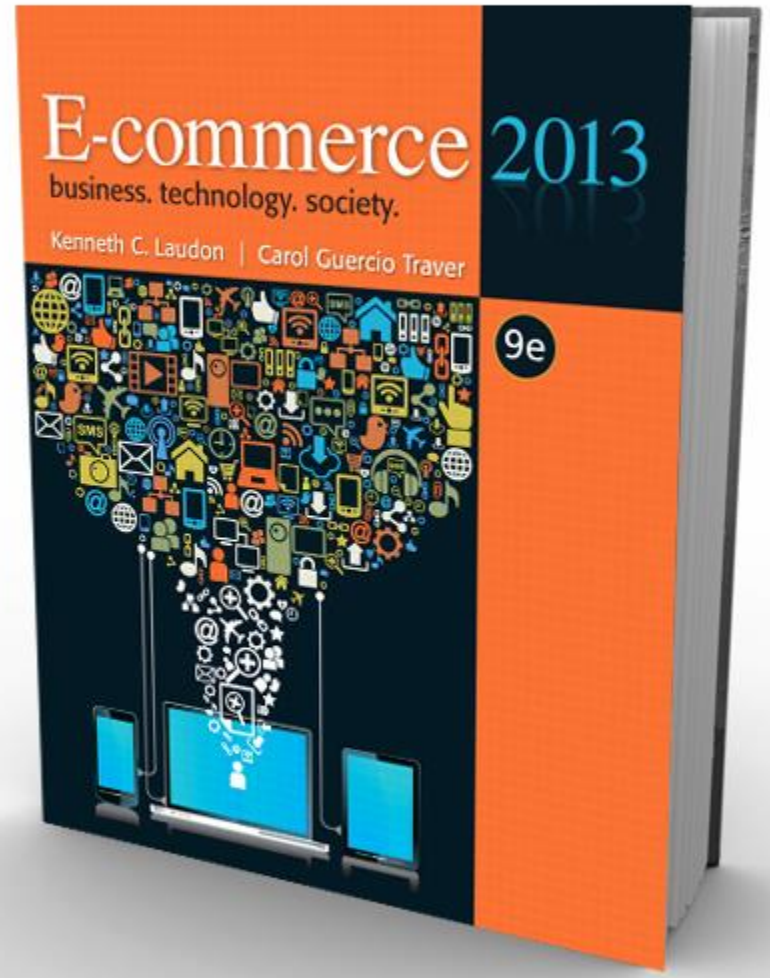


E-commerce 2013

business. technology. society.

ninth edition

Kenneth C. Laudon

Carol Guercio Traver

Chapter 1

The Revolution Is Just Beginning

Class Discussion

Pinterest: A Picture Is Worth a Thousand Words

- **Have you used Pinterest or any other content curation sites? What are your main interests?**
- **Have you purchased anything based on a pin or board on Pinterest or any other curation site?**
- **Why do Pinterest links drive more purchasing than Facebook links?**

E-commerce Trends 2012–2013

- Mobile platform solidifies
- Mobile e-commerce explodes
- Continued growth of social networks
- Expansion of social and local e-commerce
- Explosive growth in “Big Data”
- E-books gain wide acceptance

The First 30 Seconds

- **First 17 years of e-commerce**
  - Just the beginning
  - Rapid growth and change
- **Technologies continue to evolve at exponential rates**
  - Disruptive business change
  - New opportunities

What Is E-commerce?

- **Use of Internet and Web to transact business**
- **More formally:**
  - Digitally enabled commercial transactions between and among organizations and individuals

E-commerce vs. E-business

- **E-business:**
  - Digital enabling of transactions and processes within a firm, involving information systems under firm's control
  - Does not include commercial transactions involving an exchange of value across organizational boundaries

Why Study E-commerce?

- **E-commerce technology is different, more powerful than previous technologies**
- **E-commerce brings fundamental changes to commerce**
- **Traditional commerce:**
  - Consumer as passive targets
  - Sales-force driven
  - Fixed prices
  - Information asymmetry

Eight Unique Features of E-commerce Technology

1. Ubiquity
2. Global reach
3. Universal standards
4. Information richness
5. Interactivity
6. Information density
7. Personalization/customization
8. Social technology

Web 2.0

- **User-centered applications and social media technologies**
  - User-generated content and communication
  - Highly interactive, social communities
  - Large audiences; yet mostly unproven business models
  - e.g.: Twitter, YouTube, Facebook, Instagram, Wikipedia, StumbleUpon, Tumblr, Pinterest

Types of E-commerce

- *May be classified by market relationship or technology*

- **Business-to-Consumer (B2C)**
- **Business-to-Business (B2B)**
- **Consumer-to-Consumer (C2C)**
- **Social e-commerce**
- **Mobile e-commerce (M-commerce)**
- **Local e-commerce**

The Internet

- Worldwide network of computer networks built on common standards
- Created in late 1960s
- Services include the Web, e-mail, file transfers, etc.
- Can measure growth by looking at number of Internet hosts with domain names

The Web

- **Most popular Internet service**
- **Developed in early 1990s**
- **Provides access to Web pages**
  - HTML documents that may include text, graphics, animations, music, videos
- **Web content has grown exponentially**
  - Google reports 1 trillion unique URLs; 120 billion Web pages indexed

Spider Webs, Bow Ties, Scale-Free Networks, and the Deep Web

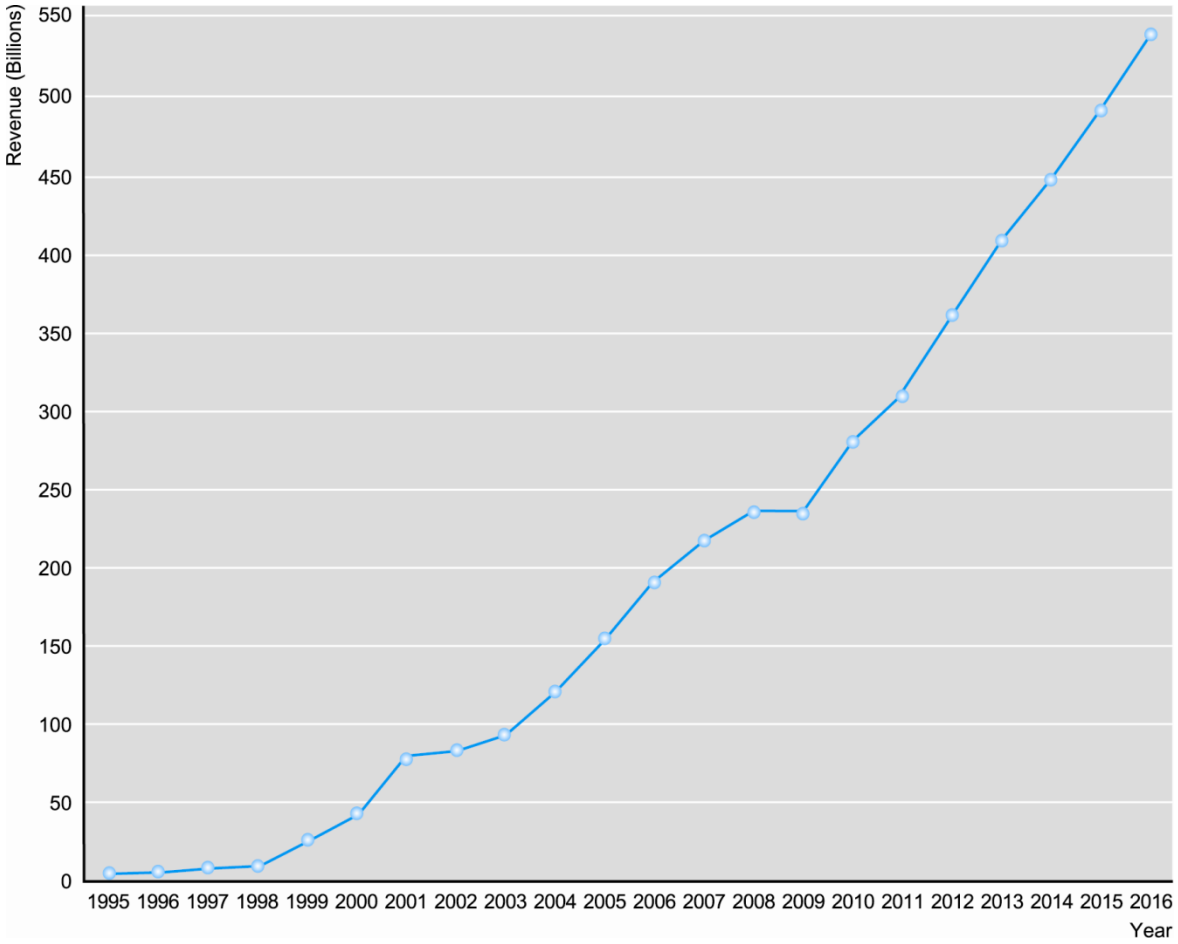
- What is the "small world" theory of the Web?
- What is the significance of the "bow-tie" form of the Web?
- Why does Barabasi call the Web a "scale-free network" with "very connected super nodes"?

Origins and Growth of E-commerce

- **Precursors:**
  - Baxter Healthcare
  - Electronic Data Interchange (EDI)
  - French Minitel (1980s videotex system)
  - None had functionality of Internet
- **1995: Beginning of e-commerce**
  - First sales of banner advertisements
- **E-commerce fastest growing form of commerce in United States**

The Growth of B2C E-commerce

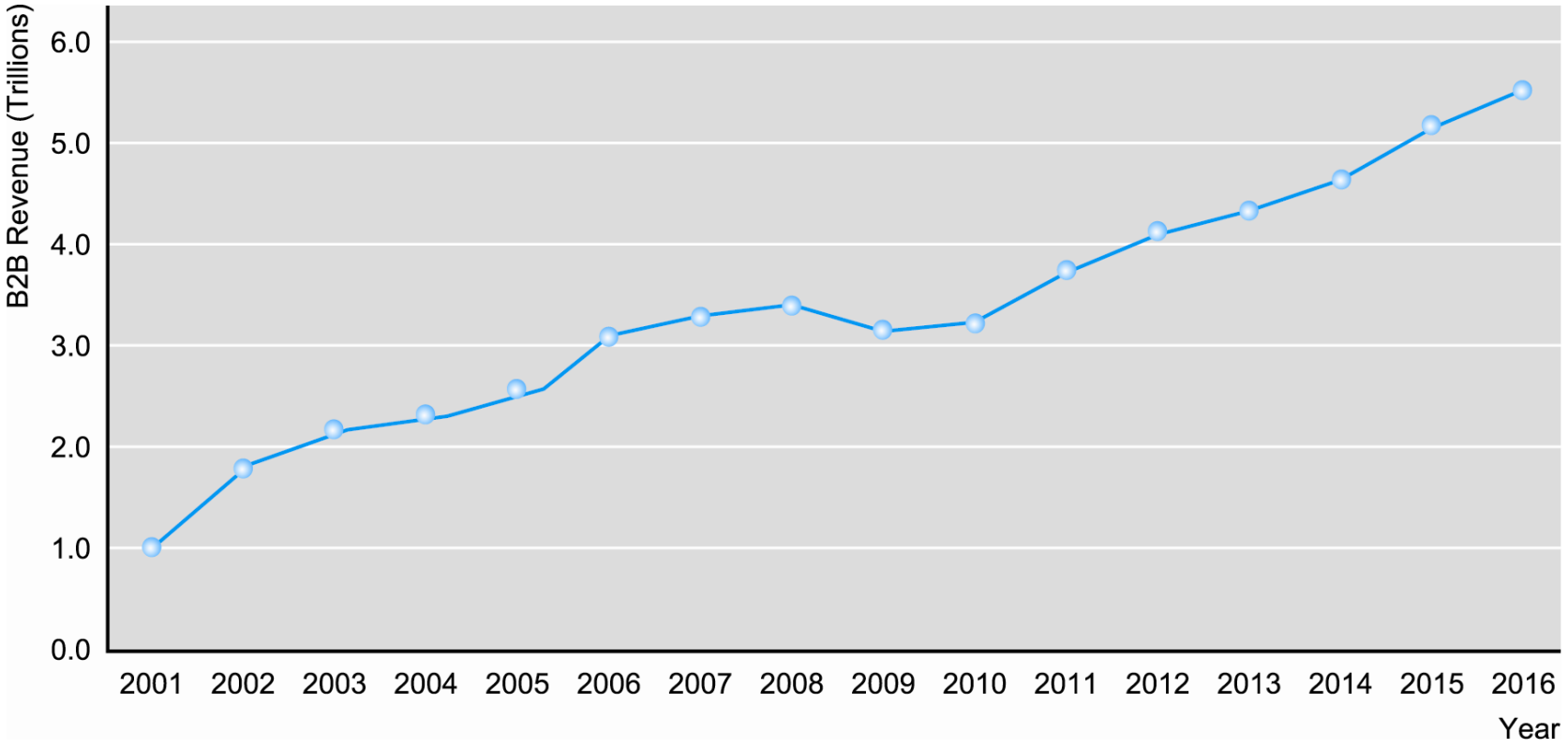
Figure 1.2, Page 27



SOURCE: Based on data from eMarketer, Inc., 2012; authors' estimates.

The Growth of B2B E-commerce

Figure 1.3, Page 28



SOURCE: Based on data from U.S. Census Bureau, 2012b; authors' estimates.

Technology and E-commerce in Perspective

- **The Internet and Web: Just two of a long list of technologies that have greatly changed commerce**
  - Automobiles
  - Radio
- **E-commerce growth will eventually cap as it confronts its own fundamental limitations**

Potential Limitations on the Growth of B2C E-commerce

- Expensive technology
- Sophisticated skill set
- Persistent cultural attraction of physical markets and traditional shopping experiences
- Persistent global inequality limiting access to telephones and computers
- Saturation and ceiling effects

E-commerce: A Brief History

- **1995–2000: Innovation**
  - Key concepts developed
  - Dot-coms; heavy venture capital investment
- **2001–2006: Consolidation**
  - Emphasis on business-driven approach
- **2006–Present: Reinvention**
  - Extension of technologies
  - New models based on user-generated content, social networks, services

Early Visions of E-commerce

- **Computer scientists:**
  - Inexpensive, universal communications and computing environment accessible by all
- **Economists:**
  - Nearly perfect competitive market; friction-free commerce
  - Lowered search costs, disintermediation, price transparency, elimination of unfair competitive advantage
- **Entrepreneurs:**
  - Extraordinary opportunity to earn far above normal returns on investment—first mover advantage

Insight on Business: Class Discussion

Is the Party Already Over?

- **What explains the rapid growth in private investment in e-commerce firms in the period 2011 to early 2012? Was this investment irrational?**
- **Despite the ubiquitous popularity of Facebook, its IPO was a failure—why?**
- **Why do you think investors today are interested in investing in or purchasing social network companies?**
- **What other types of e-commerce companies, if any, would you be interested in purchasing or investing in, and why?**

Assessing E-commerce

- **Many early visions not fulfilled**
  - Friction-free commerce
    - Consumers less price sensitive
    - Considerable price dispersion
  - Perfect competition
    - Information asymmetries persist
  - Intermediaries have not disappeared
  - First mover advantage
    - Fast-followers often overtake first movers

Predictions for the Future

- Technology will propagate through all commercial activity
- Prices will rise to cover the real cost of doing business
- E-commerce margins and profits will rise to levels more typical of all retailers

Predictions for the Future (cont.)

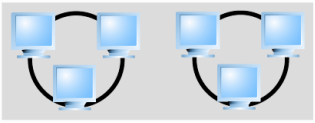
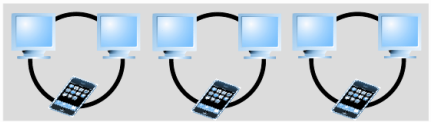
- Cast of players will change radically
- Number of successful pure online stores will remain smaller than integrated offline/online stores
- Regulatory activity worldwide will grow
- Cost of energy will have an influence

Understanding E-commerce: Organizing Themes

- **Technology:**
  - Development and mastery of digital computing and communications technology
- **Business:**
  - New technologies present businesses with new ways of organizing production and transacting business
- **Society:**
  - Intellectual property, individual privacy, public welfare policy

The Internet and the Evolution of Corporate Computing

Figure 1.7, Page 45

COMPUTER TECHNOLOGY		BUSINESS APPLICATION
Mainframe Computers 1950 – 1975		Transaction automation Payroll Accounts receivable
Minicomputers 1970 – 1980		Business function automation Marketing Human resources Design
Personal Computers 1980 – Present		Desktop automation Word processing Spreadsheets Databases
Local Area Networks Client/Server Computing 1980 – Present		Workgroup automation Document sharing Project management Messaging, e-mail
Enterprise-wide Computing 1990 – Present		Enterprise-wide automation Resource planning systems Integrated finance-manufacturing systems Human resource planning
Internet and Web Mobile platform 1995 – Present		Industrial system automation Supply chain management Customer relationship management Channel management systems Web and cloud services

Insight on Society: Class Discussion

Facebook and the Age of Privacy

- **Why are social network sites interested in collecting user information?**
- **What types of privacy invasion are described in the case? Which is the most privacy-invading, and why?**
- **Is e-commerce any different than traditional markets with respect to privacy? Don't merchants always want to know their customer?**
- **How do you protect your privacy on the Web?**

Academic Disciplines Concerned with E-commerce

- **Technical approach**
  - Computer science
  - Management science
  - Information systems
- **Behavioral approach**
  - Information systems
  - Economics
  - Marketing
  - Management
  - Finance/accounting
  - Sociology

Chapter 2

E-commerce Business Models and Concepts

Class Discussion

Tweet Tweet: What's Your Business Model?

- **What characteristics or benchmarks can be used to assess the business value of a company such as Twitter?**
- **Have you used Twitter to communicate with friends or family? What are your thoughts on this service?**
- **What are Twitter's most important assets?**
- **Which of the various methods described for monetizing Twitter's assets do you feel might be most successful?**

E-commerce Business Models

- **Business model**
  - Set of planned activities designed to result in a profit in a marketplace
- **Business plan**
  - Describes a firm's business model
- **E-commerce business model**
  - Uses/leverages unique qualities of Internet and Web

Eight Key Elements of a Business Model

1. Value proposition
2. Revenue model
3. Market opportunity
4. Competitive environment
5. Competitive advantage
6. Market strategy
7. Organizational development
8. Management team

1. Value Proposition

- **"Why should the customer buy from you?"**
- **Successful e-commerce value propositions:**
  - Personalization/customization
  - Reduction of product search, price discovery costs
  - Facilitation of transactions by managing product delivery

2. Revenue Model

- **"How will the firm earn revenue, generate profits, and produce a superior return on invested capital?"**
- **Major types:**
  - Advertising revenue model
  - Subscription revenue model
  - Transaction fee revenue model
  - Sales revenue model
  - Affiliate revenue model

Foursquare Checks Out a Revenue Model

- **What revenue model does Foursquare use? What other revenue models might be appropriate?**
- **Are privacy concerns the only shortcoming of location-based mobile services?**
- **Should business firms be allowed to call cell phones with advertising messages based on location?**

3. Market Opportunity

- **"What marketspace do you intend to serve and what is its size?"**
  - Marketspace: Area of actual or potential commercial value in which company intends to operate
  - Realistic market opportunity: Defined by revenue potential in each market niche in which company hopes to compete
- **Market opportunity typically divided into smaller niches**

4. Competitive Environment

- **"Who else occupies your intended marketspace?"**
  - Other companies selling similar products in the same marketspace
  - Includes both direct and indirect competitors
- **Influenced by:**
  - Number and size of active competitors
  - Each competitor's market share
  - Competitors' profitability
  - Competitors' pricing

5. Competitive Advantage

- **"What special advantages does your firm bring to the marketspace?"**
  - Is your product superior to or cheaper to produce than your competitors'?
- **Important concepts:**
  - Asymmetries
  - First-mover advantage, complementary resources
  - Unfair competitive advantage
  - Leverage
  - Perfect markets

6. Market Strategy

- **"How do you plan to promote your products or services to attract your target audience?"**
  - Details how a company intends to enter market and attract customers
  - Best business concepts will fail if not properly marketed to potential customers

7. Organizational Development

- **"What types of organizational structures within the firm are necessary to carry out the business plan?"**
- **Describes how firm will organize work**
  - Typically, divided into functional departments
  - As company grows, hiring moves from generalists to specialists

8. Management Team

- **"What kind of backgrounds should the company's leaders have?"**
- **A strong management team:**
  - Can make the business model work
  - Can give credibility to outside investors
  - Has market-specific knowledge
  - Has experience in implementing business plans

Is Groupon's Business Model Sustainable?

- **What is the value of Groupon to merchants? What types of merchants benefit the most?**
- **What is the value of Groupon to investors?**
- **Is Groupon overvalued ?**
- **What obstacles does Groupon face?**
- **Which competitors present the greatest threat to Groupon?**

Categorizing E-commerce Business Models

- **No one correct way**
- **Text categorizes according to:**
  - E-commerce sector (e.g., B2B)
  - E-commerce technology (e.g., m-commerce)
- **Similar business models appear in more than one sector**
- **Some companies use multiple business models (e.g., eBay)**

B2C Business Models

- E-tailer
- Community provider (social network)
- Content provider
- Portal
- Transaction broker
- Market creator
- Service provider

B2C Models: E-tailer

- **Online version of traditional retailer**
- **Revenue model: Sales**
- **Variations:**
  - Virtual merchant
  - Bricks-and-clicks
  - Catalog merchant
  - Manufacturer-direct
- **Low barriers to entry**

B2C Models: Community Provider

- **Provide online environment (social network) where people with similar interests can transact, share content, and communicate**
  - e.g., Facebook, LinkedIn, Twitter, Pinterest
- **Revenue models:**
  - Typically hybrid, combining advertising, subscriptions, sales, transaction fees, affiliate fees

B2C Models: Content Provider

- **Digital content on the Web**
  - News, music, video, text, artwork
- **Revenue models:**
  - Subscription; pay per download (micropayment); advertising; affiliate referral
- **Variations:**
  - Syndication
  - Web aggregators

Battle of the Titans: Music in the Cloud

- **Have you purchased music online or subscribed to a music service? What was your experience?**
- **What revenue models do cloud music services use?**
- **Do cloud music services provide a clear advantage over download and subscription services?**
- **Of the cloud services from Google, Amazon, and Apple, which would you prefer to use, and why?**

B2C Business Models: Portal

- **Search plus an integrated package of content and services**
- **Revenue models:**
  - Advertising, referral fees, transaction fees, subscriptions
- **Variations:**
  - Horizontal/General
  - Vertical/Specialized (Vortal)
  - Search

B2C Models: Transaction Broker

- **Process online transactions for consumers**
  - Primary value proposition—saving time and money
- **Revenue model:**
  - Transaction fees
- **Industries using this model:**
  - Financial services
  - Travel services
  - Job placement services

B2C Models: Market Creator

- **Create digital environment where buyers and sellers can meet and transact**
- **e.g.,**
  - Priceline
  - eBay
- **Revenue model:** Transaction fees

B2C Models: Service Provider

- **Online services**
  - e.g., Google—Google Maps, Gmail, etc.
- **Value proposition**
  - Valuable, convenient, time-saving, low-cost alternatives to traditional service providers
- **Revenue models:**
  - Sales of services, subscription fees, advertising, sales of marketing data

B2B Business Models

- **Net marketplaces**
  - E-distributor
  - E-procurement
  - Exchange
  - Industry consortium
- **Private industrial network**

B2B Models: E-distributor

- Version of retail and wholesale store, MRO goods, and indirect goods
- Owned by one company seeking to serve many customers
- Revenue model: Sales of goods
- e.g., Grainger.com

B2B Models: E-procurement

- **Creates digital markets where participants transact for indirect goods**
  - B2B service providers, application service providers (ASPs)
- **Revenue model:**
  - Service fees, supply-chain management, fulfillment services
- **e.g., Ariba**

B2B Models: Exchanges

- **Independently owned vertical digital marketplace for direct inputs**
- **Revenue model:** Transaction, commission fees
- **Create powerful competition between suppliers**
- **Tend to force suppliers into powerful price competition; number of exchanges has dropped dramatically**

B2B Models: Industry Consortia

- **Industry-owned vertical digital marketplace open to select suppliers**
- **More successful than exchanges**
  - Sponsored by powerful industry players
  - Strengthen traditional purchasing behavior
- **Revenue model: Transaction, commission fees**
- **e.g., Exostar**

Private Industrial Networks

- Digital network
- Used to coordinate communication among firms engaged in business together
- Typically evolve out of company's internal enterprise system
- e.g., Walmart's network for suppliers

E-commerce Enablers: The Gold Rush Model

- **E-commerce infrastructure companies have profited the most:**
  - Hardware, software, networking, security
  - E-commerce software systems, payment systems
  - Media solutions, performance enhancement
  - CRM software
  - Databases
  - Hosting services, etc.

How the Internet and the Web Change Business

- **E-commerce changes industry structure by changing:**
  - Rivalry among existing competitors
  - Barriers to entry
  - Threat of new substitute products
  - Strength of suppliers
  - Bargaining power of buyers

Industry Value Chains

- Set of activities performed by suppliers, manufacturers, transporters, distributors, and retailers that transform raw inputs into final products and services
- Internet reduces cost of information and other transactional costs
- Leads to greater operational efficiencies, lowering cost, prices, adding value for customers

E-commerce and Industry Value Chains

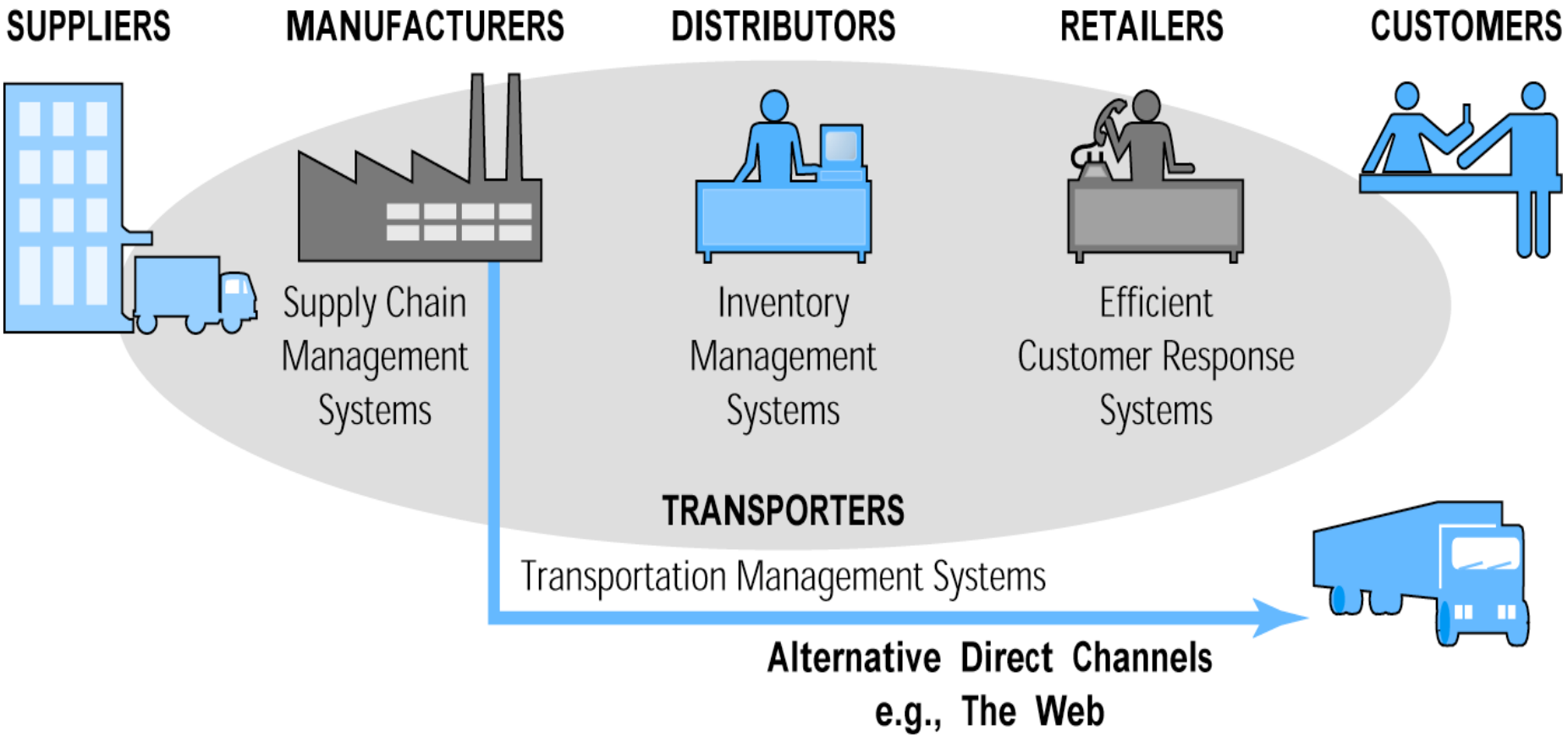


Figure 2.4, Page 96

Firm Value Chains

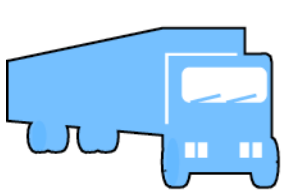
- **Activities that a firm engages in to create final products from raw inputs**
- **Each step adds value**
- **Effect of Internet:**
  - Increases operational efficiency
  - Enables product differentiation
  - Enables precise coordination of steps in chain

E-commerce and Firm Value Chains

Administration
Human Resources
Information Systems
Procurement
Finance/Accounting

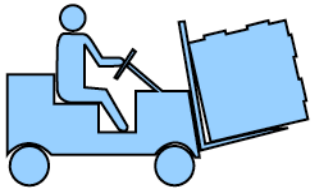
SECONDARY ACTIVITIES

PRIMARY ACTIVITIES

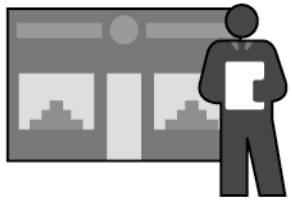


Inbound Logistics

Operations



Outbound Logistics



Sales and Marketing

After Sales Service

Figure 2.5, Page 97

Firm Value Webs

- Networked business ecosystem
- Uses Internet technology to coordinate the value chains of business partners
- Coordinates a firm's suppliers with its own production needs using an Internet-based supply chain management system

Internet-enabled Value Web

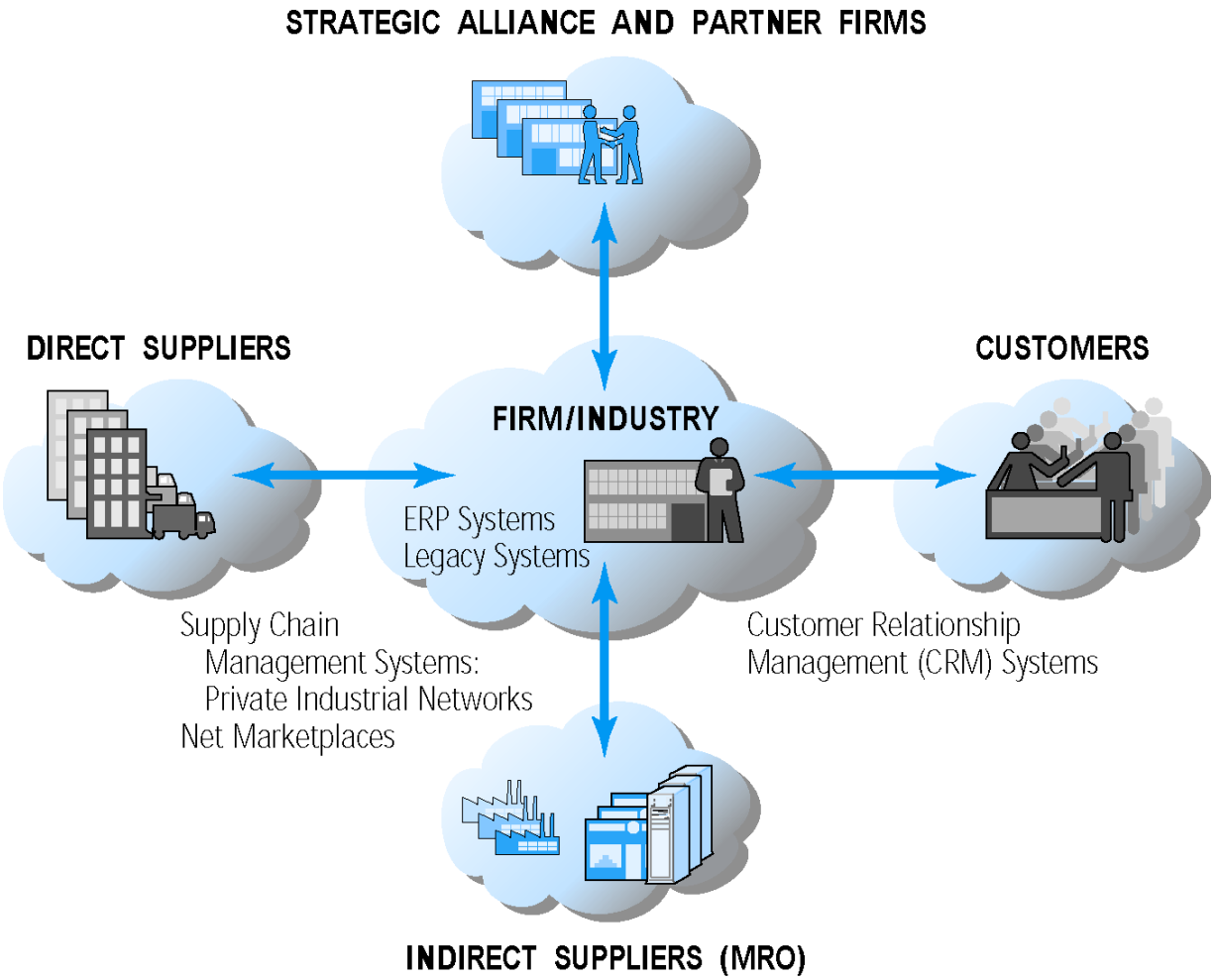


Figure 2.6, Page 98

Business Strategy

- **Plan for achieving superior long-term returns on the capital invested in a business firm**
- **Four generic strategies**
  - Differentiation
  - Cost
  - Scope
  - Focus

Chapter 3

E-commerce Infrastructure: The Internet, Web, and Mobile Platform

Class Discussion

Google Glass: Augment My Reality

- **Have you used any augmented reality applications? If so, has it been useful; if not, is it a service that seems interesting? Why or why not?**
- **Are there any privacy issues raised by augmented reality applications?**
- **What are the potential benefits to? Are there any disadvantages?**
- **What revenue models could work for providers of augmented services?**

The Internet: Technology Background

- **Internet**
  - Interconnected network of thousands of networks and millions of computers
  - Links businesses, educational institutions, government agencies, and individuals
- **World Wide Web (Web)**
  - One of the Internet's most popular services
  - Provides access to billions, possibly trillions, of Web pages

The Evolution of the Internet 1961–Present

- **Innovation Phase, 1964–1974**
  - Creation of fundamental building blocks
- **Institutionalization Phase, 1975–1995**
  - Large institutions provide funding and legitimization
- **Commercialization Phase, 1995–present**
  - Private corporations take over, expand Internet backbone and local service

The Internet: Key Technology Concepts

- **Defined as network that:**
  - Uses IP addressing
  - Supports TCP/IP
  - Provides services to users, in manner similar to telephone system
- **Three important concepts:**
  - Packet switching
  - TCP/IP communications protocol
  - Client/server computing

Packet Switching

- **Slices digital messages into packets**
- **Sends packets along different communication paths as they become available**
- **Reassembles packets once they arrive at destination**
- **Uses routers**
  - Special purpose computers that interconnect the computer networks that make up the Internet and route packets
  - Routing algorithms ensure packets take the best available path toward their destination
- **Less expensive, wasteful than circuit-switching**

Packet Switching

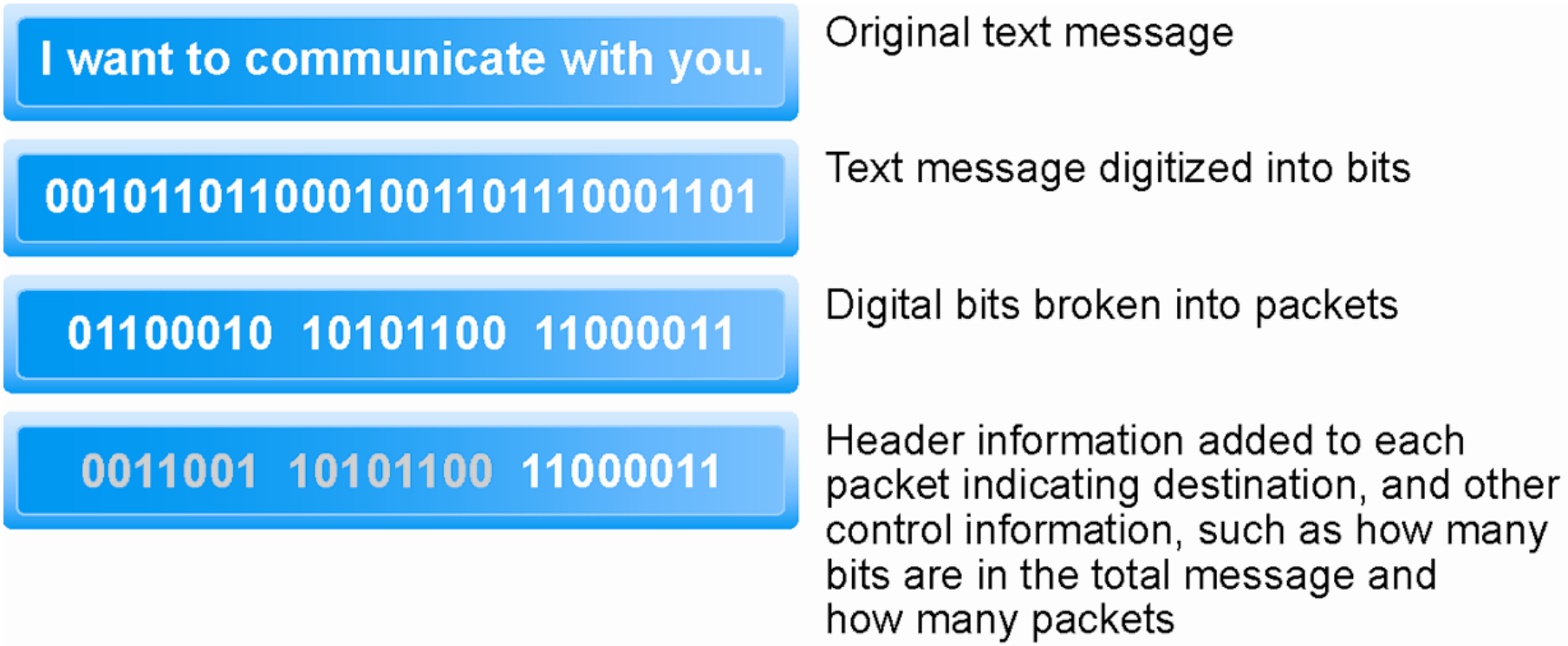


Figure 3.3, Page 123

TCP/IP

- **Transmission Control Protocol (TCP):**
  - Establishes connections among sending and receiving Web computers
  - Handles assembly of packets at point of transmission, and reassembly at receiving end
- **Internet Protocol (IP):**
  - Provides the Internet's addressing scheme
- **Four TCP/IP layers**
  - Network interface layer
  - Internet layer
  - Transport layer
  - Application layer

The TCP/IP Architecture and Protocol Suite

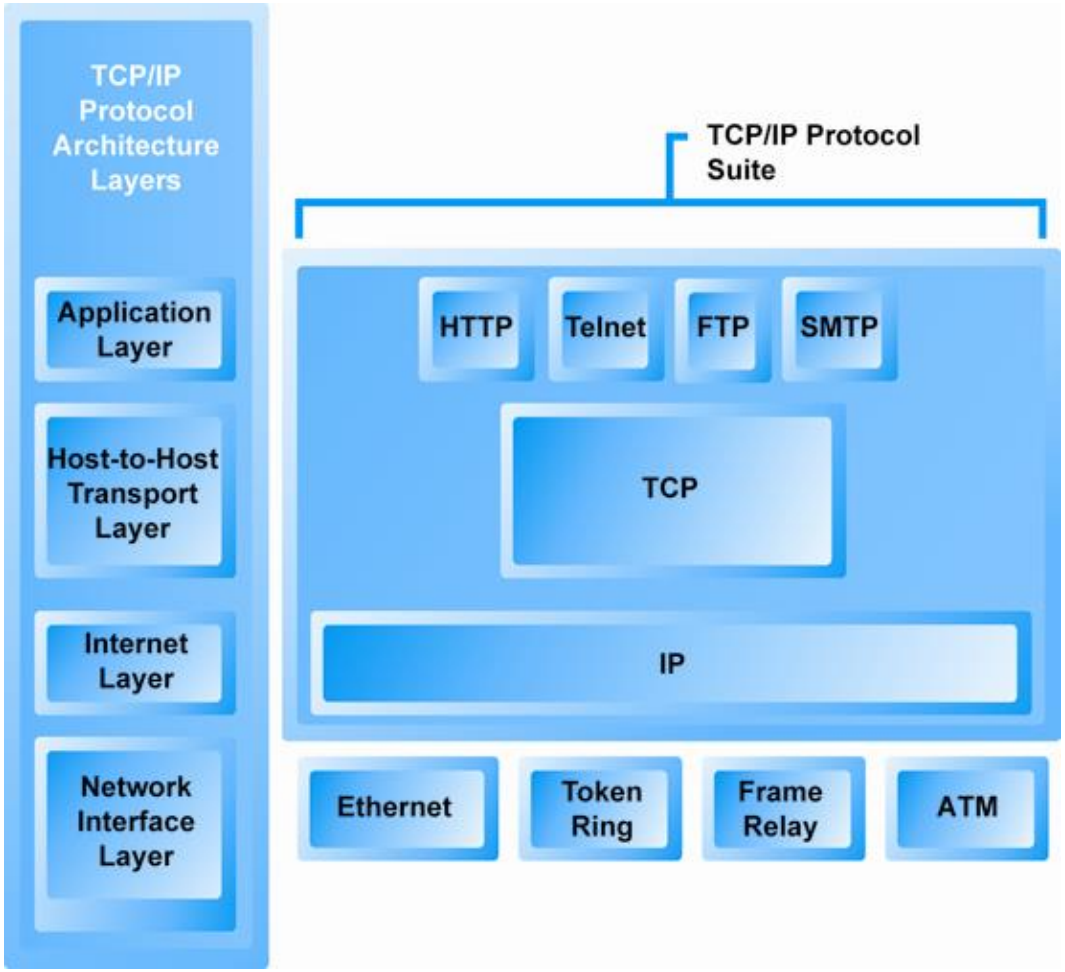


Figure 3.4, Page 125

Internet (IP) Addresses

- **IPv4:**
  - 32-bit number
  - Four sets of numbers marked off by periods: 201.61.186.227
    - Class C address: Network identified by first three sets, computer identified by last set
- **IPv6**
  - 128-bit addresses, able to handle up to 1 quadrillion addresses (IPv4 can only handle 4 billion)

Routing Internet Messages: TCP/IP and Packet Switching

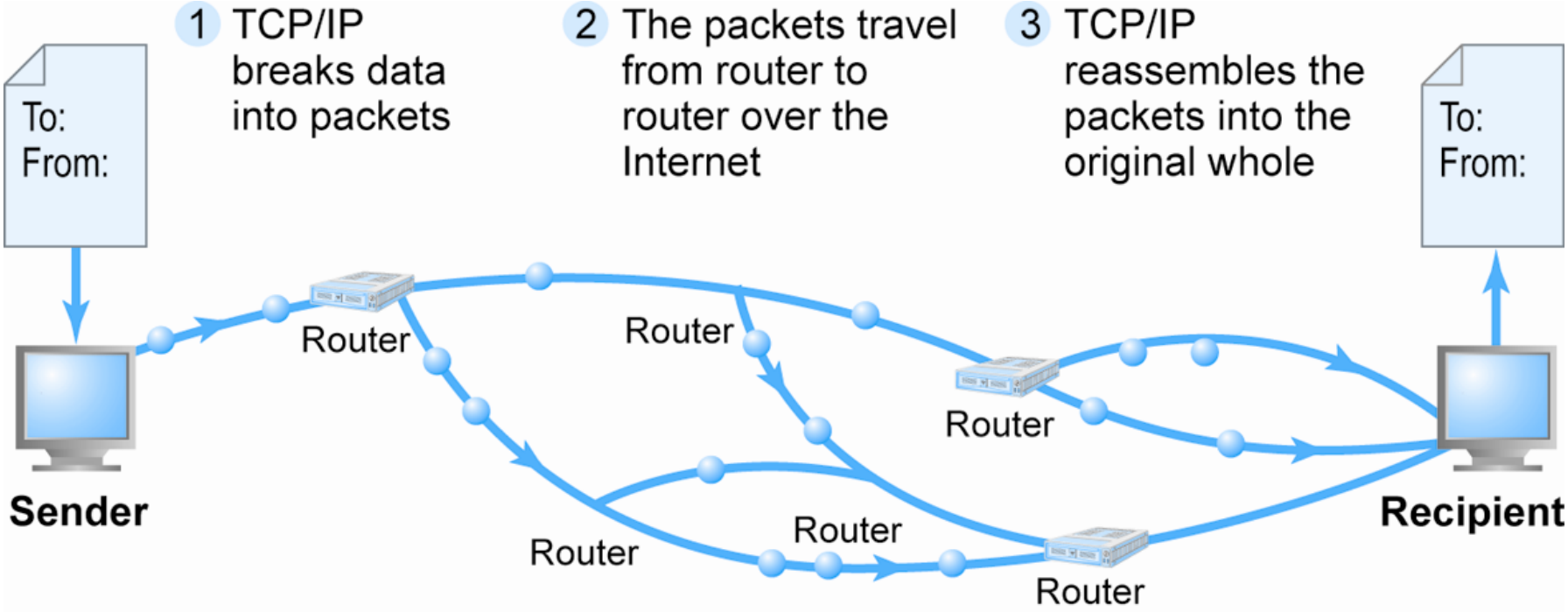


Figure 3.5, Page 126

Domain Names, DNS, and URLs

- **Domain name**
  - IP address expressed in natural language
- **Domain name system (DNS)**
  - Allows numeric IP addresses to be expressed in natural language
- **Uniform resource locator (URL)**
  - Address used by Web browser to identify location of content on the Web
  - E.g. http://www.azimuth-interactive.com/flash_test

Client/Server Computing

- **Powerful personal computers (clients) connected in network with one or more servers**
- **Servers perform common functions for the clients**
  - Storing files
  - Software applications
  - Access to printers, etc.

The New Client: The Mobile Platform

- **In a few years, primary Internet access will be through:**
  - Tablets
    - Supplementing PCs for mobile situations
  - Smartphones
    - Disruptive technology:
      - Shift in processors, operating systems
    - 25% of all cell phones

Cloud Computing

- **Firms and individuals obtain computing power and software over Internet**
  - e.g., Google Apps
- **Fastest growing form of computing**
- **Radically reduces costs of:**
  - Building and operating Web sites
  - Infrastructure, IT support
  - Hardware, software

Other Internet Protocols and Utility Programs

- **Internet protocols**
  - HTTP
  - E-mail: SMTP, POP3, IMAP
  - FTP, Telnet, SSL/TLS
- **Utility programs**
  - Ping
  - Tracert

The Internet Today

- **Internet growth has boomed without disruption because of:**
  - Client/server computing model
  - Hourglass, layered architecture
    - Network Technology Substrate
    - Transport Services and Representation Standards
    - Middleware Services
    - Applications

The Hourglass Model of the Internet

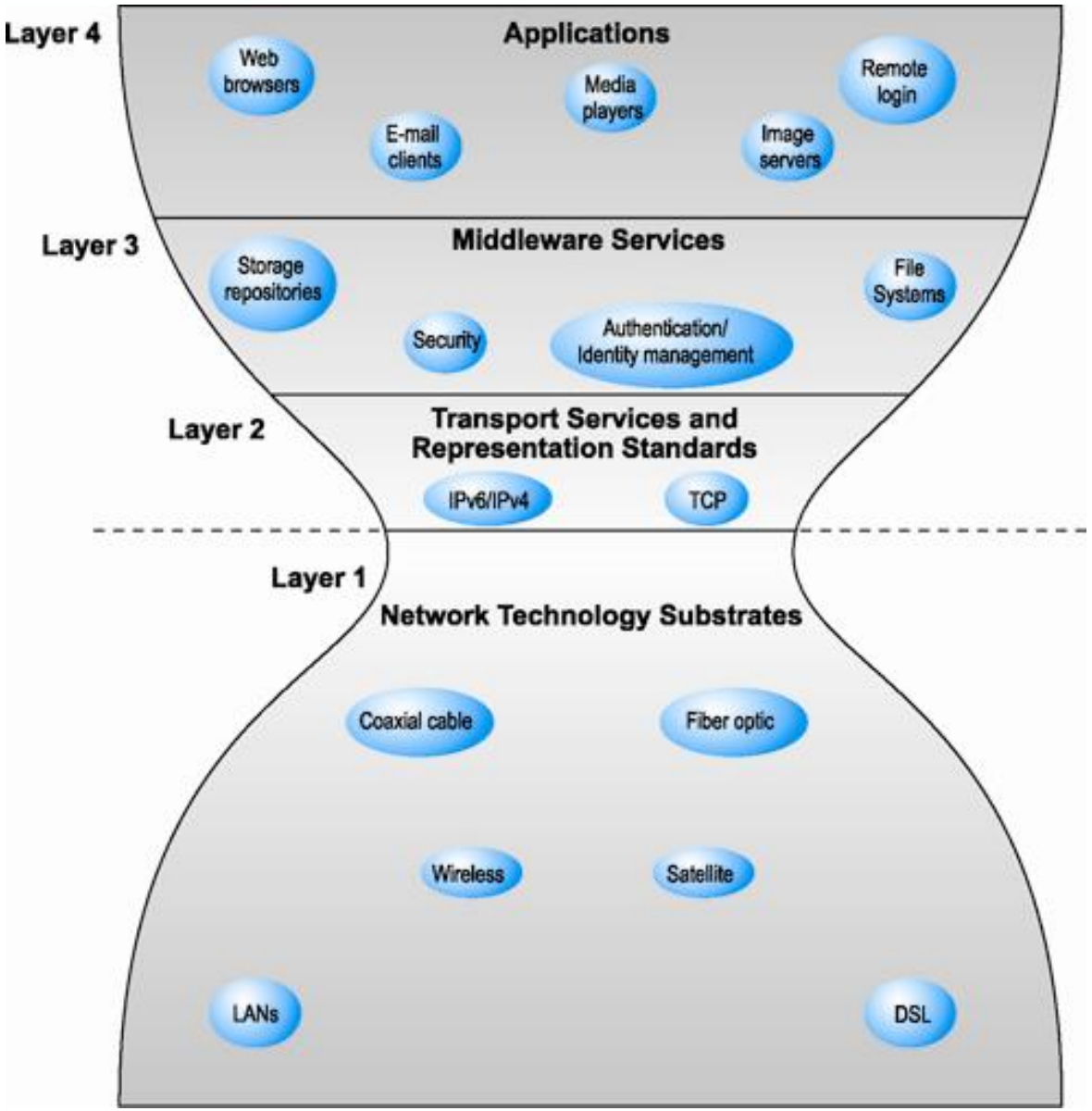


Figure 3.11, Page 134

Internet Network Architecture

- **Backbone:**
  - High-bandwidth fiber-optic cable networks
  - Private networks owned by a variety of NSPs
  - Bandwidth: 155 Mbps–2.5 Gbps
  - Built-in redundancy
- **IXPs:**
  - Hubs where backbones intersect with regional and local networks, and backbone owners connect with one another
- **CANs:**
  - LANs operating within a single organization that leases Internet access directly from regional or national carrier

Internet Network Architecture

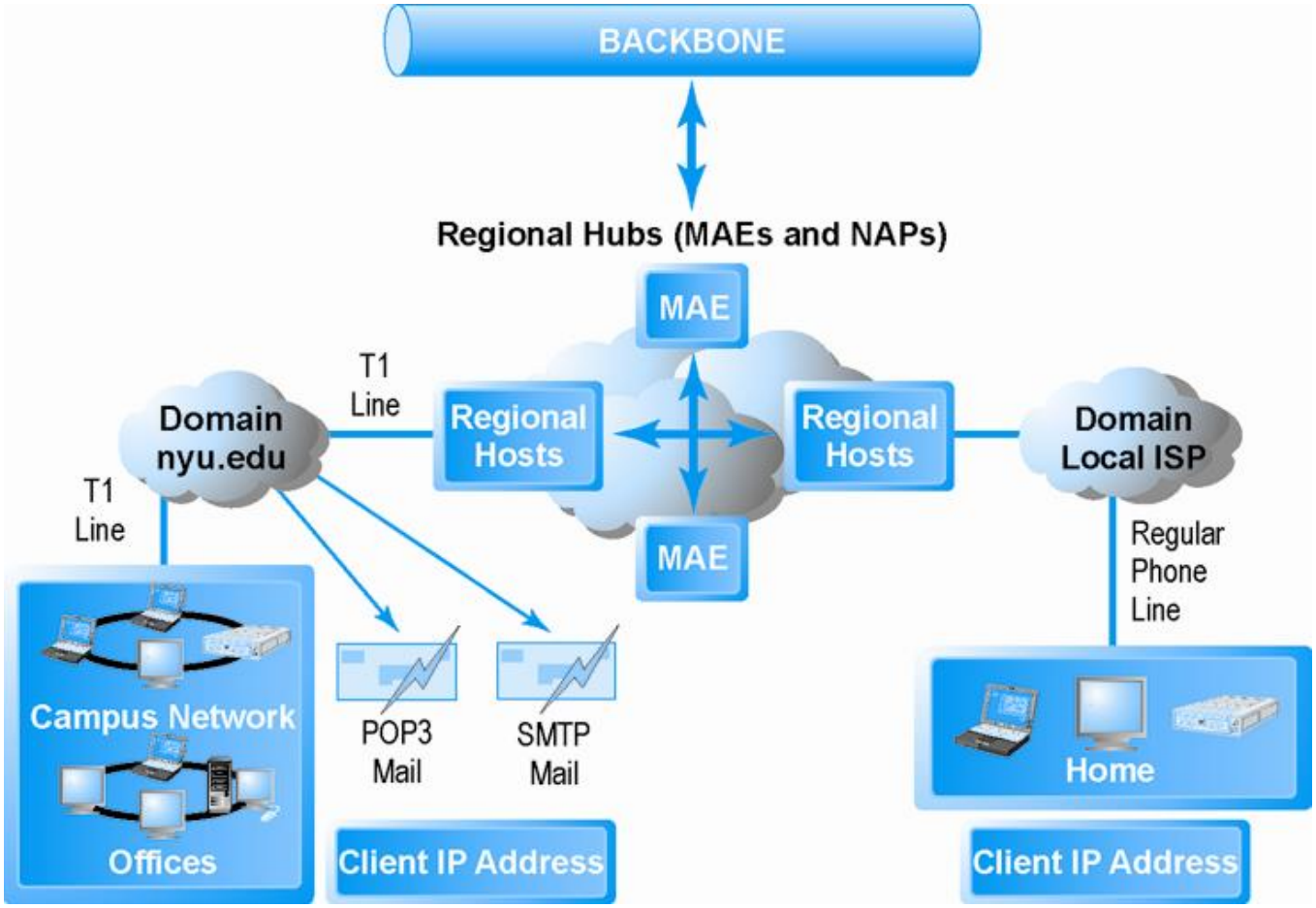


Figure 3.12, Page 135

Internet Service Providers (ISPs)

- **Provide lowest level of service to individuals, small businesses, some institutions**
- **Types of service**
  - Narrowband (dial-up)
  - Broadband
    - Digital Subscriber Line (DSL)
    - Cable modem
    - T1 and T3
    - Satellite

Intranets and Extranets

- **Intranet**
  - TCP/IP network located within a single organization for communications and processing
- **Extranet**
  - Formed when firms permit outsiders to access their internal TCP/IP networks

Who Governs the Internet?

