



SI & ETHICS

Claudia López
DI, UTFSM



REFERENCES

- Laudon, 2013 - Chapter 4

ACT: A SURVEY

ETHICS

- refers to the principles of right and wrong that individuals, acting as free moral agents, use to make choices to guide their behaviors.
- refers to a system of moral principles that human beings use to judge right and wrong and to develop rules of conduct

INFORMATION SYSTEMS (IS) & ETHICS

- raise new ethical questions for both individuals and societies
 - they create opportunities for intense social change,
 - threaten existing distributions of power, money, rights, and obligations.
- Like other technologies, IT can be used to achieve social progress,
- but it can also be used to commit crimes and threaten cherished social values.

ETHICS & LAW

- Laws are often grounded in ethical principles,
 - However, some laws result from the pushes and pulls of lobbying efforts
- Laws don't cover all ethical principles
- Just because an action is legal does not mean it is ethical

ETHICAL ISSUES

- Internet & e-commerce make it easier to assemble, integrate, and distribute information,
 - concerns about the **appropriate use** of customer information, the protection of personal **privacy**, and the protection of **intellectual property**
- accountability for the consequences of IS
 - setting standards to **safeguard system quality** that protects the safety of the individual and society,
 - **preserving values** and institutions considered essential to the quality of life in an information society

ACT: POTENTIAL ETHICAL ISSUES?

TREND

Computing power doubles every 18 months

Data storage costs rapidly decline

Data analysis advances

Networking advances

Mobile device growth Impact

ACT: POTENTIAL ETHICAL ISSUES?

IMPACT

More organizations depend on computer systems for critical operations.

Organizations can easily maintain detailed databases on individuals.

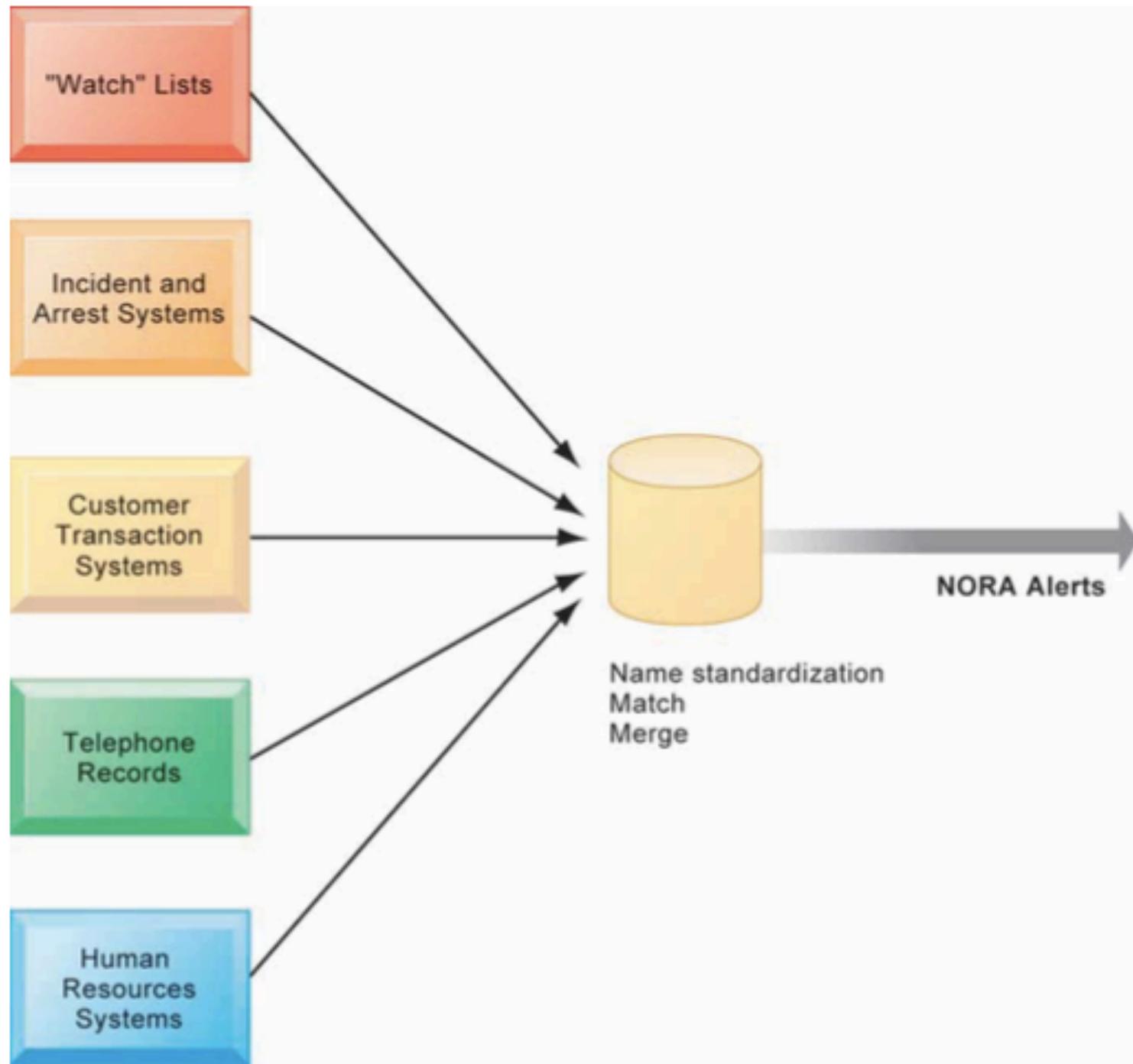
Companies can analyze vast quantities of data gathered on individuals to develop detailed profiles of individual behavior.

