BRIEF HISTORY OF THE INTERNET

The commercial history of the Internet is actually quite short. The Internet has its roots in **ARPANET**, a network that initially included only U.S. government organizations and a select group of research and development firms in the private sector and then grew to include educational institutions and other nonprofit organizations outside of the United States. Two events in the first half of the 1990s paved the way for today's Internet. First, in 1991 the National Science Foundation (the nonprofit organization in the United States then responsible for managing the Internet backbone) lifted the ban on commercial usage of the Internet. Second, in 1994 Netscape Navigator (the first commercial **Web browser**) was released as a free product, based on the Mosaic browser developed at the University of Illinois. This rapid diffusion of an easy-to-use Web navigation tool followed shortly thereafter by Microsoft's Internet Explorer browser, quickly ushered in the opportunity for businesses connected to the Internet anywhere in the world to have an online reach to customers and suppliers. Today, the Internet is a network of computer networks that use the TCP/IP protocol with gateways to even more networks that do not use the TCP/IP protocol. The Web (World Wide Web) is a subset of the Internet, with multimedia capabilities. Web documents are composed in standard markup languages (HTML) and stored on servers around the globe with standard addresses (URLs) that are accessible via a hypermedia protocol (HTTP). No single organization owns the Internet; each organization or end user pays for its software and hardware (for clients and servers) and network access. Initially, these Web technologies were created for a scientific community to exchange documents. Today these Internet technologies have become "standards" for use by local communities, governments, nonprofit organizations, and entrepreneurs, as well as some of the poorest countries and richest companies in the world.

As shown in Figure 7.1, the IT applications, services, and communications technologies that enable e-business are dependent on two types of pillars: a technology pillar and a legal and regulatory pillar. The standards for the Web have evolved under the guidance of consortia such as the cross-industry World Wide Web Consortium (**W3C**), other industry consortia, as well as various watchdog groups. Beginning in 1993, the rights for registering Web site addresses (domain names) were held solely by a U.S. federal contractor, Network Solutions, Inc., but for the past decade, the assignment of domain names and IP addresses has been overseen by the Internet Corporation for Assigned Names and Numbers (ICANN), a nonprofit organization in the United States that has taken on broader coordination and policy roles.

The left-hand pillar in Figure 7.1 includes actions by national governments and legal systems.

E-Business Technologies

The major IT innovations that led to the growth of e-business applications during the first decade after the introduction of

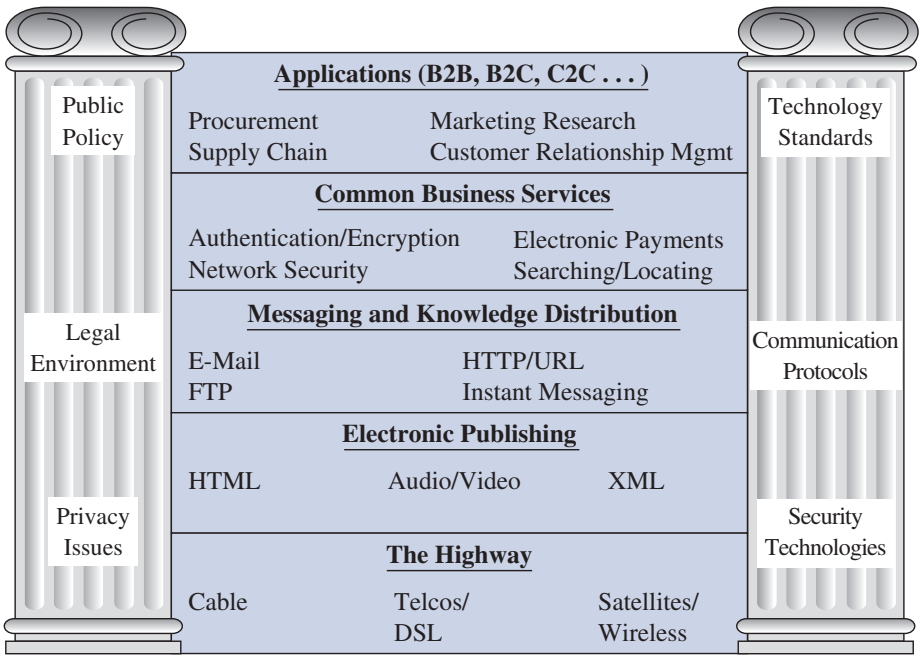


FIGURE 7.1 E-Business Framework (Based on Applegate, et al, 1996; Kalakota and Whinston, 1996; Laudon and Laudon, 2010)

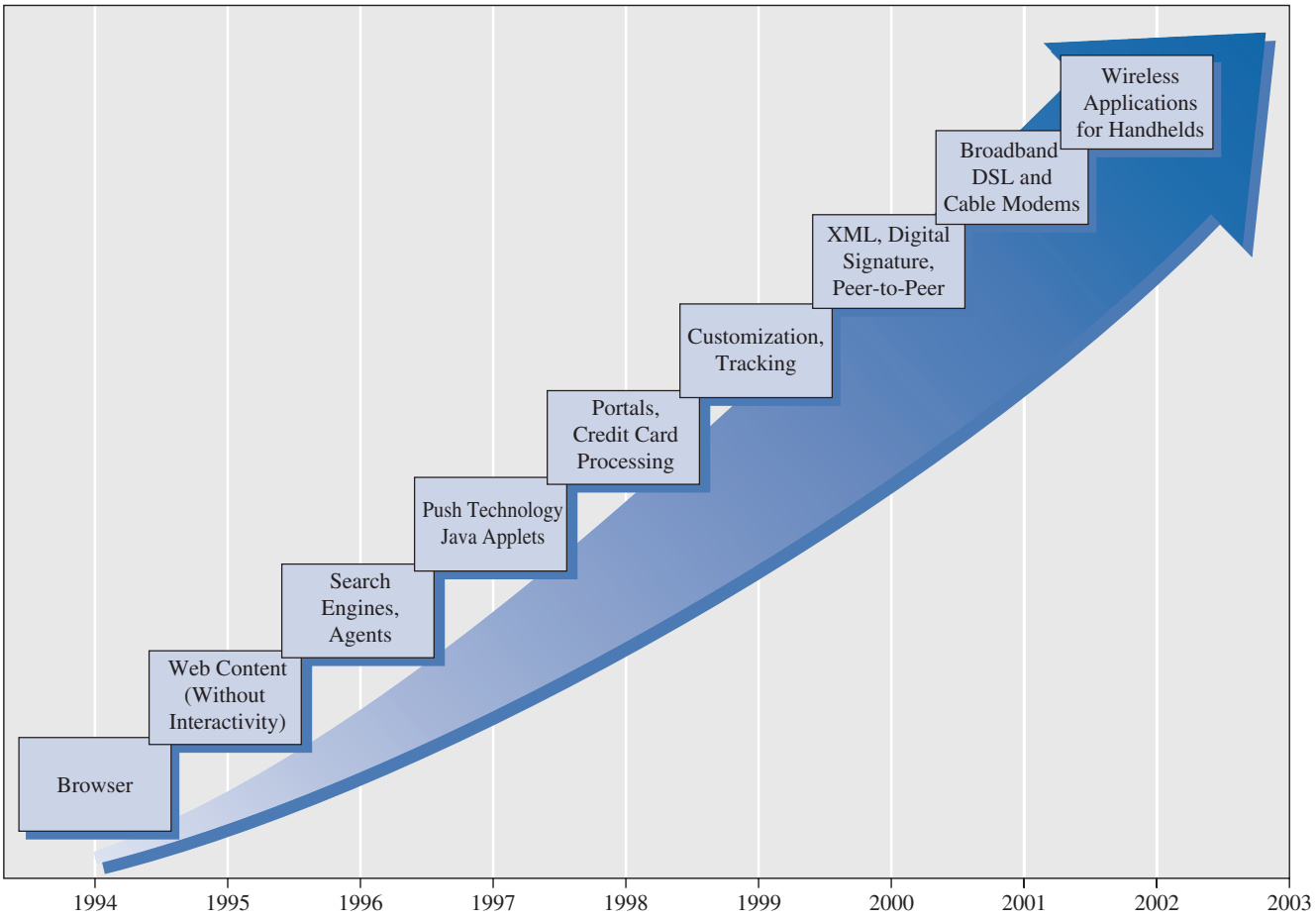


FIGURE 7.2 First Decade of Internet Technology Innovations for E-Business

the Web browser are shown in Figure 7.2. (More detailed discussions on the technologies are provided in Part 1.) Initially, businesses only had the tools to create a "Web presence": Text documents with hyperlinks were loaded on a Web server to communicate with various stakeholders, including not just customers and the public but also their financial backers. Web technologies to support interactivity with the user were then developed, followed by flashier designs to capture the "eyeballs" of Web site visitors.

The implementation of secure ways to transmit sensitive transactions and a standard for credit card processing were catalysts for the development of Web sites with direct sales capabilities. A consortium that included banks, two major credit card players (MasterCard and Visa), and other major industry players (GTE, IBM, Microsoft, and Netscape) developed this new standard to support business-to-consumer (B2C) transactions via the Web, and the first version of Secure Electronic Transaction (SET) was released in June 1997. Similarly, the implementation of a digital signature capability was a catalyst for enabling secure business-to-business (B2B) transactions via the Internet by the year 2000 (see the box entitled "Digital Signatures").

The term "Web portal" emerged to refer to sites that were designed to be an initial point of access, or gateway, to other Web sites. Popular Internet portals today include not only search engines but also news stories, stock prices, and other sources of information and personal entertainment. Many businesses also have portals designed for their employees to provide Web access to the company's *intranet*, which might include self-service applications to facilitate the collection of employee data for payroll and other HR systems. Some businesses have also established portals for business partners, which are accessed remotely using a URL separate from the company's public Web site, to provide selective access to company information (called *extranets*). Of course along with the introduction of public Web sites and extranet sites, firms also needed to provide online channels for around-the-clock customer service and ensure reliable and secure Web site hosting. Many firms today use external service providers to host their Web sites and manage the security risks associated with the public Internet.

Digital Signatures

Digital signatures use cryptography to convert data into a secret code for transmission over a public network. These technologies are often considered the most secure and reliable form of electronic signature because they use public-key infrastructure technologies to ensure that the electronic message has not been altered during transmission. That is, if a message has a digital signature, any subsequent change in the message will make the signature invalid. A digital signature can be applied to an entire document so that changes to any page of the document will be detected. Several countries have laws that consider digitally signed documents to be legally binding.

Several companies (e.g., VeriSign) are licensed to issue a digital certificate—the electronic equivalent of an ID card. The provider transmits the certificate and two digital keys—one private and one public—to your computer. To sign a document, you enter a password or PIN and affix your electronic signature—the private key—to the document. The person or company receiving your document then uses the public key to unlock your certificate and verify that the signature is valid. The software documents the date and time of each signing.

Internet A worldwide network of networks *accessible to the public* that employs the TCP/IP protocol.

Intranet A *private* network operating within an organization that employs the TCP/IP protocol to provide information, applications, and other tools for use by the organization's employees.

Extranet A *portion of a company's private intranet* that is accessible via the Internet to authorized organizations that are business partners (such as customers or suppliers).

By the beginning of this century, Web masters had gained experience designing and operating Web sites for public use. Within traditional companies as well as new dot-com companies, developers began to focus on technologies to improve not only the B2C sales experience for individual consumers but also auction bidding and other B2B experiences for business customers and suppliers. The collection of clickstream metrics and personal data from Web site users, as well as the users' benign (and often unaware) acceptance of Web "cookies" stored on their personal computers, enabled the presentation of customized Web site content for the individual or organizational user. Web browsers also continued to improve in functionality and ease of use and had become a standard interface to access not just text and graphics but also interactive multimedia (audio, video, animation), with essentially no special end-user training.

