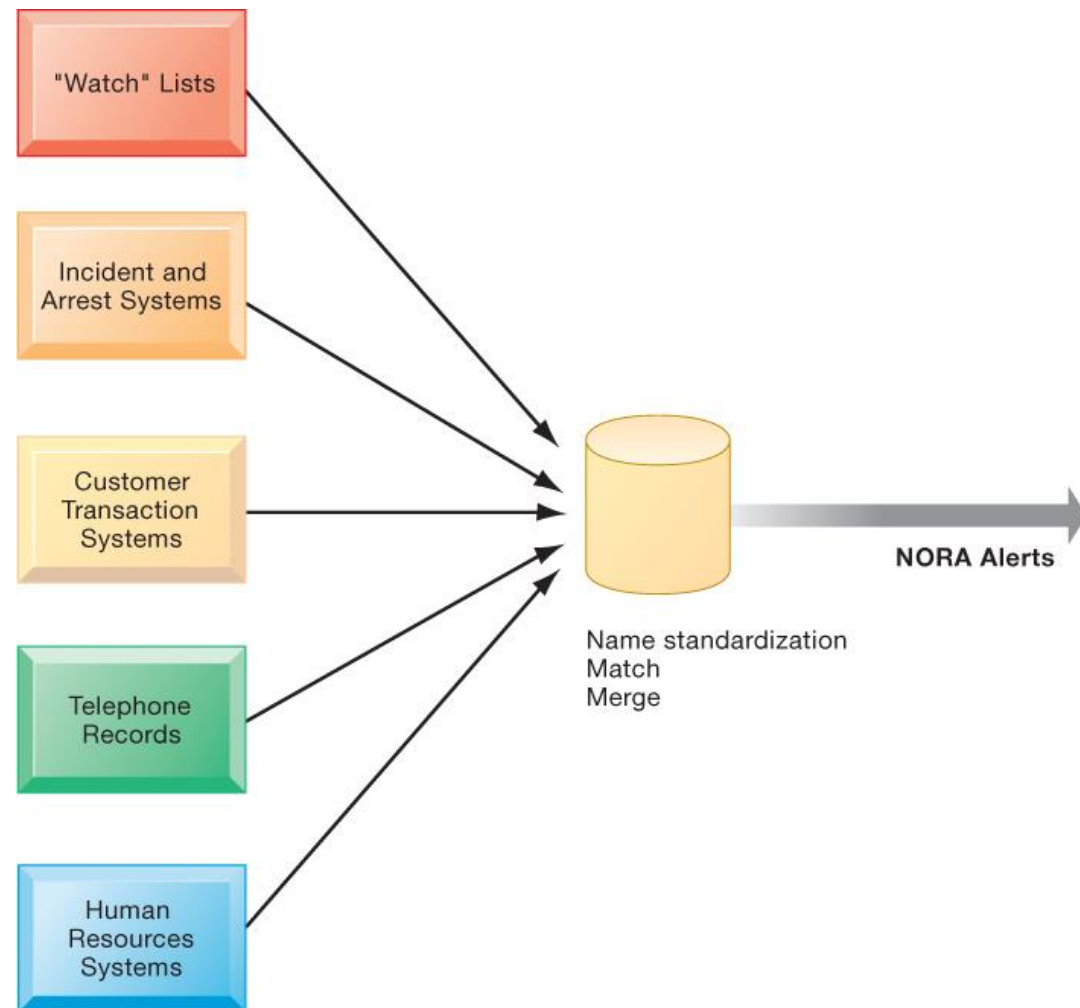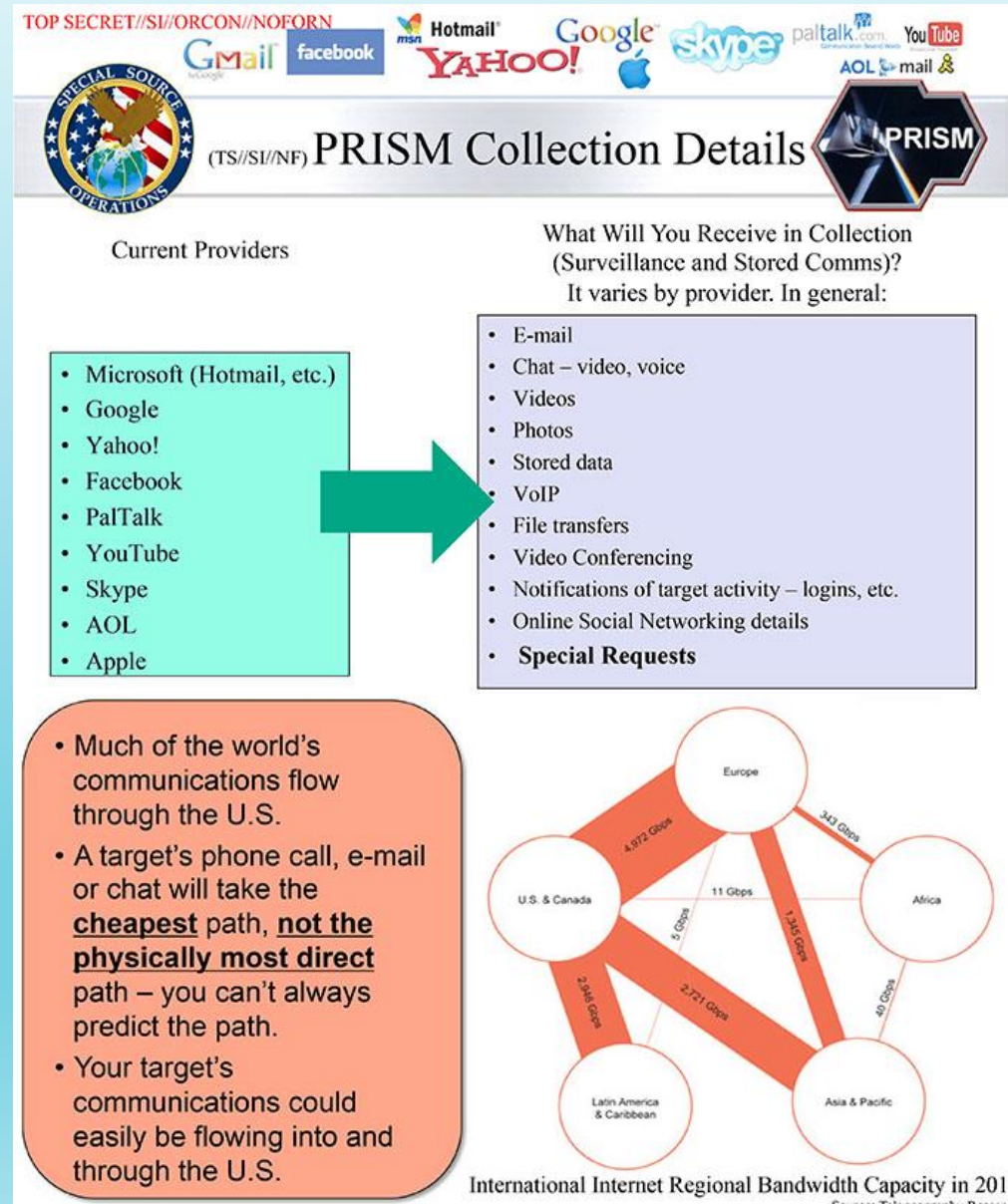
Interactive session: management
Edward Snowden: Traitor or Protector of Privacy?

