Chapter 1

Introduction to Electronic Commerce

At a Glance

Instructor’s Manual Table of Contents

- Chapter Overview
- Chapter Objectives
- Instructor Notes
- Quick Quizzes
- Discussion Questions
- Additional Resources
- Key Terms
Chapter Overview

The business phenomenon that we now call electronic commerce has had an interesting history. From humble beginnings in the mid-1990s, electronic commerce grew rapidly until 2000, when a major downturn occurred. Many people have seen news stories about the “dot-com boom” followed by the “dot-com bust” or the “dot-bomb.” In the 2000 to 2003 period, many industry observers were writing obituaries for electronic commerce. Just as the unreasonable expectations for immediate success fueled the high expectations during the boom years, overly gloomy news reports colored perceptions during this time. Although the rapid expansion and high levels of investment of the boom years are not likely to be repeated, the second wave of electronic commerce is well under way.

Chapter 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 now 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
- 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

Instructor Notes

Electronic Commerce: The Second Wave

To many people, the term “electronic commerce” means shopping on the part of the Internet called the World Wide Web (the Web). However, electronic commerce (or e-commerce) also includes many other activities, such as businesses trading with other businesses and internal processes that companies use to support their buying, selling, hiring, planning, and other activities. Some people use the term electronic business (or e-business) when they are talking about electronic commerce in this broader sense.
### Electronic Commerce Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business-to-consumer (B2C)</td>
<td>Businesses sell products or services to individual consumers.</td>
<td>Walmart.com sells merchandise to consumers through its Web site.</td>
</tr>
<tr>
<td>Business-to-business (B2B)</td>
<td>Businesses sell products or services to other businesses.</td>
<td>Grainger.com sells industrial supplies to large and small businesses through its Web site.</td>
</tr>
<tr>
<td>Business processes that support buying and selling activities</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>Consumer-to-consumer (C2C)</td>
<td>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.</td>
<td>Consumers and businesses trade with each other in the eBay.com online marketplace.</td>
</tr>
<tr>
<td>Business-to-government (B2G)</td>
<td>Businesses sell goods or services to governments and government agencies. This book treats B2G transactions as part of B2C electronic commerce.</td>
<td>CAL-Buy portal allows businesses to sell online to the State of California.</td>
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</tbody>
</table>
The Development and Growth of Electronic Commerce

Although the Web has made online shopping possible for many businesses and individuals, in a broader sense, electronic commerce has existed for many years. For more than 30 years, banks have been using electronic funds transfers (EFTs, also called wire transfers), which are electronic transmissions of account exchange information over private communications networks. Businesses also have been engaging in a type of electronic commerce, known as electronic data interchange, for many years. Electronic data interchange (EDI) occurs when one business transmits computer-readable data in a standard format to another business.

Businesses that engage in EDI with each other are called trading partners. The standard formats used in EDI contain the same information that businesses have always included in their standard paper invoices, purchase orders, and shipping documents. Firms such as General Electric, Sears, and Wal-Mart have been pioneers in using EDI to improve their purchasing processes and their relationships with suppliers.

One serious problem that potential adopters of EDI faced was the high cost of implementation. Until the late 1990s, doing EDI meant buying expensive computer hardware and software and then either establishing direct network connections (using leased telephone lines) to all trading partners or subscribing to a value-added network (VAN). A value-added network (VAN) is an independent firm that offers connection and transaction-forwarding services to buyers and sellers engaged in EDI. Before the Internet came into existence as we know it today, VANs provided the connections between most trading partners and were responsible for ensuring the security of the data transmitted. VANs usually charged a fixed monthly fee plus a per-transaction charge, adding to the already significant expense of implementing EDI. Many smaller firms were unable to afford to participate in EDI and lost important customers, who went elsewhere to buy. The companies that operated VANs have gradually moved EDI traffic to the Internet, but many other companies have developed other ways to do EDI types of transactions on the Internet.

