

Electronic Commerce

Ninth Edition

Chapter 1

Introduction to Electronic Commerce

Learning Objectives

In this chapter, you will learn about:

- What electronic commerce is and how it has evolved into a second wave of growth
- Why companies concentrate on revenue models and the analysis of business processes instead of business models when they undertake electronic commerce initiatives
- How economic forces have created a business environment that is fostering the second wave of electronic commerce

Learning Objectives (cont'd.)

- How businesses use value chains and SWOT analysis to identify electronic commerce opportunities
- The international nature of electronic commerce and the challenges that arise in engaging in electronic commerce on a global scale

Electronic Commerce: The Second Wave

- Electronic commerce history
 - Mid-1990s to 2000: rapid growth
 - “Dot-com boom” followed by “dot-com bust”
 - 2000 to 2003: overly gloomy news reports
 - 2003: signs of new life
 - Sales and profit growth return
 - Electronic commerce growing at a rapid pace
 - Electronic commerce becomes part of general economy
 - 2008 general recession
 - Electronic commerce hurt less than most of economy
 - Second wave underway

Electronic Commerce and Electronic Business

- **Electronic commerce**
 - Shopping on the Web
 - Businesses trading with other businesses
 - Internal company processes
 - Broader term: **electronic business (e-business)**
- Electronic commerce includes:
 - All business activities using Internet technologies
 - Internet and World Wide Web (Web)
 - Wireless transmissions on mobile telephone networks
- **Dot-com (pure dot-com)**
 - Businesses operating only online

Categories of Electronic Commerce

- Business-to-consumer (B2C)
 - Consumer shopping on the Web
- Business-to-business (B2B): **e-procurement**
 - Transactions conducted between Web businesses
 - **Supply management (procurement)** departments
 - Negotiate purchase transactions with suppliers
- Business processes
 - Using Internet technologies to support organization selling and purchasing activities
- Consumer-to-consumer (C2C)
- Business-to-government (B2G)

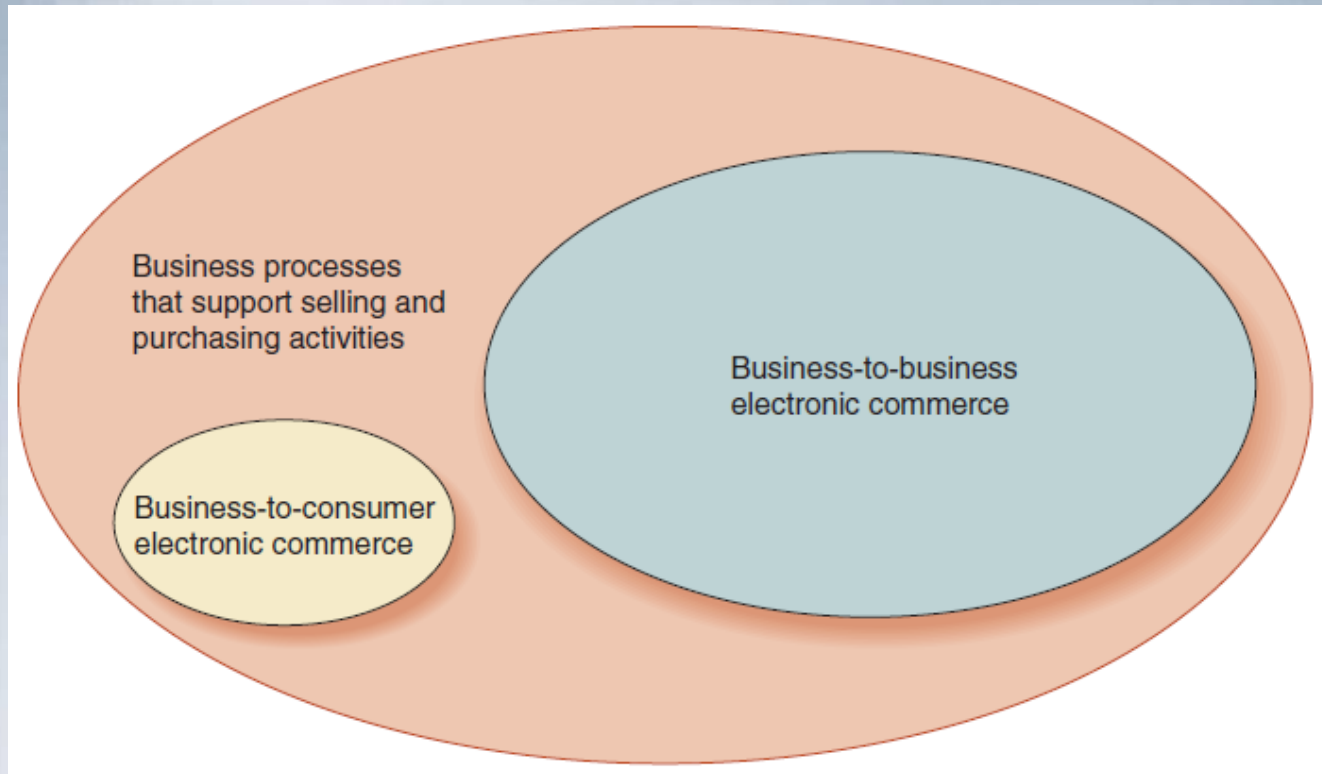


FIGURE 1-1 Elements of electronic commerce

Categories of Electronic Commerce (cont'd.)

- Elements of electronic commerce
 - Relative sizes of elements
 - Rough approximation
 - Dollar volume and number of transactions
 - B2B much greater than B2C
 - Number of transactions
 - Supporting business processes greater than B2C and B2B combined

Categories of Electronic Commerce (cont'd.)