- **Organizations that influence the Internet and monitor its operations include:**
  - Internet Architecture Board (IAB)
  - Internet Corporation for Assigned Names and Numbers (ICANN)
  - Internet Engineering Steering Group (IESG)
  - Internet Engineering Task Force (IETF)
  - Internet Society (ISOC)
  - World Wide Web Consortium (W3C)
  - International Telecommunications Union (ITU)

Government Regulation and Surveillance of the Internet

- How is it possible for any government to "control" or censor the Web?
- Does the Chinese government, or the U.S. government, have the right to censor content on the Web?
- How should U.S. companies deal with governments that want to censor content?
- What would happen to e-commerce if the existing Web split into a different Web for each country?

The Internet2 Project

- **Consortium of 350+ institutions collaborating to facilitate revolutionary Internet technologies**
- **Primary goals:**
  - Create leading-edge very-high speed network for national research community
  - Enable revolutionary Internet applications
  - Distributed and collaborative computing environments for sciences, health, arts and humanities initiatives

The First Mile and the Last Mile

- **GENI Initiative**
  - Proposed by NSF to develop new core functionality for Internet
- **Most significant private initiatives**
  - Fiber optics
  - Mobile wireless Internet services

Fiber Optics and the Bandwidth Explosion in the First Mile

- "First mile": Backbone Internet services that carry bulk traffic over long distances
- Older transmission lines being replaced with fiber-optic cable
- Much of fiber-optic cable laid in United States is "dark," but represents a vast digital highway that can be utilized in the future
- Technology improvement has also expanded capacity of existing fiber lines

The Last Mile: Mobile Wireless Internet Access

- **"Last mile": From Internet backbone to user's computer, smartphone, etc.**
- **Two different basic types of wireless Internet access:**
  - Telephone-based (mobile phones, smartphones)
  - Computer network-based

Telephone-based Wireless Internet Access

- **Competing 3G standards**
  - GSM: Used world-wide, AT&T, T-Mobile
  - CDMA: Used primarily in U.S., Verizon, Sprint
- **Evolution:**
  - 3G cellular networks: next generation, packet-switched
  - 3.5G (3G+)
  - 4G (WiMax, LTE)

Wireless Internet Access Network Technologies

- **Wi-Fi**
  - High-speed, fixed broadband wireless LAN (WLAN). Different versions for home and business market. Limited range.
- **WiMax**
  - High-speed, medium range broadband wireless metropolitan area network
- **Bluetooth**
  - Low-speed, short range connection
- **Ultra-Wideband (UWB)**
  - Low power, short-range high bandwidth network
- **Zigbee**
  - Short-range, low-power wireless network technology for remotely controlling digital devices

Wi-Fi Networks

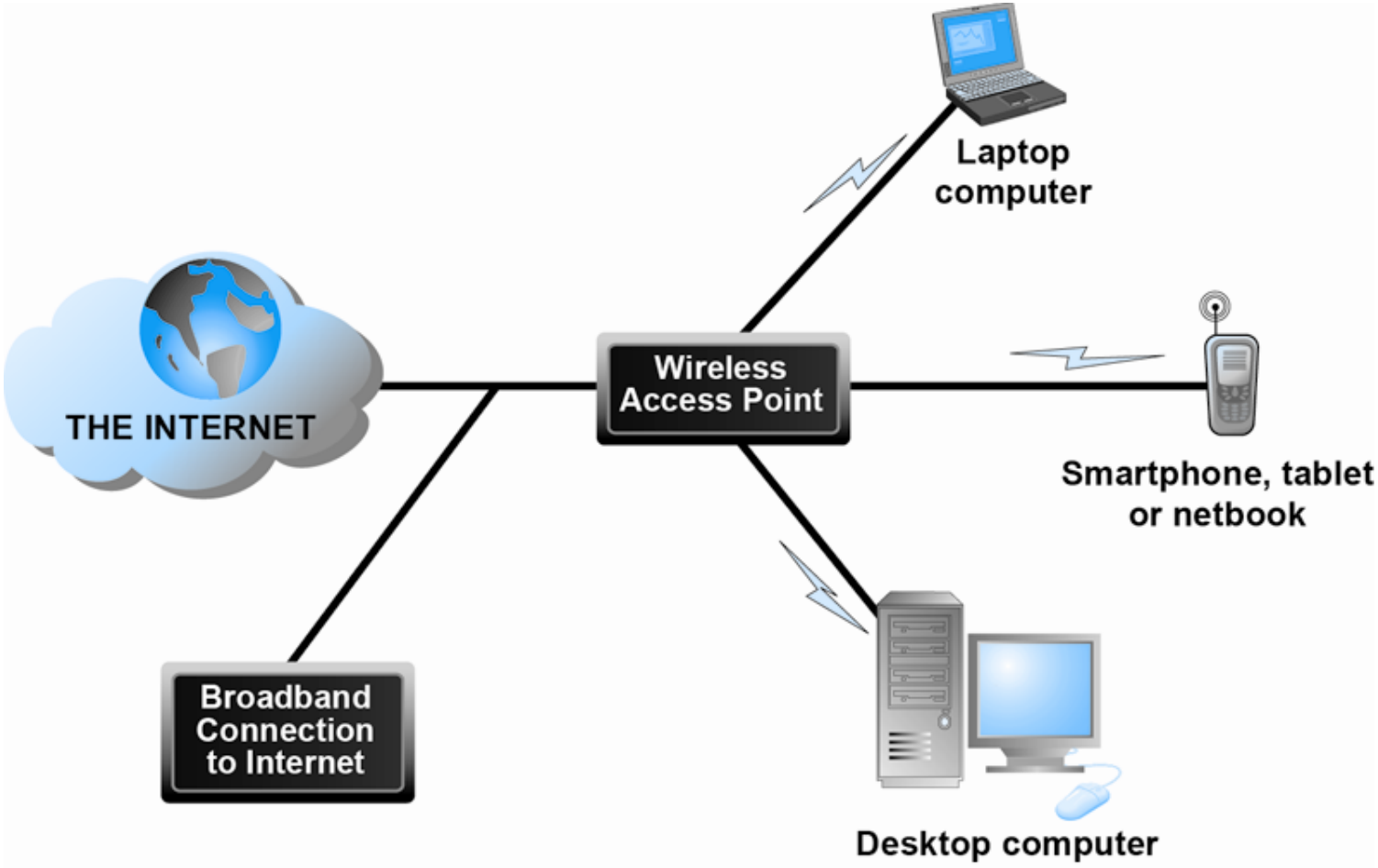


Figure 3.16, Page 153

The Future Internet

- **Latency solutions**
  - diffserv (differentiated quality of service)
- **Guaranteed service levels and lower error rates**
  - Ability to purchase the right to move data through network at guaranteed speed in return for higher fee
- **Declining costs**
- **The Internet of Things (IoT)**
  - Objects connected via sensors/RFID to the Internet
  - Spearheaded by EU and China

The Web

- **1989–1991: Web invented**
  - Tim Berners-Lee at CERN
  - HTML, HTTP, Web server, Web browser
- **1993: Mosaic Web browser w/ GUI**
  - Andreessen and others at NCSA
  - Runs on Windows, Macintosh, or Unix
- **1994: Netscape Navigator, first commercial Web browser**
  - Andreessen, Jim Clark
- **1995: Microsoft Internet Explorer**

Hypertext

- **Text formatted with embedded links**
  - Links connect documents to one another, and to other objects such as sound, video, or animation files
- **Uses Hypertext Transfer Protocol (HTTP) and URLs to locate resources on the Web**
  - URL e.g., http://megacorp.com/content/features/082602.html

Markup Languages

- **Hypertext Markup Language (HTML)**
  - Fixed set of pre-defined markup "tags" used to format text
  - Controls look and feel of Web pages
  - HTML5 the newest version
- **eXtensible Markup Language (XML)**
  - Designed to describe data and information
  - Tags used are defined by user

Is HTML5 Ready for Primetime?

- What features of HTML5 are changing the way Web sites are built?
- Is HTML5 a disruptive technology, and if so, for whom?
- Are there any disadvantages in Web sites and mobile apps moving to an HTML5 platform?

Web Servers and Web Clients

- **Web server software:**
  - Enables a computer to deliver Web pages to clients on a network that request this service by sending an HTTP request
  - Apache, Microsoft IIS
  - Basic capabilities: Security services, FTP, search engine, data capture
- **Web server**
  - Web server software or physical server
  - Specialized servers: Database servers, ad servers, etc.
- **Web client:**
  - Any computing device attached to the Internet that is capable of making HTTP requests and displaying HTML pages

Web Browsers

- **Primary purpose to display Web pages**
- **Internet Explorer—49% of market**
- **Mozilla Firefox—18%**
  - Open source
- **Other browsers:**
  - Google Chrome—17%
  - Apple's Safari—11%

The Internet and Web: Features

- **Features on which the foundations of e-commerce are built:**
  - E-mail
  - Instant messaging
  - Search engines
  - Online forums and chat
  - Streaming media
  - Cookies

E-mail

- Most used application of the Internet
- Uses series of protocols for transferring messages with text and attachments from one Internet user to another

Instant Messaging

- Displays words typed on a computer almost instantly, and recipients can respond immediately in the same way

Search Engines

- **Identify Web pages that match queries based on one or more techniques**
  - Keyword indexes, page ranking
- **Also serve as:**
  - Shopping tools
  - Advertising vehicles (search engine marketing)
  - Tool within e-commerce sites
- **Outside of e-mail, most commonly used Internet activity**

How Google Works

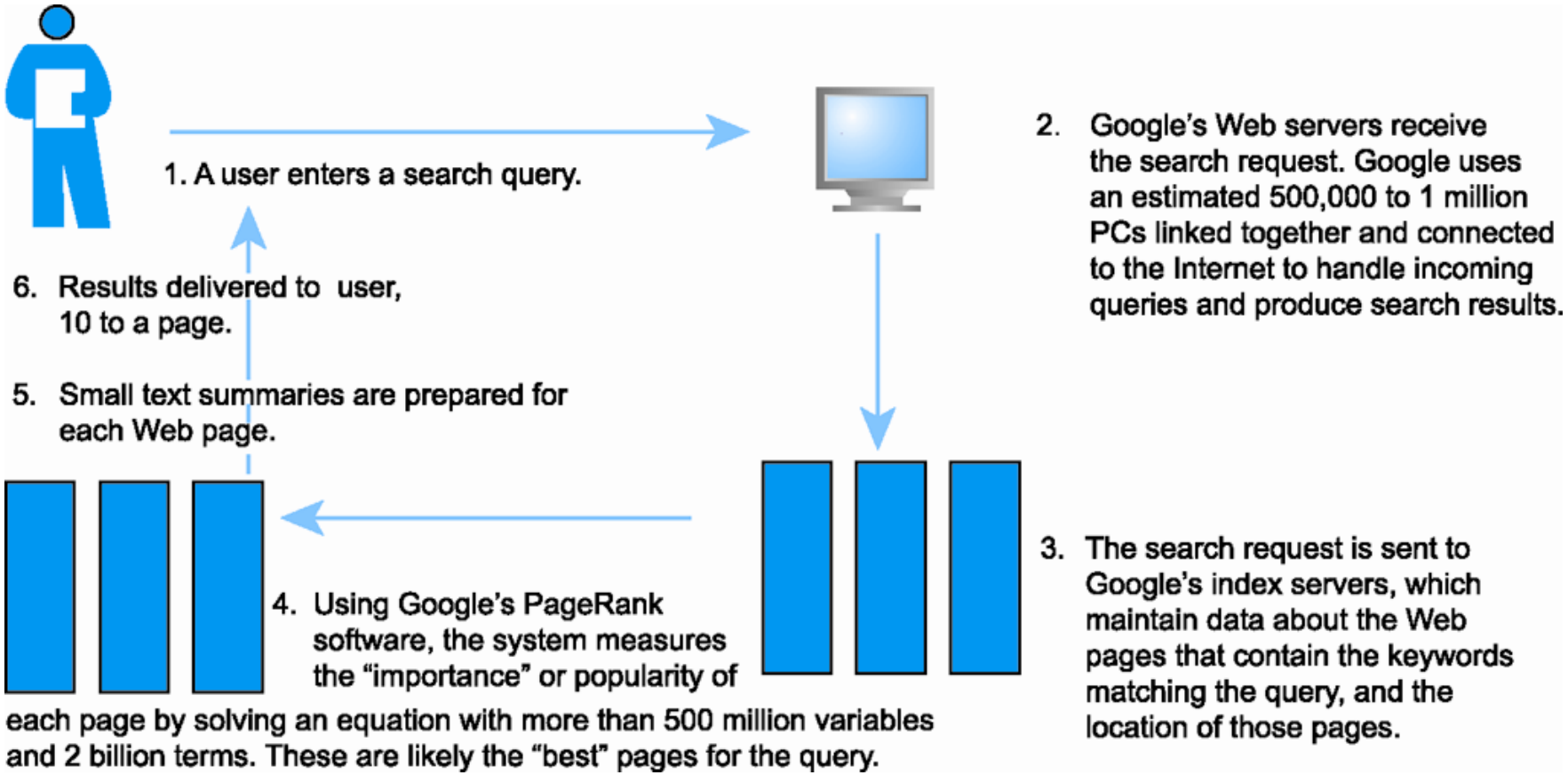


Figure 3.22, Page 173

Online Forums and Chat

- **Online forum:**
  - Also known as a message board, bulletin board, discussion board, discussion group, board or forum
  - Web application that enables Internet users to communicate with each other, although not in real time
  - Members visit online forum to check for new posts
- **Online chat:**
  - Similar to IM, but for multiple users
  - Typically, users log into chat room

Streaming Media

- Enables music, video, and other large files to be sent to users in chunks so that when received and played, file comes through uninterrupted
- Allows users to begin playing media files before file is fully downloaded

Cookies

- Small text files deposited by Web site on user's computer to store information about user, accessed when user next visits Web site
- Can help personalize Web site experience
- Can pose privacy threat

Web 2.0 Features and Services

- **Online Social Networks**
  - Services that support communication among networks of friends, peers
- **Blogs**
  - Personal Web page of chronological entries
- **Really Simple Syndication (RSS)**
  - Program that allows users to have digital content automatically sent to their computers over the Internet

Web 2.0 Features and Services

- **Podcasting**
  - Audio presentation stored as an audio file and available for download from Web
- **Wikis**
  - Allows user to easily add and edit content on Web page
- **Music and video services**
  - Online video viewing
  - Digital video on demand

Web 2.0 Features and Services

- **Internet telephony (VOIP)**
  - Voice over Internet Protocol (VOIP) uses Internet to transmit voice communication
- **Internet television (IPTV)**
- **Video conferencing and telepresence**
- **Online software and Web services**
  - Web apps, widgets, and gadgets

Intelligent Personal Assistants

- **Software that interacts with the user through voice commands**
- **Features**
  - Natural language; conversational interface
  - Situational awareness
  - Interpret voice commands to interact with various Web services
- **e.g., Siri, Google Now**

Mobile Apps

- **Use of mobile apps continues to explode in 2012**
  - 70% of mobile phone owners research products and services, 35% have made purchase
- **Increased use/purchasing from tablets**
- **Platforms:**
  - iPhone/iPad, Android, Blackberry
- **App marketplaces:**
  - Google Play, Apple's App Store, RIM's App World, Windows Phone Marketplace

Apps for Everything: The App Ecosystem

- What are apps and why are they so popular?
- Do you use any apps regularly? Which ones, and what are their functions?
- What are the benefits of apps? The disadvantages?
- Are there any benefits/disadvantages to the proprietary nature of the Apple platform?

Chapter 4

Building an E-commerce Presence: Web Sites, Mobile Sites, and Apps

Class Discussion

Tommy Hilfiger Replatforms

- **What reasons were behind Hilfiger's choice of ATG for its Web site solution?**
- **Why did Hilfiger decide it needed to replatform in 2011?**
- **What are some of the site-building options for operators of smaller Web sites?**

Imagine Your E-commerce Presence

- **What's the idea?**
  - Vision
  - Mission statement
  - Target audience
  - Intended market space
  - Strategic analysis
  - Internet marketing matrix
  - Development timeline and preliminary budget

Imagine Your E-commerce Presence (cont.)

- **Where's the money?**
  - Business model(s):
    - Portal, e-tailer, content provider, transaction broker, market creator, service provider, community provider
  - Revenue model(s):
    - Advertising, subscriptions, transaction fees, sales, and affiliate revenue.

Imagine Your E-commerce Presence (cont.)

- **Who and where is the target audience?**
  - Describing your audience
    - Demographics
      - Age, gender, income, location
    - Behavior patterns (lifestyle)
    - Consumption patterns (purchasing habits)
    - Digital usage patterns
    - Content creation patterns (blogs, Facebook)
    - Buyer personas

Imagine Your E-commerce Presence (cont.)

- **Characterize the marketplace**
  - Demographics
  - Size, growth, changes
  - Structure
    - Competitors
    - Suppliers
    - Substitute products
- **Where is the content coming from?**
  - Static or dynamic?

Imagine Your E-commerce Presence (cont.)

- **Know yourself—SWOT analysis**
- **Develop an e-commerce presence map**
- **Develop a timeline: Milestones**
- **How much will this cost?**
  - Simple Web sites: up to $5000
  - Small Web start-up: $25,000 to $50,000
  - Large corporate site: $100,000+ to millions

SWOT Analysis

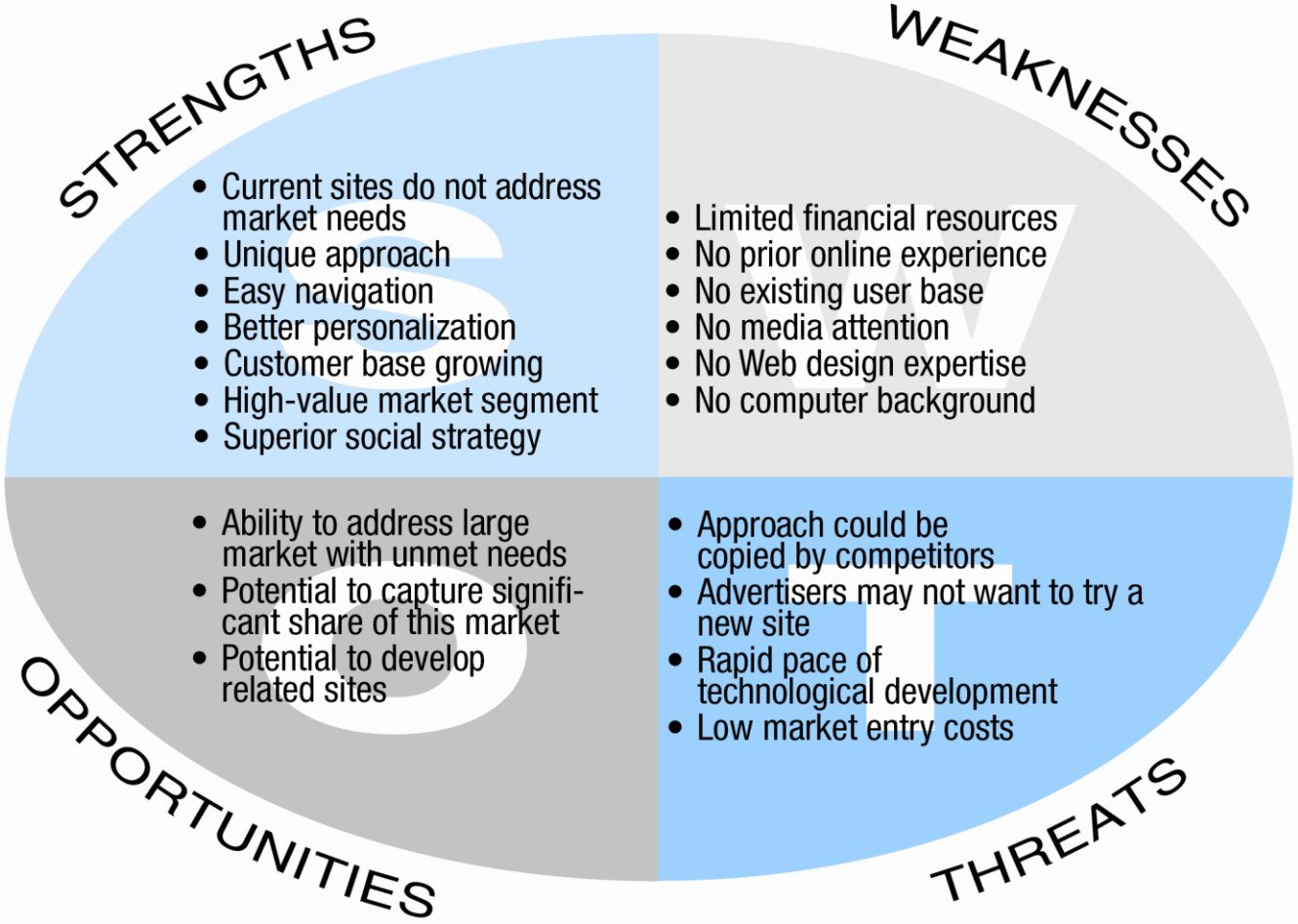


Figure 4.1, page 199

E-commerce Presence Map

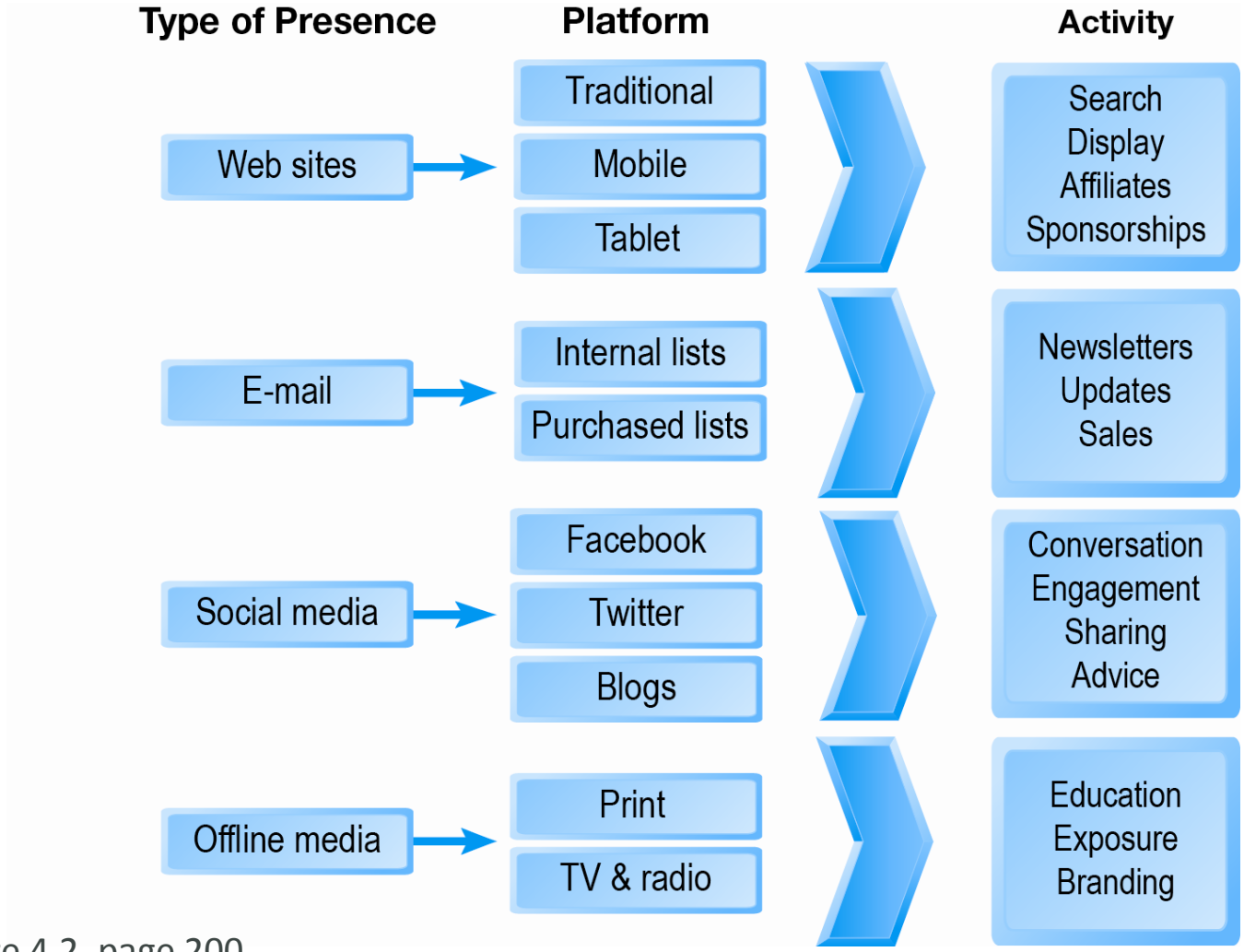


Figure 4.2, page 200

Building an E-commerce Site: A Systematic Approach

- **Most important management challenges:**
  - Developing a clear understanding of business objectives
  - Knowing how to choose the right technology to achieve those objectives

Pieces of the Site-building Puzzle

- **Main areas where you will need to make decisions:**
  - Human resources and organizational capabilities
    - Creating team with skill set needed to build and manage a successful site
  - Hardware/software
  - Telecommunications
  - Site design

The Systems Development Life Cycle

- **Methodology for understanding business objectives of a system and designing an appropriate solution**
- **Five major steps:**
  - Systems analysis/planning
  - Systems design
  - Building the system
  - Testing
  - Implementation

Web Site Systems Development Life Cycle

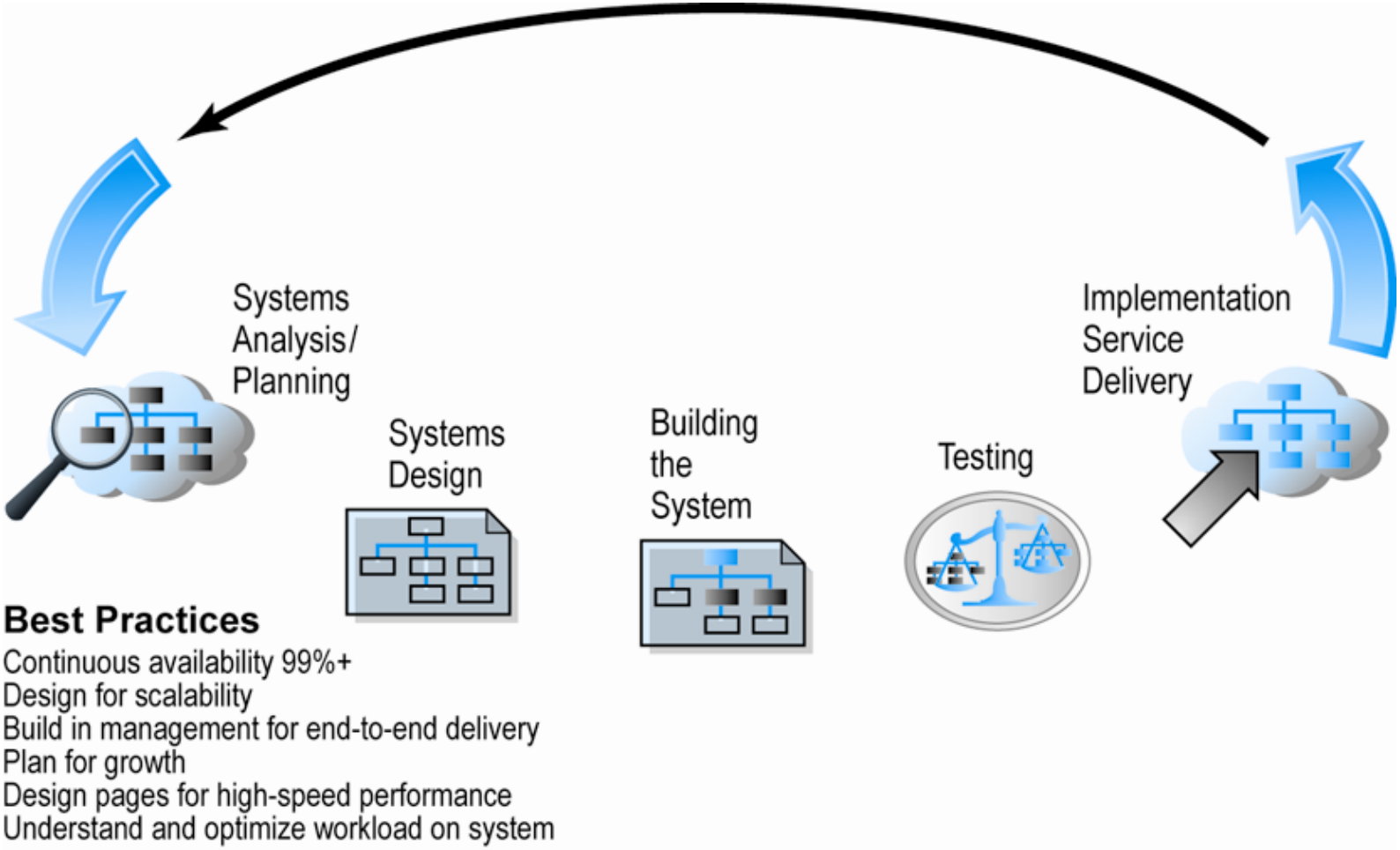


Figure 4.5, Page 204

System Analysis/Planning

- **Business objectives:**
  - List of capabilities you want your site to have
- **System functionalities:**
  - List of information system capabilities needed to achieve business objectives
- **Information requirements:**
  - Information elements that system must produce in order to achieve business objectives

TABLE 4.2 SYSTEM ANALYSIS: BUSINESS OBJECTIVES, SYSTEM FUNCTIONALITY, AND INFORMATION REQUIREMENTS FOR A TYPICAL E-COMMERCE SITE

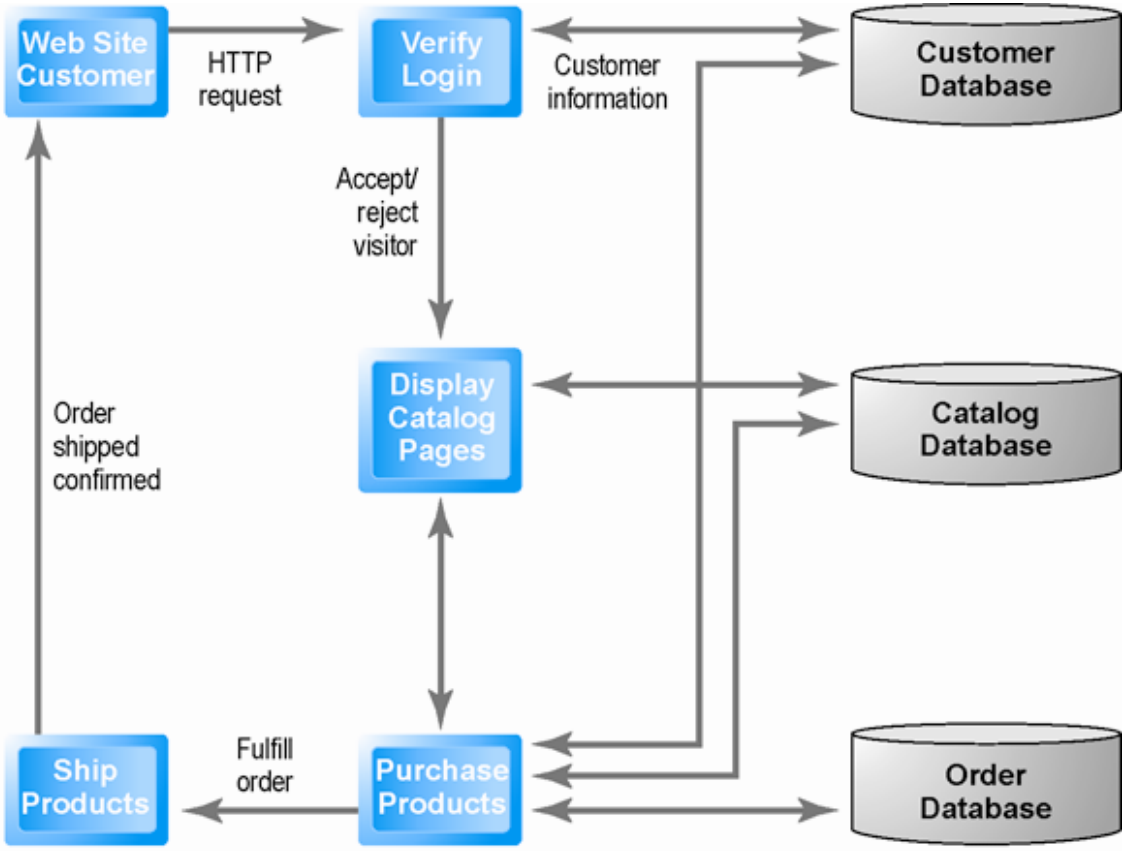
BUSINESS OBJECTIVE	SYSTEM FUNCTIONALITY	INFORMATION REQUIREMENTS
Display goods	Digital catalog	Dynamic text and graphics catalog
Provide product information (content)	Product database	Product description, stocking numbers, inventory levels
Personalize/customize product	Customer on-site tracking	Site log for every customer visit; data mining capability to identify common customer paths and appropriate responses
Engage customers in conversations	On site blog	Software with blogging and community response functionality
Execute a transaction	Shopping cart/payment system	Secure credit card clearing; multiple payment options
Accumulate customer information	Customer database	Name, address, phone, and e-mail for all customers; online customer registration
Provide after-sale customer support	Sales database	Customer ID, product, date, payment, shipment date
Coordinate marketing/advertising	Ad server, e-mail server, e-mail, campaign manager, ad banner manager	Site behavior log of prospects and customers linked to e-mail and banner ad campaigns
Understand marketing effectiveness	Site tracking and reporting system	Number of unique visitors, pages visited, products purchased, identified by marketing campaign
Provide production and supplier links	Inventory management system	Product and inventory levels, supplier ID and contact, order quantity data by product

Table 4.2, page 205

Systems Design: Hardware and Software Platforms

- **System design specification:**
  - Description of main components of a system and their relationship to one another
- **Two components of system design:**
  - Logical design
    - Data flow diagrams, processing functions, databases
  - Physical design
    - Specifies actual physical, software components, models, etc.

Logical Design for a Simple Web Site



(a) Simple Data Flow Diagram

This data flow diagram describes the flow of information requests and responses for a sample Web site

Figure 4.6 (a), Page 207

Physical Design for a Simple Web Site

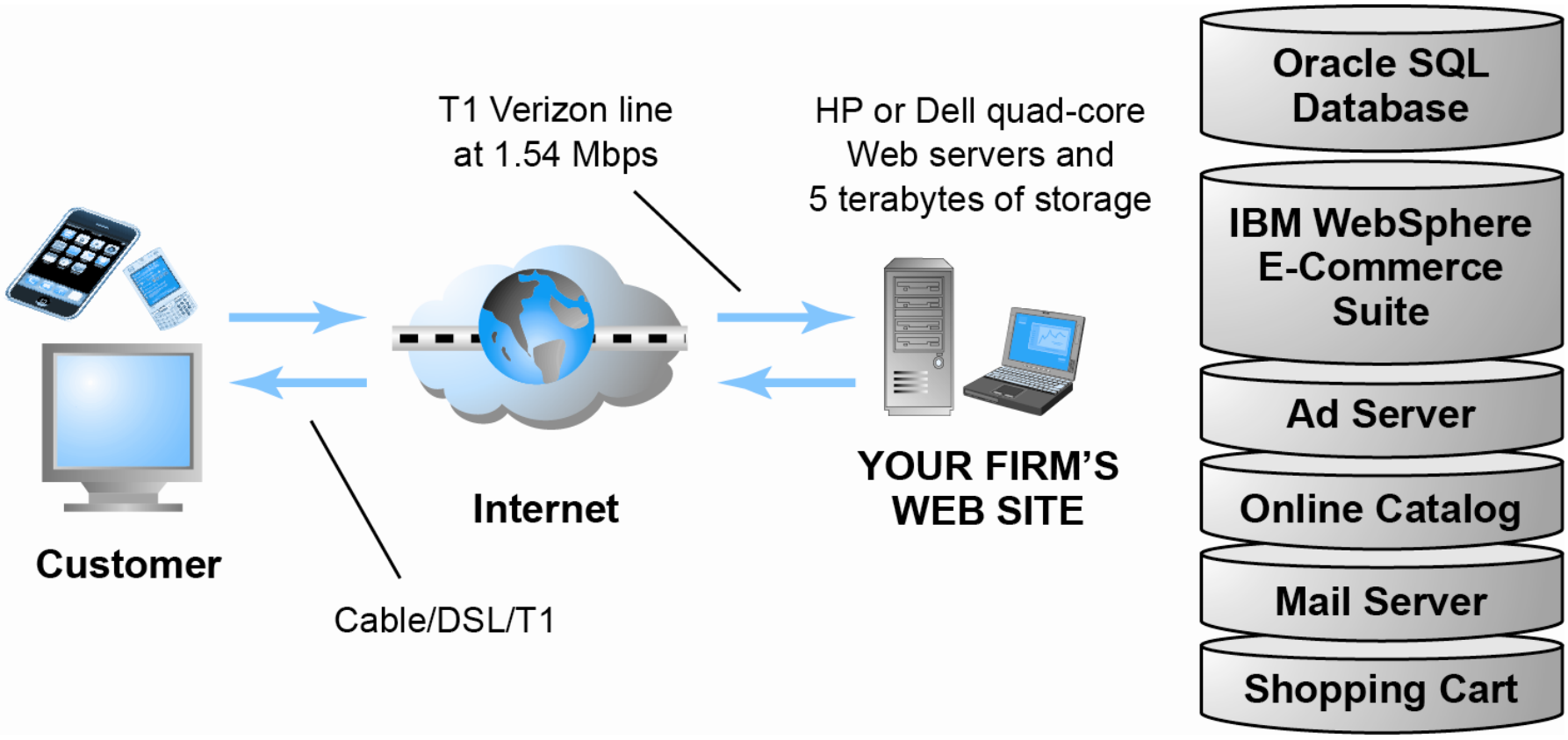


Figure 4.6 (b), Page 207

Build/Host Your Own vs. Outsourcing

- **Outsourcing: Hiring vendors to provide services involved in building site**
- **Build own vs. outsourcing:**
  - Build your own requires team with diverse skill set; choice of software tools; both risks and possible benefits
- **Host own vs. outsourcing**
  - **Hosting:** Hosting company responsible for ensuring site is accessible 24/7, for monthly fee
  - **Co-location:** Firm purchases or leases Web server (with control over its operation), but server is located at vendor's facility

Choices in Building and Hosting

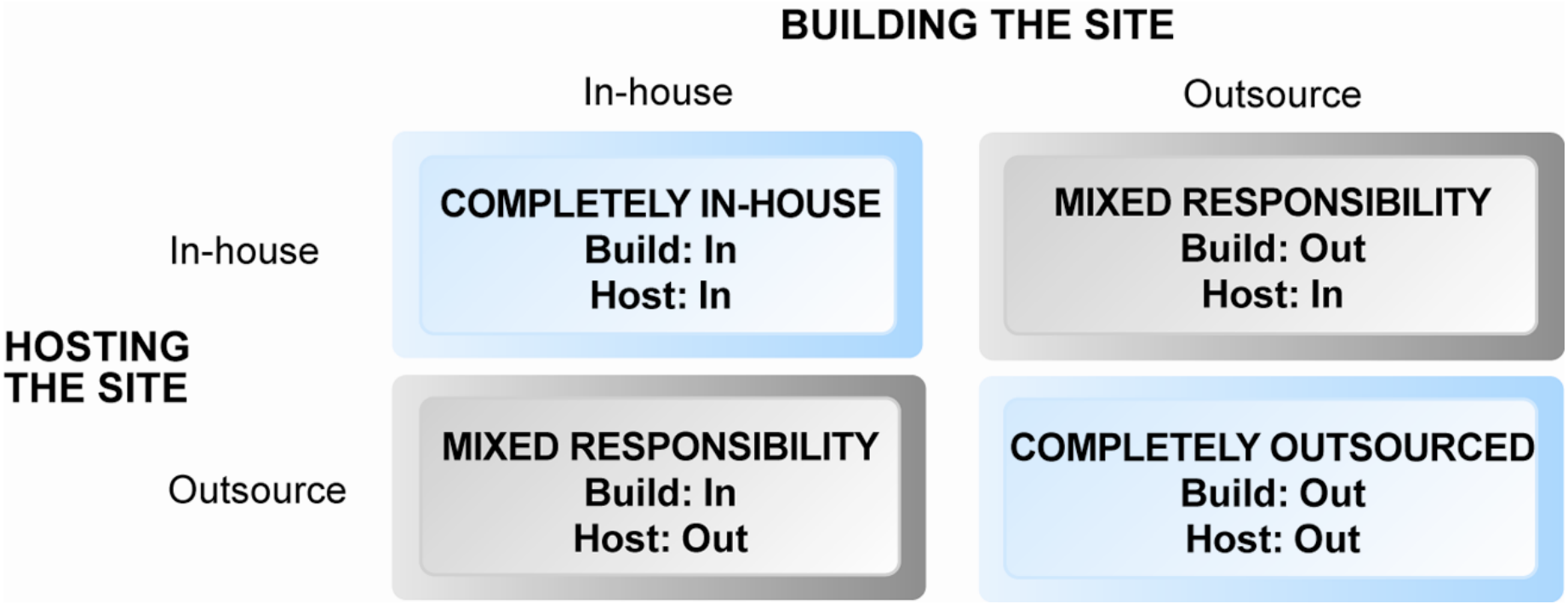


Figure 4.7 Page 208

Curly Hair and Appillionaires

- How does a small, niche Web site like NaturallyCurly.com become profitable?
- How has cloud computing and social media reduced costs?
- How is the app economy changing the economics of software production and e-commerce?

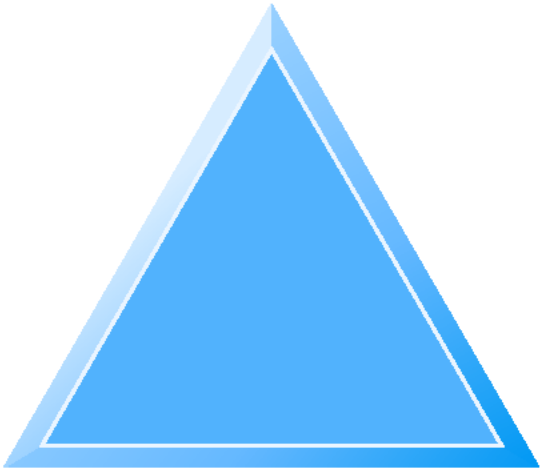
Testing, Implementation, and Maintenance

- **Testing**
  - Unit testing
  - System testing
  - Acceptance testing
- **Implementation and maintenance:**
  - Maintenance is ongoing
  - Maintenance costs: Similar to development costs
  - Benchmarking

Factors in Web Site Optimization

Page Delivery

Content delivery networks
Edge caching
Bandwidth



Page Generation

Server response time
Device-based accelerators
Efficient resource allocation
Resource utilization thresholds
Monitoring site performance

Page Content

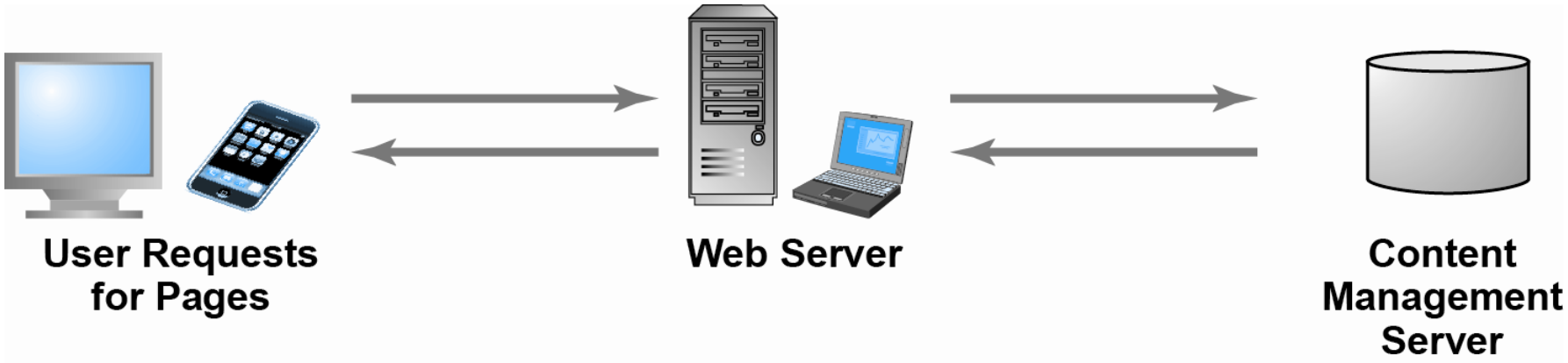
Optimize HTML
Optimize images
Site architecture
Efficient page style

Figure 4.10, Page 215

Simple vs. Multi-tiered Web Site Architecture

- **System architecture**
  - Arrangement of software, machinery, and tasks in an information system needed to achieve a specific functionality
- **Two-tier**
  - Web server and database server
- **Multi-tier**
  - Web application servers
  - Backend, legacy databases

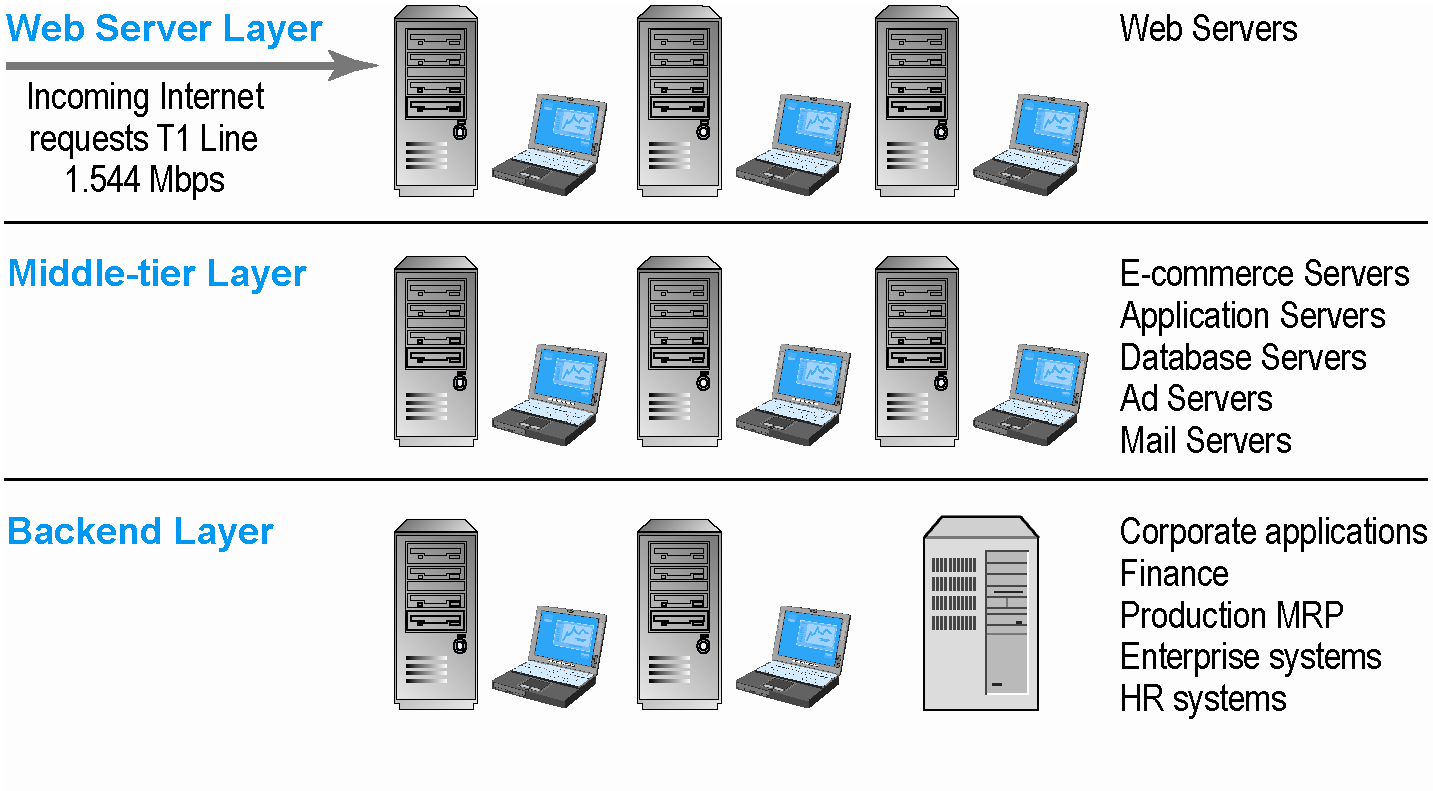
Two-Tier E-commerce Architecture



(a) Two-tier Architecture

Figure 4.11(a), Page 217

Multi-Tier E-commerce Architecture



(b) Multi-tier Architecture

In a multi-tier architecture, a Web server is linked to a middle-tier layer that typically includes a series of application servers that perform specific tasks, as well as to a backend layer of existing corporate systems.