Copying data from one location to another and accessing personal data from remote locations are much easier.

Individual cell phones may be tracked without user consent or knowledge.

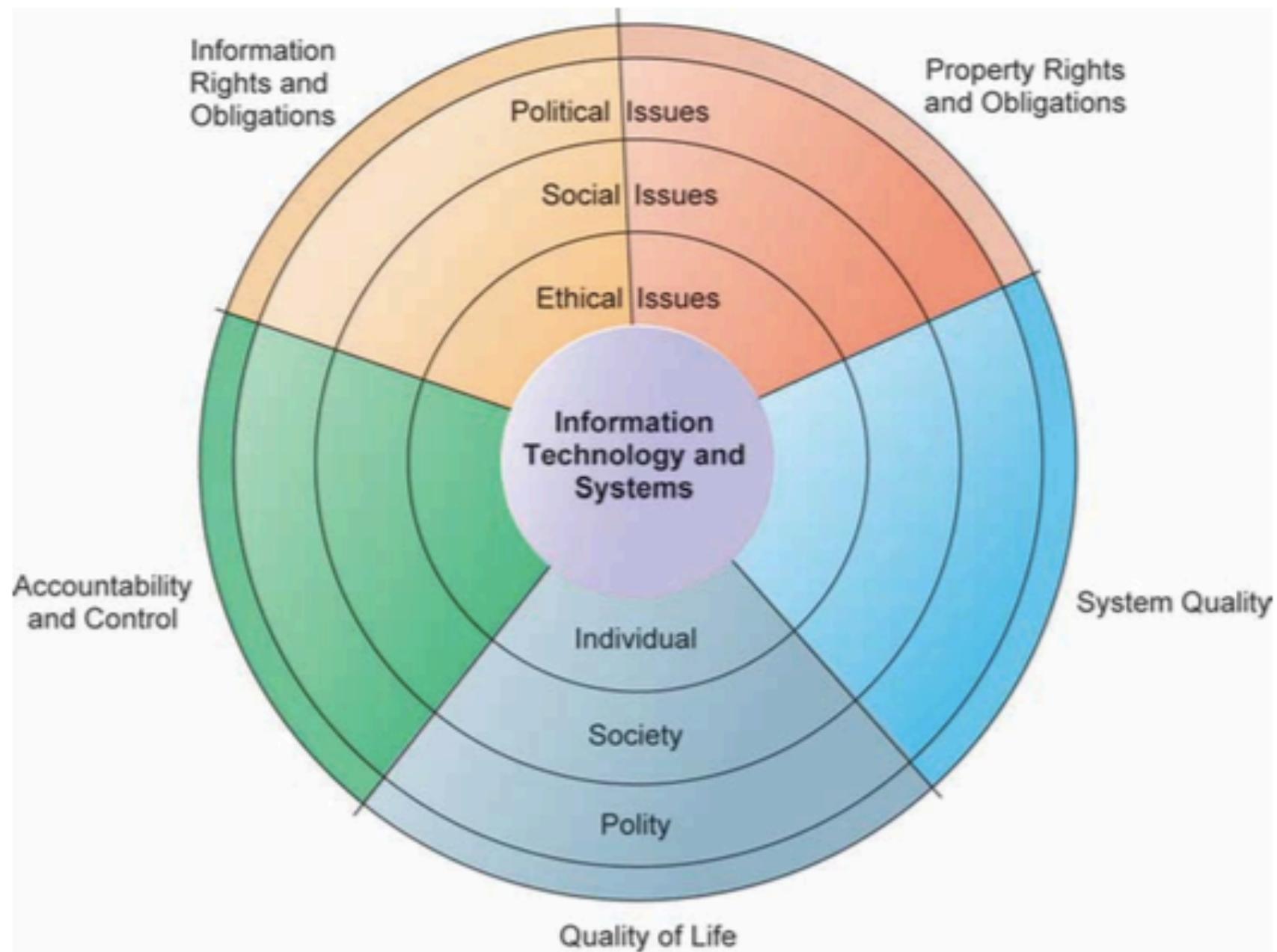
AN EXAMPLE: PROFILING

- DoubleClick (owned by Google) creates a detailed dossier of a person's spending and computing habits on the Web
- ChoicePoint gathers data from police, criminal, and motor vehicle records, credit and employment histories, current and previous addresses, professional licenses, and insurance claims
- Nonobvious relationship awareness (NORA)

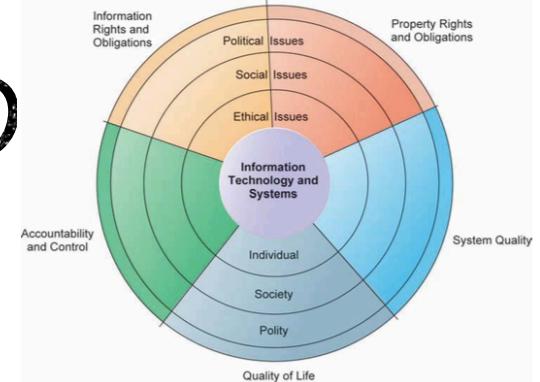


A MODEL TO THINK ABOUT ETHICS

12



PRIVACY: INFORMATION RIGHTS AND OBLIGATIONS



- What **information rights** do individuals and organizations possess with respect to themselves? What can they protect?
- **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

PRIVACY LAWS

- <http://www.derecho-chile.cl/proteccion-de-datos-personales-parte/>
 - 1999, poorly drafted, leaving ample margin for interpretation
 - does not provide for a Data Protection Authority
- In Europe, privacy protection is much more stringent than in the United States.
 - European countries do not allow businesses to use personally identifiable information without consumers' prior consent.

FAIR INFORMATION PRACTICES (FIP)

- 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.

FIP PRINCIPLES

- **Notice/awareness (core principle)**
 - Web sites must disclose their information practices before collecting data.
- **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
- Access/participation.
- Security
- Enforcement

INFORMED CONSENT: OPT-IN VS OPT-OUT