Initially, a constraint to more widespread growth of B2C applications was the capacity of the "pipeline" that users have access to for different types of media and files. However, by midyear 2006, 143 million Americans used the Internet at home, and 72 percent of these users had a high-speed broadband connection via cable modems or DSL telephone lines, and the overall communications costs via cable and DSL had fallen from about $1.50 in 1995 to $.02 per kilobit. As more home users gained access to broadband Internet usage, companies modified their Web site content to make use of these bigger communications pipelines. Comparative download times by 2010 for different types of file content with cable versus DSL are summarized in Figure 7.3.

More recently, the growing usage of mobile devices for wireless cellular communications has fueled the development of e-business applications designed for these mobile devices, sometimes referred to as **m-commerce.** One of the new business opportunities here is to provide customized content to the user based on the actual geographic location of the handheld device as well as demographic data. A mid-2009 U.S. survey found that almost 60 percent of mobile phone users would purchase pizza and movie or other event tickets with their mobile phones, and around 43 percent would also purchase hotel rooms (MacManus, 2009). Countries outside of the United States (e.g., Finland and Japan) were early leaders in providing this type of mobile Internet access to their citizens, and by 2010, high-end handhelds with phone, camera, and Internet access capabilities had become more widespread in the United States, Europe, and Asia. Globally, it should also be noted that the number of users with cell phone and text messaging access is twice as large as those with e-mail access.

For B2B e-business, an important open technology standard endorsed by the W3C is **XML** (eXtensible Markup Language), a language for facilitating the transmission of common business data elements due to its precise "tagging" capabilities. Prior to the commercialization of the Internet,

Type of File	Typical size	Download Time via Cable	Download Time via DSL
1-page email text	2.0 KB	0.0 seconds	0.0 seconds
20-page Word doc	130 KB	0.2 seconds	0.4 seconds
Photo, mid-level resolution	500 KB	0.8 seconds	1.4 seconds
5-minute MP3 file	5 MB	8.0 seconds	14.3 seconds
60-second video clip	10 MB	16.0 seconds	28.6 seconds
2-hour video show	700 MB	18.7 minutes	33.3 minutes
Full DVD	4.7 GB	2 hours 5 minutes	3 hours 44 minutes

FIGURE 7.3 **Download Times with Broadband**

over half of the Fortune 1000 had already implemented their own proprietary **electronic data interchange (EDI)** applications (see box entitled "How EDI Works") using a private telecommunications network of leased lines or a value-added network (VAN) provided by a third party. XML has enabled a flexible, lower-cost form of EDI that takes advantage of the Internet as a public communications channel.

The lack of sufficient online security was one of the biggest constraints to the initial diffusion of Internet-based e-business systems for businesses as well as for end consumers. Today, however, technical solutions for security are required investments at the data, host computer, and network levels (see the discussion of information security issues in Chapter 14).

Legal and Regulatory Environment

Given the U.S. origins of the Internet, the legal and regulatory environment in the United States has played a major role in initially shaping the Internet's capabilities for e-business. For example, taxes on sales of products and services are collected at the state level in the United States, not the national level. With the advent of online sales beginning in the 1990s, a uniform sales tax policy at the federal level could have been initiated but President Clinton and the U.S. Congress chose instead to take a "hands-off" policy for taxing Web-based sales. This purposeful inaction fit the U.S. government's vision for a national information infrastructure (superhighway) that would link homes, businesses, and government, without major government funding.

Another major government issue is the protection of the privacy of individual consumer data. Privacy rights advocacy groups and nonprofit organizations in the United States and Europe in particular have played a major role in ensuring that companies protect the privacy of their consumers by not sharing the personal data they have collected. Virtually all U.S.-based retailers today provide a copy of their company's privacy policy on their Web sites—explicitly stating what the firm will or will not do with any individual data collected from usage of their Web site. Nonprofit organizations such as TRUSTe also administer programs that validate a firm's "trustworthy" behavior toward Web site visitors. Dot-com companies particularly dependent on maintaining consumer trust may display a visible logo signaling their validated trustworthiness for protecting their customers' individual privacy (see box entitled "TRUSTe Program Continues to Ensure Consumer Privacy").

Although the U.S. brand of capitalism and the U.S. laws protecting freedom of expression were the initial

How EDI Works

EDI is usually implemented by computer-to-computer communication between organizations. A customer sends a supplier a purchase order or release to a blanket order via a standard electronic document. There is no manual shuffling of paperwork and little if any reentering of data. The supplier's computer system checks that the message is in an acceptable format and sends an electronic acknowledgment to the customer. The electronic order then feeds the supplier's production planning and shipping systems to schedule the shipment.

(*continued*)

How EDI Works (continued)

When the order is ready to ship, the supplier sends the customer an electronic notice of the pending shipment. The customer's computer checks that the shipment information corresponds to the order and returns a message authorizing the shipment. The supplier then sends a message that includes the truck number, carrier, approximate arrival time, and bill of lading The customer's computer alerts the receiving dock of the expected arrival; receiving personnel visually verify the shipment upon arrival for quality, and the shipment is accepted.

A contract signed by EDI business partners determines when an electronic order is legally binding, which could be when it is delivered, after the message is read, or after it has been checked. A contract also determines whether all messages must be acknowledged. Usually, the customer must guarantee that if it issues a correctly formatted and acknowledged order, then it is obliged to accept and pay for the requested goods.

The technical success of EDI depends on standards. Standards for EDI are necessary because computer file formats, forms, data and transaction definitions, and the overall methods of processing data can vary considerably across companies and especially across countries. Standards provide a way to decouple the different EDI participants as much as possible, yet still facilitate data exchange.

An electronic business document is called a transaction set. Header and trailer records contain batch control information, such as the unique identifiers of the sender and receiver, a date, the number of line segments, and so on. Each transaction set also has a unique identification number and a time stamp. An EDI translation program converts an incoming EDI format so that it can be read by an application program, and vice versa.

The specific standard for a transaction set is established between the business partners of an EDI relationship. EDI standards are of three types: proprietary formats designed for one or more organizations and their trading partners, industry-specific formats that are designed to match specific industry needs (e.g., automotive), and generic formats for use by any trading partners. In some industries a major industry player or a consortium of companies have established a standard, whereas in other industries a formal body with large representation may have established a standard.

The American National Standards Institute (ANSI) has coordinated standard-setting activities in the United States. ANSI X.12 formats exist for standard documents in many U.S. industries—including chemicals, automotive, retail merchants, textiles, and electrical equipment. Some of these U.S. standards were developed by an industry group. For example, the Automotive Industry Action Group (AIAG) was created by Ford, General Motors, and Chrysler along with 300 large suppliers. For some industries, the usage of uniform standards for product identification (product codes) is also key to EDI cost savings.

shapers of the Internet, today's Internet is truly a global marketplace. International agreements are therefore needed but face considerable barriers due to major differences in national policies related to the rights of individuals and the protection of intellectual property. For example, for several months in 2010 there was a censorship dispute between Google and the Chinese government (see the Google.com discussion later in this chapter).

TRUSTe Program Continues to Ensure Consumer Privacy

TRUSTe is an independent, nonprofit organization founded in 1997 by the Electronic Frontier Foundation (EFF) and the CommerceNet Consortium. Its TRUSTe seal is intended to be a signal to Internet users that a given Web site will protect their online privacy. The seal is awarded only to sites that adhere to established privacy principles and agree to comply with ongoing TRUSTe oversight, consumer consent and unsubscribe capabilities, and redress procedures, which include the adoption and implementation of a **privacy policy** that discloses how the company collects and uses personal data and also gives users the opportunity to exercise some control over the use of their information. SSL or similar security technologies must be used by the site to encrypt pages that collect credit card or other sensitive personal information, and the site must be free of malware. Among the sites approved for the TRUSTe seal are eBay, Facebook, New York Times, and Apple.

[Based on www.Truste.com, last accessed July 29, 2010.]

STRATEGIC E-BUSINESS OPPORTUNITIES (AND THREATS)

A well-established, pre-Internet framework for assessing a firm's strategic opportunities and threats is Michael E. Porter's **competitive forces model.** As can be seen in Figure 7.4, the five competitive forces in the model are a firm's suppliers, its customers, new market entrants (same products/services), substitute products brought to market, and a firm's competitors within the same industry.

In an article published in the *Harvard Business Review* after the first wave of e-business applications at the beginning of this century (Porter, 2001), Porter used this competitive forces model to make predictions about the commercial opportunities and threats to an industry from the perspective of a traditional brick-and-mortar company. Only three major e-business *opportunities* for traditional companies were identified:

1. the procurement of supplies via the Internet can increase a company's power over its suppliers,
2. the size of a potential market can be greatly expanded (due to the national and global reach of the Internet), and
3. distribution channels between the traditional company and its customers can be eliminated.

The first and third opportunities here refer to the potential to bypass a company that was a traditional "intermediary" between a producer (or service provider) and the customer for that product (or service). For example, an airline company used to depend on travel agencies to sell and print airline tickets; today, airline companies can bypass this channel by selling tickets directly to customers via the Web and save the transaction fees once paid to travel agents or their own customer service representatives.

However, in the same article Porter also identified a large number of e-business *threats* to the traditional company, including the following:

1. there is greater competition based on price because the Internet makes it more difficult to keep product or service offerings proprietary,
2. the widening of the geographic markets results in an increase in the number of competitors,
3. the Internet reduces or eliminates some traditional barriers, such as the need for an in-person sales force, and
4. customers have more bargaining power because they can see prices for the same or similar products by just looking at Web sites and can easily "switch" to a competitor.

The first and fourth threats suggest that it is much more difficult to compete based on differentiation of the company's products or services—such as visible quality, customer service, or some other unique value perceived by the customer—because of information available on the public Internet.

Although Porter's model establishes a starting point for thinking about competitive moves for companies within an industry, there is a potential danger in using a competitive model that was initially based on ways of doing business in earlier decades when we did not have a global computer network to link commercial businesses with their business partners and to provide global reach online. For example, users of this model need to take into account the potential impacts of new dot-com intermediaries between a firm and its customers, as well as between a firm and its suppliers—including Web sites that can serve as online "aggregators" that make it easy to compare prices (such as *www.hotels.com*) or competitor bids.

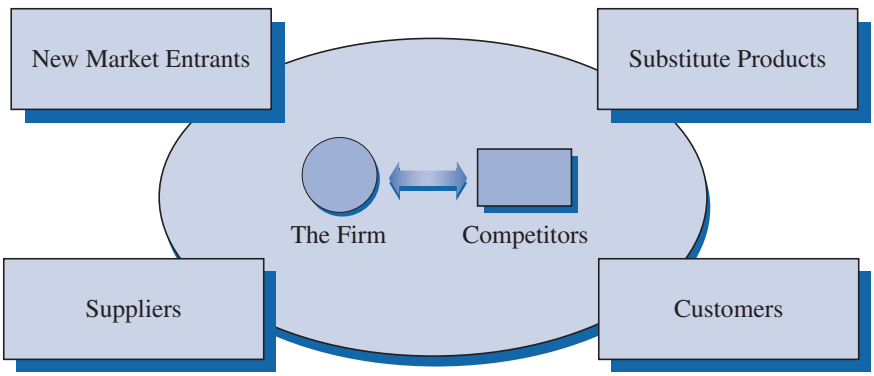


FIGURE 7.4 Porter's Competitive Forces Model

About the time that Porter's predictions were published in 2001, an economic recession in the United States severely dampened the rate of IT-related Internet innovations. An e-business "reality check" also began to dampen e-business innovations following the 1999 end-of-year holidays when it became evident that many online retailers lacked B2C fulfillment capabilities and many online B2B exchanges lacked a robust-enough business model to survive. By March 2001, the dot-com "meltdown" had become a dot-com "bust" as venture capitalists in the United States that had fueled the growth of the Internet in the late 1990s began to stop investing in companies that only showed revenue growth potential, not revenues (see Figure 7.5).

