



**FEU INSTITUTE OF TECHNOLOGY**  
COLLEGE OF ENGINEERING • COLLEGE OF COMPUTER STUDIES

# Introduction

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**ITECM113 – E-COMMERCE**



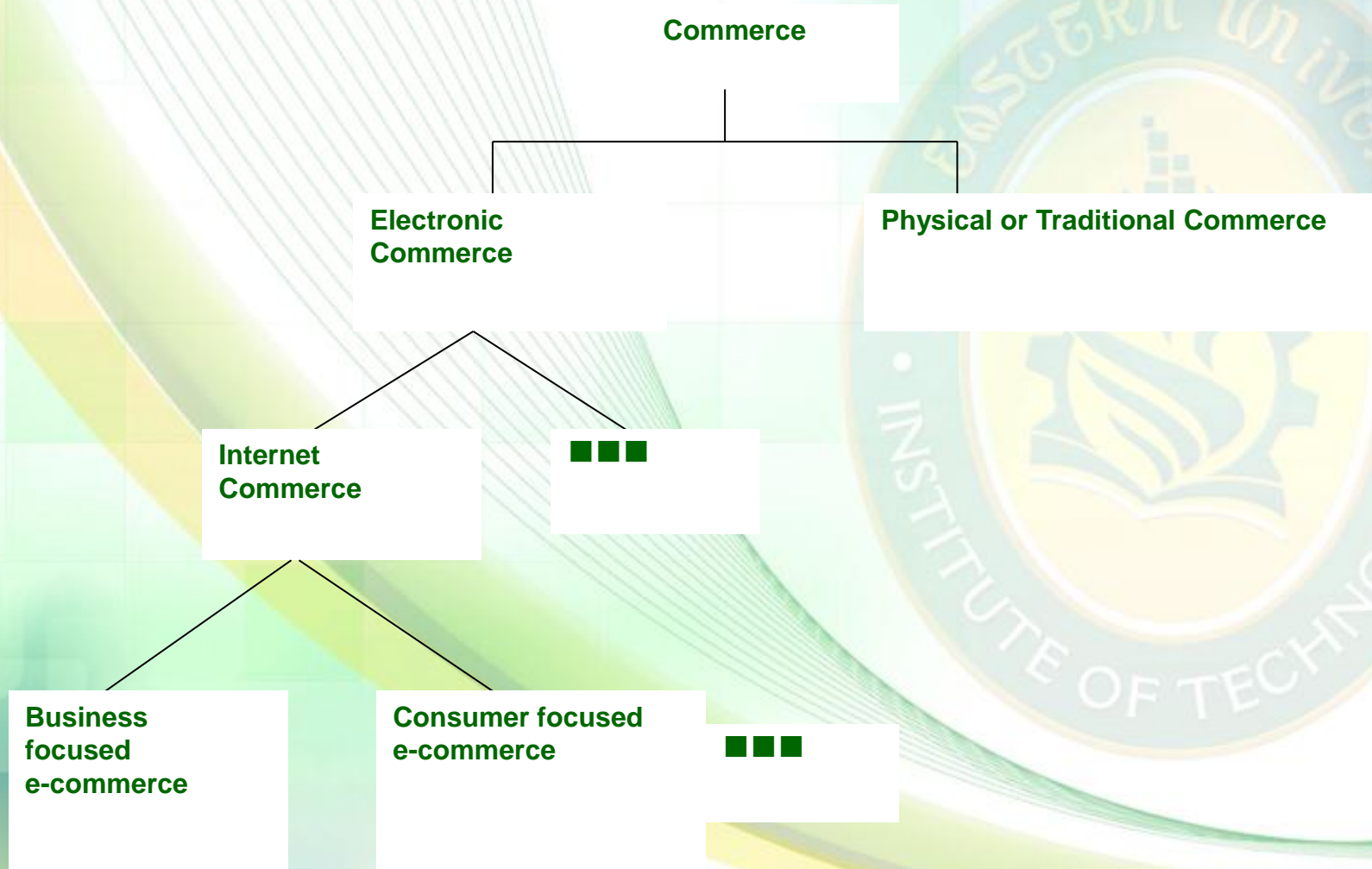
# Objectives

1. To differentiate electronic commerce and physical commerce
2. To understand the DIGITAL phenomenon
3. To investigate e-commerce from different perspectives through the different e-commerce scenarios
4. To differentiate the different types of e-commerce
5. To know the effects of e-commerce and their advantages
6. To know the myths about e-commerce development and implementation





# Types of Commerce





# Digital Phenomenon

- What do you think?
- What are the drivers of e-commerce?

Data networks

Intense competition

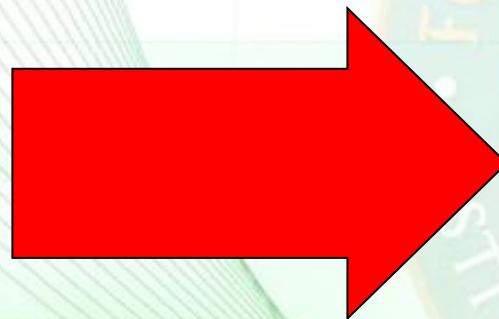
Globalization

Information age

Technologies

Automation

Low cost high quality products/services



**DIGITAL**





# E-commerce from different perspectives

- Three layer models for e-commerce (e.g. Zwass's model).
- E-business: a wider perspective than e-commerce.
- E-commerce improves the value chain.
- E-commerce provides an effective tool for building, managing and enhancing these relationships.



