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Chapter 1 - Managing in the Digital World

Managers are facing unique challenges as Digital Technologies permeate the workplace

Chapter 1 Learning Objectives



Information Systems Today

- Describe the characteristics of the digital world and the advent of the Information Age.



Evolution of Globalization

- Define globalization, describe how it evolved over time, and describe the key drivers of globalization.



Information Systems Defined

- Explain what an information system is, contrasting its data, technology, people, and organizational components.



The Dual Nature of Information Systems

- Describe the dual nature of information systems in the success and failure of modern organizations.



IS Ethics

- Describe how computer ethics impact the use of information systems and discuss the ethical concerns associated with information privacy and intellectual property.

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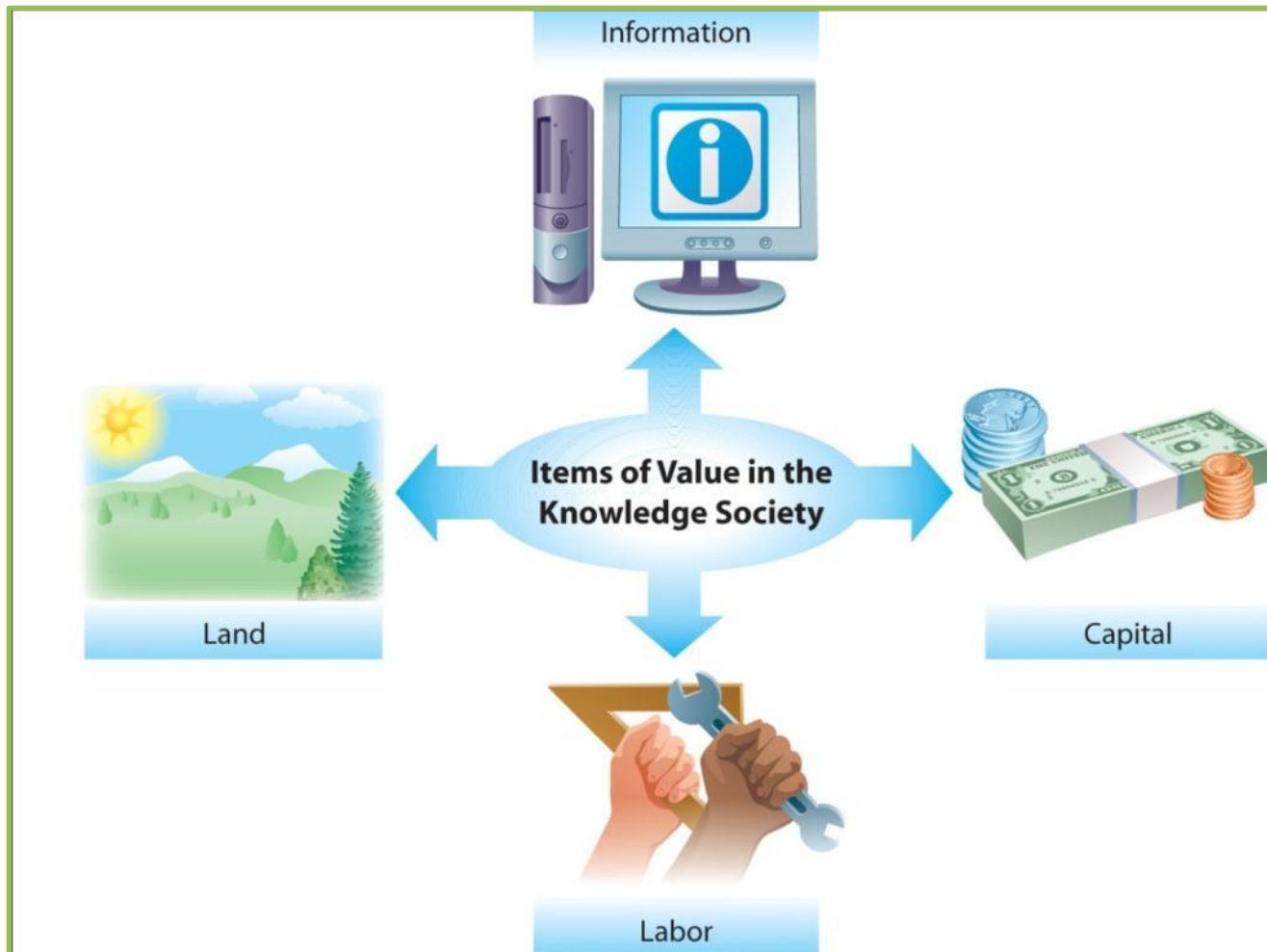
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Question

- What is a “knowledge worker”?
- How many of the MIS majors expect to work as knowledge workers upon graduation?
- How many of the non-MIS majors expect to work as knowledge workers upon graduation?