Figure 4.11(b), Page 217

Web Server Software

- **Apache**
  - Leading Web server software (66% of market)
  - Works with UNIX, Linux OSs
- **Microsoft's Internet Information Server (IIS)**
  - Second major Web server software (16% of market)
  - Windows-based

TABLE 4.4 BASIC FUNCTIONALITY PROVIDED BY WEB SERVERS

FUNCTIONALITY	DESCRIPTION
Processing of HTTP requests	Receive and respond to client requests for HTML pages
Security services (Secure Sockets Layer)	Verify username and password; process certificates and private/public key information required for credit card processing and other secure information
File Transfer Protocol	Permits transfer of very large files from server to server
Search engine	Indexing of site content; keyword search capability
Data capture	Log file of all visits, time, duration, and referral source
E-mail	Ability to send, receive, and store e-mail messages
Site management tools	Calculate and display key site statistics, such as unique visitors, page requests, and origin of requests; check links on pages

Table 4.4, Page 219

Site Management Tools

- **Basic tools**
  - Included in all Web servers, e.g.,
    - Verify that links on pages are still valid
    - Identify orphan files
- **Third-party software for advanced management**
  - Monitor customer purchases, marketing campaign effectiveness, etc.
  - WebTrends Analytics 10, Google Analytics

Dynamic Page Generation Tools

- **Dynamic page generation:**
  - Contents stored in database and fetched when needed
- **Common tools:**
  - CGI, ASP, JSP, ODBC
- **Advantages**
  - Lowers menu costs
  - Permits easy online market segmentation
  - Enables cost-free price discrimination
  - Enables content management system (CMS)

Application Servers

- **Web application servers:**
  - Provide specific business functionality required for a Web site
  - Type of middleware
    - Isolate business applications from Web servers and databases
  - Single-function applications being replaced by integrated software tools that combine all functionality needed for e-commerce site

E-commerce Merchant Server Software

- **Provides basic functionality for sales**
  - **Online catalog**
    - List of products available on Web site
  - **Shopping cart**
    - Allows shoppers to set aside, review, edit selections, and then make purchase
  - **Credit card processing**
    - Typically works in conjunction with shopping cart
    - Verifies card and puts through credit to company's account at checkout

Merchant Server Software Packages

- **Integrated environment that includes most of functionality needed**
- **Key factors in selecting a package**
  - Functionality
  - Support for different business models
  - Business process modeling tools
  - Visual site management and reporting
  - Performance and scalability
  - Connectivity to existing business systems
  - Compliance with standards
  - Global and multicultural capability
  - Local sales tax and shipping rules

Building Your Own E-commerce Site

- **Options for small firms**
  - Hosted e-commerce sites, e.g., Yahoo's Merchant Solutions
    - Site building tools
    - E-commerce templates
  - Open-source merchant server software
    - Enables you to build truly custom sites
    - Requires programmer with expertise, time

The Hardware Platform

- **Hardware platform:**
  - Underlying computing equipment needed for e-commerce functionality
- **Objective:**
  - Enough platform capacity to meet peak demand without wasting money
- **Important to understand the factors that affect speed, capacity, and scalability of a site**

Right-Sizing Your Hardware Platform: The Demand Side

- **Customer demand:**
  - Most important factor affecting speed of site
- **Factors in overall demand:**
  - Number of simultaneous users in peak periods
  - Nature of customer requests (user profile)
  - Type of content (dynamic vs. static Web pages)
  - Required security
  - Number of items in inventory
  - Number of page requests
  - Speed of legacy applications

Right-Sizing Your Hardware Platform: The Supply Side

- **Scalability:**
  - Ability of site to increase in size as demand warrants
- **Ways to scale hardware:**
  - **Vertically**
    - Increase processing power of individual components
  - **Horizontally**
    - Employ multiple computers to share workload
  - **Improve processing architecture**

TABLE 4.8 VERTICAL AND HORIZONTAL SCALING TECHNIQUES

TECHNIQUE	APPLICATION
Use a faster computer	Deploy edge servers, presentation servers, data servers, etc.
Create a cluster of computers	Use computers in parallel to balance loads.
Use appliance servers	Use special-purpose computers optimized for their task.
Segment workload	Segment incoming work to specialized computers.
Batch requests	Combine related requests for data into groups, process as group.
Manage connections	Reduce connections between processes and computers to a minimum.
Aggregate user data	Aggregate user data from legacy applications in single data pools.
Cache	Store frequently used data in cache rather than on the disk.

Table 4.8, Page 230

TABLE 4.9 IMPROVING THE PROCESSING ARCHITECTURE OF YOUR SITE

ARCHITECTURE IMPROVEMENT	DESCRIPTION
Separate static content from dynamic content	Use specialized servers for each type of workload.
Cache static content	Increase RAM to the gigabyte range and store static content in RAM.
Cache database lookup tables	Use cache tables used to look up database records.
Consolidate business logic on dedicated servers	Put shopping cart, credit card processing, and other CPU-intensive activity on dedicated servers.
Optimize ASP code	Examine your code to ensure it is operating efficiently.
Optimize the database schema	Examine your database search times and take steps to reduce access times.

Table 4.9, Page 230

Other E-commerce Site Tools

- **Web site design: Basic business considerations**
  - Enabling customers to find and buy what they need
- **Tools for Web site optimization**
  - Search engine placement
    - Metatags, titles, content
    - Identify market niches, localize site
    - Offer expertise
    - Links
    - Search engine ads
    - Local e-commerce

TABLE 4.10 E-COMMERCE WEB SITE FEATURES THAT ANNOY CUSTOMERS

- Requiring user to view ad or Flash introduction before going to Web site content
- Pop-up and pop-under ads and windows
- Too many clicks to get to the content
- Links that don't work
- Confusing navigation; no search function
- Requirement to register and log in before viewing content or ordering
- Slow loading pages
- Content that is out of date
- Inability to use browser's Back button
- No contact information available (Web form only)
- Unnecessary splash/flash screens, animation, etc.
- Music or other audio that plays automatically
- Unprofessional design elements
- Text not easily legible due to size, color, format
- Typographical errors
- No or unclear returns policy

Table 4.10, Page 232

TABLE 4.11 THE EIGHT MOST IMPORTANT FACTORS IN SUCCESSFUL E-COMMERCE SITE DESIGN

FACTOR	DESCRIPTION
Functionality	Pages that work, load quickly, and point the customer toward your product offerings
Informational	Links that customers can easily find to discover more about you and your products
Ease of use	Simple fool-proof navigation
Redundant navigation	Alternative navigation to the same content
Ease of purchase	One or two clicks to purchase
Multi-browser functionality	Site works with the most popular browsers
Simple graphics	Avoids distracting, obnoxious graphics and sounds that the user cannot control
Legible text	Avoids backgrounds that distort text or make it illegible

Table 4.11, Page 233

Tools for Interactivity and Active Content

- **Web 2.0 design elements:**
  - Widgets, mashups
- **CGI (Common Gateway Interface)**
- **ASP (Active Server Pages)**
- **Java, JSP, and JavaScript**
- **ActiveX and VBScript**
- **ColdFusion**

Personalization Tools

- **Personalization**
  - Ability to treat people based on personal qualities and prior history with site
- **Customization**
  - Ability to change the product to better fit the needs of the customer
- **Cookies:**
  - Primary method to achieve personalization

The Information Policy Set

- **Privacy policy**
  - Set of public statements declaring how site will treat customers' personal information that is gathered by site
- **Accessibility rules**
  - Set of design objectives that ensure disabled users can affectively access site

Designing for Accessibility

- **Why might some merchants be reluctant to make their Web sites accessible to disabled Americans?**
- **How can Web sites be made more accessible?**
- **Should all Web sites be required by law to provide "equivalent alternatives" for visual and sound content?**
- **What additional accessibility problems do mobile devices pose?**

Developing a Mobile Web Site and Building Mobile Applications

- **Three types of m-commerce software**
  - Mobile Web site
    - Responsive web design
  - Mobile Web app
  - Native app
- **Planning and building mobile presence**
  - Use systems analysis/design to identify unique and specific business objectives

TABLE 4.13 UNIQUE FEATURES THAT MUST BE TAKEN INTO ACCOUNT WHEN DESIGNING A MOBILE WEB PRESENCE

FEATURE	IMPLICATIONS FOR MOBILE PLATFORM
Hardware	Mobile hardware is smaller, and there are more resource constraints in data storage and processing power.
Connectivity	The mobile platform is constrained by slower connection speeds than desktop Web sites.
Displays	Mobile displays are much smaller and require simplification.Some screens are not good in sunlight.
Interface	Touch-screen technology introduces new interaction routines different from the traditional mouse and keyboard. The mobile platform is not a good data entry tool but can be a good navigational tool.

Table 4.13, Page 243

Developing a Mobile Web Presence

- **Design considerations**
  - Platform constraints: Smartphone/tablet
- **Performance and cost**
  - Mobile Web site:
    - Least expensive
  - Mobile app:
    - Can utilize browser API
  - Native app:
    - Most expensive; requires more programming

Building a Mobile Presence

- **What are the key differences between user experience on a Web site and on a mobile device?**
- **Why would a mobile Web site or app from the same merchant need different content or functionality?**
- **In which cases would a merchant want to develop a mobile app over a mobile Web site?**

Chapter 5

E-commerce Security and Payment Systems

Class Discussion

Cyberwar: MAD 2.0

- **What is the difference between hacking and cyberwar?**
- **Why has cyberwar become more potentially devastating in the past decade?**
- **Why has Google been the target of so many cyberattacks?**
- **Is it possible to find a political solution to MAD 2.0?**

The E-commerce Security Environment

- **Overall size and losses of cybercrime unclear**
  - Reporting issues
- **2011 CSI survey: 46% of respondent firms detected breach in last year**
- **Underground economy marketplace:**
  - Stolen information stored on underground economy servers

What Is Good E-commerce Security?

- **To achieve highest degree of security**
  - New technologies
  - Organizational policies and procedures
  - Industry standards and government laws
- **Other factors**
  - Time value of money
  - Cost of security vs. potential loss
  - Security often breaks at weakest link

The E-commerce Security Environment

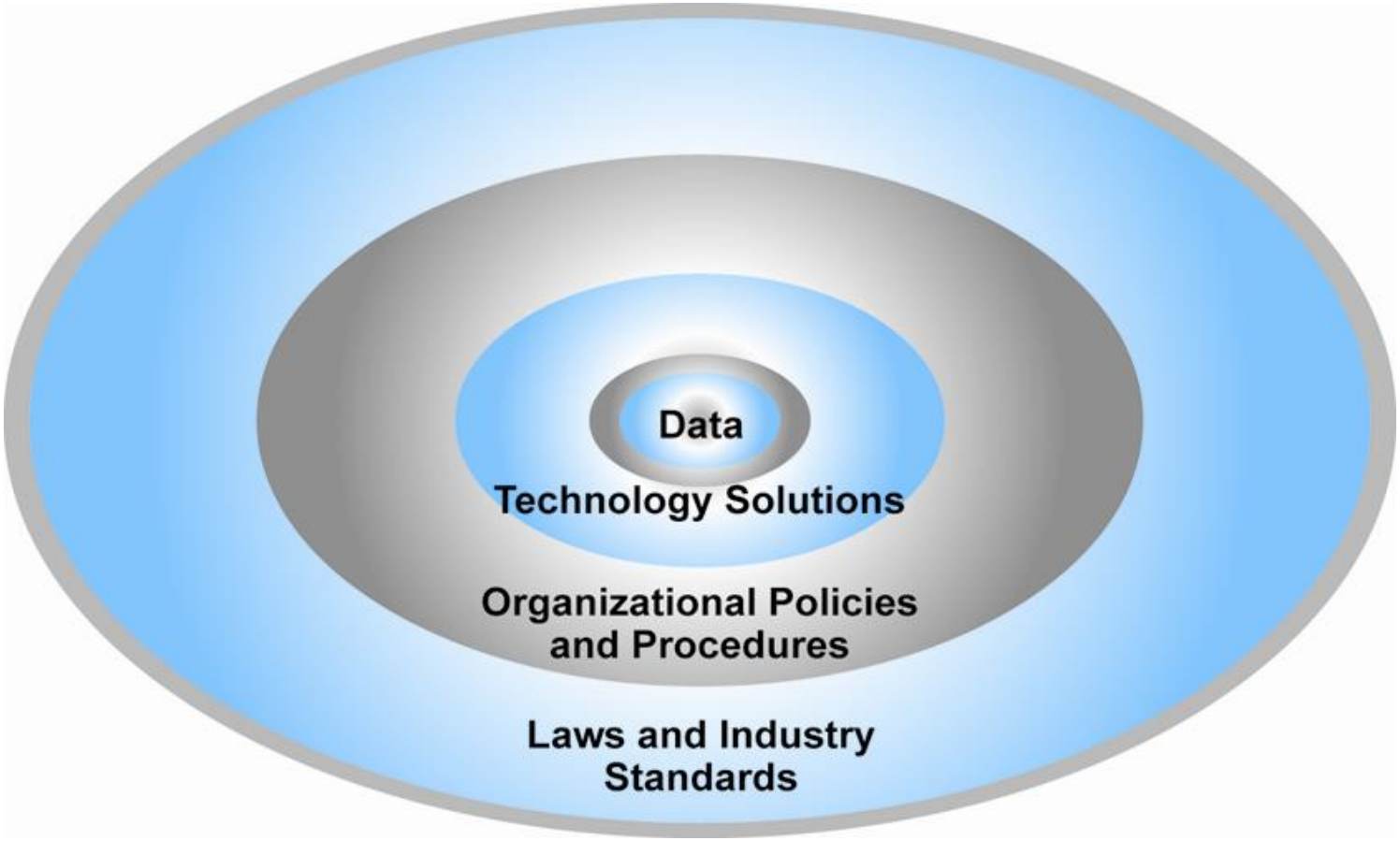


Figure 5.1, Page 266

TABLE 5.3	CUSTOMER AND MERCHANT PERSPECTIVES ON THE DIFFERENT DIMENSIONS OF E-COMMERCE SECURITY	
DIMENSION	CUSTOMER'S PERSPECTIVE	MERCHANT'S PERSPECTIVE
Integrity	Has information I transmitted or received been altered?	Has data on the site been altered without authorization? Is data being received from customers valid?
Nonrepudiation	Can a party to an action with me later deny taking the action?	Can a customer deny ordering products?
Authenticity	Who am I dealing with? How can I be assured that the person or entity is who they claim to be?	What is the real identity of the customer?
Confidentiality	Can someone other than the intended recipient read my messages?	Are messages or confidential data accessible to anyone other than those authorized to view them?
Privacy	Can I control the use of information about myself transmitted to an e-commerce merchant?	What use, if any, can be made of personal data collected as part of an e-commerce transaction? Is the personal information of customers being used in an unauthorized manner?
Availability	Can I get access to the site?	Is the site operational?

Table 5.3, Page 267

The Tension Between Security and Other Values

- **Ease of use**
  - The more security measures added, the more difficult a site is to use, and the slower it becomes
- **Public safety and criminal uses of the Internet**
  - Use of technology by criminals to plan crimes or threaten nation-state

Security Threats in the E-commerce Environment

- **Three key points of vulnerability in e-commerce environment:**

  1. Client
  2. Server
  3. Communications pipeline (Internet communications channels)

A Typical E-commerce Transaction

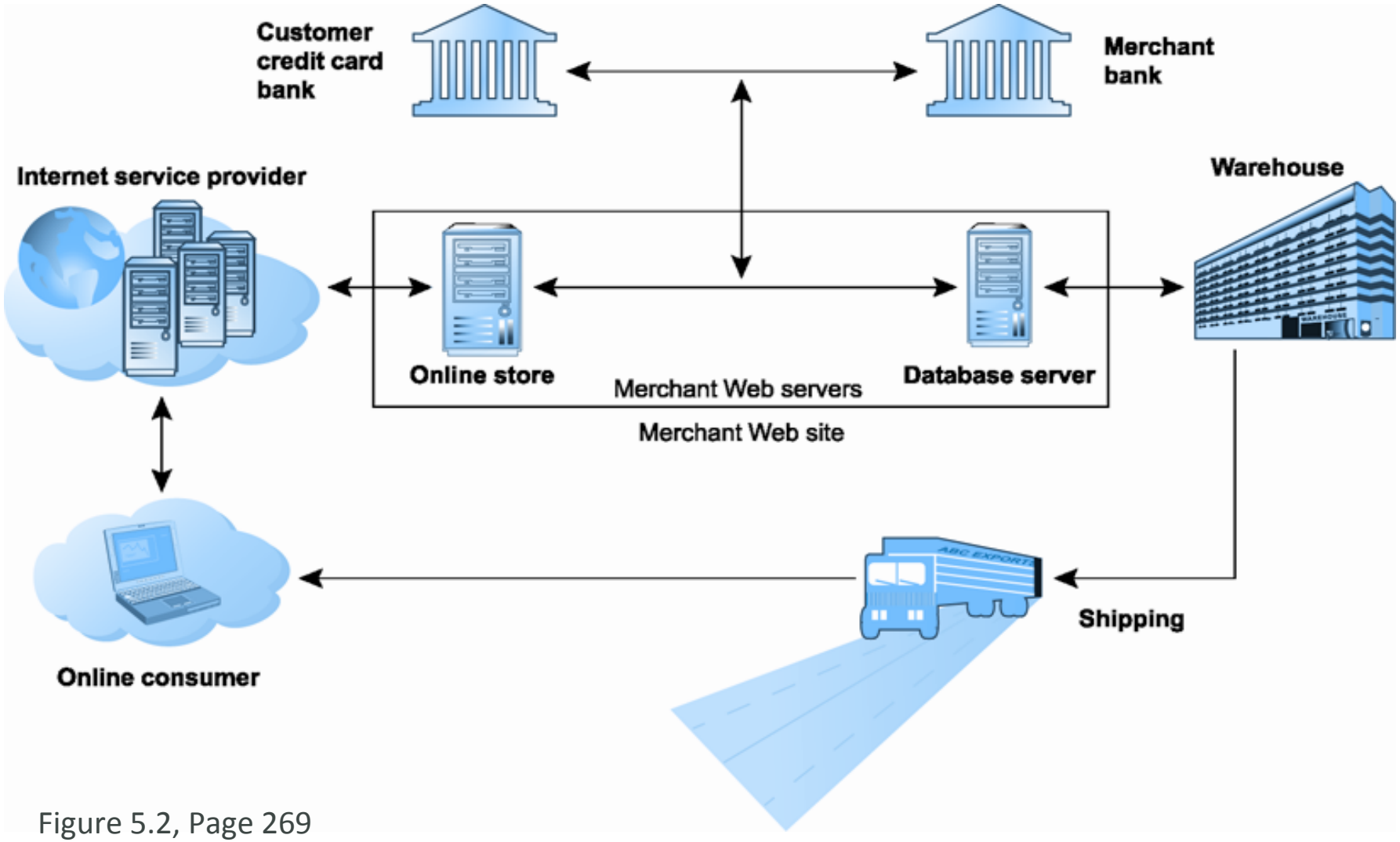


Figure 5.2, Page 269

Vulnerable Points in an E-commerce Transaction

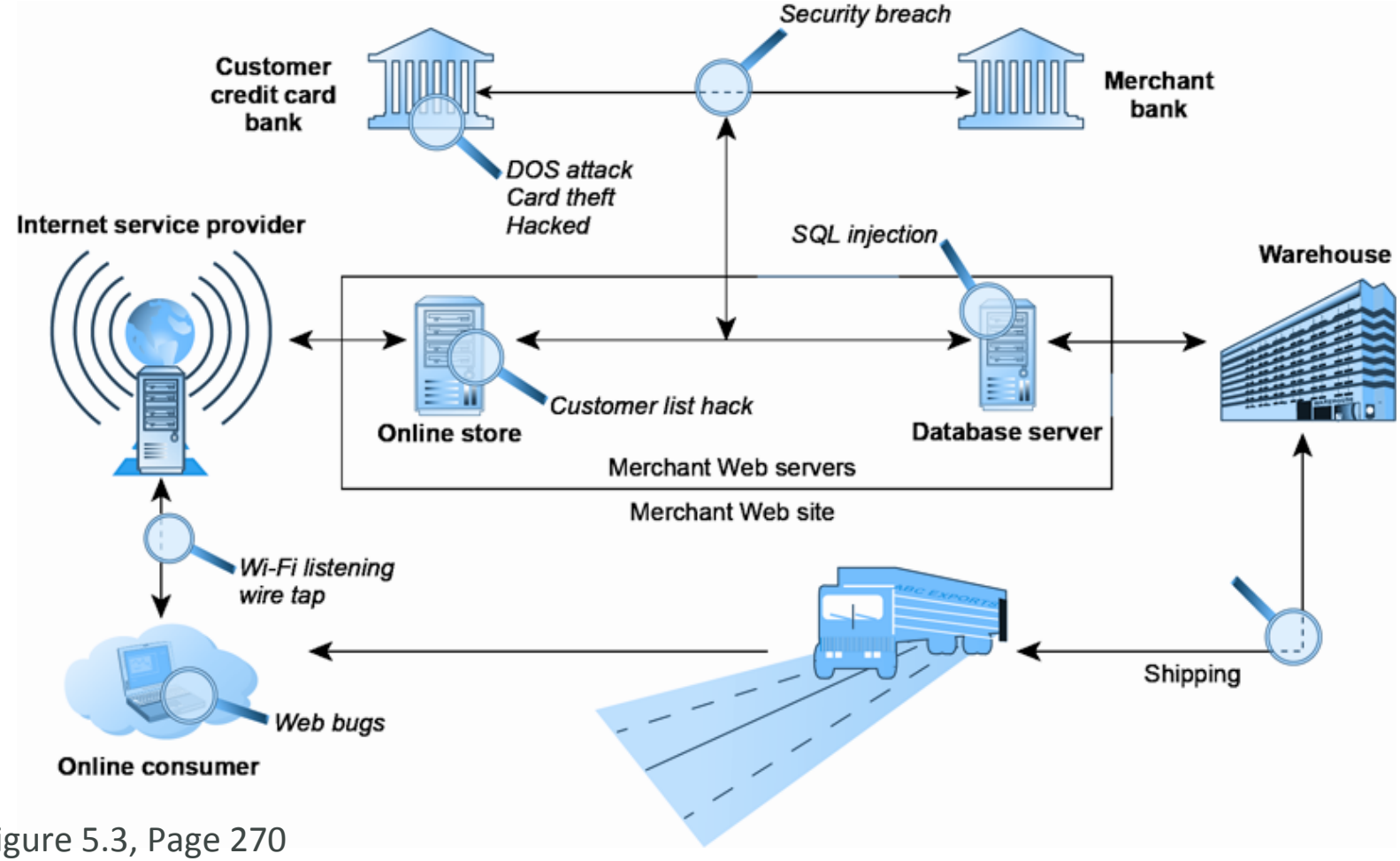


Figure 5.3, Page 270

Most Common Security Threats in the E-commerce Environment

- **Malicious code**
  - Viruses
  - Worms
  - Trojan horses
  - Drive-by downloads
  - Backdoors
  - Bots, botnets
  - Threats at both client and server levels

Most Common Security Threats (cont.)

- **Potentially unwanted programs (PUPs)**
  - Browser parasites
  - Adware
  - Spyware
- **Phishing**
  - E-mail scams
  - Social engineering
  - Identity theft

Most Common Security Threats (cont.)

- **Hacking**
  - Hackers vs. crackers
  - Types of hackers: White, black, grey hats
  - Hacktivism
- **Cybervandalism:**
  - Disrupting, defacing, destroying Web site
- **Data breach**
  - Losing control over corporate information to outsiders

Most Common Security Threats (cont.)

- **Credit card fraud/theft**
  - Hackers target merchant servers; use data to establish credit under false identity
- **Spoofing (Pharming)**
- **Spam (junk) Web sites**
- **Denial of service (DoS) attack**
  - Hackers flood site with useless traffic to overwhelm network
- **Distributed denial of service (DDoS) attack**

Sony: Press the Reset Button

- **What organization and technical failures led to the April 2011 data breach on the PlayStation Network?**
- **Can Sony be criticized for waiting 3 days to inform the FBI?**
- **Have you or anyone you know experienced data theft?**

Most Common Security Threats (cont.)

- **Sniffing**
  - Eavesdropping program that monitors information traveling over a network
- **Insider attacks**
- **Poorly designed server and client software**
- **Social network security issues**
- **Mobile platform security issues**
  - Same risks as any Internet device
- **Cloud security issues**

Think Your Smartphone Is Secure?

- What types of threats do smartphones face?
- Are there any particular vulnerabilities to this type of device?
- What did Nicolas Seriot's "Spyphone" prove?
- Are apps more or less likely to be subject to threats than traditional PC software programs?

Technology Solutions

- **Protecting Internet communications**
  - Encryption
- **Securing channels of communication**
  - SSL, VPNs
- **Protecting networks**
  - Firewalls
- **Protecting servers and clients**

Tools Available to Achieve Site Security

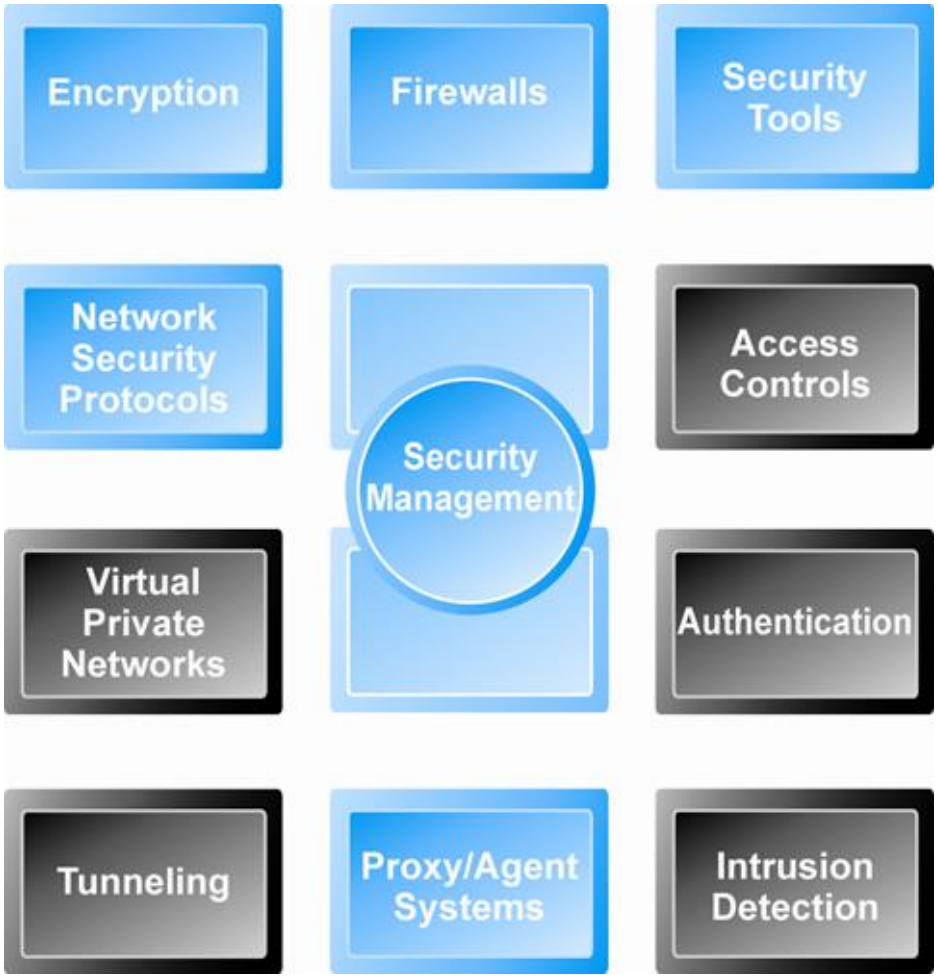


Figure 5.5, Page 288

Encryption

- **Encryption**
  - Transforms data into cipher text readable only by sender and receiver
  - Secures stored information and information transmission
  - Provides 4 of 6 key dimensions of e-commerce security:
    - Message integrity
    - Nonrepudiation
    - Authentication
    - Confidentiality

Symmetric Key Encryption

- **Sender and receiver use same digital key to encrypt and decrypt message**
- **Requires different set of keys for each transaction**
- **Strength of encryption**
  - Length of binary key used to encrypt data
- **Advanced Encryption Standard (AES)**
  - Most widely used symmetric key encryption
  - Uses 128-, 192-, and 256-bit encryption keys
- **Other standards use keys with up to 2,048 bits**

Public Key Encryption

- **Uses two mathematically related digital keys**
  - Public key (widely disseminated)
  - Private key (kept secret by owner)
- **Both keys used to encrypt and decrypt message**
- **Once key used to encrypt message, same key cannot be used to decrypt message**
- **Sender uses recipient's public key to encrypt message; recipient uses private key to decrypt it**

Public Key Cryptography: A Simple Case

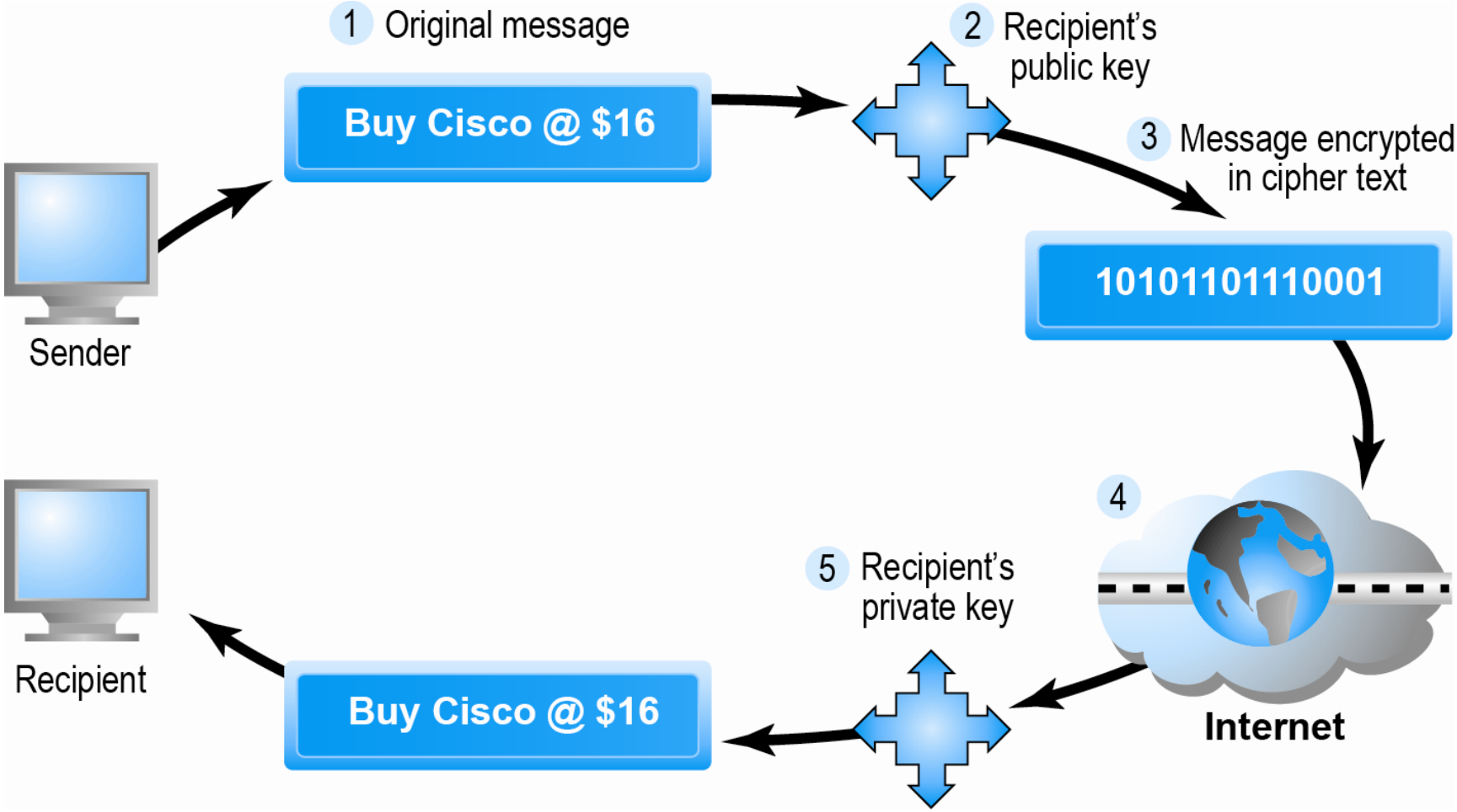


Figure 5.6, Page 291

Public Key Encryption using Digital Signatures and Hash Digests

- **Hash function:**
  - Mathematical algorithm that produces fixed-length number called message or hash digest
- **Hash digest of message sent to recipient along with message to verify integrity**
- **Hash digest and message encrypted with recipient's public key**
- **Entire cipher text then encrypted with recipient's private key—creating digital signature—for authenticity, nonrepudiation**

Public Key Cryptography with Digital Signatures

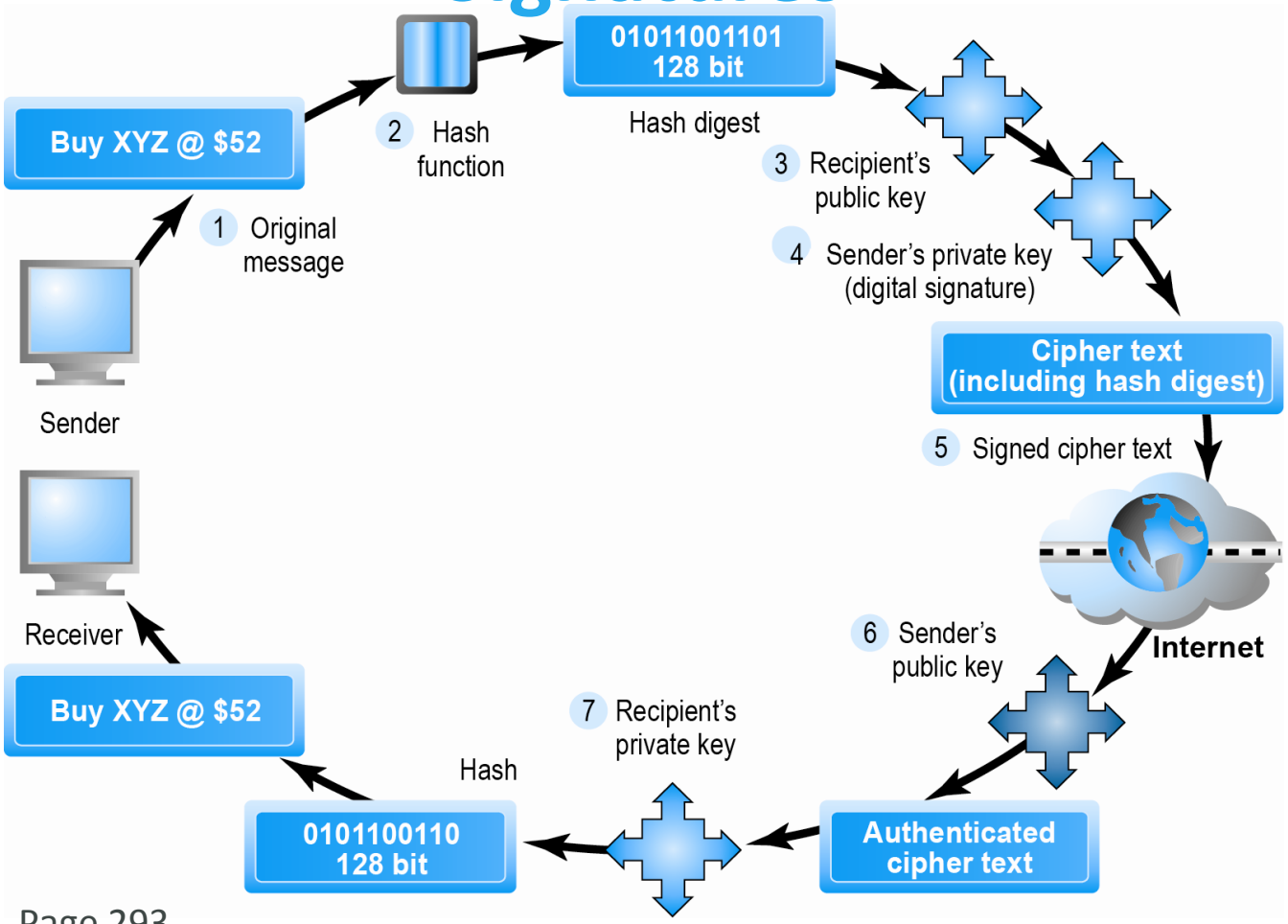


Figure 5.7, Page 293

Digital Envelopes

- **Address weaknesses of:**
  - Public key encryption
    - Computationally slow, decreased transmission speed, increased processing time
  - Symmetric key encryption
    - Insecure transmission lines
- **Uses symmetric key encryption to encrypt document**
- **Uses public key encryption to encrypt and send symmetric key**

Creating a Digital Envelope

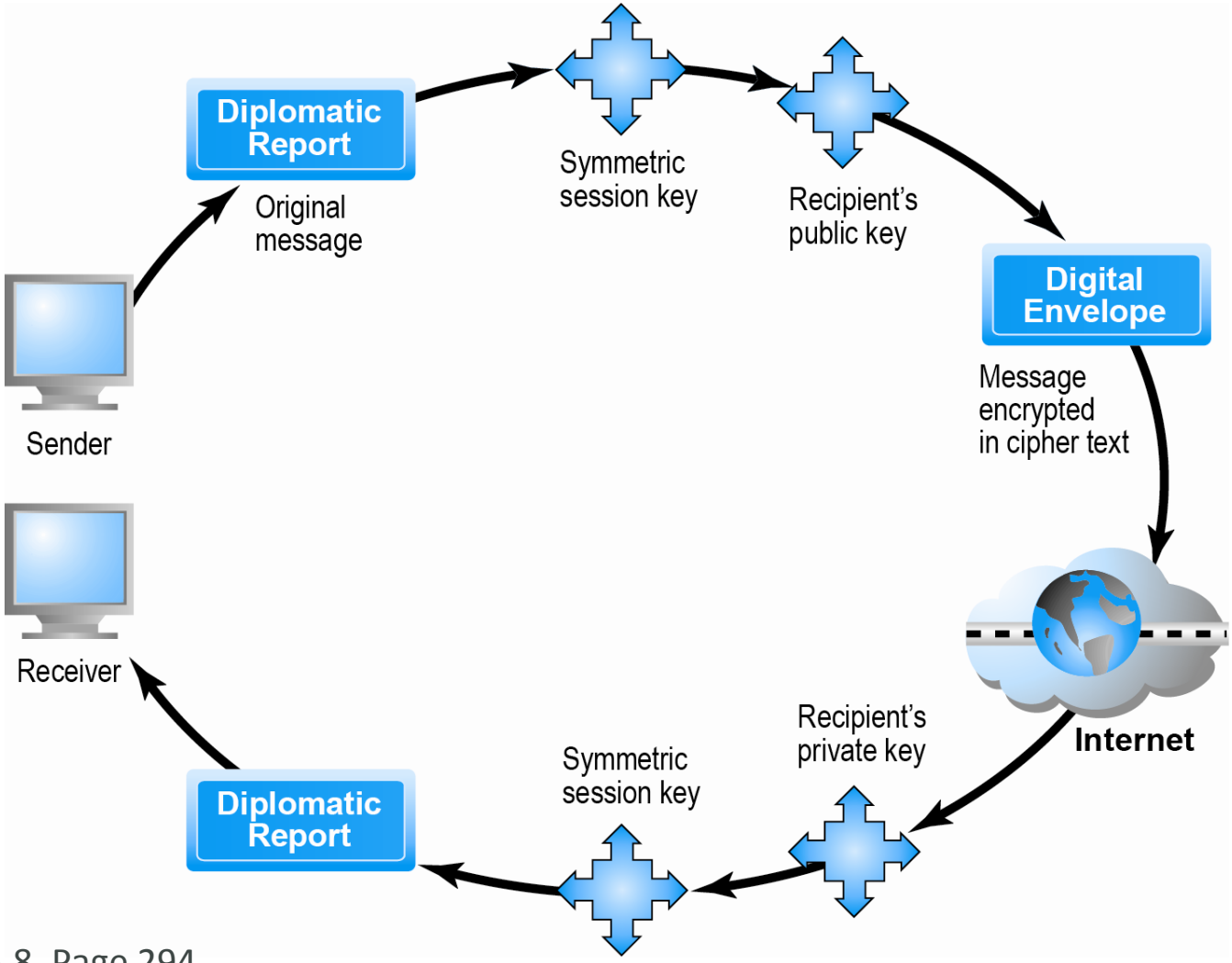


Figure 5.8, Page 294

Digital Certificates and Public Key Infrastructure (PKI)

- **Digital certificate includes:**
  - Name of subject/company
  - Subject's public key
  - Digital certificate serial number
  - Expiration date, issuance date
  - Digital signature of CA
- **Public Key Infrastructure (PKI):**
  - CAs and digital certificate procedures
  - PGP

Digital Certificates and Certification Authorities

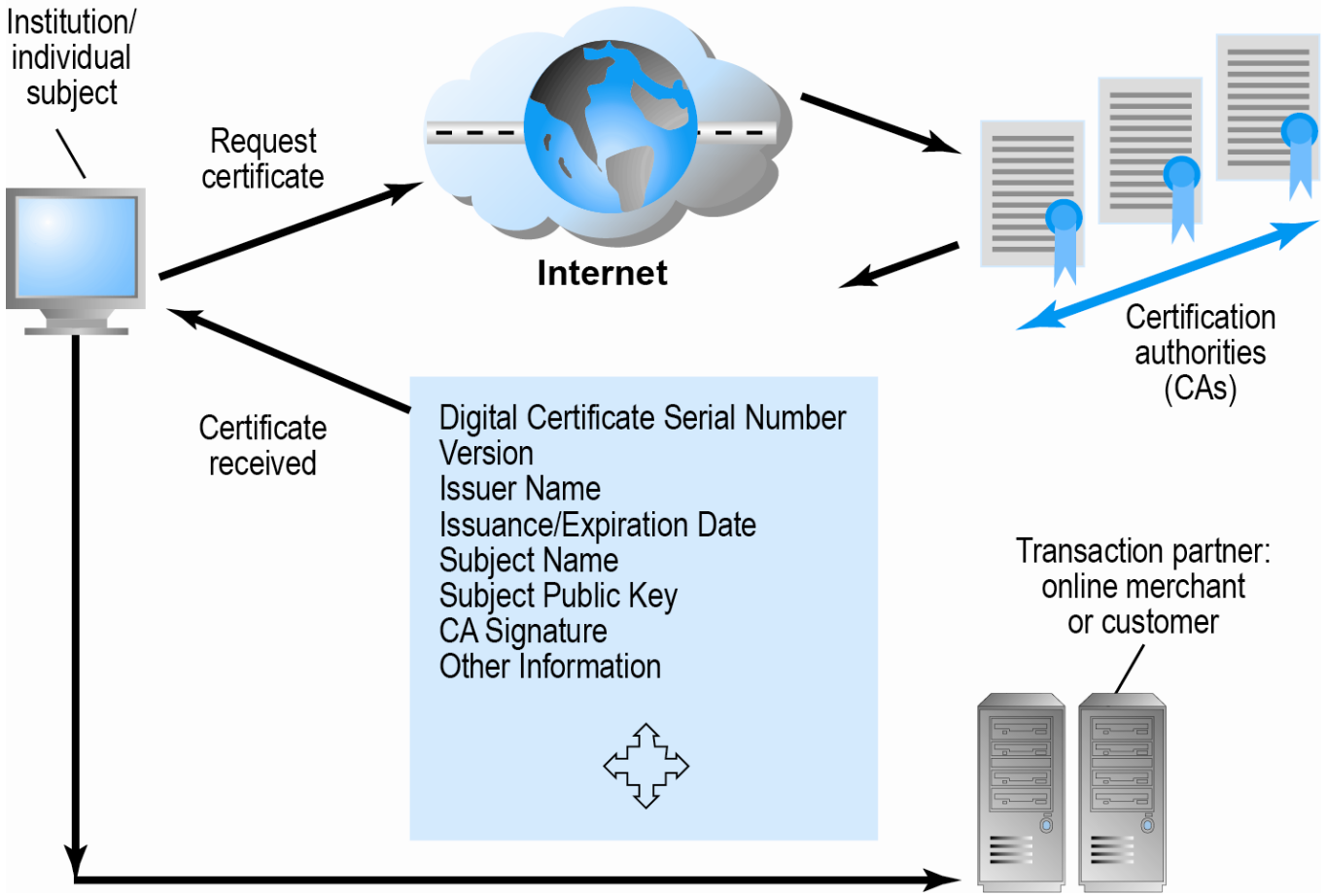


Figure 5.9, Page 295

Limits to Encryption Solutions

- **Doesn't protect storage of private key**
  - PKI not effective against insiders, employees
  - Protection of private keys by individuals may be haphazard
- **No guarantee that verifying computer of merchant is secure**
- **CAs are unregulated, self-selecting organizations**

Web Dogs and Anonymity: Identity 2.0

- **What are some of the benefits of continuing the anonymity of the Internet?**
- **What are the disadvantages of an identity system?**
- **Are there advantages to an identity system beyond security?**
- **Who should control a central identity system?**

Securing Channels of Communication

- **Secure Sockets Layer (SSL) and Transport Layer Security (TLS)**
  - Establishes a secure, negotiated client-server session in which URL of requested document, along with contents, is encrypted
- **Virtual Private Network (VPN):**
  - Allows remote users to securely access internal network via the Internet

Secure Negotiated Sessions Using SSL/TLS

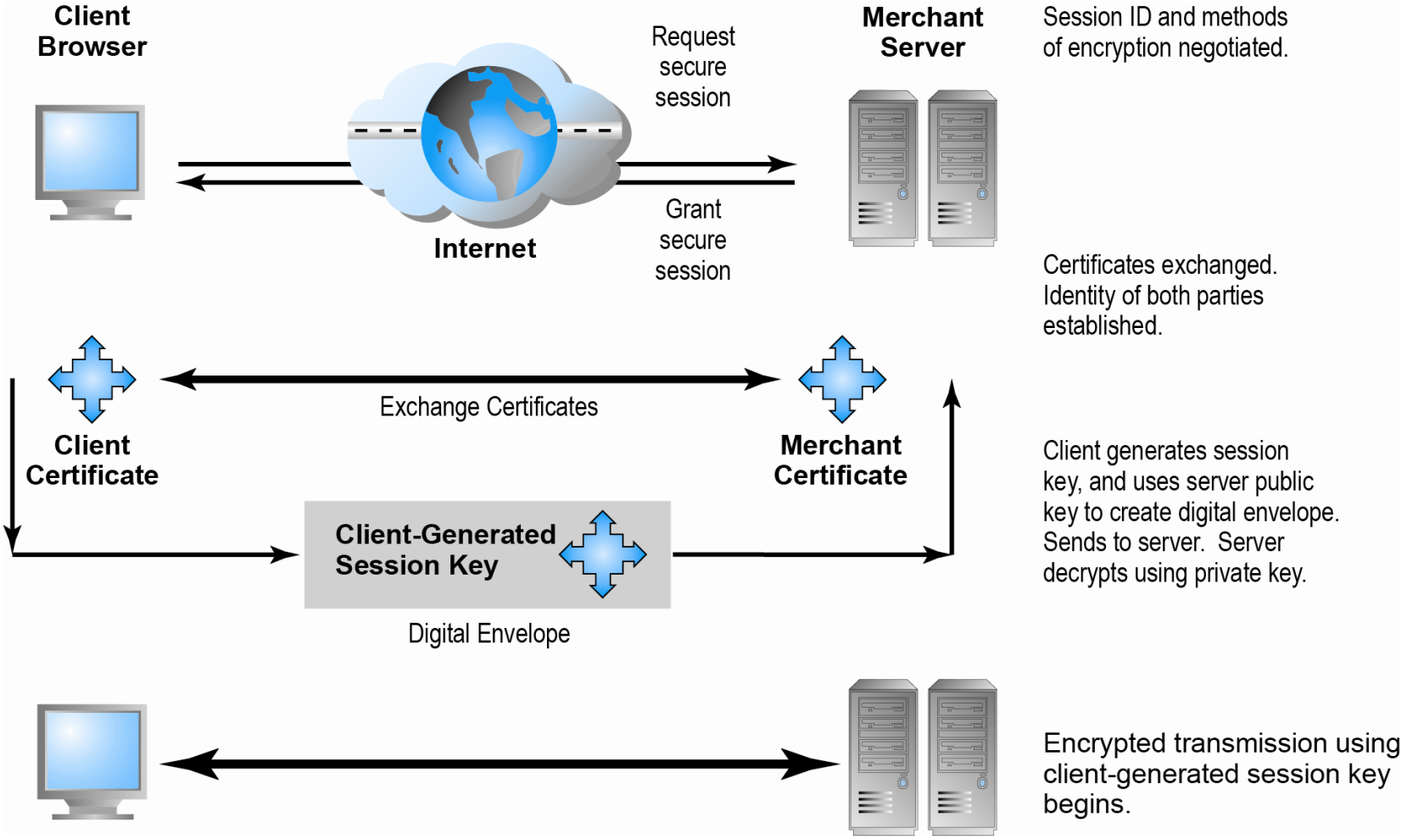


Figure 5.10, Page 300

Protecting Networks

- **Firewall**
  - Hardware or software
  - Uses security policy to filter packets
  - Two main methods:
    - Packet filters
    - Application gateways
- **Proxy servers (proxies)**
  - Software servers that handle all communications originating from or being sent to the Internet

Firewalls and Proxy Servers

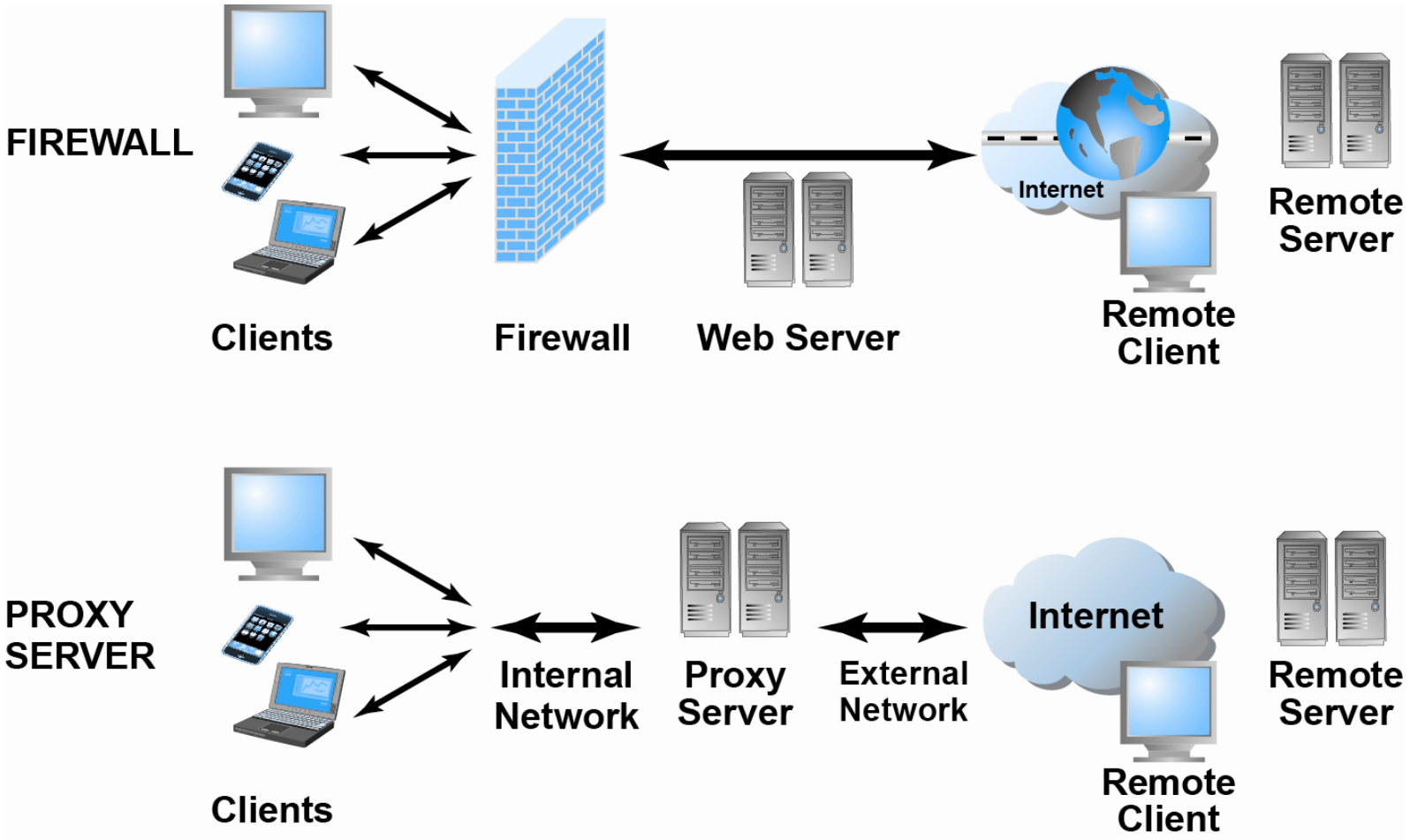


Figure 5.11, Page 303

Protecting Servers and Clients

- **Operating system security enhancements**
  - Upgrades, patches
- **Anti-virus software:**
  - Easiest and least expensive way to prevent threats to system integrity
  - Requires daily updates

Management Policies, Business Procedures, and Public Laws

- **Worldwide, companies spend $60 billion on security hardware, software, services**
- **Managing risk includes**
  - Technology
  - Effective management policies
  - Public laws and active enforcement

A Security Plan: Management Policies

- **Risk assessment**
- **Security policy**
- **Implementation plan**
  - Security organization
  - Access controls
  - Authentication procedures, including biometrics
  - Authorization policies, authorization management systems
- **Security audit**

Developing an E-commerce Security Plan

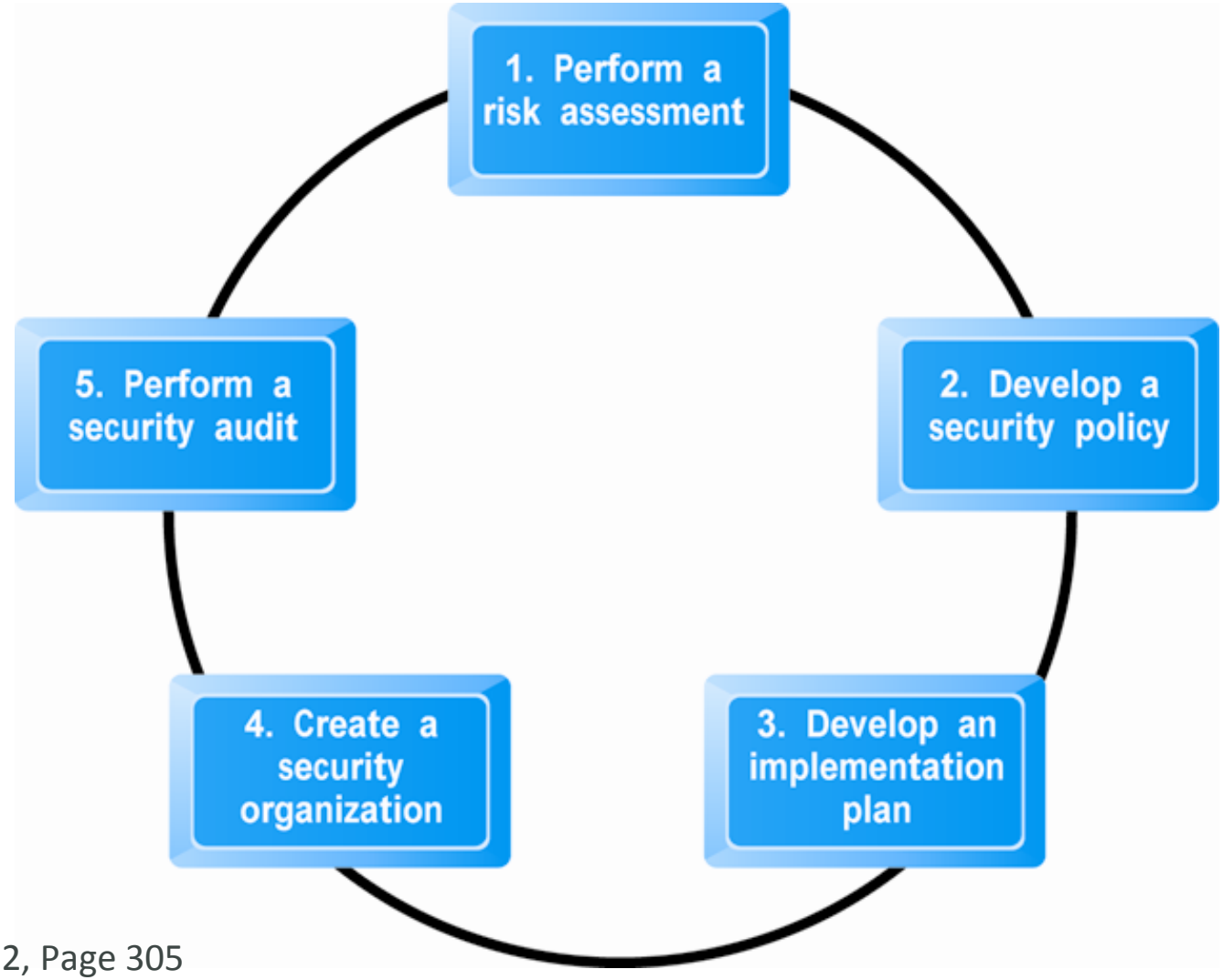


Figure 5.12, Page 305

The Role of Laws and Public Policy

- **Laws that give authorities tools for identifying, tracing, prosecuting cybercriminals:**
  - National Information Infrastructure Protection Act of 1996
  - USA Patriot Act
  - Homeland Security Act
- **Private and private-public cooperation**
  - CERT Coordination Center
  - US-CERT
- **Government policies and controls on encryption software**
  - OECD, G7/G8, Council of Europe, Wassener Arrangement

Types of Payment Systems

- **Cash**
  - Most common form of payment
  - Instantly convertible into other forms of value
  - No float
- **Checking transfer**
  - Second most common payment form in United States
- **Credit card**
  - Credit card associations
  - Issuing banks
  - Processing centers

Types of Payment Systems (cont.)