# Different types of E-Commerce

	<b>Business (organization)</b>	<b>Customer (individual)</b>
<b>Business (organization)</b>	<b>B2B (e.g TPN)</b>	<b>B2C (e.g Amazon)</b>
<b>Customer (individual)</b>	<b>C2B (e.g Priceline)</b>	<b>C2C (e.g eBay)</b>



# Examples

- B2C: [www.amazon.com](http://www.amazon.com)
- C2C: [www.eBay.com](http://www.eBay.com)
- B2B: [www.tpn.com](http://www.tpn.com)
- C2B: [www.priceline.com](http://www.priceline.com)

Let's visit these web sites in turn and discuss its features.







# E-commerce scenarios

- Retailing
- Servicing
- Publishing
- Supply chain management

Discussion: How are they changing?







# What are the advantages of e-commerce?

- To consumers (think about the consumer buying process: search, evaluate and execute):
- To businesses (think about the common objective of every business):



# Discussion

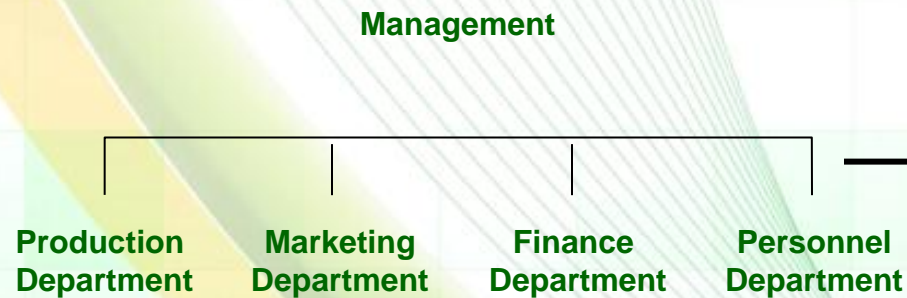
- How should different departments participate in an e-commerce project?
  - Management
  - Marketing
  - Production
  - Finance
  - Procurement
  - Customer support







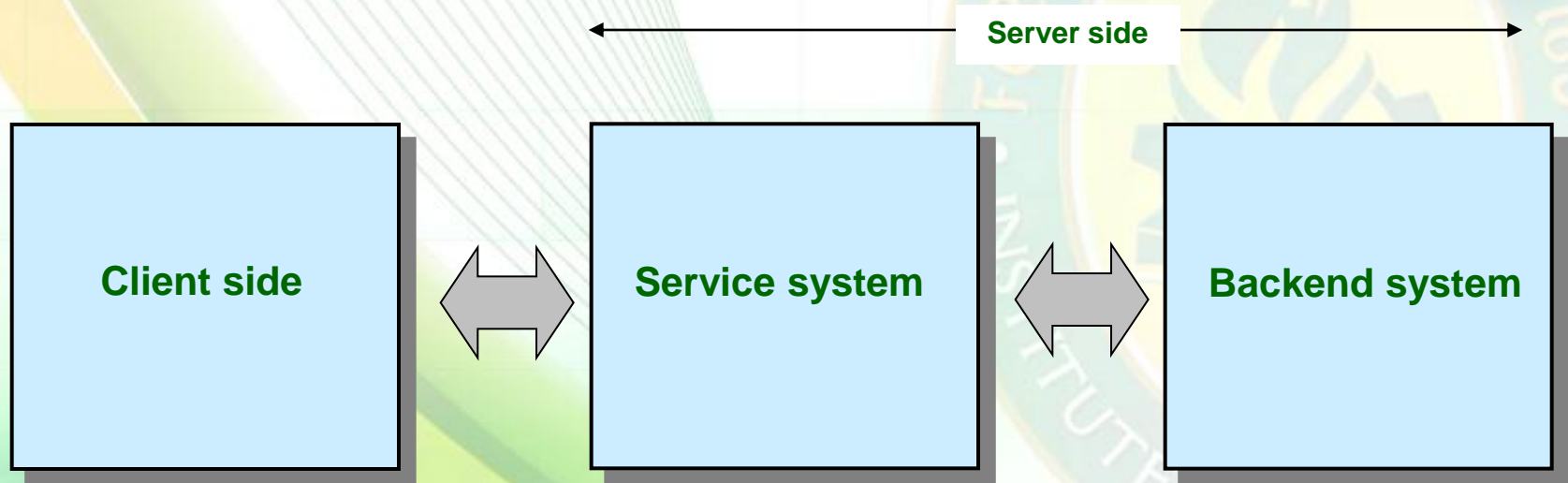
# **Transformation of a Compartmentalized Organization into Integrated Organization**