Information is a Valuable Resource

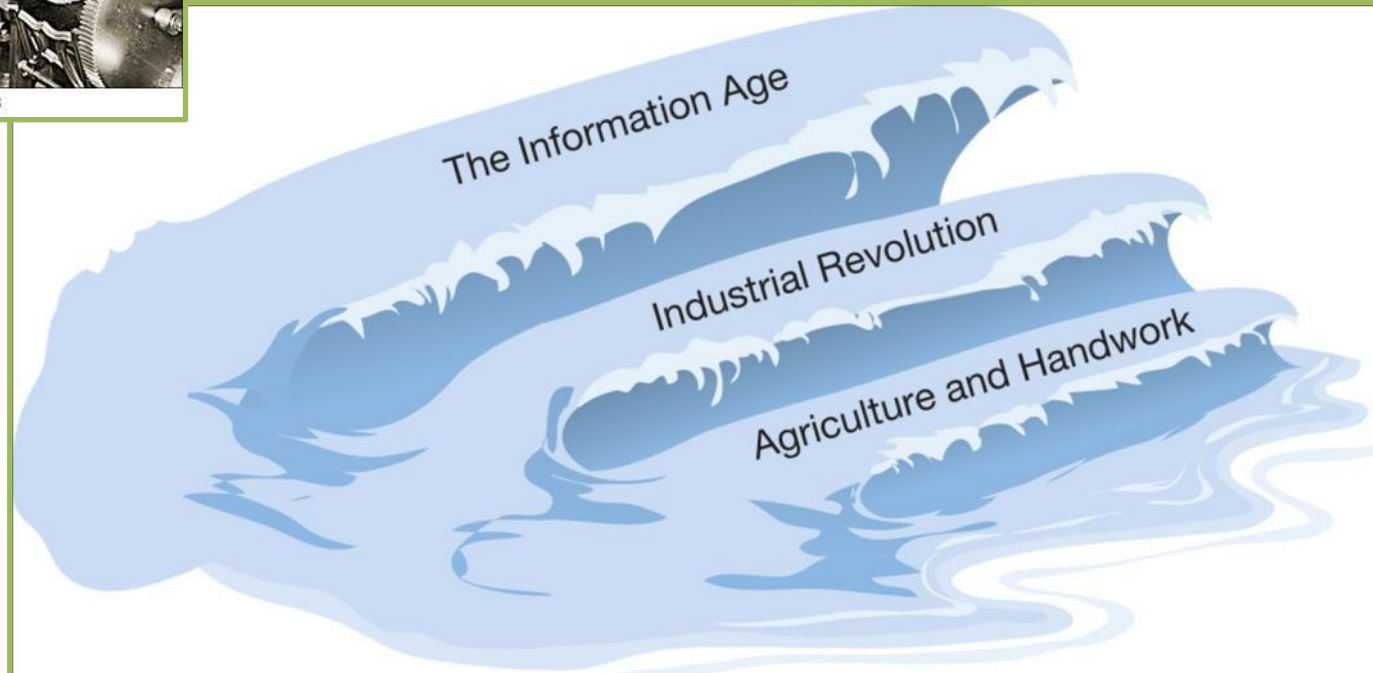


The Rise of the Information Age



Could the conventional wisdom of the day during the age of agriculture and handwork every prepare a young person to be successful during the industrial age? How would your parents and teachers tell you to prepare?

When you were trying to figure out what to study in college, who did you talk to to help you figure this out?



