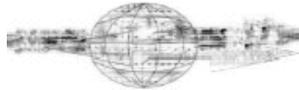# CHAPTER 10.
ETHICAL IMPLICATIONS OF INFORMATION TECHNOLOGY

Management Information Systems, 10th edition,
By Raymond McLeod, Jr. and George P. Schell
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Learning Objectives:

- Understand the distinction among morals, ethics, and laws.
- Be familiar with the most important computer legislation that has been passed in the U. S., and know how legislation in one country can influence computer use in others as well.
- Know how a firm creates an ethics culture by first establishing a corporate credo, then establishing ethics programs, and lastly establishing a corporate ethics code.
- Know why society demands that computers be used ethically.
- Know the four basic rights that society has concerning the computer.

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Learning Objectives (cont.):

- Know how the firm's internal auditors can play a positive role in achieving information systems that are designed to meet ethical performance criteria.
- Be aware of computer industry codes of ethics, and the wide variety of educational programs that can help firms and employees use computers ethically.
- Know what the CIO can do to be a power center as the firm follows ethical practices.

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Introduction

- Firms have an obligation to establish an ethical culture for their employees to follow that is supported by a corporate credo and ethics programs
- Computer ethics are important because society has certain perceptions, and fears, related to computer use
- The CIO can follow a proactive program to ensure that IT systems provide:
  - What the executives and managers need to support the firm's ethics efforts
  - That stockholders and owners understand that the firm uses its computers ethically
  - That funds spent on IT are not wasted

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PRESCRIPTIVE VERSUS DESCRIPTIVE COVERAGE

- Simply describing MIS may not be enough when discussing the moral and ethical dimensions of MIS
- Business persons in general, and information specialists in particular, have definite responsibilities in terms of performing within ethical, moral, and legal constraints

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MORALS, ETHICS, AND LAWS

- **Morals** are traditions of belief about right and wrong conduct and "doing what is morally right" is the bedrock of our social behavior
- **Ethics** is a suite of guiding beliefs, standards, or ideals that pervades an individual or a group or community of people
- **Laws** are formal rules of conduct that a sovereign authority, such as a government, imposes on its subjects or citizens

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Data Access Rights and Restrictions

- U.S. computer legislation has focused on rights and restrictions related to data access, information privacy, computer crime, and, most recently, software patents
- **The 1966 Freedom of Information Act** gave citizens and organizations the right to access data held by the federal government
- **The 1970 Fair Credit Reporting Act** dealt with the handling of credit data
- **The 1978 Right to Federal Privacy Act** limited the federal government's ability to conduct searches of bank records
- **The 1988 Computer Matching and Privacy Act** restricted the federal government's right to match computer files for the purpose of determining eligibility for government programs or identifying debtors

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Computer Crime

- In 1984 the US Congress passed two new laws that applied specifically to computer crime:
  - **The Small Business Computer Security and Education Act** established the Small Business Computer Security and Education Advisory Council
  - **The Counterfeit Access Device and Computer Fraud and Abuse Act** made it a federal felony for someone to gain unauthorized access to information pertaining to national defense or foreign relations

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Software Patents

- In July 1998, in the **State Street Decision,** the US Court of Appeals affirmed that a business process could be patented
- In April 2001, the U.S. Congress introduced a bill requiring a determination of the significance of the patent and whether it is appropriate for use with computer technology
- In this fashion, the U.S. federal government has gradually established a legal framework for computer use
- As with ethics, however, the computer laws can vary considerably from one country to the next

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PUTTING MORALS, ETHICS, AND LAWS IN PERSPECTIVE

- Because they are written down, laws are the easiest to interpret
- Ethics, on the other hand, are not clearly defined and not even agreed on by all members of society
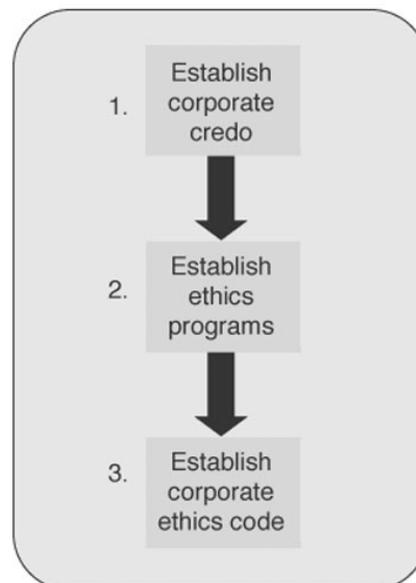
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NEED FOR AN ETHICS CULTURE

- Top-level managers lead by example: if the firm is to be ethical, then top management must be ethical in everything that it does and says

