



Informatics Class 2

Information Technology in the Digital Economy



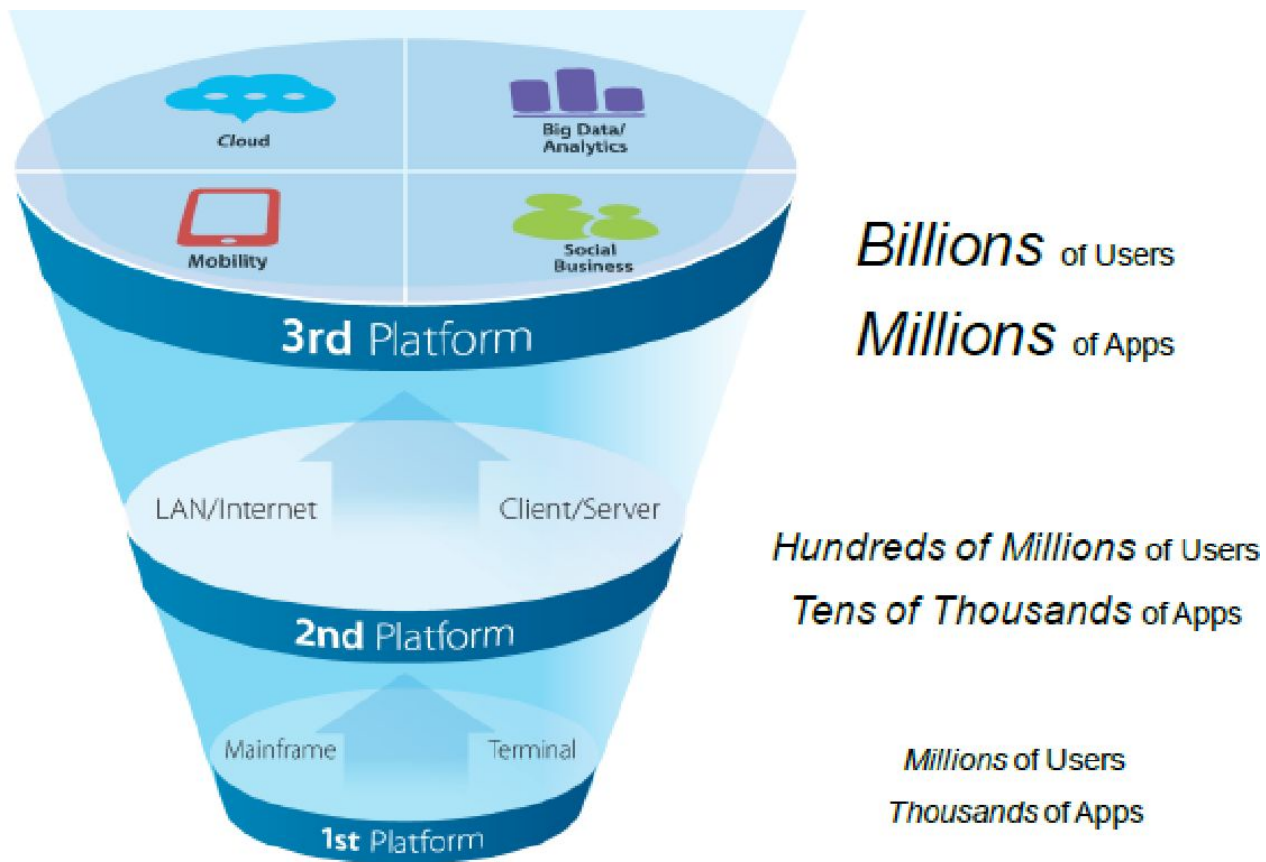
Class objectives

- 1 Describe the characteristics of the digital economy and e-business.
- 2 Recognize the relationships between business pressures, organizational responses, and information systems.
- 3 Identify the major pressures in the business environment and describe the major organizational responses to them.
- 4 Define computer-based information systems and information technology.
- 5 Describe the role of information technology in supporting the functional areas, public services and specific industries
- 6 List the new technology development in the areas of generic and networked computing and Web-based systems.
- 7 Understand the importance of learning about information technology.

Digital Economy – New Economy

- **E-Business:** The use of electronic technologies to transact business.
- **Collaboration:** People and Organizations interact, communicate, collaborate and search for information
- **Information Exchange:** Storing, processing and transmission of information.