Five IT Megatrends in the Information Age



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Five IT Megatrends in the Information Age: Mobile Computing



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- Many believe that we're living in a post-PC era.
- In the developing world mobile devices often leapfrog traditional PCs.
- Implications:
 - Increased collaboration
 - The ability to manage business in real time
 - New ways to reach customers

Five IT Megatrends in the Information Age: Social Media

- Over 800 million Facebook users share status updates or pictures with friends and family
- Organizations use social media to encourage employee collaboration or to connect with their customers



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Five IT Megatrends in the Information Age: Big Data

- IDC estimated that in 2011, 1.8 zettabytes of data were generated and consumed
- How much is 1.8 zettabytes? 1.8 trillion gigabytes, or the equivalent of 57 billion 32GB iPads (IDC, 2011)
- This number is forecast to grow by 50 times by 2020

Five IT Megatrends in the Information Age: Cloud Computing

- Web technologies enable using the Internet as the platform for applications and data
- Many regard cloud computing as the beginning of the “fourth wave”
 - the applications but also the data reside in the cloud



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Five IT Megatrends in the Information Age: Consumerization of IT

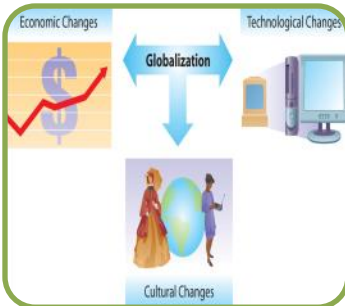
- Consumerization may be the most significant trend affecting organizational IT personnel
 - Today's employees bring their own devices to work
 - Initially used for emails / social networking
 - Now used for other important tasks such as enterprise resource planning
 - Creates security concerns
 - Opens up new opportunities

Evolution of Globalization



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- Learning Objective: Be able to define globalization, describe how it evolved over time, and describe key globalization drivers.



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What is “globalization” and how is it manifested?

Did you know 3.0?

How much of this has been enabled by technology?

Does any of this make you feel a little threatened and uncomfortable?

Globalization

Economic Changes



Technological Changes



Cultural Changes

Globalization: 1.0, 2.0, 3.0

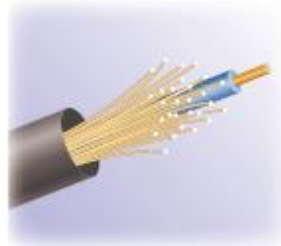
Globalization 1.0



Globalization 2.0



Globalization 3.0



The World is Flat



1492



1800



2000



Medium-Sized World



Small-Sized World



Tiny-Sized World

Globalization Phase	Time	Primary Entities Globalizing	Regions Globalizing
1.0	1492–1800	Countries	Europe and America
2.0	1800–2000	Companies	Europe and America
3.0	2000–now	Individuals and small groups	Worldwide

Key Factors Enabling Globalization

- The fall of the Berlin Wall
- The Windows operating system
- The Internet — release of the Netscape Web browser
- Falling telecommunications costs

The Rise of Information Systems Outsourcing

- Outsourcing: moving of business processes or tasks to another company
 - Facilitated by declining telecommunication costs
 - Driven by cost reduction
 - Reduced labor costs for low-skilled labor: Apple outsourcing manufacturing to China
 - Reduced labor costs for relatively high-skilled labor: Boeing outsourcing 787 Aeronautical Engineering to Russia

The Rise of Information Systems Outsourcing: Key Reasons for Outsourcing

- To reduce or control costs
- To free up internal resources
- To gain access to world-class capabilities
- To increase revenue potential of the organization
- To reduce time to market
- To increase process efficiencies
- To be able to focus on core activities
- To source specific capabilities or skills

Opportunities of Operating in the Digital World

- **Falling Transportation Costs**
 - Shipping a bottle of wine from Australia to Europe merely costs a few cents
- **Falling Telecommunication Costs**
 - These have helped create shared perspectives of behavior, desirable goods, and even forms of government
- **Reaching Global Markets**
- **Accessing a Global Labor Pool**
 - Highly skilled or low cost labor pools exist in many countries which are now economically accessible

Challenges of Operating in the Digital World

- **Government**
 - Political instability
 - Regulatory: privacy, control, standards, censorship
- **Geopolitical**
 - Time zones, infrastructure
 - Workforce: welfare, demographics, expertise
- **Cultural**
 - Working with, providing services too

