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Chapter 1: Managing in the Digital World

Managers are facing unique challenges as digital technologies permeate the workplace

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Chapter 1 Learning Objectives



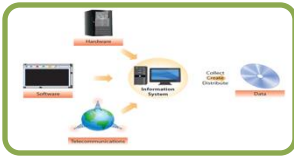
Information Systems Today

- 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

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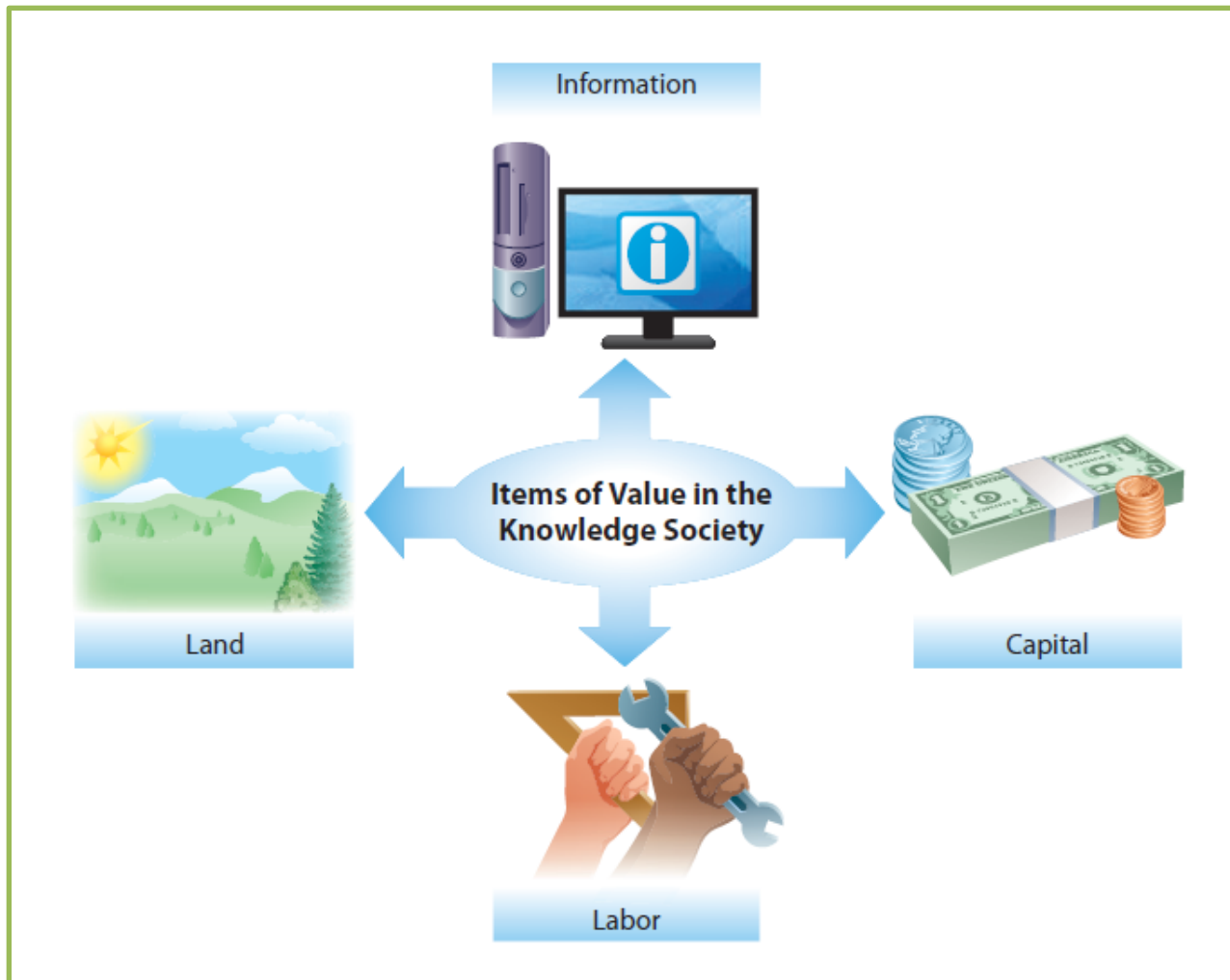
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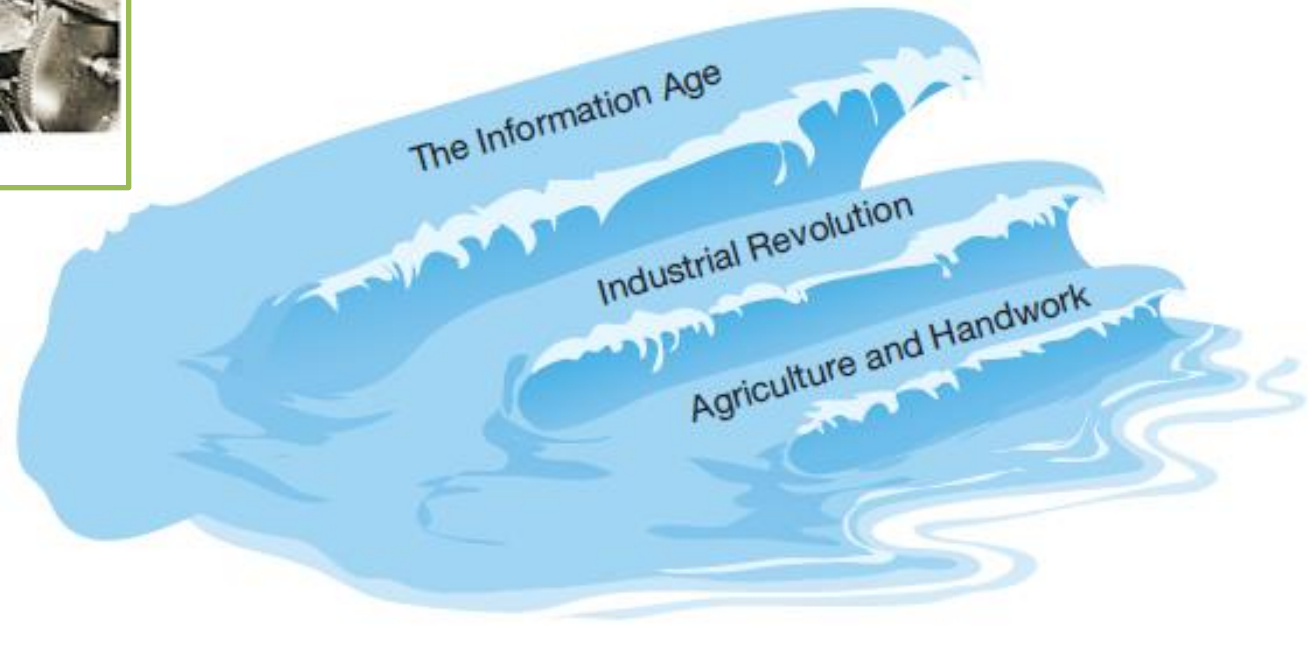
Information Is a Valuable Resource