The Dot-Com Boom, Bust, and Re-birth

Between 1997 and 2000, more than 12,000 Internet-related businesses were started with more than $100 billion of investors’ money. In an extended burst of optimism and what many came to describe as irrational exuberance, investors feared that they might miss the money-making opportunity of a lifetime. As more investors competed for a fixed number of good ideas, the price of those ideas increased. Worse, a number of bad ideas were proposed and funded. More than 5000 of these companies went out of business or were acquired in the downturn that began in 2000. The media coverage of the “dot-com bust” was extensive. However, between 2000 and 2003, more than $200 billion was invested in purchasing electronic commerce businesses that were in trouble and starting new online ventures, according to industry research firm WebMergers. This second wave of financial investment has not been reported extensively in either the general or business media, but it is fueling a rebirth of growth in online business activity.
The Second Wave of Electronic Commerce

The first wave of electronic commerce was predominantly a U.S. phenomenon. Web pages were primarily in English, particularly on commerce sites. The second wave is characterized by its international scope, with sellers doing business in many countries and in many languages. The problems of language translation and handling currency conversion will need to be solved to allow efficient conduct of business in the second wave.

<table>
<thead>
<tr>
<th>First Wave</th>
<th>Second Wave</th>
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<tbody>
<tr>
<td>Dominated by U.S. companies</td>
<td>Global enterprises in many countries participating in electronic commerce</td>
</tr>
<tr>
<td>Most electronic commerce Web sites in English</td>
<td>Many electronic commerce Web sites available in multiple languages</td>
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<tr>
<td>Many new companies started with outside investor money</td>
<td>Established companies funding electronic commerce initiatives with their own capital</td>
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<tr>
<td>Many electronic commerce participants used slow Internet connections</td>
<td>Rapidly increasing use of broadband technologies for Internet connections</td>
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<tr>
<td>B2B electronic commerce relied on a patchwork of disparate communication and inventory management technologies</td>
<td>B2B electronic commerce increasingly are integrated with radio-frequency identification and biometric devices to manage information and product flows effectively</td>
</tr>
<tr>
<td>Unstructured e-mail communication with customers</td>
<td>Customized e-mail strategies now integral to customer contact</td>
</tr>
<tr>
<td>Over-reliance on simple forms of online advertising as main revenue source</td>
<td>Use of multiple sophisticated advertising approaches and better integration of electronic commerce with existing business processes and strategies</td>
</tr>
<tr>
<td>Widespread piracy due to ineffective distribution of digital products</td>
<td>New approaches to the sale and distribution of digital products</td>
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<tr>
<td>Rely on first-mover advantage to ensure success in all types of markets and industries</td>
<td>Realize that first-mover advantage leads to success only for some companies in certain specific markets and industries</td>
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Business Models, Revenue Models, and Business Processes

A business model is a set of processes that combine to yield a profit. In the first wave of electronic commerce, many investors sought out start-up companies with appealing business models. A good business model was expected to lead to rapid sales growth and market dominance. The idea that the key to success was simply to copy the business model of a successful dot-com business led the way to many business failures, some of them quite dramatic.

Role of Merchandising

Retail merchants have years of traditional commerce experience in creating store environments that help convince customers to buy. This combination of store design, layout, and product display knowledge is called merchandising. In addition, many salespeople have developed skills that allow them to identify customer needs and find products or services that meet those needs. The skills of merchandising and personal selling can be difficult to practice remotely. However, companies must be able to transfer their merchandising skills to the Web for their Web sites to be successful.

Some products are easier to sell on the Internet than others, because the merchandising skills related to those products are easier to transfer to the Web.

Product/Process Suitability to Electronic Commerce

<table>
<thead>
<tr>
<th>Well Suited to Electronic Commerce</th>
<th>Suited to a Combination of Electronic and Traditional Commerce Strategies</th>
<th>Well Suited to Traditional Commerce</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sale/purchase of books and CDs</td>
<td>Sale/purchase of automobiles</td>
<td>Sale/purchase of impulse items for immediate use</td>
</tr>
<tr>
<td>Online delivery of software</td>
<td>Online banking</td>
<td>Low-value transactions (total sale/purchase under $10)</td>
</tr>
<tr>
<td>Sale/purchase of travel services</td>
<td>Roommate-matching services</td>
<td></td>
</tr>
<tr>
<td>Online shipment tracking</td>
<td>Sale/purchase of residential real estate</td>
<td></td>
</tr>
<tr>
<td>Sale/purchase of investment and insurance products</td>
<td>Sale/purchase of high-value jewelry and antiques</td>
<td></td>
</tr>
</tbody>
</table>
One business process that is especially well suited to electronic commerce is the selling of commodity items. A commodity item is a product or service that is hard to distinguish from the same products or services provided by other sellers; its features have become standardized and well known. Gasoline, office supplies, soap, computers, and airline transportation are all examples of commodity products or services, as are the books and CDs sold by Amazon.com.