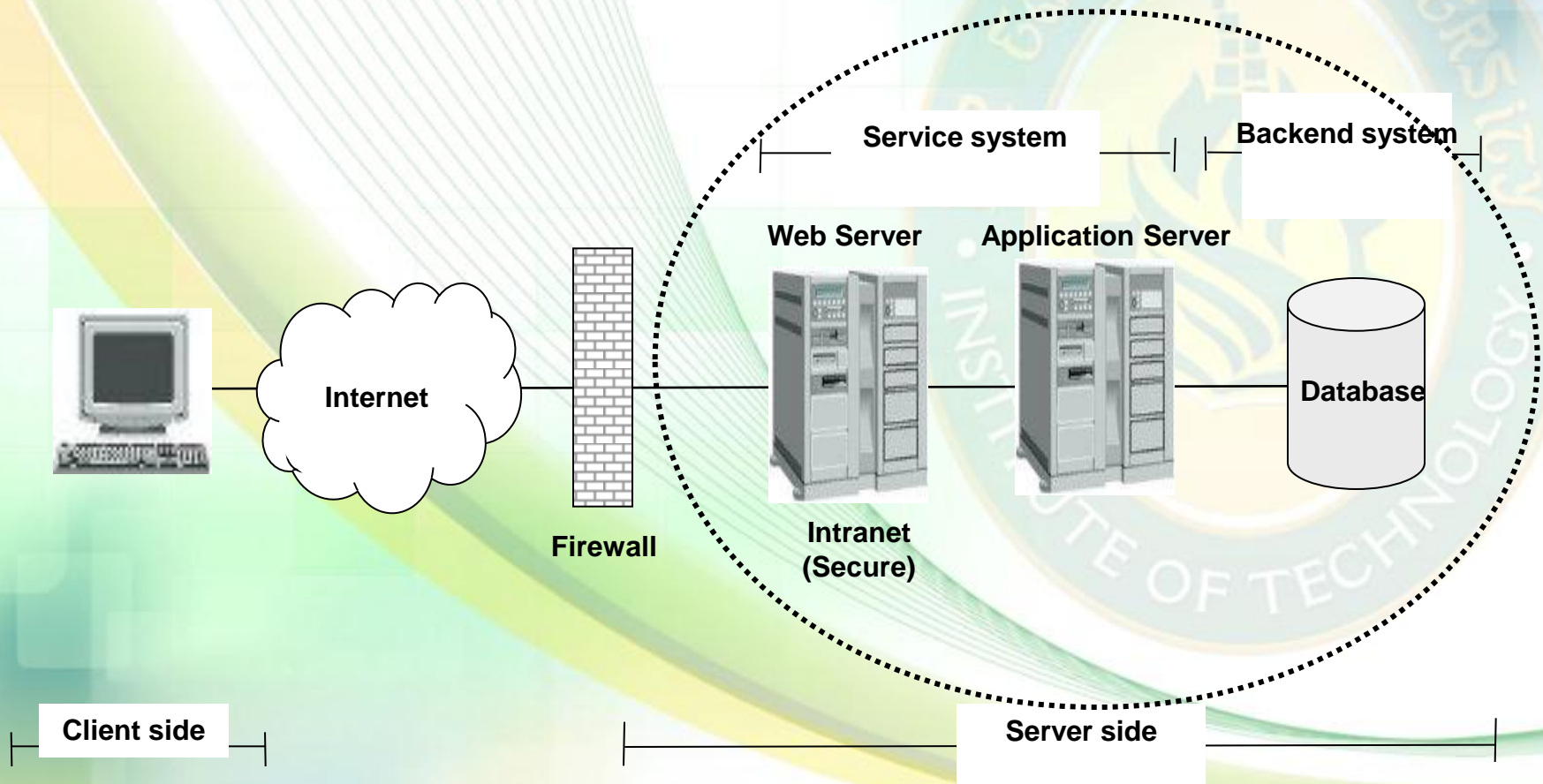


# Three-tier Technical Model





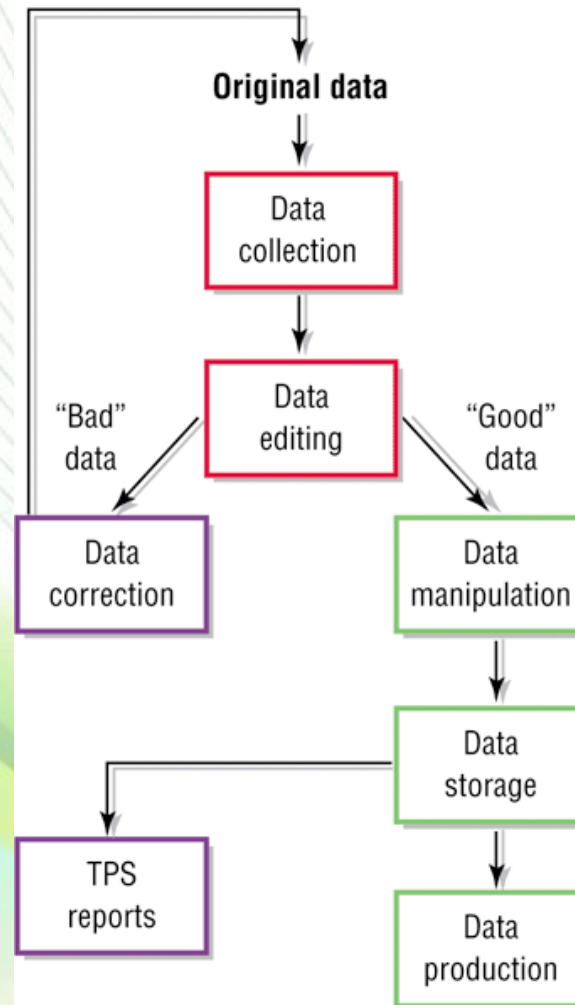
# Architecture of Web-based E-Commerce System