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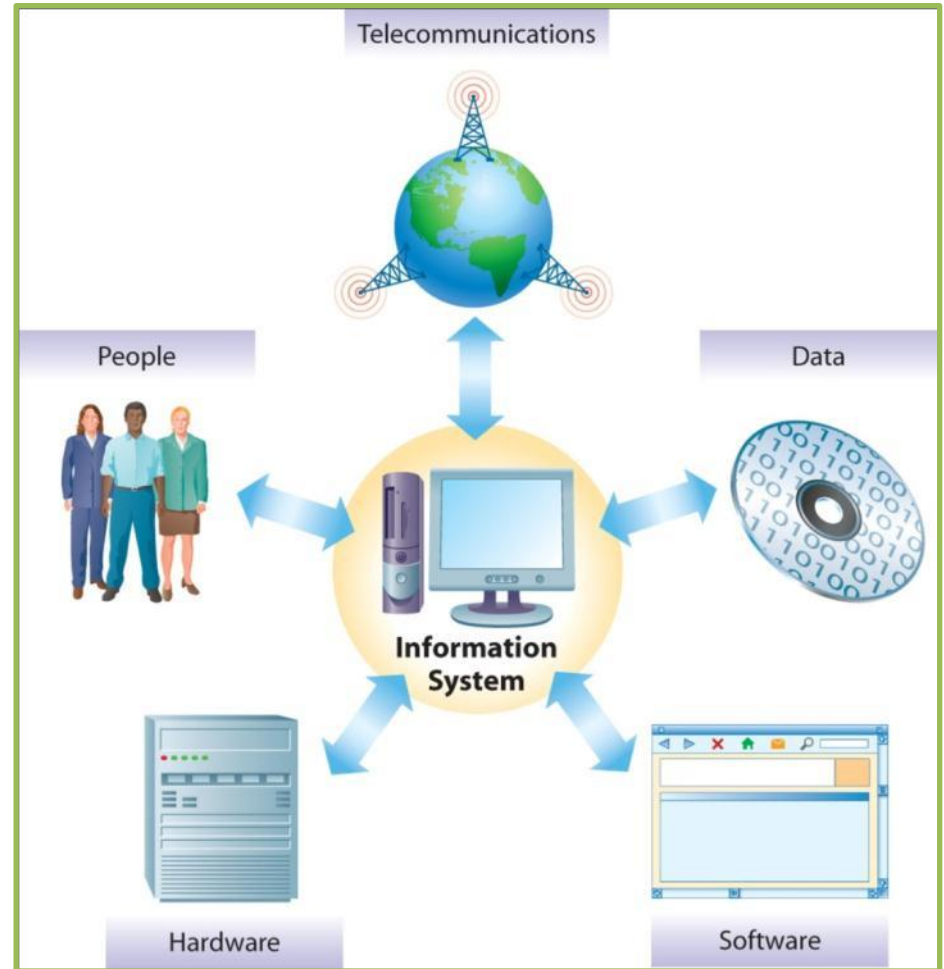
Data: The Root and Purpose of Information Systems

Data	Information	Knowledge
465889727	465-88-9727	465-88-9727 → John Doe
Unformatted Data	Formatted Data	Data Relationships
Meaning: ----- ???	Meaning: ----- SSN	Meaning: ----- SSN → Unique Person

- Data is analyzed and processed into information
- When there is an ability to understand the information and make decisions using it, it becomes knowledge

The Components of Information Systems

- Five Components of Information Systems:
 - People
 - Telecommunications
 - Hardware
 - Data
 - Software



People: The Builders, Managers, and Users of Information Systems

- An ecosystem of Users, Builders, Managers, and those who study information systems
- As the use of information systems grows, so does the need for dedicated IS professionals
- Growing demand focused on those with advanced and/or unique skills

IS Positions Rank Among the Best Jobs in America

Rank	Career	Job Growth (10-year forecast)	Median Pay
1	Software developer	32%	\$82,400
2	Physical therapist	30%	\$75,900
3	Financial adviser	30%	\$93,900
4	Civil engineer	24%	\$74,700
5	Marketing specialist	28%	\$52,200
6	Management consultant	24%	\$111,000
7	IT consultant	20%	\$96,500
8	Database administrator	20%	\$86,600
9	Financial analyst	20%	\$62,600
10	Environmental engineer	31%	\$81,200

Organizations: The Context of Information Systems

- Information Systems can help organizations
 - Be more productive and profitable
 - Gain competitive advantage
 - Reach more customers
 - Improve service to their customers
- This holds true for all types of organizations—professional, social, religious, educational, and governmental

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Information Systems for Competitive Advantage

- FedEx is just one firm using information systems for competitive advantage
 - Firms of all types and sizes can use information systems to gain or sustain a competitive advantage over their rivals
 - Whether it is a small mom-and-pop boutique or a large government agency, every organization can find a way to use information technology to beat its rivals

Question

- Does a great payroll or order entry system give your organization a competitive advantage?
- What if the order entry system is connected to a CRM system which helps you cross sell or up sell additional goods and services?