- Perform an ethical analysis of the **PRISM** program and NSA surveillance activities? What is the ethical dilemma presented by this case?

- Describe the role of information technology in creating this ethical dilemma.

- Do you think the NSA should be allowed to continue its electronic surveillance programs? Why or why not?

TOP SECRET//SI//ORCON//NOFORN

(TS//SI//NF) PRISM Collection Details

Current Providers

- Microsoft (Hotmail, etc.)
- Google
- Yahoo!
- Facebook
- PalTalk
- YouTube
- Skype
- AOL
- Apple

What Will You Receive in Collection (Surveillance and Stored Comms)?
It varies by provider. In general:

- E-mail
- Chat – video, voice
- Videos
- Photos
- Stored data
- VoIP
- File transfers
- Video Conferencing
- Notifications of target activity – logins, etc.
- Online Social Networking details
- **Special Requests**

- Much of the world's communications flow through the U.S.
- A target's phone call, e-mail or chat will take the **cheapest** path, **not the physically most direct** path – you can't always predict the path.
- Your target's communications could easily be flowing into and through the U.S.

International Internet Regional Bandwidth Capacity in 2011
Source: Telegeography Research

Basic Concepts: Responsibility, Accountability, and Liability

- Responsibility
  - Accepting the potential costs, duties, and obligations for decisions

- Accountability
  - Mechanisms for identifying responsible parties

- Liability
  - Permits individuals (and firms) to recover damages done to them

- Due process
  - Laws are well-known and understood, with an ability to appeal to higher authorities

Ethical Analysis

- Five-step process for ethical analysis
  1. Identify and clearly describe the facts.
  2. Define the conflict or dilemma and identify the higher-order values involved.
  3. Identify the stakeholders.
  4. Identify the options that you can reasonably take.
  5. Identify the potential consequences of your options.

