Learning Objectives

In this chapter, you will learn about:

- What electronic commerce is and how it is experiencing a second wave of growth with a new focus on profitability
- 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 (Strengths, Weaknesses, Opportunities, Threats) 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
  - First wave
    - Mid-1990s to 2000: rapid growth
    - “Dot-com boom” followed by “dot-com bust”
    - 2000 to 2003: overly gloomy news reports - many industry observers were writing obituaries for electronic commerce.
  - Second wave
    - 2003: signs of new life – but the rapid expansion & high levels of investment of the boom years unlikely to be repeated.
    - Sales growth
    - Profits
**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 and personal digital assistants

- **Dot-com (pure dot-com)**
  - Businesses operate only online

**Categories of Electronic Commerce**

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

**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
  - Discussed in more detail in figure 1.2, in a coming slide
Categories of Electronic Commerce

(cont’d.)

- **Activity**
  - Task performed by worker in the course of doing job

- **Transaction:** exchange of value
  - Purchase, sale, conversion of raw materials into finished product
  - Involves at least one activity
    - Might not be related to transaction

- **Business processes**
  - Group of logical, related, sequential activities and transactions
    - question – what might be the activities involved in the business process of shipping goods to customers?

- Accountants help business owners ‘keep score’ to measure how well they are doing.

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The Development and Growth of Electronic Commerce

- People engaging in commerce:
  - Adopt available tools and technologies e.g., sailing ships, in ancient times; later, the advent of printing presses, telephones.

- 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 – e.g., of invoices, bills
- **Trading partners**
  - Businesses engaging in EDI with each other are called trading partners.
  - EDI pioneers (General Electric, Sears, Wal-Mart)
    - Improved purchasing processes and supplier relationships

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 due to:
  - Increasing number of people with Internet access
  - B2B sales online increasing steadily

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 Second Wave of Electronic Commerce

- Four waves based on 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 (can be used to track inventory), smart cards (has embedded microchip which contains info about the card owner), biometric technologies (biometric security device uses an element of a person’s biological makeup to confirm identification)
  - Electronic mail (or e-mail) use
    - First wave: unstructured communication
    - Second wave: integral part of marketing, customer contact strategies

<table>
<thead>
<tr>
<th>Electronic Commerce Characteristics</th>
<th>First Wave</th>
<th>Second Wave</th>
</tr>
</thead>
<tbody>
<tr>
<td>International character of electronic commerce</td>
<td>Controlled by U.S. companies</td>
<td>Global enterprises are in many countries, participating in electronic commerce</td>
</tr>
<tr>
<td>Languages</td>
<td>Most electronic commerce Web sites in English</td>
<td>Many electronic commerce Web sites available in multiple languages</td>
</tr>
<tr>
<td>Funding</td>
<td>Many new companies started with outside investor money</td>
<td>Established companies funding electronic commerce initiatives with their own capital</td>
</tr>
<tr>
<td>Communication technologies</td>
<td>Many electronic commerce participants used dial-up Internet connections</td>
<td>Rapidly increasing use of broadband technologies for Internet connections</td>
</tr>
<tr>
<td>E-mail contact with customers</td>
<td>E-mail contact was considered to be customer service</td>
<td>Customers can easily integrate email contact with customer service</td>
</tr>
<tr>
<td>Advertising and electronic commerce integration</td>
<td>Online or offline forms of customer advertising as main revenue source</td>
<td>Use of multimedia integrated advertising approaches and integration of electronic commerce with existing business processes and strategies</td>
</tr>
<tr>
<td>Distribution of physical products</td>
<td>Wider availability due to perishable distribution of digital products</td>
<td>New approach to the sale and distribution of digital products</td>
</tr>
<tr>
<td>First-mover advantage</td>
<td>Risk of first-mover advantage is minimal success in all types of markets and industries</td>
<td>Possible first-mover advantage leads to success only for some companies in certain specific markets and sectors</td>
</tr>
</tbody>
</table>

FIGURE 4.4 Key characteristics of the first two waves of electronic commerce

Electronic Commerce, Eighth Edition
Business Models, Revenue Models, and Business Processes

- **Business model**
  - Set of processes combined to achieve company goal
  - Yield profit
- **Electronic commerce first wave**
  - Investors sought out appealing business models
  - Expectations of rapid sales growth, market dominance
  - Harvard professor Michael Porter argued business models did not matter, and probably did not exist (can read more about his criticisms of business models in his books)
  - Key to success: copy successful model?
    - Neither easy nor wise