- **Informed consent** can be defined as consent given with knowledge of all the facts needed to make a rational decision.
 - An **opt-out** model permits the collection of personal information until the consumer specifically requests that the data not be collected.
 - An **opt-in** model in which a business is prohibited from collecting any personal information unless the consumer specifically takes action to approve information collection and use.

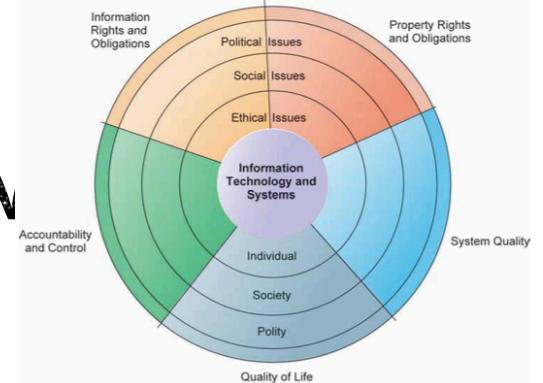
OTHER ASPECTS

- “right to be forgotten”
 - requires Internet companies to obtain explicit consent from consumers about the use of their personal data, **delete information at the user's request** and retain information only as long as absolutely necessary.
- Special cases
 - Data about children, health records

CHALLENGES

- Technologies associated with advertising and surveillance (for whatever reason)
 - Cookies, Web beacons, Spyware
- 2010-11: Study of 50 most visited sites in US
 - Only one site, Wikipedia, had no tracking files.
 - 3,180 tracking files installed on visitor computers.
- Apple's iPhone & Google's Android register location data (continuously or every 12 hrs)

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?
- **Intellectual property** is considered to be intangible property created by individuals or corporations

HOW IS INTELECTUAL PROPERTY PROTECTED?

- **Trade secret**

- Any intellectual work product—a formula, device, pattern, or compilation of data—used for a business purpose

- **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 +70 years after the author's death
 - 95 years after their initial creation for corporate-owned works
 - Since the 60's for SW, though not for concepts behind the SW

HOW IS INTELECTUAL PROPERTY PROTECTED?