- **Activity**
 - Task performed by a worker in the course of doing his or her job
 - May or may not be related to a transaction
- **Transaction:** exchange of value
 - Purchase, sale, or conversion of raw materials into finished product
 - Involves at least one activity
- **Business processes**
 - Group of logical, related, sequential activities and transactions

Categories of Electronic Commerce (cont'd.)

- Web helping people work more effectively
 - **Telecommuting (telework)**
- **Consumer-to-consumer (C2C)**
 - Individuals buying and selling among themselves
 - Web auction site
 - C2C sales included in B2C category
 - Seller acts as a business (for transaction purposes)
- **Business-to-government (B2G)**
 - Business transactions with government agencies
 - Paying taxes, filing required reports
 - B2G transactions included in B2B discussions

Category	Description	Example
Business-to-consumer (B2C)	Businesses sell products or services to individual consumers.	Walmart.com sells merchandise to consumers through its Web site.
Business-to-business (B2B)	Businesses sell products or services to other businesses.	Grainger.com sells industrial supplies to large and small businesses through its Web site.
Business processes that support buying and selling activities	Businesses and other organizations maintain and use information to identify and evaluate customers, suppliers, and employees. Increasingly, businesses share this information in carefully managed ways with their customers, suppliers, employees, and business partners.	Dell Computer uses secure Internet connections to share current sales and sales forecast information with suppliers. The suppliers can use this information to plan their own production and deliver component parts to Dell in the right quantities at the right time.
Consumer-to-consumer (C2C)	Participants in an online marketplace can buy and sell goods to each other. Because one party is selling, and thus acting as a business, this book treats C2C transactions as part of B2C electronic commerce.	Consumers and businesses trade with each other in the eBay.com online marketplace.
Business-to-government (B2G)	Businesses sell goods or services to governments and government agencies. This book treats B2G transactions as part of B2C electronic commerce.	CA.gov procurement site allows businesses to sell online to the state of California.

FIGURE 1-2 Electronic commerce categories

The Development and Growth of Electronic Commerce

- People engaging in commerce:
 - Adopt available tools and technologies
- Internet
 - Changed way people buy, sell, hire, organize business activities
 - More rapidly than any other technology
- **Electronic Funds Transfers (EFTs)**
 - **Wire transfers**
 - Electronic transmissions of account exchange information
 - Uses private communications networks

The Development and Growth of Electronic Commerce (cont'd.)

- **Electronic Data Interchange (EDI)**
 - Business-to-business transmission
 - Computer-readable data in standard format
 - Standard transmitting formats benefits
 - Reduces errors
 - Avoids printing and mailing costs
 - Eliminates need to reenter data
- **Trading partners**
 - Businesses engaging in EDI with each other
 - EDI pioneers (General Electric, Sears, Wal-Mart)
 - Improved purchasing processes and supplier relationships

The Development and Growth of Electronic Commerce (cont'd.)

- EDI pioneers problem
 - High implementation cost
 - Expensive computer hardware and software
 - Establishing direct network connections to trading partners or subscribing to value-added network
 - **Value-added network (VAN)**
 - Independent firm offering EDI connection and transaction-forwarding services
 - Ensure transmitted data security
 - Charge fixed monthly fee plus per transaction charge
 - Gradually moved EDI traffic to the Internet
 - Reduced EDI costs

The Dot-Com Boom, Bust, and Rebirth

- 1997 to 2000 irrational exuberance
 - 12,000 Internet-related businesses started
 - \$100 billion of investors' money
 - 5,000+ companies went out of business or acquired
- 2000 to 2003
 - \$200 billion invested
 - Fueled online business activity growth rebirth
 - Online B2C sales growth continued more slowly
- 2008-2009 recession
 - B2C and B2B increasing growth rates continue
 - Driving force: people with Internet access increasing

Year	B2C Sales: Actual and Estimated \$ Billions	B2B Sales (Including EDI): Actual and Estimated \$ Billions
2011	360	9500
2010	330	8600
2009	300	7500
2008	270	6500
2007	230	5600
2006	200	4800
2005	170	4100
2004	130	2800
2003	100	1600
2002	80	900
2001	70	730
2000	50	600
1999	25	550
1998	10	520
1997	5	490
1996	Less than 1	460

Adapted from reports by ClickZ Network (http://www.clickz.com/stats/stats_toolbox/); eMarketer (<http://www.emarketer.com/>); Forrester Research (<http://www.forrester.com/>); and the *Statistical Abstract of the United States*, 2008, Washington: U.S. Census Bureau.

FIGURE 1-3 Actual and estimated online sales in B2C and B2B categories

The Second Wave of Electronic Commerce

- Four waves based on the Industrial Revolution
- First and second wave characteristics
 - Regional scope
 - First wave: United States phenomenon
 - Second wave: international
 - Start-up capital
 - First wave: easy to obtain
 - Second wave: companies using internal funds
 - Internet technologies used
 - First wave: slow and inexpensive (especially B2C)
 - Second wave: broadband connections

The Second Wave of Electronic Commerce (cont'd.)

- First and second wave characteristics (cont'd.)
 - Internet technology integration
 - First wave: bar codes, scanners
 - Second wave: Radio Frequency Identification (RFID) devices, smart cards, biometric technologies
 - Electronic mail (e-mail) use
 - First wave: unstructured communication
 - Second wave: integral part of marketing, customer contact strategies
 - Revenue source
 - First wave: online advertising (failed)
 - Second wave: Internet advertising (more successful)

The Second Wave of Electronic Commerce (cont'd.)

