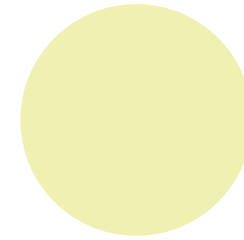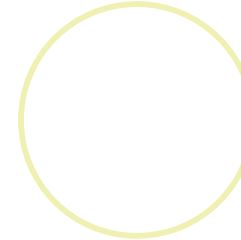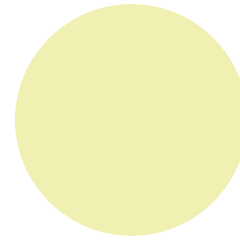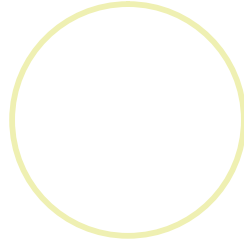# An Introduction to Information Systems

Information Technology For Management 7th Edition
Turban, Volonino

John Wiley & Sons, Inc.

Digital Economy – "New" Economy

- **E-Business:** The use of electronic technologies to manage business

- **Collaboration:** People and Organizations interact, communicate, collaborate, and search for information

- **Information Exchange:** Storing, processing and transmission of information (communication or sell)

Digital Enterprise

- Digital enterprise employs IT to achieve 3 aims

  - Reach and engage customers more effectively
  - Boost employees productivity
  - Improve operating efficiency

Examples of Digital Economy

- Information and entertainment products can be digitized:
  - Paper-based documents
  - Graphics (photos, postcards, calendars, maps, posters, x-rays)
  - Audio (music, speeches, lectures, voices)
  - VDO (movies, TV programs, clips, ads)
  - S/W (programs, games, development tools)

Examples of Digital Economy (cont)

- Symbol, tokens, and concepts:
  - eTickets and reservations: airlines, hotels, concerts, sports events, transportation
  - Financial instruments: checks, e-currencies, credit cards, securities, letters of credit

Examples of Digital Economy (cont)

- Processes and services:
  - eGovernment services: forms, benefits, welfare payments, licenses
  - E-messaging: letters, faxes, telephone calls
  - Auction, bidding, bartering
  - Remote education, telemedicine, e-Learning
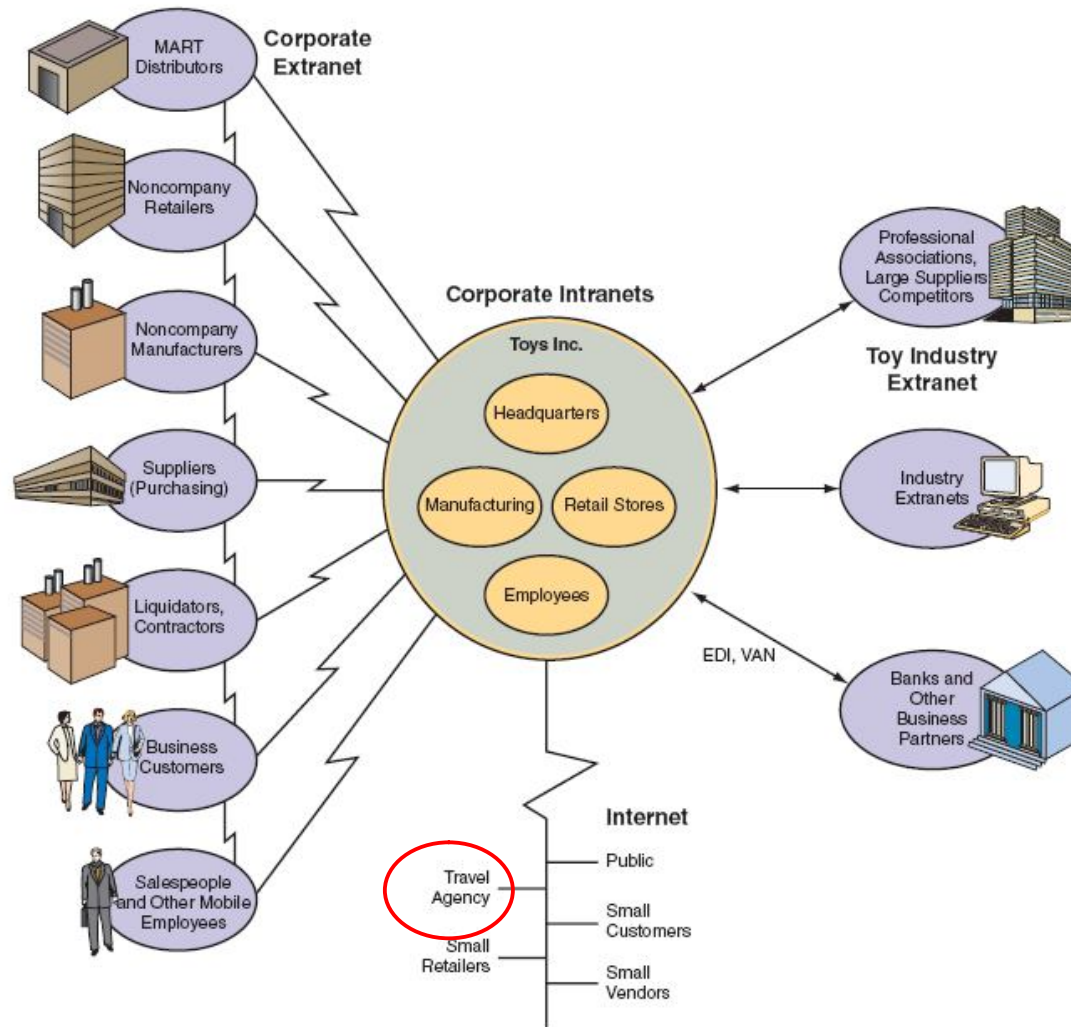 - Interactive entertainment, social networks →