Technological trends of global IT market - the “3rd Platform concept”

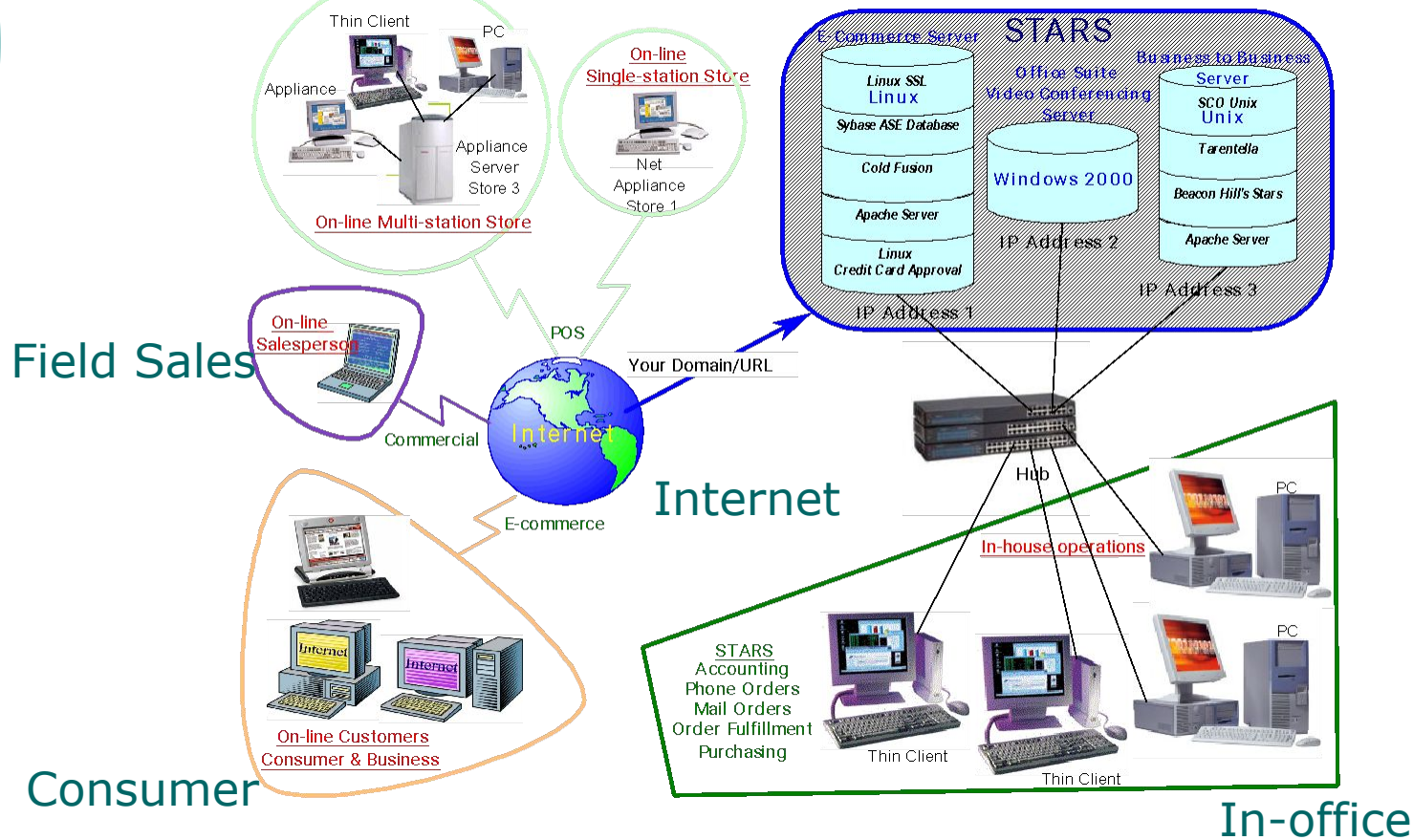


Source: IDC, 2013

Digital Business

Telecommunications

Networks





The Old Economy – Taking Photo's

1. Buy film in a store
2. Load your camera
3. Take pictures
4. Take roll of film to store for processing
5. Pickup the film when ready
6. Select specific photos for enlargement
7. Mail to family and friends

The New Economy – Taking Photo's

- 1st Generation Digital Photography
 - Old economy except 6 and 7 were replaced by using a scanner and emailing
- 2nd Generation Digital Photography
 - Use a Digital Camera, no film, no processing.
- 3rd Generation Digital Photography
 - Your Digital Camera is now your mobile phone, in your binoculars or a palmtop computer.

Business Models

- A **business model** is a method of doing business by which a company can generate revenue to sustain itself. The model spells out how the company adds value to create a product or service.
(**Value-add Chain model**)
 - Apple makes and sells smart phones
 - A TV station provides free broadcasting. Its survival depends on a complex model involving advertisers and content providers.
 - Internet portals, such as Yandex, use a complex business model.