Why Information Systems Matter

- Does IT matter?
 - A classic article in 2003 pointed out many existing information system elements have become commoditized—argues focus will turn to pure cost reduction
 - However, the continuous innovation still being seen in information systems has some companies realizing strategic advantage from the innovative uses thereof
 - Still, such advantage can be fleeting, and companies using information systems for strategic advantage need to keep innovating

Coming Attractions

The Future of Cloud-Based Communications

- By 2020, all sorts of our communications-related information could come to be stored in the cloud
- This information could be analyzed
 - Helping know where friends and family are
 - Knowing how and when to reach them
- The cloud could wind up knowing more about our lives than we do
- Still, the benefits could be amazing

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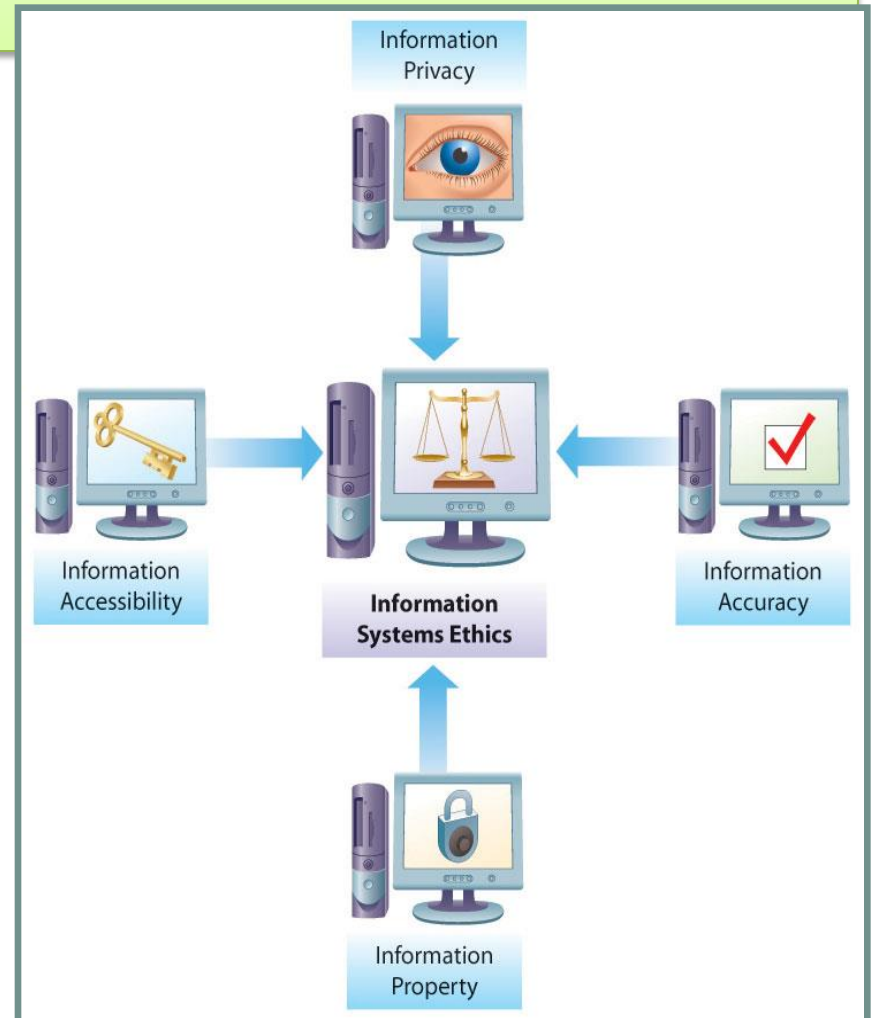