# The Transaction Processing Cycle

Data processing activities of a transaction processing system







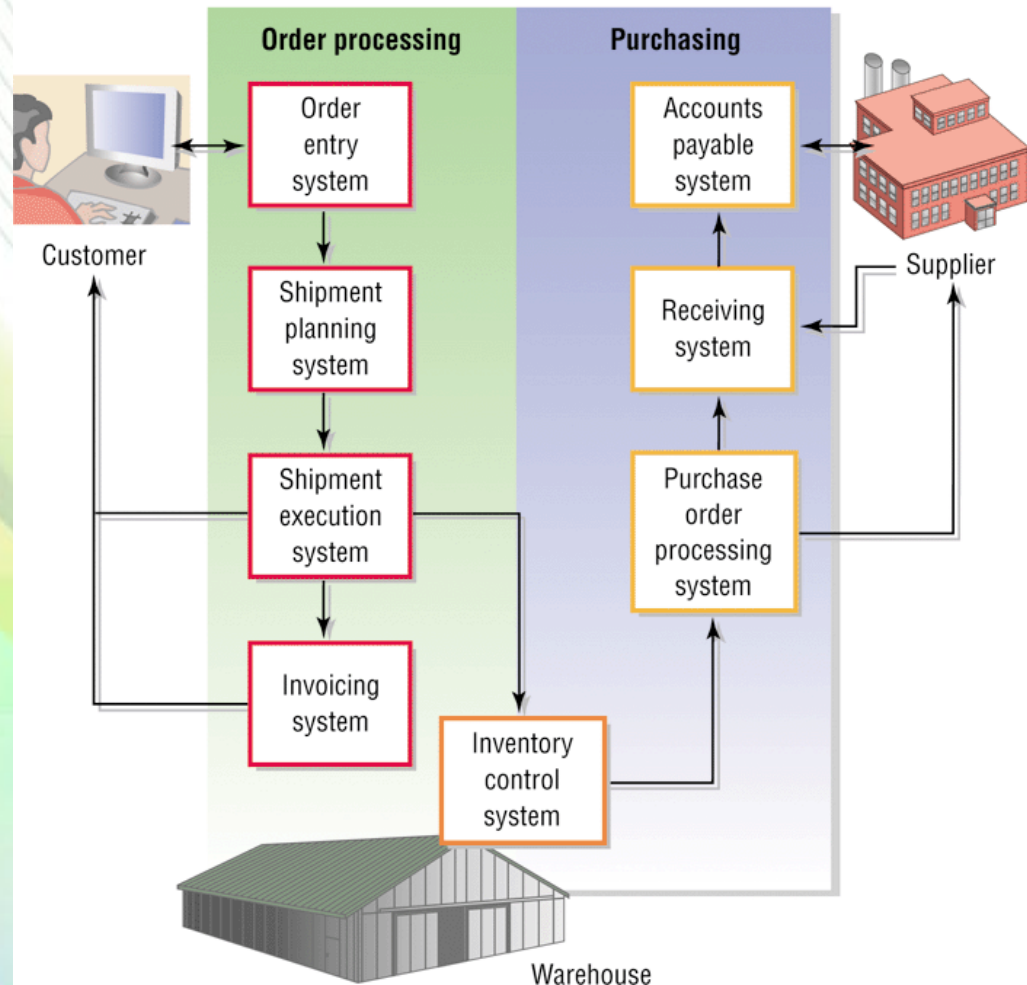
## Different Transaction Processing for Different Needs

- Order processing system
  - Supports the sales of goods or services to customers
  - Arranges for shipment of products
- Purchasing system
  - Supports the purchase of goods and raw materials from suppliers



# Different Transaction Processing for Different Needs

Transaction processing typically makes use of many interconnected systems and subsystems.







# Types of E-Commerce

- Business-to-consumer e-commerce (B2C)
  - Connects individual consumers with sellers , cutting out the middleman
  - E.g. Amazon.com
- Business-to-business e-commerce (B2B)
  - Supports business transactions on across private networks, the Internet, and the Web
- Consumer-to-consumer e-commerce (C2C)
  - Connects individual sellers with people shopping for used items
  - E.g. ebay.com





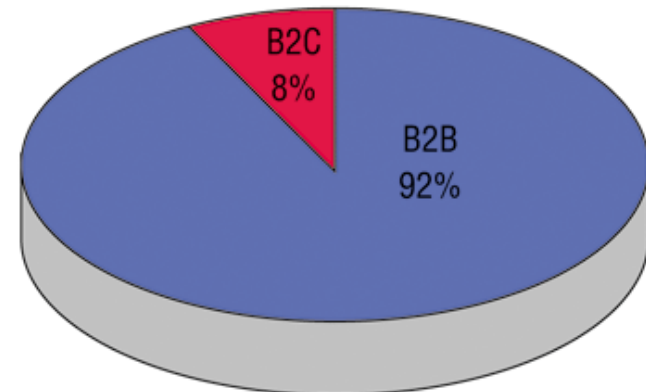
# Types of E-Commerce

**FIGURE 8.8 • B2C vs B2B**

B2B makes up a much larger piece of the pie than B2C, but both have been steadily growing.



**Distribution of e-commerce**





# E-Commerce from the Buyer's Perspective

- Process of buying or acquiring goods or services
  - Realizing a need
  - Researching a product
  - Selecting a vendor
  - Providing payment
  - Accepting delivery
  - Using product support







# E-Commerce from the Buyer's Perspective

FIGURE 8.10 • Consumer reviews – Epinions.com

Consumer review Web sites like Epinions.com help shoppers avoid purchasing mistakes and pressure manufacturers to produce better products.

The screenshot displays the Epinions.com homepage. At the top, the logo features four smiley faces (happy, neutral, sad, and angry) above the text "Epinions.com" and "a Shopping.com company". Navigation links include "Join Epinions", "Help", and "Sign In", along with a "write & win!" button. A horizontal menu lists product categories: CARS, BOOKS, MOVIES, MUSIC, COMPUTERS & SOFTWARE, ELECTRONICS, GIFTS, HOME & GARDEN, KIDS & FAMILY, OFFICE SUPPLY, SPORTS, TRAVEL, and MORE... Below this, a banner reads "Unbiased reviews by real people" with three photos of smiling individuals. Text below the banner states: "At Epinions, you can read and write reviews on millions of products and services." A search bar prompts "Find reviews on:" followed by a text input field and a "Search" button. The left sidebar, titled "Find Reviews", lists categories: Cameras & Photo (Digital Cameras, Film Cameras, Lenses...), Cars & Motorsports (New, Used, Motorcycles, RVs, Tires, Car Stereos...), Computers (Laptops, Desktops, Software, PDAs, Printers...), Electronics (Camcorders, Televisions, DVD, MP3 Players, GPS...), Video Games (Computer Games, Gamecube, DS, PS2, PSP, Xbox, Xbox 360...), and Gifts. The main content area, titled "Epinions Most Helpful Reviews", features a review for "Cairo" with a cityscape image. The review title is "I have seen the king in Memphis, lying on his back near Cairo !". It is by user "gillandtony", a "TOP REVIEWER" in "Hotels & Travel". The author's rating is five stars. The review text begins: "It was two o'clock in the morning. Understandably we felt disoriented and bleary eyed as we scrambled into the mini van and came face to face with two perfect strangers who were to be our travelling companions for the next few days. Our tour price ...". Links for "Read Reviews", "Write Reviews", and "Compare prices for Cairo" are provided.