Social Networks

Google talk BETA

flickr BETA

friendster

Linked in ®

twitter

facebook

Click to PCWorld Business Center article for more.... Social Networks Go to Work

Digital Business

The Old Economy – Taking Photo's

1. Buy film in a store
2. Load into your camera
3. Take pictures
4. Take roll off to develop
5. Pickup your photos when ready
6. Select specific photos for enlargement
7. Mail (surface mail, post) to family members 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 film developing

- 3rd Generation Digital Photography
  - Your Digital Camera is now in your mobile phone, your tablet, or palmtop computer.

Business Models

- Nokia makes and sells cell phones (Free of charge for local call as in HK,SIN or UK but keep listening to ads before)

- A TV station provides free broadcasting. Its survival depends on advertising and content providers

- Internet portals, such as Yahoo or Gmail (unlimited space)

Business Pressures

- **Business Pressure** - The business environment is the combination of social, legal, economic, physical, and political factors that affect business activities

- Significant changes in any of these factors are likely to create business pressure on the organization

- The three types of business pressures faced are: *market*, *technology*, and *societal pressures*. →

Three Types of Business Pressures

- **Market Pressures**:

  - The Global Economy and Strong Competition

  - The Changing Nature of the Workforce

  - Powerful Customers

Business Pressures (Cont)

- **Technology Pressures**:

    - Technological Innovation and Obsolescence (obsolete, outdated, out-of-date)

    - Information Overload

Business Pressures (Cont)

- **Societal Pressures**:

  - Social Responsibility

  - Government Regulation and Deregulation

  - Protection Against Terrorist Attacks

  - Ethical Issues

Business in the Digital Economy

- The **digital economy** -- an economy based on digital technologies, including communication networks (the Internet, intranets, and extranets), computers, software, and other related technologies

- Also called the *Internet economy*, the *new economy*, or the *Web economy*

- Digital infrastructures provide a **global platform** over which people and organizations interact, communicate, collaborate, and search for information.

The Global Platform

- A huge number of digitizable products; that is products that can be converted to digital format. Most common are: books, movies, magazines, TV and radio programming, electronic games, music CDs, and computer software.

- Physical goods such as home appliances (fridge, air-con, washing machine, etc) and automobiles that contain embedded computer chips and connectivity capabilities.

eBusiness

- Businesses increasingly perform their basic functions:
  - buying and selling things and services
  - servicing customers
  - and cooperating with business partners electronically

- This process is known as **electronic business (E-business)** or **electronic commerce (E-commerce, EC)**

New Economy vs. Old Economy ➡

Example	Old	New
Buying and selling textbook	Visit the bookstore	Visit web site for publishers and retailers
Registering for classes	Walk around campus to Departments, Registrar's office, etc.	Access campus web site
Photography	Buy film, use camera, take picture, take it for processing	Use digital camera
Paying for Gasoline	Fill up your car, go inside, pay cash or credit card	Use speed pass token; wave over the sensor and go
Paying for Transportation	Pay cash, metal tokens	Metro cards electronic cards
Paying for goods	Visit store, select item, pay, go	Use self-service kiosks
Supplying commercial photos	Use newspapers, paper, catalog, or online	Use hub-like supply chain with digitized picture

New Economy vs. Old Economy

- Example #1: Registering for Classes

  - Old Economy: You would go to the Registrar's Office on campus with a paper registration document

  - New Economy: You access your campus website, log into registration site, and electronically register for classes from anywhere

New Economy vs. Old Economy

- Example #2: Buying and Selling Textbooks

  - Old Economy: You go to the bookstore in person and buy new or sell used books

  - New Economy: You go online to the Publisher's Web site or to Web-based services such as Amazon.com to buy or sell books

New Economy vs. Old Economy

- Example #3: Photography

  - Old Economy: You use a camera with film, which you have to purchase and have developed; you mail copies of pictures.

  - New Economy: You can scan photos, make copies and email them. Digital cameras require no film or processing. Digital photography and video integrated into cell phones for immediate viewing

New Economy vs. Old Economy

- Example #4: Paying for Gasoline

  - Old Economy: You pump your gas and go inside to pay using cash or credit

  - New Economy: Insert credit card at pump, receive authorization, pump gas, get receipt, drive away.