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**
  - 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 business process terms
  - 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
- Some commerce may not be improved by using e-commerce – e.g., selling antique jewelry – customers may want to touch, see item

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
    - Examples of items which are easier/harder?
Product/Process Suitability to Electronic Commerce

- Electronic commerce good candidates
  - No physical characteristics experience required
  - Selling commodity item
    - Hard to distinguish product or service from same products or services provided by other sellers
    - Features: standardized and well known
  - Product’s shipping profile
    - Note value-to-weight ratio
  - Strong brand reputation (Kodak camera)
- Electronic commerce site advantage
  - One site offers wider selection than physical store

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

- Electronic commerce site not advantageous
  - Personal product inspection required
  - Solution
    - Combination of traditional commerce and electronic commerce
    - Works best when process includes commodity and personal inspection elements

Advantages of Electronic Commerce

- **Virtual community**: gathering of people online
- **Seller**
  - Increases profits and sales; decreases costs
- **Buyer**
  - Increases purchasing opportunities
  - Identifies new suppliers and business partners
  - Easier negotiating price and delivery terms
    - Efficiently obtain competitive bid information
    - Increases speed, information exchange accuracy
    - Wider range of choices
    - Customizes prospective purchase information detail – buyer decides how much info he/she desires

Classifications
- Depend on available technologies’ current state
- Change as new e-commerce tools emerge
Advantages of Electronic Commerce (cont’d.)

- Benefits extend to general society welfare
  - Lower costs to issue:
    - Electronic payments of tax refunds
    - Public retirement
    - Welfare support
  - Secure and quick Internet transmission
  - Fraud, theft loss protection
    - Electronic payments easier to audit and monitor
  - Reduced 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 – e.g.,
    custom designed jewelry can not be inspected
- 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 with the technological, design, and business process skills needed to create an effective e-commerce presence
  - Technology and software issues – integrate traditional commerce methods into the software which enables e-commerce
  - Cultural differences
  - Consumers resistant to change – some not comfortable with sending credit card numbers over web
  - Conflicting laws – govt regulators have not kept up with with latest technologies.
    - Read story of Pets.com, pp 19-20 in book

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
- Transaction costs
  - Motivation for moving to hierarchically structured firms
Transaction Costs

- Total of all costs that a buyer and seller incur
  - Gathering information and negotiating purchase-and-sale transaction
    - Brokerage fees and sales commissions
    - Cost of information search and acquisition – e.g., which colors, styles, patterns are in demand
  - Sweater dealer example (Figure 1-6)

Markets and Hierarchies

- General trend toward hierarchies – e.g., rather than getting product from market and then (finishing product) selling it, create product within company
- Coase’s analysis of high transaction costs
  - Hierarchical organizations formed
    - Replace market-negotiated transactions – hire own knitters and supervise them
    - 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’ – this is a term to define a company’s replacing a supplier market with its own hierarchical structure
    - Manufacturing innovations increased monitoring activities’ efficiency effectiveness
  - Strategic business unit (business unit)
    - One particular combination of product, distribution channel, and customer type – e.g., used car portion of a car dealership
  - Exception to hierarchy trend
    - Commodities – e.g., wheat, sugar, crude oil still traded in markets
Using Electronic Commerce to Reduce Transaction Costs

- Electronic commerce
  - Change vertical integration attractiveness – via web, may be cheaper to trade in markets
  - Change transaction costs’ level and nature
- Example: employment transaction
  - Telecommuting
    - May reduce or eliminated transaction costs – such as new employees need to relocate, loss of spouse’s job as result of relocation

Network Economic Structures

- Neither market nor hierarchy – called ‘Network Economic Structure’
- 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 technology industries which are information intensive
    - Information intensive
  - Sweater example
    - Knitters organize into networks of smaller organizations
    - Specialize in styles or designs
- Electronic commerce role
  - Makes such networks easier to construct, maintain – especially if information intensive.
- Predominant in near future
Network Effects

- Economists have found activities yield less value as consumption amount increases
  - Known as ‘Law of diminishing returns’
    - Example: hamburger consumption – 3rd burger doesn’t taste as good as the 1st one
- Networks (network effect)
  - Exception to law of diminishing returns
    - More people or organizations participate in network
    - Value of network to each participant increases
  - Example: fax machine – as more businesses started using fax machines, one’s machine became more valuable to his/her business

