

Chapter

6

E-Business and
E-Commerce

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References

Learning Objectives

- 1 Describe e-business strategies and e-commerce operations.
- 2 Understand effective business-to-consumer e-commerce applications.
- 3 Understand business-to-business applications, logistics, procurement, order fulfillment, and payment systems.
- 4 Describe e-government activities and public sector e-commerce.
- 5 Understand e-commerce support services.
- 6 Identify and describe ethical and legal issues of e-business.

Integrating IT



ACC



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OM



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Amazon.com's First Web site, August 1995 digitalenterprise.org/images/amazon.gif

e-Business forum ebusinessforum.com

Google Merchant Center google.com/merchants

Google Product Search google.com/products

Shopzilla shopzilla.com

U.S. Federal Trade Commission, the nation's consumer protection agency ftc.gov

PCI Security Standards Council pcisecuritystandards.org/index.shtml

Internet statistics internetworldstats.com

Many Eyes (beta) data sets and visualization tools maneyes.alphaworks.ibm.com/maneyes/

Washington, D.C., Data Catalog data.octo.dc.gov/

QUICK LOOK at Chapter 6, E-Business and E-Commerce

This section introduces you to the business issues, challenges, and IT solutions in Chapter 6. Topics and issues mentioned in the Quick Look are explained in the chapter.

Electronic business (*e-business*) is business that uses the Internet and online networks as the **channel** to consumers, supply chain partners, employees, and so on. During the early Web era, the online channel was stand-alone. Typically, retailers rushed to build business-to-consumer (B2C) Web sites and set up online business units that were independent and separated from their **traditional (offline) channels**. Those e-business units were managed and evaluated according to different performance metrics, incentives, and operating models. Why? Because e-commerce was treated as something so fundamentally different, strange, or high-tech that traditional financial metrics did not apply. When dot-coms started failing on a massive scale in 2000, managers learned that financial principles and marketing concepts applied to e-commerce. Since then, numerous other e-commerce models have emerged, been implemented, and then been replaced by newer ones as Web and wireless technologies and applications emerged.

Today, as you know from personal experience, companies are **multichanneling**—integrating online and offline channels for maximum reach and effectiveness. As shown in Figure 6.1, the once purely online eBay opened a traditional channel—a store named eBay@57th—in New York City in November 2009. The 2D tags you read about in Chapter 1 have made it easier to multichannel.

In the 2010s, organizations continue to radically rethink their Web presence, e-business models and strategies, and



Figure 6.1 eBay added a traditional offline channel when it opened a physical store called eBay@57th in New York on November 20, 2009. The store offers previews of select items and Internet kiosks for consumers who want to shop online. (Richard Levine/Alamy)

risks. Here are several types of changes impacting companies directly or indirectly.

- Retailers are advertising and selling through social channels, such as Facebook, Twitter, RSS feeds, and blogs, and via **comparison shopping engines**. Consumers use the Google Product Search, Shopzilla, TheFind, and NexTag comparison shopping engines to compare prices and find great deals for certain brands and products.
- Consumers are using handhelds to research brands, products, and services from multiple sources. What's

important is the extent to which consumers are exploring and challenging the information they've found as well as creating and posting their own opinions and detailed experiences. *TripAdvisor.com* is an example.

- Often business-to-business (B2B) sites lacked the helpful features and capabilities of B2C sites. Now manufacturers and distributors are revising their online B2B capabilities to meet the time-critical requirements of their buyers. With the growth of lean manufacturing and just-in-time inventory management, industrial buyers need on-demand access to supply and want well-designed, fast, and full-featured sites.
- Governments and agencies are expanding and refining their government-to-citizen (G2C) Web sites to improve services and outreach at reduced cost, as shown in Figure 6.2.



Figure 6.2 Public services are provided via Directgov, the U.K. government's Web site.(Stuwdamdorp/Alamy)

- Malvertisements are harming e-business and increasing costs. **Malvertisements** are ads that, when clicked, will redirect to and load a malicious Web site, which is a replica of the site the user was expecting. Malvertising scams surged in 2010 as hackers tried to get their hands on some of the \$30-billion-per-year e-commerce industry.

The *New York Times*, MySpace, and other popular and trusted sites were caught displaying mal-ads.

- In mid-2010, companies that host e-business platforms battled mysterious **mass Web attacks** that had silently infected a huge number of their customers' Web sites and blogs with malicious code. Many infected sites included encoded JavaScript that secretly installed malware on visitors' computers. A company official whose e-business was impacted summed up the frustration, costs, and revenue losses caused by mass Web attacks in the following comment:

We have spent at least a hundred hours over the past few weeks trying to repair our site, changing passwords at least 15 or 20 times . . . only to have it halfway working again. . . . Who's going to compensate us for the near complete loss of traffic and ad revenue from this problem?

- Increasingly, search engines are answering questions directly instead of only pointing to Web sites of dictionaries and other references. Google, for example, reworked its site so that it can give direct answers to certain economic questions. Google "unemployment rate" and it shows a chart with the national jobless rate. Search engines are diverting traffic away from reference sites.

In this chapter, you will learn about B2C, B2B, and G2C e-business models and specific e-commerce applications. **E-commerce** is the process of buying, selling, transferring, or exchanging products, services, or information via the public Internet or private corporate networks. We cover key advances in e-commerce, including IT platforms, benefits, limitations, and security risks to a company's or a brand's reputation. You will read about the compliance standards required by credit card companies and regulators to protect against fraud and other types of crime directly related to e-business operations. You frequently hear the term *e-commerce* (electronic commerce), which refers to a subset of e-business—mainly using Web sites for buying and selling. While *e-business* involves many more processes and interactions than *e-commerce*, the terms are used interchangeably, unless noted otherwise.

Rail Europe Overhauls Its E-Business Model and Web Site

E-business models change as technology and consumers change to remain competitive. Continued survival and success will require an overhaul, or reengineering, of the company's Web site, platform, and capabilities. Newer technologies—for example, 2D tags, 4G networks, and social media—and changes in customers' buying behavior have made e-commerce both easier and more challenging. E-business makes it easier to reach consumers, but control of e-business is often in their hands. For

example, companies are multichanneling to extend their reach and to stay in contact with customers and prospects. But, in order to combat information overload from aggressive marketing, people are filtering content and blocking messages that they find irrelevant. Smart companies are responding by reengineering their business models and delivering content that's meaningful enough to survive filtering and blocking—and to beat out their competition. (A **business model** refers to the way

a company generates revenues and profit.) That's the approach of Rail Europe. The *RailEurope.com* Web site was basically a booking engine limited to helping customers find seats on European trains. In 2008, Rail Europe's management recognized problems with their business model and set out to overhaul its e-business strategy and Web site.

Rail Europe's Outdated Model

Rail Europe's e-commerce sales revenues had been declining for several years and several reasons. Its e-business model had become uncompetitive, its Web site was outdated, and the recession had caused a drop in European travel (see Figure 6.3). Other European travel sites offered more information and better features. Travel planners wanted not only to buy tickets but also to learn from others' good and bad experiences, to know they were getting the best deals, and to be able to make more informed and flexible travel plans. Aware of its deficiencies, in 2009 Rail Europe transformed its e-business model from that of a booking engine to that of a full-featured portal for booking European train travel.



Figure 6.3 European train station. (ynamaku/iStockphoto)

Rail Europe's E-Business Turnaround

As part of its efforts to turn around declining sales, Rail Europe overhauled its Web site. Blogs (*blog.raileurope.com*) with peer reviews, photos, maps, best-rate hotel reservation guarantees, and customer service options were added to provide content that would hold visitors' attention longer. These social networking features improved the company's strategic position because its Web site became an early step in travelers' planning process. That is, people were visiting Rail Europe at the start of their planning. Previously, Rail Europe was catching customers too late in the process. Rail Europe's vice president of e-business, Frederick Buhr, explained the challenge he had to overcome and his strategy: "Today you get bypassed by the customer because they Google everything. Although we enjoy being positioned by all the search engines,

we knew that we needed to catch customers much earlier in their planning cycle."

Since the overhaul, RailEurope.com's conversion rate of visitors to customers increased 30 percent during April and May, the months when many people are planning summer vacations. Online sales increased 7 percent during that same period. These results are even more striking when compared to sales at other travel Web sites, which had dropped up to 25 percent due to the recession.

New Web Site Launched Using FatWire Web Management Software

Rail Europe launched its new Web site using the FatWire (*fatwire.com*) Content Server, which delivers multilingual content to visitors. FatWire's Web Experience Management (WEM) portfolio automates the WEM process, which includes content authoring, site design, content publishing and delivery, targeted marketing, Web site analytics, and user participation.

Through the Content Server interface, Rail Europe can set up and manage targeted online campaigns, keep Web content relevant and current, and maintain brand integrity. According to Rail Europe's CIO, "Over 60 percent of our customers interact with us through the Web, so we needed a Web content management solution that gave us the ability to constantly refresh information to encourage repeat online visits and referrals." Lots of content, photos, videos, interactive planners, and more than 500 pages of content were added.

Web Site Analytics and Intelligence Provided by Technology Leaders

Content Server enabled Rail Europe to set up campaigns but did not provide the Web intelligence to know what campaigns would be most effective. To develop Web intelligence capabilities, Rail Europe invested in Web site analytics from Technology Leaders (*technologyleaders.com*), a consulting firm. By analyzing online behavior data, for instance, managers learn which offers and promotions have the best conversion rates. Rail Europe hired Technology Leaders to develop and maintain (i.e., service) a Web analytics framework. Building that framework involved the following types of work:

- Retagging the entire site with JavaScript code and Webtrends tags.
- Setting up dashboards and KPIs (key performance indicators) for monitoring performance of the Web site.

Key benefits of the Web analytic framework are:

- Providing more detailed information for online marketing campaigns and better campaign reporting. Management

sees which keywords and online campaigns lead to the sale of specific travel packages and products.

- Providing new conversion metrics, such as tracking newsletter registrations, to gauge their effectiveness.

Rail Europe's management now makes data-driven decisions supported by Web analytics. The travel portal's Web site

is kept updated with the best and latest offers to attract visitors searching out the best deals, which encourages loyalty and repeat visits.

Sources: Compiled from *Wireless News* (2009), McKay (2009a, 2009b), *Fatwire.com*, *TechnologyLeader.com*, and *RailEurope.com* (2011).

For Class Discussion and Debate

1. Scenario for Brainstorming and Discussion: If a company had the same Web site and e-business features today that it had five years ago, the company would have lost customers. The same would be true if, five years from now, companies were still using today's e-commerce sites instead of expanding their efforts to include the latest Web and mobile apps.

- a. First, discuss how e-commerce Web sites have changed over the past five years.
- b. Next, select four different types of companies—for example, an auto manufacturer, a major software company, an online retailer (e-trailer), and a service provider—that have been in existence since at least 2000.
- c. Then visit Internet archives of the Wayback Machine at <http://www.archive.org/web/web.php>. For each of the four companies you selected and also Rail Europe, view its latest archived Web site and its Web site from five years earlier. What important changes do you see in the five companies' e-commerce sites?
- d. In your opinion, which of your selected companies would have suffered the greatest customer loss if it had not updated its e-commerce Web site? Why?

2. Debate: Rail Europe's Web site was redesigned to achieve its new e-business strategy. The redesign involved outsourcing some of the e-business site's platform and Web analytics to FatWire and Technology Leaders. Outsourcing partnerships require **service-level agreements (SLAs)**. An SLA is a written legal contract between a service provider (e.g., vendor or consulting company) and the client (company) wherein the service provider guarantees a minimal level of service. One challenge is specifying exactly what the minimum service levels are and finding ways to measure them accurately. If the

minimal level of service is not met, the contract is violated and the service provider typically faces a financial penalty. For reference, you can view FatWire's outline of its SLA on its Web site at <http://www.fatwire.com/support#tab3>.