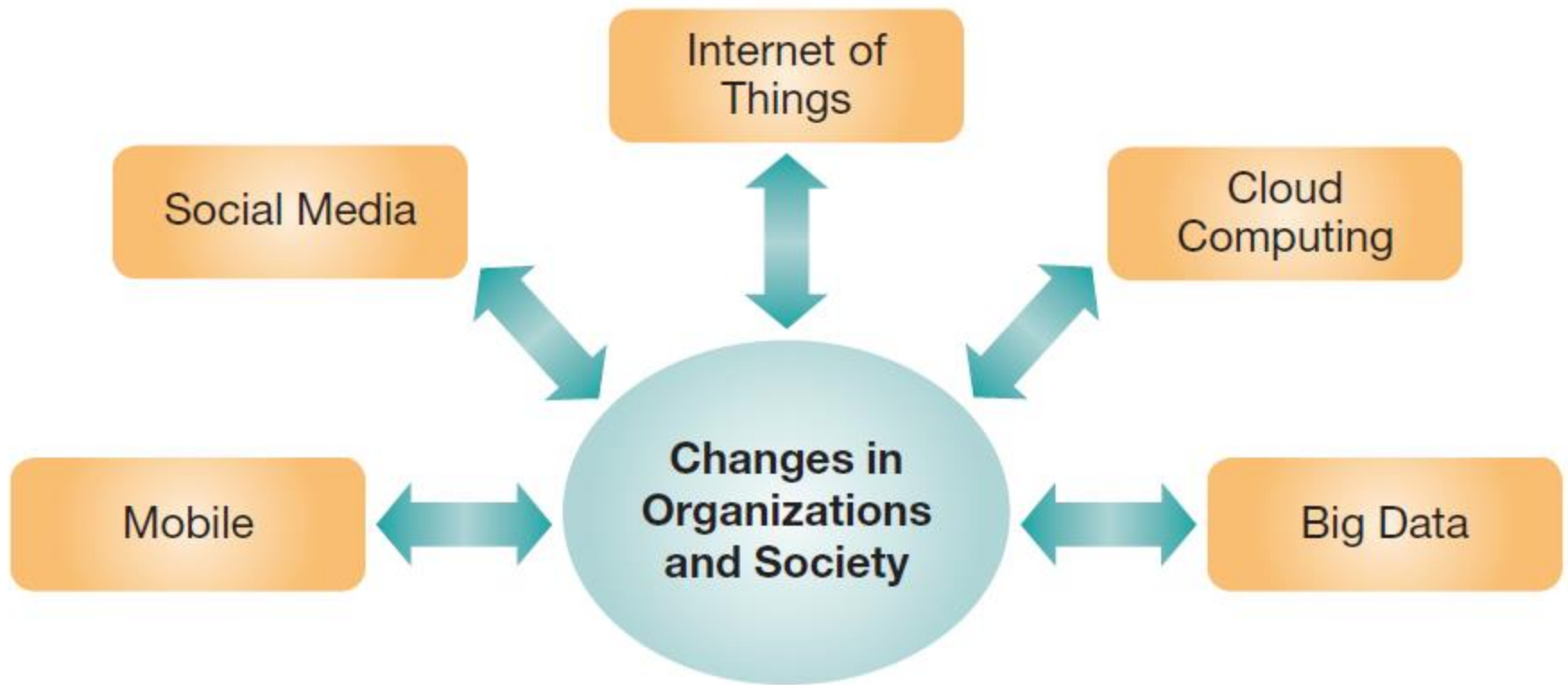
The Rise of the Information Age



Source: ChipPix/Shutterstock.



Five IT Megatrends in the Information Age



Five IT Megatrends in the Information Age: Mobile Computing



- 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 1.28 billion (and growing) 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



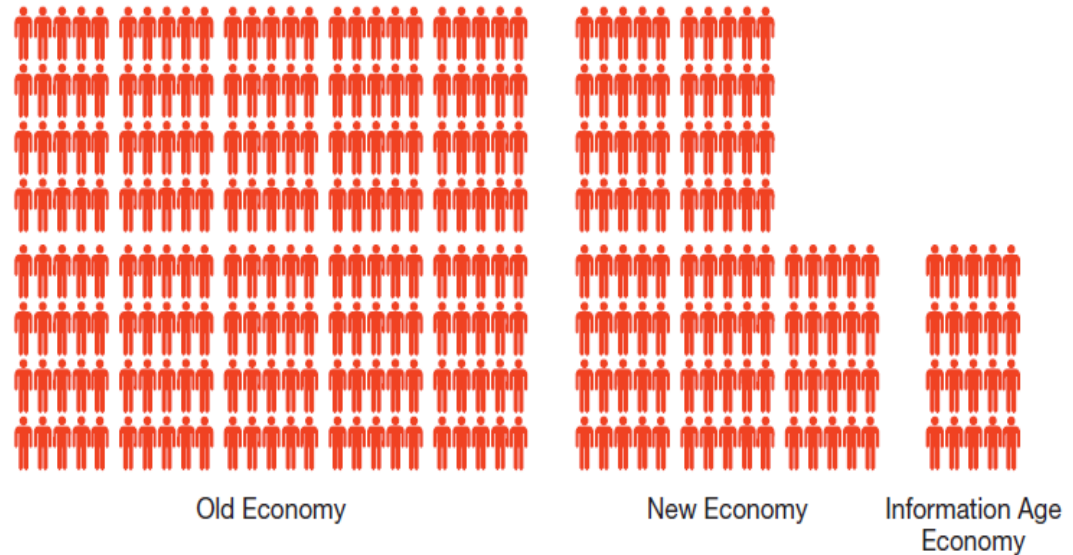
Five IT Megatrends in the Information Age: Cloud Computing