- **Stored value**
  - Funds deposited into account, from which funds are paid out or withdrawn as needed
  - Debit cards, gift certificates
  - Peer-to-peer payment systems
- **Accumulating balance**
  - Accounts that accumulate expenditures and to which consumers make period payments
  - Utility, phone, American Express accounts

Payment System Stakeholders

- **Consumers**
  - Low-risk, low-cost, refutable, convenience, reliability
- **Merchants**
  - Low-risk, low-cost, irrefutable, secure, reliable
- **Financial intermediaries**
  - Secure, low-risk, maximizing profit
- **Government regulators**
  - Security, trust, protecting participants and enforcing reporting

E-commerce Payment Systems

- **Credit cards**
  - 44% of online payments in 2012 (U.S.)
- **Debit cards**
  - 28% online payments in 2012 (U.S.)
- **Limitations of online credit card payment**
  - Security, merchant risk
  - Cost
  - Social equity

How an Online Credit Transaction Works

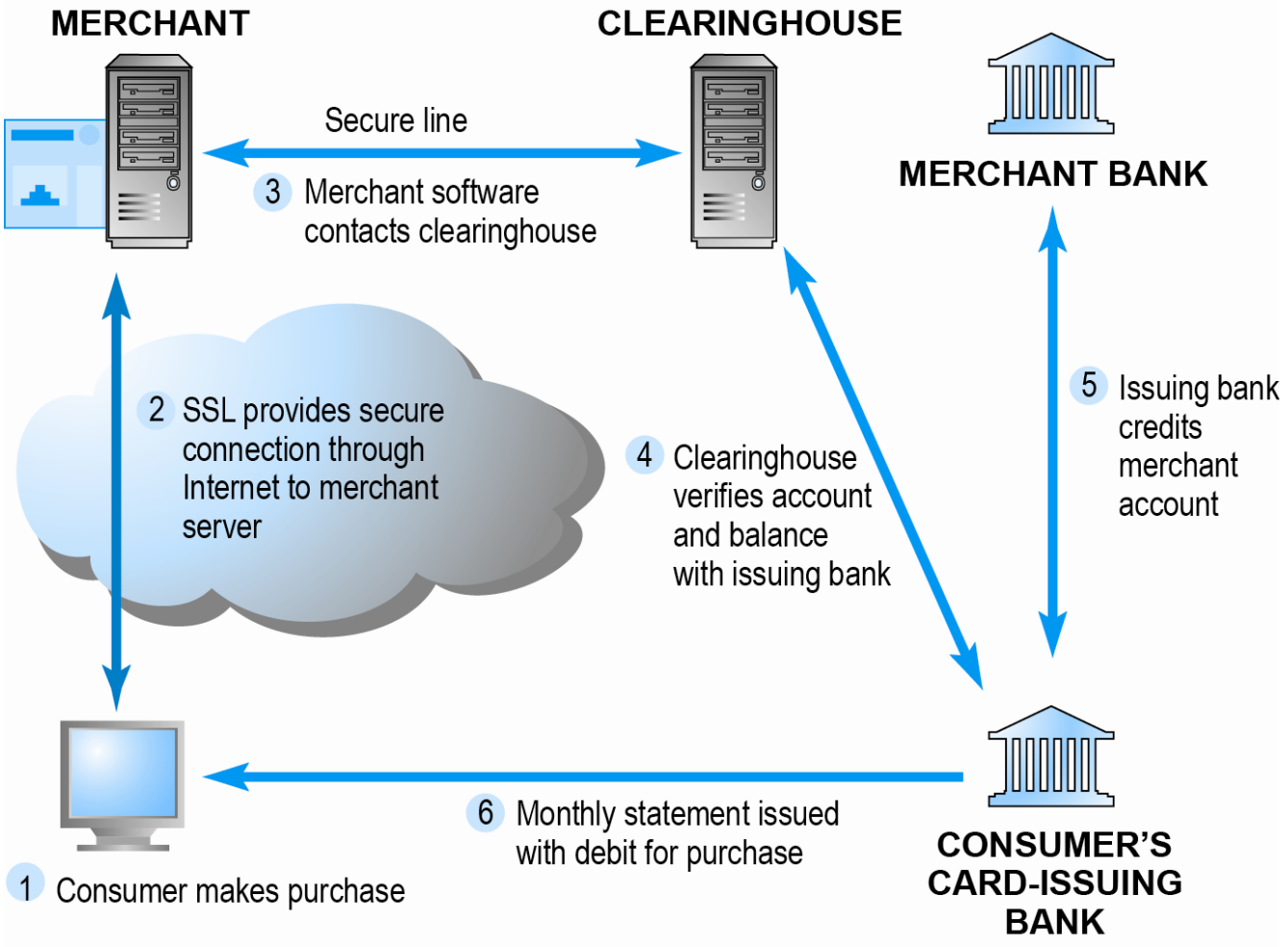


Figure 5.14, Page 315

Alternative Online Payment Systems

- **Online stored value systems:**
  - Based on value stored in a consumer's bank, checking, or credit card account
  - e.g., PayPal
- **Other alternatives:**
  - Amazon Payments
  - Google Checkout
  - Bill Me Later
  - WUPay, Dwolla, Stripe

Mobile Payment Systems

- **Use of mobile phones as payment devices established in Europe, Japan, South Korea**
- **Near field communication (NFC)**
  - Short-range (2”) wireless for sharing data between devices
- **Expanding in United States**
  - Google Wallet
    - Mobile app designed to work with NFC chips
  - PayPal
  - Square

Digital Cash and Virtual Currencies

- **Digital cash**
  - Based on algorithm that generates unique tokens that can be used in “real” world
  - e.g., Bitcoin
- **Virtual currencies**
  - Circulate within internal virtual world
  - e.g., Linden Dollars in Second Life, Facebook Credits

Electronic Billing Presentment and Payment (EBPP)

- **Online payment systems for monthly bills**
- **50% of all bill payments**
- **Two competing EBPP business models:**
  - Biller-direct (dominant model)
  - Consolidator
- **Both models are supported by EBPP infrastructure providers**

Chapter 6

E-commerce Marketing Concepts: Social, Mobile, Local

Class Discussion

Facebook: Does Social Marketing Work?

- **Have you ever made a purchase based on something you have read or seen on Facebook? What was the product and what made you interested?**
- **What obstacles does Facebook face in monetizing itself as a marketing and advertising platform?**
- **Are there other ways for Facebook to make a profit from marketers and advertisers?**

Consumers Online: The Internet Audience and Consumer Behavior

- **Around 75% (89 million) U.S. households have Internet access in 2012**
- **Growth rate has slowed**
- **Intensity and scope of use both increasing**
- **Some demographic groups have much higher percentages of online usage than others**
  - Gender, age, ethnicity, community type, income, education

Consumers Online (cont.)

- **Broadband vs. dial-up audiences, new mobile audience**
- **Neighborhood effects**
- **Lifestyle and sociological impacts**
  - Use of Internet by children, teens
  - Use of Internet as substitute for other social activities
- **Media choices**
  - Traditional media competes with Internet for attention
  - Television viewing has increased with Internet usage

Consumer Behavior Models

- **Study of consumer behavior**
  - Attempts to explain what consumers purchase and where, when, how much, and why they buy
- **Consumer behavior models**
  - Predict wide range of consumer decisions
  - Based on background demographic factors and other intervening, more immediate variables

A General Model of Consumer Behavior

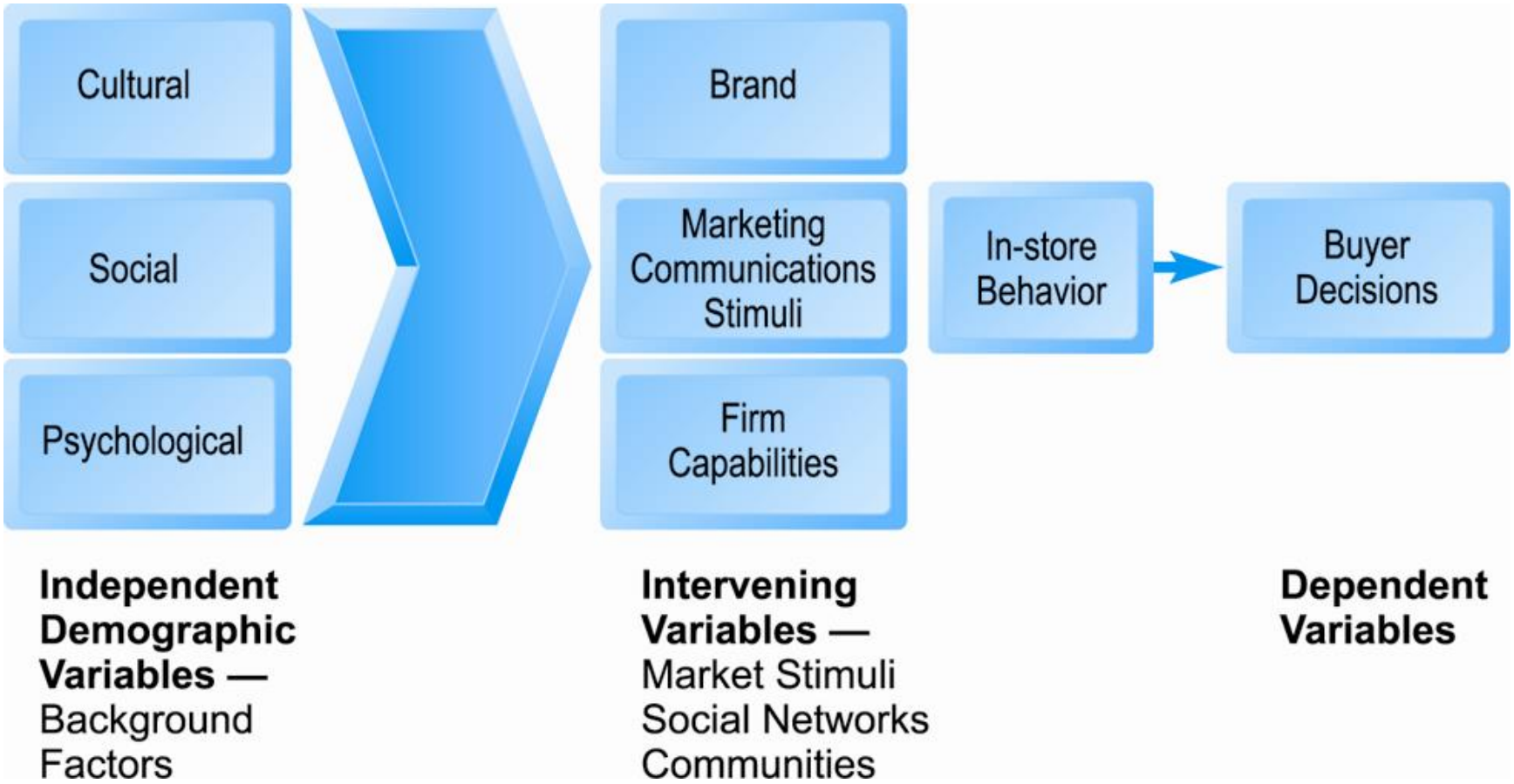


Figure 6.1, Page 348

SOURCE: Adapted from Kotler and Armstrong, 2009.

Background Demographic Factors

- **Culture:** Affects entire nations
- **Subculture**
  - Subsets formed around major social differences (ethnicity, age, lifestyle, geography)
- **Social networks and communities**
  - Direct reference groups
  - Indirect reference groups
  - Opinion leaders
  - Lifestyle groups
- **Psychological profile**

The Online Purchasing Decision

- **Psychographic research**
  - Combines demographic and psychological data
  - Divides market into various groups based on social class, lifestyle, and/or personality characteristics
- **Stages in consumer decision process:**
  - Awareness of need
  - Search for more information
  - Evaluation of alternatives
  - Actual purchase decision
  - Post-purchase contact with firm

The Consumer Decision Process and Supporting Communications

MARKET COMMUNICATIONS	Awareness—Need Recognition	Search	Evaluation of Alternatives	Purchase	Post-purchase Behavior—Loyalty
Offline Communications	Mass media TV Radio Print media Social networks	Catalogs Print ads Mass media Sales people Product raters Store visits Social networks	Reference groups Opinion leaders Mass media Product raters Store visits Social networks	Promotions Direct mail Mass media Print media	Warranties Service calls Parts and repair Consumer groups Social networks
Online Communications	Targeted banner ads Interstitials Targeted event promotions Social networks	Search engines Online catalogs Site visits Targeted e-mail Social networks	Search engines Online catalogs Site visits Product reviews User evaluations Social networks	Online promotions Lotteries Discounts Targeted e-mail Flash sales	Communities of consumption Newsletters Customer e-mail Online updates Social networks

Figure 6.2, Page 352

A Model of Online Consumer Behavior

- **Decision process similar for online and offline behavior**
- **General online behavior model**
  - Consumer skills
  - Product characteristics
  - Attitudes toward online purchasing
  - Perceptions about control over Web environment
  - Web site features: latency, usability, security
- **Clickstream behavior**

A Model of Online Consumer Behavior

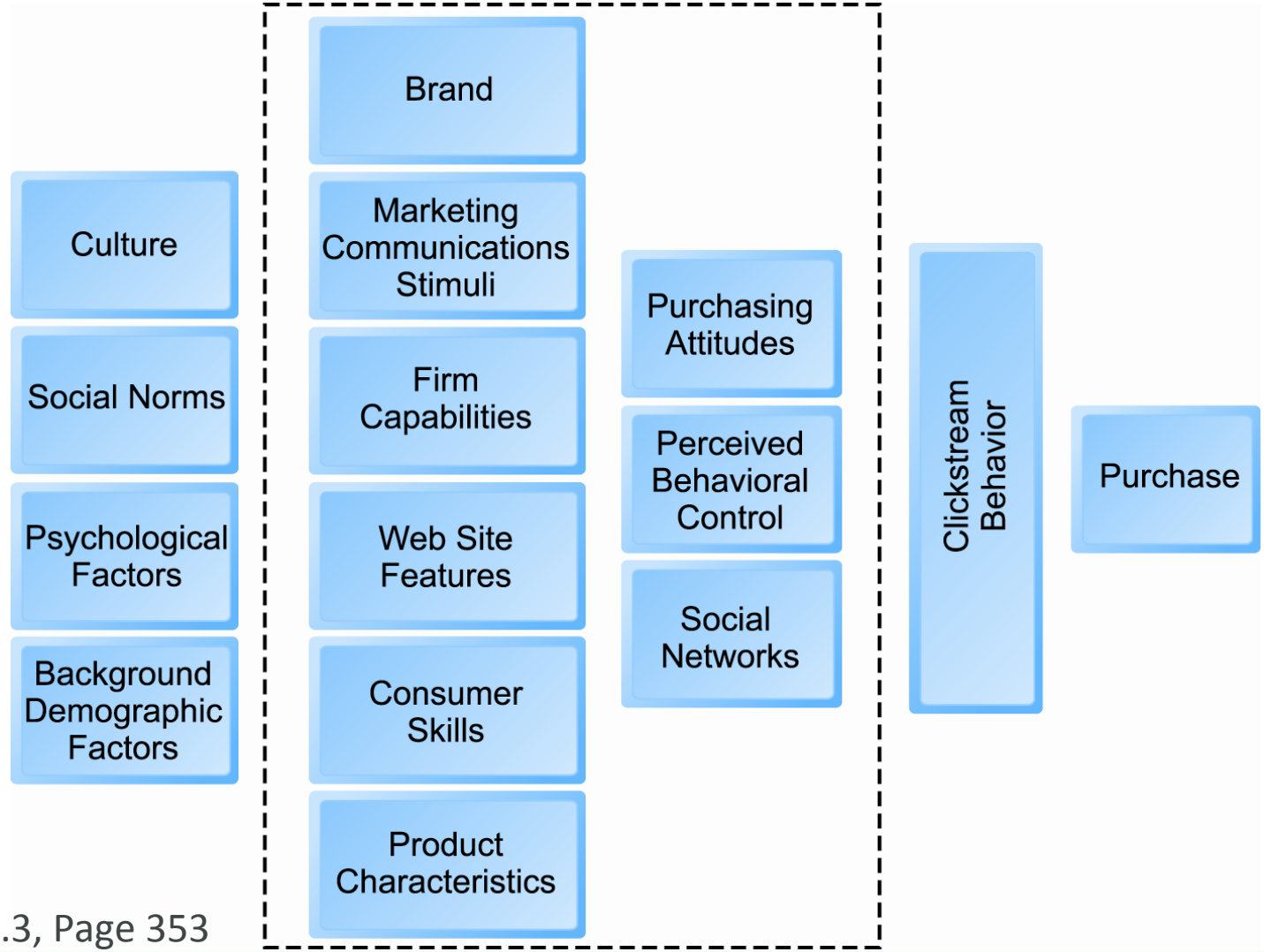


Figure 6.3, Page 353

A Model of Online Consumer Behavior (cont.)

- **Clickstream factors include:**
  - Number of days since last visit
  - Speed of clickstream behavior
  - Number of products viewed during last visit
  - Number of pages viewed
  - Supplying personal information
  - Number of days since last purchase
  - Number of past purchases
- **Clickstream marketing**
  - Developed dynamically as customers use Internet

Shoppers: Browsers and Buyers

- **Shoppers: 88% of Internet users**
  - 72% buyers
  - 16% browsers (purchase offline)
- **One-third of offline retail purchases influenced by online activities**
- **Online traffic also influenced by offline brands and shopping**
- **E-commerce and traditional commerce are coupled: Part of a continuum of consuming behavior**

What Consumers Shop for and Buy Online

- **Big ticket items**
  - Travel, computer hardware, electronics
  - Consumers now more confident in purchasing costlier items
- **Small ticket items ($100 or less)**
  - Apparel, books, office supplies, software, etc.
  - Sold by first movers on Web
    - Physically small items
    - High margin items

How Consumers Shop

- **How shoppers find online vendors**
  - Search engines—59%
  - Marketplaces (Amazon, eBay)—28%
  - Direct to retail sites—10%
  - Other methods—3%
- **Online shoppers are highly intentional**
- **StumbleUpon**
- **Recommender systems**

Trust, Utility, and Opportunism in Online Markets

- **Two most important factors shaping decision to purchase online:**
  - Utility:
    - Better prices, convenience, speed
  - Trust:
    - Asymmetry of information can lead to opportunistic behavior by sellers
    - Sellers can develop trust by building strong reputations for honesty, fairness, delivery

Basic Marketing Concepts

- **Marketing**
  - Strategies and actions to establish relationship with consumer and encourage purchases
  - Addresses competitive situation of industries and firms
  - Seeks to create unique, highly differentiated products or services that are produced or supplied by one trusted firm
    - Unmatchable feature set
    - Avoidance of becoming commodity

The Digital Commerce Marketing Platform

- **Multi-channel marketing plan**
  - **Web site**
  - **Traditional online marketing**
    - Search engine, display, e-mail, affiliate
  - **Social marketing**
    - Social networks, blogs, video, game
  - **Mobile marketing**
    - Mobile/tablet sites, apps
  - **Offline marketing**
    - Television, radio, newspapers

Strategic Issues and Questions

- **Which part of the marketing plan should you focus on first?**
- **How do you integrate the different platforms for a coherent message?**
- **How do you allocate resources?**
  - How do you measure and compare metrics from different platforms?
  - How do you link each to sales revenues?

Can Brands Survive the Internet? Brands and Price Dispersion

- **Vision: "Law of One Price, "end of brands**
- **Instead:**
  - Consumers still pay premium prices for differentiated products
  - E-commerce firms rely heavily on brands to attract customers and charge premium prices
  - Price dispersion
  - Large differences in price sensitivity for same product
  - "Library effect"

Online Segmenting, Targeting, and Positioning

- **Segmenting: Allows firms to differentiate products to fit consumer needs and charge different prices**
- **Types of segmentation**
  - Behavioral
  - Demographic
  - Psychographic
  - Technical
  - Contextual
  - Search

The Digital Commerce Marketing Platform: Strategies and Tools

- **Internet marketing (vs. traditional)**
  - More personalized
  - More participatory
  - More peer-to-peer
  - More communal
- **The most effective Internet marketing has all four features**

Customer Engagement

- **Customer conversations about:**
  - Products and services
  - Customer experience with products
  - Customer likes and dislikes
- **Conversations conducted through:**
  - Web site feedback
  - Blogs
  - Facebook
  - Twitter

Generic Market Entry Strategies

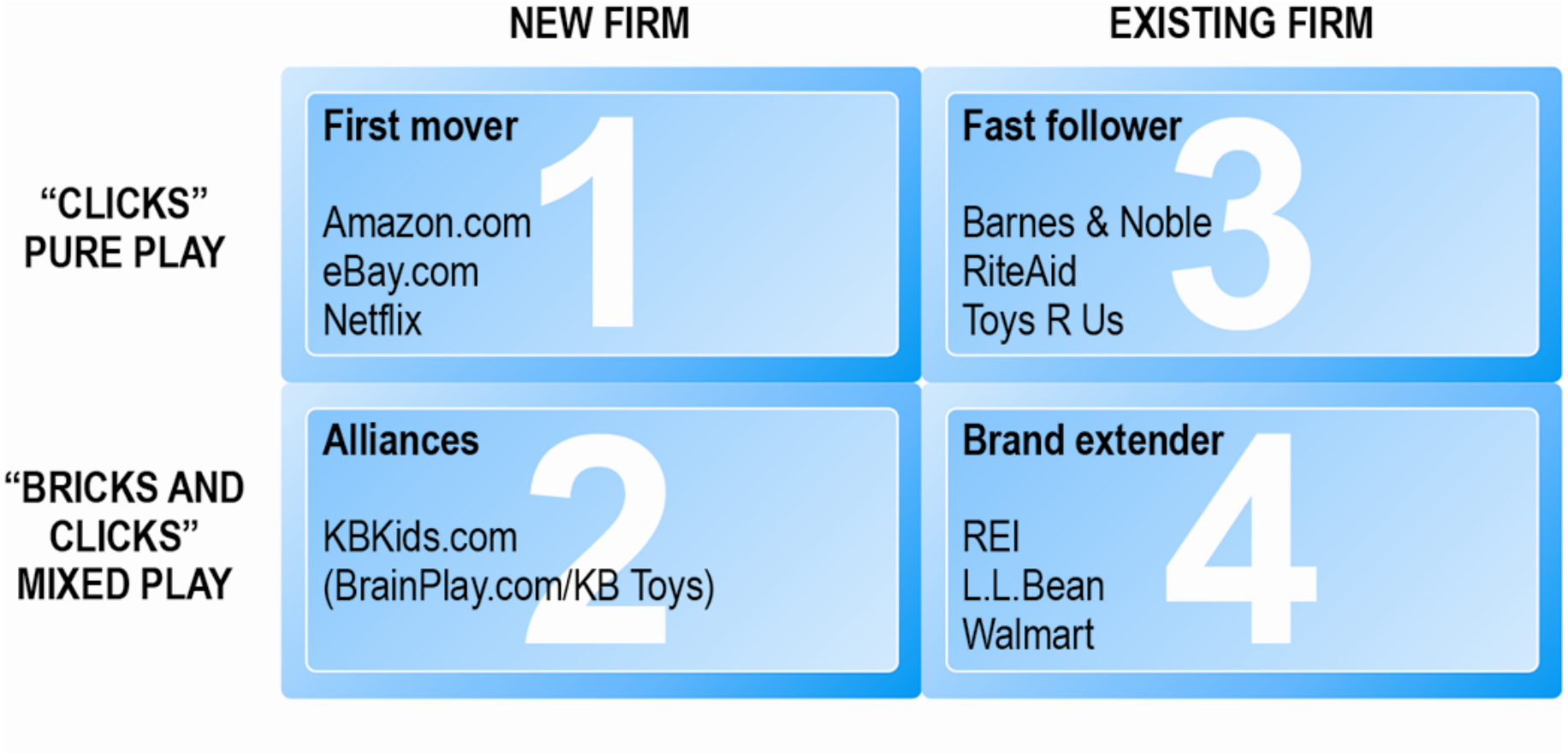


Figure 6-11, Page 391

Establishing the Customer Relationship

- **Web site functions to:**
  - Establish brand identity and customer expectations
    - Differentiating product
  - Inform and educate customer
  - Shape customer experience
  - Anchor the brand online
    - Central point for all marketing messages

Traditional Online Marketing Tools

- **Search engine marketing (SEM)**
  - Sponsored links
  - Search result display ads
  - Keywords
  - Search engine optimization (SEO)
- **Display ad marketing**
  - Advertising networks
  - Ad exchanges, real-time bidding

How an Advertising Network Such as DoubleClick Works

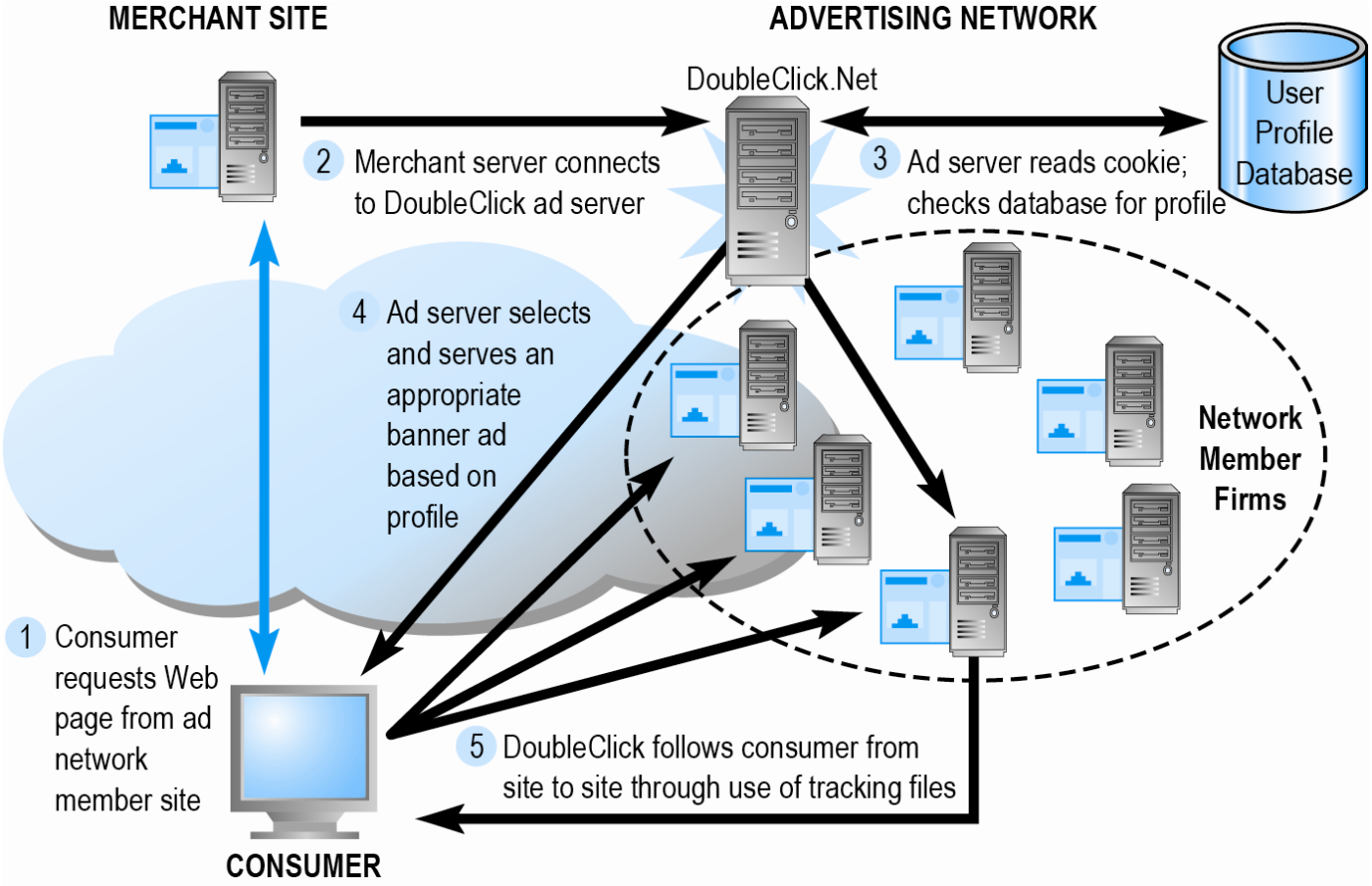


Figure 6.6, Page 372

Traditional Online Marketing Tools (cont.)

- **E-mail marketing**
  - Very inexpensive
  - 3% click-throughs in targeted campaigns
  - **Permission marketing**
- **Affiliate marketing**
- **Lead-generation marketing**
- **Sponsorship marketing**

Social Marketing

- **Fastest growing type of online marketing**
- **Long-term prospects unknown**
- **Four features driving growth**
  - Social sign-on
  - Collaborative shopping
  - Network notification
  - Social search (recommendation)

Twitter Marketing

- **Real-time interaction with consumers**
- **50% companies with 100+ employees using Twitter**
- **Twitter marketing products**
  - Promoted Tweets
  - Promoted Trends
  - Promoted Accounts

Blog Marketing

- 43% of all U.S. companies use blogs for marketing
- Ideal for starting viral campaigns
- Can use blogs for both branding messages and advertisements
- Blog advertising networks
- Brand advocacy blogs

Viral Marketing

- Form of social marketing
- Customers pass along marketing message to friends, family, coworkers
- Referred customers cost less to acquire and keep
- Venues are e-mail, social networks, video and game sites

Mobile Marketing

- **7% of online marketing, growing rapidly**
- **Major formats:**
  - Messaging (SMS)
  - Display
  - Search
  - Video
- **Other formats:**
  - Quick Response (QR) codes
  - Couponing

Mobile Marketing: Land Rover Seeks Engagement on the Small Screen

- **Why do mobile devices represent such a promising opportunity for marketers?**
- **Have you ever responded to mobile marketing messages?**
- **What are some of the new types of marketing that mobile devices have spawned?**
- **What the disadvantages of social network marketing?**

App Marketing

- **Revenue sources**
  - Pay-per-app
  - In-app purchase
  - Subscriptions
  - Advertising
- **Most popular types of apps**
  - Social network, banking, search, news
- **Retailer's apps**
  - Browsing and purchasing

Local Marketing

- **Marketing geared to user's geographic location**
- **Local searches:**
  - 20% of all searches
  - 40% of mobile searches
- **Most common local marketing tools**
  - Geotargeting with Google Maps
  - Display ads in hyperlocal publications

Multi-Channel Marketing

- Average American spends 24% of media time on Internet, rest on other channels
- Television, radio, newspapers, and magazines
- Consumers also multitask, using several media
- Internet campaigns strengthened by using other channels

Other Online Marketing Strategies

- **Brand leveraging**
- **Customer retention strategies**
  - Personalization and one-to-one marketing
  - Customization and customer co-production
  - Customer service
    - FAQs
    - Real-time customer chat systems
    - Automated response systems

The Mass Market-Personalization Continuum

MARKETING STRATEGIES	MARKETING ATTRIBUTES: Product	Target	Pricing	Techniques
Mass Marketing	Simple	All consumers	One nation, one price	Mass media
Direct Marketing	Stratified	Segments	One price	Targeted communications, e.g., mail and phone
Micromarketing	Complex	Micro-segments	Variable pricing	Segment profiles
Personalized, One-to-one Marketing	Highly complex	Individual	Unique pricing	Individual and social network profiles

Figure 6.13, Page 407

Net Pricing Strategies

- **Pricing**
  - Integral part of marketing strategy
  - Traditionally based on:
    - Fixed cost
    - Variable costs
    - Demand curve
- **Price discrimination**
  - Selling products to different people and groups based on willingness to pay

Net Pricing Strategies (cont.)

- **Free and freemium**
  - Can be used to build market awareness
- **Versioning**
  - Creating multiple versions of product and selling essentially same product to different market segments at different prices
- **Bundling**
  - Offers consumers two or more goods for one price
- **Dynamic pricing:**
  - Auctions
  - Yield management
  - Flash marketing

Long-Tail Marketing

- **Internet allows for sales of obscure products with little demand**
- **Substantial revenue because**
  - Near zero inventory costs
  - Little marketing costs
  - Search and recommendation engines

The Long Tail: Big Hits and Big Misses

- **What are "recommender systems"? Give an example you have used.**
- **What is the "Long Tail" and how do recommender systems support sales of items in the Long Tail?**
- **How can human editors, including consumers, make recommender systems more helpful?**

Channel Management Strategies

- **Channels:**
  - Different methods by which goods can be distributed and sold
- **Channel conflict:**
  - When new venue for selling products or services threatens or destroys existing sales venues
  - e.g., online airline/travel services and traditional offline travel agencies
- **Some manufacturers are using partnership model to avoid channel conflict**

The Revolution in Internet Marketing Technologies

- **Internet's main impacts on marketing:**
  - Scope of marketing communications broadened
  - Richness of marketing communications increased
  - Information intensity of marketplace expanded
  - Always-on mobile environment expands marketing opportunities
- **Internet marketing technologies:**
  - Web transaction logs
  - Tracking files
  - Databases, data warehouses, data mining
  - Hadoop and Big Data
  - Customer relationship management systems

Web Transaction Logs

- **Built into Web server software**
- **Record user activity at Web site**
- **Provides much marketing data, especially combined with:**
  - Registration forms
  - Shopping cart database
- **Answers questions such as:**
  - What are major patterns of interest and purchase?
  - After home page, where do users go first? Second?

Tracking Files

- **Users browsing tracked as they move from site to site**
- **Four types of tracking files**
  - Cookies
    - Small text file placed by Web site
    - Allows Web marketers to gather data
  - Flash cookies
  - Beacons (“bugs”)
  - Apps

Every Move You Make, Every Click You Make, We'll Be Tracking You

- **Are beacons innocuous? Or are they an invasion of personal privacy?**
- **Do you think your Web browsing should be known to marketers?**
- **What are the Privacy Foundation guidelines for Web beacons?**
- **Should online shopping be allowed to be a private activity?**

Databases

- **Database: Stores records and attributes**
- **Database management system (DBMS):**
  - Software used to create, maintain, and access databases
- **SQL (Structured Query Language):**
  - Industry-standard database query and manipulation language used in a relational database
- **Relational database:**
  - Represents data as two-dimensional tables with records organized in rows and attributes in columns; data within different tables can be flexibly related as long as the tables share a common data element

Data Warehouses and Data Mining

- **Data warehouse:**
  - Collects firm's transactional and customer data in single location for offline analysis by marketers and site managers
- **Data mining:**
  - Analytical techniques to find patterns in data, model behavior of customers, develop customer profiles
    - Query-driven data mining
    - Model-driven data mining
    - Rule-based data mining

Hadoop and the Challenge of Big Data

- **"Big data"**
  - Web traffic, e-mail, social media content
- **Traditional DBMS unable to process the volumes—petabytes and exabytes**
- **Hadoop**
  - Open-source software solution
  - Distributed processing among inexpensive servers

Customer Relationship Management (CRM) Systems

- **Create customer profiles:**
  - Product and usage summary data
  - Demographic and psychographic data
  - Profitability measures
  - Contact history
  - Marketing and sales information
- **Customer data used to:**
  - Develop and sell additional products
  - Identify profitable customers
  - Optimize service delivery, etc.

A CRM System

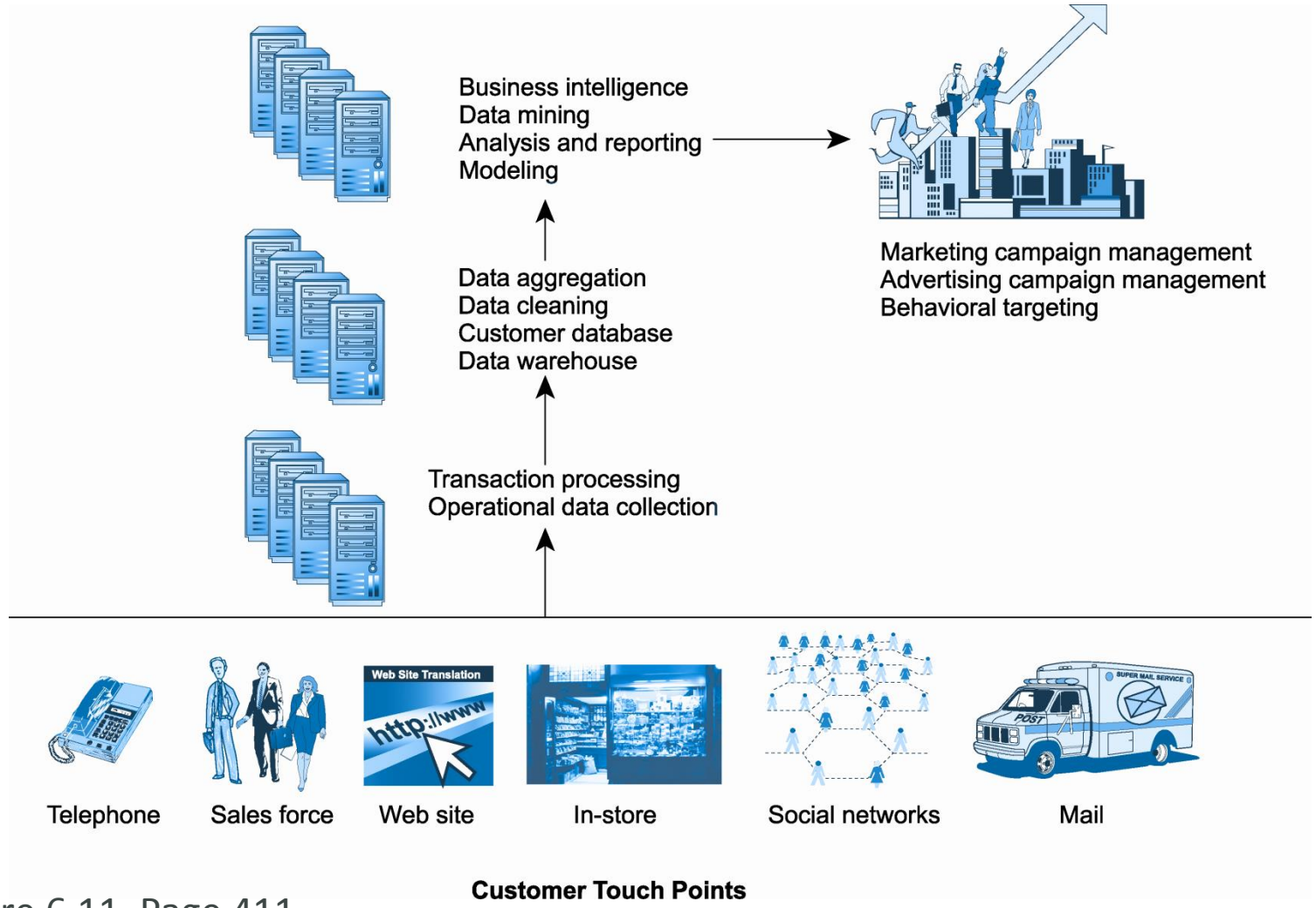


Figure 6.11, Page 411

Chapter 7

E-commerce Marketing Communications

Class Discussion

Video Ads: Shoot, Click, Buy

- What advantages do video ads have over traditional banner ads?
- Where do sites such as YouTube fit in to a marketing strategy featuring video ads?
- What are some of the challenges and risks of placing video ads on the Web?
- Do you think Internet users will ever develop "blindness" toward video ads as well?

Marketing Communications

- **Two main purposes:**
  - Sales—promotional sales communications
  - Branding—branding communications
- **Online marketing communications**
  - Takes many forms
  - Online ads, e-mail, public relations, Web sites

Online Advertising

- **$37.3 billion in 2012**
- **Advantages:**
  - Internet is where audience is moving
  - Ad targeting
  - Greater opportunities for interactivity
- **Disadvantages:**
  - Cost vs. benefit
  - How to adequately measure results
  - Supply of good venues to display ads

Online Advertising from 2004–2016

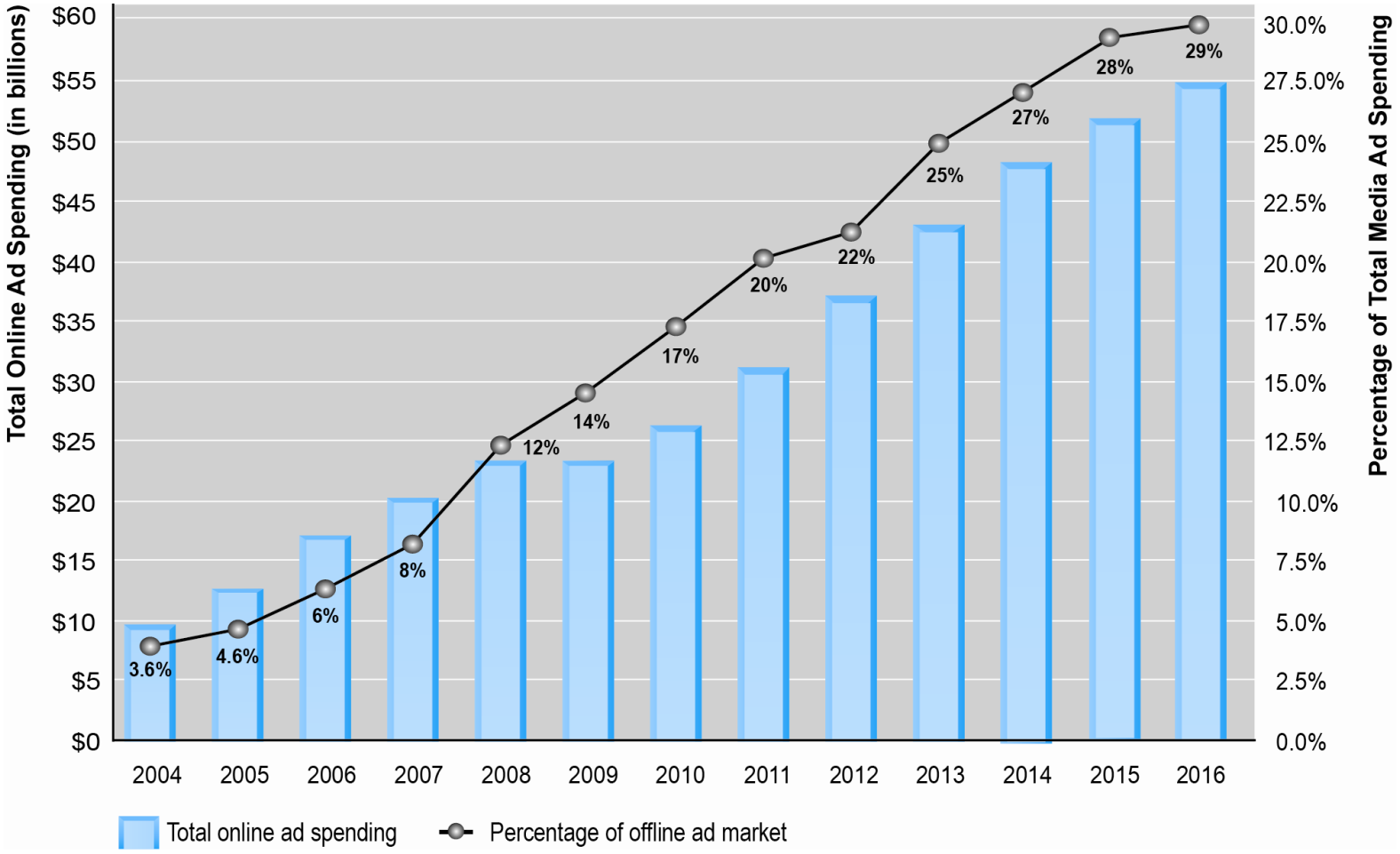


Figure 7.1, Page 428

SOURCES: Based on data from eMarketer, Inc., 2012a, 2012b

Forms of Online Advertisements

- Display ads
- Rich media
- Video ads
- Search engine advertising
- Mobile and local advertising
- Social network advertising: social networks, blogs, and games
- Sponsorships
- Referrals
- E-mail marketing
- Online catalogs

Display Ads

- **Banner ads**
  - May include animation
  - Link to advertiser's Web site
  - Can track user
  - IAB guidelines
- **Pop-up ads**
  - Appear without user calling for them
  - Provoke negative consumer sentiment
  - Twice as effective as normal banner ads

Rich Media Ads

- Use Flash, HTML5, Java, JavaScript
- About 5% of online advertising expenditures
- Tend to be more about branding
- Boost brand awareness by 10%
- Far more effective than banner ads
- Interstitials
  - Full-page ad between Web pages

Video Ads

- **Fastest growing form of online advertising**
- **IAB standards**
  - Linear video ad
  - Non-linear video ad
  - In-banner video ad
  - In-text video ad
- **Specialized video advertising networks**
- **Retail sites are largest users of video ads**
  - Zappos—created video for each of 100,000 product

Search Engine Advertising

- **46.5% of online ad spending in 2012**
- **Types:**
  - Keyword paid inclusion
  - Advertising keywords
  - Network keyword advertising or context advertising
- **Nearly ideal targeted marketing**

Search Engine Advertising (cont.)