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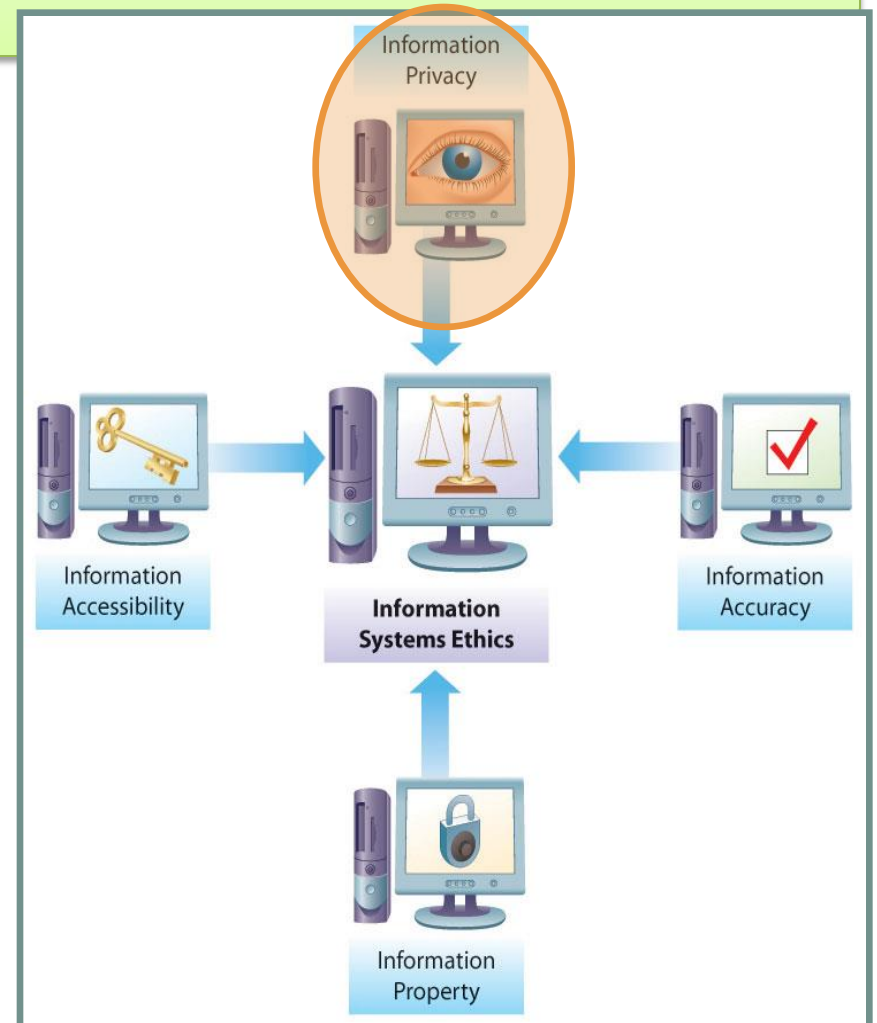
Computer Ethics

- What are computer ethics?



Information Privacy

- What information should you have to reveal?
- What information you might want to keep private?
- What is identity theft



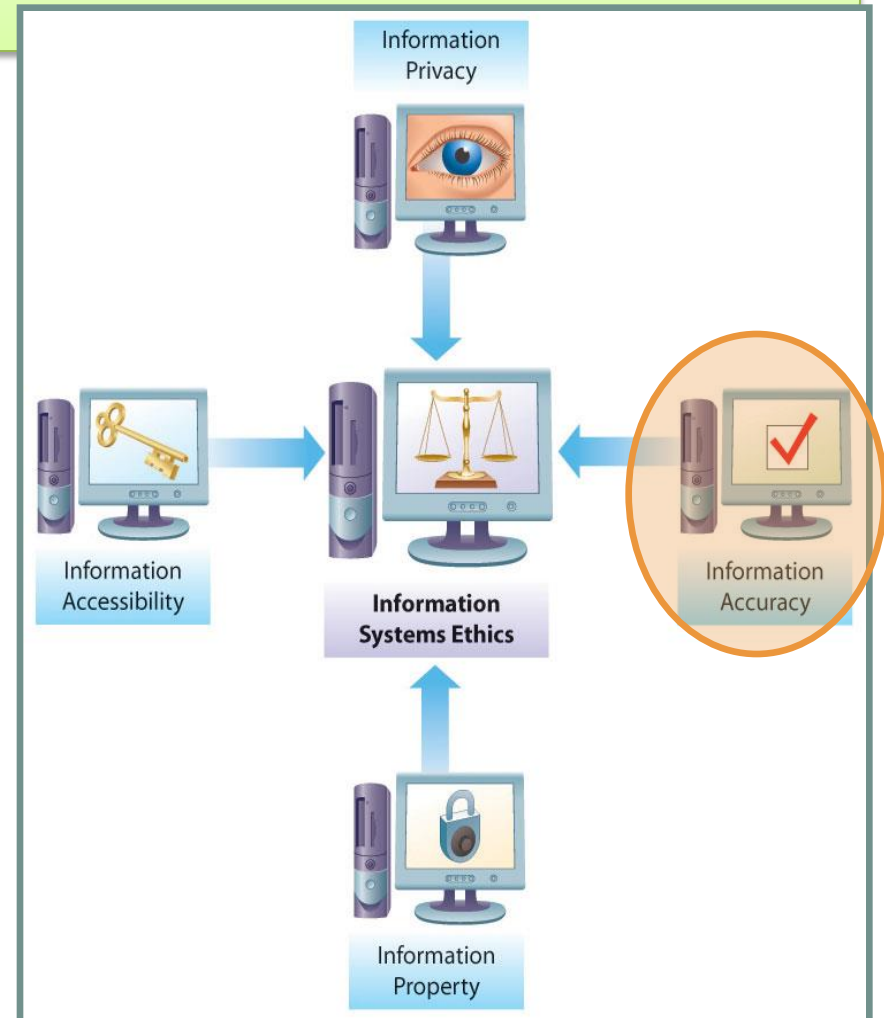
Information Privacy (cont'd)