SLAs are legal contracts that include an incentive for the service provider to fix the problem quickly and a way for the client to be compensated for losses due to failure to comply with the terms of the SLA. The provider's incentive is usually in the form of a financial penalty for problems it doesn't resolve within the specified timeframe. An outsourcing expert suggested (with some humor) that penalties can be set somewhere between the electric chair and a slight tap on the wrist. Generally, the stricter the SLA, the greater the cost of the SLA up-front, the more exact the measurement of those levels. The more lenient the SLA, the less time and effort spent up-front defining levels and measures and actually monitoring those levels, but the greater the risk and costs in the future if something goes wrong. Interestingly, companies may outsource the monitoring of the SLA to another company. The point is that determining the SLA with a vendor and monitoring it are expensive, time-consuming efforts, and requires trade-offs. Very strict SLAs and very lenient SLAs can be risky and expensive, but the risk and expenses may occur at different times in the life cycle of the SLA.

To Do: Assume either the role of the service provider or the role of the client. Debate whether the terms of the SLA should be strict or lenient to minimize overall risk and costs to your company. Consider all costs, including but not limited to losses from downtime if the SLA is too lenient, the costs of the SLA contract if the SLA is strict, and the legal fees if the SLA's terms are not met. Debate compromises (trade-offs) you'd be willing to take as you negotiate the SLA terms.

6.1 E-Business Challenges and Strategies

The online explosion has given today's consumers greater control over where and how they interact with a business or a brand through a mix of online channels and media. To successfully compete in this online environment, managers need to understand and respond to changing consumer behavior or the needs of business customers, and they often have to deal with IT software vendors and consulting firms.

The opening case describes Rail Europe's overhaul of its e-business model and the reengineering of its e-commerce site—changes that required the help of at least two vendors. Due to the complexity of designing and implementing online business channels, companies may decide to outsource the development or hosting of the system, often using software-as-a-service (SaaS) or cloud computing, as you read in Chapter 2. However, developing an effective e-business model and competitive strategy is done in-house by managers from various functional areas—marketing, IT, operations, logistics, accounting, and so on. If the business model and strategy are wrong, then implementation would not matter in the long run.

To better understand the importance of sound models and strategies, in the next section you will read about the dot-com era.

THE DOT-COM ERA, 1995–2002

Companies rushed into e-commerce in the 1990s. Many far-fetched predictions and management assumptions were made that led to poor decisions and e-business failures. There were numerous debates, with one side arguing that *business over the Internet* had its own set of rules that differed (mysteriously) from traditional business models that valued positive earnings and cash flow. The opposing side argued that adding the prefix *e* to *business* did not eliminate the need to earn a profit, but risk-taking investors generally ignored this logic for several years.

From the mid-1990s to 2002, the media and Internet stock analysts hyped the *new economy* and the growth of dot-com businesses. (A few of those stock analysts were later arrested and/or fined for fraud and misleading investors.) The concept of a new economy helped fuel the theory that Internet companies were different (had new rules). In terms of the stock market, old-economy companies like Proctor & Gamble were out. New-economy companies like Yahoo.com (and many that went bankrupt within a few years) were in.

The Dot-Com Bubble Inflates. The new economy was the economy of the **dot-com era** (or **dot-com bubble**), which extended from roughly 1995 to 2000. In 1995, the number of Internet users sharply increased. Pure-play companies, nicknamed dot-coms, existed only on the Internet without a physical brick-and-mortar presence. These Internet-channel companies were set up to capture the new market space. *Marketspace* was the term used instead of the old economy's *marketplace*. (The new economy had new vocabulary, furthering the divide between traditional and e-business.)

Unrestrained by business models that required making a profit and having huge sums of money from venture capitalists (private investors), many dot-coms engaged in daring and sometimes fraudulent business practices. Their practices were aimed at building market share, which was believed to be the path to profitability. According to the dot-com business model, the objective was for companies to build up their customer base (market share) even if it meant selling at a loss in the short term (which many did) because they'd become profitable in the long run. Investors bought into these magical business models, and stock prices of dot-coms skyrocketed, attracting more investors. In reality, the dot-com bubble was really a stock market bubble. That is, stock prices were significantly overpriced and continued to rise (see Figure 6.4), inflating the size of the bubble until March 2000.

The Dot-Com Bubble Bursts and Deflates. Most dot-coms were listed on the NASDAQ, or National Association of Securities Dealers Automated Quotation System (*nasdaq.com*). On March 10, 2000, the NASDAQ composite index reached its peak of 5,048.62 points. From March 11, 2000, to October 9, 2002, the NASDAQ lost 78 percent of its value by dropping from 5,046.86 to 1,114.11 points as dot-com stock prices fell or lost all value. Figure 6.4 shows changes in the NASDAQ from the start of the bubble to 2003. March 10, 2000, is called the day the bubble burst because it was the turning point. The steady decline ended most debate over whether or not positive earnings, cash flow, and other financial metrics of brick-and-mortar (physical) commerce applied to e-commerce.



Figure 6.4 Changes in the NASDAQ during the dot-com era, which burst (started to decline) on March 10, 2000, and declined until October 2002.

Lessons are still being learned about B2C and B2B commerce as companies experiment with new features to gain even a slight or temporary competitive advantage. As you read in the chapter's introduction, new Web and wireless technologies and applications create new opportunities and capabilities.

Fundamental capabilities and challenges of e-commerce are briefly discussed next.

E-BUSINESS AND E-COMMERCE FUNDAMENTALS

Online channels and connectivity support or enable the following business activities, creating the following benefits for e-business:

- **Business processes.** Business processes are carried out and managed via networks for obvious reasons—namely, the fact that almost all business documents are digital and the availability of broadband wireless and wired networks, laptops, and mobiles/handhelds.
- **Service.** Self-service features reduce inefficiencies and costs of providing service to customers, clients, patients, citizens, and so on. For example, the Federal Express Web site lets customers track their shipments, calculate shipping costs, schedule pickups, and print their own labels. Airlines encourage travelers to print boarding passes before arriving at the airport.
- **Collaboration and training.** Telepresence minimizes the limitations of having to be physically present in a single location to collaborate or to give and receive live online training or education.
- **Community.** Social networks such as Facebook and Twitter are community centers on a scale possible only via online channels. You will read about social commerce in the next chapter.

Types of E-Business Transactions. There are several basic types of e-business transactions, which have been referred to in prior sections. Here are their definitions.

- **Business-to-business (B2B).** In B2B transactions, both the sellers and the buyers are business organizations. Over 85 percent of e-commerce volume is B2B—far exceeding B2C commerce.
- **Business-to-consumers (B2C).** In B2C, the sellers are organizations, and the buyers are individuals. B2C is also called *e-tailing* (electronic retailing).
- **Consumers-to-business (C2B).** In C2B, consumers make known a particular need for a product or service, and then suppliers compete to provide that product or service at the requested price. An example is Priceline.com, where the customer names

a product or service and the desired price, and Priceline tries to find a supplier to fulfill the stated need.

- **Government-to-citizens (G2C) and to others.** In this case, a government agency provides services to its citizens via e-commerce technologies. Government units can engage in e-commerce with other government units—**government-to-government (G2G)** or with businesses—**government-to-business (G2B)**.
- **Mobile commerce.** Transactions and activities are conducted using wireless networks.

E-BUSINESS WEB SITE REQUIREMENTS AND CHALLENGES

As a consumer, you’ve experienced first-hand e-commerce Web sites. You’re likely to know most of the site characteristics and/or requirements. However, the number of integrated systems, networks, and maintenance tools needed to support e-business operations, including order fulfillment (getting the correct items to the customer in a reasonable amount of time), are less widely known. The following sections discuss the requirements and challenges of e-business.

Availability. Availability relates to the server side of e-business. An “always on” facility is needed to maintain the business-critical apps. Web sites need to be hosted on servers (specialized large-capacity hard drives) that are capable of supporting the volume of requests for access, or traffic, to the site. Figure 6.5 shows an example of Web hosting servers. Servers need to be connected to the Internet via huge capacity transmission (telecommunication) lines. Servers need to be taken offline for service or replacement, at which time hosting is switched to other servers or, if the business can tolerate it, the Web site is taken offline during the maintenance.

Recall that Rail Europe hosted its Web site on FatWire’s Content Server and relied on its Web Experience Management (WEM) tools. Hosting on a third party’s server is done if the company lacks infrastructure to host it themselves or the IT expertise to manage it. Another reason or benefit of third-party hosting is **scalability**—being able to add additional capacity incrementally, quickly, and as needed.

Accuracy and Quick Response. Not only must Web servers be available, the e-commerce software and databases need to respond quickly. Web software must be capable of searching; sorting; comparing product features; checking availability, balances, and/or delivery times; processing promotions and payments; verifying that a credit card number belongs to the person trying to use it; and confirming the purchase in real time. Particularly in time-sensitive B2B commerce, errors that delay delivery are intolerable.



Figure 6.5 Web hosting servers. (Konstantinos Kokkinis/Alamy)

TABLE 6.1 PCI DSS Principles and Requirements

The core of the PCI DSS is a group of principles and accompanying requirements, around which the specific elements of the DSS are organized:

Build and Maintain a Secure Network

Requirement 1: Install and maintain a firewall configuration to protect cardholder data

Requirement 2: Do not use vendor-supplied defaults for system passwords and other security parameters

Protect Cardholder Data

Requirement 3: Protect stored cardholder data

Requirement 4: Encrypt transmission of cardholder data across open, public networks

Maintain a Vulnerability Management Program

Requirement 5: Use and regularly update antivirus software

Requirement 6: Develop and maintain secure systems and applications

Implement Strong Access Control Measures

Requirement 7: Restrict access to cardholder data by business need-to-know

Requirement 8: Assign a unique ID to each person with computer access

Requirement 9: Restrict physical access to cardholder data

Regularly Monitor and Test Networks

Requirement 10: Track and monitor all access to network resources and cardholder data

Requirement 11: Regularly test security systems and processes

Maintain an Information Security Policy

Requirement 12: Maintain a policy that addresses information security

Security and PCI DSS Compliance. All of the servers, transmission lines, application software, databases, and connections must be secured; confidential data often must be protected with another layer of defense, typically encryption.

For Web sites accepting credit cards, an additional security standard is imposed by the payment card industry (PCI).

All e-commerce and brick-and-mortar merchants, regardless of size and sales volume, need to be PCI DSS compliant and certified to accept, hold, process, or exchange credit cardholder information of the major credit cards. The **PCI DSS (Payment Card Industry Data Security Standard)** is a set of information security requirements to help prevent credit card fraud. The PCI DSS was developed by the **Payment Card Industry Security Standards Council (PCI SSC)**, an organization founded by American Express, Discover Financial Services, JCB International, MasterCard Worldwide, and Visa, Inc.

Table 6.1 lists the PCI DSS principles and twelve accompanying requirements, around which the specific elements of the DSS are organized. The PCI Council publishes a list of Validated Payment Applications on its *pcisecuritystandards.org* Web site. Web sites built for e-commerce need to be hosted on software platforms that are PCI certified. Certification to verify that the credit card handling processes and Internet systems comply with PCI DSS must be done annually.

Building Competitive Advantage. No competitive innovation remains unique for long. Leading companies are always looking for next-generation capabilities to develop new competitive advantage. One approach is to integrate social networks. Companies can implement their own social networks and associated services or leverage Facebook or other existing ones. A strategic concern is how to control content, specifically because that content is not meant to be monitored and controlled.

Integration of E-Commerce Systems with Enterprise Systems. Another huge challenge is integrating e-commerce systems with legacy and other enterprise systems.