Changing



Digital Age Business Models

- Name-Your-Own Price
- Reverse Auctions
- Affiliate Marketing
- E-Marketplaces and Exchanges
- Electronic aggregation (buying groups)

Drivers Forcing Changes In Business Models

Business Pressures

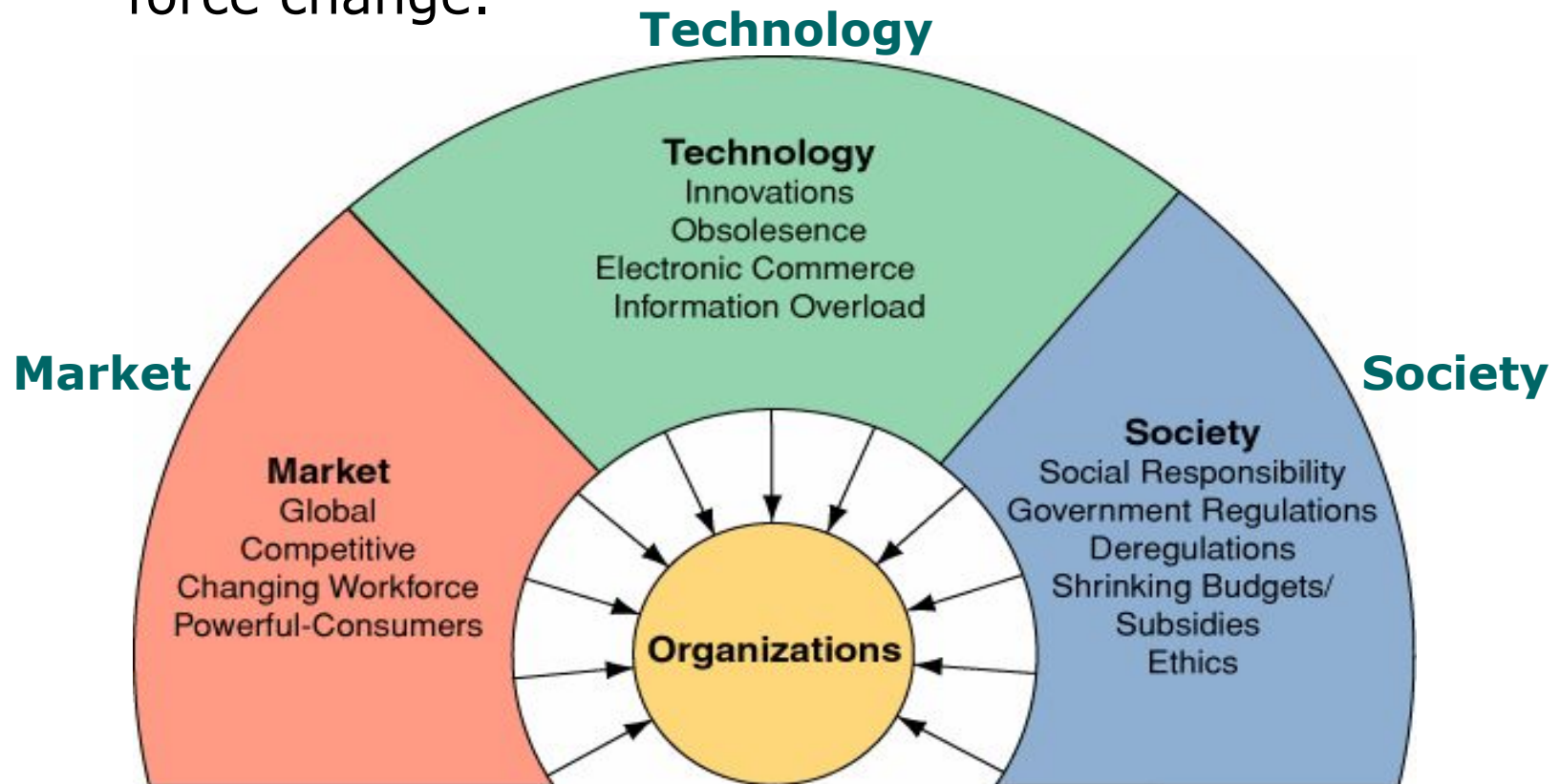
- Environmental, organizational, and technological factors are creating a highly competitive business environment ; these factors or forces can change quickly, sometimes in an unpredictable manner.

Business Critical Response Activities

- Therefore, companies need to react frequently and quickly to both the *threats* and the *opportunities* resulting from this new business environment. A response can be a reaction to a pressure already in existence, an initiative intended to defend an organization against future pressures, or an activity that exploits an opportunity created by changing conditions.