- Companies seem to know about our every move—how much information do we need to reveal?
- Amazon.com is famous for personalization
- What are the costs?



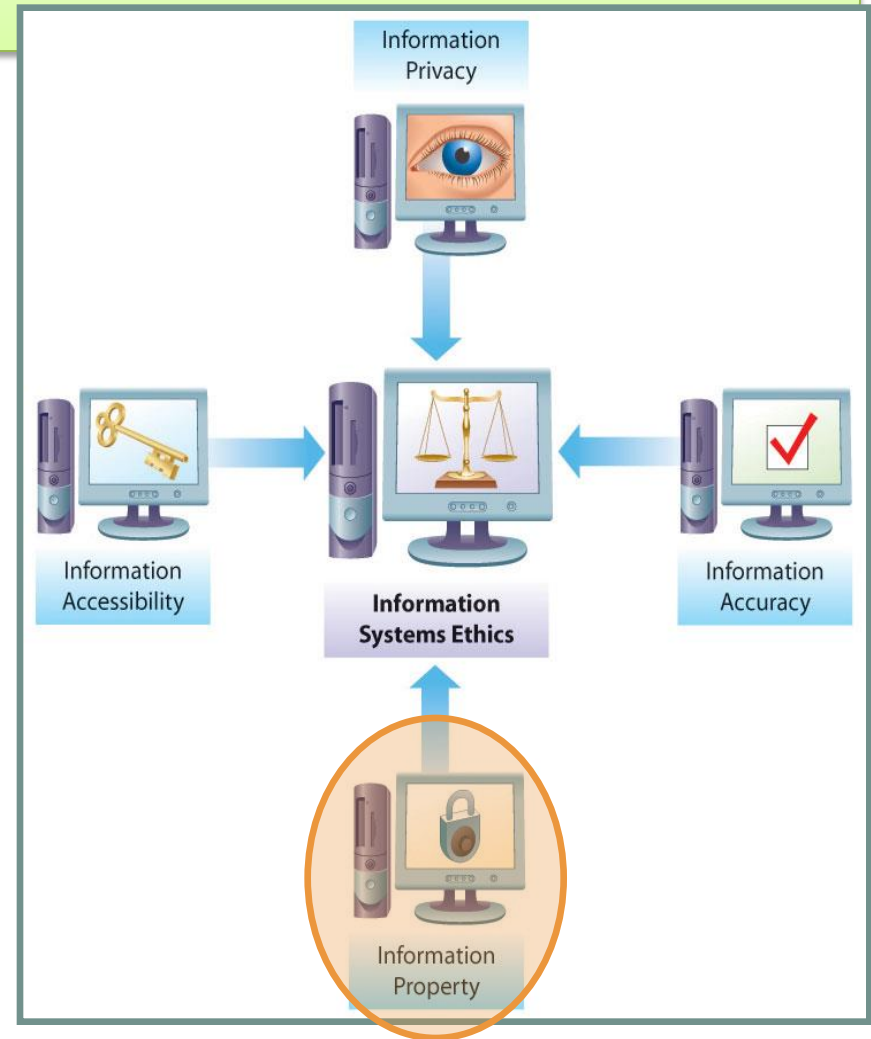
Information Accuracy

- Who is responsible for ensuring of the authenticity and fidelity of information?