New Economy vs. Old Economy

- Example #5: Paying for Transportation in New York City

  ○ Old Economy: Use tokens for bus and subway transportation

  ○ New Economy: Bus and subway riders now use MetroCards; contactless cards that have a small radio transmitter that transmit account information to a reader

New Economy vs. Old Economy

- Example #6: Paying for Goods, Checkout

  - Old-old Economy: Customer selects goods, waits in line for the cashier to key in price of items, and then pays in cash

  - Old Economy: The clerk swipes the barcode of each item and customer pays in cash, credit, or debit. Information scanned is available for immediate analysis known as *source-data automation*

New Economy vs. Old Economy (Ex. #6 Cont)

● Example #6: Paying for Goods, Checkout continued

○ Old Economy: Shoppers take their items to a self-service kiosk and swipe the barcodes themselves

○ New Economy: Wireless technology affixed to each item. Allows you to select items that pass through a scanner, which reads wireless signal, generates a bill, automatically debits your designated account for payment and you leave
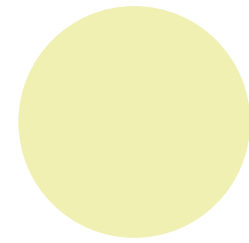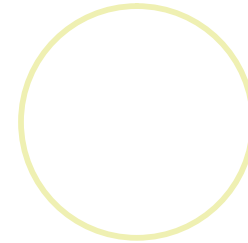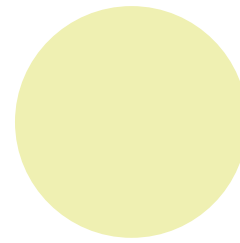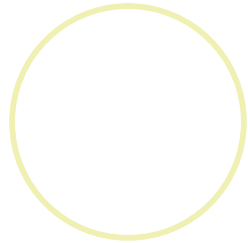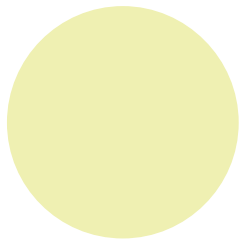
# Information Concepts

Information System

A set of components that collect, manipulate, and distribute data and information

● **Examples:** ATMs, airline reservation systems, course registration systems

Data vs. Information

- **Data** → raw facts
  - Elementary description of things, events, activities, and transactions that are recorded, classified, and stored, but not (yet) organized to convey any specific meanings

- **Information** → value (meaning) beyond the facts
  - Data that has been organized (manipulated) so that they have meaning and value to the user (client)

- **Knowledge** →
  - Information that has been organized and processed to convey understanding, experience, and expertise as they apply to a current problem or activity
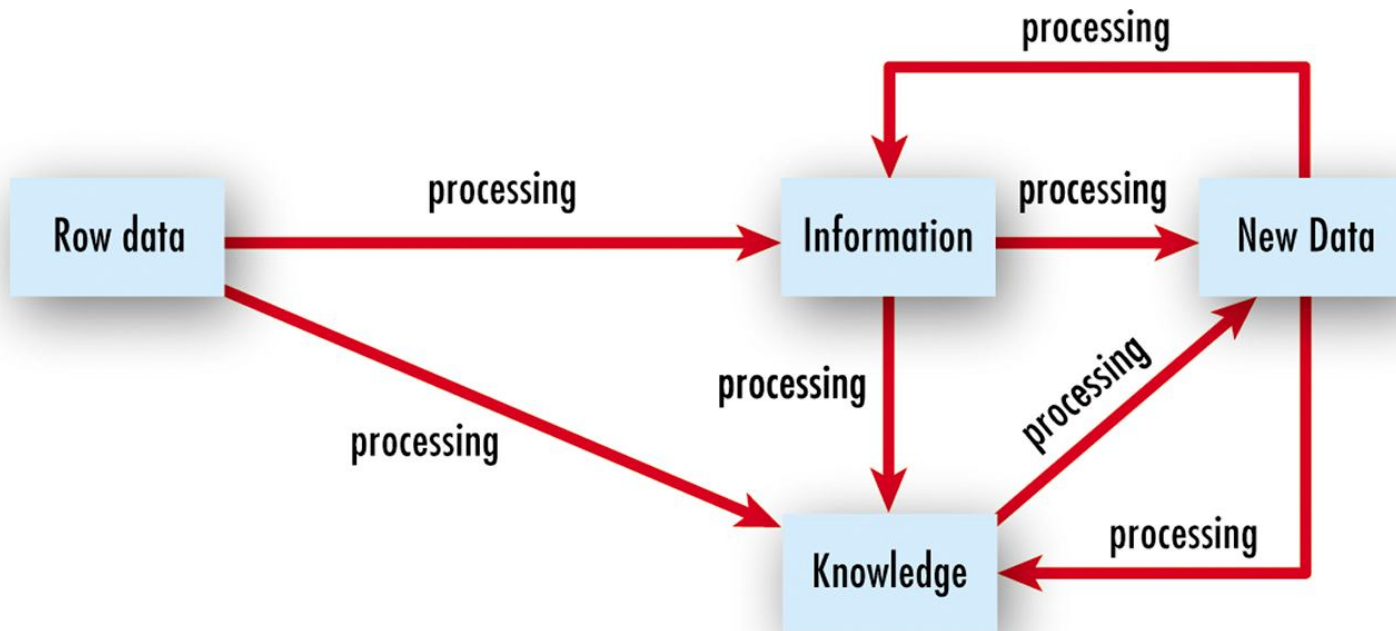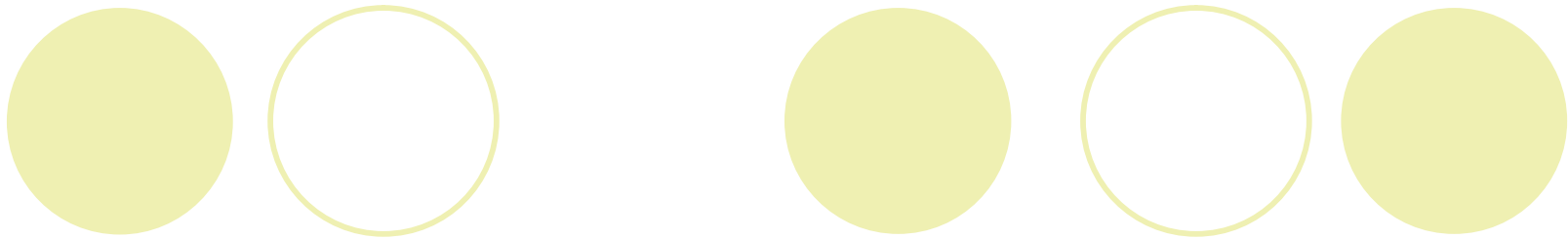
Types of Data
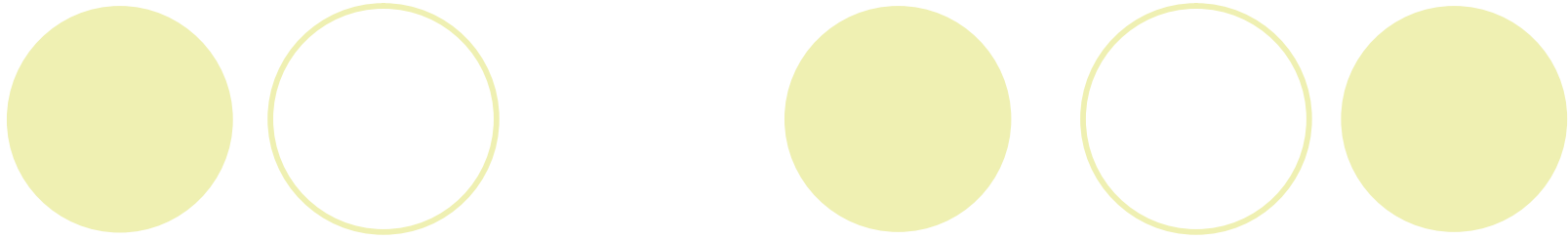
TABLE 1.1