Software	Features and Functions	URL
ClickTracks	Provides products, visualization tools, and hosted services for Web site traffic analysis, including visitor behavior	<i>clicktracks.com</i>
Coremetrics	A platform that captures and stores customer and visitor clickstream activity to build LIVE (Lifetime Individual Visitor Experience) profiles, which serve as the foundation for e-business initiatives	<i>coremetrics.com</i>
Google Analytics	Offers free Web analytics services with integrated analysis of Adwords and other keyword-based search advertising	<i>goggle.com/analytics/</i>
SAS Web Analytics	Automatically turns raw Web data into business information	<i>sas.com/solutions/webanalytics/</i>
Webtrends	Measures campaign performance, search engine marketing, Web site conversion, and customer retention	<i>webtrends.com</i>

There is growing interest in allowing better integration across all customer points of interactions. This challenge intensifies when companies are merged or acquired because then multiple Web sites that are built on a variety of technology platforms need to be integrated.

Web Analytics and Intelligence Software. Web site activities—such as what was clicked, how long a visitor viewed a page, the IP address of the visitor’s computer, and items put into the shopping cart—are captured and stored in a log. Log data is analyzed to learn how visitors navigate the site, to assess advertising campaigns, and to determine other factors of interest. Many vendors offer Web analytics and intelligence software so managers can analyze Web traffic and other activities of visitors, as described in Table 6.2.

International E-Commerce. Too often international online shoppers have to work through several hurdles to buy from U.S. e-commerce companies. They face the challenge of finding out whether a site will ship to their country. Shipping costs tend to be higher than necessary, and delivery can be slow and unpredictable. In addition, prices are not converted into the shopper’s native currency. The total cost of delivery for international customers is often too vague or incorrect. Customers may learn that they have to pay additional unexpected customs fees and taxes to receive their order, to return their order, or to correct errors.

E-BUSINESS MODELS

To better understand how e-business works, look at Figure 6.6. A company such as Dell (labeled “Our Company”) provides products and/or services to customers, as shown on the right side. To do so, the company buys inputs such as raw materials, components, parts, or services from suppliers and other business partners in the procurement process. Processing the inputs is done in its production/operations department. Finance, marketing, IT, and other departments support the conversion of inputs to outputs and the sale to customers.

An objective of e-business is to *streamline* and *automate* as many processes as possible. A few examples of processes are credit card verification, production, purchasing,

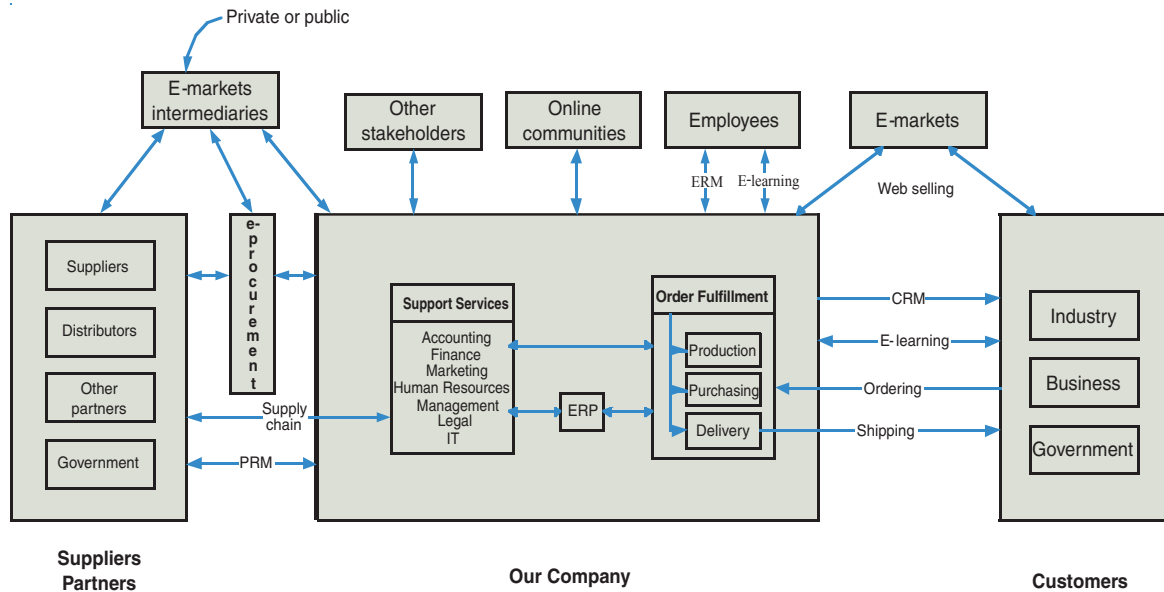


Figure 6.6 E-commerce model.

delivery, inventory management, or providing CRM (customer relationship management). This is done by e-commerce mechanisms such as e-markets, e-procurement, and e-CRM, as shown in Figure 6.6. Note that processes in the figure involve several types of transactions.

Recall that business models are the methods by which a company generates revenue. For example, in B2B one can sell from catalogs or in auctions. The major e-business models are summarized in Table 6.3. Forward and reverse auctions are explained in *IT at Work 6.1*.

TABLE 6.3 E-Business Models	
E-Business Model	Description
Comparison shopping engines	TheFind, NexTag, and Google Product Search engines find products, compare prices, and find great deals—and are paid a commission.
Affiliate marketing	Vendors ask partners to place logos or banner ads on their sites. If customers click the logo, go to vendor’s site, and buy, then the vendor pays a commission to partners.
Electronic marketplaces and exchanges	Transactions are conducted efficiently (more information to buyers and sellers, less transaction cost) in virtual marketplaces (private or public).
Information brokers and matching services	Brokers provide services related to e-commerce information, such as content, matching buyers and sellers, evaluating vendors and products.
Membership	Only members can use the services provided, including access to certain information, conducting trades, and so on.
Forward auctions	Sellers put items up for bid to many potential buyers and the highest bid wins, as on eBay.
Reverse auctions	Buyers put notices of items or services they want to buy on an auction site. Those notices are called requests for quotes (RFQ) . The lowest qualified bid wins.
Name-your-own-price	Customers decide how much they are willing to pay. An intermediary (e.g., <i>Priceline.com</i>) tries to match a provider.
Online auctions	Companies or individuals run auctions of various types on the Internet. This is a fast and inexpensive way to sell or liquidate items.
Online direct marketing	Manufacturers or retailers sell directly online to customers. This is very efficient for digital products and services.
Viral marketing	This involves relying on individuals to spread the marketing message.

IT at Work 6.1

Online Auctions for Commerce

An **auction** is a competitive process in which either a seller solicits bids from buyers or a buyer solicits bids from sellers. The primary characteristic of auctions, whether offline or online, is that prices are determined dynamically by competitive bidding. Auctions have been an established method of commerce for generations, and they are well suited to deal with products and services for which conventional marketing channels are ineffective or inefficient. Electronic auctions generally increase revenues for sellers by broadening the customer base and shortening the cycle time of the auction. Buyers generally benefit from online auctions by the opportunity to bargain for lower prices and the convenience of not having to travel to an auction site to participate in the auction.

Auctions are used in B2C, B2B, C2B, e-government, and C2C commerce, and they are becoming popular in many countries. Auctions can be conducted from the seller's site, the buyer's site, or from a third party's site. Auctions are divided here into two major types: forward auctions and reverse auctions.

Forward Auctions. Forward auctions are auctions that sellers use as a selling channel to many potential buyers. The most popular forward auction site is eBay, which has an iPhone app, as shown in Figure 6.7. Usually, items are placed at an auction site and buyers can bid on items or services until the deadline. The highest bidder wins the items. Sellers and buyers can be individuals or businesses. The popular auction site eBay.com conducts mostly forward auctions, but there are many B2C and B2B online auctions. Forward online auctions are used to liquidate excess inventory or to increase the scope of customers, particularly for unique products or services. For example, Sears liquidates excess or discontinued inventory via auction and fixed price at searsliquidations.com/.

Reverse Auctions. In reverse auctions, a company or government agency that wants to buy items places a *request for quote* (RFQ) on its Web site or third-party bidding marketplace. Once



Figure 6.7 eBay store application for the iPhone. (ICP/Alamy)

RFQs are posted, sellers or preapproved suppliers submit bids electronically. Reverse auctions can attract large pools of willing sellers, who may be manufacturers, distributors, or retailers. The bids are routed via the buyer's intranet to the engineering and finance departments for evaluation. Clarifications are made via e-mail, and the winner is notified electronically.

The reverse auction is the most common auction model for large-quantity purchases or high-priced items. Everything else being equal, the lowest-price bidder wins the auction. Governments and large corporations frequently mandate this RFQ approach for procurements because competition among sellers leads to considerable savings.

Discussion Questions: Why are auctions an efficient online sales channel? Visit searsliquidations.com/. What types of items are sold via the Sears auction site?

Review Questions

1. What was the dot-com bubble? What lessons were learned from it?
2. List benefits of e-business.
3. What are the major types of e-business transactions?
4. What are the requirements and challenges of e-business?
5. What is the importance of PCI DSS compliance?
6. Define a business model and list five e-business models.

6.2 Business-to-Consumer (B2C) E-Commerce

Retail sales via online channels, financial services, and travel services are widely popular forms of B2C commerce. The most well-known B2C site is Amazon.com, whose IT developments received U.S. patents that keep it ahead of competition; it is described in *IT at Work.6.2*.

IT at Work 6.2



Amazon.com's IT Patents Create Competitive Edge

Entrepreneur and e-tailing pioneer Jeff Bezos envisioned the huge potential for retail sales over the Internet and selected books for his e-tailing venture. In July 1995, Bezos started Amazon.com, offering books via an electronic catalog from its Web site. Key features offered by the Amazon.com mega e-tailer were broad selection, low prices, easy searching and ordering, useful product information and personalization, secure payment systems, and efficient order fulfillment. Early on, recognizing the importance of order fulfillment, Amazon.com invested hundreds of millions of dollars in building physical warehouses designed for shipping small packages to hundreds of thousands of customers.

Amazon has continually revised its business model by improving the customer's experience. For example, customers can personalize their Amazon accounts and manage orders online with the patented "One-Click" order feature. This personalized service includes an electronic wallet, which enables shoppers to place an order in a secure manner without the need to enter their address, credit card number, and so forth each time they shop. One-Click also allows customers to view their order status and make changes on orders that have not yet entered the shipping process. Amazon's other registered trademarks are EARTH'S BIGGEST SELECTION and IF IT'S IN PRINT, IT'S IN STOCK.

In addition, Amazon added services and alliances to attract more customers and increase sales. In January 2002, Amazon.com declared its first-ever profit for the 2001 fourth quarter; 2003 was the first year it cleared a profit in each quarter.

Amazon has invested heavily in its IT infrastructure, many of whose components it patented. The selected list of patents below gives a glimpse into the legal side of the e-tailer and explain why numerous major retailers, such as Sears and Sony, have used Amazon.com as its sales portal.

- 6,525,747—Method and system for conducting a discussion relating to an item
- 6,029,141—Internet-based customer referral system, also known as the Affiliate program
- 5,999,924—Method for producing sequenced queries
- 5,963,949—Method for data gathering around forms and search barriers
- 5,960,411—Method and system for placing a purchase order via a communications network (One-Click purchase)
- 5,826,258—Method and apparatus for structuring the querying and interpretation of semistructured information
- 5,727,163—Secure method for communicating credit card data when placing an order on a nonsecure network
- 5,715,399—Secure method and system for communicating a list of credit card numbers over a nonsecure network.

Amazon launched the e-reader Kindle in 2007. Its success proved the viability of the e-book market and led to the entry of numerous competitors, such as Barnes & Noble's Nook and the Apple iPad. Some analysts estimate that the Kindle accounted for about 60 percent of the e-reader market in 2010.

In mid-2010, Amazon started rolling out a software upgrade for Kindle, adding the ability for users to share e-book passages with others on Facebook and Twitter. The new social networking feature in version 2.5 adds another Web link to the standard Kindle and the larger Kindle DX, as Amazon finds itself in an increasingly competitive market because of the iPad's features. The iPad is designed for reading digital books, watching online video, listening to music, and Web browsing.

Sources: Compiled from Gonsalves (2010), Rappa (2010), and amazon.com.

