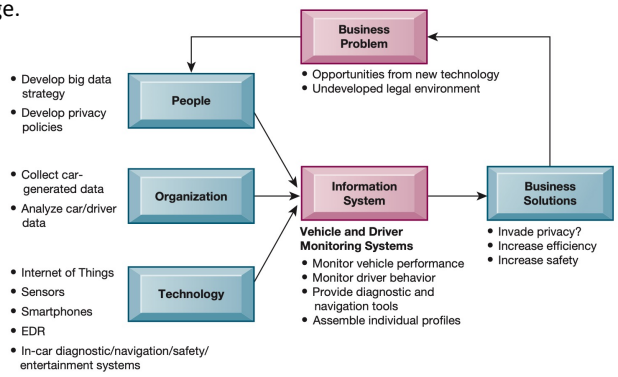
IF3141
SISTEM INFORMASI
Social Impacts of Information System

Semester I 2023/2024

1

Case: Are Cars becoming Big Brother on Wheels?

- Cars have become sophisticated listening posts on wheels
  - tracking phone calls and texts,
  - recording what radio stations you listen to,
  - monitoring the speed at which you drive and your braking actions,
  - and even telling you when you are breaking the speed limit, often without your knowledge.



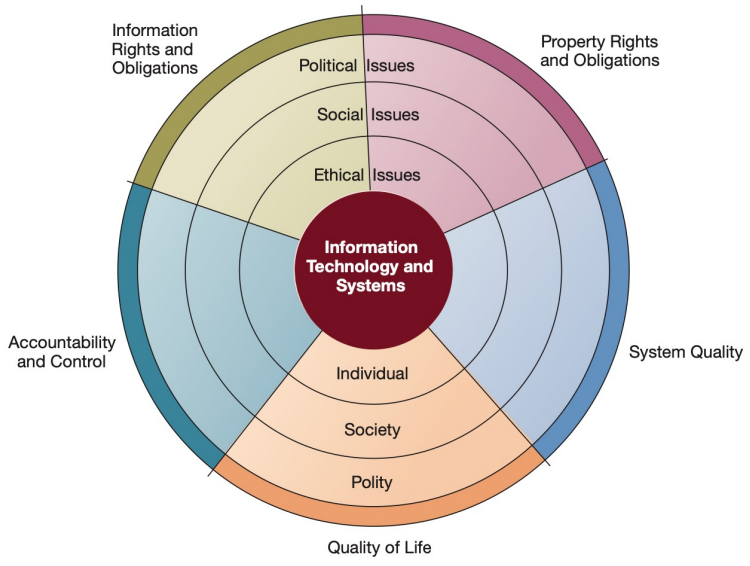
2

IS are around us especially in Organisation

Type of System	Information Inputs	Processing	Information Outputs	Users
ESS	Aggregate data; external; internal	Graphics; simulations; interactive	Projections; responses to queries	Senior managers
DSS	Low-volume data or massive databases optimized for data analysis; analytic models & data analysis tools	Interactive; simulations; analysis	Special reports; decision analysis; responses to queries	Professionals; staff managers
MIS	Summary transaction data; high-volume data; simple models	Routine reports; simple models; low-level analysis	Summary & exeptions reports	Middle managers
KWS	Design specifications; knowledge base	Modeling; simulations	Models; graphics	Professionals; technical staff
Office Systems	Documents; schedules	Document management; scheduling; communication	Documents; schedules; mail	Clerical workers
TPS	Transactions; events	Sorting; listing; merging; updating	Detailed reports; lists; summaries	Operations personel; supervisors

3

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



4

Five Moral Dimensions of The Information Age (1)

- 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?

5

Five Moral Dimensions of The Information Age (2)

- 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 does the new information technology support?

6

Technology Trends that Raise Ethical Issues

Trend	Impact
Computing power doubles every 18 months	More organizations depend on computer systems for critical operations and become more vulnerable to system failures.
Data storage costs rapidly decline	Organizations can easily maintain detailed databases on individuals. There are no limits on the data collected about you.
Data analysis advances	Companies can analyze vast quantities of data gathered on individuals to develop detailed profiles of individual behavior. Large-scale population surveillance is enabled.
Networking advances	The cost of moving data and making data accessible from anywhere falls exponentially. Access to data becomes more difficult to control.
Mobile device growth	Individual cell phones may be tracked without user consent or knowledge. The always-on device becomes a tether, and a tracker.