The potential for competitive advantages from being a "first mover" also began to be questioned. A recent analysis of the business plans for dot-com startups that were funded before the dot-com meltdown emphasized investments to grow as quickly as possible. Today, there is some evidence of a first-mover advantage for dot-com survivors such as Amazon.com and eBay, and the survival rates for startups during that period were apparently on par with those in other major industries during their formative years (Gomes, 2006). However, there were also colossal failures, including the online grocery retailer Webvan and eToys.com. As summarized by Marc Andreessen, the cofounder of the first commercial browser (Netscape) who saw his company lose its first-mover advantage to Microsoft's Internet Explorer browser, being first does not guarantee survival (Anders, 2001): "Most first movers end up lying facedown in the sand, with other people coming along and learning from their mistakes. . . . *Being the first mover with the right approach* is very important. Being the first mover with the wrong approach means you're dead."

The most recent Web site innovations have been part of what's been referred to as **Web 2.0** capabilities, including social-networking software for information sharing across individual Web users and virtual communities. This consumer-centric phenomenon was highlighted in the year-end *Time* magazine "Person of the Year" award for 2006, in which the winner was "You" (signaled by a mirror on the magazine cover). In addition to dot-com social media platforms for information sharing (e.g., MySpace, Facebook, YouTube, and Linked-In), businesses have also begun to take advantage of social media as a new customer channel (see the discussion of Facebook later in this chapter).

To understand the importance of both e-business application functionality and the business innovations they support, in the next sections we focus on examples of traditional companies that have evolved their B2B and B2C capabilities, as well as dot-com companies that have become national and global brands.

B2B APPLICATIONS

B2B applications that leverage the Internet are not visible to the public in the same way that Web sites for B2C applications are. Prior to the Internet, many large companies had in proprietary EDI systems for electronic transmission of standard documents that used private networks (see the box "How EDI Works" earlier in this chapter). By the early 1990s there was a large installed base of these systems, and because these proprietary systems were also highly reliable and efficient, it took almost a decade for many large businesses to rely on the Internet as a secure communications channel. However, for many smaller businesses, the custom EDI systems of the past had not been economically feasible, and for these firms the Internet created entirely new B2B opportunities. By 2003, the dollar volume of B2B e-business had grown to about $1.3 trillion (from about $250 billion three years earlier) and to $3.6 trillion by 2008.

	Prior to 2000–2001	Beginning 2000–2001
Source of innovation	Technology-driven	Business-driven
	Venture capital	Less venture capital
Financial markets	Valuation based on potential for revenue growth	Valuation based on potential for earnings and profits
Taxation on sales	"Hands-off" policy	Some state sale tax
Business models	Dot-com (pure online)	Bricks-and-clicks
	First mover advantage	Strategic follower
	New types of intermediaries	New types of intermediaries

FIGURE 7.5 **Before and After the U.S. Dot-Com Meltdown**

Some of the benefits achievable with B2B applications via the Internet are the same as those previously achieved by large companies with EDI applications. For example, B2B applications via the Internet can

- reduce the cycle times for doing business with customers and suppliers
- decrease the costs of doing business with automated transaction handling and the elimination of paper documents, and
- improve coordination across business partners.

The majority of B2B transactions are for online procurement of products from suppliers, fulfillment of orders from customers, and order tracking.

Reduced cost savings and improved cycle times can also result from online marketplaces (exchanges) for buyers to purchase goods from multiple suppliers, and vice versa. An early dot-com company that provided B2B purchasing software and services for buyers was FreeMarkets. Working for the buyer, FreeMarkets hosted online **reverse auctions** in which suppliers could bid for a client contract. Because the products used as inputs to manufacturing processes can have complex requirements, FreeMarkets also provided behind-the-scenes people experts to help purchasing managers in client companies to prepare the bidding requirements for the online auctions. During the auction, the suppliers could see their competitors' price bids in real time and then had the option to place a lower bid that would also become visible to other bidders who could place an even lower bid, and so on. Figure 7.6 is an example of an online display that bidders could see during an auction in which they were pre-approved to participate in. Some firms first conducted these types of online auctions with the help of B2B intermediaries such as FreeMarkets, but then invested in software to host their own online exchanges (Mabert and Skeels, 2002). Alibaba is an example of a successful B2B intermediary for global trade as well as domestic trade in China, with a special focus on smaller buyers and suppliers.

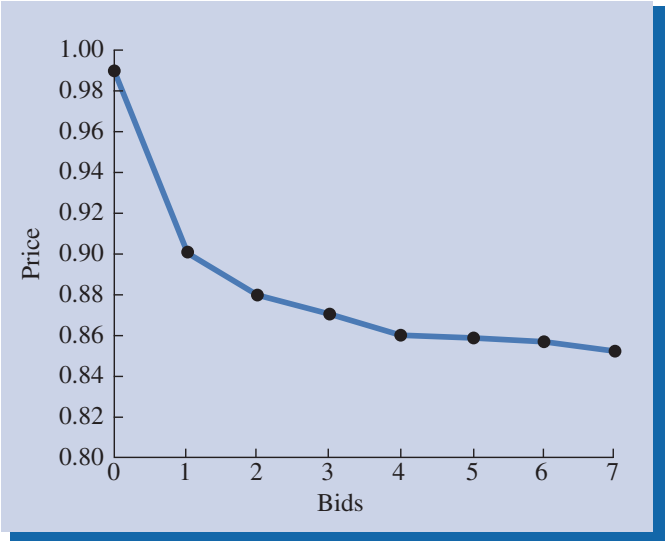


FIGURE 7.6 **Supplier Bidding During an Online Reverse Auction**

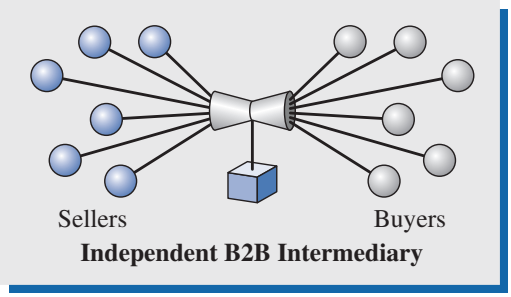
Competitors have also attempted to collaborate in the development of an online exchange. For example, Covisint (pronounced coh-viz-int) was initially established by the Big Three automobile manufacturers in the United States as an independent online exchange for sourcing, auctions, and other collaborations. However, this consortium faced major roadblocks to operational and information sharing among these large automakers due to U.S. antitrust laws. The company was subsequently sold to two different companies, and as a division of Compuware, it is now offering EDI-type services to other sectors, such as healthcare.

As shown in Figure 7.7, if the number of buyers in a specific industry is small, the buyers will have a lot of "buyer power"; this explains why the automobile companies initially tried to invest in a new exchange for automotive companies rather than pay an independent intermediary for an online service that they could fund themselves. Similarly, if the number of sellers in a given industry is small, the sellers will more likely rely on their own competitive power as a strategic supplier, or band together, rather than pay an independent intermediary for an online service. However, in industries where there are lots of buyers and sellers, companies that serve as online intermediaries are more likely to have a sustainable business model. Online procurement of commodity MRO (materials, repair, and operations) supplies in particular can generate significant cost savings for client firms, even though commodity products typically have very low profit margins.

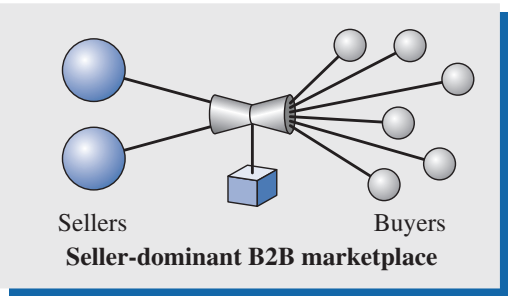
For example, the North American procurement team of Nestlé, one of the largest food and beverage companies in the world, determined that comprehensive online sourcing solution could yield much higher savings than off-line sourcing for many of its purchasing categories (Vollman, 2005). The team first focused on strategic purchasing of raw materials and packaging using an online auction, which required significant changes in its sourcing process. As it learned how to use the auction system to its advantage, it expanded its online sourcing to include MRO products and additional services as well.

Another potential benefit from B2B systems via the Internet is improved information sharing with suppliers and customers about supply-chain transactions via extranets. B2B applications for access to a customer's

- If Buyers and Sellers are Fragmented, **Independent Intermediaries** are likely to be successful.



- If Sellers are Concentrated, **Sellers** are likely to dominate.



- If Buyers are Concentrated, **Buyers** are likely to dominate.

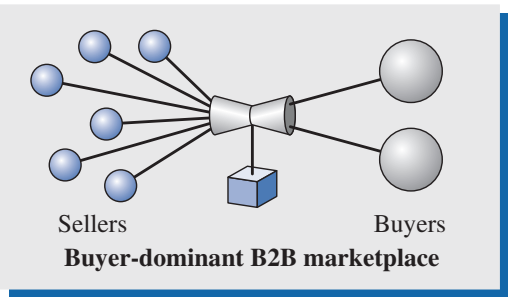


FIGURE 7.7 **Dominant Players in B2B Marketplaces**

supply-chain information would typically be used with only a few selected business partners with which a strong relationship has major benefits. Many of these types of supply chain applications are designed to leverage prior enterprise system investments, especially ERP systems with SCM modules. For example, the e-sourcing initiative (described earlier) at Nestlé USA leveraged a major supply chain initiative that was part of a global ERP system roll-out under the parent firm headquartered in Switzerland, for whom the cost savings from coordinated information was a key e-business driver (Ariba, 2005). Other companies have leveraged centralized databases with product and inventory information to develop B2B applications for a vendor-managed inventory (VMI) partnership in which the client entrusts the management of their inventory levels to a strategic supplier. VMI partnerships are therefore dependent on timely electronic information sharing of the client's sales information with the supplier. The low cost of B2B communications via the Internet has made this type of B2B application feasible for even midsized and smaller companies (for a detailed example, see Case Study II-1, "Vendor-Managed Inventory at NIBCO").

B2B applications are expected to continue to grow as more companies across the globe implement standardized ERP platforms to more locations and develop extranet portals for information sharing with key business partners. The growth of these e-business applications has also meant that entirely new skills are needed for business auditors. That is, traditional internal 1999 end-of-year holiday season within the United States is usually cited as a major milestone for B2C applications, as online sales approached 1 percent of holiday retail sales for the first time. Besides online purchasing, consumers were also using the Web to search for gift ideas and for price comparisons (Schwartz, 2001). Accounting controls have been "rendered useless" in today's B2B environments, and auditors need to be skilled in e-business technologies as well as systems auditing (Pathak and Lind, 2010).

WORLD INTERNET USAGE AND POPULATION STATISTICS

World Regions	Population (2009 Est.)	Internet Users Dec. 31, 2000	Internet Users Latest Data	Penetration (%Population)	Growth 2000–2009	Users % of Table
Africa	991,002,342	4,514,400	**67,371,700**	6.8%	1,392.4%	3.9%
Asia	3,808,070,503	114,304,000	**738,257,230**	19.4%	545.9%	42.6%
Europe	803,850,858	105,096,093	**418,029,796**	52.0%	297.8%	24.1%
Middle East	202,687,005	3,284,800	**57,425,046**	28.3%	1,648.2%	3.3%
North America	340,831,831	108,096,800	**252,908,000**	74.2%	134.0%	14.6%
Latin America/ Caribbean	586,662,468	18,068,919	**179,031,479**	30.5%	890.8%	10.3%
Oceania/Australia	34,700,201	7,620,480	**20,970,490**	60.4%	175.2%	1.2%
WORLD TOTAL	6,767,805,208	360,985,492	**1,733,993,741**	25.6%	380.3%	100.0%

FIGURE 7.8 **Internet Usage Statistics by Population for the 7 World Continents**

http://www.internetworldstats.com/stats.htm#links

B2C APPLICATIONS

The growth of B2C e-business worldwide is dependent on the number of potential consumers that have Internet access. As can be seen in Figure 7.8, the numbers of Internet users across the globe have grown steadily. By the end of 2009, North America still had the highest percentage of Internet users within its population (74 percent), but the population of North America is only about 5 percent of the world population. By 2009, the actual number of Internet users was already much greater on two other continents: Europe and Asia. Although the Internet penetration is just in its infancy in Africa in particular, the growth rates in Internet usage from 2000 to 2009 on the continents with less developed countries are truly remarkable.