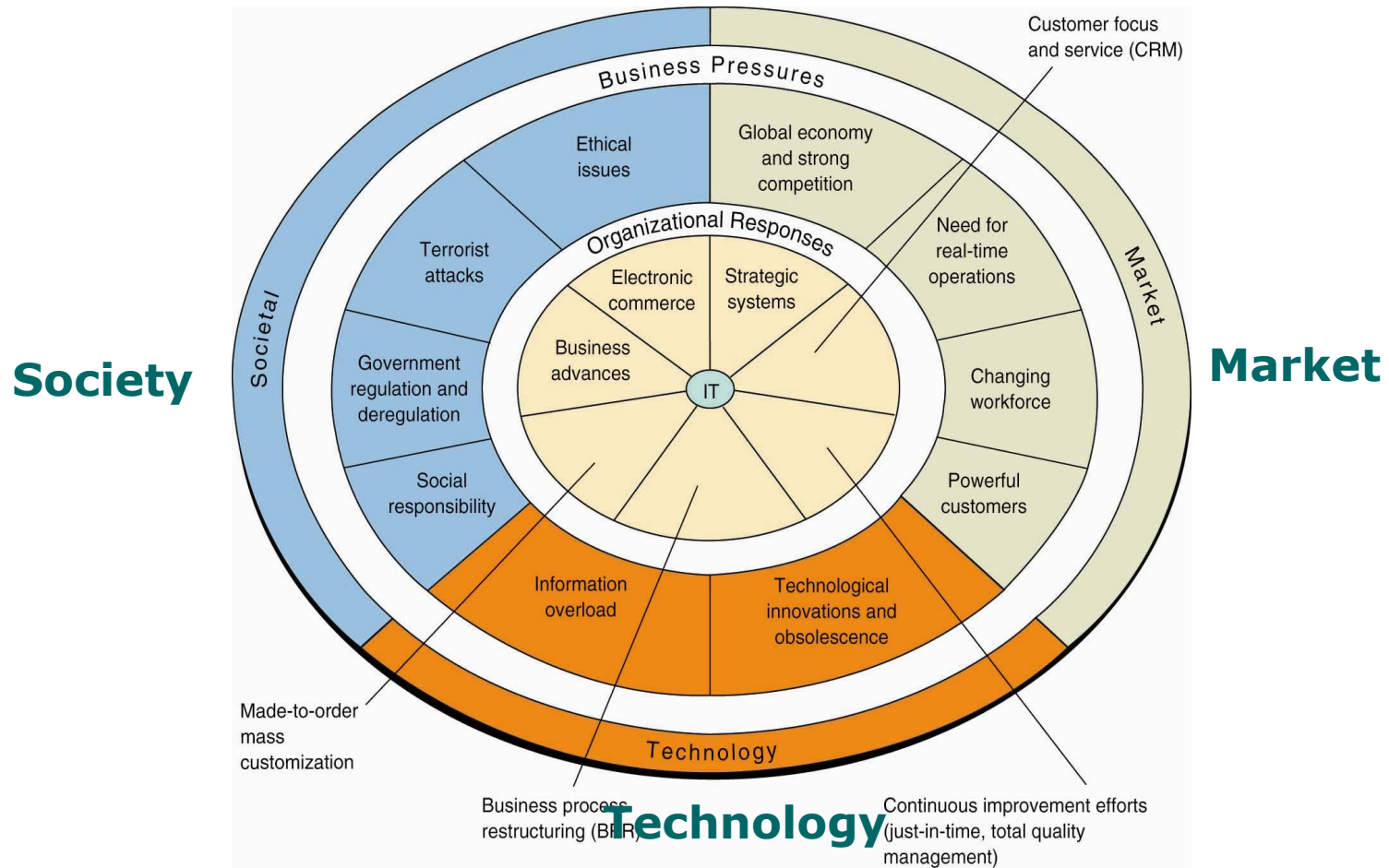
The Drivers of change

- Business Pressures on an Organization that force change.