7

Principles for Conduct to guide Ecthical Decision

- Responsibilities
  - A key element of ethical action
  - Responsibility means that you accept the potential costs, duties, and obligations for the decisions you make.
- Accountability
  - A feature of systems and social institutions
  - It means that mechanisms are in place to determine who took action and who is responsible.
- Liability
  - 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.

8

Principles for Conduct to guide Ethical Decision

- 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. Whatever information system effects exist are products of institutional, organizational, and individual actions and behaviors.
  - Second, responsibility for the consequences of technology falls 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.

9

Principles for Conduct to guide Ethical Decision

- Third, in an ethical, political society, individuals and others can recover damages done to them through a set of laws characterized by due process.
  - Due process is a related feature of law-governed societies and is a process in which laws are known and understood, and ability exists to appeal to higher authorities to ensure that the laws are applied correctly.

10

Ethical Analysis

- How should you analyze when confronted with a situation that present ethical issues?
  1. Identify and describe the facts clearly
  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

11

Ethical Principles (1)

- What ethical principles should you use to make a decision?
  - Do unto others as you would have them do unto you (The Golden Rule)
    - Putting yourself in the place of others, and thinking of yourself as the object of the decision, can help you think about fairness in decision making.
  - 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?"

12

Ethical Principles (2)

- What ethical principles should you use to make a decision?
  - If an action cannot be taken repeatedly, it is not right to take at all.
    - 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
  - Take the action that achieves the higher or greater value (Utilitarian principle).
    - Prioritize values in a rank order and understand the consequences of various courses of action.

13

Ethical Principles (3)

- What ethical principles should you use to make a decision?
  - Take the action that produces the least harm or the least potential cost (risk aversion principle)
    - Avoid actions that have extremely high failure costs; focus on reducing the probability of accidents occurring
  - Assume that virtually all tangible and intangible objects are owned by someone else unless there is a specific declaration otherwise (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.

14

Professional Code of Conduct

- Professisonal codes of conduct are promulgated by associations of professionals
  - Association of Information Technology Professionals (AITP)
  - The Association for Computing Machinery (ACM).
- Codes of ethics are promises by professions to regulate themselves in the general interest of society.

15

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.

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 (HIPAA) of 1996 Children's Online Privacy Protection Act (COPPA) of 1998 Financial Modernization Act (Gramm-Leach-Bliley Act) of 1999

16

Information Rights: Privacy And Freedom In The Internet Age

- Most American and European privacy law is based on a regime called Fair Information Practices (FIP)

Notice/awareness (core principle). Websites 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.

Choice/consent (core principle). A choice regime must be 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.

Access/participation. Consumers should be able to review and contest the accuracy and completeness of data collected about them in a timely, inexpensive process.

Security. Data collectors must take responsible steps to ensure that consumer information is accurate and secure from unauthorized use.

Enforcement. A mechanism must be in place to enforce FIP principles. This can involve self-regulation, legislation giving consumers legal remedies for violations, or federal statutes and regulations.

17

Information Rights: Privacy And Freedom In The Internet Age

- The European Commission implemented the EU General Data Protection Regulation (GDPR) (2018)
  - It applies to all firms and organizations that collect, store, or process personal information of EU citizens, and these protections apply worldwide regardless of where the processing takes place
  - It strengthen the rights of citizens to their own personal information and to strengthen oversight of firms to ensure they implement these individual rights.
  - It protects a wide variety of PII: basic identity information (i.e name, address, ID numbers); web data (i.e. location, IP address, cookie data, RFID tags); health and genetic data; mobile phone number; driver's license and passport number; biometric and facial data; racial and ethnic data; political opinions; and sexual orientation

18

Property Rights: Intellectual Property

- Intellectual property is defined as tangible and intangible products of the mind created by individuals or corporations.
- Copyright
  - 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 certain years after the author's death
  - 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.