- Web technologies enable using the Internet as the platform for applications and data
- Many regard cloud computing as the beginning of the “fourth wave”
- Applications that used to be installed on individual computers are increasingly kept in the cloud
 - e.g., Gmail, Google Docs, Google Calendar



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? It is 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



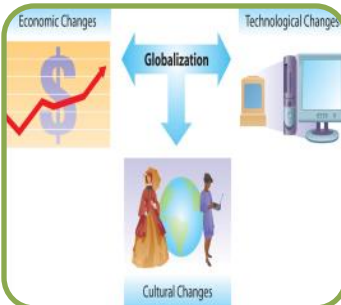
Companies in the Information Age economy are creating value not from people, but from data.

Evolution of Globalization



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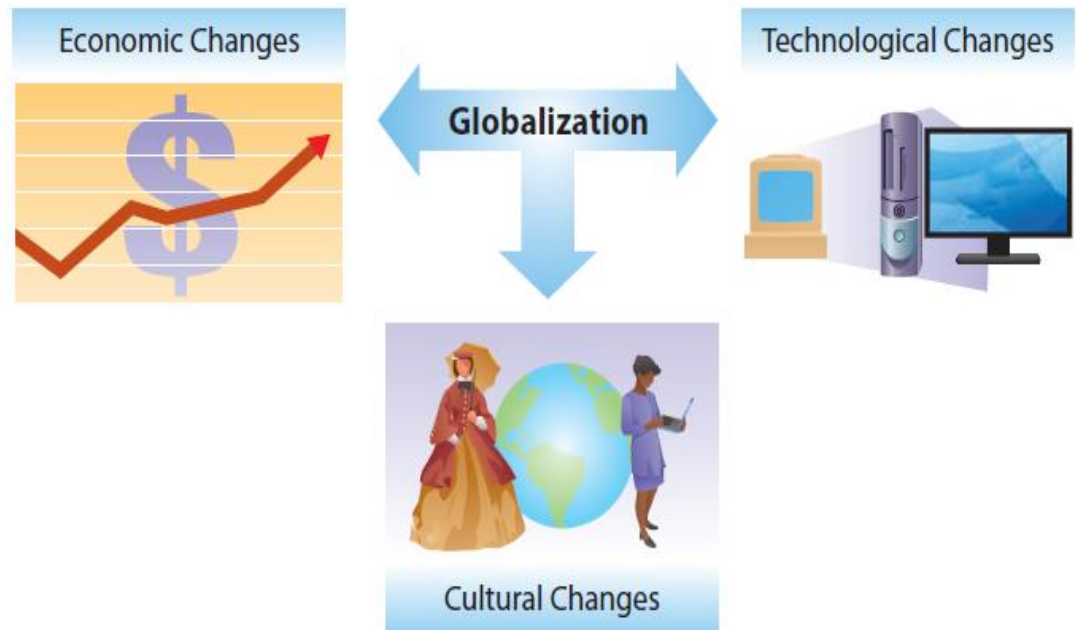


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Key Driving Impacts of Globalization

- Economic change
 - International trade, global finance, labor outsourcing
- Cultural change
 - Multiculturalism from media, international travel, ethnic foods
- Technological change
 - Computing and communication platforms, global patent and copyright laws



The Rise of Information Systems Outsourcing

- Outsourcing: moving of business processes or tasks to another company



Companies are offshoring production to overseas countries (such as China) to utilize talented workers or reduce costs.
Source: Lianxun Zhang/fotolia.