- **Social search**
  - Reviews friends recommendations, searches, Likes, and Web site visits
- **Search engine issues:**
  - Paid inclusion and placement practices
  - Link farms
  - Content farms
  - Click fraud

Mobile and Local Advertising

- **122 million users access Internet from smartphones, tablets**
  - Messaging
    - Very effective for local advertising
  - Display ads
  - Search
  - Video
- **Local advertising**
  - Enabled by mobile platform
  - 50% of mobile advertising

Social Advertising

- **Social advertising**
  - Uses social graph to promote message
  - Many-to-many model
- **Social network advertising**
  - Social network sites are advertising platforms
    - Corporate Facebook pages
    - Twitter ads
      - Promoted tweets
      - Promoted trends
      - Promoted accounts

Social Advertising (cont.)

- **Blog advertising**
  - Top tactic
  - 72 million read blogs
  - Blog readers are ideal demographic
- **Game advertising**
  - In-game billboard display ads
  - Branded virtual goods
  - Sponsored banners
  - Branded games “advergames”

Sponsorships and Referrals

- **Sponsorships**
  - Paid effort to tie advertiser's name to particular information, event, and venue in a way that reinforces brand in positive yet not overtly commercial manner
- **Referrals**
  - Affiliate relationship marketing
  - Permits firm to put logo or banner ad on another firm's Web site from which users of that site can click through to affiliate's site

Marketing to Children of the Web in the Age of Social Networks

- **Why is online marketing to children a controversial practice?**
- **What is the Children's Online Privacy Protection Act (COPPA) and how does it protect the privacy of children?**
- **How do companies verify the age of online users?**
- **Should companies be allowed to target marketing efforts to children under the age of 13?**

E-mail Marketing and the Spam Explosion

- **Direct e-mail marketing**
  - Primary cost is purchasing addresses
- **Spam: Unsolicited commercial e-mail**
  - Approximately 72% of all e-mail
  - Efforts to control spam:
    - Technology (filtering software)
    - Government regulation (CAN-SPAM and state laws)
    - Voluntary self-regulation by industries (DMA)

Percentage of E-mail That Is Spam

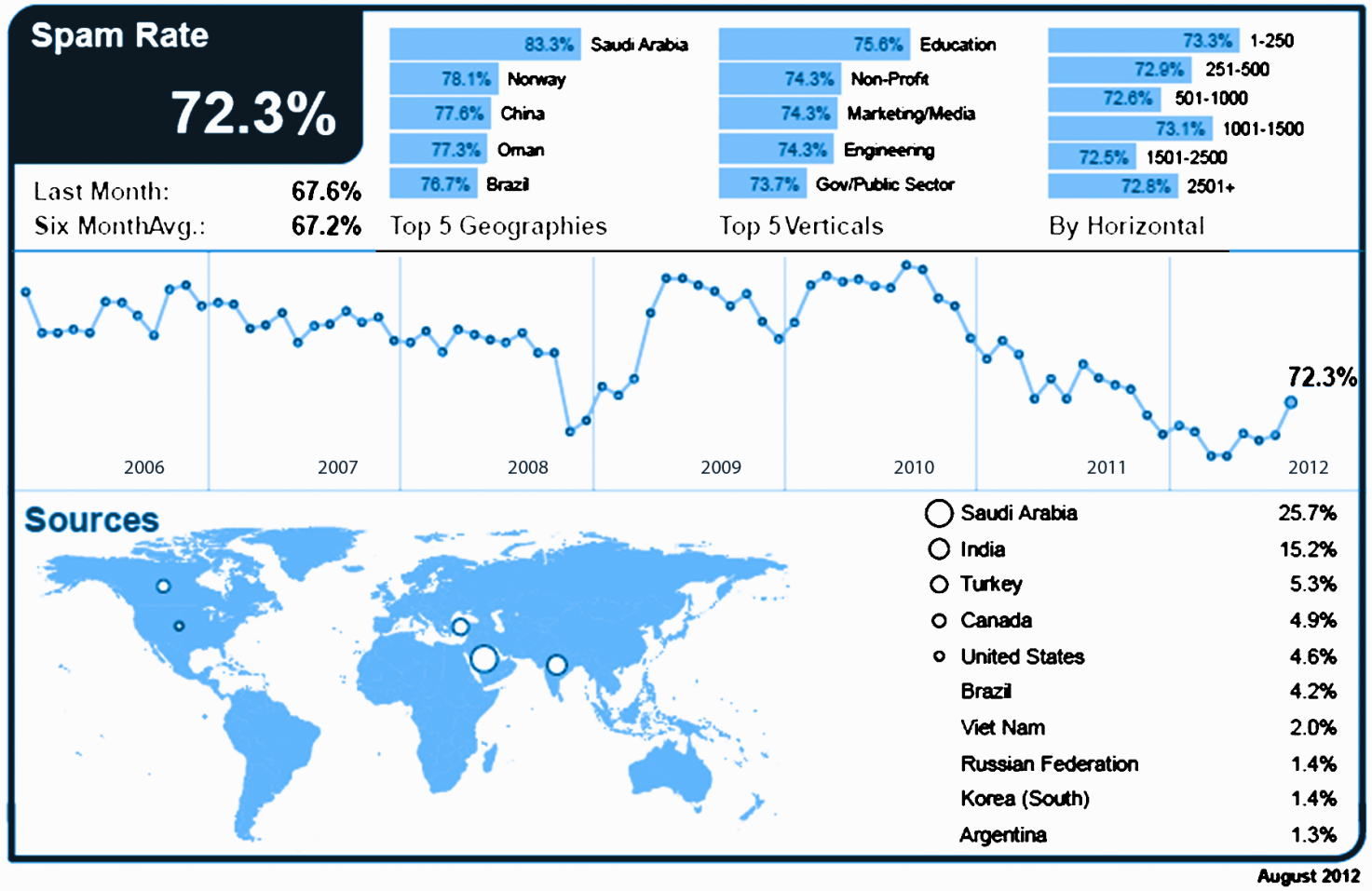


Figure 7.5, Page 450

SOURCE: Based on data from Symantec, 2012.

Behavioral Targeting

- **Using consumer offline and online behavior to modify advertising message**
- **Personal information sold to third party advertisers, who deliver ads based on profile**
  - Search engine queries, browsing history, social network data, offline data
- **Ad exchanges:**
  - Enable advertisers to retarget ads at users as they browse
- **75% of U.S. advertisers employ some form of behavioral targeting**

Mixing Offline and Online Marketing Communications

- **Most successful marketing campaigns incorporate both online and offline tactics**
- **Offline marketing**
  - Drives traffic to Web sites
  - Increases awareness and builds brand equity
- **Consumer behavior increasingly multi-channel**
  - 80% consumers research online before buying offline

Are the Very Rich Different from You and Me?

- **Why have online luxury retailers had a difficult time translating their brands and the look and feel of luxury shops into Web sites?**
- **Why did Neiman Marcus' first effort fail?**
- **Why did Tiffany's first effort fail?**
- **Visit the Armani Web site. What do you find there?**

Online Marketing Metrics: Lexicon

- **Audience size or market share**
  - Impressions
  - Click-through rate (CTR)
  - View-through rate (VTR)
  - Hits
  - Page views
  - Stickiness (duration)
  - Unique visitors
  - Loyalty
  - Reach
  - Recency
- **Conversion to customer**
  - Acquisition rate
  - Conversion rate
  - Browse-to-buy-ratio
  - View-to-cart ratio
  - Cart conversion rate
  - Checkout conversion rate
  - Abandonment rate
  - Retention rate
  - Attrition rate

Online Marketing Metrics (cont.)

- **Social marketing**
  - Gross rating points
  - Applause ratio
  - Conversation ratio
  - Amplification
  - Sentiment ratio
  - Duration of engagement
- **E-mail metrics**
  - Open rate
  - Delivery rate
  - Click-through rate (e-mail)
  - Bounce-back rate
  - Unsubscribe rate
  - Conversion rate (e-mail)

An Online Consumer Purchasing Model

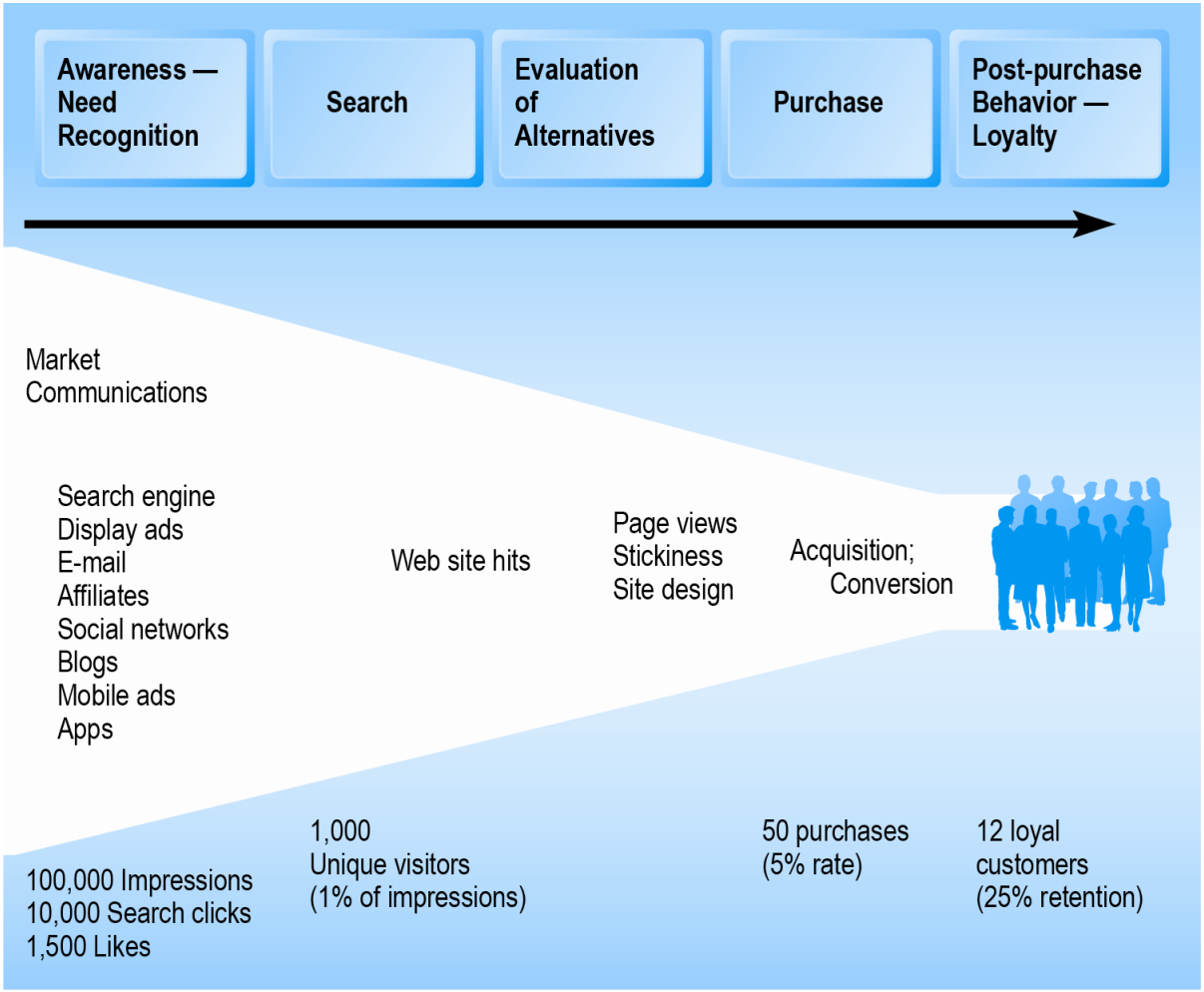


Figure 7.6, Page 463

How Well Does Online Advertising Work?

- Use ROI to measure ad campaign
- Highest click-through rates: Search engine ads, permission e-mail campaigns
- Rich media, video interaction rates high
- Online channels compare favorably with traditional
- Most powerful marketing campaigns use multiple channels, including online, catalog, TV, radio, newspapers, stores

Comparative Returns on Investment

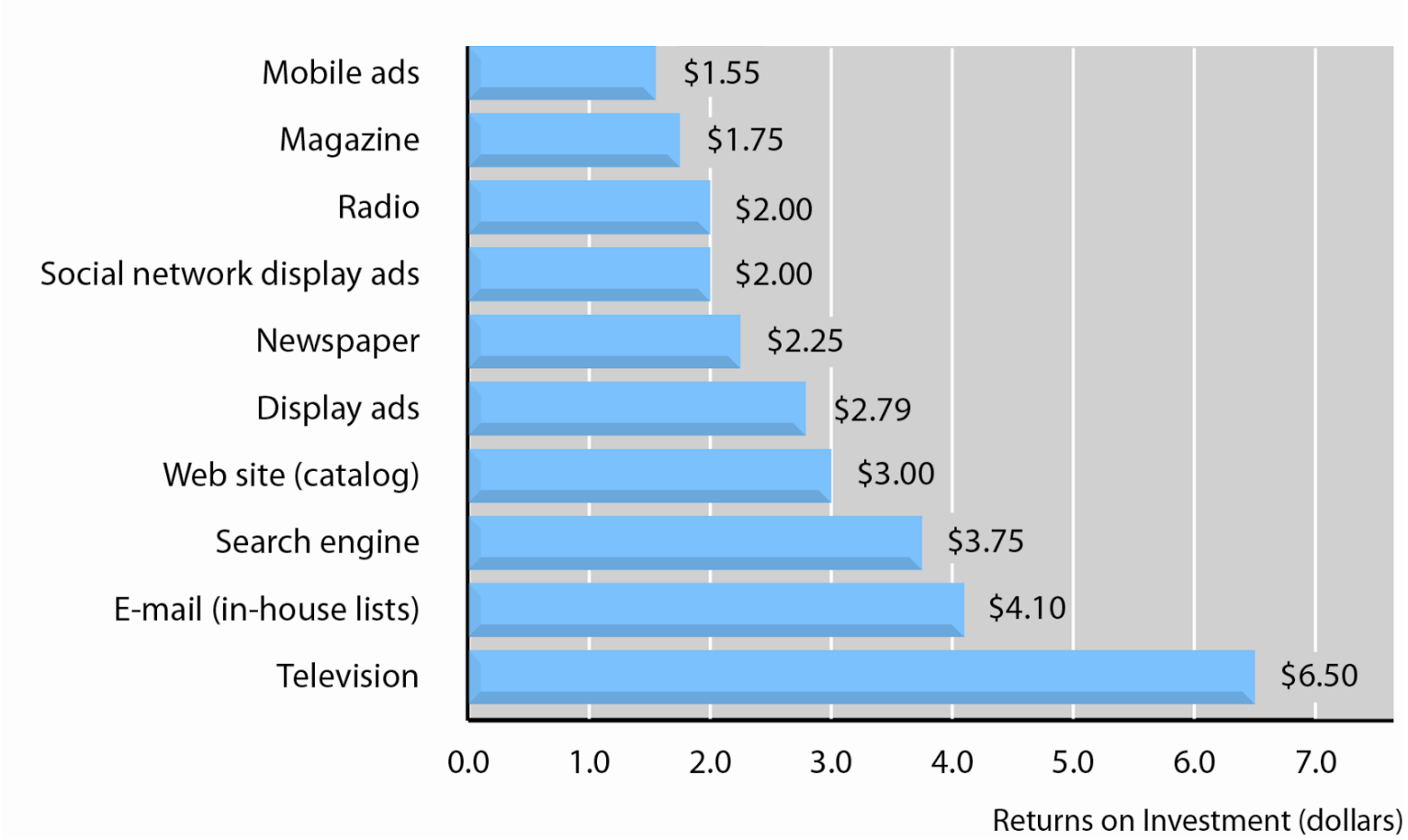


Figure 7.7, Page 465

SOURCES: Industry sources; authors' estimates

The Costs of Online Advertising

- **Pricing models**
  - Barter
  - Cost per thousand (CPM)
  - Cost per click (CPC)
  - Cost per action (CPA)
- **Online revenues only**
  - Sales can be directly correlated
- **Both online/offline revenues**
  - Offline purchases cannot always be directly related to online campaign
- **In general, online marketing more expensive on CPM basis, but more effective**

Web Site Activity Analysis

Shopping Cart Executive Summary	
Total visits	24,134
Engagement rate	16.7%
Total shoppers	4,031
Abandonment rate	97.4%
Conversion rate	0.4%
Total buyers	103

Shopping Cart Executive Summary – Help Card

Abandonment rate — The percentage of **shoppers** who did not become **buyers**. This includes both **cart abandoners** and **checkout abandoners**.

Conversion rate — Percentage of visitors who became **buyers**.

Engagement rate — Percentage of visitors who become **shoppers**.

Total buyers — Number of buyers who visited your site. Buyers are visitors who reached a page that you configured as an **order complete page**.

Total shoppers — Number of shoppers who visited your site. A shopper is a visitor who reached a page that you configured as a **shopping page**.

Total visits — Number of times a visitor came to your site.

Figure 7.8, Page 469

It's 10 P.M. Do You Know Who Is on Your Web Site?

- What are some of the services offered by Adobe's SiteCatalyst?
- Why would you as a webmaster be interested in these services?
- Why is site analysis and customer tracking so important to online marketing?
- How did NBC Universal use SiteCatalyst to its benefit?

The Web Site As a Marketing Communications Tool

- **Effective use requires**
  - Appropriate domain name
  - Proper Web site design
  - Search engine optimization
    - Search engines registration
    - Keywords in Web site description
    - Metatags and page title keywords
    - Links to other sites

Web Site Functionality

- **Main factors in effectiveness of interface**
  - Utility
  - Ease of use
- **Top factors in credibility of Web sites**
  - Design look
  - Information design/structure
  - Information focus
- **For first-time users, organization is key**
- **For return users: Information is major factor**

Factors in the Credibility of Web Sites

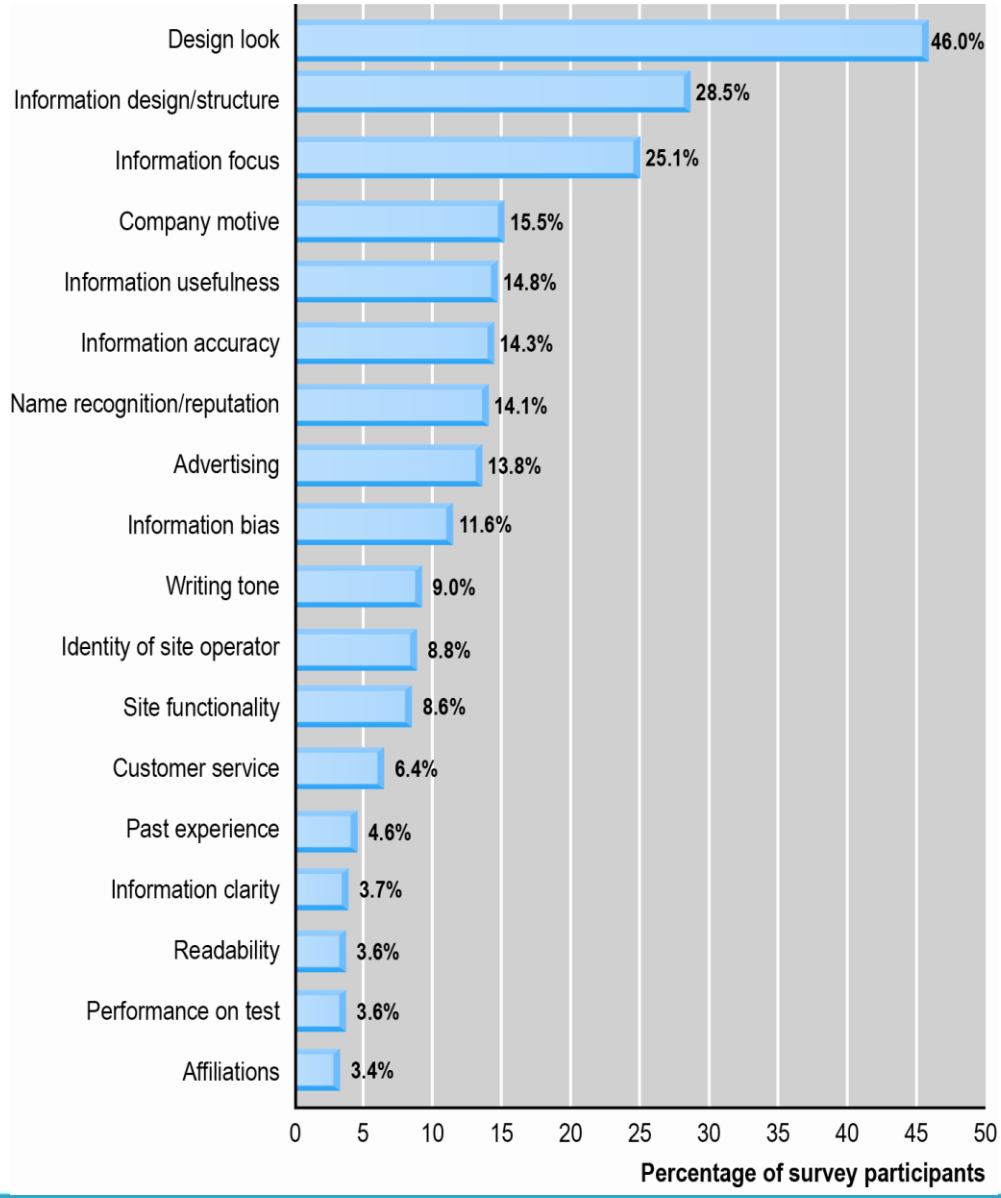


Figure 7.10, Page 475

SOURCE: Based on data from Fogg, et al., 2003.

TABLE 7.9 WEB SITE DESIGN FEATURES THAT IMPACT ONLINE PURCHASING

DESIGN FEATURE	DESCRIPTION
Compelling experience	Provide interactivity, entertainment, human interest; site is fun to use.
Editorial content	Provide helpful content, opinions, and features on subjects of interest to visitors in order to increase stickiness.
Fast download times	Quicker is better; if longer, provide amusement.
Easy product list navigation	Consumers can easily find the products they want.
Few clicks to purchase	The shorter the click list, the greater the chance of a sale.
Customer choice agents	Recommendation agents/configurators help the consumer make quick, correct choices.
Responsiveness	Personal e-mail response; 1-800 phone capability shown on Web site.

Table 7.9, Page 476

Chapter 8

Ethical, Social, and Political Issues in E-commerce

Class Discussion

Internet Free Speech: Who Decides?

- **Is the Internet a form of "public speech"?**
- **How can the different national perspectives on free speech be managed in a global environment like the Internet?**
- **Given that the Internet is supported by governments and private companies, should these institutional and corporate needs supersede the free speech rights of individuals on the Internet?**

Understanding Ethical, Social, and Political Issues in E-commerce

- **Internet, like other technologies, can:**
  - Enable new crimes
  - Affect environment
  - Threaten social values
- **Costs and benefits must be carefully considered, especially when there are no clear-cut legal or cultural guidelines**

A Model for Organizing the Issues

- **Issues raised by Internet and e-commerce can be viewed at individual, social, and political levels**
- **Four major categories of issues:**
  - Information rights
  - Property rights
  - Governance
  - Public safety and welfare

The Moral Dimensions of an Internet Society

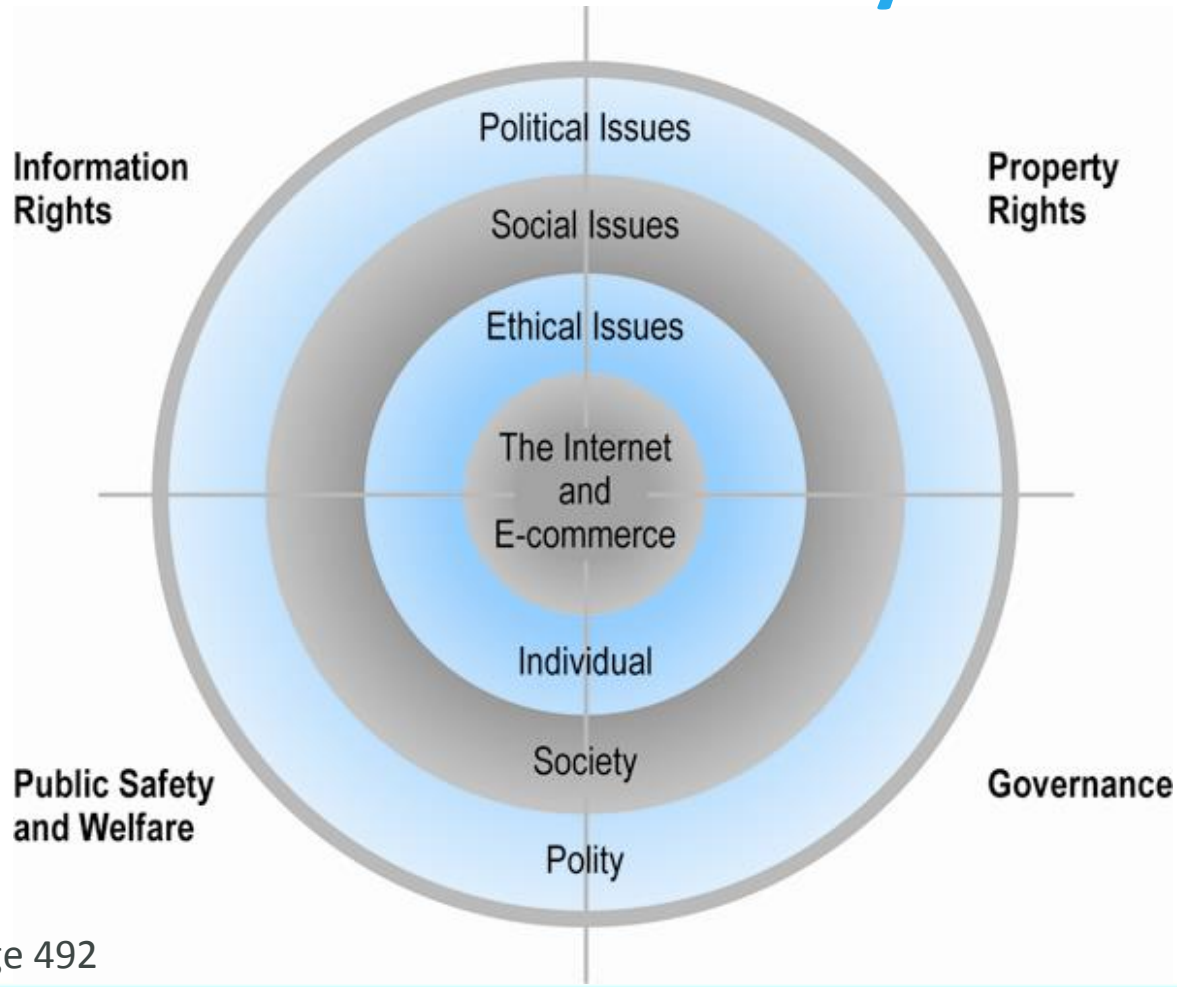


Figure 8.1, Page 492

Basic Ethical Concepts

- **Ethics**
  - Study of principles used to determine right and wrong courses of action
- **Responsibility**
- **Accountability**
- **Liability**
  - Laws permitting individuals to recover damages
- **Due process**
  - Laws are known, understood
  - Ability to appeal to higher authorities to ensure laws applied correctly

Analyzing Ethical Dilemmas

- **Process for analyzing ethical dilemmas:**
  1. Identify and clearly describe the facts
  2. Define the conflict or dilemma and identify the higher-order values involved
  3. Identify the stakeholders
  4. Identify the options that you can reasonably take
  5. Identify the potential consequences of your options

Candidate Ethical Principles

- Golden Rule
- Universalism
- Slippery Slope
- Collective Utilitarian Principle
- Risk Aversion
- No Free Lunch
- The *New York Times* Test
- The Social Contract Rule

Privacy and Information Rights

- **Privacy**
  - Moral right of individuals to be left alone, free from surveillance, or interference from other individuals or organizations
- **Information privacy**
  - Subset of privacy
  - Claims:
    - Certain information should not be collected at all
    - Individuals should control the use of whatever information is collected about them

Privacy and Information Rights (cont.)

- **Major ethical issue related to e-commerce and privacy:**
  - Under what conditions should we invade the privacy of others?
- **Major social issue:**
  - Development of "expectations of privacy" and privacy norms
- **Major political issue:**
  - Development of statutes that govern relations between recordkeepers and individuals

Information Collected at E-commerce Sites

- **Data collected includes**
  - Personally identifiable information (PII)
  - Anonymous information
- **Types of data collected**
  - Name, address, phone, e-mail, social security
  - Bank and credit accounts, gender, age, occupation, education
  - Preference data, transaction data, clickstream data, browser type

Social Networks and Privacy

- **Social networks**
  - Encourage sharing personal details
  - Pose unique challenge to maintaining privacy
- **Facebook's facial recognition technology and tagging**
- **Personal control over personal information vs. organization's desire to monetize social network**

Mobile and Location-based Privacy Issues

- **Smartphone apps**
  - Funnel personal information to mobile advertisers for targeting ads
  - Track and store user locations
- **42% of users say privacy a concern**
- **Mobile Device Privacy Act**
  - Not yet passed
  - Requires informing consumers about data collection

Profiling and Behavioral Targeting

- **Profiling**
  - Creation of digital images that characterize online individual and group behavior
  - Anonymous profiles
  - Personal profiles
- **Advertising networks**
  - Track consumer and browsing behavior on Web
  - Dynamically adjust what user sees on screen
  - Build and refresh profiles of consumers
- **Google's AdWords program**

Profiling and Behavioral Targeting (cont.)

- **Deep packet inspection**
- **Business perspective:**
  - Increases effectiveness of advertising, subsidizing free content
  - Enables sensing of demand for new products and services
- **Critics' perspective:**
  - Undermines expectation of anonymity and privacy
  - Consumers show significant opposition to unregulated collection of personal information

The Internet and Government Invasions of Privacy

- **Various laws strengthen ability of law enforcement agencies to monitor Internet users without knowledge and sometimes without judicial oversight**
  - CALEA, USA PATRIOT Act, Cyber Security Enhancement Act, Homeland Security Act
- **Government agencies are largest users of private sector commercial data brokers**
- **Retention by ISPs and search engines of user data**

Legal Protections

- **In United States, privacy rights explicitly granted or derived from:**
  - Constitution
    - First Amendment—freedom of speech and association
    - Fourth Amendment—unreasonable search and seizure
    - Fourteenth Amendment—due process
  - Specific statutes and regulations (federal and state)
  - Common law

Informed Consent

- **U.S. firms can gather and redistribute transaction information without individual's informed consent**
  - Illegal in Europe
- **Informed consent:**
  - Opt-in
  - Opt-out
  - Many U.S. e-commerce firms merely publish information practices as part of privacy policy or use opt-in as default

The FTC's Fair Information Practices

- **Guidelines (not laws)**
  - Used to base assessments and make recommendations
  - Sometimes used as basis for law (COPPA)
- **Fair Information Practice principles**
  - Notice
  - Choice
  - Access
  - Security
  - Enforcement
  - Restricted collection

The FTC's Fair Information Practices

- **New privacy framework (2010)**
  - Scope
  - Privacy by design
  - Simplified choice
  - Greater transparency
- **2012 Report: Industry best practices**
  - Do not track
  - Mobile privacy
  - Data brokers
  - Large platform providers
  - Development of self-regulatory codes

The European Data Protection Directive

- **Privacy protection much stronger in Europe than United States**
- **European approach:**
  - Comprehensive and regulatory in nature
- **European Commission's Directive on Data Protection (1998):**
  - Standardizes and broadens privacy protection in European Union countries
- **Department of Commerce safe harbor program:**
  - For U.S. firms that wish to comply with directive

Private Industry Self-Regulation

- **Safe harbor programs:**
  - Private policy mechanism to meet objectives of government regulations without government involvement
  - Privacy seal programs
  - TRUSTe
- **Industry associations include:**
  - Online Privacy Alliance (OPA)
  - Network Advertising Initiative (NAI)
    - CLEAR Ad Notice Technical Specifications
- **Privacy advocacy groups**
- **Emerging privacy protection business**

Technological Solutions

- Spyware blockers
- Pop-up blockers
- Secure e-mail
- Anonymous remailers, surfing
- Cookie managers
- Disk/file erasing programs
- Policy generators
- Privacy Policy Reader—P3P
- Public key encryption

Intellectual Property Rights

- **Intellectual property:**
  - All tangible and intangible products of human mind
- **Major ethical issue:**
  - How should we treat property that belongs to others?
- **Major social issue:**
  - Is there continued value in protecting intellectual property in the Internet age?
- **Major political issue:**
  - How can Internet and e-commerce be regulated or governed to protect intellectual property?

Intellectual Property Protection

- **Three main types of protection:**
  - Copyright
  - Patent
  - Trademark law
- **Goal of intellectual property law:**
  - Balance two competing interests—public and private
- **Maintaining this balance of interests is always challenged by the invention of new technologies**

Copyright

- **Protects original forms of expression (but not ideas) from being copied by others for a period of time**
- **"Look and feel" copyright infringement lawsuits**
- **Fair use doctrine**
- **Digital Millennium Copyright Act, 1998**
  - First major effort to adjust copyright laws to Internet age
  - Implements WIPO treaty that makes it illegal to make, distribute, or use devices that circumvent technology-based protections of copyrighted materials

Patents

- **Grant owner 20-year monopoly on ideas behind an invention**
  - Machines
  - Man-made products
  - Compositions of matter
  - Processing methods
- **Invention must be new, non-obvious, novel**
- **Encourages inventors**
- **Promotes dissemination of new techniques through licensing**
- **Stifles competition by raising barriers to entry**

E-commerce Patents

- **1998 State Street Bank & Trust vs. Signature Financial Group**
  - Business method patents
- **Most European patent laws do not recognize business methods unless based on technology**
- **Patent reform**
  - Patent trolls
  - 2011 America Invents Acts

Theft and Innovation: The Patent Trial of the Century

- **Do you agree with the jury finding that Samsung violated Apple's patents in the Samsung Galaxy design?**
- **Should "trade dress" patents cover basic shape elements, such as round-cornered squares used for icons?**
- **The Apple "look and feel" has inspired the "looks and feel" of many other Web sites and devices. How is this different from the Samsung case?**

Trademarks

- **Identify, distinguish goods, and indicate their source**
- **Purpose**
  - Ensure consumer gets what is paid for/expected to receive
  - Protect owner against piracy and misappropriation
- **Infringement**
  - Market confusion
  - Bad faith
- **Dilution**
  - Behavior that weakens connection between trademark and product

Trademarks and the Internet

- **Cybersquatting**
  - Anticybersquatting Consumer Protection Act (ACPA)
- **Cyberpiracy**
  - Typosquatting
- **Metatagging**
- **Keywording**
- **Linking and deep linking**
- **Framing**

Governance

- **Primary questions**
  - Who will control Internet and e-commerce?
  - What elements will be controlled and how?
- **Stages of governance and e-commerce**
  - Government Control Period (1970–1994)
  - Privatization (1995–1998)
  - Self-Regulation (1995–present)
  - Government Regulation (1998–present)

Who Governs E-commerce and the Internet?

- **Mixed mode environment**
  - Self-regulation, through variety of Internet policy and technical bodies, co-exists with limited government regulation
- **ICANN :** Domain Name System
- **Internet can be easily controlled, monitored, and regulated from a central location**

Taxation

- Non-local nature of Internet commerce complicates governance and jurisdiction issues
- Sales taxes
- MOTO retailing tax subsidies
- Internet Tax Freedom Act
- Unlikely that comprehensive, integrated rational approach to taxation issue will be determined for some time to come

Internet Sales Tax Battle

- **Given the nature of the Internet, should sales tax be based on the location of the consumer rather than the seller?**
- **Why is there a struggle to define the nature of "small business"? How big do you think a "small business" is?**
- **Are bricks-and-clicks retailers disadvantaged by local sales tax laws?**

Net Neutrality

- **Neutrality: All Internet activities charged the same rate, regardless of bandwidth used**
- **Differentiated pricing strategies**
  - Cap pricing (tiered plans)
    - Speed tiers
  - Usage metering
    - Congestion pricing
  - Highway ("toll") pricing
- **Comcast slows users for certain traffic**
- **FCC's 2010 "compromise" net neutrality rules**

Public Safety and Welfare

- **Protection of children and strong sentiments against pornography**
  - Passing legislation that will survive court challenges has proved difficult
- **Efforts to control gambling and restrict sales of drugs and cigarettes**
  - Currently, mostly regulated by state law
  - Unlawful Internet Gambling Enforcement Act

The Internet Drug Bazaar

- **What's wrong with buying prescription drugs online, especially if the prices are lower?**
- **What are the risks and benefits of online pharmacies?**
- **Should online pharmacies require a physician's prescription?**
- **How do online pharmacies challenge the traditional business model of pharmacies and drug firms?**
- **What are the challenges in regulating online pharmacies?**
- **Who benefits and who loses from online pharmacies?**

Chapter 9

Online Retail and Services

Class Discussion

Blue Nile Sparkles for Your Cleopatra

- **Why is selling (or buying) diamonds over the Internet difficult?**
- **How has Blue Nile built its supply chain to keep costs low?**
- **How has Blue Nile reduced consumer anxiety over online diamond purchases?**
- **What are some vulnerabilities facing Blue Nile?**
- **Would you buy a $5,000 engagement ring at Blue Nile?**

Major Trends in Online Retail, 2012–2013

- Mobile commerce nearly doubles
- Rapid growth in social commerce
- Online retail still the fastest growing retail channel
- Buying online a normal, mainstream experience
- Selection of goods increases, includes luxury goods
- Informational shopping for big-ticket items expands
- Specialty retail sites show rapid growth
- Integration of multiple retailing channels

The Retail Sector

- **Most important theme in online retailing is effort to integrate online and offline operations**
- **U.S. retail market accounts for $11.1 trillion (71%) of total GDP**
- **Personal consumption:**
  - Services: 66%
  - Nondurable goods: 23%
  - Durable goods: 11%
- **“Goods” vs. “services” ambiguity**

The Retail Industry

- **7 segments (clothing, durable goods, etc.)**
  - For each, uses of Internet may differ
    - Information vs. direct purchasing
- **General merchandisers vs. specialty retailers**
- **Mail order/telephone order (MOTO) sector most similar to online retail sector**
  - Sophisticated order entry, delivery, inventory control systems

Composition of the U.S. Retail Industry

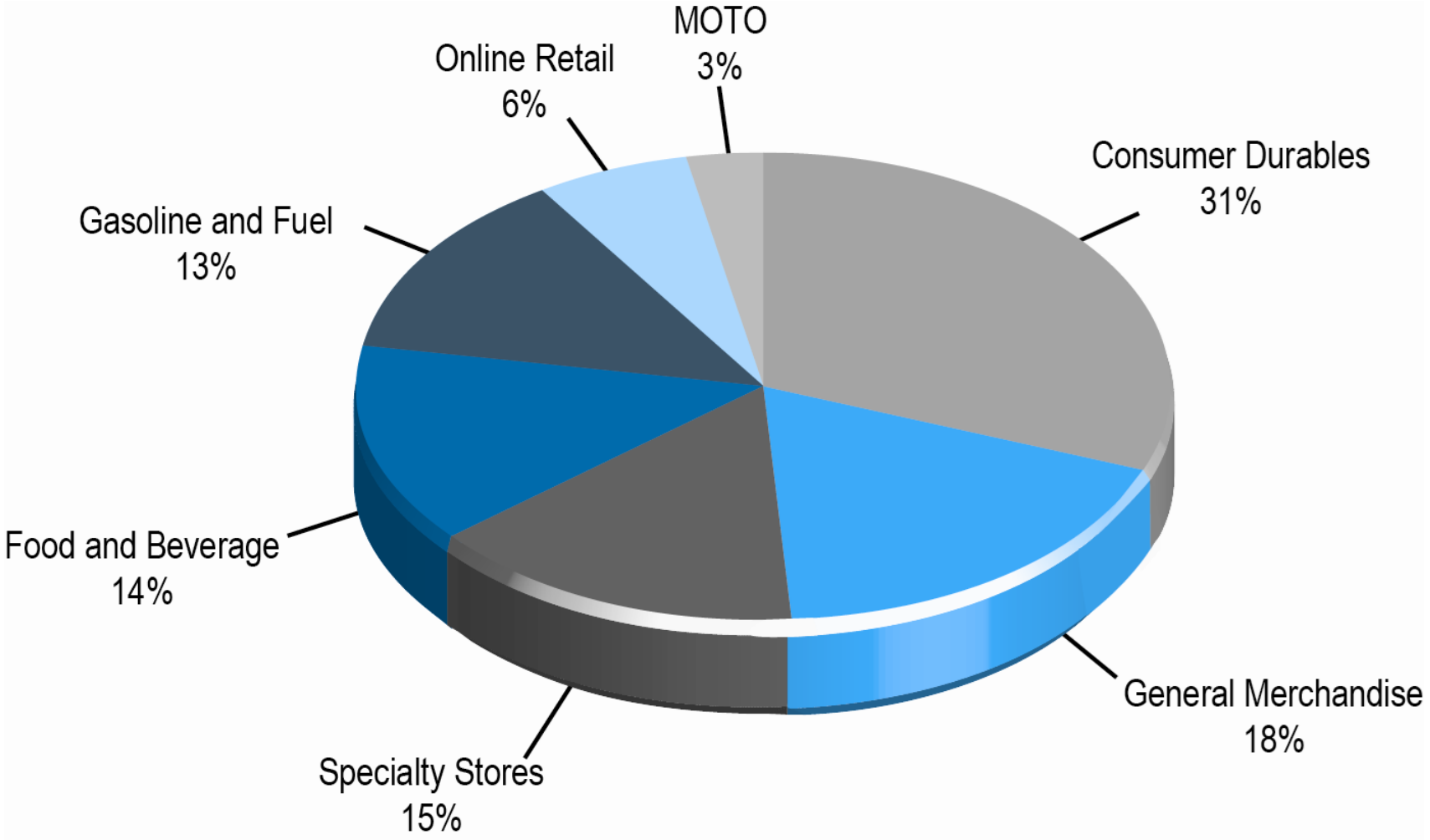


Figure 9.1, Page 575

SOURCE: Based on data from U.S. Census Bureau, 2012.

E-commerce Retail: The Vision

1. Reduced search and transaction costs; customers able to find lowest prices
2. Lowered market entry costs, lower operating costs, higher efficiency
3. Traditional physical store merchants forced out of business
4. Some industries would be disintermediated

- **Few of these assumptions were correct—structure of retail marketplace has not been revolutionized**
- **Internet has created new venues for multi-channel firms and supported a few pure-play merchants**

The Online Retail Sector Today

- **Smallest segment of retail industry (5–6%)**
- **Growing at faster rate than offline segments**
- **Revenues have resumed growth**
- **Around 72% of Internet users bought online in 2012**
- **Primary beneficiaries:**
  - Established offline retailers with online presence (e.g., Staples)
  - First mover dot-com companies (e.g., Amazon)

Online Retail and B2C E-commerce Is Alive and Well

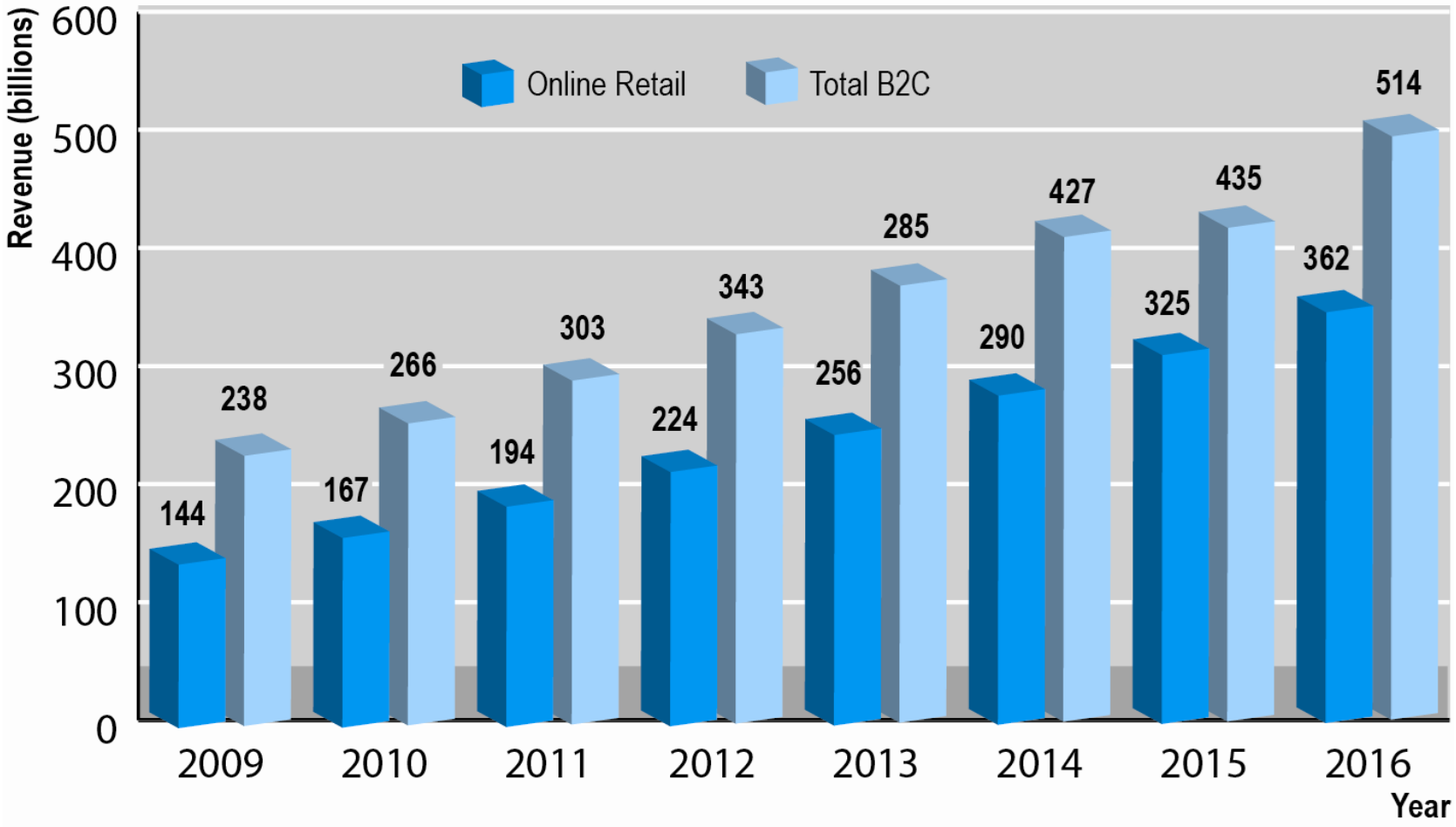


Figure 9.2, p. 578

SOURCES: Based on data from eMarketer, Inc., 2012a; authors' estimates.

Multi-channel Integration

- **Integrating Web operations with traditional physical store operations**
  - Provide integrated shopping experience
  - Leverage value of physical store
- **Types of integration**
  - Online order, in-store pickup
  - Web promotions to drive customers to stores
  - Gift cards usable in any channel
- **Increasing importance of mobile devices, social commerce, and tablets**

Analyzing the Viability of Online Firms

- **Economic viability:**
  - Ability of firms to survive as profitable business firms during specified period (i.e., 1–3 years)
- **Two business analysis approaches:**
  - Strategic analysis
    - Focuses on both industry as a whole and firm itself
  - Financial analysis
    - How firm is performing

Strategic Analysis Factors

- **Key industry strategic factors**
  - Barriers to entry
  - Power of suppliers
  - Power of customers
  - Existence of substitute products
  - Industry value chain
  - Nature of intra-industry competition
- **Firm-specific factors**
  - Firm value chain
  - Core competencies
  - Synergies
  - Technology
  - Social and legal challenges

Financial Analysis Factors

- **Statements of Operations**
  - Revenues
  - Cost of sales
  - Gross margin
  - Operating expenses
  - Operating margin
  - Net margin
    - Pro forma earnings—EBITDA
- **Balance sheet**
  - Assets, current assets
  - Liabilities, current liabilities, long-term debt
  - Working capital

E-tailing Business Models

- **Virtual merchant**
  - Amazon
- **Bricks and clicks**
  - Walmart, J.C. Penney, Sears
- **Catalog merchant**
  - Lands' End, L.L. Bean, Victoria's Secret
- **Manufacturer-direct**
  - Dell

E-commerce in Action: Amazon.com

- **Vision:**
  - Earth's biggest selection, most customer-centric
- **Business model:**
  - Retail, Third-Party Merchants, and Amazon Web Services (merchant and developer services)
- **Financial analysis:**
  - Continued explosive revenue growth, profitable
- **Strategic analysis/business strategy:**
  - Maximize sales volume, lower costs and cut prices, acquisitions, mobile shopping, Kindle
- **Strategic analysis/competition:**
  - Online and offline general merchandisers, Web services

E-commerce in Action: Amazon.com

- **Strategic analysis/technology:**
  - Largest, most sophisticated collection of online retailing technologies available
- **Strategic analysis/social, legal:**
  - Sales tax, patent lawsuits
- **Future prospects:**
  - In 2011, net sales grew 40%, and significant gains thus far in 2013
  - Ranks among top five in customer service, speed, accuracy

Common Themes in Online Retailing

- Online retail fastest growing channel on revenue basis
- Profits for startup ventures have been difficult to achieve
- Disintermediation has not occurred
- Established merchants need to create integrated shopping experience to succeed online
- Growth of online specialty merchants, e.g. Blue Nile
- Extraordinary growth of social, local, and mobile e-commerce

Using the Web to Shop 'Till You Drop

- What do comparison sites offer consumers?
- Why are comparison shopping sites more successful with hard goods than soft goods?
- What is the strategy of Shopping.com?
- How can shopping bots compare luxury goods?
- How does adding content to comparison sites help consumers?