Discussion Questions: Why is order fulfillment critical to Amazon's success? Why did Amazon patent One-Click and other IT infrastructure developments? How has Amazon adapted the Kindle to new technologies? Why would other retailers form an alliance with Amazon.com?

Several of the leading online service industries are banking, trading of securities (stocks, bonds), and employment, travel, and real estate services.

Online Banking. Online banking includes various banking activities conducted via the Internet instead of at a physical bank location. Online banking, also called direct banking, offers capabilities ranging from paying bills to applying for a loan. Customers can check balances and transfer funds at any time of day. For banks, it offers an inexpensive alternative to branch banking. Transaction costs are about 2 cents per transaction versus \$1.07 at a physical branch.

Most brick-and-mortar conventional banks provide online banking services and use e-commerce as a major competitive strategy. Customers are aware that if they are banking exclusively with a brick-and-mortar institution, they may be missing out on high-paying investment options or competitive loan rates that easily undercut many traditional banking entities. One of the high-interest online-only banks is ING Direct. With prominent and sophisticated marketing, ING Direct has become one of the most successful direct banks, as described in *IT at Work 6.3*.

IT at Work 6.3

ING Direct, The Largest Online Bank

ING Direct, a division of the Dutch financial services giant ING Group, has surpassed E*Trade Bank to become the largest online bank. ING Direct first opened for business in Canada in 1997. By 2007, ING Direct had become the most successful direct bank in the world, with more than 17 million customers in nine countries. Within five years of opening in the United States, ING had acquired 2.2 million U.S. customers and \$29 billion in deposits.

High Rates, High Volume, Low Margin, and High Profits. ING has paid the highest rates on savings accounts, 2.6 percent compared to the .56 percent average rate being paid for money market accounts at traditional banks. The bank has invested heavily in online and offline marketing efforts to steal customers away from other banks. ING Direct's strategy of simple products, aggressive rates and marketing campaigns (see Figure 6.8), and direct distribution has created clear differentiation from its competitors. One of its successful marketing tactics was issuing a \$25 check to customers for signing up.

Despite its high rates and huge marketing expenditures, ING Direct profits have soared. For example, the U.S. division earned a pretax profit of \$250 million in 2004, more than double its pretax profit of \$110 million in 2003.

The high-volume, low-margin business depends on using online efficiencies to offer a bare-bones service to low-maintenance customers. Originally, the bank did not offer checking accounts because that cost too much, but it added checking a few years later. ING Direct has almost no bricks and mortar other than four cafés to promote the bank in New York, Philadelphia, Los Angeles, and Wilmington (Delaware). Its headquarters is a converted Wilmington warehouse rather than an expensive office building.

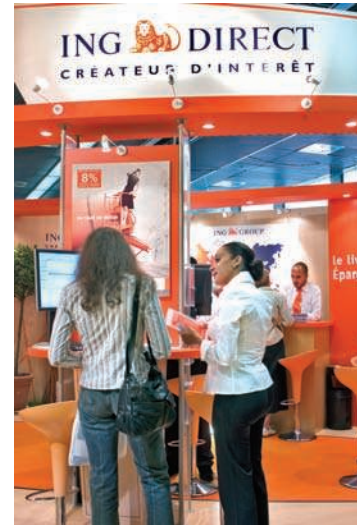


Figure 6.8 Woman inside bank at Paris, France, exhibit of ING Direct Internet bank. (Directphoto.org/Alamy)

ING Direct's competitive strategy was quickly copied by competitors. MetLife and New York's Emigrant Savings Bank have launched Internet banks offering high rates.

Sources: Compiled from *INGDirect.com* (2010), Stone (2005), and Ensor (2007).

Discussion Questions: How did ING Direct become the world's largest online bank? Why did ING Direct use both online and offline marketing campaigns? What attracted customers to online banking at ING Direct? What attracted brick-and-mortar banks into the online banking segment?

International and Multiple-Currency Banking. International banking and the ability to handle trading in multiple currencies are critical for international trade. Electronic fund transfer (EFT) and electronic letters of credit are important services in international banking. An example of support for e-commerce global trade is provided by TradeCard (*tradecard.com*). TradeCard offers a software-as-a-service (SaaS) model that provides supply chain collaboration and a trade finance compliance platform.

Although some international retail purchasing can be done by giving a credit card number, other transactions may require cross-border banking support. For example, Hong Kong and Shanghai Bank (*hsbc.com.hk*) has developed a special system, *HSBCnet*, to provide online banking in 60 countries. Using this system, the bank has leveraged its reputation and infrastructure in the developing economies of Asia to rapidly become a major international bank without developing an extensive new branch network.

Online Job Market. Most companies and government agencies advertise job openings, accept résumés, and take applications via the Internet. The online job market is especially effective and active for technology-oriented jobs, for example, *dice.com* and *monster.com*. In many countries, governments must advertise job

openings on the Internet. In addition, hundreds of job-placement brokers and related services are active on the Web. You can get help from *jobweb.com* to write your résumé.

ISSUES IN E-TAILING

Despite e-tailing's ongoing growth, many e-tailers continue to face several challenges that can interfere with the growth of its e-tailing efforts. Major issues are described next.

1. Resolving channel conflict. Sellers that are click-and-mortar companies, such as Levi's or GM, face a conflict with their regular distributors when they circumvent those distributors by selling online directly to customers. This situation is called **channel conflict** because it is a conflict between an online selling channel and physical selling channels. Channel conflict has forced some companies to limit their B2C efforts or not to sell direct online. An alternative approach is to try to collaborate in some way with the existing distributors, whose services may be restructured. For example, an auto company could allow customers to configure a car online but require that the car be picked up from a dealer, where customers could also arrange financing, warranties, and service.

2. Resolving conflicts within click-and-mortar organizations. When an established company sells online directly to customers, it creates conflict in its own offline operations. Conflicts may arise in areas such as pricing of products and services, allocation of resources (e.g., advertising budget), and logistics services provided by the offline activities to the online activities (e.g., handling of returns of items bought online). To minimize this type of conflict, companies may separate the online division from the traditional division. The downside is that separation can increase expenses and reduce the synergy between the two organizational parts.

3. Managing order fulfillment and logistics. E-tailers face tough order fulfillment and logistics problems when selling online because of the need to design systems to accept and process a huge volume of small orders, physically pick items from warehouse shelves and put them into boxes, be sure that the correct labels are applied, and accept returns. The return process is referred to as **reverse logistics**. Logistics is discussed in more detail in Section 6.4.

4. Determining viability and risk of online e-tailers. Many purely online e-tailers went bankrupt in the dot-com era, the result of problems with cash flow, customer acquisition, order fulfillment, and demand forecasting. Online competition, especially in commodity-type products such as CDs, toys, books, or groceries, became very fierce due to the ease of entry into the marketplace. As Porter's five-forces model explains, low entry barriers intensify competition in an industry. So a problem most new and established e-tailers face is determining how long to operate while they are still losing money and how to finance the losses.

5. Identifying appropriate revenue (business) models. One early dot-com model was to generate enough revenue from advertising to keep the business afloat until the customer base reached critical mass. This model did not work. Too many dot-coms were competing for too few advertising dollars, which went mainly to a small number of well-known sites such as AOL, MSN, Google, and Yahoo. In addition, there was a "chicken-and-egg" problem: Sites could not get advertisers to come if they did not have enough visitors. To succeed in e-commerce, it is necessary to identify appropriate revenue models and modify those models as the market changes.

ONLINE BUSINESS AND MARKETING PLANNING

Online marketing planning is very similar to creating any other marketing plan. It's strange to have separate plans for online and offline because that is not how customers perceive a business. Here are online business and planning recommendations:

- Build the marketing plan around the customer, rather than on products.
- Monitor progress toward the one-year vision for the business in order to be able to identify when adjustments are needed, and then be agile enough to respond.

- Identify all key assumptions in the marketing plan. When there is evidence that those assumptions are wrong, identify the new assumptions and adjust the plan.
- Make data-driven, fact-based plans.

Review Questions

1. Describe how digital content and services can lead to significantly lower costs.
2. What general features make the delivery of online services successful for both sellers and buyers?
3. How has Amazon maintained its competitive edge?
4. How did ING Direct attract customers to become the world's largest online bank?
5. List the major issues relating to e-tailing.
6. List three online marketing planning recommendations.

6.3 Business-to-Business (B2) E-Commerce and E-Procurement

In *business-to-business (B2B) applications*, the buyers, sellers, and transactions involve only organizations. B2B comprises about 85 percent of e-commerce dollar volume. It covers applications that enable an enterprise to form electronic relationships with its distributors, resellers, suppliers, customers, and other partners. By using B2B, organizations can restructure their supply chains and partner relationships.

There are several business models for B2B applications. The major ones are sell-side marketplaces and e-sourcing (the buy-side marketplace).

SELL-SIDE MARKETPLACES

In the **sell-side marketplace** model, organizations sell their products or services to other organizations from their own private e-marketplace or from a third-party site. This model is similar to the B2C model in which the buyer is expected to come to the seller's site, view catalogs, and place an order. In the B2B sell-side marketplace, however, the buyer is an organization. The two key mechanisms in the sell-side model are forward auctions and online catalogs, which can be customized for each buyer.

Sellers such as Dell Computer (*dellauction.com*) use auctions extensively. In addition to auctions from their own Web sites, organizations can use third-party auction sites, such as eBay, to liquidate items. Companies such as Overstock.com help organizations to auction obsolete and excess assets and inventories.

The sell-side model is used by hundreds of thousands of companies and is especially powerful for companies with superb reputations. The seller can be either a manufacturer (e.g., IBM), a distributor (e.g., *avnet.com* is an example of a large distributor in IT), or a retailer (e.g., *Walmart.com*). The seller uses e-commerce to increase sales, reduce selling and advertising expenditures, increase delivery speed, and reduce administrative costs. The sell-side model is especially suitable to customization. For example, organizational customers can configure their orders online at *cisco.com* and other sites. Self-configuration of orders results in fewer misunderstandings about what customers want and much faster order fulfillment.

E-SOURCING

E-sourcing refers to the many procurement methods. The primary methods are auctions, RFQ processing, and private exchanges. E-sourcing also applies to all other secondary activities, which have added to the cycle time and cost of procurement transactions. Secondary activities include trading partner collaboration, contract negotiation, and supplier selection.

E-Procurement. **Corporate procurement**, also called **corporate purchasing**, deals with the buying of products and services by an organization for its operational and functional needs. Organizations procure materials to produce finished goods, which is referred to as **direct procurement**, and products for daily operational needs, which is referred to as **indirect procurement**. **E-procurement** refers to the reengineered procurement processes using e-business technologies and strategies. Strategies and solutions linked to e-procurement have two basic goals.

- **Control costs:** The first goal is to control corporate spending. Organizations want to spend intelligently for procurement activities to maximize the value of their spending, that is, ensure that money spent to procure items results in procuring the right products at the best value. Corporate e-procurement constitutes a substantial portion of an organization's operational spending. For example, it is common for a large manufacturing organization to spend millions of U.S. dollars in procuring products and services. Organizations thus design e-procurement systems to facilitate and control overall procurement spending.
- **Simplify processes:** The second goal is to streamline the procurement process to make it efficient. Inefficiencies in the procurement process tend to introduce delays in ordering and receiving items as well as tax internal resources.

The two goals of cost control and streamlining can be met in three ways:

1. Streamline the e-procurement process within an organization's value chain. Doing so reduces the number of employees needed to process purchasing, reduces the procurement cycle time to order and receive items, and empowers the organization's staff with enough information about the products and services to enable them to make intelligent decisions when procuring items.
2. Align the organization's procurement process with those of other trading partners that belong to the organization's virtual supply chain. Alignment can be achieved by automating the process from end to end, including trading partners' systems, and simplifies the buying process. This enables suppliers to react efficiently to buyers' needs.
3. Use appropriate e-procurement strategies and solutions. Organizations analyze spending patterns in an effort to improve spending decisions and outcomes.