The Drivers of change Continued

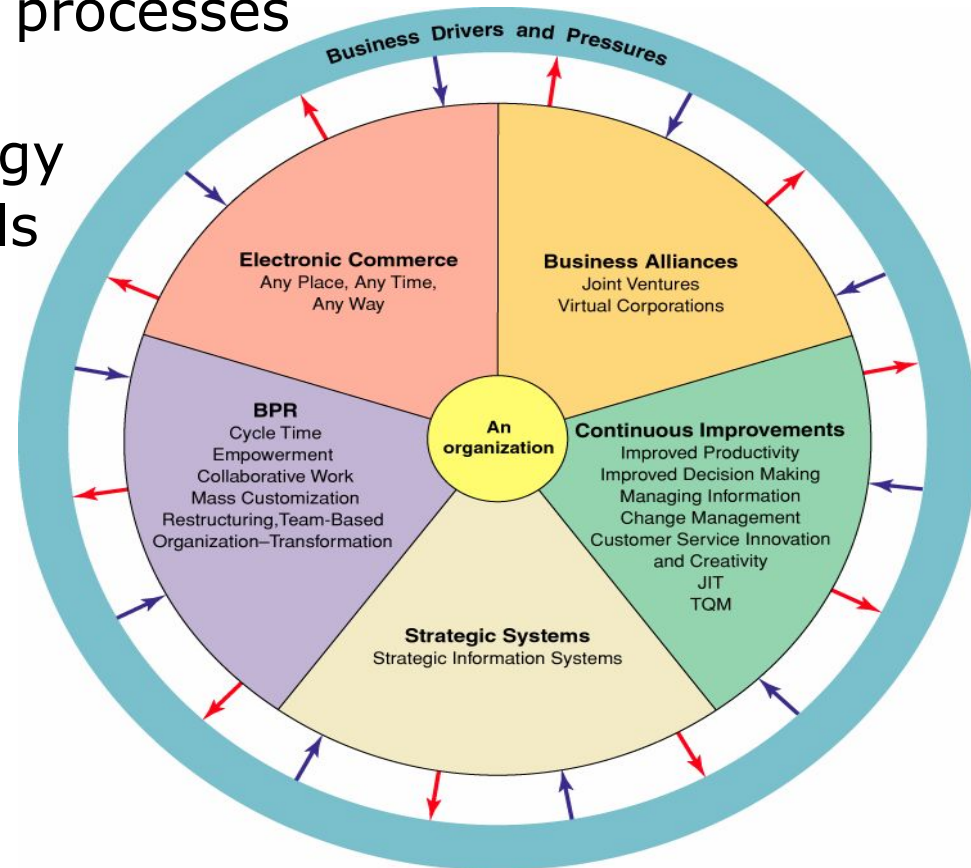
- Business Pressures on an Organization.



Organizational Response to these Drivers

- Strategic Systems
- Continuous Improvement – Operational Efficiency
- Restructuring business processes
- Manufacturer to order
- Customer Focus Strategy
- Employ E-business tools
- Business Alliances

Technology is required to effectively implement these critical responses.