- This is known as an **ethics culture**

- The task of top-level management is to see that its concept of ethics permeates the organization, filtering down through the ranks to touch every employee

- This can be achieved through a corporate credo, ethics programs, and tailored corporate codes (Figure 10.1)

- Fig. 10.2 shows Security Pacific Corp.'s corporate credo

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Figure 10.1 Top-Level Management Imposes the Ethics Culture in a Top-Down Manner

1. Establish corporate credo

2. Establish ethics programs

3. Establish corporate ethics code

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Figure 10.2 Example of a Corporate Credo

Commitment to customer
The first commitment is to provide our customers with quality products and services that are innovative and technologically responsive to their current requirements, at appropriate prices. To perform these tasks with integrity requires that we maintain confidentiality and protect customer privacy, promote customer satisfaction, and serve customer needs. We strive to serve qualified customers and industries that are socially responsible according to broadly accepted community and company standards.

Commitment to employee
The second commitment is to establish an environment for our employees that promotes professional growth, encourages each person to achieve his or her highest potential, and promotes individual creativity and responsibility. Security Pacific acknowledges our responsibility to employees, including providing for open and honest communication, stated expectations, fair and timely assessment of performance, and equitable compensation that rewards employee contributions to company objectives within a framework of equal opportunity and affirmative action.

Commitment of employee to Security Pacific
The third commitment is that of the employee to Security Pacific. As employees, we strive to understand and adhere to the Corporation's policies and objectives, act in a professional manner, and give our best effort to improve Security Pacific. We recognize the trust and confidence placed in us by our customers and community and act with integrity and honesty in all situations to preserve that trust and confidence. We act responsibly to avoid conflicts of interest and other situations that are potentially harmful to the Corporation.

Commitment of employee to employee
The fourth commitment is that of employees to their fellow employees. We must be committed to promote a climate of mutual respect, integrity, and professional relationships, characterized by open and honest communication within and across all levels of the organization. Such a climate will promote attainment of the Corporation's goals and objectives, while leaving room for individual initiative within a competitive environment.

Commitment to communities
The fifth commitment is that of Security Pacific to the communities that we serve. We must constantly strive to improve the quality of life through our support of community organizations and projects, through encouraging service to the community by employees, and by promoting participation in community services. By the appropriate use of our resources, we work to support or further advance the interests of the community, particularly in times of crisis or social need. The Corporation and its employees are committed to complying fully with each community's laws and regulations.

Commitment to stockholder
The sixth commitment of Security Pacific is to its stockholders. We will strive to provide consistent growth and a superior rate of return on their investments, to maintain a position and reputation as a leading financial institution, to protect stockholder investments, and to provide full and timely information. Achievement of these goals for Security Pacific is dependent upon the successful development of the five previous sets of relationships.

Source: Patrick Murphy, "Creating Ethical Corporate Structures," Sloan Management Review 30 (Winter 1989), 82. Used with permission.

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Ethics Programs and Tailored Corporate Codes

- An **ethics program** consists of multiple activities to provide employees with direction in carrying out the corporate credo

- In an **ethics audit**, an internal auditor meets with a manager in a several-hour session for the purpose of learning how the manager's unit is carrying out the corporate credo

- Many firms have devised their own **corporate code of ethics** that may be adaptations of codes for a particular industry or profession

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REASONS FOR A COMPUTER ETHIC

- Computer ethics consists of two main activities:
  - the analysis of the nature and social impact of computer technology; and
  - formulation and justification of policies for the ethical use of such technology
- The CIO must:
  1. be alert to the effects that the computer is having on society; and
  2. formulate policies to ensure that the technology is used throughout the firm in the right way

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Reasons for the Importance of Computer Ethics

- James Moor believes there are 3 main reasons for the high level of interest in computer ethics:
  - **Logical Malleability:** The computer performs exactly as instructed, so if it's used for an unethical activity the computer is not the culprit
  - **The Transformation Factor:** computers can drastically change the way we do things
  - **The Invisibility Factor**: of internal operations provides the opportunity for invisible programming values, invisible complex calculations, and invisible abuse

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Social Rights and the Computer

- Mason coined the acronym **PAPA** (*p*rivacy, *a*ccuracy, *p*roperty, and *a*ccessibility) to represent society's four basic rights in terms of information
- Mason felt that "the right to be left alone" is being threatened by two forces:
    1. the increasing ability of the computer to be used for surveillance
    2. the increasing value of information in decision making
- For example, decision makers place such a high value on information that they will often be willing to invade someone's privacy to get it

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Other Rights

- **Right to Accuracy:** the potential for a level of accuracy that is unachievable in non-computer systems; some computer-based systems contain more errors than would be tolerated in manual systems
- **Right to Property**: copyright and patent laws provide some degree of protection
- **Right to Access**: much information has been converted to commercial databases, making it less accessible to the public