Another key factor that can make an item well suited to electronic commerce is the product’s shipping profile. A product’s shipping profile is the collection of attributes that affect how easily that product can be packaged and delivered. A high value-to-weight ratio can help by making the overall shipping cost a small fraction of the selling price. An airline ticket is an excellent example of an item that has a high value-to-weight ratio. Products that are consistent in size, shape, and weight can make warehousing and shipping much simpler and less costly. The shipping profile is only one factor, however. Expensive jewelry has a high value-to-weight ratio, but many people are reluctant to buy it without examining it in person unless the jewelry is sold under a well-known brand name and with a generous return policy.

**Advantages of Electronic Commerce**

Firms are interested in electronic commerce because, quite simply, it can help increase profits. All the advantages of electronic commerce for businesses can be summarized in one statement: Electronic commerce can increase sales and decrease costs. Advertising done well on the Web can get even a small firm’s promotional message out to potential customers in every country in the world. A firm can use electronic commerce to reach small groups of customers that are geographically scattered. The Web is particularly useful in creating virtual communities that become ideal target markets for specific types of products or services. A virtual community is a gathering of people who share a common interest, but instead of this gathering occurring in the physical world, it takes place on the Internet.

<table>
<thead>
<tr>
<th>Advantages:</th>
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<tbody>
<tr>
<td>♦ Electronic commerce provides buyers with a wider range of choices than traditional commerce.</td>
</tr>
<tr>
<td>♦ Electronic commerce provides buyers with an easy way to customize the level of detail in the information they obtain about a prospective purchase.</td>
</tr>
<tr>
<td>♦ Electronic payments of tax refunds, public retirement, and welfare support cost less to issue and arrive securely and quickly when transmitted over the Internet.</td>
</tr>
<tr>
<td>♦ Electronic payments can be easier to audit and monitor than payments made by check, providing protection against fraud and theft losses.</td>
</tr>
<tr>
<td>♦ Electronic commerce can also make products and services available in remote areas.</td>
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</tbody>
</table>
Disadvantages of Electronic Commerce

Some business processes may never lend themselves to electronic commerce. For example, perishable foods and high-cost, unique items, such as custom-designed jewelry and antiques, may be impossible to inspect adequately from a remote location, regardless of any technologies that might be devised in the future. Most of the disadvantages of electronic commerce today, however, stem from the newness and rapidly developing pace of the underlying technologies. These disadvantages will disappear as electronic commerce matures and becomes more available to and accepted by the general population.

Disadvantages:

♦ Return-on-investment is difficult to calculate.
♦ Many firms have had trouble recruiting and retaining employees with the technological, design, and business process skills needed to create an effective electronic commerce presence.
♦ Difficulty of integrating existing databases and transaction-processing software designed for traditional commerce into the software that enables electronic commerce.
♦ Many businesses face cultural and legal obstacles to conducting electronic commerce.

Quick Quiz

1. The group of logical, related, and sequential activities and transactions in which businesses engage are often collectively referred to as _____.
   Answer: business processes

2. _____ occurs when one business transmits computer-readable data in a standard format to another business.
   Answer: Electronic data interchange (EDI)

3. Businesses that engage in EDI with each other are called _____.
   Answer: trading partners

4. The combination of store design, layout, and product display knowledge is called _____.
   Answer: merchandising
Economic Forces and Electronic Commerce

Economists use a formal definition of market that includes two conditions: first, that the potential sellers of a good come into contact with potential buyers, and second, that a medium of exchange is available. This medium of exchange can be currency or barter. Most economists agree that markets are strong and effective mechanisms for allocating scarce resources. Thus, one would expect most business transactions to occur within markets. However, much business activity today occurs within large hierarchical business organizations, which economists generally refer to as firms, or companies.