The 1999 end-of-year holiday season within the United States is usually cited as a major milestone for B2C applications, as online sales approached 1 percent of holiday retail sales for the first time. Besides online purchasing, consumers were also using the Web to search for gift ideas and for price comparisons (Schwartz, 2001). By 2009, online shopping accounted for $29 billion of the November–December holiday season retailing in the United States and in 2010, on the Monday after the Thanksgiving holiday (referred to as Cyber Monday), there was a new record for online consumer spending in a single day: more than $1 billion (comScore, 2010). Despite the global recession, online retailing has continued to grow as a percentage of retail sales, with South Koreans reported to be the most avid online shoppers, followed closely by shoppers in Germany, the United Kingdom, and Japan; in this survey, online shopping in the United States ranked only eighth (iStockAnalyst, 2009).

The potential benefits for B2C applications for the seller are relatively clear, as summarized in Figure 7.9. However, the actual B2C benefits achieved for the seller also depend on the market in which the seller competes (both the industry and country), whether a company has traditionally sold directly to end consumers (either by catalog or retail store), and the characteristics of the product or service. For example, products that can be digitized (such as music and movies) and services based on aggregated information can be distributed directly to the customer using an online channel.

International markets have also become increasingly popular for B2C sales by U.S. companies due to the lower entry costs and recently weakened value of the U.S. currency. The traditional barriers to international retailing include sales taxes, duties on imported goods, shipping costs, as well as language and cultural barriers, but the benefits are now greater than the costs for many companies. However, it is easier to carry out trade with some countries

Seller Benefits

24/7 access to customer for sales and support
Lower costs from online channel
Multimedia opportunities for marketing
New ways to research potential markets
New ways to distribute (if product/service can be digitized)
Global reach to buyers

FIGURE 7.9 **Potential B2C Benefits to Sellers**

than others because of national policies about transborder data flows and others that can favor domestic companies. (See also the box "China Online" later in this chapter.)

Next we describe how six companies have evolved their usage of the Internet for B2C applications. All but one of these companies are U.S.-based because of the origins of the Internet and its relatively short history:

- two dot-com retailers that have outcompeted store-based sellers (Amazon.com, Netflix)
- two traditional catalog retailers that were early B2C innovators with Web sites that enabled the user to order customized products (Dell, Lands' End)
- two traditional store retailers that have successfully integrated their store-based and online systems to service repeat customers that use both channels (Staples, Tesco).

From these B2C innovators, we can draw some conclusions about e-business application designs that are effective. At the end of the chapter, we also describe what makes a good B2C Web site from a consumer perspective.

Two Dot-Com Retailers

AMAZON.COM (www.amazon.com) Amazon.com was a dot-com pioneer that began as an online bookseller in 1995. Under its founder Jeff Bezos, Amazon.com was able to leverage the publicity it received due to its successful "first mover" online retailing to quickly "brand" itself as a trusted dot-com company that provides a customer-friendly online shopping experience.

Named after the Earth's biggest river, Amazon.com was launched as a pure-play online retailer in 1994 with the slogan "Earth's Biggest Bookstore." Originally only a threat to traditional superstore booksellers (e.g., Borders, Barnes & Noble), by mid-1999 Amazon had expanded into other third-party consumer products—from books to electronics to outdoor furniture. Although traditional "big-box" retailers such as Walmart, Target, and Sears thus became its new competitors, by August 2003 Amazon.com had become the online "department store" with the most visitors, and by the end of that year, the company finally reported its first profitable fiscal year. By 2008, Amazon.com was reported to be the most popular online shopping site worldwide, although it had not successfully penetrated the Chinese market (see the box "China Online" later in this chapter).

Amazon.com has long been recognized for its superior online shopping experience for individual consumers, including its patented "one-click" method of online shopping and a personalization (tailoring) capability that provides purchase recommendations based on a customer's own purchases as well as those by other online customers (see the box entitled "Online Shopping to Cloud Computing with Amazon"). In 2001, Amazon.com received the highest customer satisfaction score for any service company (online or off-line) by the American customers that participated in the survey.

Online Shopping to Cloud Computing with Amazon

Amazon.com won customer loyalty early on by providing an online experience that was easy to use, was trusted to deliver on time, and used technology to develop a sense of community among its customers. The site is easy to navigate; searching is easy; and the site personalizes the content displayed to highlight merchandise of a type you've bought before and to suggest similar items.

The company sends e-mails to tell when the order was processed and when it was shipped; an order can be cancelled before it ships; and warnings are provided if delays might mean a delivery will miss a major holiday (such as Xmas). It also has a click-to-call customer service in which online shoppers can pose questions to a customer service representative: Users enter their phone numbers in a help screen, indicating how soon they would like to be contacted, and the customer's data—including usually what section of the site a customer is viewing—are made available to an Amazon employee. Amazon.com has also leveraged its superior IT infrastructure and technology talent by selling IT services. For example, Amazon hosted the Web site of Target, one of its big-box competitors, beginning in 2001: Target had a store tab on Amazon.com that linked Web users to selected Target products. In 2002, Target contracted with Amazon to use its advanced search, personalization, product recommendation technology, 1-click shopping, and so on under Target's own URL, and more recently the company has also begun leveraging its computing infrastructure investments to sell computer power and data storage services as part of a cloud computing strategy.

Amazon.com's initial success as a dot-com book retailer in the 1990s has also been attributed to its early access to a major distribution infrastructure first built by another company. For example, when other dot-com retailers failed to deliver holiday purchases on time in late 1999, Amazon.com was able to fulfill 99 percent of its orders in time for the Christmas holiday. When the company expanded its online store offerings in the following years, it also had to heavily invest in additional distribution facilities to handle products for which it kept its own inventory (including electronics).

Today as a Fortune 500 company with $24.5 billion revenues in 2009 and net income of about $1 billion, Amazon.com has continued to innovate. For example, it introduced its first e-book reader (Kindle) in 2007 and began to sell e-books that would cost $25–27 in hard copy for $9.99. In the Fall of 2009, it sponsored a pilot program at Princeton University and other universities where its larger Kindle DX reader was used for textbooks, and in 2010, it announced a major milestone, despite the fact that Amazon and other competitors are still using proprietary software: During the 2nd quarter of 2010 Amazon had higher e-book sales than hard copy book sales. One of the barriers to the adoption of an e-book industry standard (called ePub) is that e-book sellers are dependent on publisher agreements for digital rights, and their proprietary software includes digital rights management capabilities. In response to Apple's introduction of the iPad, Amazon created a downloadable e-reader application for iPad, as it had also done for the iPhone, Blackberry, devices using Google's Android platform, and others.

NETFLIX (www.netflix.com) Netflix was established in 1998 shortly after the DVD format had become the new standard for video rentals and sales. Under its founder and current CEO, Reed Hastings, the company began its flat-rate online movie rental business with about 1,000 movie titles. In 2006, Netflix reported having 6.3 million subscribers (a 50 percent increase over the prior year), annual revenues close to $1 billion with profits close to $100 million, and an inventory of over 75,000 movie (and TV program) titles—including an extensive collection of documentaries and hard-to-find independent films. In 2009, it had revenues of $1.67 billion.

The company's Web site (see Figure 7.10) features a bold red color scheme that promotes its simple brand logo. Movie information is provided with images and text, and the site has an easy-to-use but sophisticated search and sorting capability. Subscribers create an ordered list (queue) of DVDs to be rented that are filled in the order listed, as available. Customers can choose from several monthly subscription plans at different prices that vary in the number of movies that the customer can have in their possession at the same time. By 2007, about 1.5 million

FIGURE 7.10 Netflix Home Page

DVDs were being mailed out daily to customers' mailboxes from over 40 distribution centers in 29 different states, using the U.S. Postal Service. Customers return the videos to Netflix by mail using the same preaddressed envelope at a time of their own choosing with no mailing charges. A barcoded mailing envelope, as well as the barcode on the inside DVD envelope that is visible from a window opening in the mailer, enables efficient distribution capabilities (Zachary, 2006).

Similar to Amazon.com's customer reviews, members can create a "Friends List," with whom they share their movie queues, and provide movie ratings that can be viewed by other members. Sixty percent of customers reportedly select their rentals based on movie recommendations provided by the Web site, which uses an algorithm (similar to Amazon.com) that takes into account past rental titles by the subscriber and recommendations by other members who have similar tastes. Members can also sign up for e-mail notifications (i.e., of press release information, video library updates, media reviews) and RSS feeds for account and video release information.

Compared to some other dot-coms from the 1990s, Netflix had less venture capital to support its initial growth. However, it also benefitted from being in a relatively new industry niche (movie rentals) where the largest retail store competitor was slow to develop a multichannel capability (see the box "Online Movies Overtake Blockbuster Stores"). In January 2007, Netflix began launching a digital movie distribution service via the Internet using a proprietary video streaming technology to subscribers' personal computer, Mac, and to TVs via alliances with hardware companies, including LG. The company's long-term vision is to eventually be able to deliver old and recently released movies to any Internet-connected screen—including cell phones.

Two Traditional Catalog Retailers

DELL (www.dell.com) Within the PC industry, Dell Corporation (formerly Dell Computer Corporation) was one of the first to establish a customer-driven PC configuration capability. Its early-mover advantage was due to its already existing business model: Unlike competitors that manufactured PCs for a distribution channel, Dell had a make-to-order assembly model that received orders from its own direct-to-customer retail channels—using call centers, fax, and phone orders—but no retail stores. Launched in July 1996, Dell's Web site leveraged the software applications and experiences of its own customer service representations to create an effective "self-service" Web application that let online customers create their own custom PC orders. Customers can experiment with different computer configurations using a "choiceboard" capability that shows them price differences for components and calculates the total price *before* finalizing their order. Customers submit their PC order via the Web site, and the order data are translated into a design, the components are ordered, and then the right resources are electronically scheduled to fulfill the order "Direct from Dell."

For retail sales to business customers (which is a larger customer segment than end-consumer sales), Dell's sales staff works with an organization's procurement managers to select a small number of PC configurations at a prenegotiated price to fit the company's infrastructure standards and employee needs. Only these options are displayed when the company's employees access the secure Web page (Premier Pages) customized for their firm. The configurations typically also include preloaded application software packages, sometimes with company-specific images.

Online Movies Overtake Blockbuster Stores

Video store retailer Blockbuster initially avoided investing in an online sales channel to compete with its growing dot-com competitor Netflix. However, after several years of income losses, Blockbuster became a bricks-and-clicks competitor in 2004. The Web site had similar capabilities to the Netflix site, including a "Friends and Family" feature, and utilized a customer profiling application that allowed customers to set preferences that could be used to personalize movie recommendations by the site. Like Netflix, the online movie rentals are distributed via the U.S. Postal Service. In 2006, Blockbuster was still the world's largest video rental company with 8,000 stores, including over 2,500 stores in 25 countries, renting movies and videogames on DVDs, and that year it launched its Total Access program, in which online rentals could be returned or exchanged in its stores. However, by 2010 it had lost its market leader position in video rentals to Netflix, and it planned to close a total of one thousand stores between 2009 and 2010. Even the possibility of bankruptcy was being reported (Grover, 2010).

By year-end 2002, Dell was number one in market share for desktop PCs and was also the number one online computer retailer. However, by mid-2006 Dell had lost its market share position to Hewlett-Packard (which had merged with Compaq Computer a few years earlier). The company's highly efficient supply-chain model and direct sales retail approach were still intact, but by then its competitors were also able to compete online as well as through their traditional distribution channels. In January 2007, Michael Dell returned as CEO, and a few months later the company announced that it had signed a pact with Walmart stores in North America to develop another sales channel. This announcement clearly signaled that the build-to-order catalog model that its founder had leveraged for B2C sales in the past was perceived as being at a disadvantage for competing with store distribution channels for sales of low-end PC models to individual consumers. In 2010, its B2C market share still lagged HP, and the company reported an increased focus on sales to its business customers as well as leveraging its market position as a provider of technical services in the healthcare sector due to its new IT services acquisition (Perot Systems).