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 the 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 costs only 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 that are now economically accessible

Challenges of Operating in the Digital World

- **Government**
 - Political instability
 - Regulatory: taxes/tariffs, import/export restrictions
- **Geo-economic**
 - Time zones, infrastructure
 - Workforce: welfare, demographics, expertise
- **Cultural**
 - Working with, providing services to

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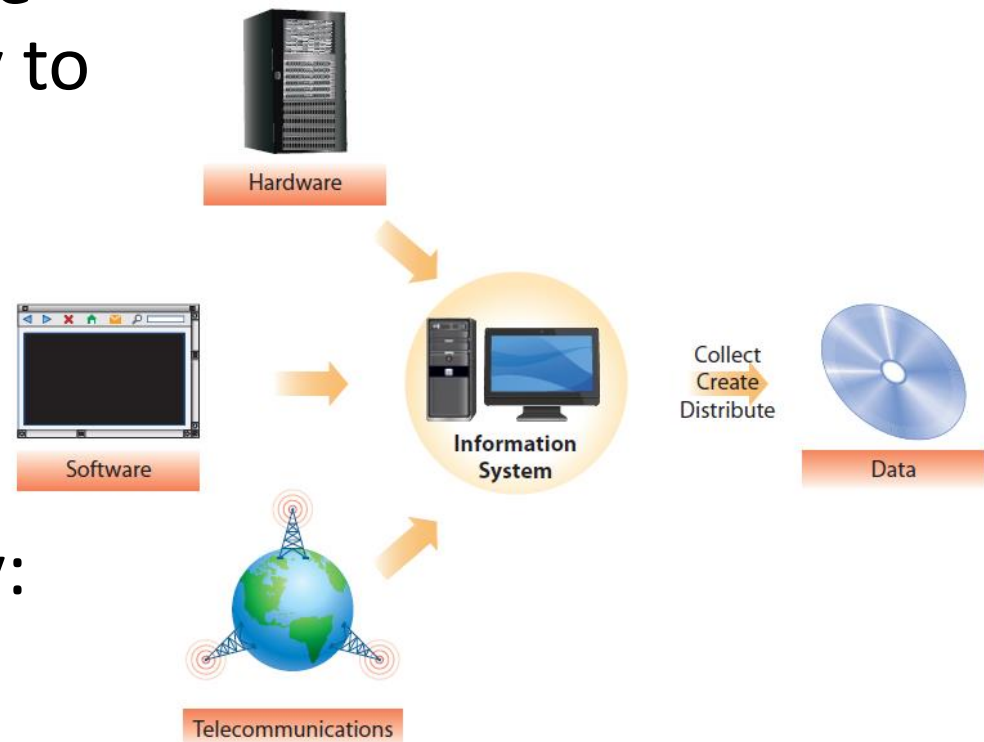


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Information Systems

- Information systems use information technology to collect, create, and distribute useful data
- Information technology:
 - Hardware, software, telecommunications



Data: The Root and Purpose of Information Systems

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

- Alone, raw data are not very useful
- When processed into information, data become useful
- When information is understood and used for decisions, it becomes knowledge

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

- As the use of information systems grows, so does the need for dedicated IS professionals.

Rank	Career	Job Growth (10-year forecast)	Median Pay (in US\$)
1	Biomedical engineer	62%	87,000
2	Clinical nurse specialist	26%	86,500
3	Software architect	28%	121,000
4	General surgeon	24%	288,000
5	Management consultant	29%	110,000
6	Petroleum geologist	21%	183,000
7	Software developer	28%	88,700
8	IT configuration manager	29%	95,800
9	Clinical research associate	36%	95,100
10	Reservoir engineer	17%	179,000