Using Electronic Commerce to Create Network Effects

- E-mail account
  - Provides access to network of people with e-mail accounts
  - Smaller network – e.g., intra-company
    - 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 is a way of...
  - Organizing strategic business unit activities to design, produce, promote, market, deliver, and support the products or services it sells
  - Professor 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 activities
    - Human resource activities
    - Technology development activities

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

Industry Value Chains

- Examine where strategic business unit fits within industry
- Professor Michael Porter calls this a ‘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

Industry Value Chains (cont’d)

- Awareness of businesses value chain activities
  - Allows identification of new opportunities
  - Useful way to think about general business strategy – e.g., in figure 1.10, examining this ‘value chain’ could be useful for the sawmill that is considering entering the tree-harvesting business, or the furniture retailer who is thinking about partnering with a trucking line. Another example is a software developer who can cut out the retailer and ship yearly updates via web directly to the consumer.
**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

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**FIGURE 1-10** Industry value chain for a wooden chair

**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 and culture
  - Language
  - 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”

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
- Languages may require multiple translations
  - Separate dialects – e.g., Spanish – different in Spain vs. Mexico vs. Latin America
Language Issues (cont’d.)

- Large site translation may be cost prohibitive
  - Decided by corporate department responsible for page content
- Mandatory translation into all supported languages
  - Home page
  - All first-level links to home page
- Highly recommended pages to translate
  - Marketing, product information, establishing brand
- Use translation services and software
  - Human translation: key marketing messages – but is more expensive 25 thru 90 cents per word
  - Software: routine transaction processing functions – where having a perfect translation may not be as important

Cultural Issues

- Business partners
  - Ideally have common legal structure for resolving disputes
- Culture
  - Combination of language and customs
  - Varies across national boundaries, regions within nations
  - Personal property concept
    - Valued in North America and Europe (not as much in Asia)

Cultural Issues (cont’d.)

- Cultural issue example
  - Virtual Vineyards (now Wine.com) – had boxes to ship 12, 6, or two bottles. Used 2 bottle box to ship single bottles. Japanese consider packaging to be an important element of a high-quality product such as wine. Some, when they would order a single bottle of wine and received it in a two bottle box, would inquire of the company where the second bottle was, notwithstanding the fact that they only ordered a single bottle. To them, it was inconceivable that a single bottle would ship in a two bottle box.

Cultural Issues (cont’d.)

- Subtle language and cultural standard errors
  - General Motors’ Chevrolet Nova automobile – means ‘it will not go’ in Spanish
  - Baby food in jars in Africa – their products always have pictures of the product on packaging (not picture of a baby)
- Select icons carefully
  - Shopping cart versus shopping ‘baskets’ (England), trolleys (Australia)
  - 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) – in Asian countries
Cultural Issues (cont’d.)

- Online business apprehension
  - Japanese shoppers unwillingness to pay by credit
  - One company set up ‘order over web, pick up in local 7-11’
- Nike
  - Created special Web pages to attract customers outside United States
  - Nike Football site appeals to soccer fans throughout world

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 – France, Quebec

Culture and Government (cont’d.)

- Internet censorship
  - Restricts electronic commerce
  - Reduces online participant interest levels

Infrastructure Issues

- Internet infrastructure
  - Computers and software connected to Internet
  - Communications networks’ message packets travel
- Infrastructure variations and inadequacies exist
Infrastructure Issues (cont’d.)

- Outside United States
  - Government-owned or regulated industry
  - Heavily regulated
  - High local telephone connection costs
    - Affect buying online behavior – company may only go to a specific website to purchase a product – wouldn’t do a web search because of hi connection costs. So, a company which wants to sell in such a market should consider advertising in traditional media.
- International orders: global problem
  - No process to handle order and paperwork – much more complicated than domestic processes.

Infrastructure Issues (cont’d.)

- The Organization for Economic Cooperation and Development’s (OECD) Directorate of Science, Technology, and Industry
  - Issued OECD Statements on Information and Communications Policy which deal with telecommunications infrastructure development issues throughout the world – provides guidance for business and governments.
- 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
- Figure 1-14: complex information flows
**Summary**

- **Electronic commerce**
  - Application of new Internet and Web technologies
    - Help 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