<table>
<thead>
<tr>
<th>Economic Forces and Electronic Commerce:</th>
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<tbody>
<tr>
<td>♦ <strong>Transaction costs</strong>: The total of all costs that a buyer and seller incur as they gather information and negotiate a purchase-sale transaction.</td>
</tr>
<tr>
<td>♦ <strong>Markets and hierarchies</strong>: Coase reasoned that when transaction costs were high, businesspeople would form organizations to replace market-negotiated transactions. These organizations would be hierarchical and would include strong supervision and worker-monitoring elements. The practice of an existing firm replacing one or more of its supplier markets with its own hierarchical structure for creating the supplied product is called vertical integration.</td>
</tr>
<tr>
<td>♦ <strong>Using Electronic Commerce to Reduce Transaction Costs</strong>: Businesses and individuals can use electronic commerce to reduce transaction costs by improving the flow of information and increasing the coordination of actions.</td>
</tr>
<tr>
<td>♦ <strong>Network economic structures</strong>: Companies coordinate their strategies, resources, and skill sets by forming long-term, stable relationships with other companies and individuals based on shared purposes. These relationships are often called strategic alliances or strategic partnerships, and when they occur between or among companies operating on the Internet, these relationships are also called virtual companies.</td>
</tr>
<tr>
<td>♦ <strong>Network effects</strong>: Law of diminishing returns states that most activities yield less value as the amount of consumption increases. In networks, an interesting exception to the law of diminishing returns occurs. As more people or organizations participate in a network, the value of the network to each participant increases. This increase in value is called the network effect.</td>
</tr>
<tr>
<td>♦ <strong>Using electronic commerce to create network effects</strong>: Internet e-mail accounts are far more valuable than single-organization e-mail accounts because of the network effect.</td>
</tr>
</tbody>
</table>
Identifying Electronic Commerce Opportunities

In his 1985 book, *Competitive Advantage*, Michael Porter introduced the idea of value chains. A value chain is a way of organizing the activities that each strategic business unit undertakes to design, produce, promote, market, deliver, and support the products or services it sells. In addition to these primary activities, Porter also includes supporting activities, such as human resource management and purchasing, in the value chain model.

| Primary Activities: | ♦ Identify customers  
♦ Design  
♦ Purchase materials and supplies  
♦ Manufacture product or create service  
♦ Market and sell  
♦ Deliver  
♦ Provide after-sale service and support |
| Support Activities: | ♦ Finance and administration  
♦ Human resources  
♦ Technology development |

Industry Value Chains

Porter’s book also identifies the importance of examining where the strategic business unit fits within its industry. Porter uses the term value system to describe the larger stream of activities into which a particular business unit’s value chain is embedded. However, many subsequent researchers and business consultants have used the term industry value chain when referring to value systems.

SWOT Analysis: Evaluating Business Unit Opportunities

In SWOT analysis (the acronym is short for strengths, weaknesses, opportunities, and threats), the analyst first looks into the business unit to identify its strengths and weaknesses. The analyst then reviews the environment in which the business unit operates and identifies opportunities presented by that environment and the threats posed by that environment.
**Issues Box: SWOT Analysis**
*(Fictional animal greeting card site, CrawlyCards.com, specializing in pictures of ground-clinging creatures such as slugs, snails, and puppydog tails)*

**Strengths**
- Unique idea, no one else is even close
- Strong artistic team includes some of the finest slug and insect illustrators in the country
- Excellent animation abilities
- Source of inspirational card inscriptions for all occasions
- Experienced and innovative company officers.

**Weaknesses**
- Small opt-in customer list, most site users seek to remain anonymous
- Few advertisers interested in this strangely targeted market
- Perl script that runs the site is slow and needs to be rewritten in a compiled language
- Lack of interest from venture capitalists.
- Single stream of revenue is advertising

**Opportunities**
- No real competitors in our precise space.
- Much traffic from students at UC Santa Cruz (Banana Slug is their mascot) sending cards to each other. Possible joint venture with alumni association and the Official Pacific Northwest Slug Page http://www.tammyslug.com
- Seek advertising from French restaurants and their suppliers.
- Possible books sales such as: Slugs and Snails (Minipets), Field Guide to the Slug, and Creepy Crawly Cuisine: The Gourmet Guide to Edible Insects.
- Possible sales of Turbo Snails to browse algae in fishtanks
- Partnership with CyberSlug Adoption Center
- E-commerce venture selling scarab jewelry

**Threats**
- Chemical companies are producing more effective snail bait that may destroy gastropod populations in our lifetime.
- Large card sites such as Blue Mountain (http://www.bluemountain.com) might want to take over the slug and mollusk traffic and edge us out.