- First and second wave characteristics (cont'd.)
 - Digital product sales
 - First wave: fraught with difficulties (music industry)
 - Second wave: fulfilling available technology promise
 - **Mobile telephone based commerce** (mobile commerce or m-commerce)
 - **Smart phone** technology enabling mobile commerce
 - **Web 2.0**: making new Web business possible
 - Business online strategy
 - First wave: **first-mover advantage**
 - Second wave: businesses not relying on first-mover advantage

Electronic Commerce Characteristic	First Wave	Second Wave
International character of electronic commerce	Dominated by U.S. companies	Global enterprises in many countries participating in electronic commerce
Languages	Most electronic commerce Web sites in English	Many electronic commerce Web sites available in multiple languages
Funding	Many new companies started with outside investor money	Established companies funding electronic commerce initiatives with their own capital
Connection technologies	Many electronic commerce participants used slow Internet connections	Rapidly increasing use of broadband technologies for Internet connections
B2B technologies	B2B electronic commerce relied on a patchwork of disparate communication and inventory management technologies	B2B electronic commerce increasingly is integrated with Radio Frequency Identification and biometric devices to manage information and product flows effectively
E-mail contact with customers	Unstructured e-mail communication with customers	Customized e-mail strategies now integral to customer contact
Advertising and electronic commerce integration	Overreliance on simple forms of online advertising as main revenue source	Use of multiple sophisticated advertising approaches and better integration of electronic commerce with existing business processes and strategies
Distribution of digital products	Widespread piracy due to ineffective distribution of digital products	New approaches to the sale and distribution of digital products
First-mover advantage	Rely on first-mover advantage to ensure success in all types of markets and industries	Realize that first-mover advantage leads to success only for some companies in certain specific markets and industries

FIGURE 1-4 Key characteristics of the first two waves of electronic commerce

Business Models, Revenue Models, and Business Processes

- **Business model**
 - Set of processes combined to achieve company goal of yielding profit
- **Electronic commerce first wave**
 - Investors sought Internet-driven business models
 - Expectations of rapid sales growth, market dominance
 - Saw copying of successful “dot-com” business models
 - Michael Porter argued business models did not exist

Business Models, Revenue Models, and Business Processes (cont'd.)

- Instead of copying model, examine business elements
 - Streamline, enhance, replace with Internet technology driven processes
- **Revenue model** used today
 - Specific collection of business processes
 - Identify customers
 - Market to those customers
 - Generate sales
 - Helpful for classifying revenue-generating activities
 - Communication and analysis purposes

Focus on Specific Business Processes

- Companies think in terms of business processes
 - Purchasing raw materials or goods for resale
 - Converting materials and labor into finished goods
 - Managing transportation and logistics
 - Hiring and training employees
 - Managing business finances
- Identify processes benefiting from e-commerce technology
- Uses of Internet technologies
 - Improve existing business processes, identify new business opportunities, adapt to change

Role of Merchandising

- **Merchandising**
 - Combination of store design, layout, product display knowledge
- **Salespeople skills**
 - Identify customer needs
 - Find products or services meeting needs
- **Merchandising and personal selling**
 - Difficult to practice remotely
- **Web site success**
 - Transfer merchandising skills to the Web
 - Easier for some products than others

Product/Process Suitability to Electronic Commerce

Well Suited to Electronic Commerce	Suited to a Combination of Electronic and Traditional Commerce Strategies	Well Suited to Traditional Commerce
Sale/purchase of books and CDs	Sale/purchase of automobiles	Sale/purchase of impulse items for immediate use
Sale/purchase of goods that have strong brand reputations	Banking and financial services	Low-value transactions (total sale/purchase under \$10)
Online delivery of software and digital content, such as music and movies	Roommate-matching services	Sale/purchase of used, unbranded goods
Sale/purchase of travel services	Sale/purchase of residential real estate	
Online shipment tracking	Sale/purchase of high-value jewelry and antiques	
Sale/purchase of investment and insurance products		

FIGURE 1-5 Business process suitability to type of commerce

- Classifications
 - Depend on available technologies' current state
 - Change as new e-commerce tools emerge

Product/Process Suitability to Electronic Commerce (cont'd.)

- **Commodity item:** well suited to e-commerce selling
 - Product or service hard to distinguish from same products or services provided by other sellers
 - Features: standardized and well known
 - Price: distinguishing factor
- Consider product's **shipping profile**
 - Collection of attributes affecting how easily that product can be packaged and delivered
 - Note value-to-weight ratio
 - DVD: good example
 - Expensive jewelry: high value-to-weight ratio

Product/Process Suitability to Electronic Commerce (cont'd.)

- Easier-to-sell products have:
 - Strong brand reputation (Kodak camera)
 - Appeal to small but geographically diverse groups
- Traditional commerce
 - Better for products relying on personal selling skills
- Combination of electronic and traditional commerce
 - Business process includes both commodity and personal inspection items

Advantages and Disadvantages of Electronic Commerce

- E-commerce increases sales and decreases costs
- **Virtual community:** gathering of people online
 - Using Web 2.0 technologies
- E-commerce buyer opportunities
 - Increases purchasing opportunities
 - Identifies new suppliers and business partners
 - Efficiently obtains competitive bid information
 - Easier to negotiate price and delivery terms
 - Increases speed, information exchange accuracy
 - Wider range of choices available 24 hours a day
 - Immediate access to prospective purchase information

Advantages and Disadvantages of Electronic Commerce (cont'd.)

- Benefits extend to general society welfare
 - Lower costs to issue and secure:
 - Electronic payments of tax refunds
 - Public retirement
 - Welfare support
 - Provides faster transmission
 - Provides fraud, theft loss protection
 - Electronic payments easier to audit and monitor
 - Reduces commuter-caused traffic, pollution
 - Due to telecommuting
 - Products and services available in remote areas

Disadvantages of Electronic Commerce

- Poor choices for electronic commerce
 - Perishable foods and high-cost, unique items
- Disadvantages will disappear when:
 - E-commerce matures
 - Becomes more available to and accepted by general population
 - Critical masses of buyers become equipped, willing to buy through Internet
 - Online grocery industry example

Disadvantages of Electronic Commerce (cont'd.)