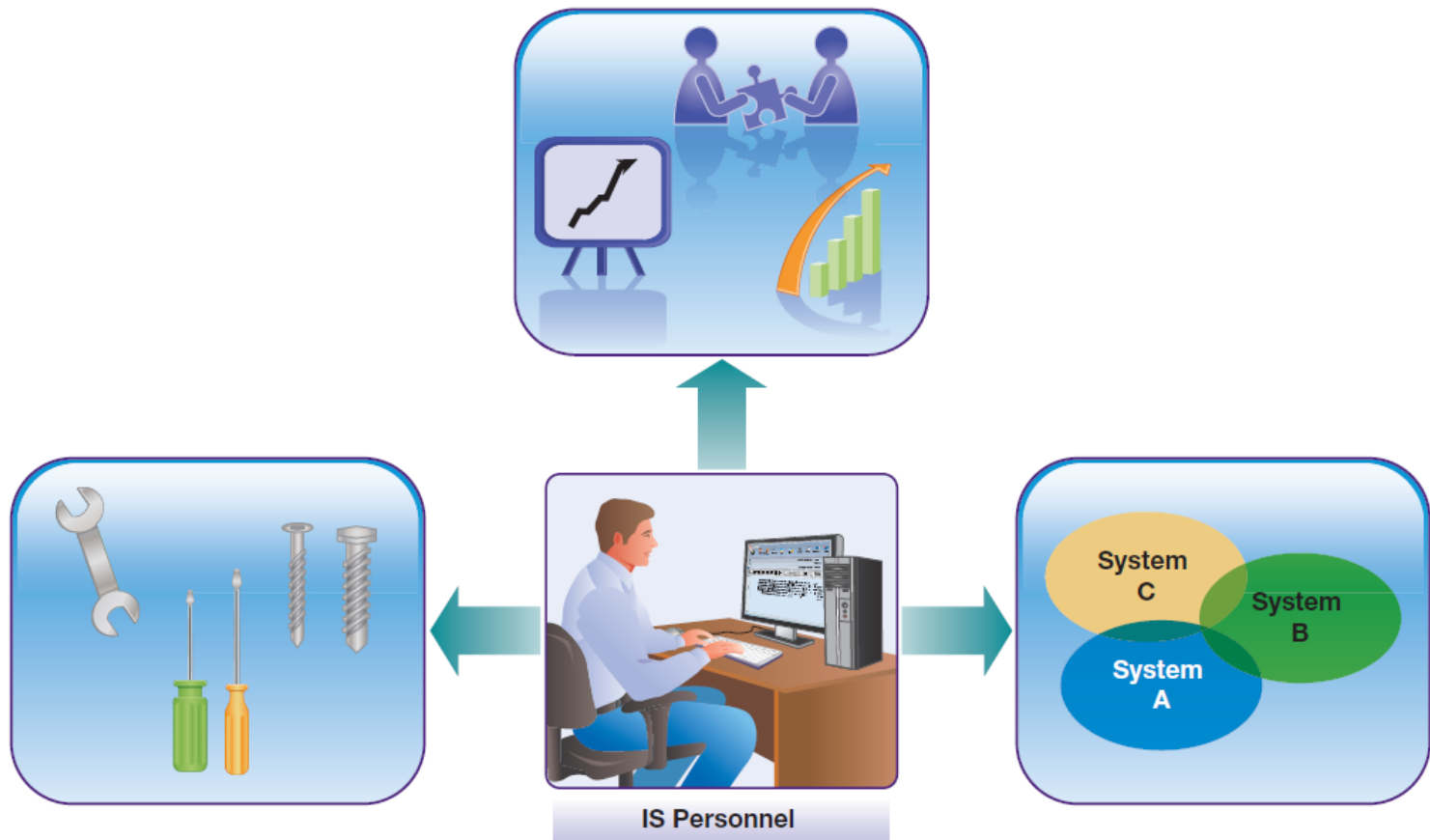
Source: Based on <http://money.cnn.com/pf/best-jobs>.

Careers in Information Systems

- Develop
 - Systems analyst, software developer, systems consultant
- Maintain
 - IS auditor, database administrator, Webmaster
- Manage
 - IS manager, IS security manager, chief information officer (CIO)
- Study
 - University professor, government scientist

What Makes IS Personnel So Valuable?

- A blend of technical, business, and system skills



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

Types of Information Systems

- Transaction processing system (TPS)
- Management information system (MIS)
- Decision support system (DSS)
- Intelligent system
- Business intelligence system
- Office automation system
- Collaboration system
- Knowledge management system
- Social software
- Geographic information system (GIS)
- Functional area information system
- Customer relation management (CRM) system
- Enterprise resource planning system (ERP)
- Supply chain management system
- Electronic commerce system

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Information Systems for Competitive Advantage—But with a Risk

- IS gone awry—American Airlines computer glitch
 - Caused 700 delayed flights, 125K affected passengers, FAA flight halt, public apology from CEO
- IS done right—FedEx tracking system
 - Continuous update and fine-tuning provides high-quality package tracking and enables FedEx to become a global leader in express transportation, handling 25% of all package deliveries
- 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