Candidate Ethical Principles

- Golden Rule
  - Do unto others as you would have them do unto you

- Immanuel Kant's Categorical Imperative
  - If an action is not right for everyone to take, it is not right for anyone

- Descartes' Rule of Change
  - If an action cannot be taken repeatedly, it is not right to take at all

- Utilitarian Principle
  - Take the action that achieves the higher or greater value

- Risk Aversion Principle
  - Take the action that produces the least harm or potential cost

- Ethical "No Free Lunch" Rule
  - Assume that virtually all tangible and intangible objects are owned by someone unless there is a specific declaration otherwise

Professional Codes of Conduct

- Promulgated by associations of professionals
  - American Medical Association (AMA)
  - American Bar Association (ABA)
  - Association for Computing Machinery (ACM)

- Promises by professions to regulate themselves in the general interest of society

- Real-world Ethical Dilemmas
  - One set of interests pitted against another
  - Examples
    - Monitoring employees: Right of company to maximize productivity of workers versus workers right to use Internet for short personal tasks
    - Facebook monitors users and sells information to advertisers and app developers

Information Rights: Privacy and Freedom in the Internet Age (1 of 2)

- Privacy
  - Claim of individuals to be left alone, free from surveillance or interference from other individuals, organizations, or state; claim to be able to control information about yourself

- In the United States, privacy protected by:
  - First Amendment (freedom of speech and association)
  - Fourth Amendment (unreasonable search and seizure)
  - Additional federal statues (e.g., Privacy Act of 1974)

- Fair information practices
  - Set of principles governing the collection and use of information
    - Basis of most U.S. and European privacy laws
  - Used to drive changes in privacy legislation
    - COPPA, Gramm-Leach-Bliley Act, HIPAA, Do-Not-Track Online Act of 2011

Information Rights: Privacy and Freedom in the Internet Age (2 of 2)

- FTC FIP principles
  - Notice/awareness (core principle)
    - Web sites must disclose practices before collecting data.
  - Choice/consent (core principle)
    - Consumers must be able to choose how information is used for secondary purposes.
  - Access/participation
    - Consumers must be able to review and contest accuracy of personal data.
  - Security
    - Data collectors must take steps to ensure accuracy, security of personal data.
  - Enforcement
    - Must be mechanism to enforce FIP principles.

European Directive on Data Protection:

- Use of data requires informed consent of customer

- EU member nations cannot transfer personal data to countries without similar privacy protection
  - U.S. businesses use *safe harbor* framework to work with EU personal data.

- Stricter enforcements under consideration:
  - Right of access
  - Right to be forgotten

- Safe harbor framework

- Edward Snowden

Internet Challenges to Privacy (1 of 2)

- 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

Internet Challenges to Privacy (2 of 2)

- The United States allows businesses to gather transaction information and use this for other marketing purposes.

- Opt-out vs. opt-in model

- Online industry promotes self-regulation over privacy legislation.
  - Complex/ambiguous privacy statements
  - Opt-out models selected over opt-in
  - Online "seals" of privacy principles

Figure 4.3: How Cookies Identify Web Visitors
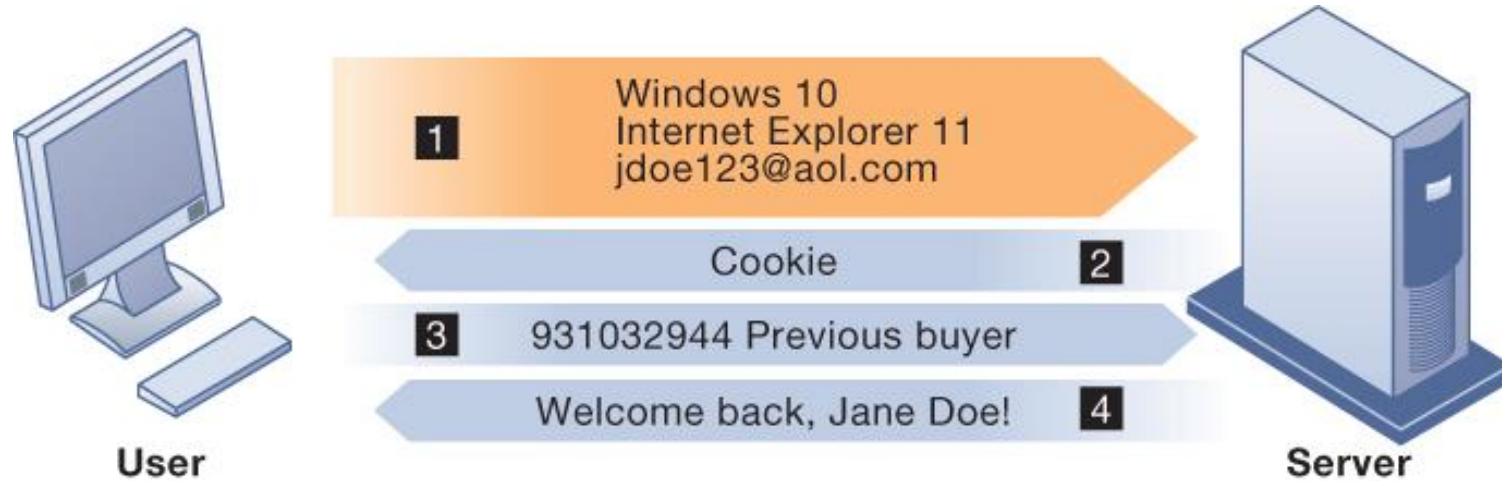
1. The Web server reads the user's web browser and determines the operating system, browser name, version number, Internet address, and other information.
2. The server transmits a tiny text file with user identification information called a cookie, which the user's browser receives and stores on the user's computer hard drive.
3. When the user returns to the website, 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.