- Additional problems
 - Calculating return on investment
 - Recruiting and retaining employees
 - Technology and software issues
 - Cultural differences
 - Consumers resistant to change
 - Conflicting laws

Economic Forces and Electronic Commerce

- Economics
 - Study how people allocate scarce resources
 - Through commerce and government actions
- Commerce organizations participate in **markets**
 - Potential sellers come into contact with buyers
 - Medium of exchange available (currency or barter)
- Organization hierarchy (flat or many levels)
 - Bottom level includes largest number of employees
 - Pyramid structure
- Transaction costs
 - Motivation for moving to hierarchically structured firms

Transaction Costs

- Total costs a buyer and seller incur
 - While gathering information and negotiating purchase-and-sale transaction
 - Includes:
 - Brokerage fees and sales commissions
 - Cost of information search and acquisition
- Sweater dealer example (Figure 1-6)

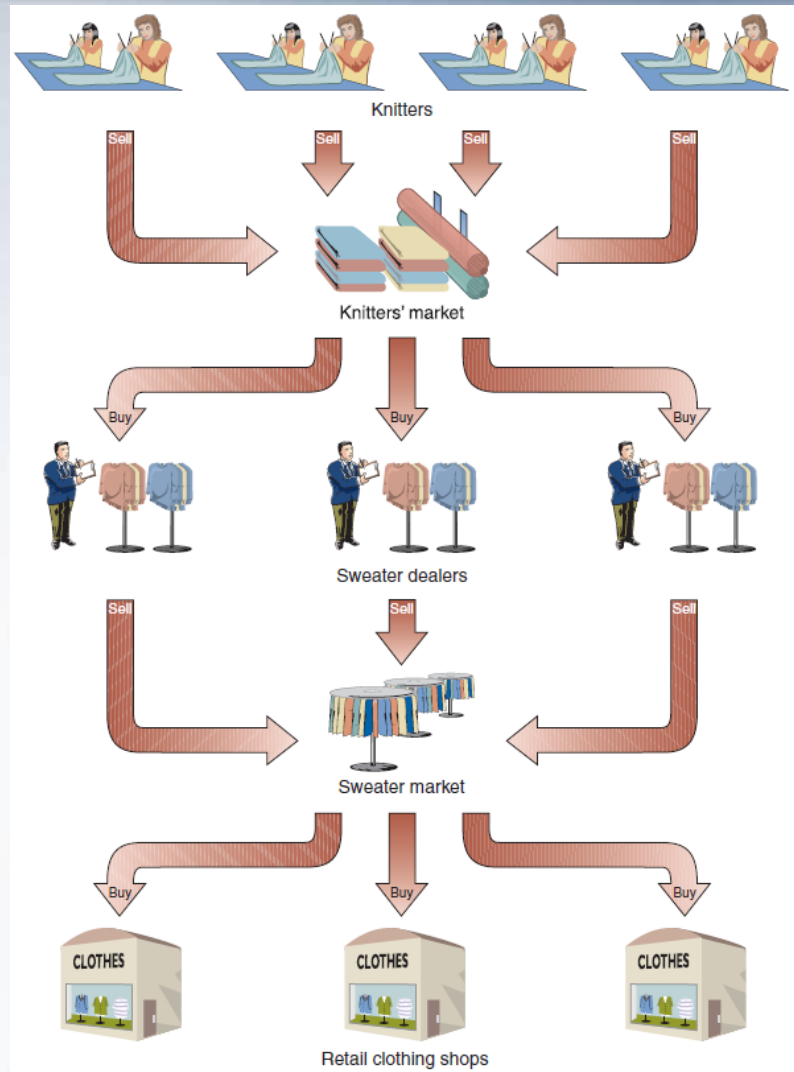


FIGURE 1-6 Market form of economic organization

Markets and Hierarchies

- Coase's analysis of high transaction costs
 - Hierarchical organizations formed
 - Replace market-negotiated transactions
 - Strong supervision and worker-monitoring elements
 - Sweater example (Figure 1-7)
- Oliver Williamson (extended Coase's analysis)
 - Complex manufacturing, assembly operations
 - Hierarchically organized, vertically integrated
 - Manufacturing innovations increased monitoring activities' efficiency and effectiveness

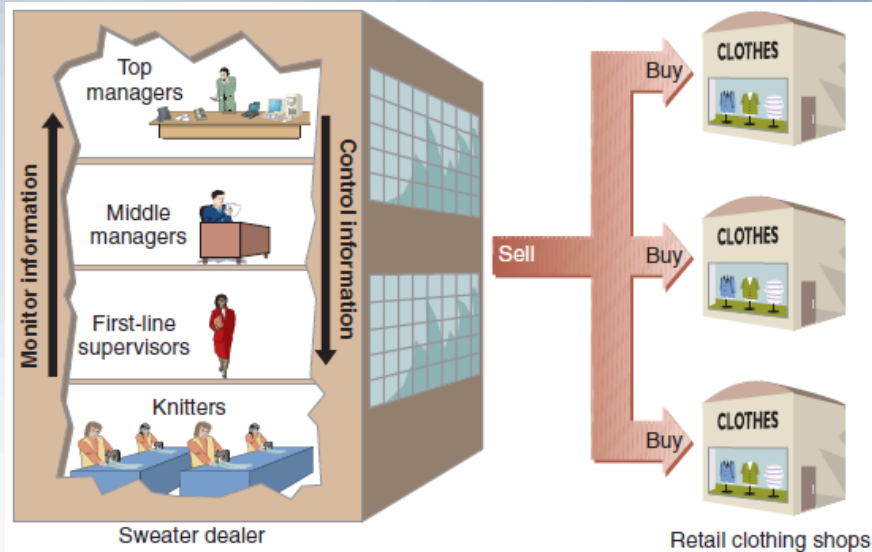


FIGURE 1-7 Hierarchical form of economic organization

- **Strategic business unit (business unit)**
 - One particular combination of product, distribution channel, and customer type
- Exception to hierarchy trend
 - Commodities