# E-Commerce from the Seller's Perspective

- Sellers business practices
  - Market research to identify customer needs
  - Manufacturing products or supplying services that meet customer needs
  - Marketing and advertising to make customers aware of available products and services



# E-Commerce from the Seller's Perspective

- Sellers business practices
  - Providing a method for acquiring payments
  - Making arrangements for delivery of the product
  - Providing after-sales support
- Supply chain management
  - From the seller's perspective, the process of producing and selling goods
  - Involves three areas of focus: demand planning, supply planning, and demand fulfillment
    - Demand fulfillment: process of getting the product or service to the customer





# E-Commerce from the Seller's Perspective

## FIGURE 8.11 • Supply chain management

Supply chain management involves three areas of focus: demand planning, supply planning, and demand fulfillment.

### Demand planning



Analyzing  
and forecasting

### Supply planning



Production

### Demand fulfillment



Delivery



# Benefits and Challenges of E-Commerce

- Buyers enjoy the convenience of shopping from their desktop
- B2C e-commerce
  - Levels the playing field between large and small businesses
- Challenges
  - Established businesses must alter systems and business practices
  - Security, privacy, reliability: E-commerce can survive only if all involved can trust the system
  - Social concerns





# Benefits and Challenges of E-Commerce

**FIGURE 8.12 • E-commerce can dramatically extend a business's market**

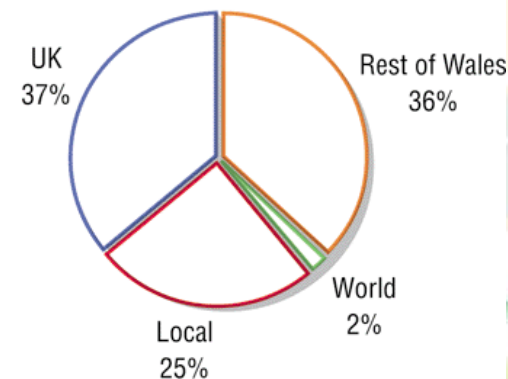
Farmyard Nurseries' customers consisted of mostly local residents before e-commerce, but expanded to include customers from all over the world after implementing e-commerce.



**Before e-commerce sales**



**After e-commerce sales**





# E-Commerce Applications

- E-Commerce
  - Playing an increasingly important role in our personal and professional lives
  - Allows us to discover new and interesting products
  - Allows us to find better deals
  - Used to monitor bank accounts and transfer electronic funds





# Retail E-Commerce: Shopping Online

- E-tailing provides customers with
  - Product information
  - The ability to comparison shop
- E-tailing options
  - Set up an electronic storefront
  - Lease space in a cybermall
    - Web site that allows users to browse through a wide variety of products offered by several different retailers



# Retail E-Commerce: Shopping Online

FIGURE 8.14 • mySimon

The mySimon site provides product price quotations from numerous e-tailers to help you find the best deal on many different products.

The screenshot displays the mySimon website interface. At the top left is the mySimon logo featuring a cartoon character. To its right is an advertisement for "FREE Office Suite Software! Entrepreneur Assist" with links to "TAKE A TOUR" and "SIGN UP NOW". Below this is a navigation bar with categories: Computers, Electronics, Gaming, Home, Clothing, Babies & Kids, Entertainment, Sports, Jewelry, Health & Beauty, and More. A search bar with a "GO" button is positioned below the navigation bar. A horizontal banner below the search bar contains links: "BACK TO SCHOOL SHOPPING", "TECH 101", "ON THE GO", and "DORM LIVING". The main content area is divided into sections. On the left, under "Home > Electronics", there is a "Browse" section with two categories: "Portable Electronics" (listing Camcorders, Cell Phones, Digital Cameras, GPS, Headphones, iPods, MP3 Players, Portable Video Players, Smartphones, Two-Way Radios, and Universal Remote Controls) and "Stationary Electronics" (listing A/V Receivers, CD Players/Recorders, DVD Players/Recorders, Home Theater Systems, Multimedia Projectors, Photo Printers, Turntables, and TV's - Flat Panel). The central "FEATURED PRODUCTS" section highlights "The Latest Plasma TVs" with a featured product, the "Panasonic TH-42PZ700U 42\" Plasma HDTV", including a description of its features and a "Compare Prices" link. Below this is a "DAILY SHOPPING PICKS" section featuring the "Panasonic DMC-FX100" camera. On the right, another advertisement for "CAMPUS mySimon COOL" is shown, featuring a smartphone and a laptop, with links to "DORM LIVING", "TECH 101", and "ON THE GO". Below the ad is a "MOST POPULAR PRODUCTS" section featuring the "Sharp Aquos LC-46D62U 46 in. HDTV LCD Television" with a price range of \$1650 - \$2519.





## Online Clearing Houses, Web Auctions, and Marketplaces

- Provide a platform for businesses and individuals to sell their products and belongings
  - [www.ubid.com](http://www.ubid.com)
    - Provides a method for manufacturers to liquidate stock and consumers to find a good deal
  - [eBay.com](http://eBay.com)
    - Most popular auction/marketplace



## B2B Global Supply Management and Electronic Exchanges

- Global supply management (GSM)
  - Businesses can find the best deals for raw materials and supplies needed to manufacture their products on the global market
- Electronic exchange
  - an industry-specific Web resource created to provide a convenient centralized platform for B2B e-commerce among manufacturers, suppliers, and customers
  - Promotes cooperation between competing companies





# Marketing

- Web is used for
  - Unsolicited advertising
    - Banner: A rectangular area embedded in the Web page content for advertising, often across the top of the page
  - Access to product information through business Web sites
    - Get better deals and make informed decisions
  - Market research
    - Traditionally done by interviewing customers
    - Market segmentation divides customer opinions based on various criteria
    - E-commerce allows market segmentation to take place on an individual level



# Marketing

FIGURE 8.18 • Consumer Reports

Consumer Reports advertises unbiased product testing and reviews. Many consumers find it worth the subscription fee to access its vehicle ratings.