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INFORMATION AUDITING

- Firms of all sizes rely on **external auditors** to audit their accounting records to verify their accuracy
- Larger firms have their own **internal auditors**, who perform the same analyses as external auditors but have a broader range of responsibilities
- The Securities and Exchange Commission has placed restrictions on the amount of internal auditing that external auditors can perform
- Figure 10.3 shows a popular way to position internal auditing in the organization

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**Figure 10.3** The Position of Internal Auditing in the Organization

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Types of Auditing Activity

- Internal auditors offer more objectivity since their only allegiance is to the board, the CEO, and the CFO
- Four basic types of internal auditing activity:
  - A **financial audit:** verifies the accuracy of the firm's records and is the type of activity performed by external auditors
  - An **operational audit:** aimed to validate the effectiveness of procedures
  - A **concurrent audit:** is the same as an operational audit except that the concurrent audit is ongoing
  - **Internal Control Systems Design:** the cost of correcting a system flaw increases dramatically as the system life cycle progresses (Figure 10.4)

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Figure 10.4 The Escalating Cost of Correcting Design Errors as the System Life Cycle Progresses
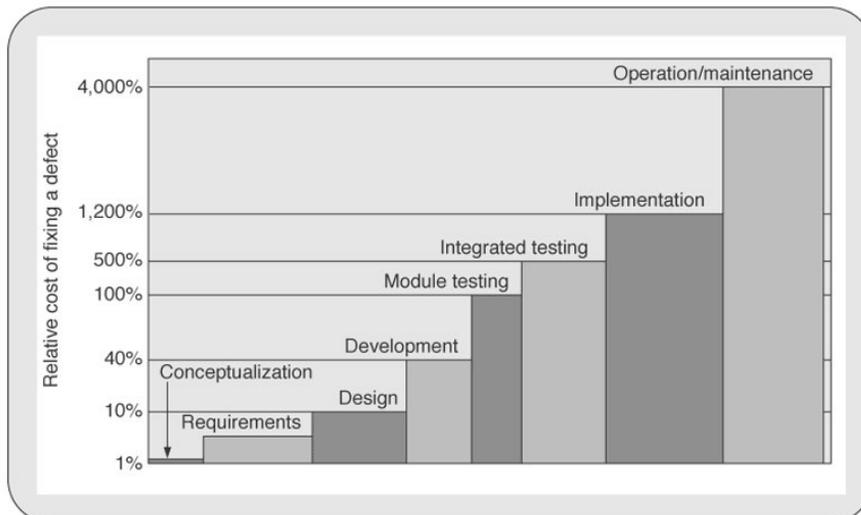
Source: Frederick Gallegos, "Audit Contributions to Systems Development," EDP Auditing 9 (Boston: Auerbach Publishers, 1991), section 72-01-70. Used with permission.

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The Internal Audit Subsystem

- In the financial information system illustrated in Figure 10.5, the internal audit subsystem is one of the input subsystems, along with the transaction processing system and a financial intelligence subsystem that gathers environmental data

- The forecasting subsystem prepares long-term financial forecasts

- The funds management subsystem assists managers in managing the firm's money resources, providing such abilities as performing cash flow analysis

- The control subsystem enables the firm's managers to control their expenditures and consists of the operating budget and budget reports

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Figure 10.5 A Model of a Financial Information System
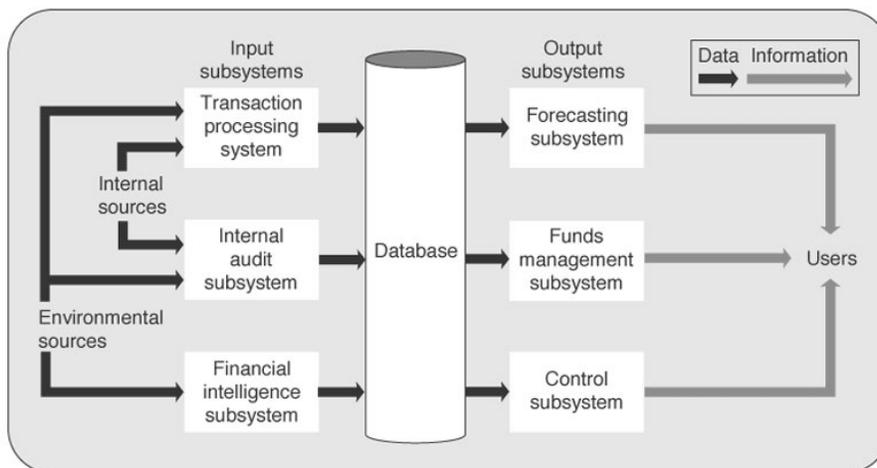
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ACHIEVING ETHICS IN INFORMATION TECHNOLOGY