Using Electronic Commerce to Reduce Transaction Costs

- Electronic commerce
 - Change vertical integration attractiveness
 - Change transaction costs' level and nature
- Example: employment transaction
 - Telecommuting
 - May reduce or eliminate transaction costs

Network Economic Structures

- Neither market nor hierarchy
- **Strategic alliances (strategic partnerships)**
 - Coordinate strategies, resources, skill sets
 - Form long-term, stable relationships with other companies and individuals
 - Based on shared purposes
- **Strategic partners**
 - Come together for specific project or activity
 - Form many intercompany teams
 - Undertake variety of ongoing activities

Network Economic Structures (cont'd.)

- Network organizations
 - Well suited to information-intensive technology industries
 - Sweater example
 - Knitters organize into networks of smaller organizations
 - Specialize in styles or designs
 - Electronic commerce makes such networks easier to construct and maintain
 - Will be predominant in the near future
 - Manuel Castells predicts economic networks will become the organizing structure for all social interactions

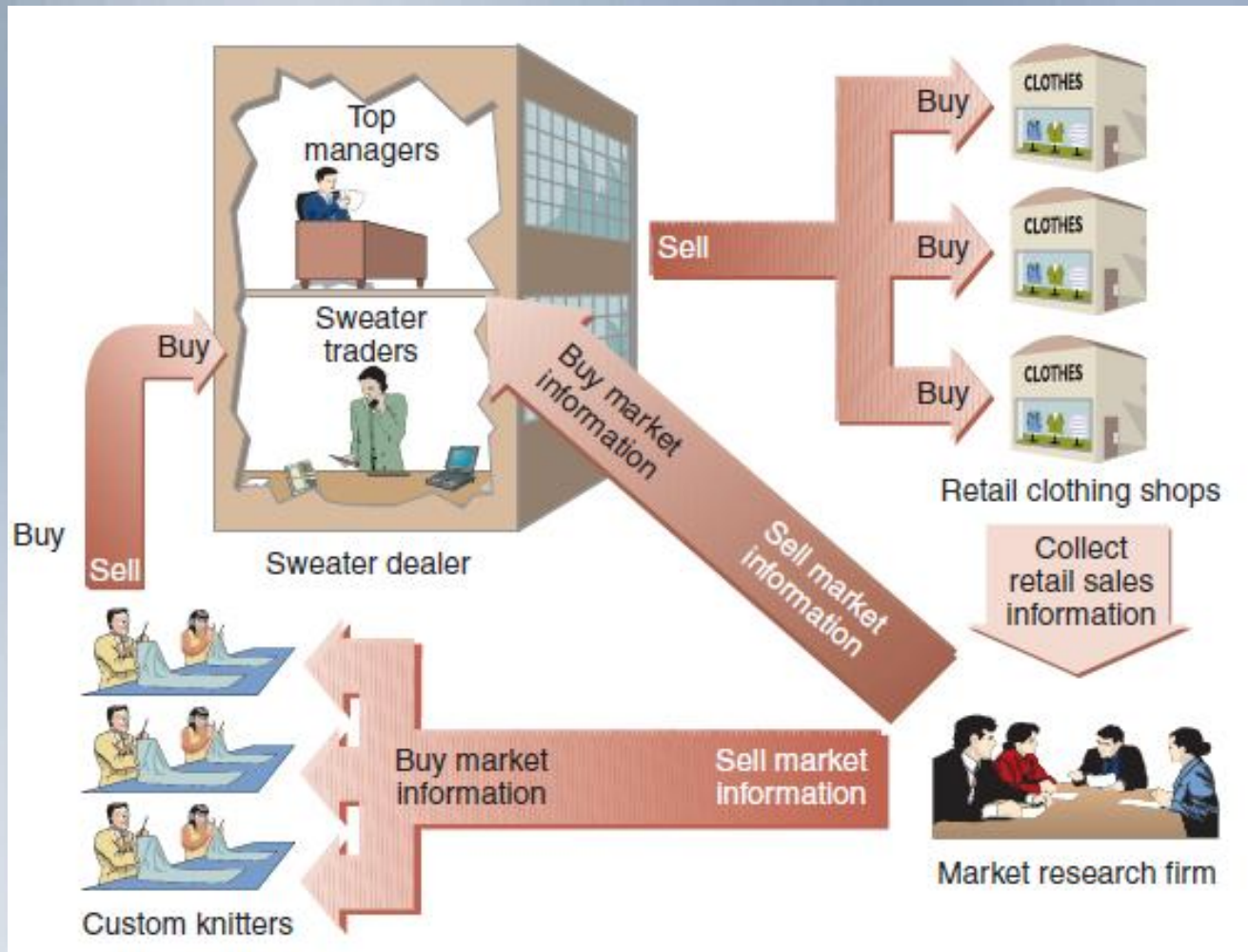


FIGURE 1-8 Network form of economic organization

Network Effects

- Activities yield less value as consumption amount increases
 - **Law of diminishing returns**
 - Example: hamburger consumption
- Networks (**network effect**)
 - Exception to law of diminishing returns
 - More people or organizations participate in network
 - Value of network to each participant increases
 - Example: telephone