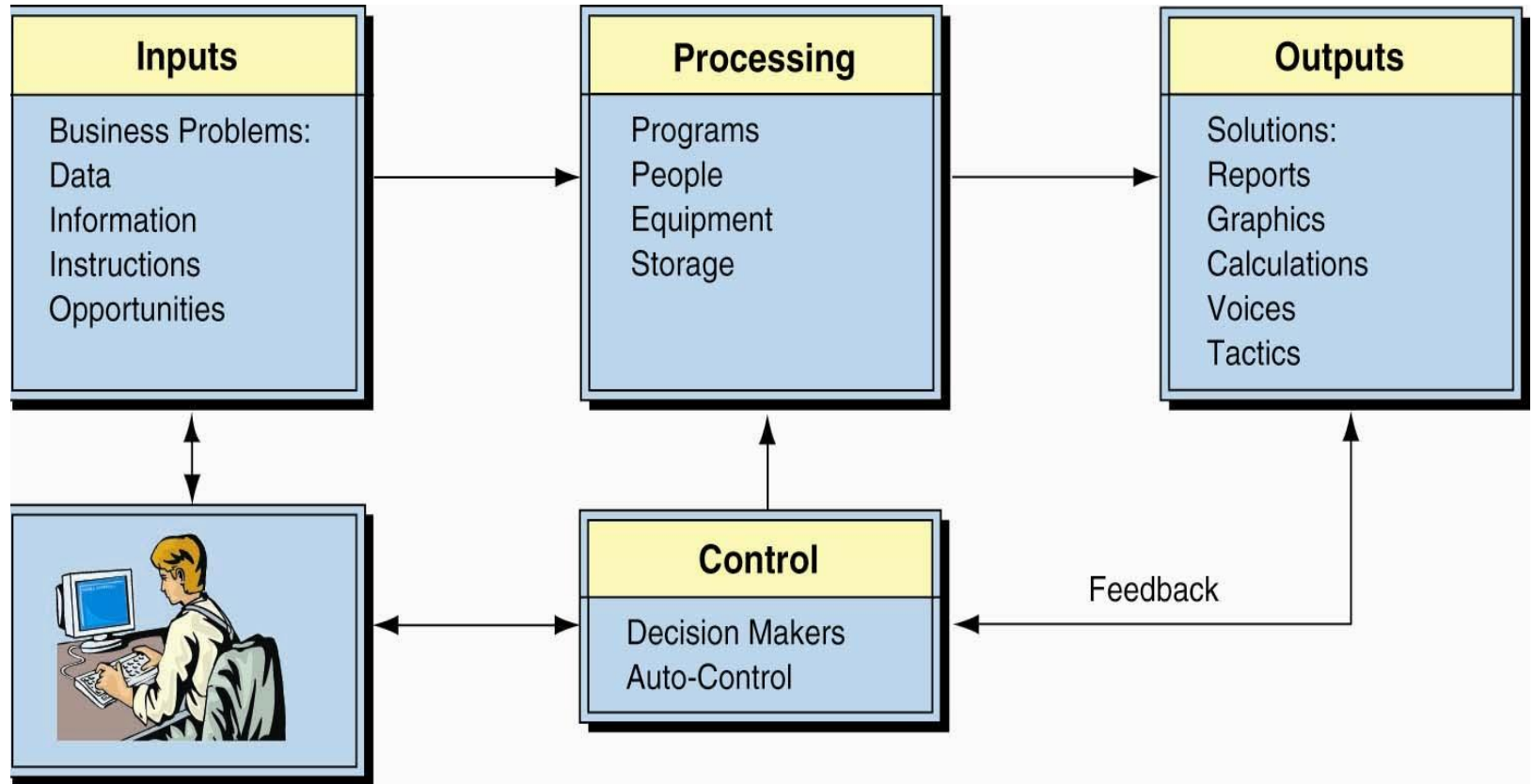


Information System

- An **information system (IS)** collects, processes, stores, analyzes, and disseminates information for a specific purpose. Like any other system, an information system includes **inputs** (data, instructions) and **outputs** (reports, calculations). It **processes** the inputs by using technology such as PCs and produces outputs that are sent to users or to other systems via electronic networks and a **feedback** mechanism that **controls** the operation.



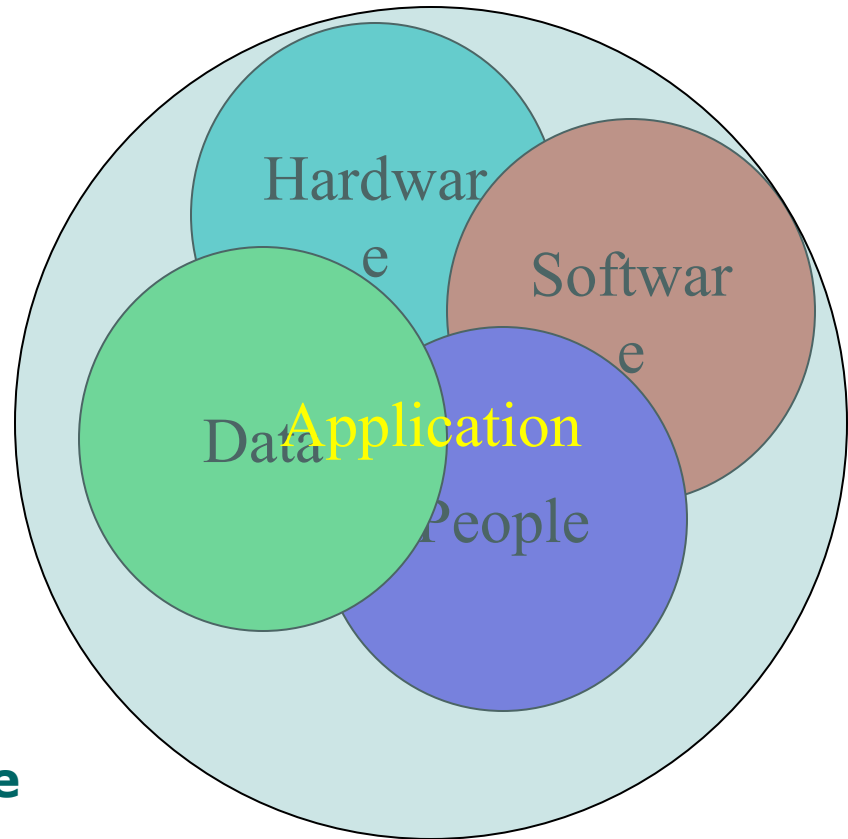
Information System as a sequence of processes



Computer Based Information System

- Hardware
- Software
- Data
- Network
- Procedures
- People

**More than hardware
and software**





Applications and Operations

- Retail operations
- Wholesale
- Manufacturing
- Human Resources
- Marketing
- Content management
- ...