- Companies can get assistance in the form of ethics codes and ethics educational programs to provide the foundation for their culture
- The ethics codes can be used as is or tailored to the firm
- Educational programs can assist in developing a corporate credo and in putting ethics programs in place

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Code of Ethics and Professional Conduct

- The current form of the ACM code of ethics was adopted in 1992 and consists of 24 "imperatives" that are statements of personal responsibility
- The code is subdivided into four parts (Figure 10.6):
  - general moral imperatives;
  - more specific professional responsibilities;
  - organizational leadership responsibilities; and
  - compliance with the code

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Figure 10.6 Outline of the ACM Code of Ethics and Professional Conduct

Outline of the ACM Code of Ethics and Professional Conduct

1. General Moral Imperatives

1.1 Contribute to society and human well-being.
1.2 Avoid harm to others.
1.3 Be honest and trustworthy.
1.4 Be fair and take action not to discriminate.
1.5 Honor property rights including copyrights and patents.
1.6 Give proper credit for intellectual property.
1.7 Respect the privacy of others.
1.8 Honor confidentiality.

2. More Specific Professional Responsibilities

2.1 Strive to achieve the highest quality, effectiveness, and dignity in both the process and products of professional work.
2.2 Acquire and maintain professional competence.
2.3 Know and respect existing laws pertaining to professional work.
2.4 Accept and provide appropriate professional review.
2.5 Give comprehensive and thorough evaluations of computer systems and their impacts, including analysis of possible risks.
2.6 Honor contracts, agreements, and assigned responsibilities.
2.7 Improve public understanding of computing and its consequences.
2.8 Access computing and communication resources only when authorized to do so.

3. Organizational Leadership Imperatives

3.1 Articulate social responsibilities of members of an organizational unit and encourage full acceptance of those responsibilities.
3.2 Manage personnel and resources to design and build information systems that enhance the quality of working life.
3.3 Acknowledge and support proper and authorized uses of an organization's computing and communication resources.
3.4 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.
3.5 Articulate and support policies that protect the dignity of users and others affected by a computing system.
3.6 Create opportunities for members of the organization to learn the principles and limitations of computer systems.

4. Compliance with the Code

4.1 Uphold and promote the principles of this code.
4.2 Treat violations of this code as inconsistent with membership in the ACM.

Source: Association for Computing Machinery. Printed with permission.

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Compliance with the Code

- Table 10.1 illustrates five main dimensions of the ethics of computer work (moral, legal, professional performance, social responsibility, and internal support) as addressed by the three main sections of the code
- Table 10.2 shows the focus of the sections on three main areas of responsibility
- Formal educational programs in computer ethics are available from a variety of sources: college courses, professional programs, and private educational programs

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Table 10.1

Topics Covered by the ACM Code of Ethics and Professional Conduct					
	MORAL BEHAVIOR	LEGAL RESPONSIBILITY	PROFESSIONAL PERFORMANCE	SOCIAL RESPONSIBILITY	INTERNAL SUPPORT
GENERAL MORAL IMPERATIVES	X	X			
MORE SPECIFIC PROFESSIONAL RESPONSIBILITIES	X	X	X	X	
ORGANIZATIONAL LEADERSHIP IMPERATIVES		X			X

Table 10.2

Topics Covered by the ACM Software Engineering Code of Ethics and Professional Practice			
	RESPONSIBILITY TO CONSTITUENTS	PROFESSIONAL PERFORMANCE	SELF-IMPROVEMENT
PUBLIC	X		
CLIENT AND EMPLOYER	X		
PRODUCT		X	
JUDGMENT		X	
MANAGEMENT	X		
PROFESSION	X		
COLLEAGUES	X		
SELF			X

ETHICS AND THE CIO

- As of August 11, 2002, CEOs and CFOs are required to sign off on the accuracy of their financial statements
- This requirement puts responsibility on the executives but also on the corporate information services unit and the information services units of the business areas to provide the executives with information that is accurate, complete, and timely
- IS only one unit in the organizational structure but it is in a key position to have the most influence on satisfying the demands of both government and society for accurate financial reporting

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Ethics and the CIO (cont.)

The CIO can bring financial reporting up to expectations by following a program that includes the following:
- Achieving a higher level of understanding of accounting principles
- Reviewing the information systems that accomplish financial reporting and taking remedial action
- Educating the firm's executives on financial systems
- Integrating alarms into information systems that alert executives to activities that require attention
- Actively participating in the release of financial information to environmental elements
- Keeping tight control on money spent for information resources

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END OF CHAPTER 10

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