LANDS' END (www.landsend.com) Founded in 1963 first as a retailer of sailing equipment, then clothes and home furnishings, Lands' End traditionally marketed its products via catalog. Like Dell, it took sales orders via e-mail, telephone, and fax. In the late 1990s, it began selling its products online via its Web site. Similar to Dell, its traditional distribution infrastructure for catalog sales was easily modified to also fulfill online orders, and the company quickly realized additional profits from its new multichannel capability.

In October 2001, Lands' End also was an early mover in offering online sales of custom-crafted clothing. The customer answers a few questions about fit preferences and body type, and can "try on" items and outfits using a 3-D model via its Web site. The customized product innovation was made possible by an alliance with Archetype Solutions, Inc. (ASI), a small start-up, founded by a prior Levi Strauss North America manager. Levi's had been an early experimenter with online orders of customized clothing but, unlike Lands' End, traditionally sold its products via distributors rather than direct to customers. ASI's algorithms translate a customer's measurements into a pattern for cutting fabric for a specific product, which is then electronically submitted to manufacturers of the custom clothing orders. Other Lands' End initial IT investments included software to track custom orders as they were passed between Lands' End, ASI, offshore manufacturing sites, and shippers.

Lands' End began with custom orders for a small number of products. By 2003, its Web site sales of custom chinos and jeans accounted for 40 percent of its sales for those product lines. The company kept in place its usual generous return policy for its custom orders, and customers who experienced poor fit were encouraged to "try again" by providing additional information. The company then used this customer feedback to improve its software algorithms with ASI. However, by 2007 several competitors (including Levi's) were offering their own customization options and similar promises of money-back, customer-satisfaction guarantees.

Lands' End was acquired by the U.S.-based retailer Sears in 2002. Initially, its public Web site did not feature this relationship in any way, except for a listing of Lands' End "stores" within Sears stores across selected U.S. locations. After several years, the two companies' systems were integrated so that customers could return Lands' End clothing purchased online to a Sears store.

Two Traditional Store Retailers

STAPLES (www.staples.com) Staples began as a superstore retailer of office products in 1986. Initially, the company focused on the small business and home office market, but by the late 1990s it had implemented separate Web sites to support the procurement of supplies and equipment by Fortune 1000 companies, midsize companies, and small businesses, as well as a catalog division, and 1,100 stores in six counties.

The company's public Web site has little aesthetic appeal but is designed to efficiently facilitate first-time and repeat orders, with tabs, textual and graphical product descriptions, and search capabilities similar to other superstore sites. A store locator feature is prominently placed on its Web site, and in recent years it has also promoted its "Easy button" brand marketing. In its retail stores, kiosks enable customers to order products not available in a given store from an online inventory.

Beginning with its 1998 launch of its online division, Staples's strategy was to align its online and off-line divisions to take advantage of its existing infrastructure for order fulfillment for retail store and catalog sales. Its early multichannel integration was also no doubt fostered by other external events: Its plan for an initial public offering (IPO) of the tracking stock for its online unit was abandoned due to the dot-com meltdown in the year 2000.

By year-end 2006, Staples was the world's largest office products company; by 2010 it had $23 billion in sales generated from its public Web site, extranet sites, catalogs, and stores in 27 countries.

TESCO (www.tesco.com) Headquartered in England, Tesco began as a self-service supermarket in 1956. When it started its online grocery delivery capability four decades later, it had expanded into nongrocery items; its typical retail superstore had 50 percent of the shelf space devoted to nongrocery items.

From the beginning, the company chose to keep its grocery customers' online experience simple but personalized (Enders and Jelassi, 2009). Since grocery shopping typically involves a lot of repeat purchases, customers could begin their orders with an online shopping list to check off, as well as a "My Favourites" display that included all items recently purchased. Consumers could place orders using mobile computers and cellular phones (with WAP protocol) as early as 2001. The ordered items were retrieved (picked off) from store shelves by trained personnel using trolleys with computer scanners. If a scanned product barcode did not match an item ordered, an alert would be sounded so that a correction could be made. Pickers also checked products for expiration dates and freshness and took note of consumer preferences—such as how green the ideal banana was. In-store and online purchases had identical pricing, and if a consumer had made in-store purchases using a Tesco club card, the in-store purchases were integrated with the online shopping lists.

In addition to overcoming consumer concerns about individually selecting fresh produce and meats, another major challenge for online grocery retailers is the delivery of a perishable product (Enders and Jelassi, 2009). Tesco customers request delivery by day/time blocks with knowledge of the flat rate to be charged—or premium rates for certain day/time combinations. At the time of the home delivery, if substitutions had been made due to an out-of-stock item, they would be clearly marked so that the customer could refuse them at the time of delivery.

Other online retailing challenges faced by Tesco were similar to those faced by other bricks-and-clicks firms (including Staples): (1) the establishment of sales incentives so that managers of its 300 traditional stores would not be penalized due to the online sales channel and (2) investments in additional facilities to accommodate the picking and delivery of online orders. Both issues were initially addressed by using regular grocery stores for fulfilling online orders, although the avoidance of investments in large warehouses also led to increased in-store risks for clogged sales aisles and back rooms (due to the trolleys) and insufficient air-conditioned storage prior to delivery. As Tesco evolved its multichannel capabilities, it began online order fulfillment in its largest supermarkets and eventually built a facility to support dot-com sales only (Enders and Jelassi, 2009).

By 2009, Tesco was reported to be one of only four successful multichannel grocery retailers in the world, along with Auchan and Carrefour in France and Sainsbury's in the UK.

Summary: B2C Retailing

THE INITIAL DOT-COM ADVANTAGE In the mid-1990s, as corporate America was beginning to learn about this piece of software called a Web browser, *the dot-com companies clearly had the online advantage*: They could focus on developing interactive customer experiences that helped them brand their Web sites, which "were" their companies in the eyes of their customers. Dot-com retailers also had the luxury of avoiding the costs and constraints associated with retailing via stores, such as owning or leasing physical stores and personnel costs. The early dot-coms also had a clear advantage as they focused on hiring workers with Web technology skills and interests, who were attracted to a kind of "greenfield" opportunity to develop online systems with the new Web technologies; they could focus on developing superior online experiences without having to consider linkages with legacy applications or migrating historical data.

However, having the eyeballs of Internet users and online orders was not enough for a successful online retailer. Customer communications are primarily (if not completely) automated via the Internet and today require online as well as alternative channels for responses. For products that cannot be digitized, the importance of a reliable order fulfillment capability, with delivery tracking capabilities for customers, became widely recognized after the publicized delivery failures of holiday purchases in 1999. Amazon was able to jump-start its initial fulfillment capability (for books and CDs) with a business alliance and has continued to invest heavily in technology and process improvements for its warehouses as it expanded its third-party products to compete with discount department stores such as Walmart and Sears. Delivery for a dot-com is typically via private services (e.g., UPS, FedEx, DHL), although Netflix uses the U.S. Postal Service for its six-days-each-week national delivery of its small mailers, combined with automated e-mail notifications to customers for receipts and sends.

TODAY'S MULTICHANNEL ADVANTAGE By the middle of the first decade in the new millennium, *the online B2C advantage had clearly shifted to traditional firms who had developed a multichannel capability.* In a direct sales model, the seller and buyer communicate directly. When a direct retailer who traditionally has sold products via a store or catalog implements an online sales capability, it

creates an additional channel for the customer to gather information, purchase a product, or get customer service (via information on the site or other contact methods). The customer can still go to a store, or call a customer service rep, but there is also the option of using the retailing Web site when it's more convenient.

From a consumer perspective, an effective multichannel capability means that online purchases can also be returned or exchanged in a retail store and perhaps purchased online and picked up from a nearby store by the customer at an agreed-upon time. Facilitating this type of multichannel capability requires significant IT and process investments by store retailers in particular.

In contrast, traditional catalog companies were able to not only quickly leverage their brand names to become "bricks-and-clicks" firms but also their existing distribution systems for off-line catalog customers that were already designed to deliver small product quantities to widely dispersed customers. Dell and Lands' End were also both early Web innovators by offering online tools to enable a "mass customization" sales strategy: The customer designs his or her own products, which these companies then make to order. Dell had the additional advantage of selling its products to online shoppers who were among the most computer literate and typically eager to play with different configuration options as part of the online ordering process. However, within just a few years, both of these traditional catalog companies' innovations had been copied by other computer hardware and apparel companies, and their traditional customers had lots of other Web-based retailers to choose from.

Today, the multichannel advantage therefore seems to be in the hands of companies that can offer *both in-person and online customer service and sales* via retail stores as well as the Web. This type of multichannel capability (developed by Staples and Tesco) enables customers to use the Internet to find and order the product they want and then choose whether to receive it via a delivery service or from a store.

However, to provide this type of seamless multichannel capability, companies need to integrate their place (off-line) and space (online) business operations as well as their information systems. Sometimes a barrier to this type of integration is a traditional incentive system that rewards for performance based on only a traditional channel (in-store). Business and IT managers that support both off-line and online business operations also need to be linked in some way, in order to develop applications and processes that support a single face to the customer, no matter what sales channel is used.

It should also be noted that all six of the B2C examples described here are companies that use the Web for retailing their own products or third-party products. However, when manufacturing or service firms that traditionally have sold their products or services through distributors initially set up a new direct-to-consumer Web site capability, they need to carefully take into account the potential responses of the companies that are their traditional intermediaries. Sometimes industrial age laws are also barriers: For example, U.S. state laws prohibit automobile manufacturers from direct selling to protect their sales tax revenue from car dealerships within their states.

In the next section, we focus on how three companies created dot-com businesses that could not have existed prior to the Internet.

DOT-COM INTERMEDIARIES

In the mid-1990s, there was a widespread belief that the Internet would primarily have a *disintermediation* effect on traditional intermediaries, such as wholesalers who distribute to retailers. That is, companies that were intermediaries between the firms that created the products or services and their buyers were thought to be no longer economically viable. Instead, producers or service companies would adopt their own direct-to-consumer sales strategy. As discussed earlier, this certainly became true for travel agencies that were intermediaries for airline companies for ticketing and other customer services.

However, e-business via the Internet has also of course led to another phenomenon: the formation of *new dot-com intermediaries.* Some of these new online intermediaries (e.g., Expedia, Travelocity, Orbitz) have emerged with services similar to what people agents used to provide for their travel customers. One of the issues faced with these types of intermediaries is to what extent to be "transparent" with product and pricing information (Granados, et al., 2010). For example, Priceline.com was one of the first online intermediaries to use a model in which the actual airline carrier information and itineraries were concealed until the consumer accepted a discounted price.

In general, a successful intermediary needs to be able to attract a large-enough user base that will generate revenues to pay for the unique service that it offers to buyers, sellers, and/or online searchers. Intermediary models that have been successful include the following:

- an auction for used or new goods for which a buyer and/or a seller pays a fee because the intermediary can attract the desired audience
- a site that has aggregated information about similar products or services from multiple sellers for which a buyer and/or seller pays a fee to reduce its own information search or marketing costs.

In addition, dot-com intermediaries that serve as portals have emerged to help users find Web sites and to offer other Internet-specific services. For example, Internet users needed Web sites to help them link to other Web sites for which they did not know a URL or did not even know a certain Web site source existed:

- a Web search (or "finder") tool based on user-provided text that advertisers value because their ads can be targeted to users that entered specific search words

Other Web sites provide platforms to support online communities where individuals, workers, and businesses can share information and create virtual networks. The rise of these types of applications, referred to as Web 2.0, has generated a whole new set of innovative dot-com companies.