Expert • Independent • Non-profit®

## ConsumerReports.org

SEARCH  GO

Cars Appliances Electronics & computers Home & garden Health & fitness Personal finance Babies & kids Travel Food

**Cars**

You are here: Cars > Models > Toyota Camry

**SELECTED MODEL**

New car  
Used car

Compare all sedans by:

- Overall Ratings
- Dimensions
- Performance
- Predicted Reliability
- Owner Satisfaction

**Community**

- Consumer opinions
- Read reviews by owners
- Post a review

CR Experts' Car Blog

- Blogs on Toyotas

Forums

- Sedans
- Toyota
- New car buying & leasing
- Your best deals

Select another vehicle

By make & model

New

**Toyota Camry**

**RECOMMENDED**

Base MSRP price range: \$18,470 - \$28,020

Price it Compare it

**Car Type:** Fuel efficient cars

**CR overall score** 84 OUT OF 100

What's this?

P	F	G	VG	E
Highest rated				84
<b>This model</b>				84
Lowest	31			

0 100

**Tested versions:** Hybrid 4-cyl CVT (shown)

**Overview Ratings & Specs Road Test Reliability Owner Satisfaction Prices**

**CR Model Summary**

The redesigned Toyota Camry is roomy, quiet, has a comfortable ride, and is refined. The addition of a telescoping steering column is a plus. Power comes from a strong 3.5-liter V6 mated to a six-speed automatic transmission. It returns 23 mpg overall, just one less than the four-cylinder. The base 2.4-liter four-cylinder is also responsive and relatively refined. A four-cylinder hybrid version returned an impressive 34 mpg overall. Handling is responsive and secure but not sporty. The interior is spacious, with

**Ratings Report Card - Hybrid 4-cyl CVT**

	Excellent	Very good	Good	Fair	Poor
Predicted reliability					
Owner satisfaction	NEW				
Predicted depreciation					
Accident avoidance					
Crash protection w/o side air bag					NA

See how this model did in more than 50 tests





# Banking, Finance, and Investment

- Online banking provides
  - Convenient access to bank balance information
  - Ability to transfer funds, pay bills, and obtain account histories
- Electronic funds transfer
  - Popular for paying bills and receiving paychecks
- Online brokerages
  - Able to execute trades fast, within seconds



# Mobile Commerce (M- Commerce)

- A form of e-commerce
- Takes place over wireless mobile devices such as
  - Handheld computers and cell phones
  - takes place in emerging technologies such as dashtop computers embedded in automobile dashboards
- Presents unique opportunities and challenges





# Mobile Commerce

FIGURE 8.21 • Investing online

Most online trading services provide a simple form to buy and sell stocks.

The screenshot displays the Ameritrade website interface. At the top, the Ameritrade logo is on the left, and a link to a short survey is on the right. Below the logo is a navigation bar with links for Trade, Portfolio, Streamer Suite™, Research, and Account. A status bar indicates Express Trading is Enabled and the current time is Thu Jul 22 2004 2:14:09 PM EDT.

The main section is titled "Quote Results" and includes a search bar for Symbol(s) with an "Add" button. Below this is a table of stock quotes for IBM.

Symbol	Last	Change	Change %	Bid	Ask	B/A Size	High	Low	Volume
IBM	85.54	0.24	0.28136	85.55	85.58	500X500	85.80	84.68	3627400

Below the table is a "Get Quote(s)" section with a search bar and a "Go" button. To the right of the search bar is a "STOCK" section with a "Buy" button and a "Sell" button. The "Buy" button is selected. The "STOCK" section includes fields for Qty (200), Price (89), Sp. Inst. (None), Routing (Auto), and Order type (Limit). The "Expiration" field is set to "Day". To the right of the "STOCK" section is an "OPTION" section with a "Place Order" button and a "Save Order" button. The "SnapTicket™" logo is also visible.

At the bottom right, there are links for "Order/OTCBB disclaimer" and "Quote disclaimer".



# M-Commerce Technology

- Technologies and standards
  - Wireless Application Protocol (WAP)
    - a communication standard used by developers to create m-commerce applications
  - Wireless Markup Language (WML)
  - Infrared or Bluetooth wireless networking technology
    - Near Field Communications (NFC)
- Open Mobile Alliance (OMA)
  - Hundreds of mobile operators, device and network suppliers and companies have joined together to create standards and interoperability between mobile devices





# Types of M-Commerce Applications

- Methods for delivering m-commerce services
  - Directly from cell phone service providers
  - Via mobile Internet or Web applications
    - Location-based m-commerce applications
  - Using Short Message Service (SMS) text messaging or Multimedia Messaging Service (MMS)
  - Using short-range wireless technology, such as infrared
    - Proximity payment system



# Types of M-Commerce Applications

**FIGURE 8.22 • WAP and WML**

WAP and WML are used to create network applications for the small cell phone display.