Information Systems

- **Functional Perspective**
 - Marketing***
 - Identify customers
 - Determine what they want
 - Planning products
 - Advertising and promoting products
 - Determine prices for products

Information Systems

- **Functional Perspective**
 - Sales***
 - Contact customers
 - Sell the product
 - Take the order
 - Follow-up on the sale
 - 1-2 year sales forecast

Information Systems

○ **Functional Perspective**

Manufacturing

- Control Equipment and machinery
- Design new products
- Quantity of components to produce
- New production facilities
- Generate the work order

Information Systems

- **Functional Perspective**
 - Purchasing (procurement)***
 - Which vendors
 - Quantity to purchase
 - Rebate tracking
 - Handle delivery mismatches
 - Generate the purchase order

Information Systems

○ **Functional Perspective**

Finance

- Financial Assets
- Investment management
- Banking
- Long term budgets

Information Systems

- **Functional Perspective**
 - Accounting***
 - Accounts Receivable
 - Disbursements
 - Payroll
 - Depreciation
 - Earned Rebates
 - ...

Information Systems

○ **Functional Perspective**

Human Resources

- Employee wages, salaries & benefits
- Long term labor requirements
- Tracking vacation, sick,
- Track employee skills
- Interviewing employees

Trends in Technology

- Cost-performance ratio of chips keeps improving. **Moore's Law**, his prediction was that the processing power of silicon chips would double every 18 months.
- According to McGarvey & *tenornetworks.com*, states that the performance of optical communication networks is growing by a factor of 10 every three years
- Several new devices and methods to increase storage capacity price performance
- Object technology enables the development of self-contained units of software that can be shared
- Networked and distributed computing is emerging rapidly **Metcalfe's Law**.



Trends in Technology

- Internet
- Mobile Computing and M-Commerce
- Wireless networks
- Ubiquitous Computing
- Smart Devices

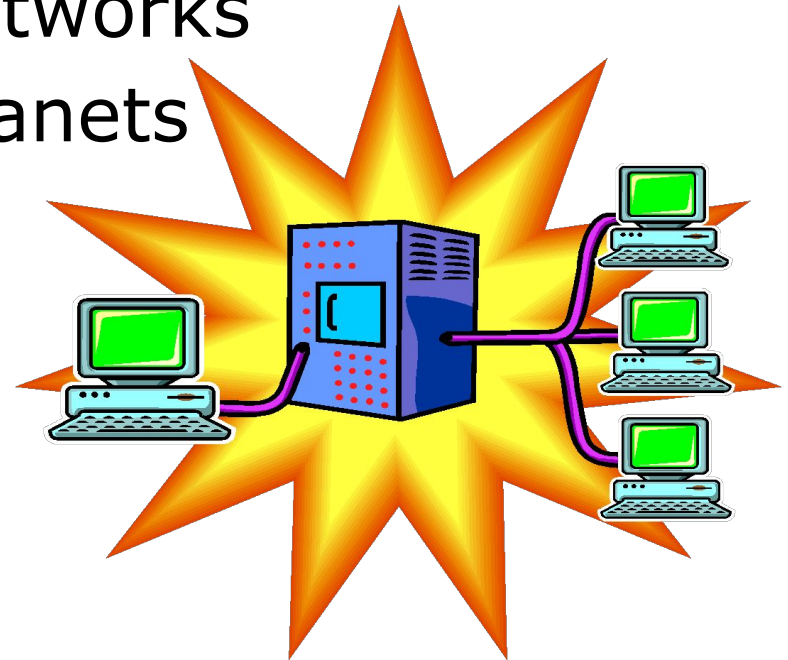
Trends in Mobile technology



Trends in Technology (continued)