The Service Sector: Offline and Online

- **Service sector:**
  - Largest and most rapidly expanding part of economies of advanced industrial nations
  - Concerned with performing tasks in and around households, business firms, and institutions
    - Includes doctors, lawyers, accountants, business consultants, etc.
  - Employs 4 out of 5 U.S. workers
  - 75% of economic activity

Service Industries

- **Major service industry groups:**
  - Finance
  - Insurance
  - Real estate
  - Travel
  - Professional services—legal, accounting
  - Business services—consulting, advertising, marketing, etc.
  - Health services
  - Educational services

Service Industries

- **Two categories**
  - Transaction brokers
  - Hands-on service providers
- **Features:**
  - Knowledge- and information-intense
    - Makes them uniquely suited to e-commerce applications
  - Personalization and customization
    - Level differs depending on type of service, e.g., medical vs. financial

Online Financial Services

- Example of e-commerce success story, but success is somewhat different from what had been predicted
- Brokerage industry transformed
- 62% of customers prefer online banking
- Effects less powerful in insurance, real estate
- Multi-channel, established financial services firms continue to show growth

Financial Service Industry Trends

- **Two important global trends**
  - Industry consolidation
    - Financial Reform Act of 1998 amended Glass-Steagall Act and allows banks, brokerages, and insurance firms to merge
  - Movement toward integrated financial services
    - Financial supermarket model

Industry Consolidation and Integrated Financial Services

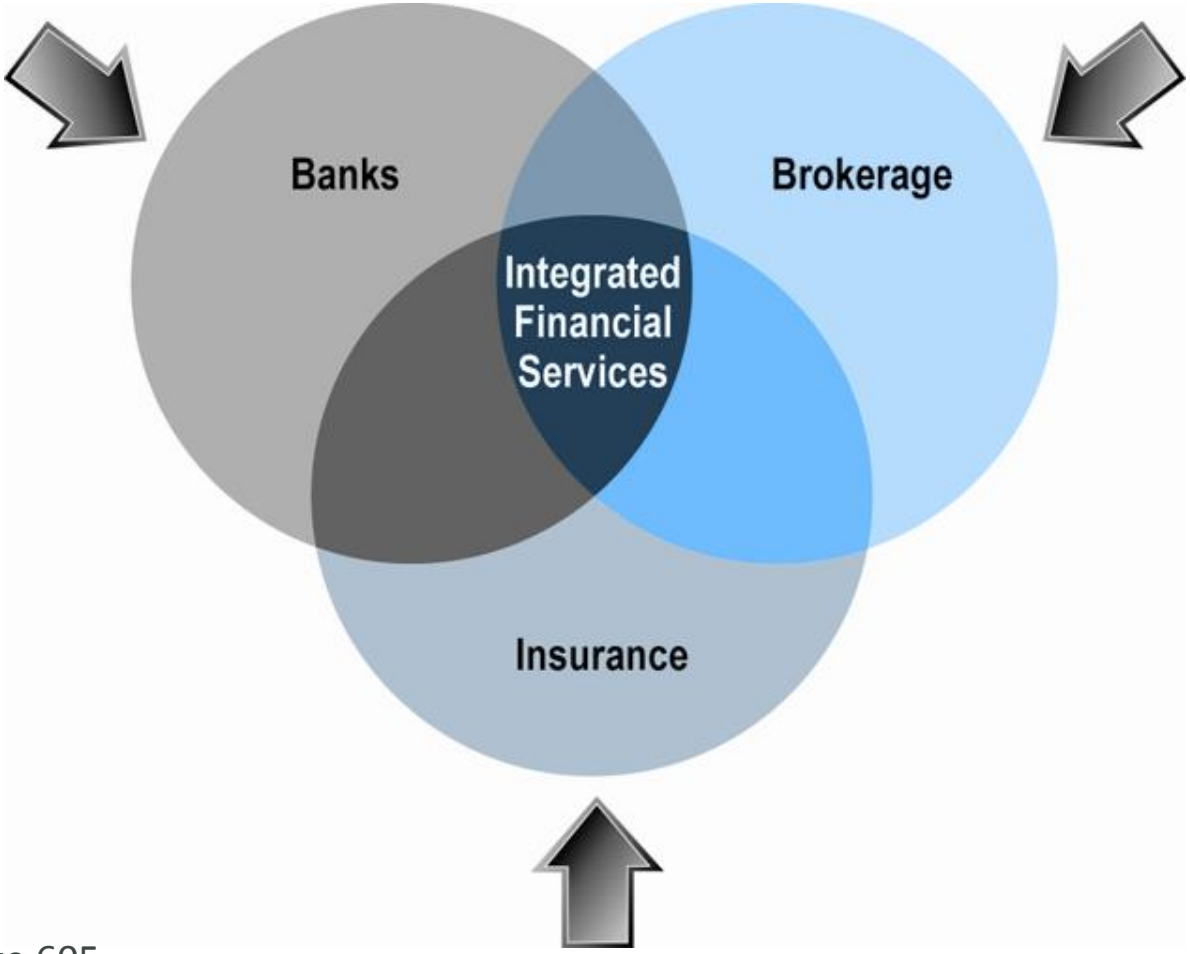


Figure 9.3, Page 605

Online Financial Consumer Behavior

- **Consumers attracted to online financial sites because of desire to save time and access information rather than save money**
- **Most online consumers use financial services firms for mundane financial management**
  - Check balances
  - Pay bills
- **Number of people using mobile devices for financial services is surging**

Online Banking and Brokerage

- Online banking pioneered by NetBank and Wingspan; no longer in existence
- Established brand-name national banks have taken substantial lead in market share
- 107 million people use online banking; expected to rise to 116 million by 2014
- Early innovators in online brokerage (E*Trade) have been displaced by established brokerages (Fidelity, Schwab)

The Growth of Online Banking

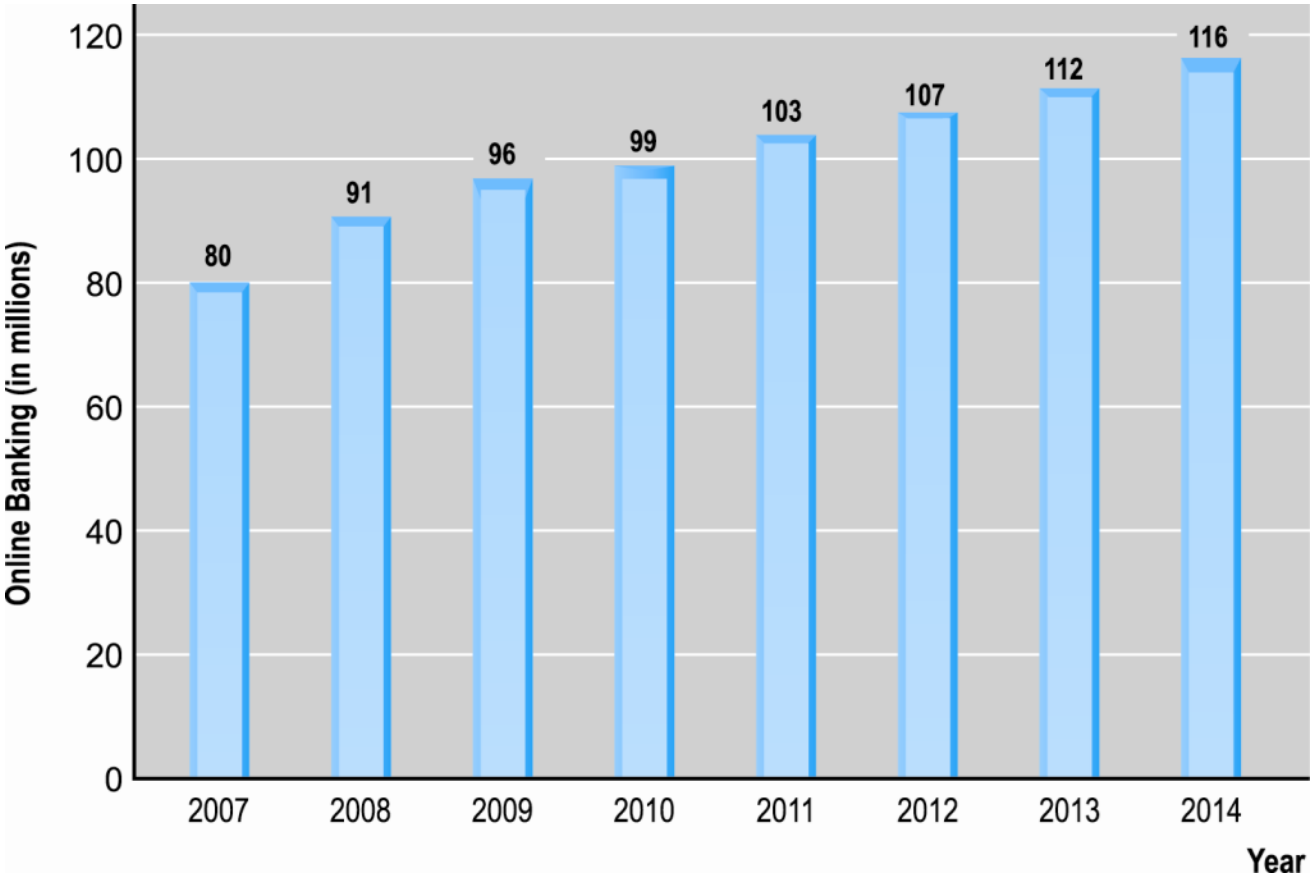


Figure 9.4, Page 608

SOURCE: Based on data from comScore, 2010a, eMarketer, Inc., 2010; authors estimates.

Multi-channel vs. Pure Online Financial Service Firms

- **Online consumers prefer multi-channel firms with physical presence**
- **Multi-channel firms**
  - Growing faster than pure online firms
  - Lower online customer acquisition costs
- **Pure online firms**
  - Cannot provide all services that require face-to-face interaction

Financial Portals and Account Aggregators

- **Financial portals**
  - Comparison shopping services, independent financial advice, financial planning
  - Revenues from advertising, referrals, subscriptions
  - e.g., Yahoo! Finance, Quicken.com, MSN Money
- **Account aggregation**
  - Pulls together all of a customer's financial data at a personalized Web site
  - e.g., Yodlee: provides account aggregation technology
  - Privacy concerns; control of personal data, security, etc.

Online Mortgage and Lending Services

- **Early entrants hoped to simplify and speed up mortgage value chain**
- **Three kinds of online mortgage vendor today**
  - Established online banks, brokerages, and lending organizations
  - Traditional mortgage vendors
  - Pure online mortgage firms
- **Online mortgage industry has not transformed process of obtaining mortgage**
  - Complexity of process

Online Insurance Services

- **Online term life insurance:**
  - One of few online insurance with lowered search costs, increased price comparison, lower prices
  - Commodity
- **Most insurance not purchased online**
- **Online industry geared more toward**
  - Product information, search
  - Price discovery
  - Online quotes
  - Influencing the offline purchasing decision

Online Real Estate Services

- **Early vision: Disintermediation of a complex industry**
- **However, major impact is influencing of purchases offline**
  - Impossible to complete property transaction online
  - Main services are online property listings, loan calculators, research and reference material, with mobile apps increasing
- **Despite revolution in available information, there has not been a revolution in the industry value chain**

Online Travel Services

- One of the most successful B2C e-commerce segments
- Online travel bookings declined slightly due to recession but expected to grow to $150 billion in 2016
- For consumers: More convenience than traditional travel agents
- For suppliers: A singular, focused customer pool that can be efficiently reached through onsite advertising

Online Travel Services (cont.)

- **Travel an ideal service/product for Internet**
  - Information-intensive product
  - Electronic product—travel arrangements can be accomplished for the most part online
  - Does not require inventory
  - Does not require physical offices with multiple employees
  - Suppliers are always looking for customers to fill excess capacity
  - Does not require an expensive multi-channel presence

Zipcar Shifts into High Gear

- **What is the Zipcar business model? How does it make money?**
- **How does Zipcar use the Internet?**
- **Does Zipcar compete with traditional car rental firms?**
- **Will Zipcar work only in urban markets? Can it expand to the suburbs?**

Online Travel Services Revenues

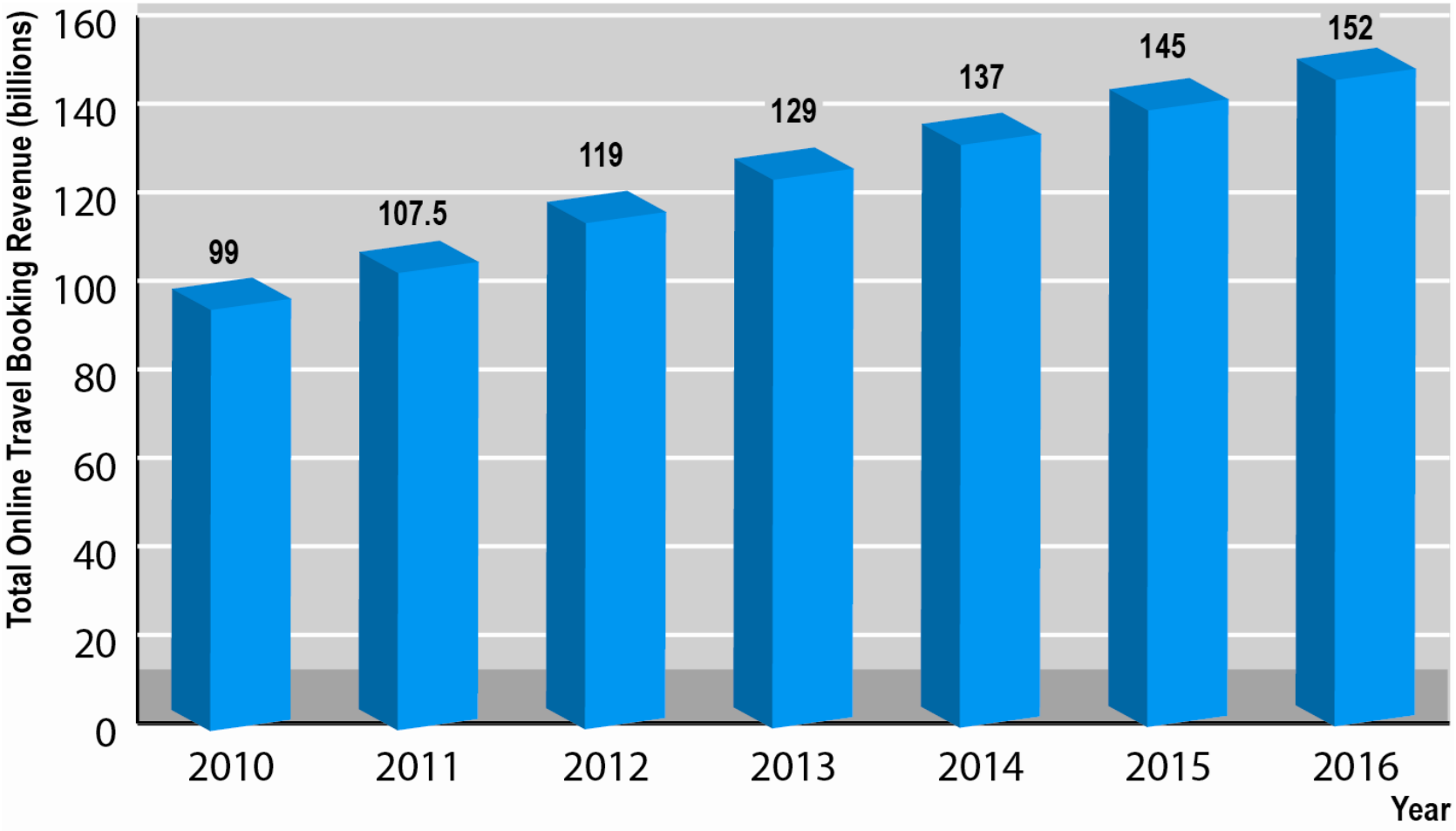


Figure 9.5, Page 614

SOURCE: Based on data from eMarketer, 2012d.

The Online Travel Market

- **Four major sectors:**
  - Airline tickets
  - Hotel reservations
  - Car rentals
  - Cruises/tours
- **57% purchase airline tickets from airline's Web site, 22% from travel booking Web site (e.g., Expedia)**
- **Corporate online-booking solutions (COBS)**

Online Travel Industry Dynamics

- **Intense competition among online providers**
- **Price competition difficult**
- **Industry consolidation**
- **Industry impacted by meta-search engines**
  - Commoditize online travel
- **Mobile applications are also transforming industry**
- **Social media content, reviews have an increasing influence on travel purchases**

Phony Reviews

- **Should there be repercussions to individuals and/or businesses for posting false reviews of products or services?**
- **Can phony reviews be recognized and moderated?**
- **Do you rely more on some types of reviews or comments on Web sites and blogs over others?**

Online Career Services

- **Top sites generate over $1 billion annually**
- **Two main players: CareerBuilder, Monster**
- **Traditional recruitment tools:**
  - Classified, print ads, career expos, on-campus recruitment, staffing firms, internal referral programs
- **Online recruiting**
  - More efficient, cost-effective, reduces total time-to-hire
  - Enables job hunters to more easily distribute resumes while conducting job searches
  - Ideally suited for Web due to information-intense nature of process

It's Just Information: The Ideal Web Business?

- **Recruitment ideally suited for the Web**
  - Information-intense process
  - Initial match-up doesn't require much personalization
- **Saves time and money for both job hunters and employers**
- **One of most important functions:**
  - Ability to establish market prices and terms (online national marketplace)

Online Recruitment Industry Trends

- **Consolidation**
- **Diversification: Niche employment sites**
- **Localization:**
  - Local vs. national, Craigslist
- **Job search engines/aggregators:**
  - "Scraping" listings
- **Social networking:**
  - LinkedIn; Facebook apps
- **Mobile Web sites and apps**

Chapter 10

Online Content and Media

Class Discussion

Facebook and the Emerging Internet Broadcast System (IBS)

- **What types of online videos have you watched online, and on what devices?**
- **What sites have given you the best overall viewing or entertainment experience, and why?**
- **What advantages does watching traditional television have over watching online TV and films?**

Trends in Online Content, 2012–2013

- Vertical integration: Distributors enter content production business
- Netflix transitions to TV show distribution
- Online viewing begins to challenge TV, cable, DVD rentals
- E-book sales rise to 50% all book sales
- Digital music sales top physical sales
- Console games stagnate as online, social, casual games soar

Trends in Online Content (cont.)

- Four Internet titans compete for ownership of online content ecosystem: Apple, Google, Amazon, and Facebook
- Amazon's e-book reader expands to tablet
- Tablet sales grow to 50% of PC sales
- Content consumption goes mobile
- Cloud storage grows to serve market for mobile computing

Content Audience and Market

- Average American adult spends 4,200 hrs/yr consuming various media
- 2012 media revenues: $488 billion
- Over 77% of the hours spent consuming TV, radio, Internet
- 2.8 hrs/day on Internet
- Internet usage doesn't reduce TV viewing

Media Consumption

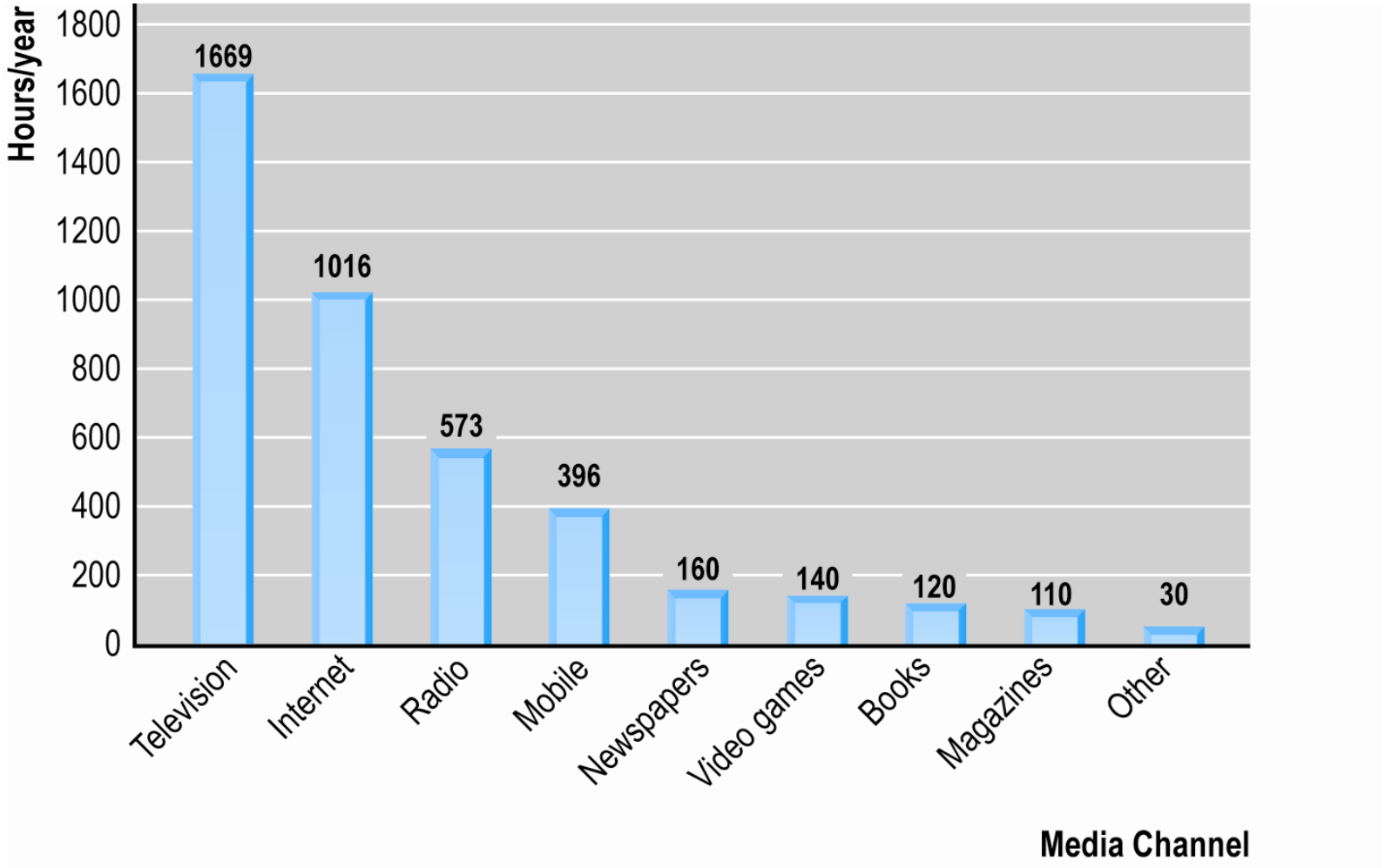


Figure 10.1, Page 647

SOURCE: Based on data from eMarketer, Inc., 2012a, authors' estimates

Internet and Traditional Media

- **Cannibalization vs. complementarity**
  - Does time on Internet reduce time spent with other media?
  - Books, newspapers, magazines, phone, radio
- **Internet users**
  - Spend relatively less time with traditional media
  - Consume more media of all types than non-Internet users
  - often "multitask" with media consumption
- **Multimedia—reduces cannibalization impact for some visual, aural media**

Media Revenues by Channel

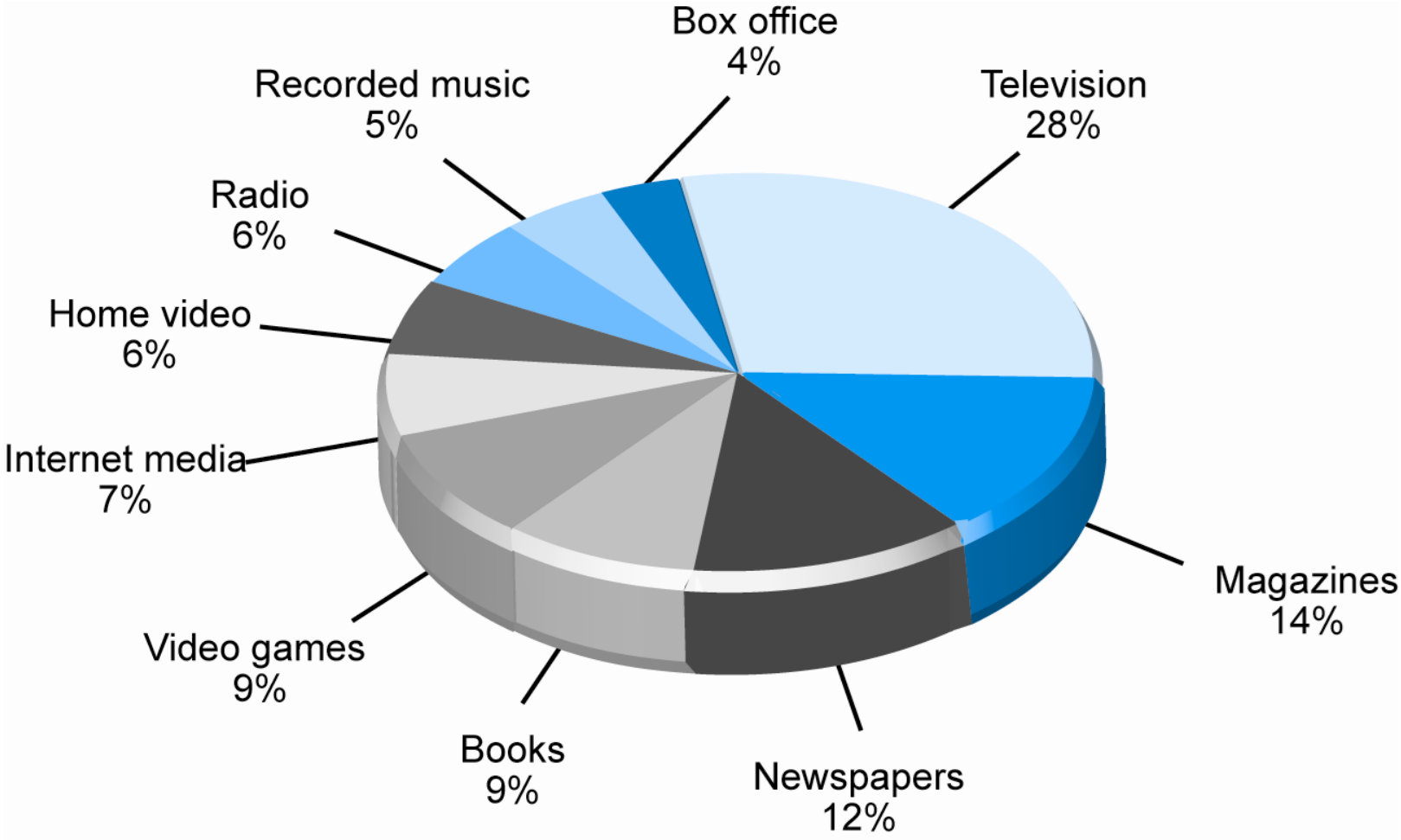


Figure 10.2, Page 649

SOURCE: Based on data from industry sources; authors' estimates.

Digital Content Delivery Models

- **Online content delivery revenue models**
  - Subscription
  - A la carte
  - Advertising supported (free/freemium)
- **Free content can drive users to paid content**
- **Users increasingly paying for high-quality, unique content**

Online Content Consumption 2012

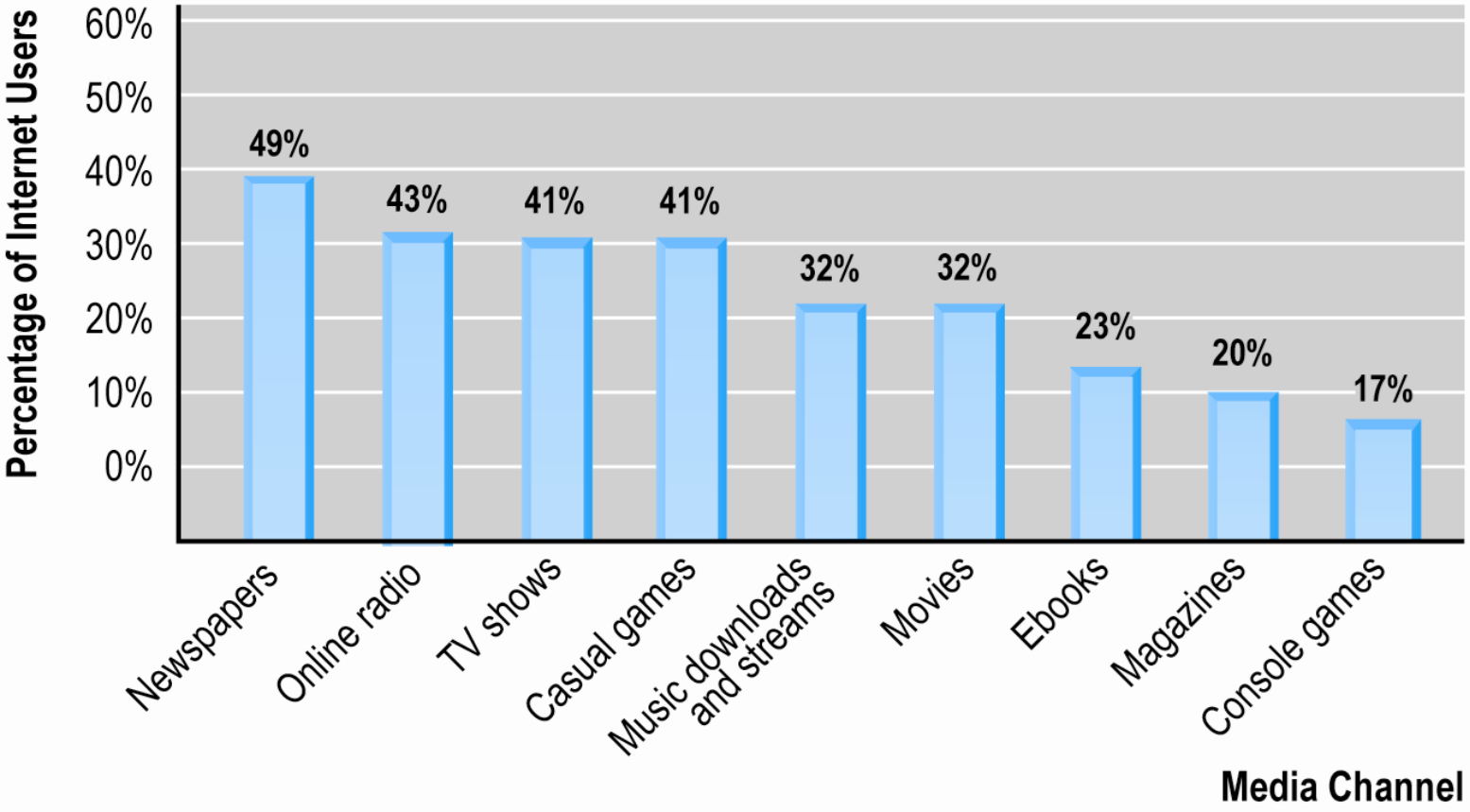


Figure 10.3 Page 650

SOURCE: Based on data from industry sources; authors' estimates.

Free or Fee?

- **Early years: Internet audience expected free content but willing to accept advertising**
  - Early content was low quality
- **With advent of high-quality content, fee models successful**
  - iTunes
  - 80 million buy from legal music sites
  - YouTube cooperating with Hollywood production studios

Digital Rights Management (DRM)

- **DRM: Technical and legal means to protect digital content from unlimited reproduction and distribution**
- **Issue often cast as moral contest**
- **Telecommunications and device industries benefit from increased traffic**
  - 23% of global Internet traffic is stolen material

Media Industry Structure

- **Three separate segments**
  - Print
  - Movies
  - Music
- **Each dominated by few key players with little crossover**
- **Larger media ecosystem**
  - Millions of individuals, entrepreneurs
  - Blogs, YouTube, independent music bands, etc.

Media Convergence

- **Technological convergence:**
  - Hybrid devices
- **Content convergence:**
  - Three aspects: Design, production, distribution
  - New tools for digital editing and processing
- **Industry convergence:**
  - Merger of media enterprises into firms that create and cross-market content on different platforms

Convergence and the Transformation of Content: Books

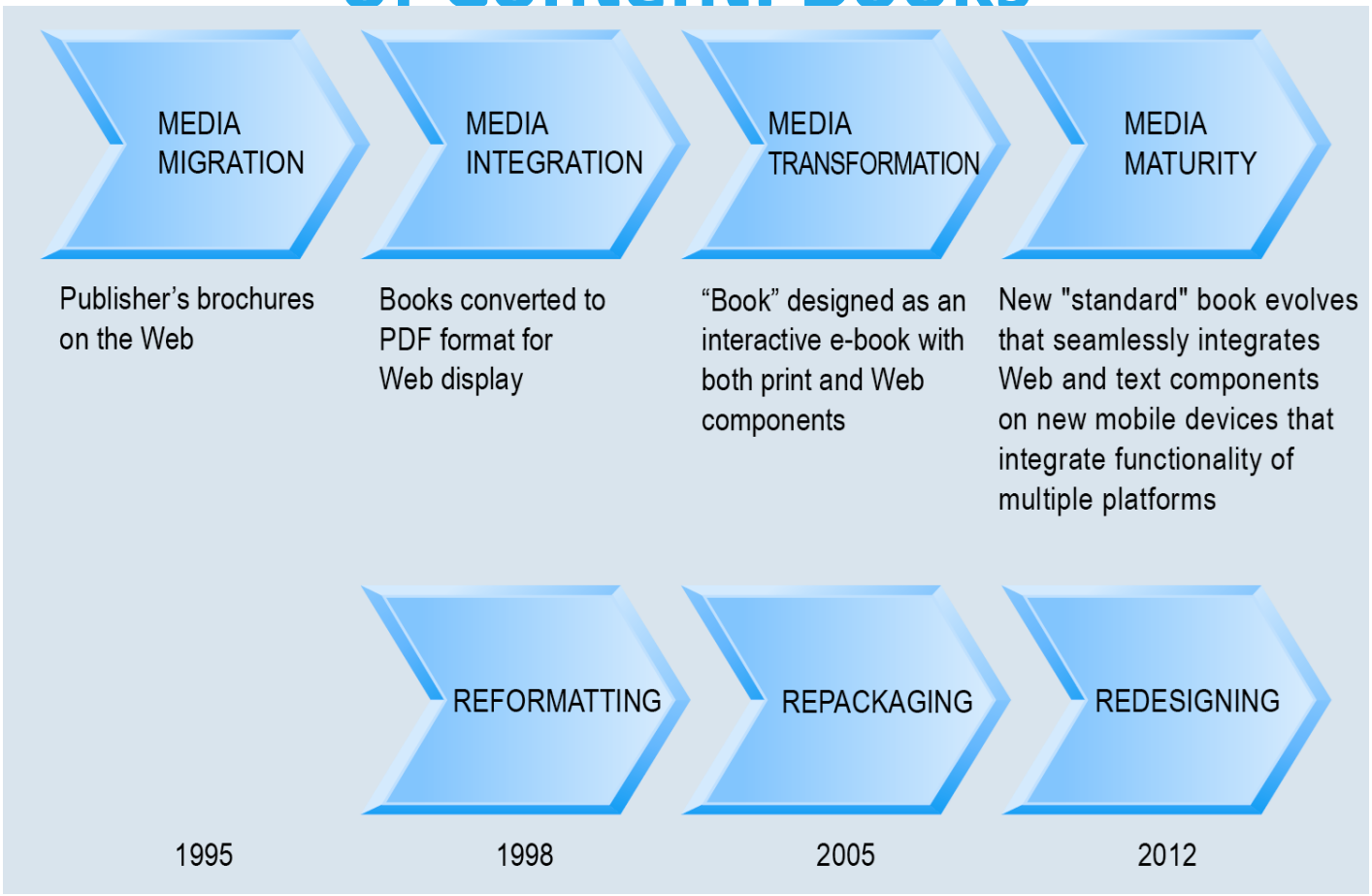


Figure 10.6, Page 656

Making a Profit with Online Content

- **25% users will pay for some content**
- **Four factors required to charge for online content**
  - Focused market
  - Specialized content
  - Sole source monopoly
  - High perceived net value
    - Portion of perceived customer value that can be attributed to fact that content is available on the Internet

Online Publishing Industry

- **$82 billion based originally in print, moving rapidly to Internet**
- **Three segments**
  - Online newspapers
  - E-books
  - Online magazines

Online Newspapers

- **Most troubled segment of publishing industry**
  - Failure to protect content from free distribution
  - 60% have reduced staff
- **However:**
  - Online readership growing at over 10%
  - Mobiles, tablets provide new avenues
  - More users willing to pay for premium content
  - Aggregators are recognizing need for high-quality content to distribute and use for advertisements

Monthly Unique Visitors at Online Newspapers

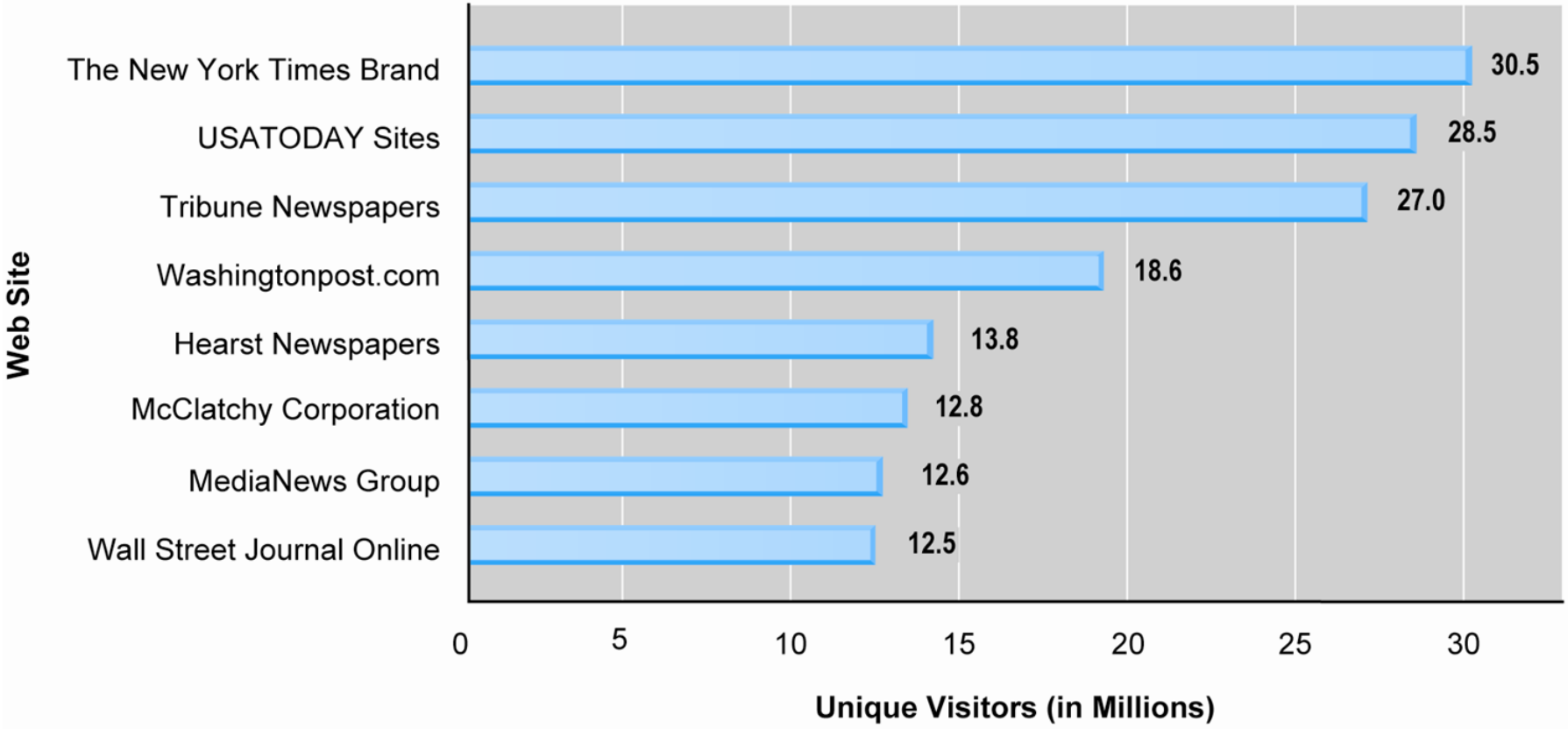


Figure 10.8, Page 661

SOURCE: Based on data from Myers, 2012

Newspaper Business Models

- Initially fee-based, then free, and now beginning a return to fee-based
- Newspaper headlines are primary content on Google News, Yahoo News
- *New York Times* now charging for premium access
- Newspaper efforts to ally with Internet titans
- New reader devices with reader apps

Can Apps and Videos Save Newspapers?

- **Have you read a newspaper using an app?**
- **Have you paid for any online newspaper or article? How much would you pay for a single article?**
- **Would you prefer to watch online news videos produced by a TV station or by a newspaper such as the *New York Times*?**
- **What other opportunities could help the industry recover from the decline in print sales?**

Challenges: Disruptive Technologies

- **Newspapers: A classic case of disruptive technology?**
- **Industry still in flux**
  - Newspapers have significant assets:
    - Content
    - Readership
    - Local advertising
    - Audience (wealthier, older, better educated)
  - Online audience will continue to grow in numbers and sophistication

E-books and Online Publishing

- **E-book sales have exploded in recent years—$4.2 billion in 2012**
- **New channel for self-publishing authors**
  - Amanda Hocking's *My Blood Approves* (2010)
- **Evolution**
  - Project Gutenberg (1970s)
  - Voyager's books on CD (1990s)
  - Adobe's PDF format

New Digital Ecosystems

- **E-book hardware, software, combined with online megastores**
  - Amazon Kindle: Linked to Amazon store and cloud storage
  - Apple iPad: Multipurpose tablet, linked to Apple stores
- **Authors able to bypass traditional agent, publisher channels**
- **DRM more effective for than music industry**

Challenges of E-book Platform

- **Cannibalization**
  - Fewer physical sales
  - More e-book sales, more purchases of readers
- **Finding the right business model**
  - Wholesale model
    - Retailers pay wholesale price and establish retail price
  - Agency model
    - Distributor as agent must charge publisher's retail price
- **Converging technologies**
  - Interactive books
  - iBook Author, iBook Textbooks

E-book Sales

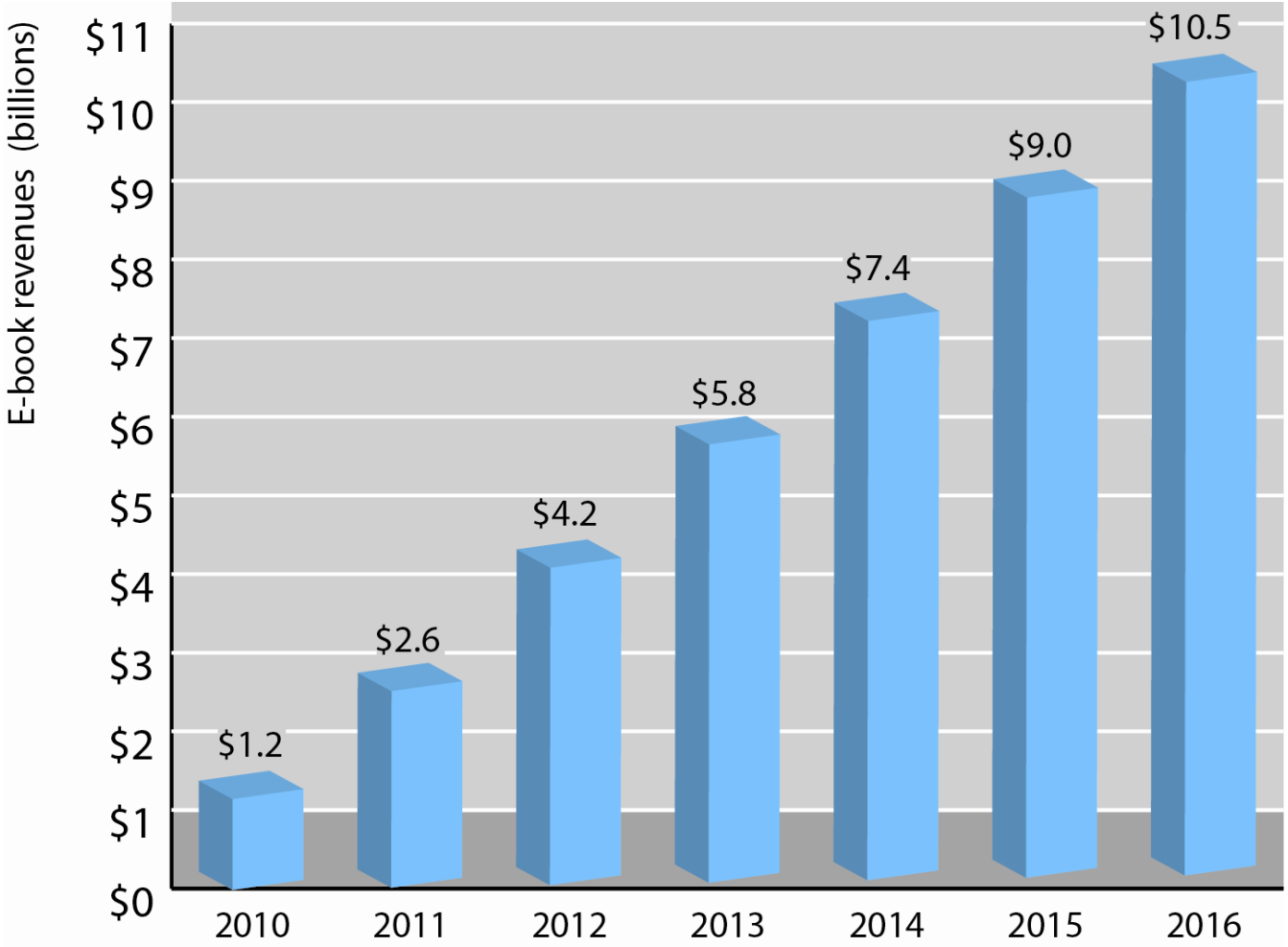


Figure 10.9, Page 666

SOURCE: Based on data from eMarketer, 2012b.

Magazines Rebound

- **Magazine circulation plummets 1980–2012**
  - Rise in online video and online news readership, and increases costs of color printing,
    - 2001: 22 million
    - 2011: 11 million
- **2012: Digital magazine readership doubled to 3.29 million copies**
  - Tablets a major factor
- **Magazine aggregators**

Read All About It: Rival Digital Newsstands Fight

- **What advantages and disadvantages do digital newsstands offer to publishers?**
- **Do you use an app or digital newsstand to read magazines? Which ones?**
- **How does the experience of reading a magazine on a tablet or smartphone compare to reading a physical magazine?**

Online Entertainment Industry

- **Four traditional players, one newcomer**
  - Television
  - Radio broadcasting
  - Hollywood films
  - Music
  - Video games (new arrival)

Online Entertainment Industry

- **Internet is transforming industry:**
  - Platform development:
    - Smartphones, tablets, music platform
    - Online streaming and cloud storage
    - Social networks as distributors
  - Viable business models
    - Music subscription services
    - Closed platforms that eliminate need for DRM
  - Widespread growth of broadband

Online Entertainment Audience Size

- **Online "traditional" entertainment**
  - Online video has largest audiences, followed by music, games
- **User-generated content:**
  - Substitutes for and complements traditional commercial entertainment
  - Two dimensions:
    - User focus
    - User control
  - Sites that offer high levels of both will grow

Projected Growth in Online Entertainment

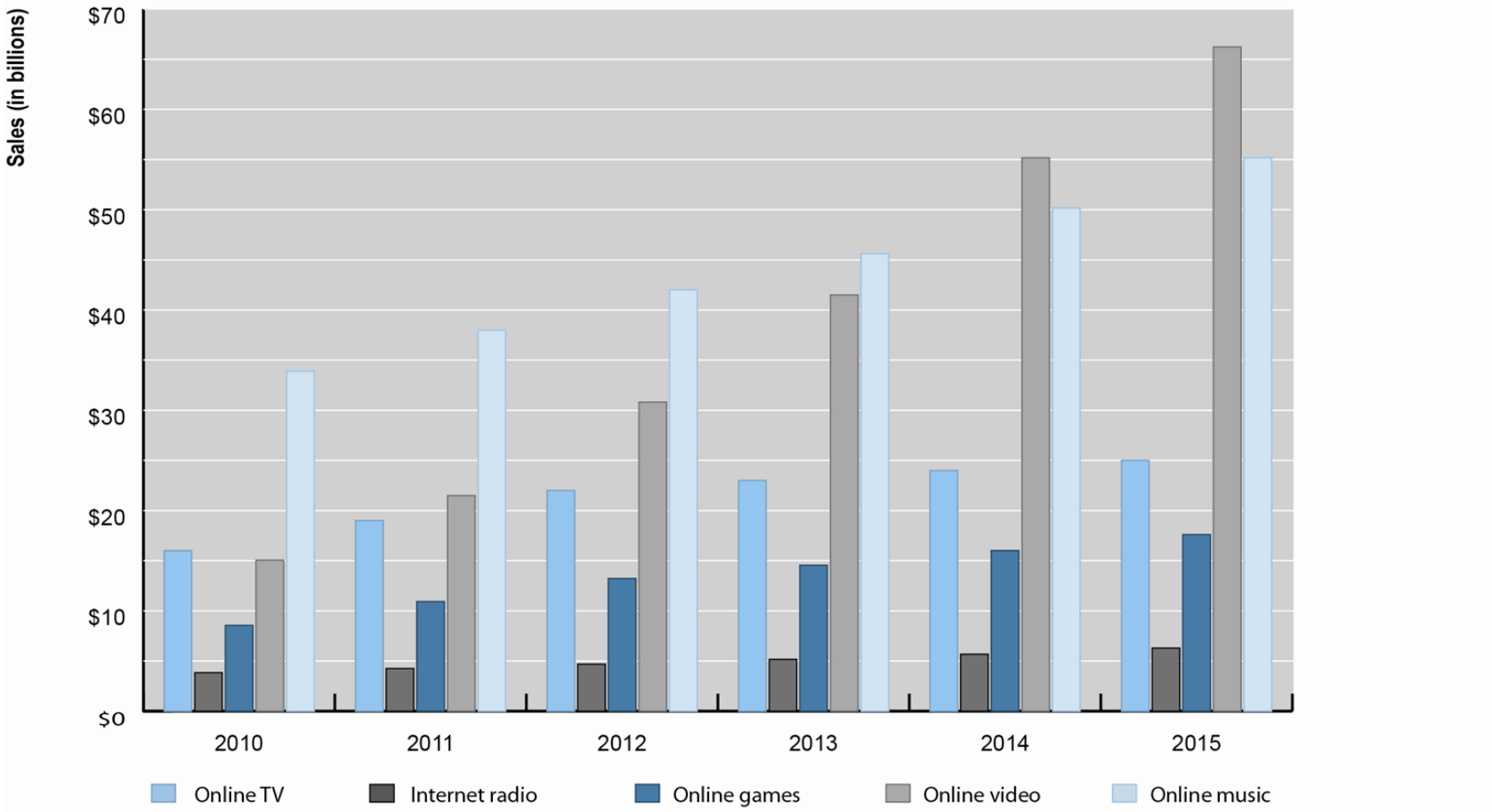


Figure 10.11, Page 688

SOURCES: Based on data from industry sources; authors' estimates.