Types of Data

Data	Represented By
Alphanumeric data	Numbers, letters, and other characters
Image data	Graphic images and pictures
Audio data	Sound, noise, or tones
Video data	Moving images or pictures

The Characteristics of Valuable Information

FIGURE 1_2

The Process of Transforming Data into Information

| Data | → | The transformation process (applying knowledge by selecting, organizing, and manipulating data) | → | Information |

System and Modeling Concepts

System

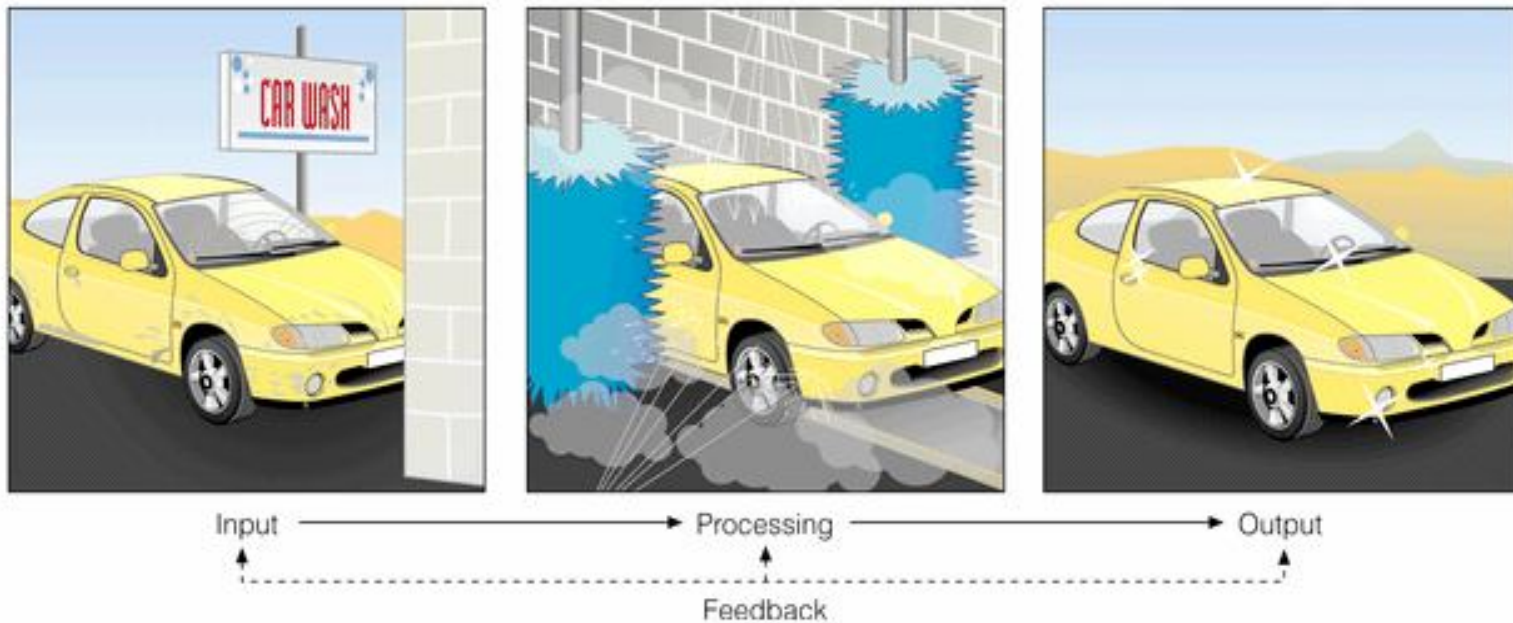A set of elements that interact to accomplish goals