The three dot-com examples described in this section provide one or more of these types of online services:

- eBay, (*www.ebay.com*), a pioneer in C2C e-business that was one of the first dot-com companies to achieve profitability based on small fees paid for auction listings and sales; today it has a global reach and is also a B2C and B2B intermediary.
- Google (*www.google.com*), a fast-growing dot-com with a superior Web search algorithm that currently supports more than half of the Internet searches submitted daily around the world; today it is in many IT-related businesses, including mapping services, an operating system for mobile phones, and a data repository for individual health records.
- Facebook (*www.facebook.com*), a social networking dot-com that grew from a software tool to connect college students in 2004 to a site attracting more than 500 million users across the globe in 2010.

EBAY (www.ebay.com) eBay has been successful as an intermediary that brings together individual buyers and sellers from over the world who might not otherwise find each other. Launched in 1995, the company had captured about 80 percent of the online auction market by the year 2000, with more than $5 billion in merchandise sales from 250 million auctions and global participants. During 2007, it generated about $77 billion in trades. However, in 2008 eBay lost its ranking as the most popular shopping site to Amazon and its global market share was at risk due to domestic competitors outside the United States that have copied its business model to capture greater market shares in their countries (see the box "China Online" later in this chapter).

The online auction model is based on revenues captured as a percentage of the auction sale, as a transaction fee for the sale, and/or as a listing fee. Initially, the eBay business model was a consumer-to-consumer (C2C) application in which the early user assumed that they were part of a "community" of individual buyers and sellers. However, many eBay sellers today are small businesses: liquidators, wholesalers, small retail shops, or at-home entrepreneurs. eBay today is therefore also a B2C and B2B intermediary for businesses of many sizes that sell to other businesses or individuals. For example, it has recently experimented with Buy-It-Now "flash sales" of discounted apparel from designer brands. To foster relationships with small businesses in particular, the company provides extensive online advice as well as periodically runs workshops in various geographic regions. Third parties with convenient store locations have also emerged to facilitate auction sales listings and mailings to buyers for customers who don't want a do-it-yourself eBay service.

eBay has continued to expand its business model by adding online services, usually via acquisitions. For example, it created a fixed- price trading capability for direct sales of previously owned goods when it purchased the dot-com startup Half.com. In 2005, eBay purchased Skype, a peer-to-peer Internet telephony network. Two years earlier it purchased PayPal to have its own third-party payment capability: Accounts established by users with debit and credit cards, bank accounts, or stored balances enable instant payments to merchants and individuals. PayPal still provides payment services to other Web sites and has become a major revenue source for eBay; in 2010 it was the leader in the alternative payments market, with more than 70 percent of U.S. online buyers having a PayPal account (Peers, 2010).

eBay has also continued to develop new services to collect higher revenues from sellers for "extras" such as additional digital photos with a listing, the highlighting of a listing, setting a "reserved price" (such as a minimum price or a Buy-It-Now capability), or providing used car certifications.

Since eBay hosts millions of auction sales simultaneously, in real time, its IT operations are of critical importance. In addition to capacity planning for its servers, the company has also had to quickly recover from denial-of-service attacks and other security breaches in recent years. Its primary value to sellers and buyers is low search costs, so the design and execution of its site search capabilities must also be of the highest quality. eBay also continually monitors its sites for the sale of inappropriate items, or even illegal items. For example, eBay has had to delete listings for items related to tragic events in the United States—such as the 9/11 terrorist attack on the World Trade Center. However, the company is also not responsible for the quality or legal ownership of the items sold, as it clearly states on its Web site.

The actual transfer of the purchased good takes place between the buyer and seller, but eBay maintains data about the transaction and tracks sales for sellers and purchases for buyers. Since maintaining the trust of buyers and sellers is a key to its survival, one of eBay's early tactics for self-policing was to encourage buyers to rate their sellers, and vice versa. The company also offers insurance coverage for items of certain types and value and facilitates a process to resolve disputes between buyers and sellers.

In 2009, the president of eBay's auction business, CEO Meg Whitman, handed over the reins to John Donahue after a successful decade of global growth.

GOOGLE (www.google.com) Google was founded in 1998 by two Stanford University graduate students in their twenties who put their studies on hold to develop a Web search capability with more relevant results than the dominant service player at the time (Yahoo!): a PageRank algorithm, in which pages that are linked to other pages are given higher weightings under the assumption that they are likely more useful. The company's name is a play on the word *googol*: the number 1 followed by one hundred zeroes. Within two years, it was the ninth U.S. Web site in terms of unique monthly visitors (24.5 million) without any money spent on marketing. The company has also been known in the past as a dot-com with distinctive corporate values, with a slogan of "Don't be evil" and other democratic ideals associated with computer science and engineering professionals in general and early Silicon Valley innovators. Its approach to its initial public offering (IPO) in mid-2004 reinforced its founders' insistence that it was a company of the people, as its initial IPO price was determined by a Dutch auction rather than investment bankers.

Although initially the company's revenues were only based on sales of its search engine software to other entities, the company changed its business model to capture advertising revenues. At first, companies paid to be listed based on keywords. By March 2003, Google had launched a targeted advertising service in which ads were posted based on "contextual" search results, and by 2007 the company's online ad revenues were over $16 billion, which was more than 50 percent of the Internet advertising market (see the box entitled "How to Leverage a Search Engine"). Its 2007 announcement and then successful purchase of DoubleClick generated individual privacy concerns, as the company already had access to aggregate data on millions of individuals' Web searches, and DoubleClick had a targeted ads service. In mid-2010, it was pursuing acquisitions of gaming software companies, as advertisers had begun to invest more marketing dollars in games that could influence gamers about products to purchase.

Like other dot-com successes, the company has continued to grow by both internal innovations and via acquisitions of other companies (see Figure 7.11). For example, its purchase of Keyhole enabled it to launch Google Maps and other GIS applications (Google Earth), whose success are due to the tight integration of these applications with the company's search capabilities. Since its IPO, the company has also continued to broaden its offerings, and therefore its attractiveness to advertisers. Its acquisition of YouTube—the world's most popular video sharing site today, its launch of Google Health—for individuals to manage their medical records, and its release of iPhone apps as well as its own open platform for mobile devices (Android) are milestones that document the company's evolution from a navigation tool start-up to a global dot-com leader of the digital age (see box "Google's Evolution").

In July 2010, Google had its license to operate a mainland Chinese site it started in 2006 (Google.cn) renewed in a compromise agreement with the Chinese government: Users

How to Leverage a Search Engine

Although search engines don't always reveal their formulas for rank ordering search results, companies are getting smarter about how to use their advertising dollars. Pay-per-click ads that pop up based on general search terms (such as *books*) tend to be more expensive because hundreds of businesses are already bidding for them, so you need to use more specific works to describe your product or service. It's also important to keep in mind that not all search engines use the same algorithms: Some place more weight on page content. Major newspapers have trained their journalists to embed key phrases and words in the top paragraph and headings of their articles so that they would be more likely to appear in unpaid search results. Sites that offer useful content for consumers may also boost a firm's search results. Today's marketing staff need expertise in Internet navigation tools and advertising opportunities, as well as tools (such as Google's Analytics software) that can be used to calculate conversion rates for ads. Google's Web site also offers tools for businesses to estimate the effects of their Web site design and advertising strategies.

1995: Cofounders, Sergey Brin from Moscow and Larry Page from Michigan, meet at a spring gathering of new Stanford University Ph.D. computer science candidates.
1997: Brin and Page create BackRub, the precursor to the Google search engine.
1998: Becomes incorporated; founders raise $1 million from family, friends and "angel" investors.
1999: Raises $25 million from venture capitalist firms.
2000: Becomes largest search engine on the Web.
2001: Eric Schmidt, CEO of Novell and a former CTO at Sun Microsystems, joins Google.
2002: Launches beta version of Google News. Rolls out key word advertising program worldwide.
2003: Acquires Pyra Labs, creator of Blogger.com tools. Launches AdSense, an advertising program that delivers ads based on the content of Web sites (contextual ads).
2004: Announces Gmail as restricted free e-mail service. Acquires Keyhole (satellite image mapping). Launches book library digitizing project and Goggle SMS (short message service). **August 18, 2004:** Initial Public offering of 19,605,052 shares of Class A common stock.
2005: Launches Google Maps (North America), Google Earth, Talk (IM and VoIP service).
2006: Purchases YouTube. Signs pacts with eBay and MySpace for search technology carrying ads brokered by Google.
2007: Opens Gmail to everyone. Announces Android, an open platform for mobile devices.
2008: Purchases DoubleClick for $3.1 billion. Releases Google Health. Launches tools to track U.S. election and Flu activity trends.
2009: Introduces Google Latitude for location sharing. Announces Google Translator toolkit.
2010: Reaches compromise for license renewal in China.

FIGURE 7.11 **Google's Evolution**

of Google.cn are asked whether or not they wanted to be diverted to Google's Hong Kong search site, which is uncensored. Users who choose not to will have their search results censored by Google, which is what other search engines operating in China do. In early 2010, Google had only 36 percent of the Chinese market in comparison to its domestic competitor Baidu's 58 percent. However, Google also has advertising contracts with Chinese businesses and offers mainland China users other services, such as music search and map services (Chao and Worthen, 2010; Crovitz, 2010; Vascellaro and Chao, 2010).

FACEBOOK (www.facebook.com) Founded in 2004 by CEO Mark Zuckerberg, Facebook surpassed the pioneer social networking site MySpace with over 500 million users by mid-year 2010. Like MySpace, Facebook users create a profile and join networks based on personal preferences, regions, or other affiliations for messaging, information sharing, photo sharing, and now even playing online games together. Initially open only to college students, the category of users older than 34 has become its fastest growing demographic as these older members find the site convenient for rekindling old friendships and affiliations. The site also has a global presence: By year-end 2007, it had gained more non-U.S. visitors than MySpace, and by 2010, about 70 percent of Facebook users were outside the United States (Fletcher, 2010).

Facebook's founder firmly believes that people want to stay connected to friends and want to share even more information with them over time. Its original social networking model was that users post personal information, for free, that is only shared with those that the user has authorized to view it. The business model hinges on the assumption that one's friends are also likely to want to see the same movies, purchase the same products, or have the same online experience. For example, a Facebook Like button can be clicked on when visiting other Web sites, and the user's friends can learn about this recommendation from the user's profile, a so-called status update, or perhaps on the other Web site itself (with the user's name and photo displayed). Although sites like Google receive revenues from advertising services based on search words entered by individuals, Facebook can offer advertisers targeted marketing based on actual user characteristics or Web surfing, as well as access to that user's network of friends.

A major challenge that the Facebook owners have continually faced is how to have a profitable company without violating the trust that users have placed in the company for maintaining the privacy of their personal information (Swisher and Mossberg, 2010). The Facebook Platform can be used by other developers to create applications such as games, review sharing, and news feeds that are then integrated into the site—to an individual's profile. Some of

these applications gain access to individuals' personal data, and the company has had some missteps as it has made changes to the site's privacy settings without opt-in user consents.

For example, in response to a complaint filed in May 2010 with the Federal Trade Commission (FTC) in the United States by the Electronic Privacy Information Center, the company announced changes to its user-controlled privacy settings so that only a user's name, profile photo, and gender (if given) would remain public; other data would be public by default but could be made private; users can decide whether they want to share other postings (including photos) with everyone, friends of friends, or only friends; and users can choose whether or not to share information, currently and in the future, with third-party game and other application developers (Worthen, 2010).

Today, large and midsized companies are moving significantly more of their marketing and advertising dollars to social networking sites such as Facebook; see the section "Special Issue: What Makes a Good B2C Social Media Platform" at the end of this chapter.

Summary: Successful Online Intermediary Models

Like the dot-com direct-to-consumer retailers we discussed earlier, dot-com intermediaries have achieved their current success by continuously innovating with superior IT capabilities. eBay's business model requires superior IT operations capabilities, and except for some early server reliability problems, it has continuously maintained an outstanding record for systems availability and reliability. Google's success was initially due to its superior search capabilities, still accessible today via a deceivingly simple screen interface.

In addition, successful intermediaries continue to evolve their business models to provide enough value for their services to users of their services. eBay expanded into certification services in order to provide auction services for products that yield higher service fees (such as used cars); changed its original buyer/seller mix to include many small businesses selling their products online; and made revenue-generating acquisitions that complemented its business model. Google's ongoing success has depended on its ability to continue to provide the best search service; make smart choices about new markets to enter; and manage its acquisitions.