19

Property Rights: Intellectual Property

- Patents
  - An exclusive monopoly on the ideas behind an invention for certain years. It is to ensure that inventors of new machines, devices, or methods receive the full financial and other rewards of their labour 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, based on originality, novelty, and invention
  - 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 (the work must reflect some special understanding and contribution), originality, and novelty as well as years of waiting to receive protection.

20

Property Rights: Intellectual Property

- Trademarks
  - The marks, symbols, and images used to distinguish products in the marketplace.
- 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
  - Trade secret laws grant a monopoly on the ideas behind a work product, but it can be a very tenuous monopoly.

21

Property Rights: Intellectual Property

- Challenges to Intellectual Property Rights
  - Digital media -> Ease of replication
  - The proliferation of digital networks, including the internet

22

Accountability and Control: Liability Problems

- Who is liable for any economic or personal harm caused to individuals or businesses whose personal and business data is stolen from firms with whom they interact, often on a daily basis?
  - 2018 Under Armour disclosed that hackers had breached its fitness app (MyFitnessPal) and had stolen data from over 150 million user accounts. The data included email addresses, passwords, and usernames, along with other information not disclosed. The firm's stock took a hit of 2% following the announcement and likely caused MyFitnessPal users to lose confidence in the app.

23

System Quality: Data Quality and System Errors

- What is an acceptable, technologically feasible level of system quality? When to stop testing is ok?
  - Google Cloud experienced an outage that took down entire platforms like Snapchat, Spotify, Pokemon GO.
  - Amazon Web Services (AWS) experienced an outage that took down Amazon's own Alexa, and several enterprise services such as Atlassian, Slack, and Twilio.
  - Microsoft's Azure service had an outage that effected its storage and networking service in Northern Europe.
- The gray area is that some system errors are foreseeable and correctable only at great expense, expense so great that pursuing this level of perfection is not feasible economically—no one could afford the product.

24

Quality of Life: Equity, Access, and Boundaries

- 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, whom do we hold responsible for the bad consequences

25

Quality of Life: Equity, Access, and Boundaries

- Big Tech: Concentrating Economic and Political Power
  - Amazon: Half of retail e-commerce
  - Google: 87 percent of online search
  - Netflix: 75 % of video streamers
  - Microsoft: 90% of PCs using WIndows
  - . . .
  - Critics point out that consumer welfare is harmed in other ways than price, namely, by preventing new, innovative companies from market access, or surviving long enough to prosper as independent firms.

26

Quality of Life: Equity, Access, and Boundaries

- Rapidity of Change: Reduced Response Time to Competition
  - Information systems have helped to create much more efficient national and international markets.
  - Today's rapid-moving 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. One impact of Uber and on-demand services firms is to create just-in-time jobs with no benefits/insurance for employees.

27

Quality of Life: Equity, Access, and Boundaries

- Maintaining Boundaries: Family, Work, and Leisure
  - The traditional boundaries that separate work from family and just plain leisure have been weakened.

28

Quality of Life: Equity, Access, and Boundaries

- Dependence and Vulnerability
  - Today, our businesses, governments, schools, and private associations are incredibly dependent on information systems
  - Therefore, highly vulnerable if these systems fail.
  - Think of what would happen if the nation's electric power grid shut down, with no backup structure to make up for the loss of the system?

29

Quality of Life: Equity, Access, and Boundaries

- Computer Crime and Abuse
  - Computer Crime
    - The commission of illegal acts by using a computer or against a computer system.
    - Malware, phishing, network interruption, spyware, and denial of service attacks.
  - Computer Abuse
    - The commission of acts involving a computer that may not be illegal but are considered unethical
    - Spamming

30

Quality of Life: Equity, Access, and Boundaries

- Employment: Trickle-Down Technology and Reengineering Job Loss
  - Redesigning business processes has caused millions of mid-level factory managers and clerical workers to lose their jobs.
  - But new technologies also created as many or more new jobs than they destroyed

31

Quality of Life: Equity, Access, and Boundaries

- Equity and Access: Increasing Racial and Social Class Cleavages
  - Does everyone have an equal opportunity to participate in the digital age?
  - Digital divide

32

Reference

- Essentials of Management Information Systems, 14Ed
  Kenneth C. Laudon , Jane P. Laudon
  2021, Pearson

33