- Input
- Processing mechanism
- Feedback
- Output
- System boundary

Components of a System

FIGURE 1.3

Components of a System

A system's four components consist of input, processing, output, and feedback.

Input ⟶ Processing ⟶ Output
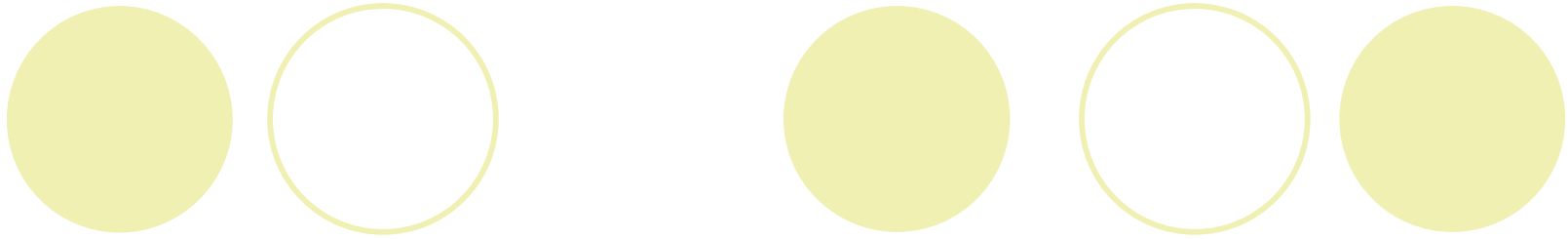
Feedback

System and Modeling Concepts

System	Elements			
	Inputs	**Processing mechanisms**	**Outputs**	**Goal**
Coffee Shop	Coffee beans, tea bags, water, sugar, cream, spices, pastries, other ingredients, labor, management	Brewing equipment	Coffee, tea, pastries, other beverages and food items	Quickly prepared delicious coffees, teas, and various food items
College	Students, professors, administrators, textbooks, equipment	Teaching, research, service	Educated students; meaningful research; service to community, state, and nation	Acquisition of knowledge

FIGURE 1.4

Examples of Systems and Their Goals and Elements

(Sources: © Steve Smith/Taxi; courtesy of 3M Visual Systems Division; image copyright © 1998 Photodisc.)
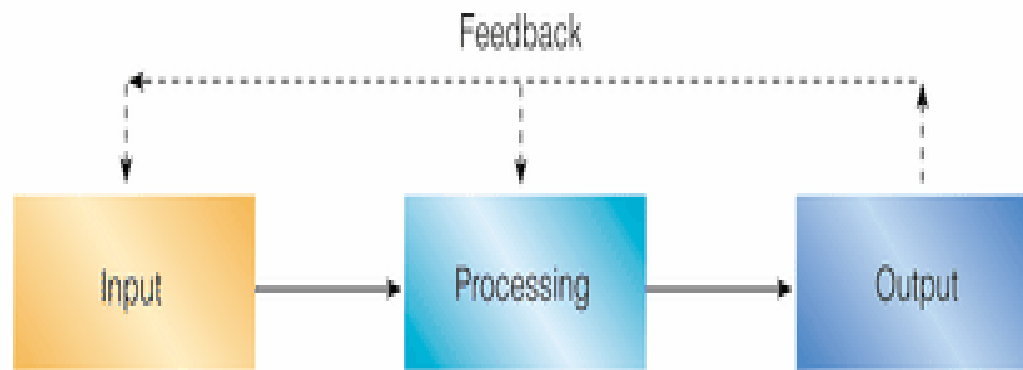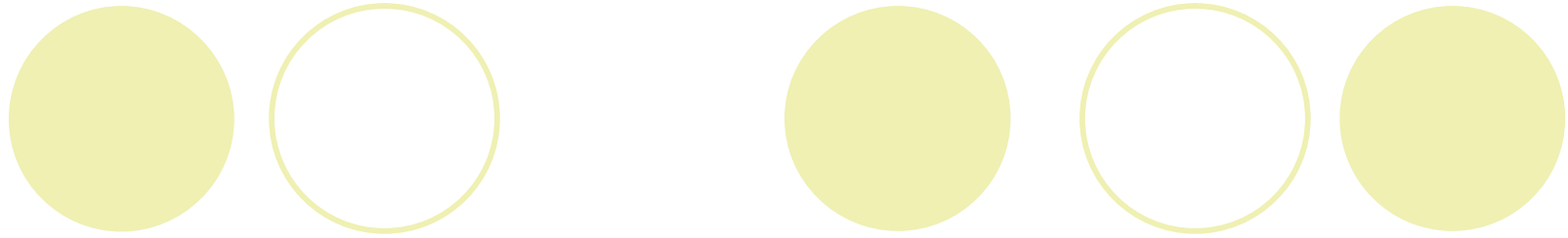
What Is An Information System?