The Networked Enterprise

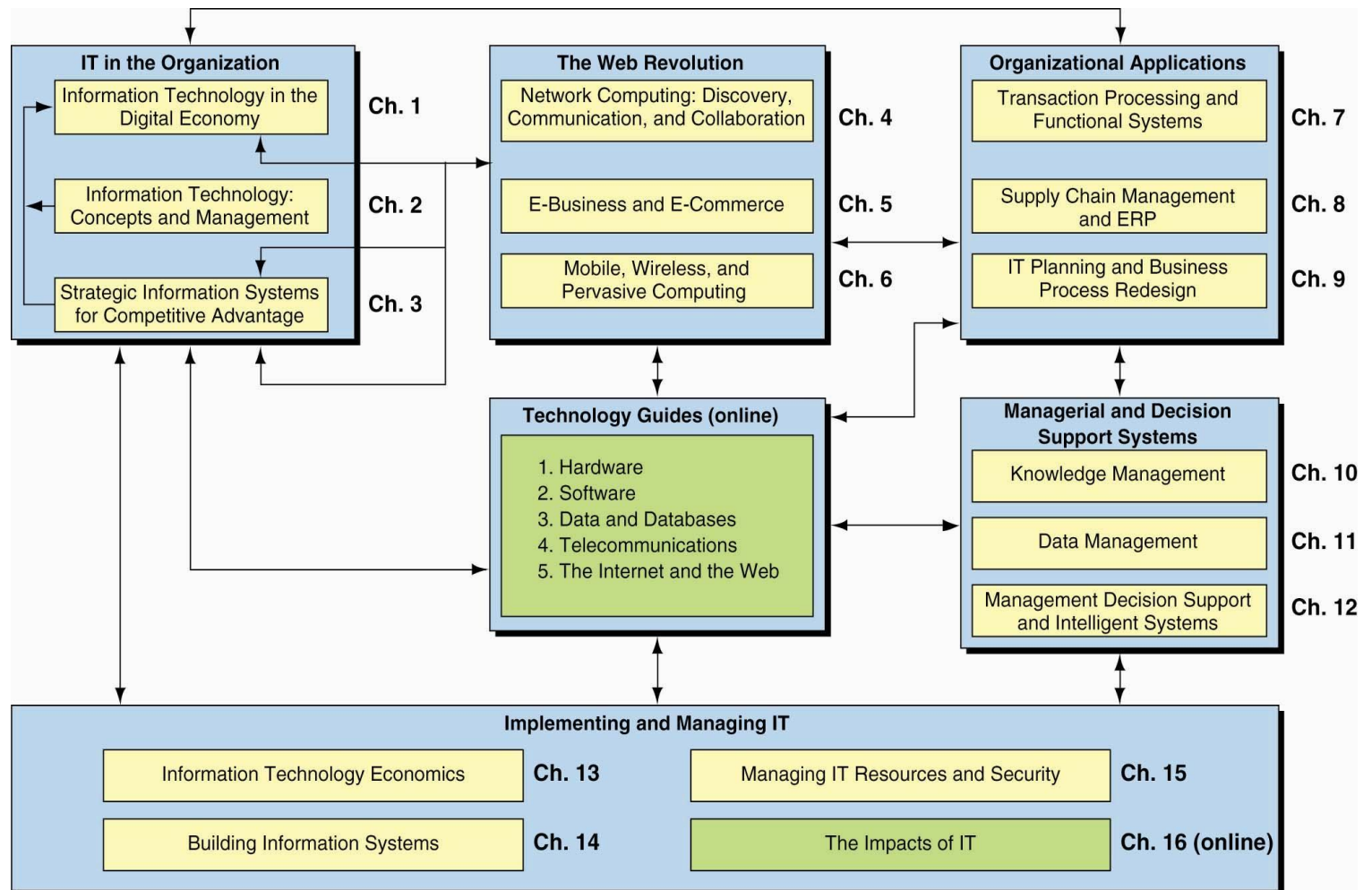
- The Network Computer
- Optical Networks
- Storage Area Networks
- Intranets & Extranets
- The Internet



Why Study Information Technology ?

- You will be more effective in your chosen career if you understand how successful information systems are built, used, and managed.
- You also will be more effective if you know how to recognize and avoid unsuccessful systems and failures.
- Developing “Computer” Literacy will only enhance your “Information” Literacy

The Outline



MANAGERIAL ISSUES

- **Recognizing opportunities for using IT and Web-based systems.**
- **Who will build, operate, and maintain the information systems.** This is a critical issue because management wants to minimize the cost of IT while maximizing its benefits. Some alternatives are to outsource portions, or even all, of the IT activities, and to divide the remaining work between the IS department and the end users.
- **How much IT?** This is a critical issue related to IT planning. IT does not come free, but not having it may be much costlier.
- **How important is IT?** In some cases, IT is the only approach that can help organizations. As time passes, the comparative advantage of IT increases.
- **Is the situation going to change?** Yes, the pressures will be stronger as time passes. Therefore, the IT role will be even more important.
- **Globalization.** Global competition will have an impact on many companies. However, globalization opens many opportunities, ranging from selling and buying products and services online in foreign markets, to conducting joint ventures or investing in them. IT supports communications, collaboration, and discovery of information regarding all the above.

MANAGERIAL ISSUES Continued

- **Ethics and social issues.** The implementation of IT involves many ethical and social issues that are constantly changing due to new developments in technologies and environments. These topics should be examined any time an IT project is undertaken.
- **Transforming the organization to the digital economy.** The transformation can be done on several fronts. Management should study the opportunities, consider alternatives and prioritize them.



Questions ?