Using Electronic Commerce to Create Network Effects

- E-mail account example
 - Provides access to network of people with e-mail accounts
 - If e-mail account is part of smaller network
 - E-mail generally less valuable
- Internet e-mail accounts
 - Far more valuable than single-organization e-mail
 - Due to network effect
- Need way to identify business processes
 - Evaluate electronic commerce suitability
 - For each process

Identifying Electronic Commerce Opportunities

- Focus on specific business processes
- Break business down
 - Series of value-adding activities
 - Combine to generate profits, meet firm's goal
- Commerce conducted by firms of all sizes
- Firm
 - Multiple business units owned by a common set of shareholders or company
- **Industry**
 - Multiple firms selling similar products to similar customers

Strategic Business Unit Value Chains

- **Value chain**
 - Organizing strategic business unit activities to design, produce, promote, market, deliver, and support the products or services
 - Michael Porter includes **supporting activities**
 - Human resource management and purchasing
- Strategic business unit **primary activities**
 - Identify customers, design, purchase materials and supplies, manufacture product or create service, market and sell, deliver, provide after-sale service and support

Strategic Business Unit Value Chains (cont'd.)

- Strategic business unit **primary activities** (cont'd.)
 - Importance depends on:
 - Product or service business unit provides
 - Customers
- Central corporate organization support activities
 - Finance and administration
 - Human resource
 - Technology development

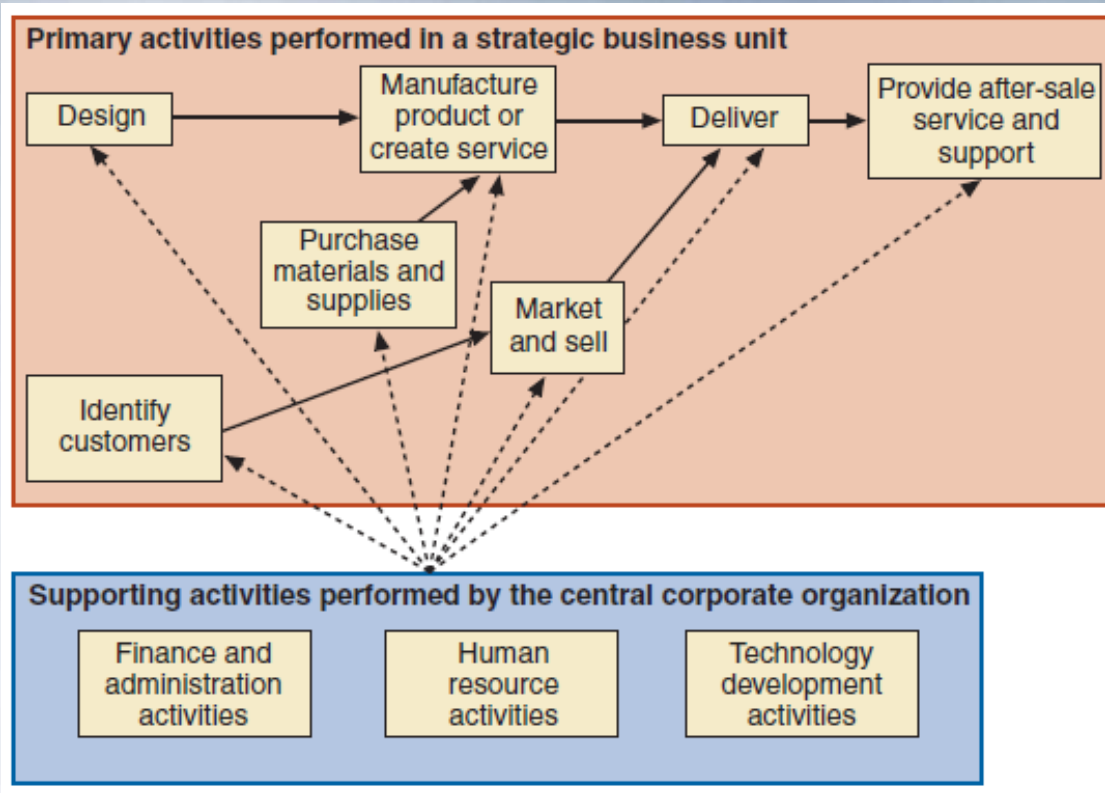


FIGURE 1-9 Value chain for a strategic business unit

- Left-to-right flow
 - Does not imply strict time sequence

Industry Value Chains

- Examine where strategic business unit fits within industry
- Porter's **value system**
 - Describes larger activities stream into which particular business unit's value chain is embedded
 - **Industry value chain** refers to value systems
- Delivery of product to customer
 - Use as purchased materials in its value chain
- Awareness of businesses value chain activities
 - Allows identification of new opportunities
 - Useful way to think about general business strategy