# E-Commerce Implementation

- Implementing e-commerce
  - Requires large investment and expertise
- E-Commerce host
  - A company that takes on some or all of the responsibility of setting up and maintaining an e-commerce system for a business or organization



# Infrastructure

- E-Commerce requires significant infrastructure changes
- Businesses must have employees who are technically savvy
- B2C e-commerce
  - Often connects manufacturers directly with consumers, cutting out the middleman
  - Requires shipping individual products directly to consumers

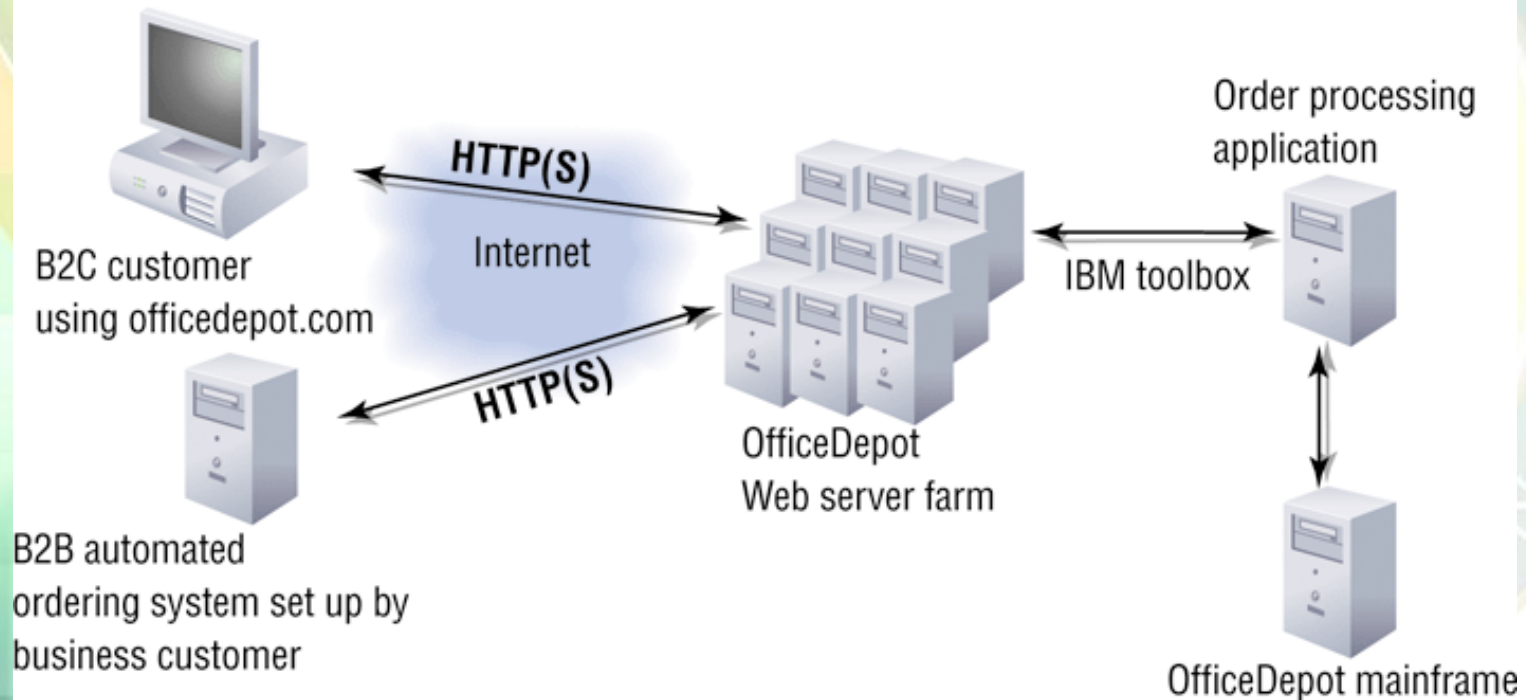




# Infrastructure

**FIGURE 8.25 • Office Depot: A large e-commerce system**

Office Depot contracted with IBM to design this e-commerce system to support both B2C and B2B.





# Hardware and Networking

- Underestimating the amount of Web traffic
  - Leads to network stalls and long wait times
- Typical e-commerce Web site
  - Employs one or more server computers and a high-speed Internet connection
- Outsourcing to a Web hosting company
  - Can operate 24 hours a day, 7 days a week
  - Load-balancing





# Software

- Web Server Software
  - Responds to requests for Web pages
- Web Server Utility Programs
  - Provide statistical information about server usage and Web site traffic patterns
- E-Commerce Software
  - Supports e-commerce activities
  - Includes catalog management, electronic shopping cart, and payment software



# Software

- Web Site Design Tools
  - What-you-see-is-what-you-get (WYSIWYG) applications or wizards
- Graphics Applications
  - Design and create graphic elements of Web sites
- Web Site Development Tools
  - Application programming interfaces (API's)
    - Allow software engineers to develop Web-driven programs





# Software

- Web services
  - Programs that automate tasks by communicating with each other over the Web
  - Systems developers can provide tools for automating trivial or repetitive tasks
  - Important in transaction processing



# Building Traffic

- The 3Cs Approach
  - Content, community, and commerce
- Keywords and Search Engines
  - Choose name and product names that best describe business purpose and features
  - Select descriptive domain names
  - Business-related keywords can be listed in the HTML meta tag
    - Read by search engines and servers, but not displayed on the page





# Building Traffic

- Marketing
  - Online advertising methods include banner ads, pop-up ads, and e-mail
  - market segmentation: customer opinions are divided into demographic variables such as race, gender, income, education, and age to determine which segment a product appeals to most
  - Offline advertising methods include magazines, newspapers, radio, and television



# Building Traffic

FIGURE 8.29 • Building Web site traffic

General Nutrition Center (GNC) uses smart strategies to build traffic to its Web site. It follows the 3Cs approach by offering content, community, and commerce to its visitors.

The screenshot displays the GNC LiveWell website interface. At the top, a navigation bar includes links for Help, GNC Gold Card, GNC Gift Card, Store Locator, Careers, My Account, Site Map, and a Shopping Cart with 0 items. Below this is a search bar and a category menu with options like Vitamins & Minerals, Sports Nutrition, Diet & Energy, Herbal Supplements, Health & Beauty, and Home & Fitness. A date stamp indicates August 5, 2007, with a link to Men's Health: The.