**Question**
1. Using SWOT analysis, evaluate a business opportunity of your choice.

Quick Quiz

1. _____ are the total of all costs that a buyer and seller incur as they gather information and negotiate a purchase-sale transaction.
   Answer: Transaction costs

2. Economists have found that most activities yield less value as the amount of consumption increases. This characteristic of economic activity is called the _____.
   Answer: law of diminishing returns

3. True or false: Network organizations are particularly well suited to technology industries that are information intensive.
   Answer: True

4. The practice of an existing firm replacing one or more of its supplier markets with its own hierarchical structure for creating the supplied product is called _____.
   Answer: vertical integration

International Nature of Electronic Commerce

It is important for all businesses to establish trusting relationships with their customers. Companies with established reputations in the physical world often create trust by ensuring that customers know who they are. These businesses can rely on their established brand names to create trust on the Web. New companies that want to establish online businesses face a more difficult challenge because a kind of anonymity exists for companies trying to establish a Web presence.

Language Issues

Most companies realize that the only way to do business effectively in other cultures is to adapt to those cultures. The phrase “think globally, act locally” is often used to describe this approach. The first step that a Web business usually takes to reach potential customers in other countries, and thus in other cultures, is to provide local language versions of its Web site. This may mean translating the Web site into another language or regional dialect. Researchers have found that customers are far more likely to buy products and services from Web sites in their own language, even if they can read English well. Only 370 million of the world’s 6 billion people learned English as their native language.
Culture Issues

An important element of business trust is anticipating how the other party to a transaction will act in specific circumstances. That is one reason why companies with established brands can build online businesses more quickly and easily than a new company without a reputation. The brand conveys some expectations about how the company will behave. For example, a potential buyer might like to know how the seller would react to a claim by the buyer that the seller misrepresented the quality of the goods sold. Part of this knowledge derives from the buyer and seller sharing a common language and common customs. Business partners ideally have a common legal structure for resolving disputes. The combination of language and customs is often called culture. Most researchers agree that culture varies across national boundaries and, in many cases, varies across regions within nations. All companies must be aware of the differences in language and customs that make up the culture of any region in which they intend to do business.

Culture and Government

Some parts of the world have cultural environments that are extremely inhospitable to the type of online discussion that occurs on the Internet. These cultural conditions, in some cases, lead to government controls that can limit electronic commerce development. The Internet is a very open form of communication. This type of unfettered communication is not desired or even considered acceptable in some cultures. For example, a Human Rights Watch report stated that many countries in the Middle East and North Africa do not allow their citizens unrestricted access to the Internet. The report notes that many governments in this part of the world regularly prevent free expression by their citizens and have taken specific steps to prevent the exchange of information outside of state controls.

Infrastructure Issues

Businesses that successfully meet the challenges posed by trust, language, and culture issues still face the challenges posed by variations and inadequacies in the infrastructure that supports the Internet throughout the world. Internet infrastructure includes the computers and software connected to the Internet and the communications networks over which the message packets travel. In many countries other than the United States, the telecommunications industry is either government owned or heavily regulated by the government. In many cases, regulations in these countries have inhibited the development of the telecommunications infrastructure or limited the expansion of that infrastructure to a size that cannot reliably support Internet data packet traffic.

More than half of all businesses on the Web turn away international orders because they do not have the processes in place to handle such orders. Some of these companies are losing millions of dollars worth of international business each year. This problem is global; not only are U.S. businesses having difficulty reaching their international markets, but businesses in other countries are having similar difficulties reaching the U.S. market.
Discussion Questions

- How does the international nature of e-commerce affect its infrastructure?
- What steps should be taken to overcome the cultural issues of electronic commerce?
- What is the main motivation behind the second wave to electronic commerce?

Additional Resources

- SWOT Analysis: http://www.netmba.com/strategy/swot/
- Becoming a Virtual Company: http://www.inc.com/magazine/19951215/2647.html

Key Terms

- **Business model**: A set of processes that combine to yield a profit.
- **Business-to-business (B2B)**: Businesses sell products or services to other businesses.
- **Business-to-consumer (B2C)**: Businesses sell products or services to individual consumers.
- **Business-to-government (B2G)**: Businesses sell goods or services to governments and government agencies.
- **Commodity item**: A product or service that is hard to distinguish from the same products or services provided by other sellers.
- **Consumer-to-consumer (C2C)**: Includes individuals who buy and sell items among themselves.
- **Strategic alliance**: Companies coordinate their strategies, resources, and skill sets by forming long-term, stable relationships with other companies and individuals.
- **SWOT analysis**: The analyst first looks into the business unit to identify its strengths and weaknesses.