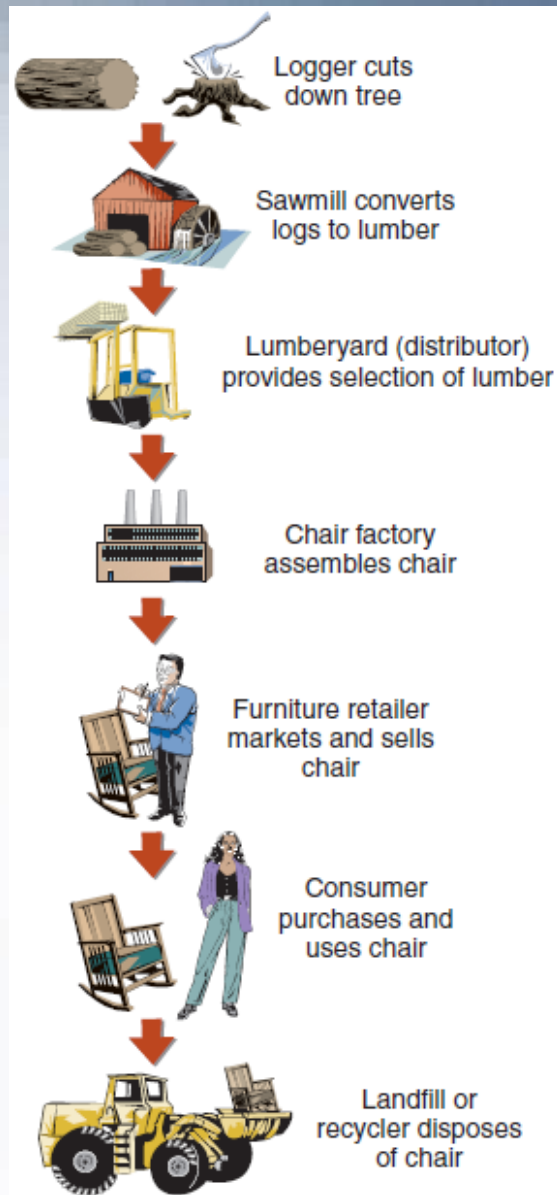


FIGURE 1-9 Value chain for a strategic business unit

SWOT Analysis: Evaluating Business Unit Opportunities

- **SWOT analysis**
 - Strengths, weaknesses, opportunities, and threats
- Consider all issues systematically
 - First: look into business unit
 - Identify strengths and weaknesses
 - Then: review operating environment
 - Identify opportunities and threats presented
- Take advantage of opportunities
 - Build on strengths
 - Avoid threats
 - Compensate for weaknesses

Strengths

- What does the company do well?
- Is the company strong in its market?
- Does the company have a strong sense of purpose and the culture to support that purpose?

Weaknesses

- What does the company do poorly?
- What problems could be avoided?
- Does the company have serious financial liabilities?

Opportunities

- Are industry trends moving upward?
- Do new markets exist for the company's products/services?
- Are there new technologies that the company can exploit?

Threats

- What are competitors doing well?
- What obstacles does the company face?
- Are there troubling changes in the company's business environment (technologies, laws, and regulations)?

FIGURE 1-11 SWOT analysis questions



FIGURE 1-12 Results of Dell's SWOT analysis

International Nature of Electronic Commerce

- Internet connects computers worldwide
- When companies use Web to improve business process:
 - They automatically operate in global environment
- Key international commerce issues
 - Trust
 - Culture
 - Language
 - Government
 - Infrastructure

Trust Issues on the Web

- Important to establish trusting relationships with customers
 - Rely on established brand names
- Difficult for online businesses
 - Anonymity exists in Web presence
 - Banking example: browsing site's pages
 - Difficult to determine bank size or how well established
- Business must overcome distrust in Web “strangers”



FIGURE 1-13 This classic cartoon from The New Yorker illustrates anonymity on the Web

Language Issues

- Business must adapt to local cultures
 - “Think globally, act locally”
 - Provide local language versions of Web site
 - Customers more likely to buy from sites translated into own language
 - 50 percent of Internet content in English
 - Half of current Internet users do not read English
 - By 2015: 70% of e-commerce transaction will involve at least one party outside of the United States
- Languages may require multiple translations
 - Separate dialects

Language Issues (cont'd.)

- Large site translation may be prohibitive
 - Decided by corporate department responsible for page content
- Mandatory translation into all supported languages
 - Home page
 - All first-level links to home page
- High priority pages to translate
 - Marketing, product information, establishing brand
- Use translation services and software
 - Human translation: key marketing messages
 - Software: routine transaction processing functions

Cultural Issues

- Important element of business trust
 - Anticipating how the other party to a transaction will act in specific circumstances
- **Culture**
 - Combination of language and customs
 - Varies across national boundaries, regions within nations
 - Personal property concept
 - Valued in North America and Europe (not Asia)
- Cultural issue example
 - Virtual Vineyards (now Wine.com)

Cultural Issues (cont'd.)

- Subtle language and cultural standard errors
 - General Motors' Chevrolet Nova automobile
 - Baby food in jars in Africa
- Select icons carefully
 - Shopping cart versus shopping baskets, trolleys
 - Hand signal for “OK”: obscene gesture in Brazil
- Dramatic cultural overtones
 - India: inappropriate to use cow image in cartoon
 - Muslim countries: offended by human arms or legs uncovered
 - White color (purity versus death)

Cultural Issues (cont'd.)

- Online business apprehension
 - Japanese shoppers' unwillingness to pay by credit
- Softbank
 - Devised a way to introduce electronic commerce to a reluctant Japanese population

Culture and Government

- Online discussion inhospitable to cultural environments
- Government controls in some cultures
 - Unfettered communication not desired
 - Unfettered communication not considered acceptable
 - Denounced Internet material content
 - Unrestricted Internet access forbidden
 - Filter Web content
 - Regularly reviews ISPs and their records
 - Impose language requirements

Culture and Government (cont'd.)

- Internet censorship
 - Restricts electronic commerce
 - Reduces online participant interest levels
- China
 - Wrestling with issues presented by the growth of the Internet as a vehicle for doing business
 - Created complex set of registration requirements and regulations governing any business engaging in electronic commerce
 - Regularly conducts reviews of ISPs and their records
- Strong cultural requirements finding their way into

Infrastructure Issues

- Internet infrastructure
 - Computers and software connected to Internet
 - Communications networks' message packets travel
- Infrastructure variations and inadequacies exist
- Outside United States
 - Government-owned industry
 - Heavily regulated
 - High local telephone connection costs
 - Affect buying online behavior
- International orders: global problem
 - No process to handle order and paperwork

Infrastructure Issues (cont'd.)