The main content area is divided into several sections:

- Scrolling news updates**: A section for the latest news.
- Online incentives**: A banner for **FREE SHIPPING** on orders of \$75 or more.
- Membership benefits**: A banner for the **GOLD CARD** offering a 20% discount.
- Special promotions**: A large banner for a **\$5,000 EACH MONTH** giveaway through December, with a link to enter the sweepstakes.
- Partnerships**: A section for partnerships, featuring a link to **drugstore**.
- Free valuable information**: A section for the **GNC Library**, which includes a link to **healthnotes** and **GNC Health News**.

The right side of the page features a large advertisement for **alli**, a weight loss supplement. The ad includes the text "NOW AVAILABLE AT GNC: alli™", a description of the product, and a "SEMI-ANNUAL SALE" banner with a "SHOP NOW >" button.

At the bottom of the page, there are three promotional banners:

- View Our Online Catalogs & Sale Flyers** for great savings.
- SPOTLIGHT PRODUCTS** featuring various GNC products.
- Visit GNC's Fitness & Wellness Center** for equipment, accessories, and more.





# Electronic Payment System

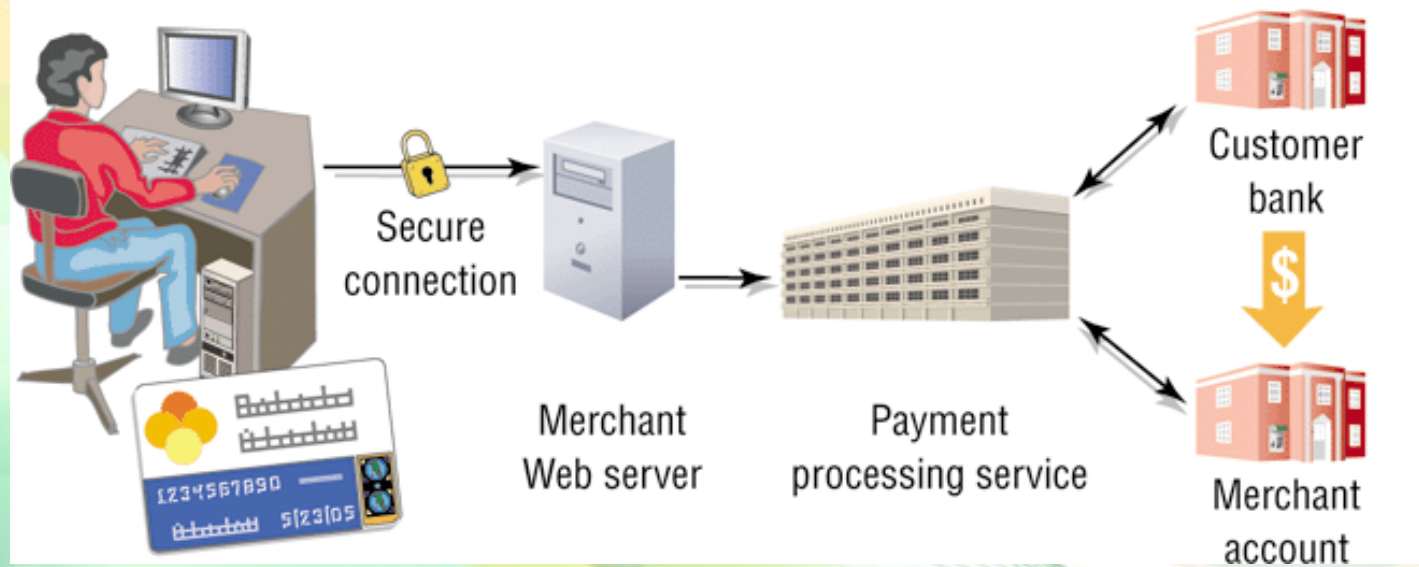
- Proximity payment system
  - allows customers to transfer funds wirelessly between their mobile device and a point-of-sale terminal
- Electronic cash (e-cash or digital cash)
  - Provides a private and secure method of transferring funds from a bank account or credit card to online vendors or individuals
  - PayPal
    - Best-known e-cash provider
- E-cash benefits
  - Privacy - hides account information from vendors
  - Convenient if seller cannot process a credit card
- Smartcards
  - Credit cards with embedded microchips that can store and process data and can be used as electronic wallets



# Electronic Payment System

**FIGURE 8.30 • Online credit card transaction**

Online vendors use payment processing systems to check credit and arrange for the transfer of funds.







# Electronic Payment System

**FIGURE 8.31 • E-cash**

E-cash systems such as PayPal allow users to purchase products online without providing the vendor with a credit card number. You can also use e-cash to transfer funds between individuals.

**PayPal®** [Log Out](#) | [Help](#)

**My Account** **Send Money** **Request Money** **Merchant Tools** **Auction Tools**

**Pay Anyone** **Pay for eBay items** **BillPay**

**Send Money** Secure Transaction

Pay anyone with an email address - even if they don't have a PayPal account!

**Recipient's Email:**   
- OR - Select a recipient

**Amount:**

**Currency:**  ?

**Type:**  ?

**Subject:**   
(optional)

**Note:**   
(optional)



# International Markets

- Internet users of all nationalities will have access to your products
- First consideration of a global e-commerce strategy
  - Visitors of all nationalities and cultures should feel comfortable while viewing your Web content
- Costly approach
  - Create multiple versions of your Web site, each in a different language
- Once the international market is won over, e-tailer faces other challenges
  - Foreign Currency, shipping, national taxes





# Summary

- E-Commerce
  - Systems that support electronically executed transactions
- Transaction processing system (TPS)
  - Supports and records transactions
- Three main types of e-commerce
  - Business-to-consumer (B2C)
  - Business-to-business (B2B)
  - Consumer-to-consumer (C2C)



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## **QUESTIONS AND COMMENTS**