Information Property

- Who owns information about individuals?
- How can this information be sold and exchanged?



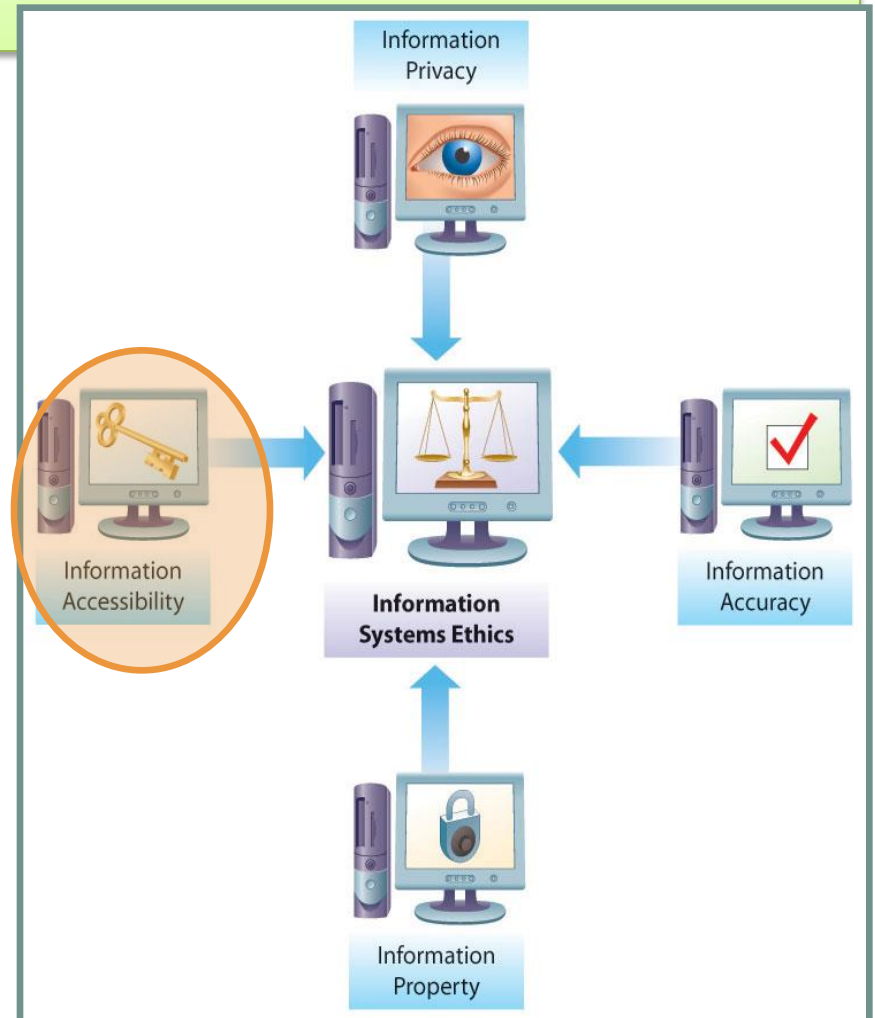
Data Privacy Statements

- Company maintaining the database with customer information legally owns it
 - Is free to sell it?
 - Must it ensure proper data handling practices?
- Social networking complicates matters
 - Complexity of privacy settings
 - Friends can tag you without your knowledge.



Information Accessibility

- Who has the right to monitor the information?



The Need for a Code of Ethical Conduct: Computer Ethics Institute Guidelines

- The guidelines prohibit:
 - Using a computer to harm others
 - Interfering with other people's computer work
 - Snooping in other people's files
 - Using a computer to steal
 - Using a computer to bear false witness
 - Copying or using proprietary software without paying for it
 - Using other's resources without authorization or compensation
 - Appropriating other people's intellectual output
- The guidelines recommend:
 - Review social consequences of programs and systems you design
 - Use computers in ways that show consideration and respect for others

The Digital Divide

- Many people are being left behind in the information age
 - Strong linkage between computer literacy and a person's ability to compete in the information age
 - People in rural communities, the elderly, people with disabilities, and minorities lag behind national averages for Internet access and computer literacy
 - The challenges in overcoming the digital divide are even greater in developing countries