Components of an Information System

FIGURE 1-7

The Components of an Information System

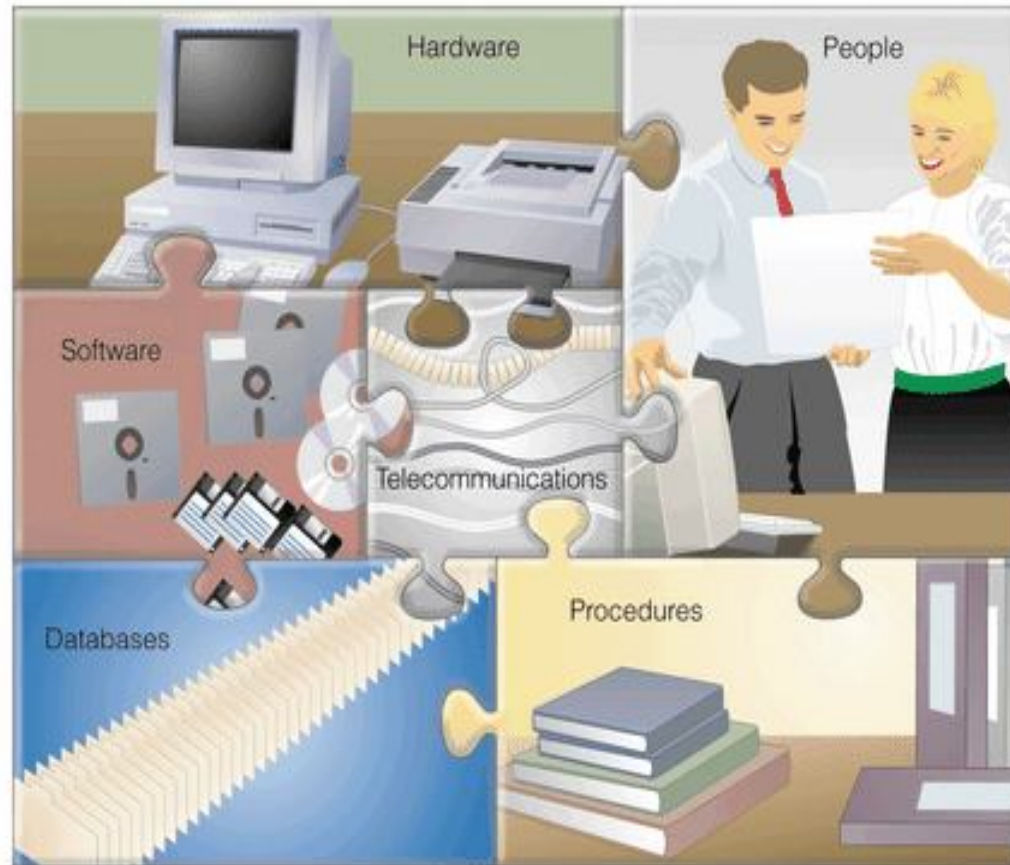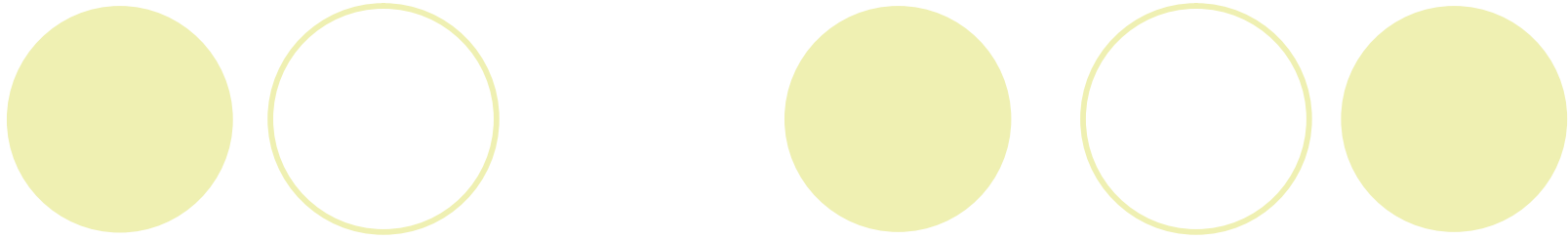Feedback is critical to the successful operation of a system.