Public and Private Exchanges. Exchanges are sites where many sellers and many buyers buy and sell. They may be public or private, depending on whether or not they are open to the public.

Vertical exchanges serve one industry (e.g., automotive, chemical) along the entire supply chain. *Horizontal exchanges* serve many industries that use the same products or services (e.g., office supplies, cleaning materials). There are four major types of exchanges:

1. **Vertical exchanges for direct materials.** These are B2B marketplaces where *direct materials*—materials that are inputs to manufacturing—are traded, usually in *large quantities* in an environment of long-term relationship known as **systematic sourcing**. An example is *PlasticsNet.com*, a vertical marketplace for industry professionals.
2. **Vertical exchanges for indirect materials.** Indirect materials in *one industry* are usually purchased on an as-needed basis, which is commonly called **spot sourcing**. Buyers and sellers may not even know each other. *ChemConnect.com* and *iSteelAsia.com* are examples. In vertical exchanges, prices change continuously (like a stock exchange), based on the matching of supply and demand. Auctions are typically used in this kind of B2B marketplace, sometimes done in private trading rooms, which are available in exchanges like *ChemConnect.com*. *IT at Work 6.4* describes this exchange.
3. **Horizontal exchanges.** These are e-marketplaces for indirect materials, such as office supplies, lightbulbs, and cleaning materials used by *any industry*. Because these products are used for maintenance, repair, and operations (and not sold to generate revenue), they are called **MRO**. Prices are fixed or negotiated in this systematic exchange. Examples are *EcEurope.com*, *Globalsources.com*, and *Alibaba.com*.

American Express applied its own experience with indirect purchasing to develop tools that improve compliance with established procurement rules on indirect purchases, or MRO supplies. Instead of a pile of catalogs or personal supplier preferences, the system relies on a master catalog that lists only approved products

IT at Work 6.4

ChemConnect.com—A Full-Service Supplier Portal



Buyers and sellers of chemicals and plastics meet electronically in the vertical commodity exchange ChemConnect (*chemconnect.com*), which formed in 1995. Using this exchange, global chemical industry leaders such as British Petroleum (BP), Dow Chemical, BASF, and Sumitomo reduce trading cycle time and costs while finding new markets and trading partners around the globe.

ChemConnect provides its customers on-demand solutions to improve their supply chain performance. Their *Negotiation Solutions* enable online dynamic bidding events, which are used to both buy materials at a lower cost and to sell finished goods at the highest price. The *Collaboration Hubs* are used by chemical companies around the world to share critical demand, inventory, and order data with their supply chain partners.

Supplier Portal and Collaboration Hub. ChemConnect offers benefits to both suppliers and buyers who invest in the Supply Chain Connect's *Supply Hub*, including

- Up to 50 percent reductions in inventory and safety stocks
- 25 percent reduction in the total cost of processing and filling an order

- 20 percent less time spent on reconciling order, receipt, and invoice data

Justifying the implementation cost of Supply Hub derives from a combination of labor savings and a significant, one-time capital adjustment attributed to lower inventories. The capital adjustment usually pays for the implementation costs several times over.

ChemConnect's private collaboration hubs provide supply chain partners with the ability to share critical real-time order, demand, and inventory information in real time. This capability uses both integrated and Web-based applications to reduce administration costs and lower inventory levels.

Sources: Compiled from *chemconnect.com*, and Case Study: ChemConnect (2008).

Discussion Questions: What are the advantages of the ChemConnect exchange? How can investments in the supplier portal or collaboration hub be justified? How long is the payback period? What are the benefits of Supply Hub?

from authorized vendors. One of the big gains is the elimination of **maverick buying**. Maverick buying is done outside the established system. If the procurement process is too complicated, people will go outside the system and buy from a local vendor. Maverick buying can prove costly not only because that vendor's prices may be high, but it can also keep the company from achieving volume levels that could trigger a new tier of discounts.

Since catalog purchases have high transaction costs, American Express put catalogs from multiple suppliers and from various categories of spending into its master catalog, *CatalogPro*. This catalog makes it easier for users to find the right items and purchase them at contract rates.

4. Functional exchanges. Needed services such as temporary help or extra space are traded on an as-needed basis. For example, *Employease.com* can find temporary labor using employers in its Employease Network. Prices are dynamic and vary depending on supply and demand.

Another important facet of managing procurement is **demand management**—knowing or predicting what to buy, when, and how much. The best procurement cost is zero, when people aren't buying what they don't need.

Review Questions

1. Briefly differentiate between the sell-side marketplace and e-sourcing.
2. What are the two basic goals of e-procurement? How can those goals be met?
3. What is the role of exchanges in B2B?
4. Explain why maverick buying might take place and its impact on procurement costs.

6.4 E-Government

E-commerce models apply to government and the public sector, as you have read in several case examples in prior chapters. Web technologies help the public sector to deal with economic, social, and environmental challenges and to manage their operations

and growth the way that for-profits do. Here we examine the application of Web technologies to nonprofits.

E-government is the use of Internet technology to deliver information and public services to citizens, business partners and suppliers of government entities, and people who work in the public sector. Benefits of e-government are the following:

- Improves the efficiency and effectiveness of the functions of government, including the delivery of public services
- Enables governments to be more transparent to citizens and businesses by giving access to more of the information generated by government
- Offers greater opportunities for citizens to provide feedback to government agencies and to participate in democratic institutions and processes

As a result, e-government may facilitate fundamental changes in the relationships between citizens and governments.

E-government transactions can be divided into three major categories: G2C, G2B, and G2G. In the G2C category, government agencies increasingly are using the Internet to provide services to citizens. An example is *electronic benefits transfer* (EBT), in which governments transfer benefits, such as Social Security and pension payments, directly to recipients' bank accounts or to smart cards.

In G2B, governments use the Internet to sell to or buy from businesses. For example, *electronic tendering systems* using reverse auctions are often mandatory to ensure the best price and quality for government procurement of goods and services. G2G includes intragovernment e-commerce (transactions between different governments) as well as services among different governmental agencies.

E-GOVERNMENT IN THE CLOUD

Government officials, like corporate managers, did not easily embrace cloud computing. But their concerns about cloud computing are decreasing according to a survey of IT decision makers released in mid-2010. The survey conducted by the nonprofit Public Technology Institute (PTI) found that 45 percent of local governments are using some form of cloud computing for applications or services. The findings revealed that an additional 19 percent of local governments planned to implement some form of cloud computing within the year, while 35 percent had no intentions to do so.

Local governments have several options for cloud computing—a public cloud, a private cloud, a regional cloud, a government-operated cloud, or a cloud operated by a vendor on behalf of the government. Budget pressures are a leading factor moving governments into cloud computing solutions.

Two cases of e-government are the city of Carlsbad (carlsbadca.gov/), California, which selected a cloud solution, and the e-government use of smartphone apps to control drunken driving.

THE CITY OF CARLSBAD TURNS TO THE CLOUD

The city of Carlsbad employs 1,100 people and serves more than 100,000 local citizens. The city's workforce devotes a lot of time to team-based projects that depend on communication and collaboration. The city was faced with an outdated e-mail system and no collaboration system—and severe budget constraints. The city needed to replace the aging e-mail system that it managed in-house to provide its employees with improved collaboration.

The city first considered Microsoft Exchange Server 2007 and Microsoft Office Outlook. But the IT department was concerned with whether it would be cost-effective to spend its limited budget on the purchase of hardware and the hiring and training of staff to administer Exchange Server 2007. So the city sent out an RFP to various vendors to compare the costs of a hosted, managed, or on-premises solution. The IT staff explored how to acquire and use IT to get long-term savings. They worked with the consulting company Gartner to understand the value, security, and reliability ramifications of going with a hosted solution and learned that hosting was a viable option.

Therefore, given its limited budget and server expertise, the city decided on a cloud computing solution. This solution avoided on-premises investments with Microsoft's Business Productivity Online Standard Suite, collaboration software hosted at Microsoft data centers. For a low per-user, per-month subscription fee, the suite offers hosted communication and collaboration services that include desktop and mobile e-mail, calendaring and contacts, instant messaging and presence, shared workspaces, and live audiovisual Web conferencing applications.

In February 2009, the city began working with Microsoft Services to plan the migration of 880 GroupWise mailboxes to Exchange Online. On all of its desktops, the city installed Microsoft Office 2007 and the Microsoft Online Services client that provides a **single sign-on** to all online services in the suite. With single sign-on, users log in once and have access to all software and data sources that they are authorized to access. The city used a migration tool from Quest Software that facilitated the municipal government's migration from GroupWise directly to Exchange Online.

The city of Carlsbad is the first public sector entity to deploy the Microsoft Business Productivity Online Standard Suite. The city is benefiting from more flexibility in resource allocation, reduced costs, accelerated deployment, and improved employee productivity. Faced with tough economic times, the cloud solution provides the city with the ability to allocate its finite resources where they'll generate the greatest return on investment (ROI).

E-GOVERNMENT SERVES CITIZENS WITH APPS TO CURB DRUNKEN DRIVING

With widespread use of smartphone applications, several government agencies and app coders have found a promising way to curb drunken driving. In 2010, two iPhone apps were made available. One app called *R-U-Buzzed*, which was released by the Colorado Department of Transportation, estimates blood alcohol content. A mash-up program called *Stumble Safely* gives pedestrians in Washington, D.C., a safe route home after a night at the bar. The *Stumble Safely* app was submitted to the Apps for Democracy contest, which is described in *IT at Work 6.5*.

California's Office of Traffic Safety (OTS) partnered with the popular Taxi Magic app team to promote sober designated drivers, a cab driver in this case. California announced the partnership in May 2010. "It gives those who need to get someplace when they've had too much to drink an easy way to do it," said California OTS spokesman Chris Cochran. "It's one more tool in the anti-DUI [driving under the influence] tactics we have" (Wilkinson, 2010). The free Taxi Magic app, released in January 2009, has become one of the most downloaded apps in Apple's iTunes store. Users who are in a metropolitan area where the service is available can use the app's Magic Book feature to tap one button that phones the cab company and arranges pickup location details.

IT at Work 6.5

Apps for Democracy Community Initiative

In the fall of 2008, the Washington, D.C., Office of the Chief Technology Officer asked iStrategyLabs how it could make DC.gov's Data Catalog (data.octo.dc.gov/) useful for citizens, visitors, businesses, and government agencies. The Data Catalog provides citizens with access to 431 data sets from multiple agencies, featuring real-time crime data feeds, school test scores, and poverty indicators, and is the most comprehensive public data source in the world. The solution was the creation of *Apps for Democracy* (appsfordemocracy.org/), a contest that had cost \$50,000 and returned 47 iPhone, Facebook, and Web applications with an estimated value of \$2,600,000 to the city.

The Apps for Democracy contest challenges citizens to make open-source applications that can access any of the data sets held by the government. The 2009 winning entry was an iPhone program in which users can submit 311 service requests to the district government. The application also interfaces with Facebook.

Sources: Compiled from Data Catalog (data.octo.dc.gov/) and Apps for Democracy (appsfordemocracy.org).

Discussion Questions: Visit the Data Catalog (data.octo.dc.gov/). What value does it provide citizens?

The state agency’s partnership with Taxi Magic came at zero cost and fits its mission to encourage designated drivers and safe driving. The California OTS is the first state agency the company has partnered with, which Taxi Magic did in order to promote safety.

Review Questions

1. What are the benefits of e-government?
2. What is the advantage of using cloud computing as the platform for e-government?
3. What is the purpose of Apps for Democracy?
4. How do e-government apps help stop drunken driving?