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Computer Ethics

“Describes the moral issues and standards of conduct as they pertain to the use of information systems”

- Collecting and analyzing user data may have negative impacts
 - Social decay
 - Increased consumerism
 - Loss of privacy

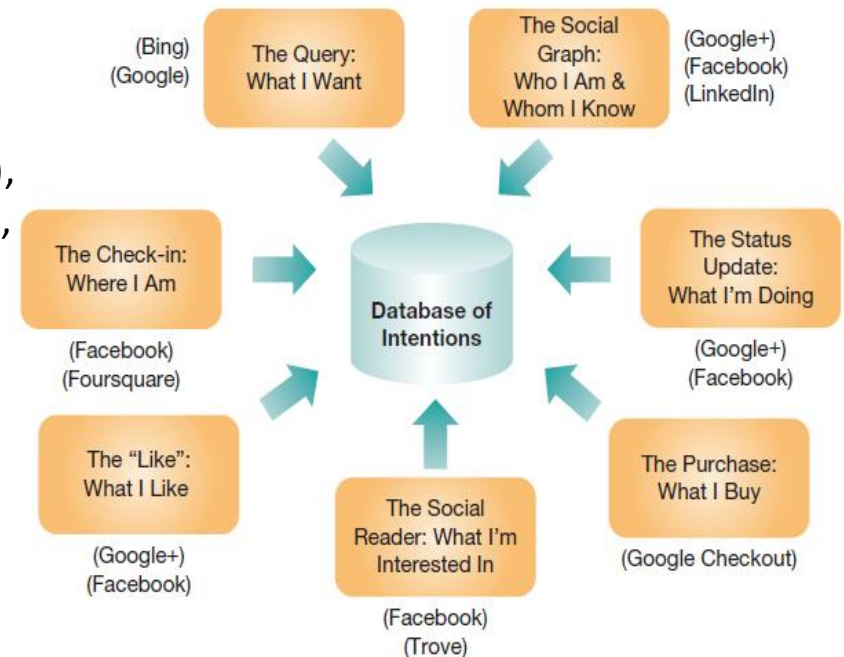
Richard O. Mason: “PAPA” Ethical Concerns— Privacy, Accuracy, Property, and Accessibility

- Privacy: What information should you have to reveal online or in the workplace?
- Accuracy: Are the data regarding individuals accurate? Can individuals access their data and verify the accuracy thereof? What are the impacts of inaccuracies?
- Property: Company owns the data/databases kept on individuals, and can sell the information as long as it doesn't violate stated privacy policies when gathering the data
- Accessibility: This circles back to the digital divide—who has access to information, and the skills to leverage it?

Privacy

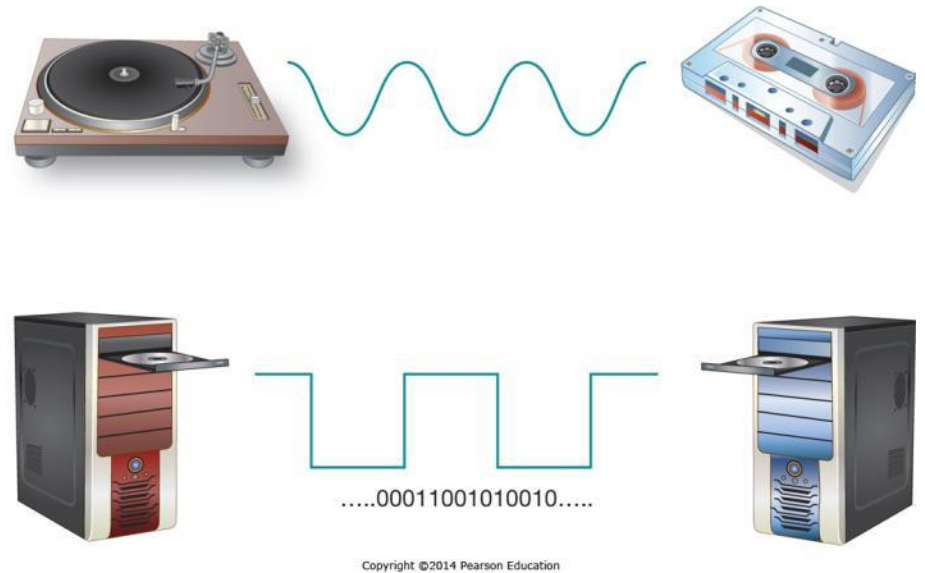
- Privacy on the Web
 - Who owns the computerized information about people? Answer: the company that maintains the database of customers is free to sell it...within limits
- E-mail Privacy
 - Legally, there is no right to e-mail privacy
 - Electronic Communications Privacy Act (ECPA), passed in 1986, protects phone conversations, but not e-mail
- Protecting your privacy
 - U.S FTC Fair Information Practice Principles: notice/awareness, choice/consent, access/participation, integrity/security, enforcement/redress