Feedback

Input → Processing → Output

Computer-Based Information Systems (CBIS)

Components of a CBIS

FIGURE 1.8

The Components of a Computer-Based Information System

Business Information Systems

eCommerce

Old

Prepare requisition

Obtain approval of requisition

Requisition

Purchasing department

In box

Vendor

ACME

Traditional process for placing a purchase order

New

Vendor

Electronic purchase order

ACME

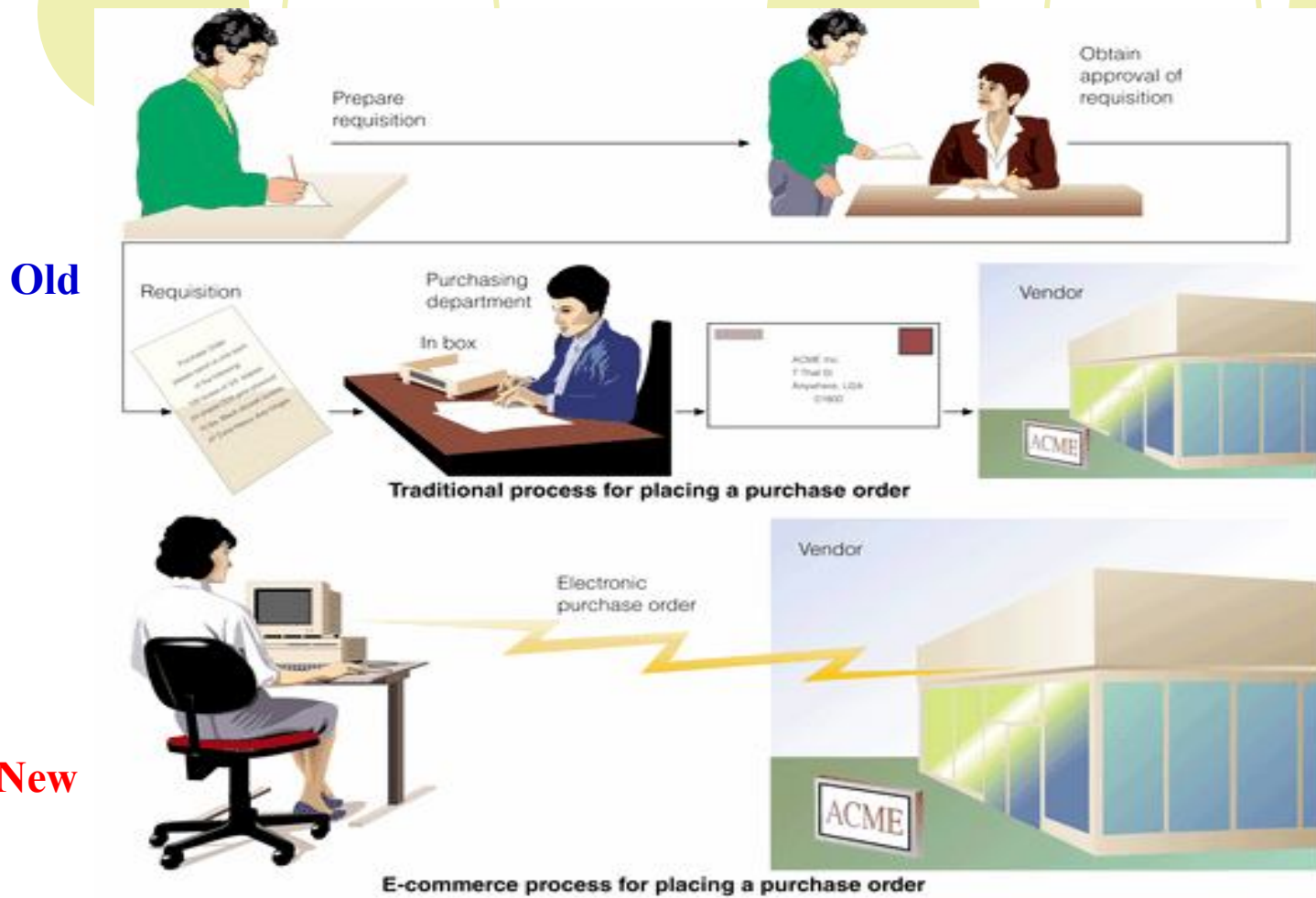**E-commerce process for placing a purchase order**