6.5 E-Commerce Support Services: Payment and Order Fulfillment

Implementation of e-commerce requires support services. B2B and B2C applications require payments and order fulfillment; portals require content. Figure 6.9 shows the major e-commerce services, which include the following:

- **E-infrastructure:** technology consultants, system developers, integrators, hosting, security, wireless, and networks
- **E-process:** payments and logistics
- **E-markets:** marketing and advertising
- **E-communities:** citizens, audiences, and business partners
- **E-services:** CRM, PRM, and directory services
- **E-content:** Supplied by content providers

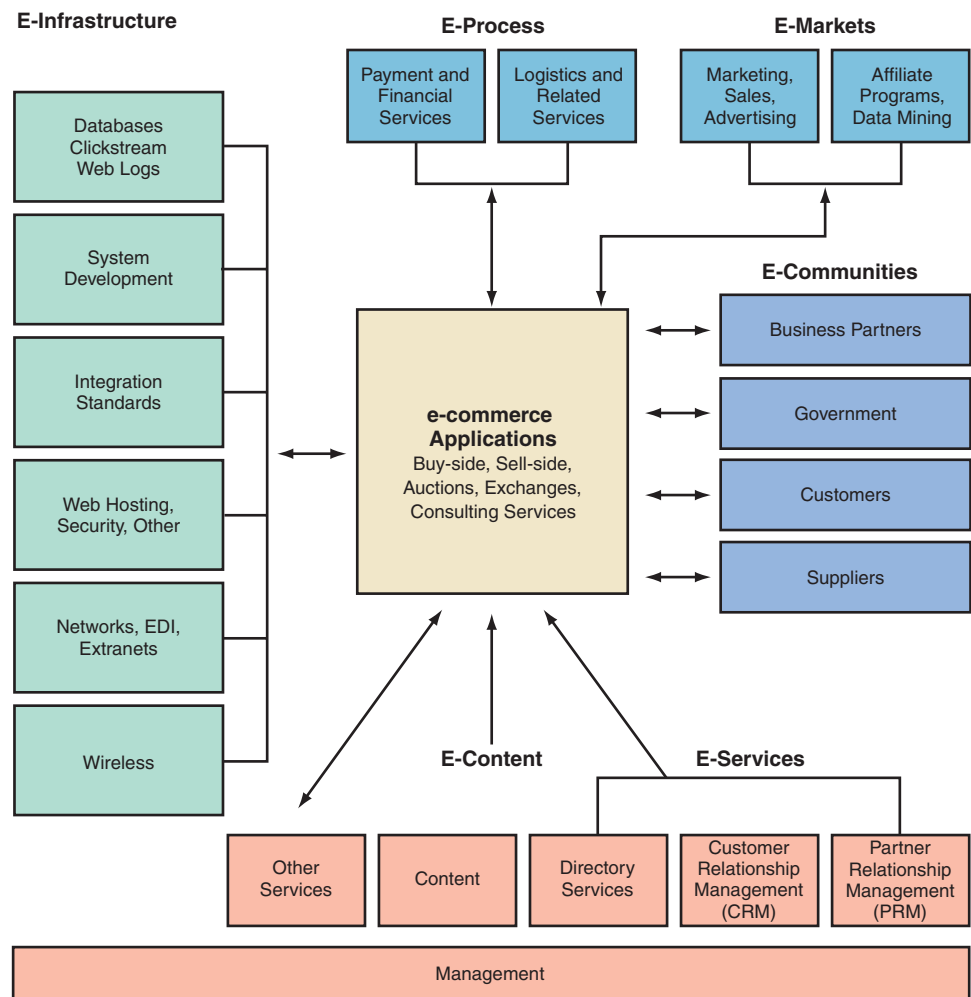


Figure 6.9 E-commerce support services.

All of these services support the e-commerce applications in the center of the figure, and all of the services need to be managed.

MARKET RESEARCH FOR E-COMMERCE

The goal of market research is to find information and knowledge that describe the relationships among consumers, products, marketing methods, and marketers. This information is used to discover marketing opportunities, establish marketing plans, better understand the purchasing process, and evaluate marketing performance. On the Web, the objective is to turn browsers into buyers. Market research includes gathering information about topics such as the economy, industry, firms, products, pricing, distribution, competition, promotion, and consumer purchasing behavior.

WEB ADVERTISING

One of the problems with direct-mail advertising is that advertisers knew very little about the recipients. Market segmentation by various characteristics (e.g., age, income, gender) helped, but did not solve the problem. The Internet introduced the concept of **interactive marketing**, which has enabled marketers and advertisers to interact directly with customers. In interactive marketing, a consumer can click an ad to obtain more information or send an e-mail to ask a question. Besides the two-way communication and e-mail capabilities provided by the Internet, vendors also can target specific groups and individuals on which they want to spend their advertising dollars.

Companies use Internet advertising as one of their advertising channels. At the same time, they also may use TV, newspapers, or other traditional channels. In this respect, the Web competes on a budget with the other channels. The two major business models for advertising online are (1) using the Web as a channel to advertise a firm's own products and services and (2) making a firm's site a public portal site and using captive audiences to advertise products offered by other firms. For example, the audience might come to a P&G Web site to learn about Tide, but they might also receive additional ads for products made by companies other than P&G.

REPRESENTATIVE ADVERTISING STRATEGIES ONLINE

Several advertising strategies can be used over the Internet. In this section, we will present the major strategies used.

Affiliate Marketing and Advertising. Affiliate marketing is the revenue model by which an organization refers consumers to the selling company's Web site. Affiliate marketing is used mainly as a revenue source for the referring organization and as a marketing tool for sellers. However, the fact that the selling company's logo is placed on many other Web sites is free advertising as well. Consider Amazon.com, whose logo can be seen on about 1 million affiliate sites.

Viral Marketing. **Viral marketing** refers to word-of-mouth marketing in which customers promote a product or service by telling others about it. Promotion can be done by tweets, texts, and so on. Having people forward messages to friends, asking them, for example, to "check out this product," is an example of viral marketing. This marketing approach has been used for generations, but now its speed and reach are multiplied by the Internet. This ad model can be used to build brand awareness at a minimal cost because the people who pass on the messages are paid very little or nothing for their efforts.

Customizing Ads. The Internet has too much information for customers to view. Filtering irrelevant information by providing consumers with customized ads can reduce this information overload. The heart of e-marketing is a customer database, which includes registration data and information gleaned from site visits. The companies that advertise via one-to-one advertising use the database to send customized ads to consumers. Using this feature, a marketing manager can customize display ads based on users' profiles. The product also provides market segmentation.

ELECTRONIC PAYMENTS

Payments are an integral part of doing business, whether in the traditional way or online. Unfortunately, in several cases traditional payment systems are not effective for e-commerce, especially for B2B. Contrary to what many people believe, it may be less secure for the buyer to use the telephone or mail to arrange or send payment, especially from another country, than to complete a secured transaction on a computer. For all of these reasons, a better way is needed to pay for goods and services in cyberspace. This better way is *electronic payment systems*, such as PayPal.

There exist several alternatives for paying for goods and services on the Internet. The major ones are summarized in Table 6.4.

The most common methods, paying with credit cards and electronic bill payments, are discussed briefly here.

Electronic Credit Cards. Electronic credit cards make it possible to charge online payments to one's credit card account. For security, only encrypted credit cards should be used. Credit card details can be encrypted by using the SSL protocol in the buyer's computer (available in standard browsers).

Here is how electronic credit cards work: When you buy a book from Amazon, your credit card information and purchase amount are encrypted in your browser, so the information is safe during transmission on the Internet. Furthermore, when this information arrives at Amazon, it is not opened but is transferred automatically in encrypted form to a clearing house, where the information is decrypted for verification and authorization. The complete process of how e-credit cards work is shown in Figure 6.10. Electronic credit cards are used mainly in B2C and in shopping by SMEs (small-to-medium enterprises).

TABLE 6.4 Electronic Payments Methods

Method	Description
Electronic funds transfer	Popular for paying bills online. Money is transferred electronically from payer's account to the recipient's.
Electronic checks	Digitally signed e-check is encrypted and moved from the buying customer to the merchant.
Purchasing e-cards	Corporate credit cards, with limits, work like regular credit cards but must be paid more quickly (e.g., in one week).
E-cash—smart cards	Cards that contain considerable information can be manipulated as needed and used for several purposes, including transfer of money.
E-cash—person-to-person	Special online account from which funds can be sent to others is created. PayPal is the best-known company (an eBay company). You can pay businesses as well. Another example is Yahoo Pay Direct.
Electronic bill presentment and payments	Bills are presented for payer's approval. Payment is made online (e.g., funds transfer). Examples: <i>CheckFree.com</i> , Yahoo Bill Pay.
Pay at ATMs	ATMs allow you to pay monthly bills (e.g., to utility companies) by transferring money from your account to the biller.
Micropayments	Payments are too small to be paid with credit cards. Can be paid with stored-value money cards or with special payment methods, including payments from cell phones.
B2B special methods	Enterprise invoice presentment and payment, wire transfer, and electronic letter of credit are popular methods.

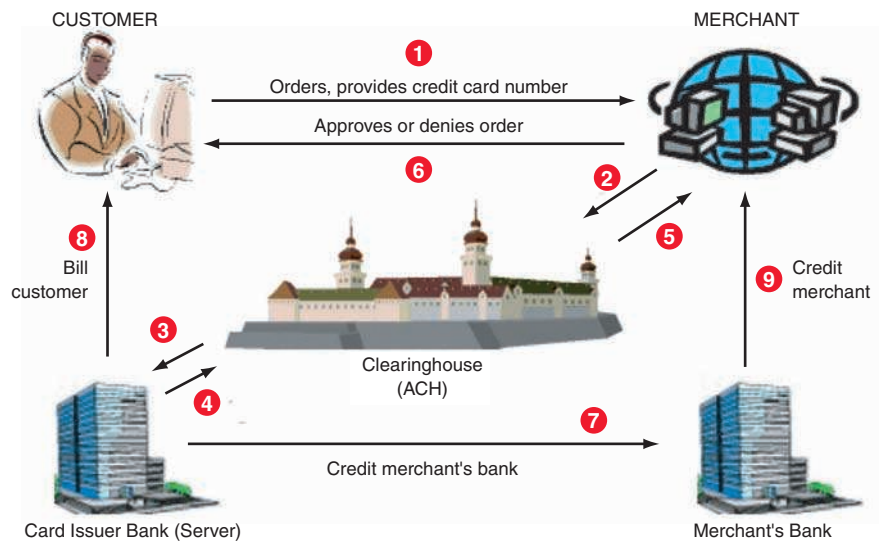


Figure 6.10 The sequence of activities involved in e-credit card processing.

Electronic Bill Payments. There are three major ways to pay bills over the Internet:

1. Online banking. The consumer signs up for a bank's online bill-paying service and makes all payments from a single Web site. Some banks offer the service for free with a checking account or if the account holder maintains a minimum balance.

2. Biller direct. The customer makes payments at each biller's Web site either with a credit card or by giving the biller enough information to complete an electronic withdrawal directly from the customer's bank account. The biller makes the billing information available to the customer (presentment) on its Web site or the site of a billing hosting service. Once the customer views the bill, he or she authorizes and initiates payment at the site. The payment can be made with a credit/debit card or by using the Automated Clearing House (ACH) transfer system. The biller then initiates a payment transaction that moves funds through the payment system, crediting the biller and debiting the customer. This method is known as electronic bill presentment and payments (EBPP).

3. Bill consolidator. The customer enrolls to receive and pay bills for multiple billers with a third-party bill consolidator. The customer's enrollment information is forwarded to every biller that the customer wishes to activate (service initiation). For each billing cycle, the biller sends a bill summary or bill detail directly to the consolidator. The bill summary, which links to the bill detail stored with the biller or the consolidator, is made available to the customer (presentment). The customer views the bill and initiates payment instructions. The consolidator initiates a credit payment transaction that moves funds through the payment system to the biller.

SECURITY IN ELECTRONIC PAYMENTS

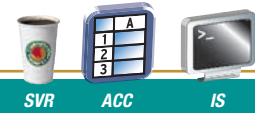
Two main issues need to be considered under the topic of payment security: (1) what is required in order to make e-commerce payments safe and (2) the methods that can be used to do so.