Television and Premium Video

- **TV industry transitioning to new delivery platforms**
- **OTT: Over-the-top (Internet) delivery**
- **Three factors in TV industry transformation**
  - Broadband penetration
  - New mobile platforms
  - Willing industry with library of high-quality content
- **Social network influences**
- **Hulu: Joint venture of industry players**

Movies

- **Mobile and tablet growth fueling demand for online movies**
- **Unlike music industry, no one distributor dominates**
- **Three types of online movie sales**
  - Subscription video on demand (SVOD)
  - Transactional video on demand (TVOD)
  - Electronic sell-through
- **Reduced DVD sales**
- **Release windows system**

Online Movie Business
Share of Movie Revenues

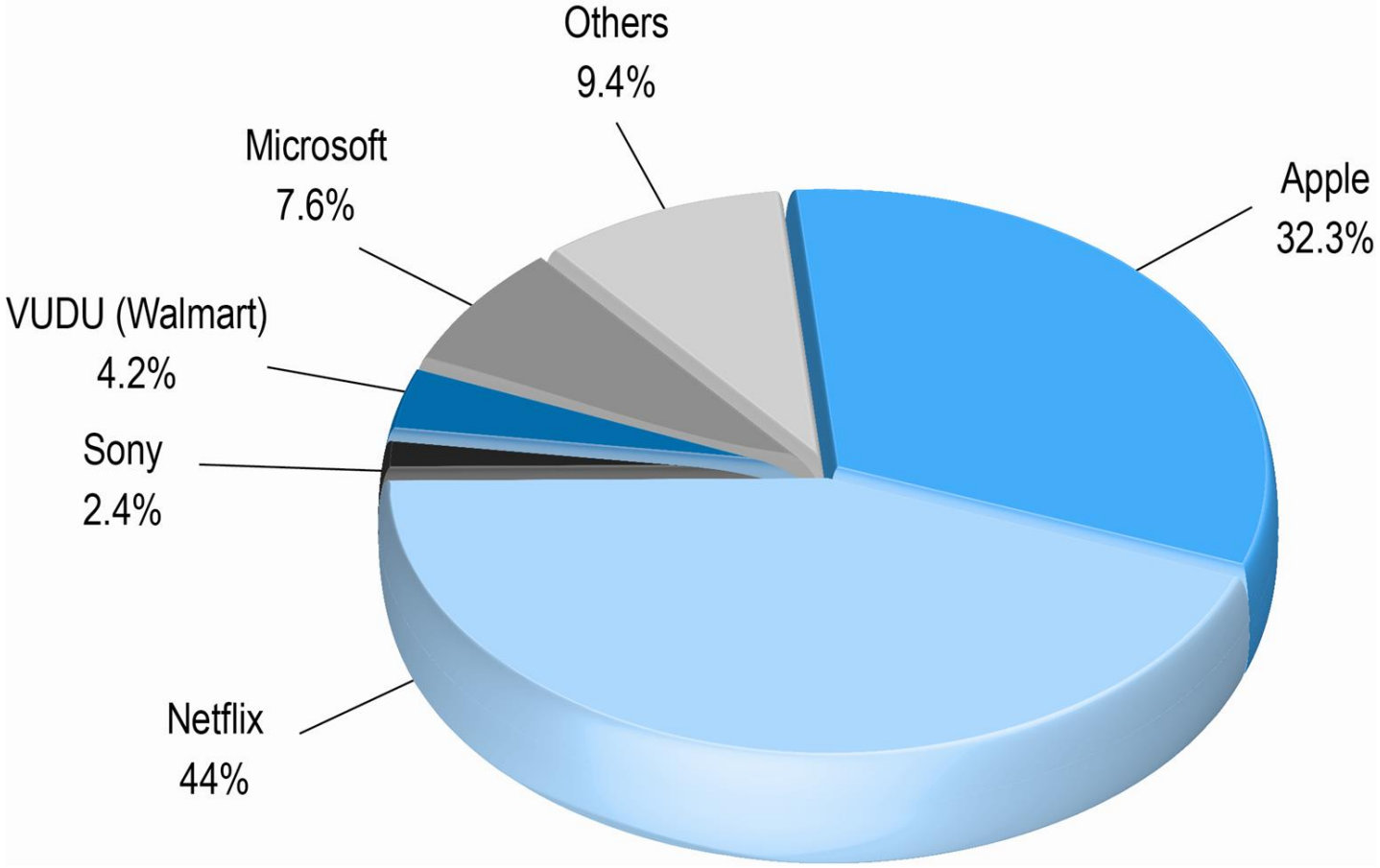


Figure 10.14, page 683

Music

- **Most changed of content industries**
  - Move from physical to digital product
  - Unbundling of single songs
  - Distributor market dominated by Apple
- **2011—Digital revenues account for 52% of all revenues**
- **Streaming services—fastest growth**
  - Variety of revenue models

Consumer Spending on Digital Music

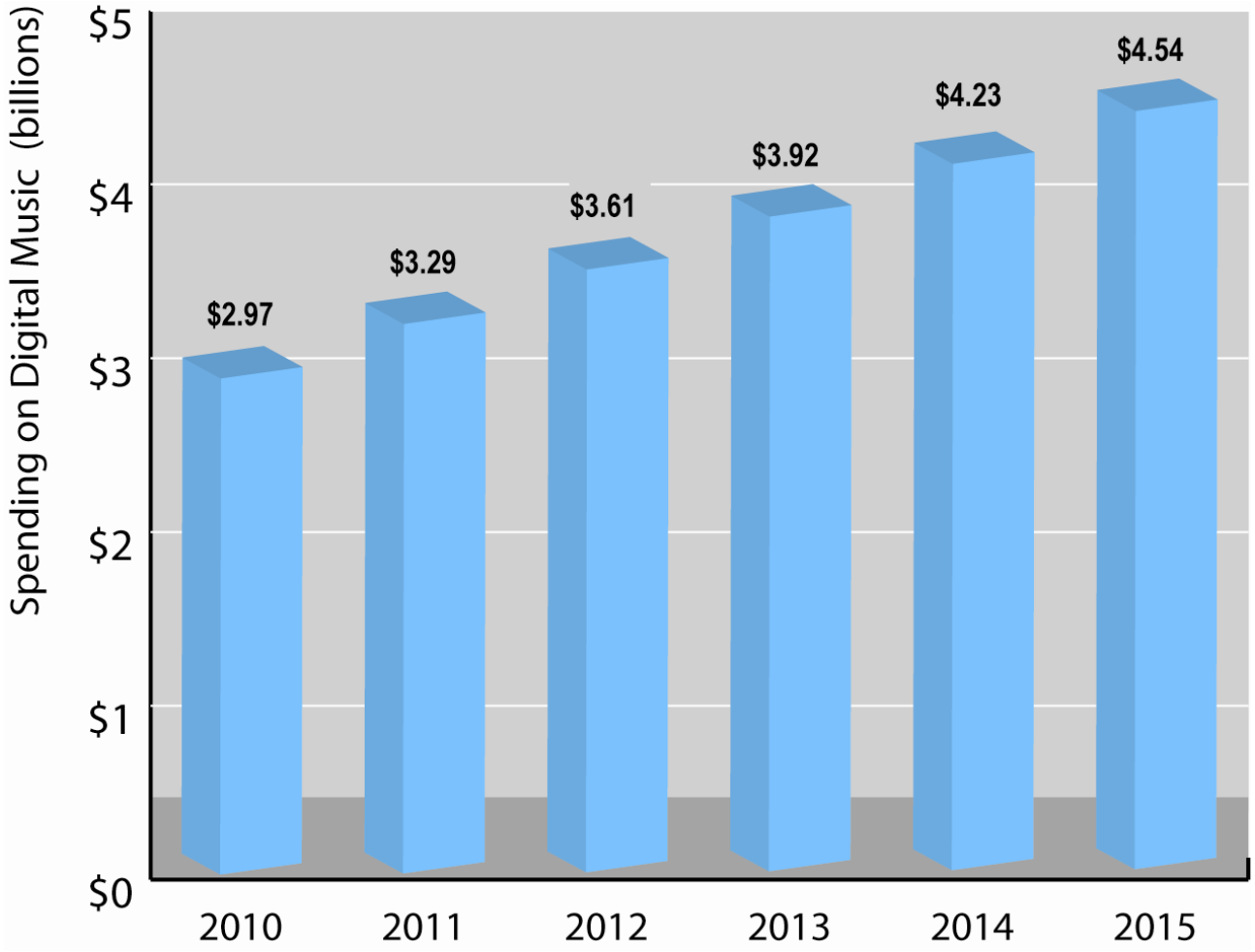


Figure 10.15, page 687

Games

- **Online gaming has had explosive growth**
- **Types of online gamers**
  - Casual
  - Social
  - Mobile—fastest growing market
  - Console
- **Business models in flux**
  - Most online/mobile games offered for free

Online Gaming Audience

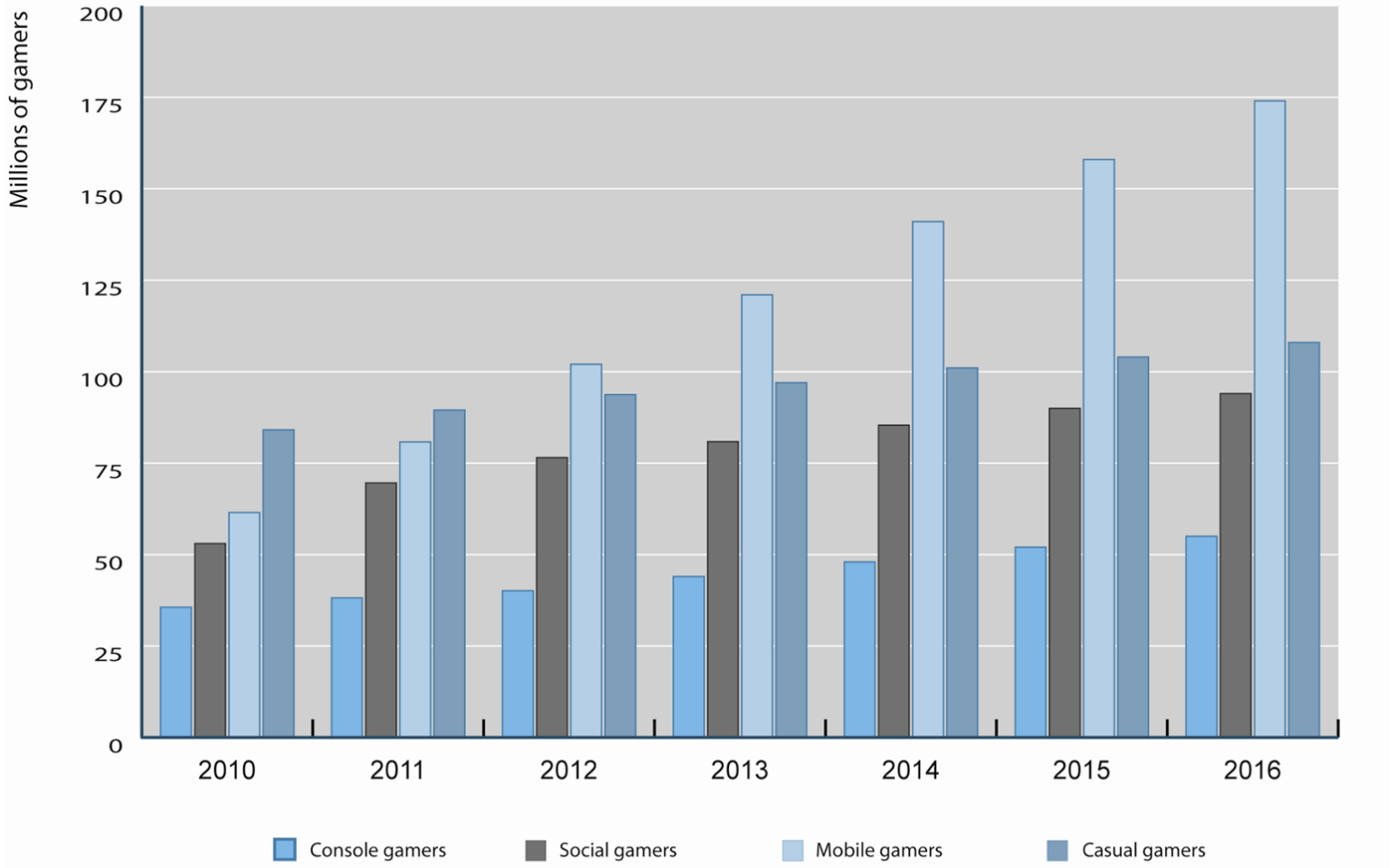


Figure 10.16, page 689

Online Entertainment Industry Structure

- **Inefficient, fractured:**
  - Many players and forces shape industry
- **Reorganization of value chain needed for aggressive move to Web**
- **Possible alternative models**
  - Content owner direct model
  - Internet aggregator model
  - Internet innovator model

Hollywood and the Internet: Let's Cut a Deal

- What challenges has the Internet posed to traditional Hollywood movie distribution? What is the biggest challenge?
- Can Internet distribution work with the "release window" strategy?
- Do you think Hollywood is doing a better job of protecting its content than the music industry?
- What is the most realistic and profitable path forward for the Hollywood film industry?

Chapter 11

Social Networks, Auctions, and Portals

Class Discussion

Social Network Fever Spreads to the Professions

- How has the growth of social networks enabled the creation of more specific niche sites?
- What are some examples of social network sites with a financial or business focus?
- Describe some common features and activities on these social network sites.
- What features of social networks best explain their popularity?

Social Networks and Online Communities

- Internet began as communications medium for scientists
- Early communities were bulletin boards, newsgroups; e.g., the Well
- Today social networks, photo/video sharing, blogs have created new era of online socializing
- Social networks now one of most common Internet activities

What Is an Online Social Network?

- **Working definition**
  - Group of people
  - Shared social interaction
  - Common ties
  - Sharing an area for period of time
- **Portals and social networks:**
  - Moving closer together
  - Community sites adding portal-like services
    - Searching, news, e-commerce services

The Growth of Social Networks and Online Communities

- **Top 10 social networks account for over 90% social networking activity**
- **Facebook users: Over 50% are 35+**
- **Unique audience size:**
  - Top four U.S. social networks: Over 260 million
  - Top four portal/search engines: Over 630 million
- **Annual advertising revenue**
  - U.S. social network sites: $3.1 billion
  - Top four portal/search engines: $17.5 billion

Top 10 Social Network Sites 2012

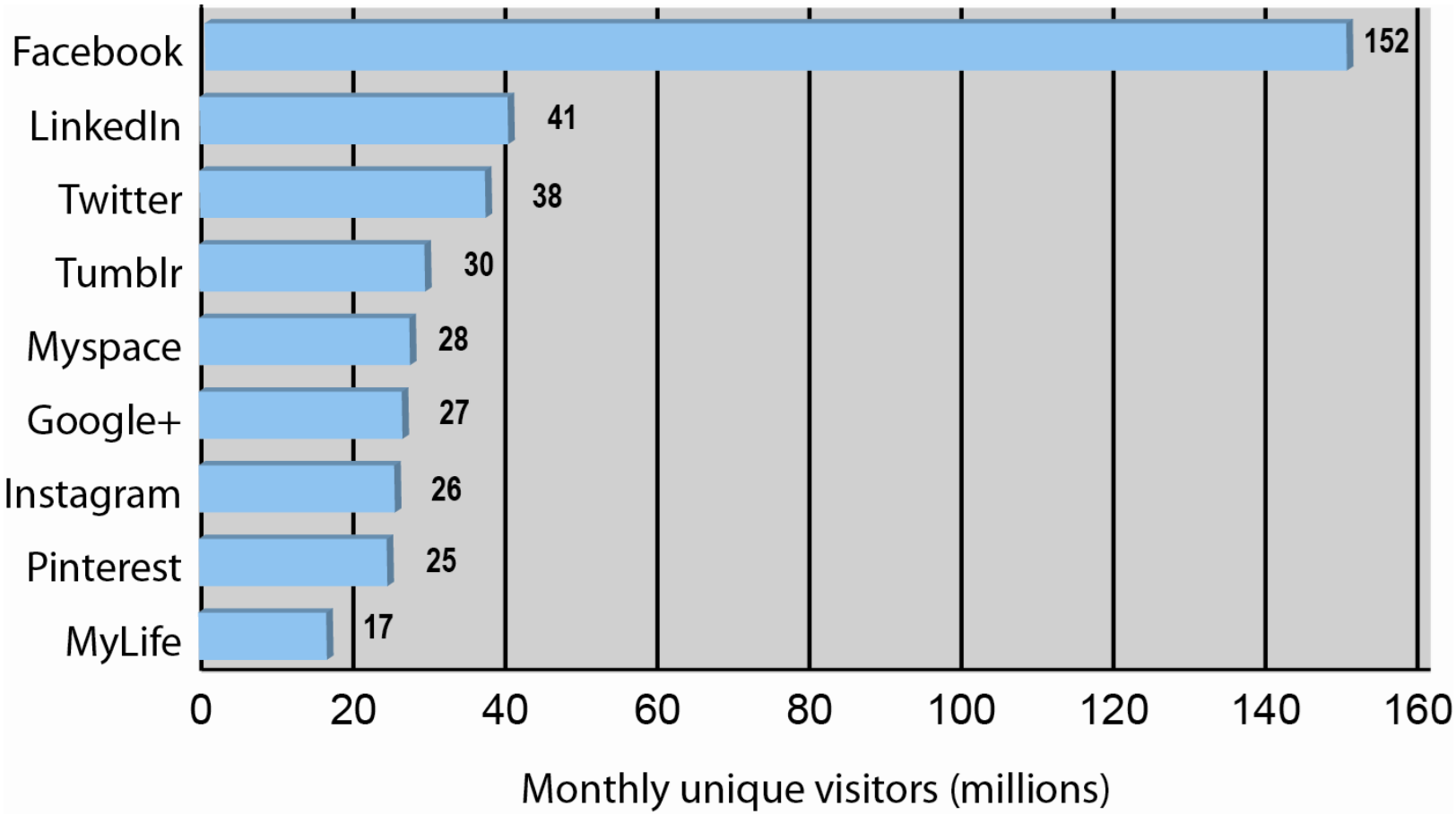


Figure 11.1, Page 7

SOURCES: Based on data comScore, 2012a; Gaudin, 2012; McGee, 2012.

Turning Social Networks into Businesses

- **Social networks monetizing audiences through advertising**
- **Business use of social networks**
  - Marketing and branding tool
    - Facebook pages, "fans"
    - Twitter feeds
  - Listening tool
    - Monitoring online reputation
  - Extension of CRMS

The Dark Side of Social Networks

- **How can businesses accurately judge whether negative comments are trolling or have merit and should be responded to?**
- **Have you ever left a negative comment about a product or business? Have others' negative comments influenced a purchase?**
- **Should a business have any say in how an employee uses social networks outside of the office?**

Types of Social Networks and their Business Models

- **General communities:**
  - Offer opportunities to interact with general audience organized into general topics
  - Advertising supported by selling ad space on pages and videos
- **Practice networks:**
  - Offer focused discussion groups, help, and knowledge related to area of shared practice
  - May be profit or nonprofit; rely on advertising or user donations

Types of Social Networks and Their Business Models (cont.)

- **Interest-based social networks:**
  - Offer focused discussion groups based on shared interest in some specific subject
  - Usually advertising supported
- **Affinity communities:**
  - Offer focused discussion and interaction with other people who share same affinity (self or group identification)
  - Advertising and revenues from sales of products
- **Sponsored communities:**
  - Created by government, nonprofit, or for-profit organizations for purpose of pursuing organizational goals

Social Network Features and Technologies

- Profiles
- Friends network
- Network discovery
- Favorites
- Games, widgets, apps
- E-mail
- Storage
- Instant messaging
- Message boards
- Online polling
- Chat
- Discussion groups
- Experts online
- Membership management tools

The Future of Social Networks

- **Facebook's growth has slowed**
- **Growth of social networks focused on specific shared interests**
- **Network fatigue**
  - Reuter study shows Facebook users spending less time on the site
- **Financial future**
  - Relationship between sales and Likes unclear

Facebook Has Friends

- What does Mark Zuckerberg, Facebook's CEO, mean by the "social graph?"
- Why have Facebook applications become so popular? Do they have any limitations?
- What are the core differences between Google+ and Facebook? Does Google+ offer significant advantages?
- How has Microsoft responded?
- Is Tumblr a significant competitor? Why or why not?

Online Auctions

- Online auction sites are among the most popular C2C sites on the Internet
- eBay: Market leader
- Several hundred different auction sites in United States alone
- Established portals and online retail sites increasingly are adding auctions to their sites

Defining and Measuring the Growth of Auctions and Dynamic Pricing

- **Dynamic pricing**
  - Airline tickets, coupons, college scholarships
  - Prices based on demand characteristics of customer and supply situation of seller
- **Many types of dynamic pricing**
  - Bundling
  - Trigger pricing
  - Utilization pricing
  - Personalization pricing

Defining and Measuring the Growth of Auctions and Dynamic Pricing (cont.)

- **Auctions: Type of dynamic pricing**
  - C2C auctions
    - Auction house an intermediary
  - B2C auctions
    - Business owns assets; often used for excess goods
  - Can be used to
    - Sell goods and services
    - Allocate resources
    - Allocate and bundle resources

Benefits of Auctions

- Liquidity
- Price discovery
- Price transparency
- Market efficiency
- Lower transaction costs
- Consumer aggregation
- Network effects

Risks and Costs of Auctions for Consumers and Businesses

- **Delayed consumption costs**
- **Monitoring costs**
  - Possible solutions include:
    - Fixed pricing
    - Watch lists
    - Proxy bidding
- **Equipment costs**
- **Trust risks**
  - Possible solution—rating systems
- **Fulfillment costs**

Market-Maker Benefits

- **No inventory**
- **No fulfillment activities**
  - No warehouses, shipping, or logistical facilities
- **eBay makes money from every stage in auction cycle**
  - Transaction fees
  - Listing fees
  - Financial services fees
  - Advertising or placement fees

Internet Auction Basics

- **Different from traditional auctions**
  - Last much longer (usually a week)
  - Variable number of bidders who come and go from auction arena
- **Market power and bias in dynamically priced markets**
  - Neutral: Number of buyers and sellers is few or equal
  - Seller bias: Few sellers and many buyers
  - Buyer bias: Many sellers and few buyers
- **Fair market value**

Internet Auction Basics (cont.)

- **Price Allocation Rules**
  - Uniform pricing rule: Multiple winners who all pay the same price
  - Discriminatory pricing rule: Winners pay different amount depending on what they bid
- **Public vs. private information**
  - Prices bid may be kept secret
    - Bid rigging
  - Open markets
    - Price matching

Bias in Dynamically Priced Markets

Figure 11.3, Page 726

Types of Auctions

- **English auctions:**
  - Single item up for sale to single seller
  - Highest bidder wins
- **Traditional Dutch auction:**
  - Uses a clock that displays starting price
  - Clock ticks down price until buyer stops it
- **Dutch Internet auction:**
  - Public ascending price, multiple units
  - Final price is lowest successful bid, which sets price for all higher bidders

Types of Auctions (cont.)

- **Name Your Own Price Auctions**
  - Users specify what they are willing to pay for goods or services and multiple providers bid for their business
  - Prices do not descend and are fixed
    - Consumer offer is commitment to buy at that price
  - e.g., Priceline
  - Enables sellers to unload unsold excess capacity

Types of Auctions (cont.)

- **Group buying auctions (demand aggregators)**
  - Group buying of products at dynamically adjusted discount prices based on high volume purchases
  - Two principles
    - Sellers more likely to offer discounts to buyers purchasing in volume
    - Buyers increase their purchases as prices fall
- **Professional service auctions**
  - e.g., Elance.com

Factors to Consider When Choosing Auctions

CONSIDERATIONS	DESCRIPTION
Type of product	Rare, unique, commodity, perishable
Stage of product life cycle	Early, mature, late
Channel-management issues	Conflict with retail distributors; differentiation
Type of auction	Seller vs. buyer bias
Initial pricing	Low vs. high
Bid increment amounts	Low vs. high
Auction length	Short vs. long
Number of items	Single vs. multiple
Price-allocation rule	Uniform vs. discriminatory
Information sharing	Closed vs. open bidding

Table 11.8, p 732

Seller and Consumer Behavior at Auctions

- **Seller profit: Arrival rate, auction length, and number of units at auction**
- **Auction prices not necessarily the lowest**
- **Unintended results of participating in auctions:**
  - Winner's regret
  - Seller's lament
  - Loser's lament
- **Consumer trust an important motivating factor in auctions**

Auction Profits

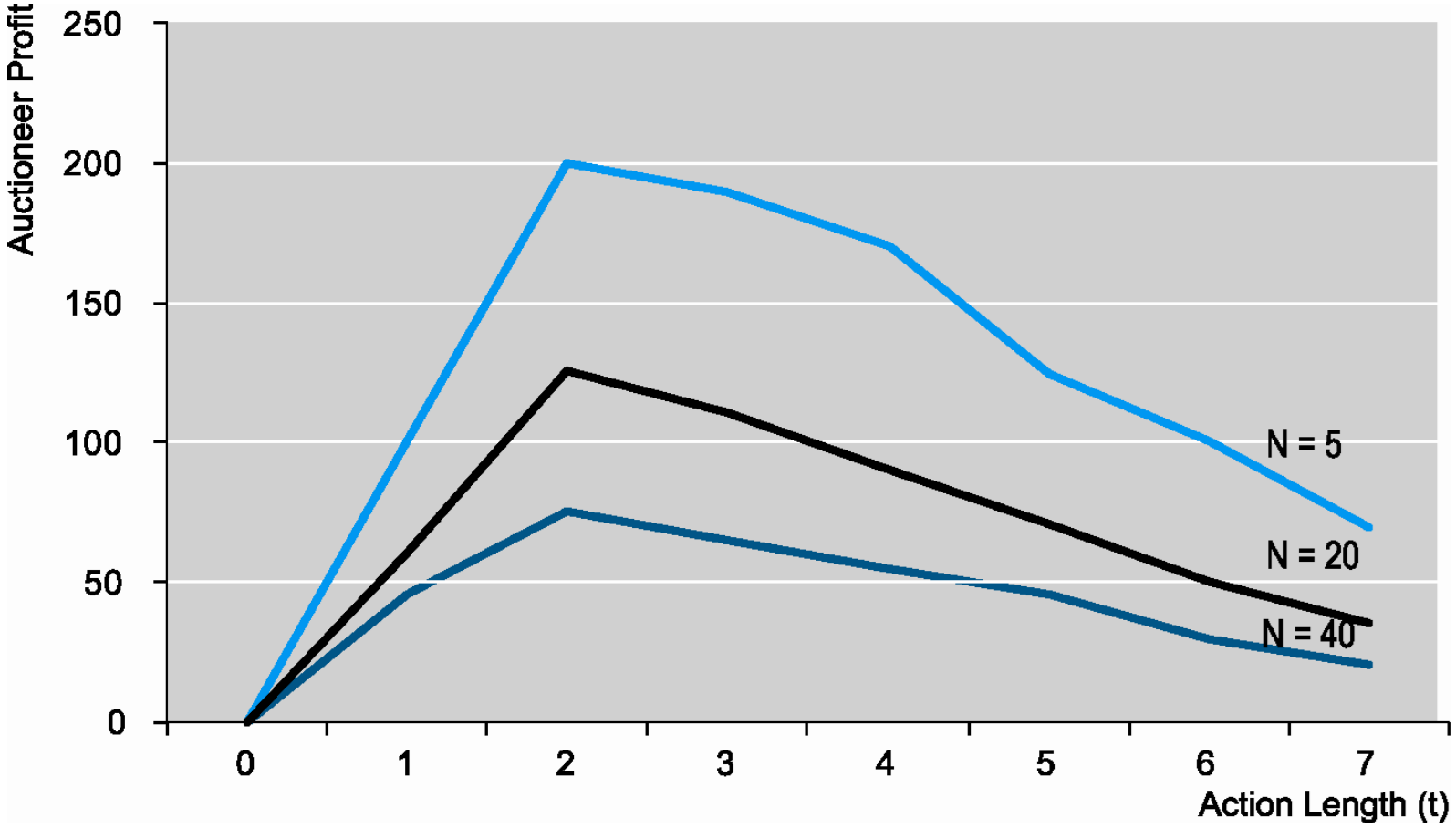


Figure 11.4, Page 734

SOURCE: Based on data from Vakrat and Seidmann, 1998.

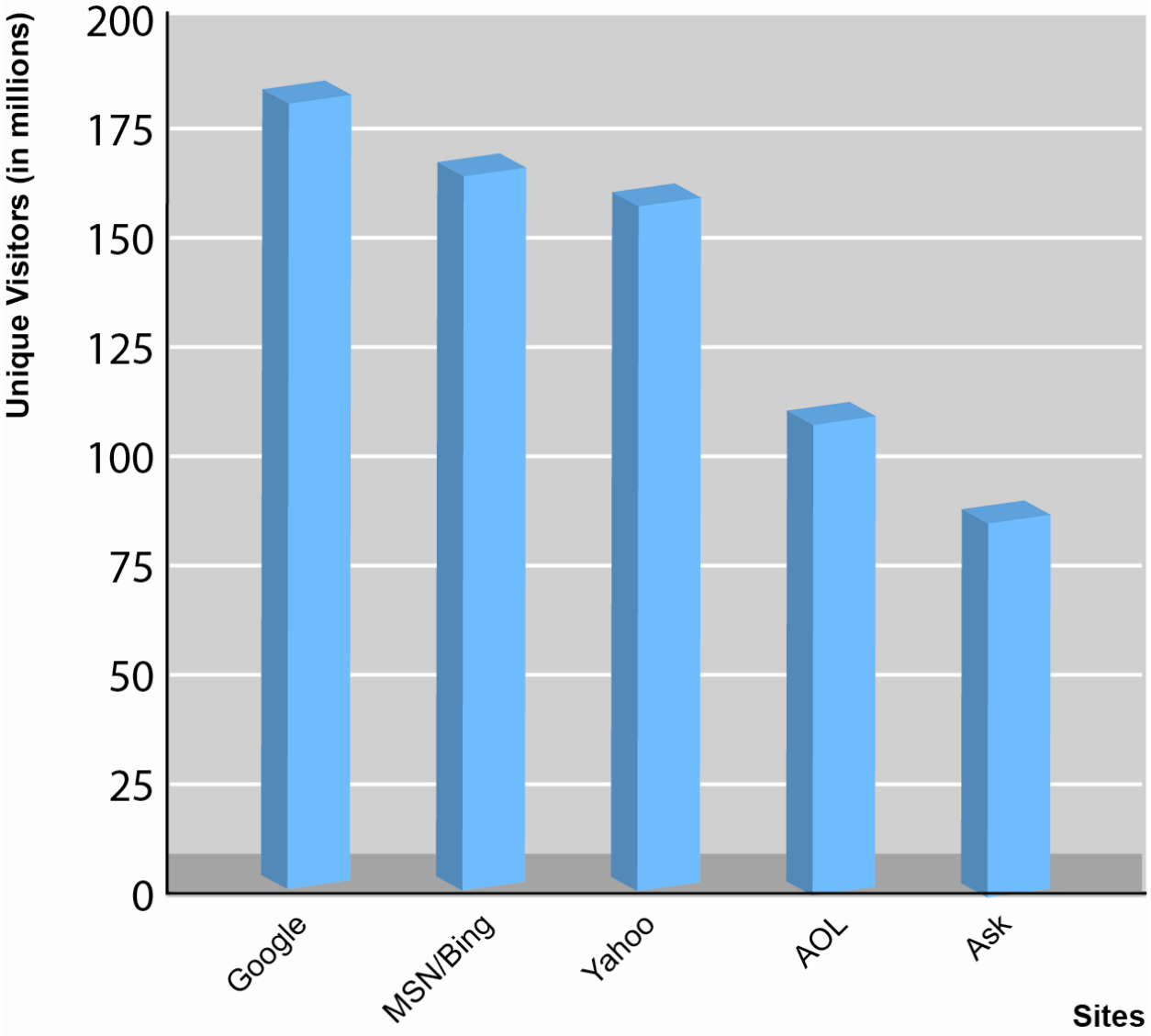
When Auction Markets Fail: Fraud and Abuse in Auctions

- **Markets fail to produce socially desirable outcomes in four situations:**
  1. Information asymmetry
  2. Monopoly power
  3. Public goods
  4. Externalities
- **In 2011, Internet auto-auction fraud one of top 10 types of fraud reported**

E-commerce Portals

- **Most frequently visited sites on Web**
- **Original portals were search engines**
  - As search sites, attracted huge audiences
- **Today provide:**
  - Navigation of the Web
  - Commerce
  - Content (owned and others')
- **Compete on reach and unique visitors**
- **Enterprise portals**
  - Help employees find important organizational content

Top Five Portal/Search Engines in United States



SOURCE: Based on data from comScore, 2011.

Figure 11.5, Page 739

The Transformation of AOL

- **What types of decisions have led to AOL's decline in popularity?**
- **What are AOL's current strategies?**
- **Do you think its new strategies will succeed?**
- **Is there a Patch site for your community? What kind of coverage does it provide?**

Types of Portals

- **General purpose portals:**
  - Attempt to attract very large general audience
  - Retain audience by providing in-depth vertical content channels
  - e.g., Yahoo, MSN
- **Vertical market portals:**
  - Attempt to attract highly-focused, loyal audiences with specific interest in:
    - Community (affinity group); e.g., iVillage
    - Focused content; e.g., ESPN.com

Two General Types of Portals: General Purpose and Vertical Market Portals

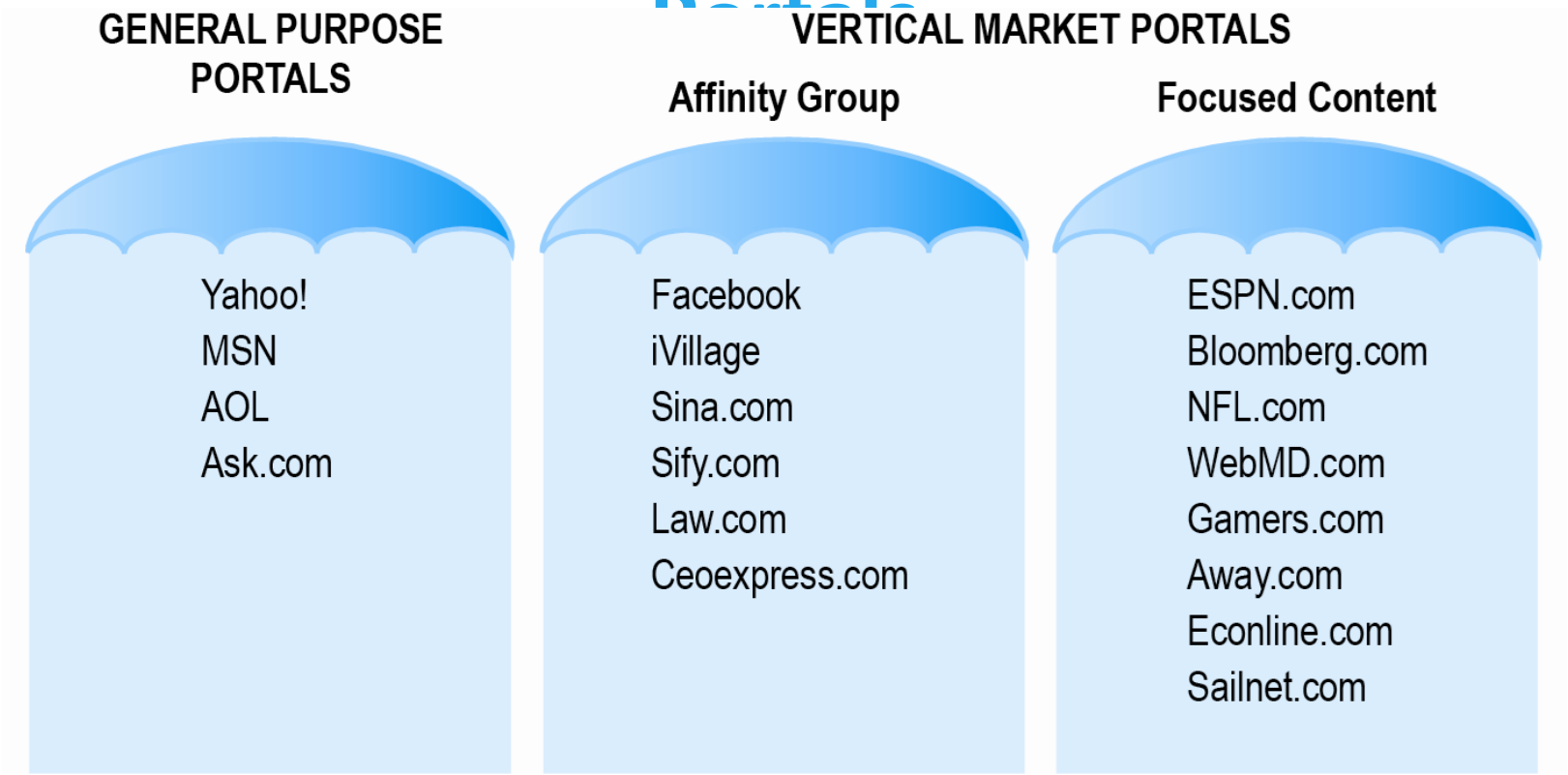


Figure 11.6, Page 744

Portal Business Models

- **General advertising revenue**
- **Tenancy deals**
  - Fixed charge for number of impressions, exclusive partnerships, “sole providers”
- **Commissions on sales**
- **Subscription fees**
  - Charging for premium content
- **Applications and games**

Revenue per Customer and Market Focus

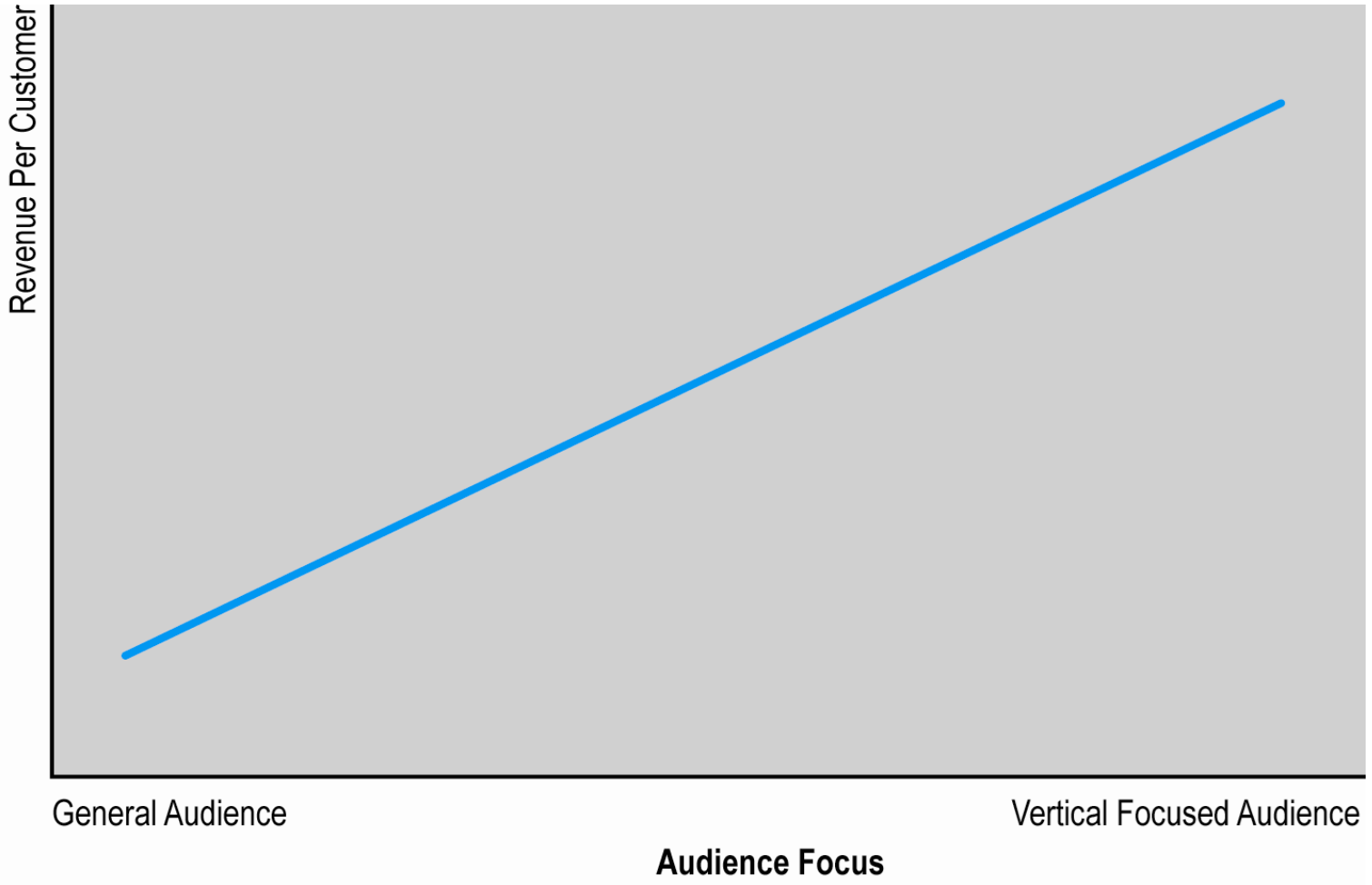


Figure 11.7, Page 745

Chapter 12

B2B E-commerce: Supply Chain Management and Collaborative Commerce

Volkswagen Builds Its B2B Net Marketplace

- Why didn't Volkswagen want to use a more open or public electronic exchange for its parts supply? Why didn't it join an industry consortium such as Covisint?
- What kinds of services are provided by VWGroupSupply?
- What is eCAP and who benefits from its use?
- Do you think suppliers are disadvantaged by this B2B marketplace?

Trends in B2B E-commerce

- **Mitigation of global supply chain risks**
  - Regional manufacturing
  - Flexibility
- **Cost of using B2B systems has fallen, allowing smaller firms to participate**
- **Big data**
- **Growing emphasis of business analytics**
- **Sustainable supply chains**
- **B2B firms using social networking platforms**
- **Growing use of mobile platform**

Defining B2B Commerce

- **Before Internet:**
  - B2B transactions called trade or procurement process
- **Total inter-firm trade:**
  - Total flow of value among firms
- **B2B commerce:**
  - All types of computer-enabled inter-firm trade
- **B2B e-commerce:**
  - The portion of B2B commerce enabled by the Internet

The Evolution of B2B Commerce

- **Automated order-entry systems**
  - Seller-side solution
- **Electronic data interchange (EDI)**
  - Buyer-side solution
  - Hub-and-spoke system
  - Serve vertical markets
- **B2B electronic storefronts**
- **Net marketplaces**
- **Private industrial networks**

Evolution of the Use of Technology Platforms in B2B Commerce

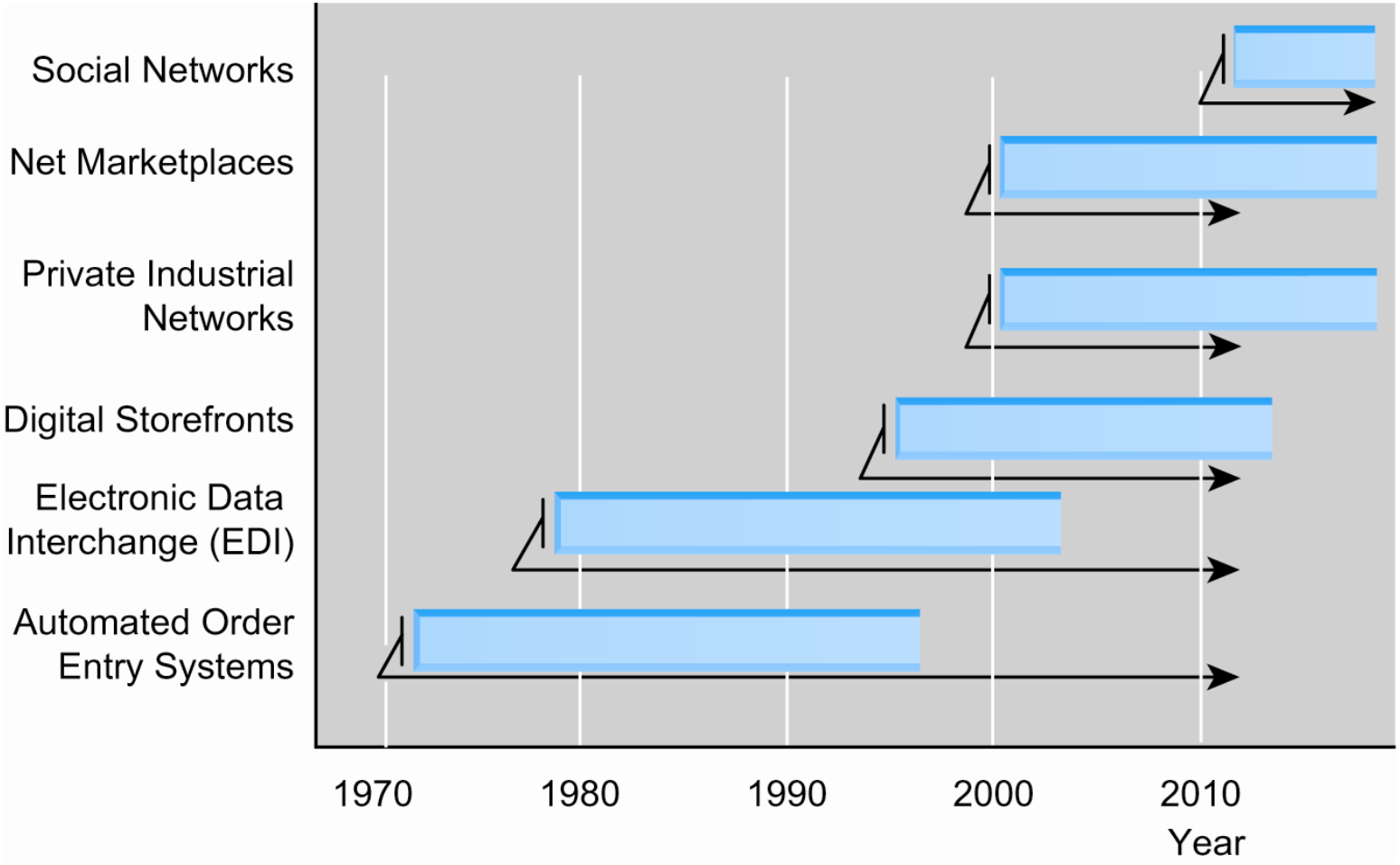


Figure 12.1, Page 762

The Growth of B2B E-commerce

- 2012–2016: B2B e-commerce will grow from 40 to 42% of total inter-firm trade
- Private industrial networks continue to play dominant role in B2B
- Non-EDI B2B e-commerce most rapidly growing type of e-commerce
- EDI still large but will decline over time

Growth of B2B Commerce 2000–2016

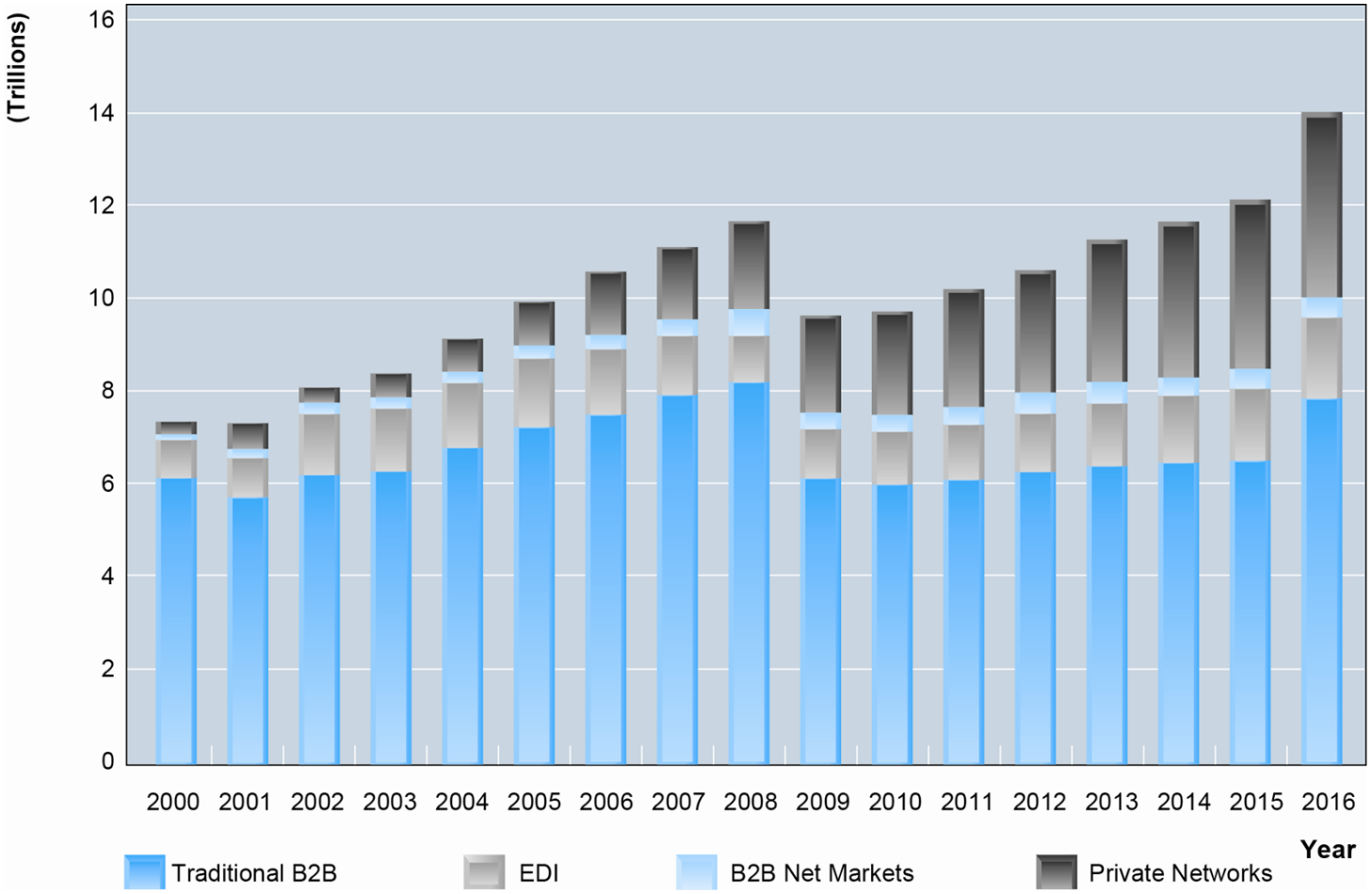


Figure 12.2, Page 765

SOURCES: Based on data from U.S. Census Bureau, 2012a; authors' estimates.

Industry Forecasts

- **Not all industries similarly affected by B2B e-commerce**
- **Not all industries would benefit equally**
- **Factors influencing move to e-commerce**
  - Significant utilization of EDI
  - Large investments in IT and Internet infrastructure
    - e.g., aerospace and defense, computer
  - Market concentrated on purchasing or selling
    - e.g., energy, chemical industries

Potential Benefits of B2B E-commerce

- **Lower administrative costs**
- **Lower search costs for buyers**
- **Reduced inventory costs**
  - Increasing competition among suppliers
  - Reducing inventory carried
- **Lower transaction costs:**
  - Automation, eliminating paperwork
- **Increased production flexibility by ensuring just-in-time parts delivery**

Potential Benefits (cont.)

- Improved quality of products by increasing cooperation among buyers and sellers
- Decreased product cycle time
- Increased opportunities for collaboration
- Greater price transparency
- Increased visibility, real-time information sharing
- However, some risk is posed by increased globalization and consolidation

Where's My iPad: Supply Chain Risk and Vulnerability

- **Why does concentrating production on fewer suppliers also concentrate risk?**
- **How does globalization play a part in increased risk?**
- **What types of procedures could be implemented, given increased globalization, to reduce risk?**

The Procurement Process and the Supply Chain

- **Procurement process:**
  - The way firms purchase materials they need to make products
- **Supply chain:**
  - Firms that purchase goods, their suppliers, and their suppliers' suppliers, relationships and processes involved
- **Steps in procurement process**
  - Deciding who to buy from and what to pay
  - Completing transaction

The Procurement Process

Search	Qualify	Negotiate	Purchase Order	Invoicing	Shipping	Remittance Payment
Catalogs Internet Salespersons Brochures Telephone Fax	Research Credit History Check with Competitors Telephone Research	Price Credit Terms Escrow Quality Timing	Order Product Initiate Purchase Order (PO) Enter into System Mail PO	Receive PO Enter into Financial System Enter into Production System Send Invoice Match with PO Internal Review Enter into Warehouse System	Enter into Shipper's Tracking System Ship Goods Deliver Goods Enter into Tracking System	Receive Goods Enter Shipping Documents into Warehouse System Verify and Correct Invoice Resend Invoice Cut Check Add Corrected Invoice to Back Office Systems

Figure 12.3, Page 769

Types of Procurement

- **Firms purchase two types of goods**
  - Direct goods: Integrally involved in production process
  - Indirect goods: All goods not directly involved in production process (MRO goods)
- **Firms use two methods to purchase**
  - Contract purchasing:
    - Involves long-term written agreements to purchase specified products, with agreed-upon terms and quality
  - Spot purchasing:
    - Involves purchase of goods based on immediate needs in larger marketplaces that involve many suppliers

Types of Procurement (cont.)