FIGURE 1-9

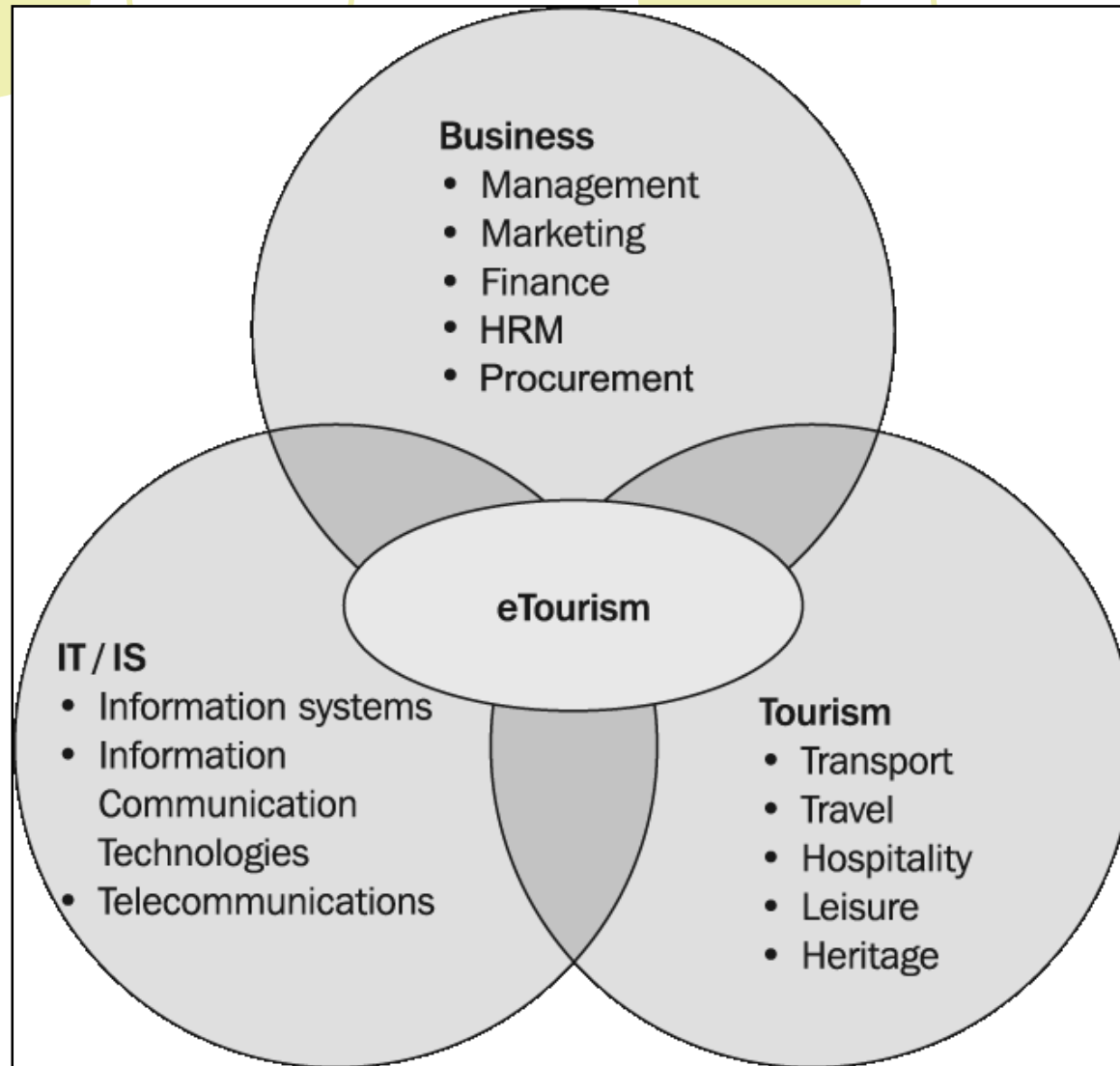E-commerce greatly simplifies the purchasing process.

The eTourism concept

- eTourism focuses the competitiveness of all tourism organisations and destinations

- Make use of intranets, extranets & the Internet

- eTourism bundles together three components

  - Business & management

  - Information systems and management

  - Tourism, travel, hospitality

The eTourism

The eTourism concept and eTourism domains

Business
- Management
- Marketing
- Finance
- HRM
- Procurement

IT / IS
- Information systems
- Information Communication Technologies
- Telecommunications

eTourism

Tourism
- Transport
- Travel
- Hospitality
- Leisure
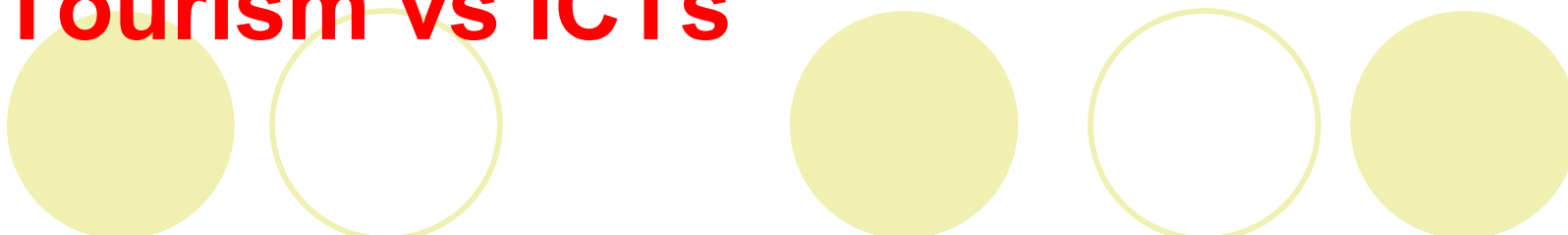- Heritage

eTourism vs ICTs

- Major drivers make ICTs (Information & Communication Technologies) an integral part of the tourism industry
  - Economic necessity
  - The rise of the Internet
  - Development of 3G (4G) mobile devices & interactive TV
  - Improvements in ICTs' price/performance ratios
  - Rising client expectations
  - ICTs can also help reduce of operation cost and communication cost

eTourism vs ICTs

- Integrating operational systems
- Maximising efficiencies
- Decreasing the number of people required for back office jobs
- Reducing the amount of face to face or telephone communications
- Enabling clients to have access to all information that was previously only obtainable by direct contact with tourism organisations

Summary

- **Data** - raw facts
- **Information** - data transformed into a meaningful form
- **System** - set of elements that interact to accomplish a goal

- **eTourism combines three components**

  - Business & management

  - Information systems and management

  - Tourism, travel, hospitality