Security Requirements. Security requirements for conducting e-commerce are the following:

- **Authentication.** The buyer, the seller, and the paying institutions must be assured of the identity of the parties with whom they are dealing.
- **Integrity.** It is necessary to ensure that data and information transmitted in e-commerce, such as orders, replies to queries, and payment authorizations, are not accidentally or maliciously altered or destroyed during transmission.

IT at Work 6.6

E-Money: The Future Currency



You walk through the crowded train station in central Tokyo, heading straight for the entry barriers, and you can ignore the people in line at the ticket machines. You take out your mobile phone and wave it at a card reader. A beep is heard and you can pass through, ready for your train.

The growing e-money lifestyle in Japan is making life more convenient for consumers by allowing a number of transactions to be conducted via mobile phone, instead of the traditional paper bills and coins given at the cash register. The system, called Mobile Suica, debuted publicly in January 2006 as an offering by NTT DoCoMo, which is the leading Japanese mobile phone provider, and East Japan Railway. Mobile Suica is a cell phone-based smart card that can be used for buying rail tickets or for accessing buildings. It is based on RFID.

Europe is updating, too, in places such as France, where Societe Generale, in partnership with Visa Europe and Gemalto, introduced a Visa Premier “contactless” bank card in July 2007 for consumers to make small purchases with. In England, the *Evening Standard*, a popular newspaper, is sold at special kiosks where the only contact made is between card and scanner.

The Bank of Japan has not released any figures regarding e-money, but analysts say e-money represents about 20 percent of the ¥300 trillion (US\$2.8 trillion) in Japanese consumer spending. Experts say the new technology will promote the growth of e-money. “With contactless Mobile Suica on your mobile phone, you can check your balance and upload more money into your account at anytime, from anywhere,” said an expert (see Figure 6.11).

There are causes for concern, however, especially for security. “Losing my phone would be like losing my money,” said a consumer. To address these, some mobile phone providers have already introduced biometric security measures that include fingerprint, facial, and voice recognition needed to activate phones.

Sources: Compiled from *International Herald Tribune* (2008), *nttdocomo.com*, and *slashphone.com*.



Figure 6.11 Contactless Mobile Suica on your mobile phone. (Source: Kyodo/Landov LLC)

- **Nonrepudiation.** Merchants need protection against the customer’s unjustified denial of placing an order. On the other hand, customers need protection against merchants’ unjustified denial of payments made. (Such denials, of both types, are called *repudiation*.)
- **Privacy.** Many customers want their identity to be secured. They want to make sure others do not know what they buy. Some prefer complete anonymity, as is possible with cash payments.
- **Safety.** Customers want to be sure that it is safe to provide a credit card number on the Internet. They also want protection against fraud by sellers or by criminals posing as sellers.

ORDER FULFILLMENT

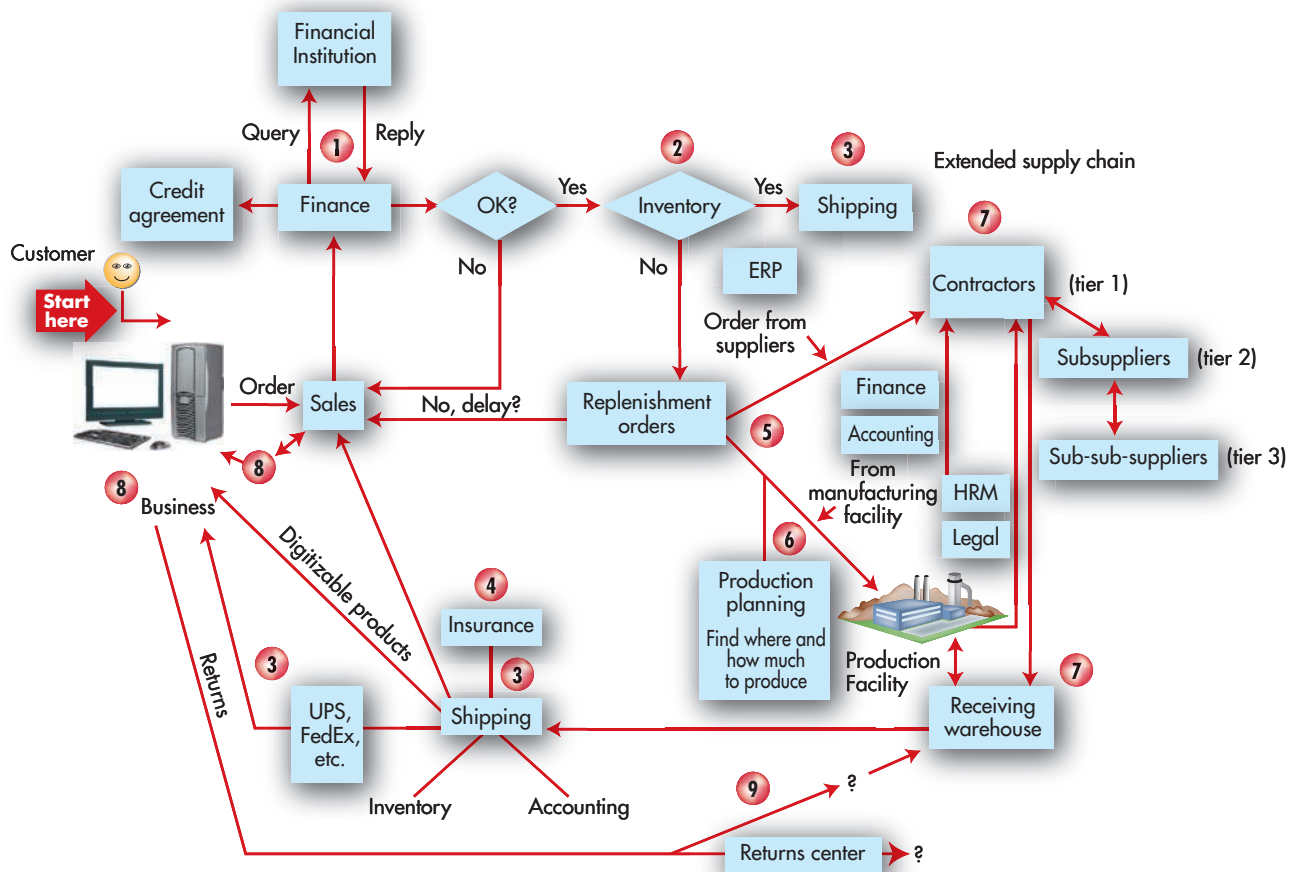
Any time a company directly sells customers a product that is delivered physically, it is involved in various **order fulfillment** activities. It must perform the following activities: quickly find the products to be shipped; pack them; arrange for the packages to be delivered speedily to the customer’s door; collect the money from every customer, either in advance, by COD, or by individual bill; and handle the return of unwanted or defective products.

It is very difficult to accomplish these activities both effectively and efficiently in B2C, since a company may need to ship small packages to many customers quickly. For this reason, both online companies and click-and-mortar companies often have difficulties in their B2C supply chain, and they outsource deliveries and sometimes packaging. Here, we provide a brief overview of order fulfillment.

Order fulfillment includes not only providing customers with what they ordered and doing it on time, but also providing all related customer service. For example, the customer must receive assembly and operation instructions to a new appliance. In addition, if the customer is not happy with a product, an exchange or return must be arranged. Order fulfillment is basically a part of what is called a company's *back-office operations*. *Back-office* activities are inventory control, shipment, and billing.

Order Fulfillment Process. A typical e-commerce fulfillment process is shown in Figure 6.12. The process starts on the left, when an order is received and after verification that it is a real order. Several activities take place, some of which can be done simultaneously; others must be done in sequence. Demand forecasts and accounting are conducted at various points throughout the process.

- **Activity 1:** Assurance of customer payment. Depending on the payment method and prior arrangements, the validity of each payment must be determined. In B2B, the company's finance department or financial institution (i.e., a bank or a credit card issuer) may do this. Any holdup may cause a shipment to be delayed, resulting in a loss of goodwill or a customer.
- **Activity 2:** Check of in-stock availability. Regardless of whether the seller is a manufacturer or a retailer, as soon as an order is received, an inquiry needs to be made regarding stock availability. Several scenarios are possible here that may involve the material management and production departments, as well as outside suppliers and warehouse facilities. In this step, the order information needs to be connected to the information about in-stock inventory availability.



Note: Demand forecasts and accounting are conducted various points throughout the process.

Figure 6.12 Order fulfillment and logistics system.

- **Activity 3:** Shipment arrangement. If the product is available, it can be shipped to the customer right away (otherwise, go to step 5). Products can be digital or physical. If the item is physical and it is readily available, packaging and shipment arrangements need to be made. It may involve the packaging or shipping departments and internal shippers or outside transporters.
- **Activity 4:** Insurance. Sometimes the contents of a shipment need to be insured. This could involve both the finance department and an insurance company, and, again, information needs to flow not only inside the company but also to and from the customer and insurance agent.
- **Activity 5:** Replenishment. Customized orders will always trigger a need for some manufacturing or assembly operation. Similarly, if standard items are out of stock, they need to be produced or procured. Production can be done in-house or by contractors. The suppliers involved may have their own suppliers (subsuppliers or tier-2 suppliers).
- **Activity 6:** In-house production. In-house production needs to be planned. Production planning involves people, materials, components, machines, financial resources, and possibly suppliers and subcontractors. In the case of assembly, manufacturing, or both, several plant services may be needed, including possible collaboration with business partners. Services may include scheduling of people and equipment, shifting other products' plans, working with engineering on modifications, getting equipment, and preparing content. The actual production facilities may be in a different country than the company's headquarters or retailers. This may further complicate the flow of information and communication.
- **Activity 7:** Contractor use. A manufacturer may opt to buy products or sub-assemblies from contractors. Similarly, if the seller is a retailer, such as in the case of Amazon.com or walmart.com, the retailer must purchase products from its manufacturers. Several scenarios are possible. Warehouses can stock purchased items, which is what Amazon.com does with its best-selling books, toys, and other commodity items. However, Amazon.com does not stock books for which it receives only a few orders. In such cases, the publishers or intermediaries must make the special deliveries. In either case, appropriate receiving and quality assurance of incoming materials and products must take place. Once production (step 6) or purchasing from suppliers (step 7) is completed, shipments to the customers (step 3) are arranged.
- **Activity 8:** Contacts with customers. Sales representatives need to keep in constant contact with customers, especially in B2B, starting with notification of orders received and ending with notification of a shipment or a change in delivery date. These contacts are usually done via e-mail and are frequently generated automatically.
- **Activity 9:** Returns. In some cases, customers want to exchange or return items. Such returns can be a major problem, as more than \$100 billion in North American goods are returned each year.

Order fulfillment processes may vary, depending on the product and the vendor. The order fulfillment process also differs between B2B and B2C activities, between the delivery of goods and of services, and between small and large products. Furthermore, certain circumstances, such as in the case of perishable materials or foods, require additional steps.

Review Questions

1. What are the major e-commerce support services?
2. List the security requirements for e-commerce.
3. Describe the issues in e-commerce order fulfillment.
4. List the nine steps of the order fulfillment process.
5. What is the meaning of Internet market research?
6. What are some online advertisement strategies?

6.6 E-Business Ethics and Legal Issues

ETHICAL AND IMPLEMENTATION ISSUES

Ethical standards and laws frequently lag behind technological innovation. E-commerce is taking new forms and enabling new business practices that may bring numerous risks—particularly for individual consumers—along with their advantages. We begin by considering ethical issues relating to e-business. We then examine the legal environment in which e-commerce operates.

Many of the ethical and implementation issues related to IT in general also apply to e-business.

Privacy. Most electronic payment systems know who the buyers are; therefore, it may be necessary to protect the buyers' identities. A privacy issue related to employees also involves tracking: Many companies monitor employees' e-mail and have installed software that performs in-house monitoring of Web activities to discover employees who extensively use company time for non-business-related activities, including harassing other employees. Many employees don't like being watched, but companies may be obligated to monitor.