The database of intentions.
Source: Based on Batelle (2010).



Intellectual Property

- Copying digital music is almost effortless
- In many non-Western societies, using someone else's work is considered praise for the creator
- Using another's work without purchase or attribution has significant legal and ethical ramifications



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 the resources of others without authorization or compensation
 - Appropriating other people's intellectual output
- The guidelines recommend:
 - Review the 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

END OF CHAPTER CONTENT

Managing in the Digital World: Apple

- Founded in a garage by Steve Jobs and Steve Wozniak
 - Both left after management power struggles
 - Steve Jobs eventually came back to lead the company
 - Originally just made computers, both successes and failures
 - Now a world leader in innovative products
 - Introduced the iPod in 2001
 - Introduced iPhone (and the app store) in 2007
 - Introduced the iPad in 2010
- Apple continues to innovate, integrating attractive design with functionality and ease-of-use

Brief Case: Technology at Starbucks

- A not-so-simple coffee store
- Using technology to support success
 - Free in-store Wi-Fi access, paired with free access to music and content from the *Wall Street Journal*, *The Economist*, and other sources
 - A retail leader in mobile payments; customers can pay using a phone app that generates an on-screen barcode
 - Contextual retailing: baristas can be alerted to a customer's drink preferences, and the music in a store could even be tailored to the collective tastes of the customers present at that moment

Who's Going Mobile

Wearable Technology

- Wearable technology = clothing or accessories that incorporate electronic technologies
 - Examples include:
 - Smart watches
 - Fitness trackers (Fitbit)
 - Google Glass
 - Oculus VR (Facebook)
 - Exciting and futuristic
 - But, privacy and infrastructure issues abound

Key Players: Wipro and Infosys—The Global Outsourcing Leaders

- Infosys:
 - Introduced the “global delivery model,” taking the work to where the talent is, where it is most economical, and where the potential risk involved is minimized
- Wipro:
 - Provides IS development and technical support to businesses
 - Service provider for 150 global Fortune 500 clients

When Things Go Wrong: Failure: The Path to Success?

- Apple has had an amazing string of failures
 - The not-so-revolutionary PDA Newton—1993
 - The Pippin Game Player—1993
 - The overpriced and underpowered TAM (Twentieth Anniversary Macintosh) —1997
 - The Macintosh television—1993
 - The iMac G3 puck mouse—often mistakenly used upside down
 - The \$9,995 Lisa—1983
- Learning from failures, Apple is now highly successful

Coming Attractions

Smart Shirts Saving Lives

- Smart clothes contain technology sensors and network connectivity
- City University of Hong Kong researchers developed a smart shirt
- Detects the heart's electrical activity and transmit this information to a receiver via Bluetooth
- Wearable medical device that can anticipate heart problems

Ethical Dilemma: The Human Cost of the Newest Gadgets

- Moral dilemmas
- Consequences—maximize benefits, minimize harms
- Actions—honesty, fairness, respect, etc.
- Globalization—Apple and Foxconn:
 - Poor working conditions in China
 - Profit maximization vs. worker rights

Industry Analysis: Business Career Outlook

- There is a shortage of business professionals with the necessary “global skills” for operating in the digital world
- You can hone your global skills by:
 - Gaining international experience
 - Learning more than one language
 - Sensitizing yourself to global cultural and political issues