Successful intermediaries have also branded themselves well. eBay benefitted from a "first mover" presence (launched in 1995). In contrast, Google is a clear reminder that a "first mover" advantage is not guaranteed: Individual Web users were quick to "switch" loyalties away from a dot-com pioneer (Yahoo!) when they perceived a better "free" service by a much younger company, whose name also became a verb (Google).

However, none of the U.S.-based dot-com intermediaries or B2C retailers currently have a dominant market share in China, a country with an avid base of Internet users (see the box "China Online").

SPECIAL ISSUE: WHAT MAKES A GOOD WEB SITE FOR CONSUMERS

Web site design is an important factor for a user's initial online experience. For companies with e-business applications for consumers, as either a seller or intermediary, the company's Web site "is" the company. In addition to a company's reliable operations and high-quality customer service and execution, the functional and the aesthetic characteristics of the Web site itself are of course of critical importance for dot-com as well as bricks-and-clicks firms.

A useful framework for thinking about Web site designs from a human–computer interface perspective is the 7Cs model developed by marketing educators Rayport and Jaworski (2004):

- Context—the site's layout and design, which includes functionality and aesthetic appearance, or both
- Content—usage of text, pictures, sound, and video as appropriate for business
- Commerce—the site's capabilities to conduct commercial transactions
- Customization—the site's ability to tailor itself to a specific user or to capabilities that enable users to personalize the site for themselves
- Community—ways that the site enables feelings of membership and shared interests with other users of the site
- Communication—availability of site-to-user and user-to-site communications, including asynchronous (e-mail), real-time video, phone lines
- Connection—handling of Web links to other external sites—such as aseparate window.

Note that the Rayport and Jaworski framework has a separate "C" for *community.* Although companies in some industries (such as banks) may not highly value such a characteristic, "fostering community" among the users of a Web site was identified early on as a desirable attribute (Seybold and Marshal, 1995). Today, of course, a community capability is at the core of new social networking Web sites—as discussed in the next section.

China Online

The total number of Internet users in China has now exceeded the entire population of the United States. In 2008, the year that Beijing hosted the Olympic Games, the number of Internet users in China reportedly grew by 50 percent. In 2009, Internet users in China reported spending 50–70 percent of their leisure time online, and B2C purchases doubled that year.

All Web sites operating in China must be registered and in compliance with national policies about certain content—including no politically or religiously sensitive topics and pornography. Web sites that don't comply are shuttered down by the government; users who attempt to access unregistered sites such as Facebook or Twitter, for example, will receive an error message. By mid-2010, China's major dot-com companies included the following:

- *Baidu*, which began as online search engine, but now also has a C2C site (Youa) with its own online payment system
- *Tencent*, which began as an instant messaging site (QQ) in 1999 and now has a social networking site similar to MySpace and Facebook
- *Dangdang*, which began as an online bookseller like Amazon, and by 2006 was the country's largest online retailer with sales of appliances and other products
- *Youku*, the Chinese equivalent to YouTube
- *Taobao*, a C2C auction site similar to eBay that grew from 43 billion CNY in 2007 to 100 billion CNY one year later. (Taobao's parent firm is Alibaba, which took over Yahoo!'s operations and is a dominant B2B player in China and Japan.)

China's censorship rules and national policies that favor domestic firms for government contracts have contributed to these domestic dot-com firms holding dominant market shares. However, just as Chinese dot-com firms have learned from dot-com pioneers in the United States, U.S. Internet firms have a lot to learn about how to successfully compete in an Asian country whose citizens have embraced the digital age but have different local customs for trade and communications. In China, for example:

- Instant messaging, not e-mail, is widely used for both social and business communications
- Consumers prefer anonymity and may create multiple fictitious profiles for social networking sites, not provide their real profile
- Sales have traditionally been conducted with cash payments, including cash-on-delivery (COD) payments rather than at the time of purchase; most Chinese do not hold credit cards and are concerned about online fraud, so all the major Chinese dot-coms have their own online payment systems.

Other key attributes of a good Web site are related to the characteristics of the operational environment—both the client side and the Web server side—as well as the networks being accessed. Common technical problems that need to be anticipated include download delays, search problems, as well as security weaknesses (Straub, 2004). User tolerance for download times will also be a function of the users' goals and whether they are connected to a high-speed broadband line appropriate for the task (e.g., video download). Although delays in download times and screen displays can of course be at the server side, the client side, and/or be a function of the network infrastructure between the client and server, the user will typically not know the source of their frustrating wait times.

Given the increase in wireless networks and handheld devices that can access the Internet, today's developers must also consider what makes a good Web site display not only on desktop computer screens but also on much smaller devices—including mobile devices. In addition to the differences in hardware (e.g., screen size, keyboard), developers need to take into account differences in typical device usage. For example, the typical mobile user may use the device for shorter time periods and in very different contexts (while traveling, shopping, walking down a street, etc.). A secure payment method that demands minimal cognitive attention from the mobile phone user is needed, as well as a condensed checkout process suitable for a small display (Lee and Benbasat, 2003). Given the widespread reliance on

cellular phones in less developed countries without broadband access, understanding the potential design differences for not only mobile applications but also applications that target different nations and cultures will also need increased attention.

SPECIAL ISSUE: WHAT MAKES A GOOD B2C SOCIAL MEDIA PLATFORM

In the initial years of the social media dot-com phenomenon, the focus was on interpersonal networking of a social nature—sharing news, photos, and other personal information or experiences and supporting timely communications across virtual people networks. By 2010, news services as well as nonprofit organizations had embraced the new media, including political organizations (see the box "Social Media and U.S. Political Elections"). Both large and small businesses have also begun to leverage public social media platforms as a new channel for engaging current or future customers. According to a late 2009 McKinsey survey of executives worldwide, 56 percent of organizations were using Web 2.0 applications to communicate with customers, and more than 64 percent were using these types of applications internally (Bughin and Miller, 2009).

Among Fortune 500 firms, Facebook and Twitter have been the most popular platforms for engaging with virtual customer environments (Culnan and McHugh, 2009). Although small and large companies have not always found that the value justifies the means, the primary business activities are for branding, sales, customer service and support, and product development activities. Corporate and retail Web sites have links to and from their own social media pages and/or link directly with the public social media platform. Some companies have Web sites run by "fans." Messages posted to a Facebook site or direct message ("tweets") from Twitter need to be constantly monitored by corporate personnel and content needs to be kept current. Today there are also third-party tools to help businesses periodically post to a Web site (e.g., every two hours rather than flooding the site all at once), as well as tools to help keep track of the "tweets" it receives.

Starbucks is an example of a company that was an early adopter of social media. The Facebook "Like" buttons and news feeds help users promote its products, including the company's alliance with Apple's iTunes. Given that most of its retail stores promote social gathering as well as Internet communications, the usage of social media by Starbucks also appears to be an extension of its off-line business model. Both Starbucks and Dell have also been pioneers in leveraging the online community concept for generating ideas for product and service innovations. Users submit ideas, comment on other users' ideas, and track the host company's responses to the ideas generated (Di Gangi and Wasko, 2009).

Some of the criteria that consumers use to evaluate a social media site are also important to businesses that attempt to leverage these online networks: (1) giving users control over their privacy settings so that they can control who sees their personal data and (2) business transparency. Businesses that choose to leverage free content or pay the platform owners for targeted advertising to its users need to keep in mind the values and expectations of the online community members. Many companies have reported that the time and effort spent on social media marketing is greater than expected. Nevertheless, companies also need to be on the lookout for blogs by unhappy customers or stockholders, as well as Tweets by imposters.

Social Media and U.S. Political Elections

It may not be the reason that he got elected, but Barack Obama's usage of social media certainly generated enthusiasm and more young voters came to the voting polls in November 2008 than in prior U.S. election years. His Web site My.BarackObama let users create their own profiles, including a friends list, join groups, and participate in fund-raising. Before the election, his "friends" on MySpace and Facebook were over 1.5 million, and he had more than 45,000 "followers" on Twitter (Nations, 2009). Links to his speeches could be viewed in their entirety on YouTube, and those watching his inauguration ceremony online at CNN could use Facebook Connect to chat with other viewers in real time. Former U.S. president Ronald Reagan may still be considered "the great communicator" in front of a camera, but President Obama has brought campaigning skills into the digital age.

Summary

Today we are only in the second decade of learning how to conduct business over the Internet in general and the Web in particular. The legal and regulatory environment of the United States initially shaped the e-business landscape, but the private sector was the source of technology and business innovation. Surviving dot-com pioneers that were startups in the mid-1990s have not only developed superior technology capabilities but have also continued to evolve their business models to respond to national and global competitors. At the same time, traditional companies have invested in e-business applications that leverage the Internet as a new channel for communications and building existing and new relationships with business partners and end consumers.

Although online B2B exchanges that are owned by independent companies, or consortia, have proven to be difficult to sustain unless both the buyer and seller markets are fragmented, companies have invested in software for online procurement of direct and indirect materials, with or without the support of specialized service providers. Other types of B2B applications that leverage a company's supply chain software investments are also yielding major benefits in cost efficiencies, improved cycle time response, and closer collaborations with selected business partners, as well as a global reach.

Although dot-com retailers of the 1990s initially had an advantage over traditional companies in developing effective B2C capabilities, traditional catalog and store retailers in many cases have gained an advantage over competitors with only online channels. This type of multichannel capability, however, requires integrating systems that support online and off-line channels. Both bricks-and-clicks and dot-com retailers have evolved their business models as well as their online and behind-the-scenes distribution capabilities. In addition, dot-com intermediaries have continued to emerge, and the newest success stories are companies that have leveraged social networking platforms.

Today we have a relatively good understanding of what makes a well-designed e-business application for desktop and laptop users, as well as for handheld devices. However, there is still much to be learned about competing in a digital age in countries on continents other than North America and Europe.

Review Questions

1. Define and contrast the following pairs of terms: dot-com and bricks-and-clicks; intranet and extranet; B2C and B2B.
2. What business capabilities are enabled by digital signatures and XML?
3. Describe some characteristics of the U.S. regulatory and legal environment that influenced the early growth of e-business applications.
4. What are some of the potential benefits of B2B applications that use the Internet?
5. Choose one of the five competitive forces in Porter's model, and describe a new opportunity and a new threat due to e-commerce via the Internet for a specific industry of your choosing.
6. Why has the Internet lowered the "switching costs" for consumers?
7. Describe some of the reasons that early dot-com companies had an initial advantage over traditional companies in developing an online sales capability.
8. What is meant by the term *multichannel* capability?
9. Describe some of the reasons why a company that is a traditional catalog retailer may have an advantage over a traditional store retailer when first developing an online sales capability.
10. What were some of the e-business innovations using Web technologies that were introduced by Amazon.com, Netflix.com, Dell.com, and Landsend.com?
11. Describe how eBay evolved from its original C2C business model.
12. Why is Google today referred to as a Web portal rather than a search engine?
13. How does a company that is a dot-com intermediary earn revenues?
14. Why might a firm choose to use an external service provider to host its public Web site?
15. What is one of the ways that the dot-com meltdown in the United States during the early 2000s influenced the growth of e-business in this country?
16. What is m-commerce and what are some of the new business opportunities associated with it?
17. Why might a business choose to participate in a social networking site such as Facebook?

Discussion Questions

1. Provide evidence to support the following statement: The growth of e-business is due to both business and technological innovations.
2. Provide an argument to either support or refute the following statement: In B2B applications, the customer holds the greatest power.