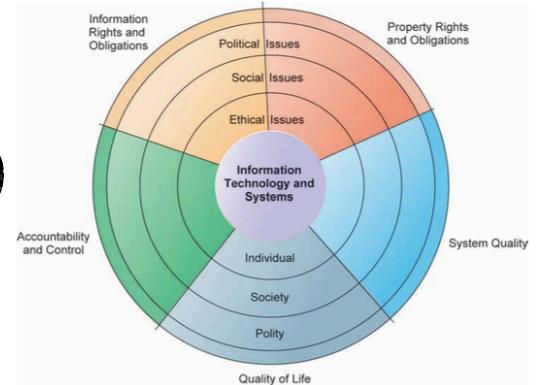
▪ **Patents**

- grants the owner an exclusive monopoly on the ideas behind an **invention** for 20 years.
- Originality, novelty, and invention
- Since 81 for SW – its concepts and ideas
 - Apple vs. Samsung (iphone, i*), US\$1 billion

CHALLENGES

- Digital media => ease of replication, transmission, & alteration
- For every \$100 worth of legitimate software sold, \$75 worth is obtained illegally
- Illegal file sharing has declined
 - Because of iTunes, Pandora, Hulu, Spotify, Netflix

ACCOUNTABILITY AND CONTROL



- **Who can and will be held accountable and liable for the harm done to individual and collective information and property rights?**
 - If a person is injured by a machine controlled, in part, by software, who should be held accountable and, therefore, held liable?
 - If you outsource your information processing, can you hold the external vendor liable for injuries done to your customers?

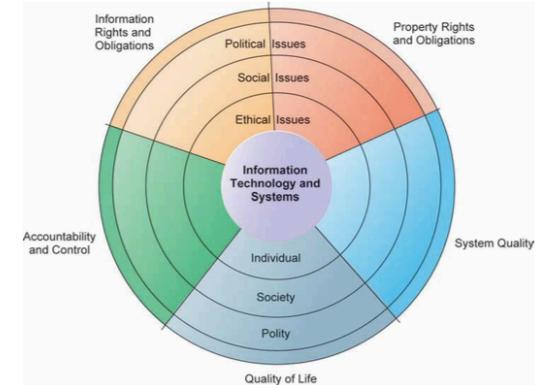
ACCOUNTABILITY AND CONTROL

- 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?

COMPUTER-RELATED LIABILITY PROBLEMS

- Blackberry – 3 day blackout of email – 70 million users
 - Who is liable for any economic harm caused to individuals or businesses that could not access their e-mail during this three-day period?
- Metaphors
 - Software as a book
 - Software as a service (more like TV than phone)

SYSTEM QUALITY

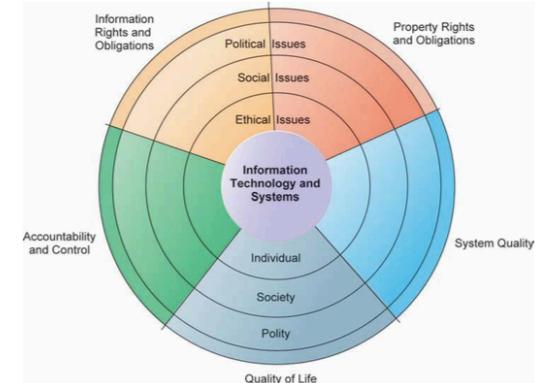


- What **standards** of data and system quality should we demand to protect individual rights and the safety of society?
- At what point should system managers say, “Stop testing, we’ve done all we can to perfect this software. Ship it!”
- Should we withdraw the product that can never be perfect, warn the user, or forget about the risk (let the buyer beware)?

SOURCES OF POOR PERFORMANCE

- (1) software bugs and errors,
 - Software testing
- (2) hardware or facility failures caused by natural or other causes, and
- (3) poor input data quality
 - individual organizations report data error rates ranging from 0.5 to 30 percent

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?

BALANCING OF POWER

- In theory, internet is decentralized, social media is empowering
- In practice,
 - lower-level employees may be empowered to make minor decisions, but the key policy decisions may be as centralized as in the past.
 - Google, Apple, Yahoo, Amazon, and Microsoft are becoming private oligopolies

COMPUTER CRIME

- the commission of illegal acts through the use of a computer or against a computer
 - Individuals
 - 315,000 Internet crime complaints in 2011, most about financial loss (US\$500 million)
 - scams involving the FBI, identity theft, advance fee fraud
 - Organizations
 - 46 % experienced a computer security incident in a year
 - malware infection (67%), phishing fraud (39%), laptop and mobile hardware theft (34%), attacks by botnets (29%), and insider abuse (25%).