P Pearson

Interactive session: organization
Big Data Gets Personal: Behavioral Targeting

- Why is behavioral tracking such an important ethical dilemma today? Identify the stakeholders and interest groups in favor of and opposed to behavioral tracking.

- How do businesses benefit from behavioral tracking? Do people benefit? Explain your answer.

- What would happen if there were no behavioral tracking on the Internet?

Technical Solutions

- Solutions include:
  - E-mail encryption
  - Anonymity tools
  - Anti-spyware tools

- Overall, technical solutions have failed to protect users from being tracked from one site to another
  - Browser features
    - "Private" browsing
    - "Do not track" options

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, not in the public domain
  - Copyright: statutory grant protecting intellectual property from being copied for the life of the author, plus 70 years
  - Patents: grants creator of invention an exclusive monopoly on ideas behind invention for 20 years

Challenges to Intellectual Property Rights

- Digital media different from physical media
  - Ease of replication
  - Ease of transmission (networks, Internet)
  - Ease of alteration
  - Compactness
  - Difficulties in establishing uniqueness

- Digital Millennium Copyright Act (DMCA)
  - Makes it illegal to circumvent technology-based protections of copyrighted materials

Computer-Related Liability Problems

- If software fails, who is responsible?
  - If seen as part of a machine that injures or harms, software producer and operator may be liable.
  - If seen as similar to book, difficult to hold author/publisher responsible.
  - If seen as a service? Would this be similar to telephone systems not being liable for transmitted messages?

System Quality: Data Quality and System Errors

- What is an acceptable, technologically feasible level of system quality?
  - Flawless software is economically unfeasible

- Three principal sources of poor system performance
  - Software bugs, errors
  - Hardware or facility failures
  - Poor input data quality (most common source of business system failure)

Quality of Life: Equity, Access, Boundaries (1 of 3)

- Negative social consequences of systems

- Balancing power: center versus periphery

- Rapidity of change: reduced response time to competition

- Maintaining boundaries: family, work, and leisure

- Dependence and vulnerability

- Computer crime and abuse

Quality of Life: Equity, Access, Boundaries (2 of 3)

- Computer crime and abuse
  - Computer crime: commission of illegal acts through use of computer or against a computer system—computer may be object or instrument of crime
  - Computer abuse: unethical acts, not illegal
  - Spam: high costs for businesses in dealing with spam
  - CAN-SPAM Act of 2003

- Employment
  - Trickle-down technology
  - Reengineering job loss

Quality of Life: Equity, Access, Boundaries (3 of 3)

- Equity and access—the digital divide
  - Certain ethnic and income groups in the United States less likely to have computers or Internet access
  - The digital divide

- Health risks
  - Repetitive stress injury (RSI)
    - Largest source is computer keyboards
    - Carpal tunnel syndrome (CTS)
  - Computer vision syndrome (CVS)
    - Eyestrain and headaches related to screen use
  - Technostress
    - Aggravation, impatience, fatigue

References

- **Chapter 4 -** Kenneth C. Laudon and Jane P. Laudon. Management Information Systems: Managing the Digital Firm. 15th Edition. Pearson, 2018.

- **Chapter 12 -** Kenneth C. Laudon and Jane P. Laudon. Essentials of Management Information Systems.10th Edition, Pearson, 2013.