- Business face challenges posed by variations and inadequacies in the infrastructure supporting the Internet throughout the world
 - Local connection costs
 - Inability to handle order
- **Freight forwarder**
 - Arranges international transactions' shipping and insurance
- **Customs broker**
 - Arranges tariff payment and compliance

Infrastructure Issues (cont'd.)

- **Bonded warehouse**
 - Secure location
 - Holds international shipments until customs requirements or payments satisfied
- Handling international transactions paperwork
 - Annual cost: \$800 billion
 - Software automates some paperwork
 - Countries have own paper-based forms, procedures
 - Countries have incompatible computer systems
- See Figure 1-14: complex information flows

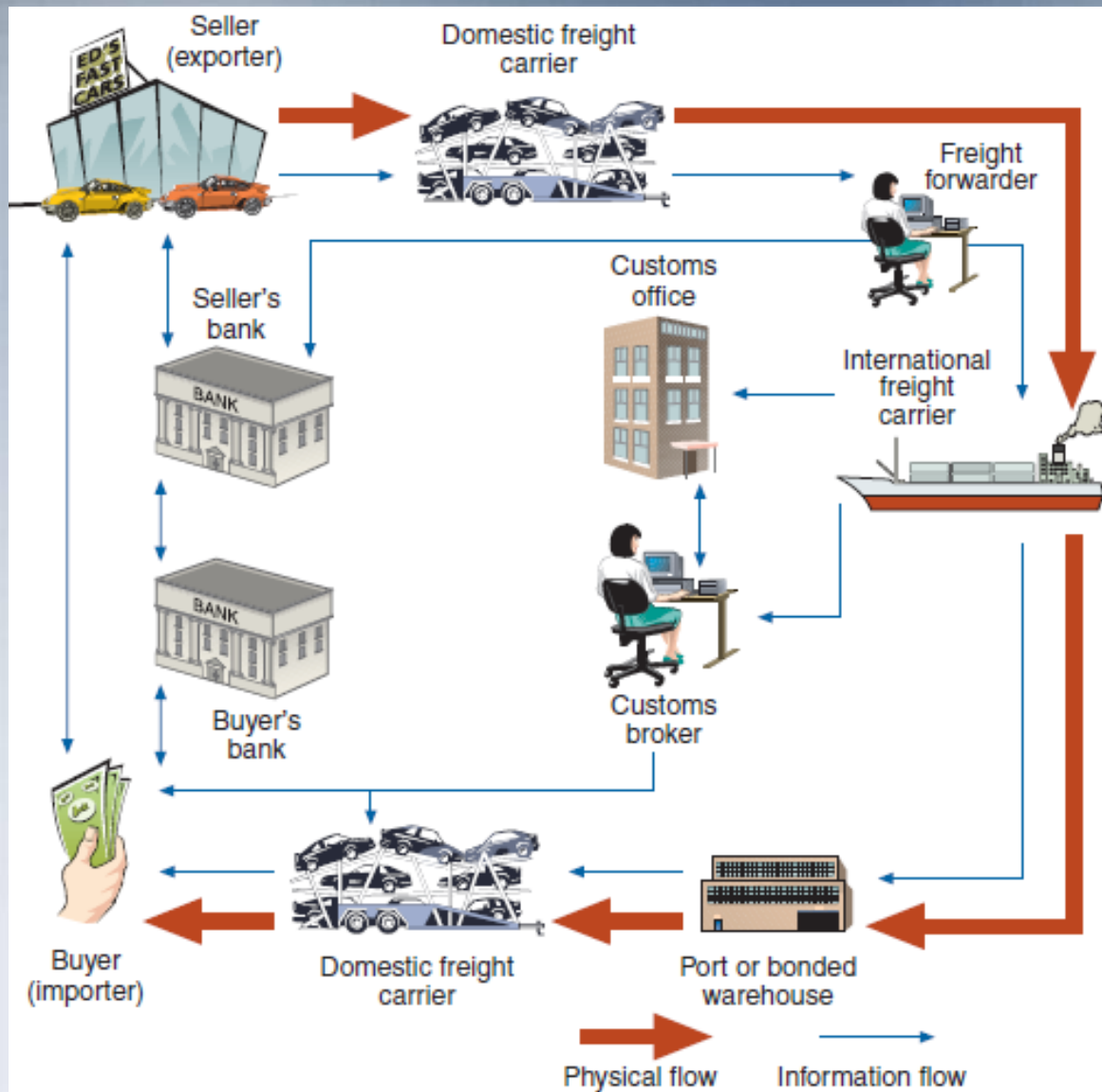


FIGURE 1-14 Parties involved in a typical international trade transaction

Summary

- Electronic commerce
 - Application of new Internet and Web technologies
 - Helps individuals, businesses, other organizations conduct effective business
 - Adopted in waves of change
 - First wave ended in 2000
 - Second wave focuses on improving specific business processes
- Technology improvements
 - Create new products and services
 - Improved promotion, marketing, delivery of existing offerings

Summary (cont'd.)

- Technology improvements (cont'd.)
 - Improve purchasing and supply activities
 - Identify new customers
 - Operate finance, administration, human resource management activities more efficiently
 - Reduce transaction costs
 - Create network economic effects
 - Leads to greater revenue opportunities
- Electronic commerce
 - Fits into markets, hierarchies, networks

Summary (cont'd.)

- Value chains
 - Occur at business unit, industry levels
- Value chains and SWOT analysis
 - Tools to understand business processes
 - Analyze suitability for electronic commerce implementation
- Key international commerce issues
 - Trust
 - Culture and language
 - Government
 - Infrastructure