OTHER CONSEQUENCES

- Equity and Access: Increasing Racial and Social Class Cleavages
 - access and use **digital divide**
- Maintaining boundaries: family, work and leisure
- Health risks

OTHER CONSEQUENCES

- Computer abuse – spam
- Employment (and reengineering job loss)
- Rapidity of change: reduced response time to competition (for businesses)
- Dependence and vulnerability of organizations

OUR RESPONSIBILITIES

35

BASIC CONCEPTS

- 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.
- Liability extends the concept of responsibility further to the area of laws
 - Due process

IS HAVE IMPACT, WE ARE RESPONSIBLE

- Whatever IS impacts exist are products of institutional, organizational, and individual actions and behaviors.
- Responsibility for the consequences of technology falls clearly on the institutions, organizations, and individual managers who choose to use the technology
- Individuals and others can recover damages done to them through a set of laws characterized by due process

ETHICAL ANALYSIS

1. *Identify and describe the facts clearly*
 - get the opposing parties to agree on the facts
2. *Define the conflict or dilemma and identify the higher-order values involved*
 - E.g., freedom, privacy, protection of property, and the free enterprise system
3. *Identify the stakeholders (and what they want)*
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
- **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

CANDIDATE ETHICAL PRINCIPLES

- Utilitarian Principle
 - Take the action that achieves the higher or greater value
- Risk Aversion Principle
 - Take the action that produces the least harm or the least potential cost
- “no free lunch” rule.
 - Assume that virtually all tangible and intangible objects are owned by someone else unless there is a specific declaration otherwise

PROFESSIONAL CODES OF CONDUCT

- <http://www.ingenieros.cl/codigo-de-etica/>
 - 2013
- <https://www.acm.org/about-acm/acm-code-of-ethics-and-professional-conduct>
 - Association for Computing Machinery
 - 1992
- <http://www.acm.org/about/se-code>
 - Software engineering

ACM CODE OF ETHICS

- **General** moral imperatives
- More specific **professional** imperatives
- Organizational **leadership** imperative
- Compliance with the code

GENERAL MORAL IMPERATIVES

- **Contribute to society and human well-being**
- **Avoid harm to others**
- Be honest and trustworthy
- Be fair and take action **not to discriminate**
- Honor **property rights** including copyrights and patent
- **Give proper credit** for intellectual property
- Respect the **privacy** of others
- Honor **confidentiality**

MORE SPECIFIC PROFESSIONAL RESPONSIBILITIES

- Strive to achieve the highest quality, effectiveness and dignity in both the **process and products** of professional work.
- Acquire and maintain professional **competence**.
- **Know and respect** existing **laws** pertaining to professional work.
- **Accept** and provide appropriate **professional review**

MORE SPECIFIC PROFESSIONAL RESPONSIBILITIES

- Give **comprehensive** and thorough **evaluations** of computer systems and their impacts, including analysis of possible risks.
- **Honor** contracts, agreements, and assigned **responsibilities**.
- **Improve public understanding** of computing and its consequences.
- **Access** computing and communication resources **only when authorized** to do so.

ORGANIZATIONAL LEADERSHIP IMPERATIVES

- Articulate **social responsibilities of members** of an organizational unit and encourage full acceptance of those responsibilities.
- Manage personnel and resources to design and build information systems that **enhance the quality of working life**.
- Acknowledge and support **proper and authorized uses** of an organization's computing and communication resources.

ORGANIZATIONAL LEADERSHIP IMPERATIVES

- Ensure that **users** and those who will be affected by a system **have their needs clearly articulated** during the assessment and design of requirements; later the system must be validated to meet requirements.
- Articulate and support policies that **protect the dignity of users** and others affected by a computing system.
- Create **opportunities** for members of the organization **to learn the principles and limitations of computer systems**.

ACT: DISCUSSION

- Many companies monitor what their employees are doing on the Internet to prevent them from wasting company resources on non-business activities.
 - 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 might believe they should be able to use the Internet for short personal tasks in place of the telephone.

BACKUP

DIFERENTES DIMENSIONES

Dimensiones	Preguntas
Derechos y obligaciones de información	Qué derechos de información tienen individuos y organizaciones respecto a ellos mismos? Cómo los pueden proteger?
Derechos y obligaciones de propiedad	Cómo los derechos de propiedad intelectual tradicionales serán protegidos?
Responsabilidad y control	Quién es responsable por los daños hechos a ambos tipos de derechos (anteriores)?
Calidad del sistema	Qué estándares de datos y calidad de sistemas debemos demandar para proteger tales derechos?
Calidad de vida	Qué valores deben ser preservados en la sociedad de la información? Qué instituciones deben protegerlos?