3. Briefly describe some online experiences that you have had with good customer service and/or poor customer service.
4. Research the company Alibaba.com, and describe some reasons that you think it has been so successful.
5. Describe how the existence of (or lack of) state laws in the United States has been a barrier or a catalyst to online sales.
6. Choose three traditional firms within the same industry that sell similar products or services to consumers. Based on their public Web sites, compare and contrast how effective these companies are in developing a multichannel capability.
7. Use the 7Cs framework described at the end of this chapter to evaluate the public Web sites of two competitors. Based on your analyses, what improvements could these companies make to the design of their Web sites?
8. Explore a social networking Web site, and analyze how businesses appear to be using the site. What do you see as some of the pros and cons for this type of software, from the perspective of a Fortune 500 versus a small company's perspective?
9. Analyze current statistics on Internet users around the globe, and comment on the trends.
10. Analyze how candidates in a current political election appear to be leveraging the Internet as part of their campaigns, or not.
11. Describe some of the ways the Internet has or has not impacted the way you (1) buy groceries, (2) make travel plans, (3) read news, (4) follow your favorite sports team, (5) decide which movie to see next, (6) decide what political candidate to vote for, and (7) do research for a business course.

Bibliography

[Amazon.com] *www.amazon.com*. Last date accessed August 3, 2010.

Anders, George. 2001. "Marc Andreessen, Act II." *Fast Company* (February): 110–121.

Angwin, Julia. 2009. "My new twitter flock." *Wall Street Journal* (March 14–15): W2.

Applegate, Lynda M., Clyde W. Holsapple, Ravi Kalakota, Franz J. Radermacher, and Andrew B. Whinston. 1996. "Electronic commerce: Building blocks of new business opportunity." *Journal of Organization Computing and Electronic Commerce* 6 (1): 1–10.

[Ariba, Inc.] 2005. "Ariba spotlight: Nestlé." Ariba Web site, *www.ariba.com*. Last date accessed August 3, 2010.

Backaler, Joel. 2009. "E-Commerce in China: Alibaba and Baidu Face Off in 2009." http://seekingalpha.com/article/114704-e-commerce-in-china-alibaba-and-baidu-face-off-in-2009#comments_header. Last date accessed August 3, 2010.

Brown, J. 2000. "Signing on the digital line." *CIO* (October 15): 273.

Bughin, J., and A. Miller. 2009. "How companies are benefiting from web 2.0." *McKinsey Quarterly*, September. http://www.mckinseyquarterly.com/home.aspx. Last date accessed August 03, 2010.

Chao, Loretta. 2010. "Chinese web firm stands to gain." *Wall Street Journal* (March 18): B7.

Chao, Loretta, and Ben Worthen. 2010. "Google is poised to close China site." *Wall Street Journal* (March 15): B1–B2.

[comScore]. 2010. "Billion dollar Bonanza: Cyber Monday surpasses $1 billion in U.S. spending as heaviest online shopping day in history." *www.comscore.com*. Last accessed December 9, 2010.

Crovitz, L. Gordon. 2010. "Google's China search result." *Wall Street Journal* (July 12): A13.

Culnan, Mary, and Patrick McHugh. 2009. "Social media implementation: Lessons learned from the Fortune 500." SIM Academic Workshop presentation, Phoenix, Arizona, (December 15).

Dean, Jason. 2006. "China's web retailers beat U.S. rivals at their own game." *Wall Street Journal* (August 22): B1.

DeJesus, Edmund X. 2001. "EDI? XML? Or both?" *Computerworld* (January 8): 54–56.

Delaney, Kevin J. 2007. "How search-engine rules cause sites to go missing." *Wall Street Journal* (March 13): B1, B4.

[Dell] *www.dell.com*. Last date accessed August 3, 2010.

Di Gangi, P. M., and M. Wasko. 2009. "Steal my idea! User innovation community influence on organizational adoption of user innovations: A case study of Dell IdeaStorm." *Decision Support Systems* 48:1 (December): 303.

[eBay.com] *www.ebay.com*. Last date accessed August 3, 2010.

Efrati, Amir. 2006. "Neutral net: A battle for control of the web." *Wall Street Journal* (June 24–25): A9.

Efrati, Amir, and Andrew Batson. 2010. "Google to alter access to its China site." *Wall Street Journal* (June 30): B3.

Einhorn, Bruce, and Chi-Chu Tschang. 2007. "China's e-tail awakening." *BusinessWeek* (November 19): 44.

Eisenmann, Thomas R., and Kerry Herman. 2006. "Google Inc." Boston, MA: Harvard Business School, Case No. 9-806-105 (rev. November 9, 2006).

Elgin, Ben. 2006. "MAPS: It feels like you're flying." *BusinessWeek* (January 16): 89.

Enders, Albrecht, and Tawfik Jelassi. 2009. "Leveraging multichannel retailing: The experience of Tesco.com." *MIS Quarterly Executive* 8:2 (June): 89–100.

[Facebook.com] *www.facebook.com*. Last date accessed August 3, 2010.

Fletcher, Dan. 2010. "Friends without borders." *BusinessWeek* (May 31): 18–24.

Fowler, Geoffrey A., and Jeffrey A. Trachtenberg. 2010. "E-books elbowing hardbacks aside." *Wall Street Journal* (July 20): B1.

Fowler, Geoggrey A., and Shira Ovide. 2009. "Amazon hopes its bigger kindle ignites demand." *Wall Street Journal* (May 7): B12.

Frei, Frances X. 2001. "eBay: The customer marketplace (A)." Boston, MA: Harvard Business School, Case No. 9-602-071 (rev. May 2, 2002).

Gates, Bill. 1995. *The road ahead.* New York: Viking Penguin.

Gomes, Lee. 2006. "The dot-com bubble is reconsidered—and maybe relived." *Wall Street Journal* (November 8): B1.

[Google.com] www.google.com.

Granados, Nelson, Alok Gupta, and Robert J. Kauffman. 2010. "Research commentary—information transparency in business-to-consumer markets: Concepts, framework, and research agenda." *Information Systems Research* 21:2 (June): 207–226.

Grover, Ronald. 2010. "The last picture show at blockbuster?" *Bloomberg BusinessWeek* (April 5): 28.

Hudson, Kris. 2006. "New Lands' End format suits sears." *Wall Street Journal* (October 17): B2.

[Internet World, 2010] Internet world usage and population statistics. *www.internetworldstats.com/stats.htm#links*. Last date accessed August 3, 2010.

[iStockAnalyst, 2009]. McClatchy/Tribune, "30 top online shopping trends." (December 28). http://www.istockanalyst.com/article/viewiStockNews/articleid/3740341. Last date accessed August 3, 2010.

Kalakota, Ravi, and Andrew B. Whinston. 1996. *Electronic Commerce:* A manager's guide. Reading, MA: Addison Wesley Longman.

Kane, G., R. Fichman, J. Gallaugher, and J. Glaser. 2009. "Community relations 2.0." *Harvard Business Review* 87:11 (November): 45–50.

Kiley, David. 2007. "How to read the Google tea leaves." *BusinessWeek* (April 2): 10.

King, Julia. 2000. "B2B's surprise: The survivors." *Computerworld* (December 11): 1, 16.

[Lands' End] *www.landsend.com*. Last date accessed August 3, 2010.

Laudon, Kenneth C., and Jane P. Laudon. 2010. *Management Information Systems*, 11th ed. Upper Saddle River, NJ: Pearson Prentice Hall.

Lee, Young Eun, and Izak Benbasat. 2003. "Interface design for mobile commerce." *Communications of the ACM* 46 (12, December): 49–52.

Lewis, Christina S. N., and Jessica E. Vascellaro. 2006. "Finding the perfect pair of Jeans—on the Internet." *Wall Street Journal* (January 19): D4.

Louie, Dickson L., and Jeffrey F. Rayport. 2001. *Amazon.com (D).* Boston, MA: Harvard Business School, Case No. 9-901-022.

Mabert, Vince A., and Jack A. Skeels. 2002. "Internet reverse auctions: Valuable tool in experienced hands." *Business Horizons* (July–August): 70–76.

MacMillan, Douglas. 2010. "Why Facebook wants your ID." *Bloomberg BusinessWeek* (December 28 & January 4): 92–93.

MacManus, Richard. 2009. "Top Internet trends of 2000–2009: E-Commerce." (November 22). http://www.readwriteweb.com/archives/e-commerce_top_internet_trends_of_2000-2009.php. Last date accessed August 3, 2010.

Magretta, Joan. 1998. "The power of virtual integration: An interview with Dell Computer's Michael Dell." *Harvard Business Review* (March–April): 73f.

Mossberg, Walter S. 2000. "The Amazon way is still the best model for web shopping." *Wall Street Journal* (September 21): B1.

Nations, Daniel. 2009. "How Barack Obama is using web 2.0 to run for president." *About.com Web Trends.* http://webtrends.about.com/od/web20/a/obama-web.htm. Last date accessed August 3, 2010.

Needleman, Sarah E. 2009. "Relief for Twitter headaches." *Wall Street Journal* (September 14): R8.

[Netflex, Inc.] *www.netflix.com*. Last date accessed August 3, 2010.

Pathak, Jagdish, and Mary Robinson Lind. 2010. "An e-Business audit service model in the B2B context." *Information Systems Management* 27:2 (Spring): 146–155.

Peers, Martin. 2010. "PayPal is eBay investors' best bud." *Wall Street Journal* (April 30): C12.

[Pew Internet & American Life Project Surveys] 2002. Growth in selected online activities by U.S. consumers: 2000–2002.

Piccoli, Gabriel, Bill Bass, and Blake Ives. 2003 "Custom-made apparel at lands' end." *MIS Quarterly Executive* 2:2 (September): 74–84.

Porter, Michael E. 1985. *Competitive advantage: Creating and sustaining superior performance.* New York: Free Press.

Porter, Michael E. 2001. "Strategy and the Internet." *Harvard Business Review* (March): 53–68.

Pottruck, David S., and Terry Pearce. 1999. *Clicks and mortar.* San Francisco: Jossey-Bass.

Rayport, Jeffrey F., and Bernard J. Jaworski. 2004. *Introduction to e-Commerce.* New York: McGraw-Hill/Irwin.

Rivkin, Jan W., and Michael E. Porter. 1999. "Matching Dell." Boston, MA: Harvard Business School: Case study #9-799-158.

Roberts, Dexter. 2010. "Closing for business?" *Bloomberg BusinessWeek* (April 5): 32–37.

Schwartz, John. 2001. "New economy." *The New York Times* (January 8): C4.

Seybold, Patricia, and Ronni Marshal. 1995. *Customers.com.* NY: Random House/Crown.

Spencer, Jane, and Kevin J. Delaney. 2008. "YouTube unplugged." *Wall Street Journal* (March 21): B1–B2.

Spors, Kelly K. 2007. "In search of traffic." *Wall Street Journal* (April 30): R1, R4.

[Staples Inc.] *www.staples.com*. Last date accessed August 3, 2010.

Straub, Detmar. 2004. *Foundations of net-enhanced organizations.* Hoboken, NJ: Wiley.

Swisher, Kara, and Walt Mossberg. 2010. "All things digital." *Wall Street Journal* (June 7): R1, R6.

[Tesco.com] *www.tesco.com*. Last date accessed August 3, 2010.

Vascellaro, Jessica E., and Loretta Chao. 2010. "Google runs into China's 'great firewall'." *Wall Street Journal* (March 21): B1.

Voigt, Kevin. 2010. "China's Internet titans leave west behind." http://edition.cnn.com/2010,BUSINESS/01/22/china.internet.companies/index.html. Last date accessed August 3, 2010.

Vollmann, T. E. 2005. "ERP as a resource for inter-organizational value creation." in Elliot Bendoly and F. Robert Jacobs (eds.), *Strategic ERP extension and use.* Stanford, California: Stanford Business Books, 140–152.

Wingfield, Nick. 2007. "Netflix vs. Naysayers." *Wall Street Journal* (March 27): B1–B2.

Worthen, Ben. 2010. "Facebook's settings don't quell critics." *Wall Street Journal* (May 27): B1–B2.

Ye, Juliet. 2008. "In China, Internet users prefer to say it by 'IM'." *Wall Street Journal* (May 22): B7.

Zachary, G. Pascal. 2006. "Evolution of an envelope." *Business 2.0* (April): 70.