- **Procurement is highly information intensive and labor intensive**
  - Requires managing information among many corporate systems
  - Involves 1.2 million U.S. workers
- **Multi-tier supply chain**
  - Complex series of transactions between firm and thousands of suppliers, supplying thousands of goods

The Multi-tier Supply Chain

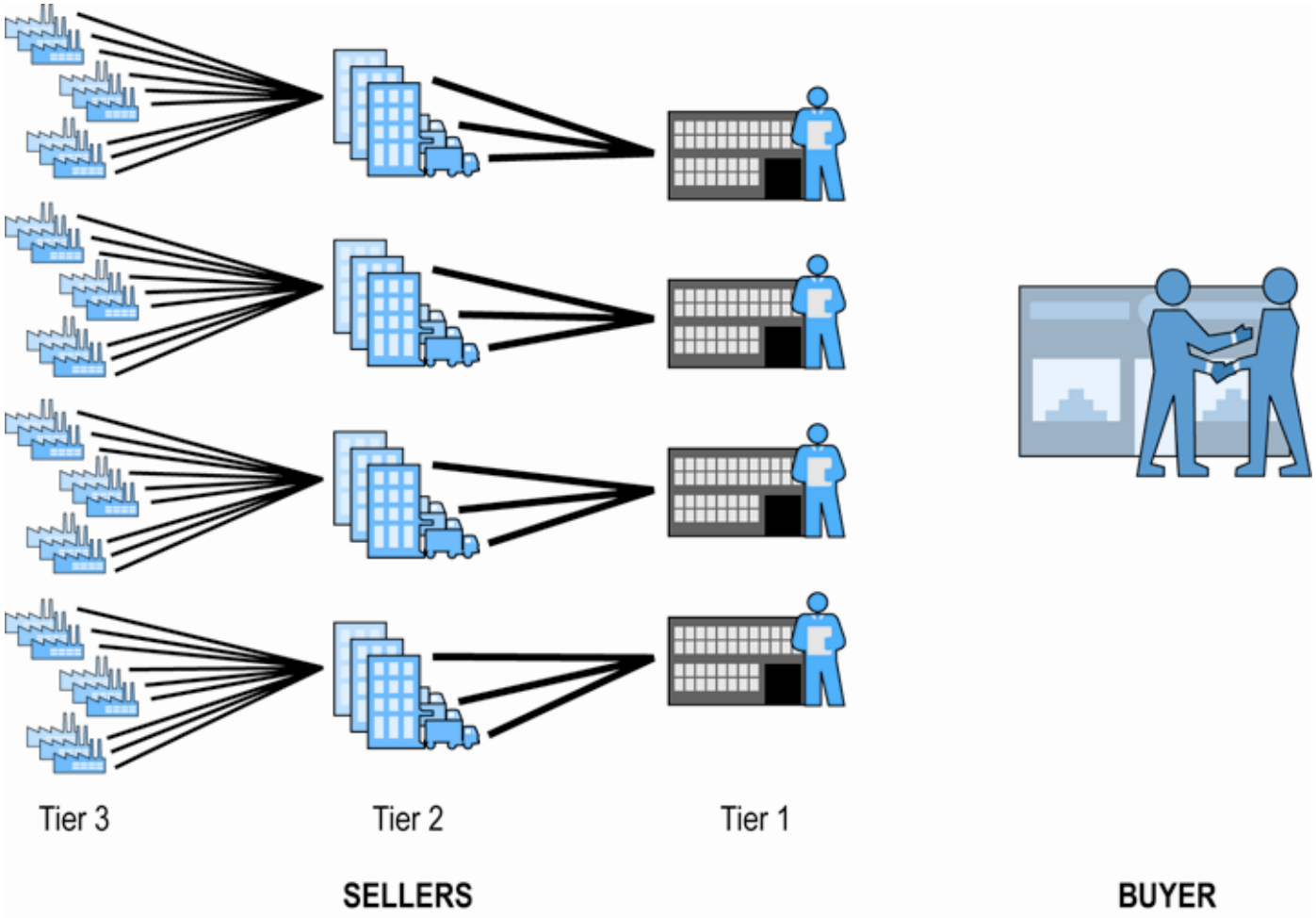


Figure 12.4, Page 771

The Role of Existing Legacy Computer Systems

- **Legacy computer systems**
  - Generally, older mainframe and minicomputer systems used to manage key business processes within firm
- **Enterprise systems**
  - Corporate-wide
  - Support/control all aspects of production, including
    - Procurement
    - Finance
    - Human resources

Trends in Supply Chain Management

- **Supply chain management (SCM)**
  - Activities used to coordinate key players in the procurement process
- **Major developments in SCM**
  - Just-in-time and lean production
  - Supply chain simplification
  - Adaptive supply chains
  - Accountable supply chains
  - Sustainable supply chains
  - Electronic data interchange
  - Supply chain management systems
  - Collaborative commerce

Just-in-Time and Lean Production

- **Just-in-Time production**
  - Method of inventory cost management
  - Seeks to eliminate excess inventory to bare minimum
- **Lean production**
  - Set of production methods and tools
  - Focuses on elimination of waste throughout customer value chain, not just inventory

Supply Chain Simplification

- **Reducing size of supply chain**
  - Working with strategic group of suppliers to reduce product and administrative costs and improving quality
- **Essential for just-in-time production models**
- **May involve:**
  - Joint product development and design
  - Integration of computer systems
  - Tight coupling
    - Ensuring precise delivery of ordered parts at specific times

Adaptive Supply Chains

- **Reducing centralization**
  - Reduce risks caused by relying on single suppliers who are subject to local instability
    - e.g., European financial crisis, Japanese earthquake
- **Creating regional or product-based supply chains**
  - Allowing production to be moved to temporary safe harbors in case of local manufacturing disruptions

Accountable Supply Chains

- **Labor conditions in low-wage, under-developed producer countries are acceptable to consumers**
  - Slave/forced labor
  - Child labor
  - Routine exposure to toxic substances
  - More than 48 hrs/week
  - Harassment and abuse
  - Sexual exploitation
  - Adequate compensation

Sustainable Supply Chains

- **Taking social and ecological interests into account**
  - e.g., water usage, air pollution
- **Using most efficient environment—regarding means of production, distribution, logistics**
  - Good business, over long-term
  - Create value for consumers, investors, communities

Electronic Data Interchange (EDI)

- **Broadly defined communications protocol for exchanging documents among computers**
  - **Stage 1:** 1970s–1980s—Document automation
  - **Stage 2:** Early 1990s—Document elimination
  - **Stage 3:** Mid-1990s—Continuous replenishment/access model
- **Today:**
  - EDI provides for exchange of critical business information between computer applications supporting wide variety of business processes

The Evolution of EDI as a B2B Medium

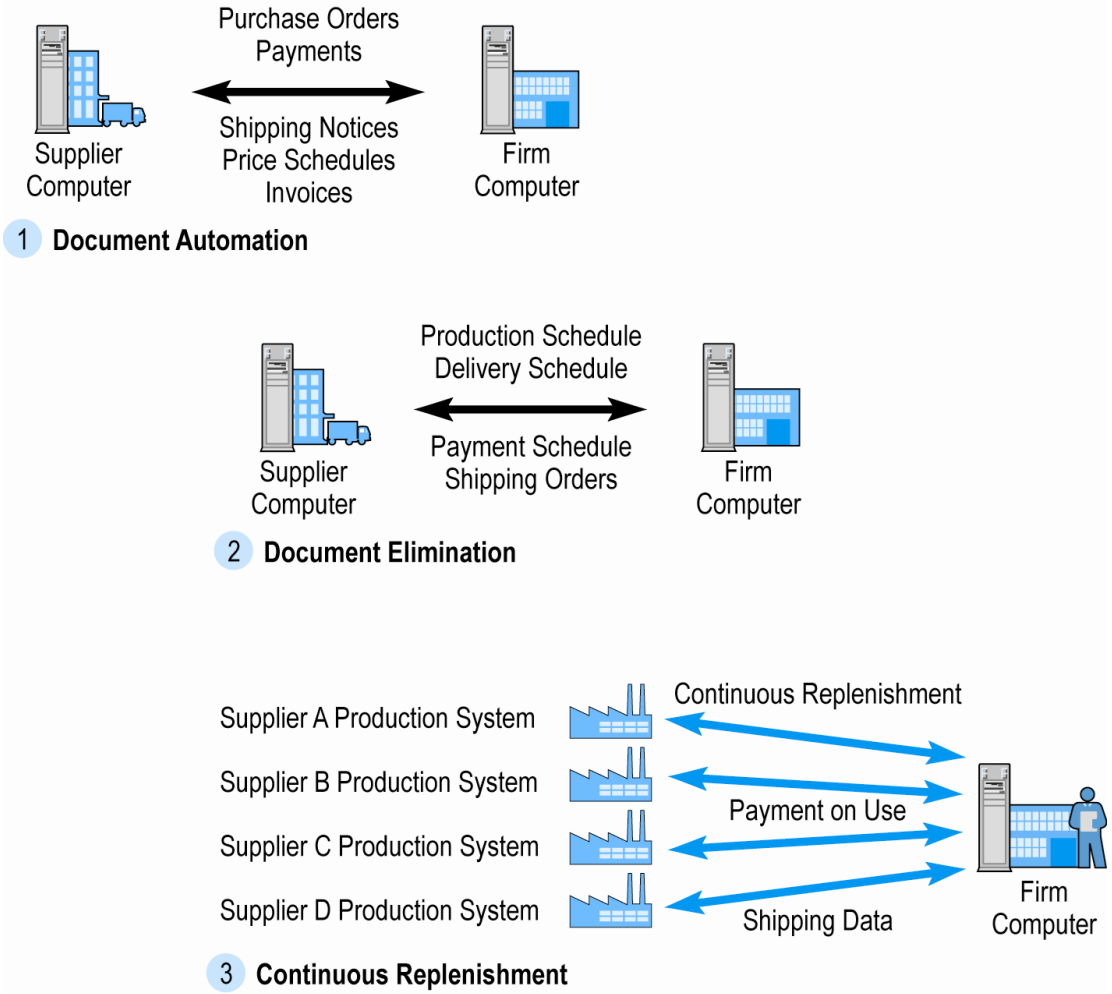


Figure 12.5, Page 777

Supply Chain Management Systems

- **Continuously link activities of buying, making, and moving products from suppliers to purchasing firms**
  - SAP and Oracle Mobile apps for smartphones, tablets
- **Integrates demand side of business equation by including order entry system in the process**
- **With SCM system and continuous replenishment, inventory is eliminated and production begins only when order is received**
- **Hewlett Packard's SCM system: Elapsed time from order entry to shipping PC is 48 hours**

Supply Chain Management Systems

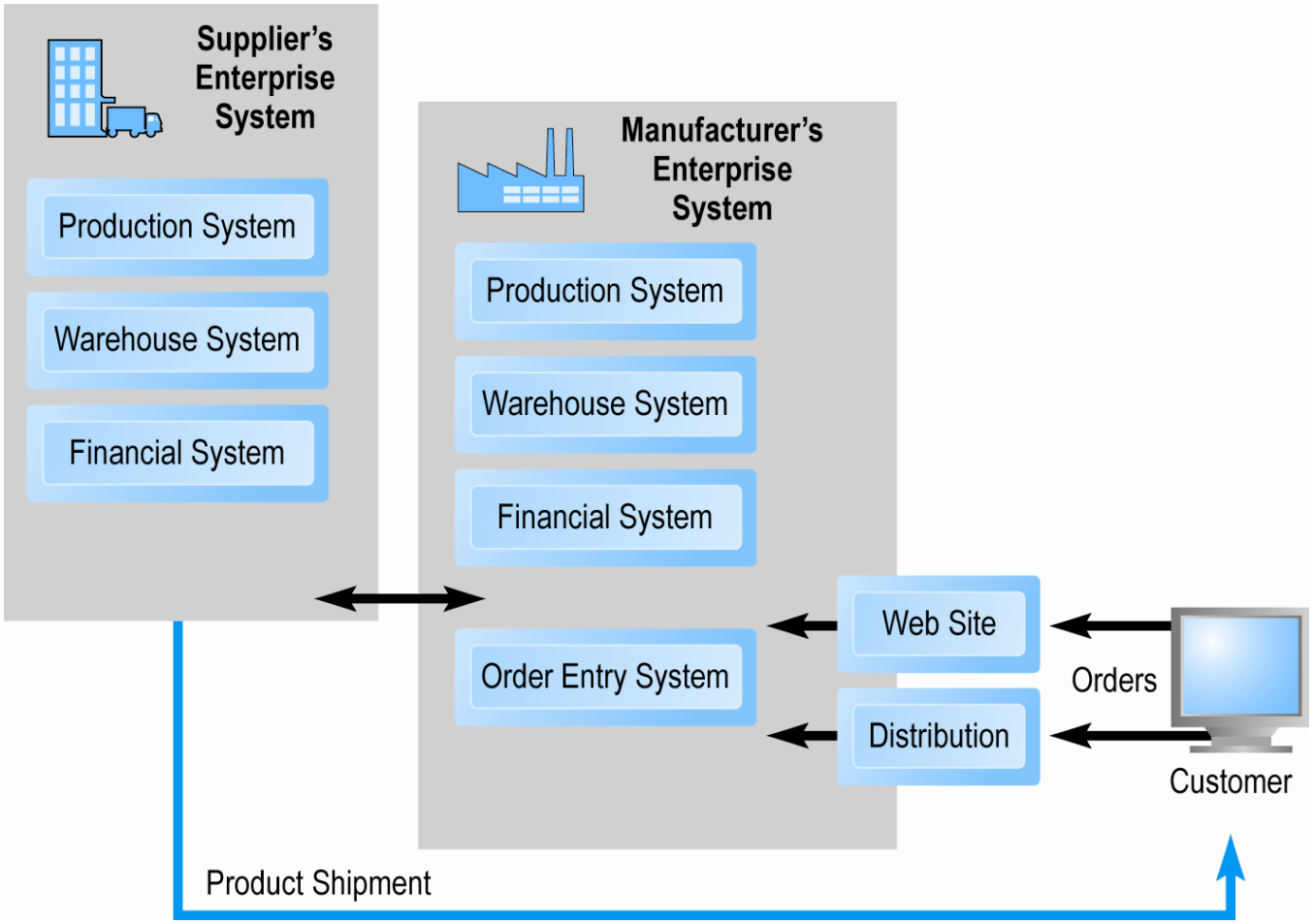


Figure 12.6, Page 779

RFID Autoidentification: Giving a Voice to Your Inventory

- **Why is RFID an improvement over bar codes?**
- **How does RFID work?**
- **How is Walmart utilizing RFID?**
- **What impact will widespread adoption of RFID have on B2B e-commerce?**

Collaborative Commerce

- **Use of digital technologies for organizations to collaboratively design, produce, and manage products through life cycles**
- **Moves focus from transactions to relationships among supply chain participants**
- **Unlike EDI, more like an interactive teleconference among members of supply chain**
- **Use of Internet technologies for rich communications environment**
  - Sharing designs, documents, messages, network meetings, videconferencing

Elements of a Collaborative Commerce System

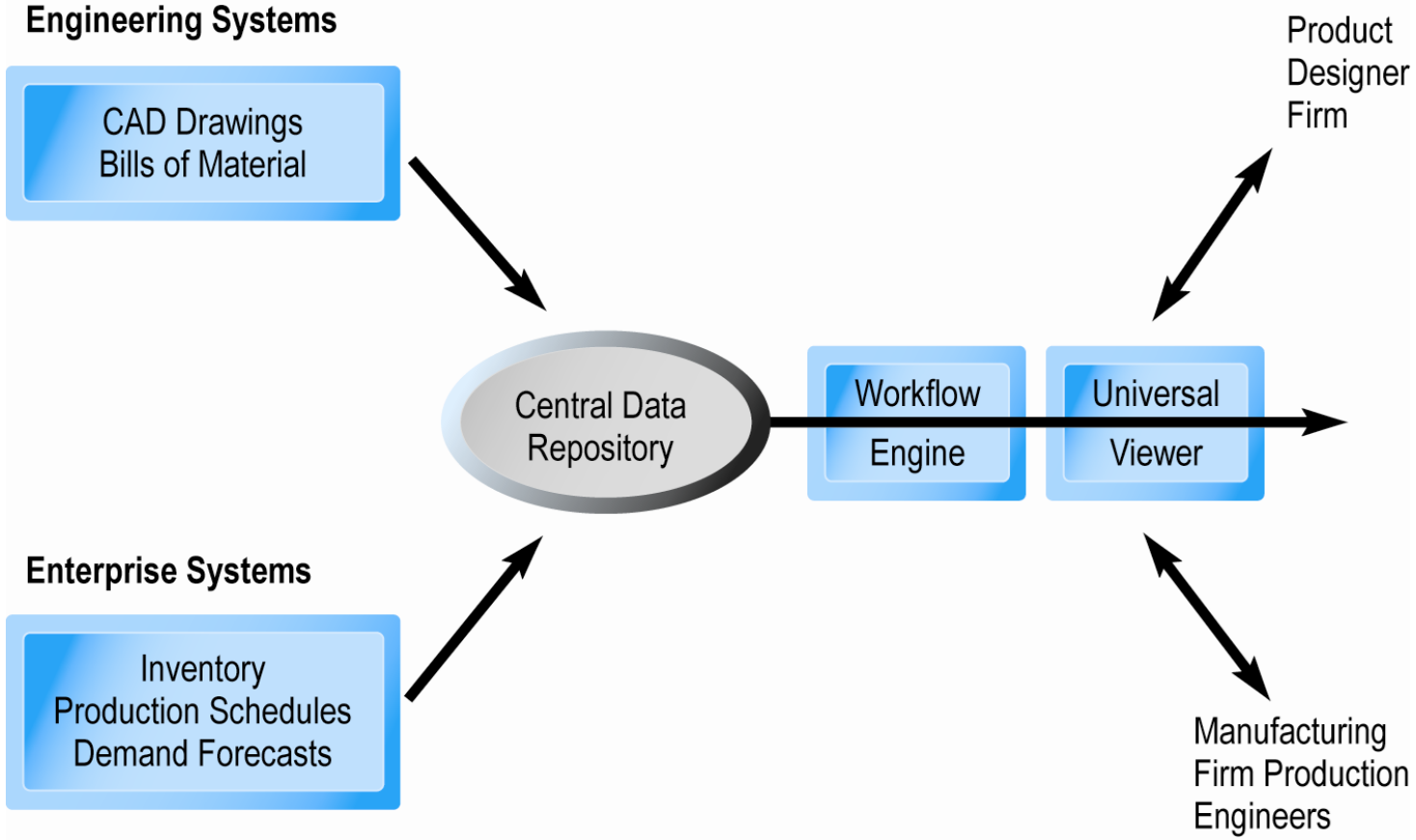


Figure 12.7, Page 783

Social Networks and B2B

- **Social networks can provide personal connections that can help decision making in supply chain**
- **TradeSpace**
  - UK-based; buying and selling products
- **Dell's YouTube channel**
- **Cisco's Facebook pages for product campaigns for business clients**

Two Main Types of Internet-based B2B Commerce

1. Net marketplaces:

- Bring together potentially thousands of sellers and buyers in single digital marketplace operated over Internet
- Transaction-based
- Support many-to-many as well as one-to-many relationships

2. Private industrial networks:

- Bring together small number of strategic business partner firms that collaborate to develop highly efficient supply chains
- Relationship-based
- Support many-to-one and many-to-few relationships
- Largest form of B2B e-commerce

Two Main Types of Internet-Based B2B Commerce

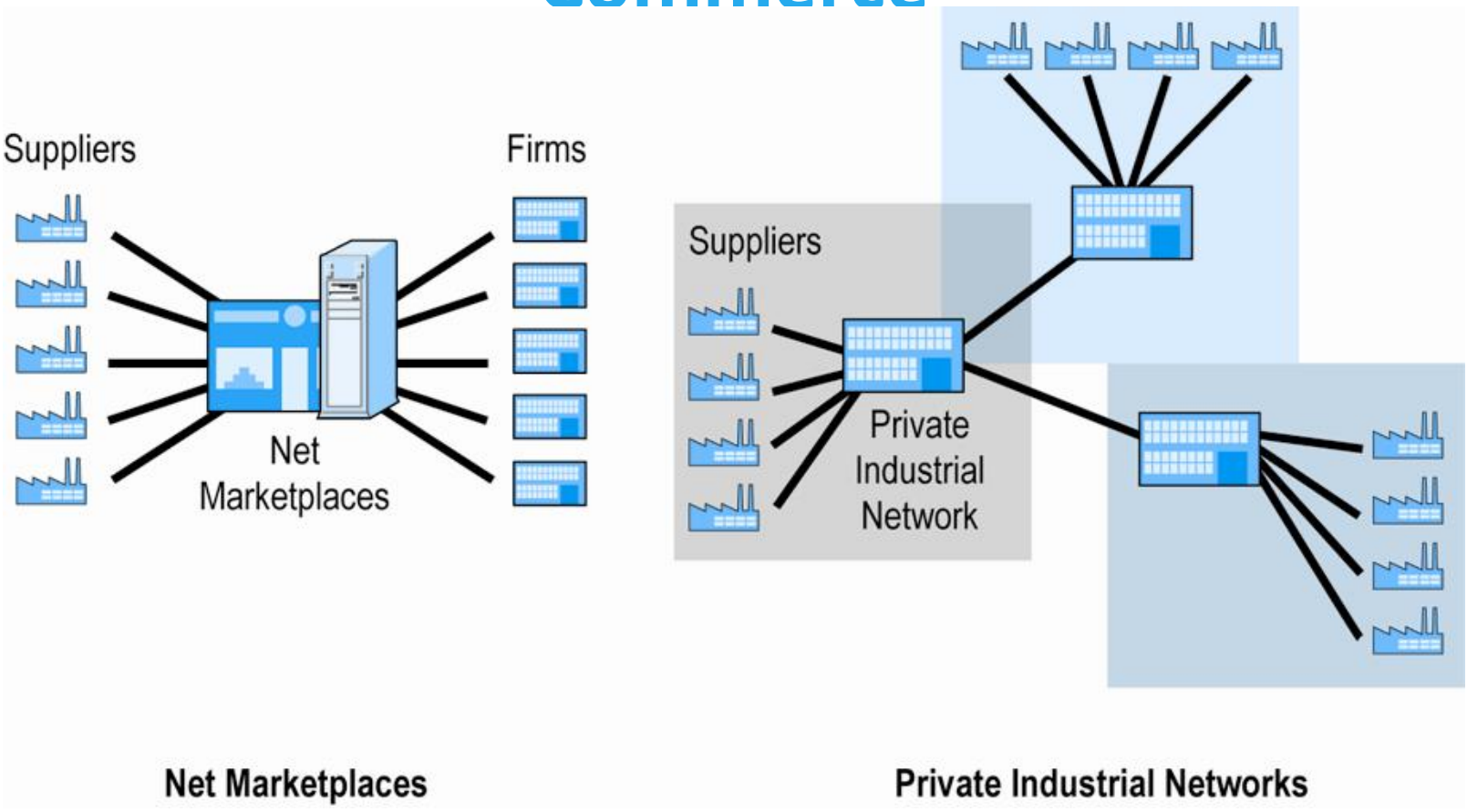


Figure 12.8, Page 785

Net Marketplaces

- **Ways to classify Net marketplaces:**
  - Pricing mechanism, nature of market served, ownership
- **By business functionality**
  - What businesses buy (direct vs. indirect goods)
  - How businesses buy (spot purchasing vs. long-term sourcing)
  - Four main types
    - E-distributors
    - E-procurement
    - Exchanges
    - Industry consortia

TABLE 12.2 OTHER CHARACTERISTICS OF NET MARKETPLACES: A B2B VOCABULARY

CHARACTERISTIC	MEANING
Bias	Sell-side vs. buy-side vs. neutral. Whose interests are advantaged: buyers, sellers, or no bias?
Ownership	Industry vs. third party. Who owns the marketplace?
Pricing mechanism	Fixed-price catalogs, auctions, bid/ask, and RFPs/RFQs.
Scope/Focus	Horizontal vs. vertical markets.
Value creation	What benefits do they offer customers or suppliers?
Access to market	In public markets, any firm can enter, but in private markets, entry is by invitation only.

Table 12.2, p. 786

Pure Types of Net Marketplaces

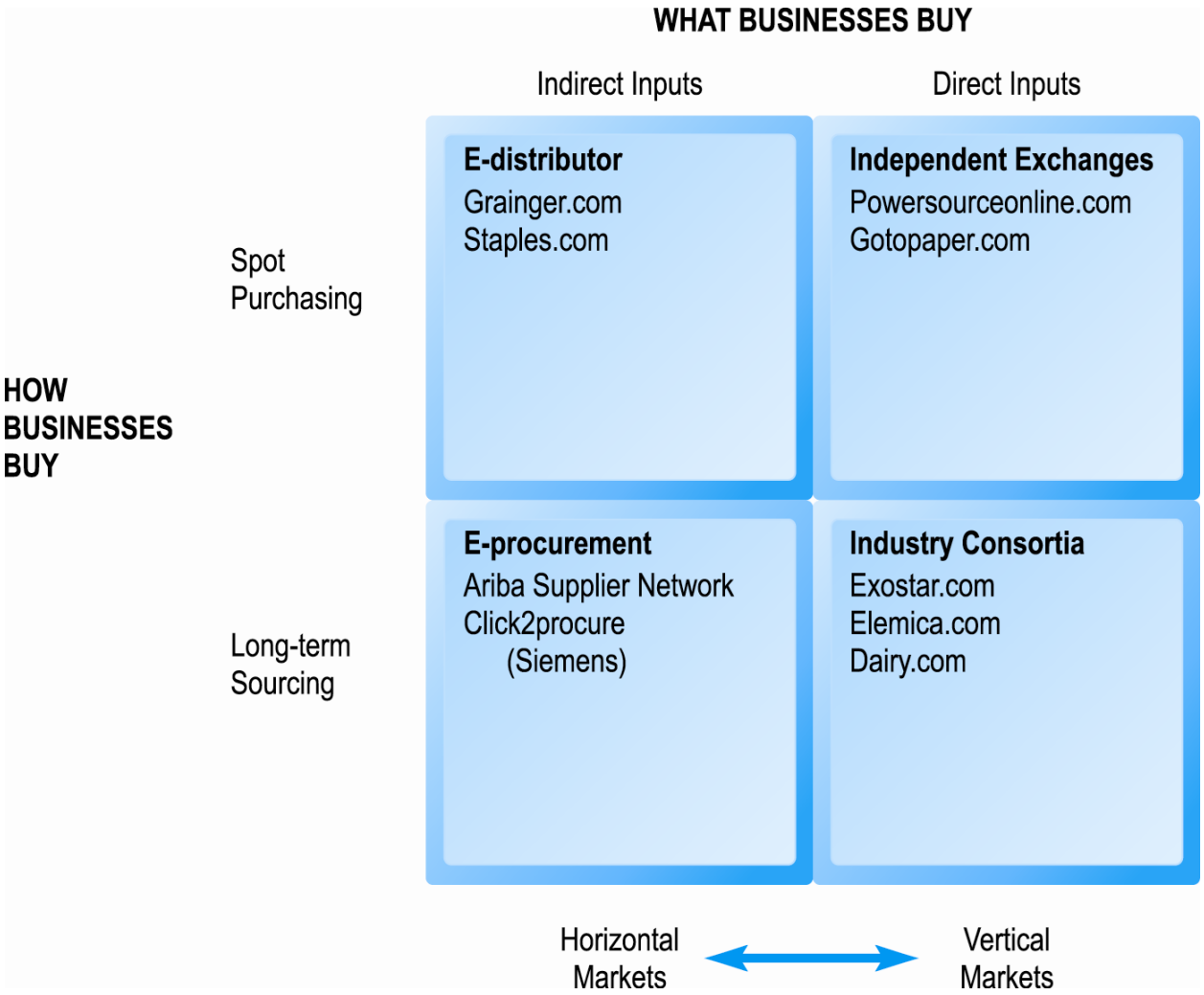


Figure 12.9, Page 787

E-distributors

- Most common type of Net marketplace
- Electronic catalogs representing products of thousands of direct manufacturers
- Typically, independently owned intermediaries
- Offer industrial customers single source to purchase indirect goods on spot basis
- Typically, horizontal
- Usually, fixed price—discounts for large customers
- e.g., W.W. Grainger

E-distributors

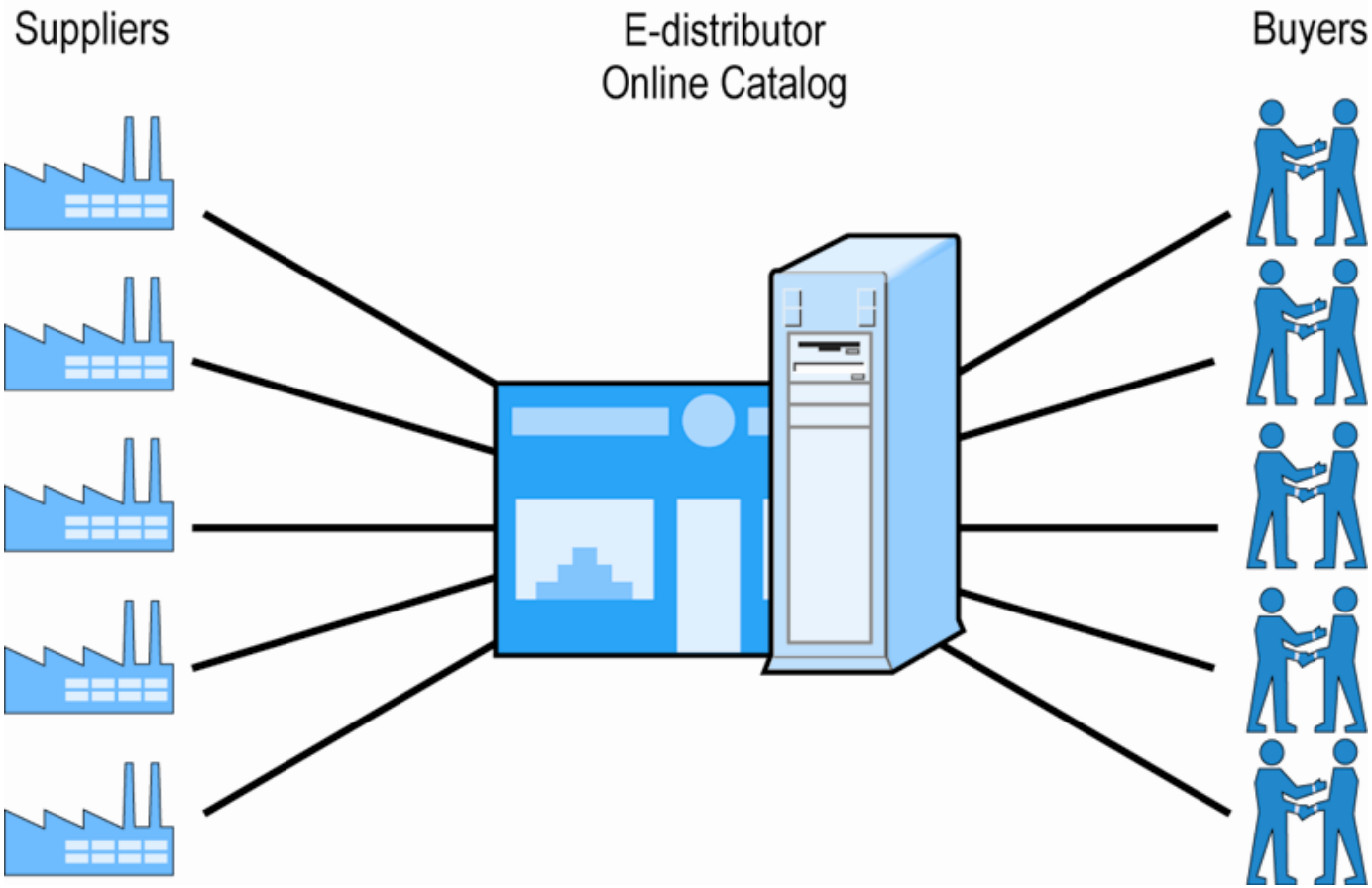


Figure 12.10, Page 788

E-procurement Net Marketplaces

- Independently owned intermediaries
- Connect hundreds of suppliers of indirect goods
- Firms pay fees to join market
- Long-term contractual purchasing of indirect goods
- Revenues from transaction fees, licensing consultation services and software, network fees
- Offer value chain management (VCM) services
- Many-to-many market
- e.g., Ariba

E-procurement Net Marketplaces

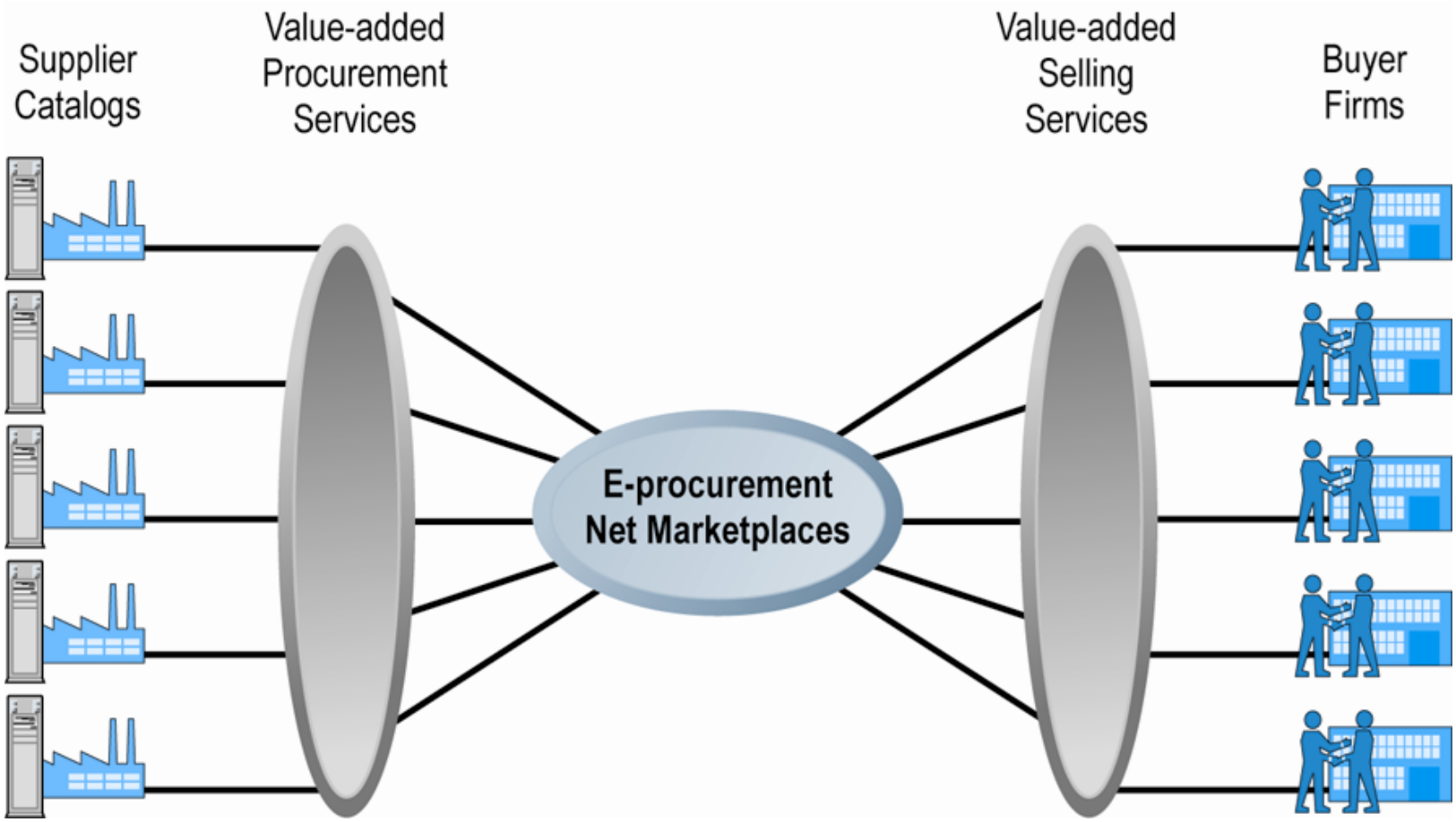


Figure 12.11, Page 789

Exchanges

- Independently owned online marketplaces
- Connect hundreds to thousands of suppliers and buyers in dynamic, real-time environment
- Vertical markets, spot purchasing in single industry
- Charge commission fees on transaction
- Variety of pricing models
- Tend to be buyer-biased
- Suppliers disadvantaged by competition
- Many have failed due to low liquidity

Exchanges

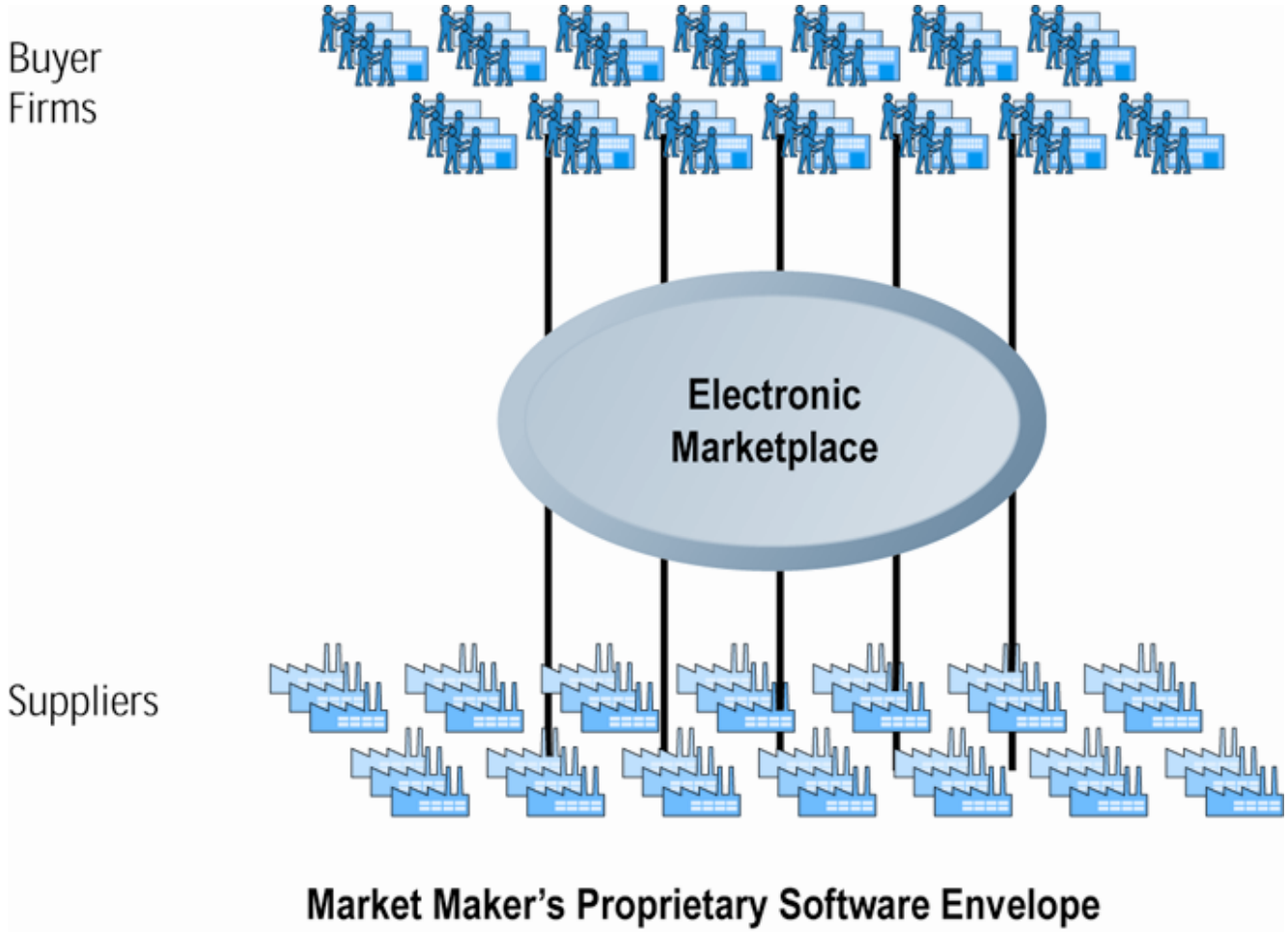


Figure 12.12, Page 791

Industry Consortia

- **Industry-owned vertical markets**
- **Purchase of direct inputs from set of invited participants**
- **Emphasize long-term contractual purchasing, stable relationships, creation of data standards**
- **Ultimate objective:**
  - Unification of supply chains within entire industries through common network and computing platform
- **Revenue from transaction and subscription fees**
  - Many different pricing mechanisms
- **Can force suppliers to use consortia's networks**

Industry Consortia

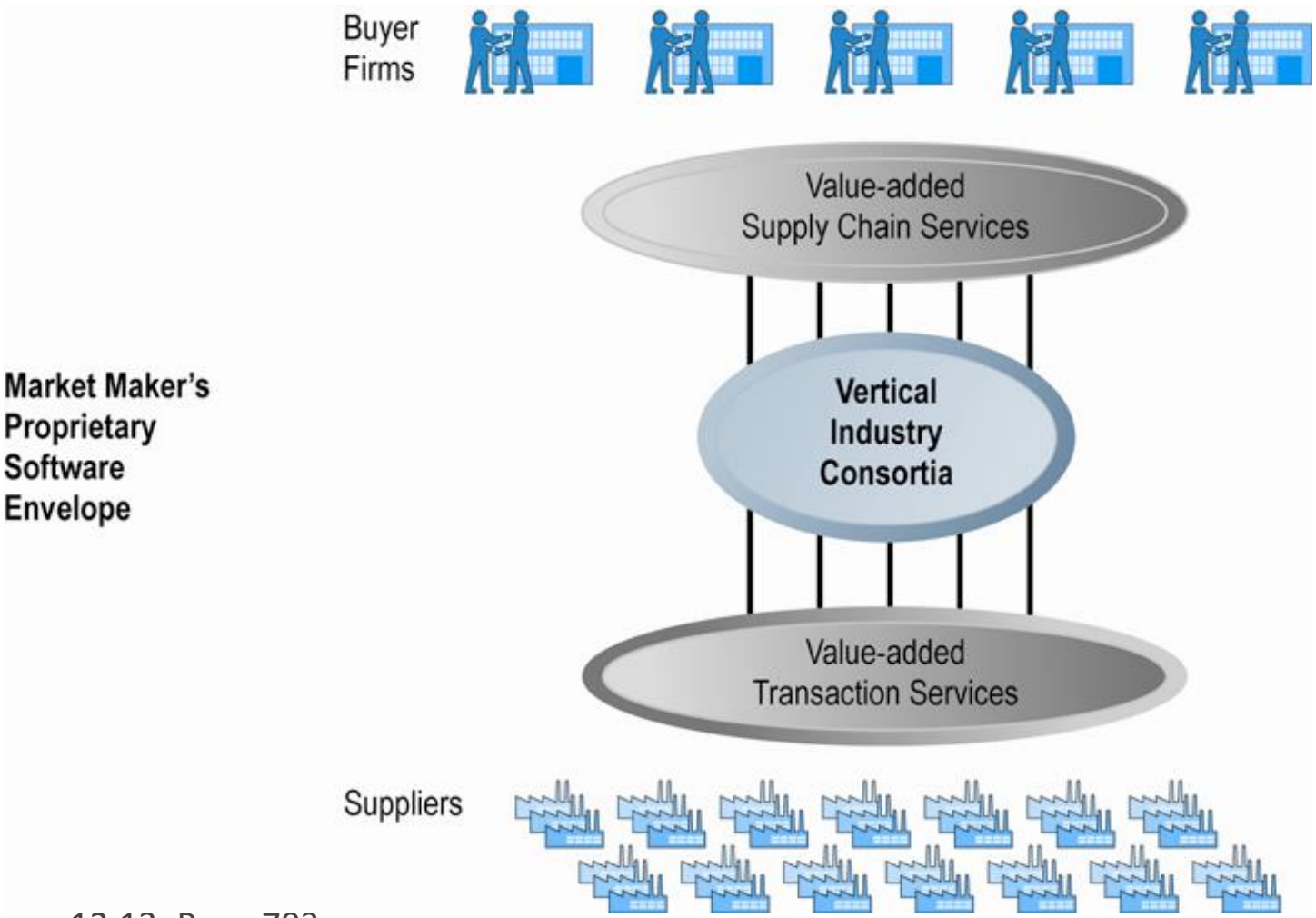


Figure 12.13, Page 793

The Long-term Dynamics of Net Marketplaces

- Pure Net marketplaces moving from "electronic marketplace" vision toward more central role in changing procurement process
- Consortia and exchanges beginning to work together in selected markets
- E-distributors joining large e-procurement systems and industry consortia as suppliers
- Movement from simple transactions for spot purchasing to longer-term contractual relationships involving both direct and indirect goods

Net Marketplace Trends

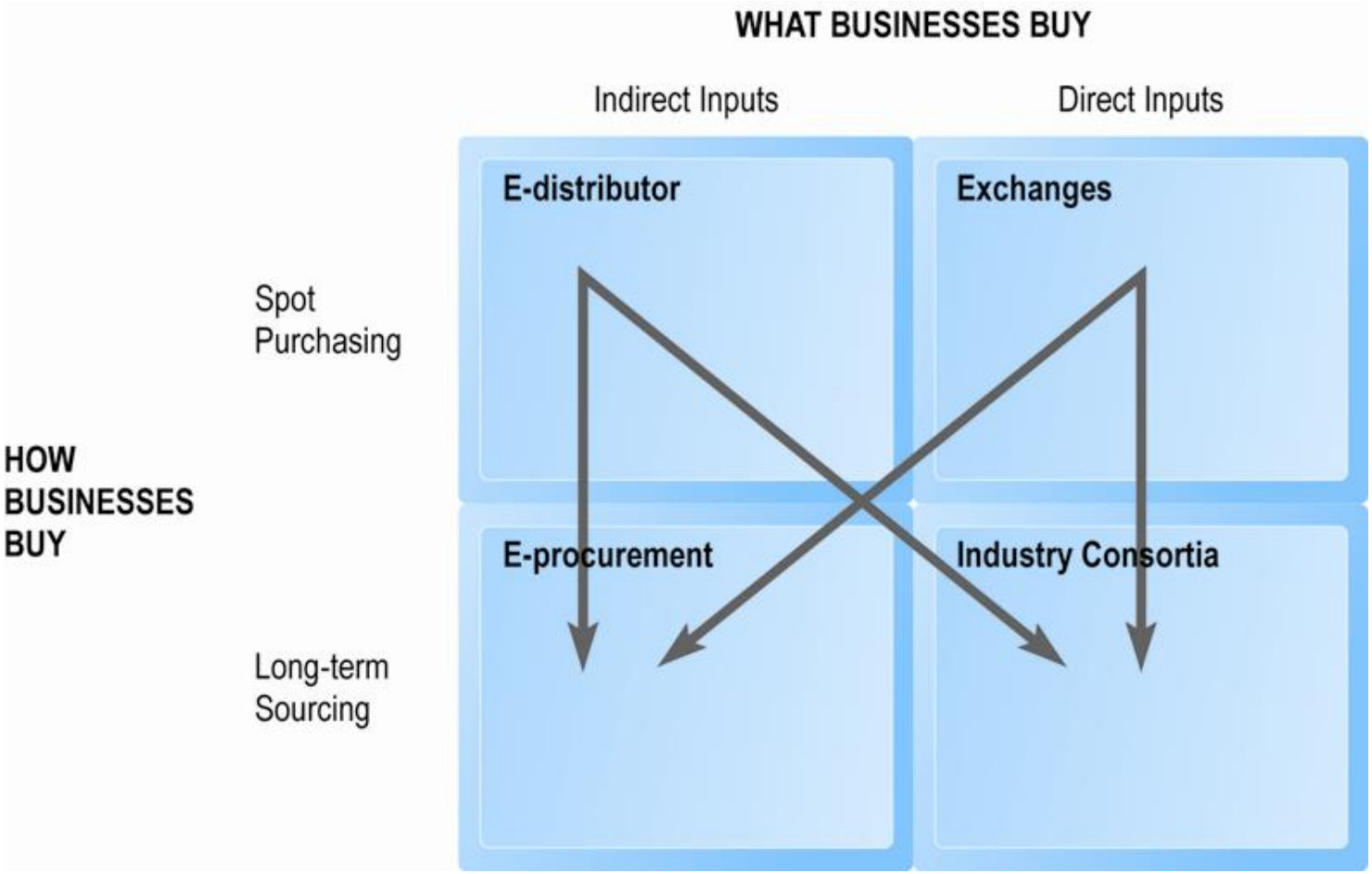


Figure 12.14, Page 796

Private Industrial Networks

- **Private trading exchanges (PTXs)**
- **Web-enabled networks for coordination of trans-organizational business processes (collaborative commerce)**
  - Direct descendant of EDI; closely tied to ERP systems
  - Manufacturing and support industries
  - Single, large manufacturing firm sponsors network
- **Range in scope from single firm to entire industry**
- **e.g., Procter & Gamble**

P&G's Private Industrial Network

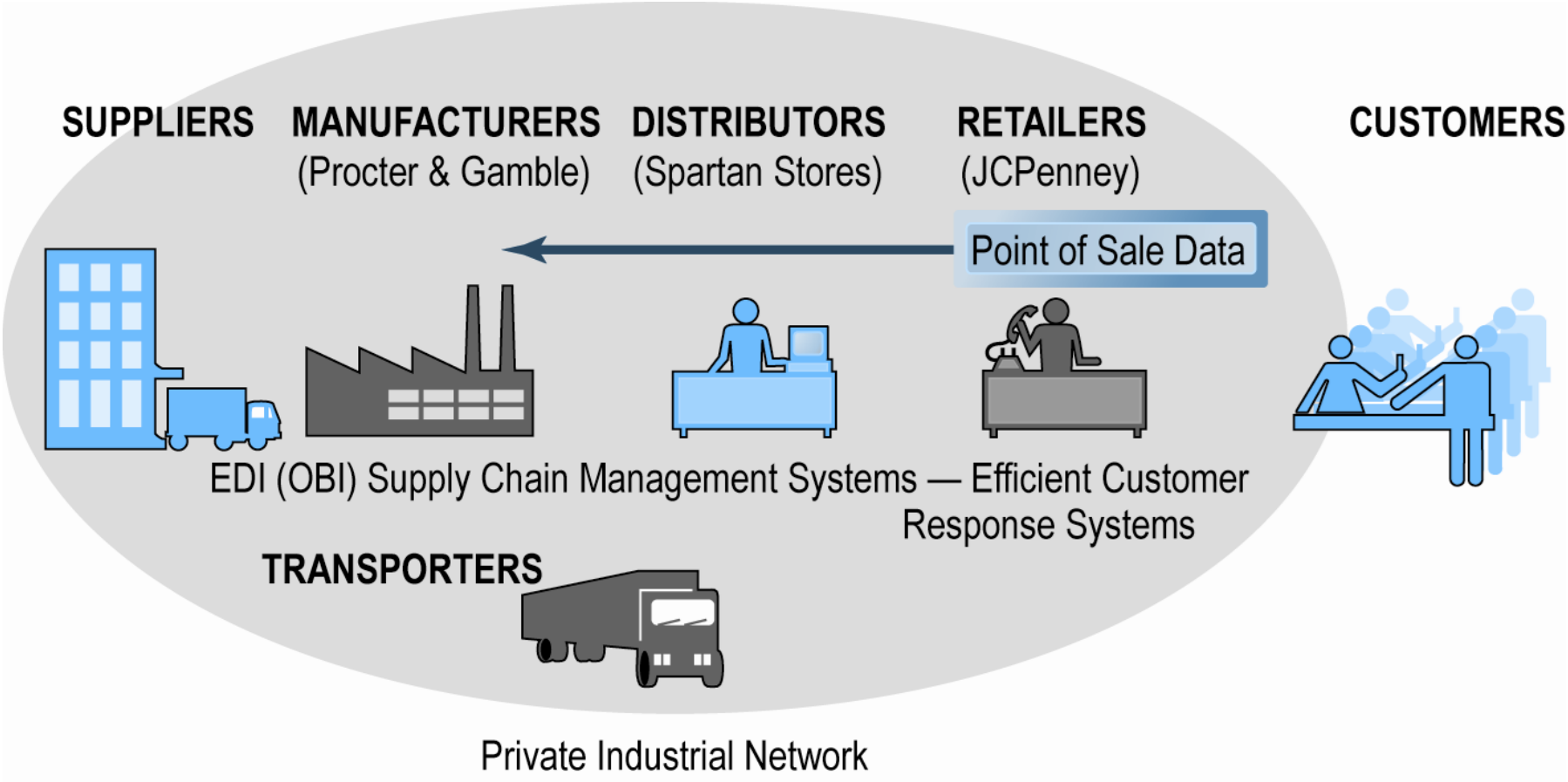


Figure 12.15, Page 797

Characteristics of Private Industrial Networks

- **Objectives include:**
  - Efficient purchasing and selling industry-wide
  - Industry-wide resource planning to supplement enterprise-wide resource planning
  - Increasing supply chain visibility
  - Closer buyer-supplier relationships
  - Global scale operations
  - Reducing industry risk by preventing imbalances of supply and demand
- **Focus on continuous business process coordination**
- **Typically, focus on single sponsoring company that "owns" the network**

Walmart Develops a Private Industrial Network

- **What is Walmart's Retail Link system and how has it changed since the early 1990s?**
- **Why is Walmart still using EDI-based systems?**
- **Why won't Walmart join in an industry-backed system?**
- **How can other companies compete with Walmart?**

Private Industrial Networks and Collaborative Commerce

- **Forms of collaboration:**
  - Collaborative resource planning, forecasting, and replenishment (CPFR):
    - Working with network members to forecast demand, develop production plans, and coordinate shipping, warehousing and stocking activities to ensure that retail and wholesale shelf space is replenished with just the right amount of goods
  - Demand chain visibility
  - Marketing coordination and product design
    - Can ensure products fulfill claims of marketing
    - Feedback enables closed loop marketing

Pieces of the Collaborative Commerce Puzzle

Figure 12.16, Page 802

Implementation Barriers

- **Concerns about sharing of proprietary, sensitive data**
- **Integration of private industrial networks into existing ERP systems and EDI networks difficult, expensive**
- **Requires change in mindset and behavior of employees and suppliers**
  - All participants lose some independence