Web Tracking. Log files are the principal resources from which e-businesses draw information about how visitors use a site. Applying analytics to log files means either turning log data over to an application service provider (ASP) or installing software that can pluck relevant information from files in-house. By using tracking software, companies can track individuals' movements on the Internet. Programs such as cookies raise privacy concerns. The tracking history is stored on your PC's hard drive, and any time you revisit a certain Web site, the computer knows it. In response, some users install programs such as Cookie Cutter, CookieCrusher, and Spam Butcher, which are designed to allow users to have some control over cookies. Or they delete their cookie files.

However, the battle between computer end users and Web trackers has just begun. There are more and more "pesticides" for killing these "parasites." For example, Privacy Guardian, MyPrivacy, and Tracks Eraser Pro are examples of software that can protect users' online privacy by erasing a browser's cache, surfing histories, and cookies. Programs such as Ad-Aware are specially designed to detect and remove spyware.

Loss of Jobs. The use of e-commerce may result in the elimination of some company employees as well as brokers and agents. The manner in which these unneeded workers are treated may raise ethical issues, such as how to handle the displacement and whether to offer retraining programs.

Disintermediation and Reintermediation. One of the most interesting e-commerce issues relating to loss of jobs is that of intermediation. Intermediaries provide two types of services: (1) matching and providing information and (2) value-added services such as consulting. The first type of services (matching and providing information) can be fully automated, and therefore these services are likely to be assumed by e-marketplaces and portals that provide free services. The second type of services (value-added services) requires expertise, and these can be only partially automated. Intermediaries who provide only (or mainly) the first type of service may be eliminated, a phenomenon called **disintermediation** (elimination of the intermediaries).

For example, airlines sell tickets directly to customers, eliminating some travel agents. Direct sales from manufacturers to customers may eliminate retailers. On the other hand, brokers who provide the second type of service or who manage electronic intermediation are not only surviving, but may actually prosper. This phenomenon is called reintermediation. In **reintermediation** of travel agents, for example, new activities may include organizing groups that go to exotic places. Intermediaries may

therefore fight manufacturers because of fear that the traditional sales channel will be negatively affected by online channels. For instance, Walmart and Home Depot warned Black & Decker that they would take its products off their shelves if Black & Decker began to sell its products directly through the Internet. Also, confronted with dealer complaints, Ford executives recently agreed to discontinue plans for future direct online car sales.

LEGAL ISSUES SPECIFIC TO E-COMMERCE

Many legal issues are related to e-commerce. When buyers and sellers do not know each other and cannot even see each other (they may even be in different countries), there is a chance of fraud and other crimes over the Internet. During the first few years of e-commerce, the public witnessed many such instances, ranging from the creation of a virtual bank that disappeared along with the investors' deposits to manipulation of stock prices on the Internet. Unfortunately, fraud on the Internet is increasing.

Review Questions

1. List some ethical issues in e-commerce.
2. List the major legal issues of e-commerce.
3. Define *disintermediation*. Give an example.
4. Define *reintermediation*. Give an example.

Key Terms

auction 167	e-procurement 171	Payment Card Industry Security Standards Council (PCI SSC) 164
business model 158	e-sourcing 171	requests for quotes 166
business-to-business (B2B) 162	government-to-business 163	reintermediation 183
business-to-consumers (B2C) 162	government-to-citizens (G2C) 163	reverse logistics 170
channel 157	government-to-government 163	scalability 163
channel conflict 170	indirect procurement 171	sell-side marketplace 171
comparison shopping engine 157	interactive marketing 177	service-level agreement (SLA) 160
consumers-to-business 162	malvertisement 158	single sign-on 175
corporate purchasing 171	maverick buying 173	spot sourcing 172
demand management 173	mass Web attack 158	systematic sourcing 172
direct procurement 171	mobile commerce 163	viral marketing 177
disintermediation 183	MRO 172	
dot-com era (bubble) 161	multichanneling 157	
e-commerce 158	Payment Card Industry Data Security Standard (PCI DSS) 164	
e-government 174		

Chapter Highlights and Insights

(Numbers refer to Learning Objectives)

- 1 E-commerce offers many benefits to organizations, consumers, and society, but it also has limitations (technological and nontechnological). The current technological limitations are expected to lessen with time.
- 2 The major mechanism of e-commerce is the use of electronic markets, which frequently include online catalogs.
- 2 Another mechanism of e-commerce is auctions. The Internet provides an infrastructure for executing auctions at lower cost, and with many more involved sellers and buyers, including both individual consumers and corporations. Two major types of auctions exist: forward auctions and reverse auctions. Forward auctions are used in the traditional process of *selling* to the highest bidder. Reverse auctions are used for *buying*, using a tendering system to buy at the lowest bid.
- 3 B2C e-tailing can be pure (such as Amazon.com) or part of a click-and-mortar organization (such as Walmart). Direct marketing is done via solo storefronts or in malls. It can be done via electronic catalogs or by using electronic auctions. The leading online B2C service industries are banking, securities trading, job markets, travel, and real estate.
- 3 The major issues faced by e-tailers are channel conflict, conflict within click-and-mortar organizations, order fulfillment, determining viability and risk, and identifying appropriate revenue models.
- 3 The major B2B applications are selling from catalogs and by forward auctions (the sell-side marketplace), buying in reverse auctions and in group and desktop purchasing (the buy-side marketplace), and trading in electronic exchanges.

- 4 E-government commerce can take place between government and citizens, between businesses and governments, or among government units. It makes government operations more effective and efficient.
- 5 New electronic payment systems are needed to complete transactions on the Internet. Electronic payments can be made by e-checks, e-credit cards, purchasing cards, e-cash, stored-value money cards, smart cards, person-to-person payments via services such as PayPal, electronic bill presentment and payment, and e-wallets.
- 5 Order fulfillment is especially difficult and expensive in B2C because of the need to ship relatively small orders to many

customers. Several activities take place, some of which can be done simultaneously; others must be done in sequence. These activities that take place in order fulfillment include (1) making sure the customer will pay, (2) checking for in-stock availability, (3) arranging shipments, (4) insurance, (5) replenishment, (6) in-house production, (7) use of contractors, (8) contacts with customers, and (9) returns (if applicable).

- 6 Ethical and legal issues are persistent and must constantly be addressed.

Questions for Discussion

1. Discuss the reasons for having multiple e-commerce business models in one company.
2. Distinguish between business-to-business forward auctions and buyers' bids for RFQs.
3. Discuss the benefits to sellers and buyers of a B2B exchange.
4. What are the major benefits of e-government? How are they changing?
5. Discuss the various ways to pay online in B2C.
6. Why is order fulfillment in B2C difficult?
7. Discuss the reasons for e-commerce failures.
8. Discuss the role of recommendation agents in e-commerce.
9. What are two of the most pressing ethical issues related to e-commerce?

Exercises and Projects

1. Assume you're interested in buying a car. You can find information about cars at *autos.msn.com*. Go to *autoweb.com* or *autobytel.com* for information about financing and insurance. Decide what car you want to buy. Configure your car by going to the car manufacturer's Web site. Finally, try to find the car from *autobytel.com*. What information is most supportive of your decision-making process? Was the experience pleasant or frustrating?
2. Visit *amazon.com* and identify at least three specific elements of its personalization and customization features. Browse specific books on one particular subject, leave the site, and then go back and revisit the site. What do you see? Are these features likely to encourage you to purchase more books in the future from Amazon.com? Check the One-Click feature and other shopping aids provided. List the features and discuss how they may lead to increased sales.
3. Compare the various electronic payment methods. Specifically, collect information from the vendors cited in the chapter and find more with *google.com*. Pay attention to security level, speed, cost, and convenience.
4. Go to *nacha.org*. What is the National Automated Clearing House Association (NACHA)? What is its role? What is the ACH? Who are the key participants in an ACH e-payment? Describe the "pilot" projects currently underway at ACH.
5. Visit *espn.com*. Identify at least five different ways it makes revenue.
6. Visit *manyeyes.alphaworks.ibm.com/manyeyes/*. Select visualizations from the left-side menu bar. Generate two visualizations. How does visualization improve understanding of the data sets?

Group Assignments and Projects

1. Have each team study a major bank with extensive e-commerce offerings. For example, Wells Fargo Bank is well on its way to being a cyberbank. Hundreds of brick-and-mortar branch offices are being closed. In Spring 2003, the bank served more than 1.2 million cyberaccounts (see *wellsfargo.com*). Other banks to look at are Citicorp, Netbank, and HSBC (Hong Kong). Each team should attempt to convince the class that its e-bank activities are the best.
2. Assign each team to one industry. Each team will find five real-world applications of the major business-to-business models listed in the chapter. (Try success stories of vendors and e-commerce-related magazines.) Examine the problems the applications solve or the opportunities they exploit.
3. Have teams investigate how B2B payments are made in global trade. Consider instruments such as electronic letters of credit and e-checks. Visit *tradecard.com* and

examine their services to SMEs. Also, investigate what Visa and MasterCard are offering. Finally, check Citicorp and some German and Japanese banks.

4. Conduct a study on selling diamonds and gems online. Each group member investigates one company such as *bluenile.com*, *diamond.com*, *thaigem.com*, *tiffany.com*, or *jewelryexchange.com*.
 - a. What features are used in these sites to educate buyers about gemstones?
 - b. How do the sites attract buyers?
 - c. How do the sites increase trust for online purchasing?
 - d. What customer service features are provided?
 - e. Would you buy a \$5,000 diamond ring online? Why or why not?

Internet Exercises

1. Use the Internet to plan a trip to Paris. Visit *lonely-planet.com*, *yahoo.com*, and *expedia.com*.
 - a. Find the lowest airfare.
 - b. Examine a few hotels by class.
 - c. Get suggestions of what to see.
 - d. Find out about local currency, and convert \$1,000 to that currency with an online currency converter.
 - e. Compile travel tips.
 - f. Prepare a report.
2. Access *realtor.com*. Prepare a list of services available on this site. Then prepare a list of advantages to users and advantages to realtors. Are there any disadvantages? To whom?
3. Visit *alibaba.com*. Identify the site's capabilities. Look at the site's private trading room. Write a report. How can such a site help a person who is making a purchase?
4. Visit *campusfood.com*. Explore the site. Why is the site so successful? Could you start a competing one? Why or why not?
5. Enter *housevalues.com* and find the various services it provides under several URLs. What is its revenue model?

BUSINESS CASE

Stormhoek Vineyards Excels with Web 2.0 Tools

Stormhoek Vineyards is a small winery in South Africa (*stormhoek.com*). Annual sales in 2005 were only \$3 million, but with Web 2.0 technologies, sales grew to \$10 million in 2007 and were projected to reach \$30 million in 2010. The company devised a marketing campaign called "100 Geek Dinners in 100 Days." Each dinner was to be hosted by one person and used for wine tasting by several dozen guests in the United Kingdom and the United States. How can you get 100 people to host a wine tasting and how do you find 40 to 60 guests for each event? The answer: Web 2.0 technologies. The company's plan consisted of the following:

- **Blogging.** The CEO of Orbital Wines, Stormhoek's parent company, in collaboration with a well-know blogger, Hugh Macleod, wrote dozens of blog entries about the events, soliciting volunteer hosts, including bloggers (*stormhoek.com/blog*) and wine enthusiasts.
- **Wiki.** Each volunteer was provided with contact and location information on a wiki. The wiki technology was mainly used for customer relations management (CRM). The wiki included wine-related cartoons and other entertainment and advertising.
- **Podcasts.** Web-content feed enabled by an RSS was used to push information to participants' inboxes. Information included wine news, wine analyses, and descriptions of the 100 parties.
- **Video and photo links.** The corporate blog supported video links. Bloggers could cut and paste embedded links to YouTube videos directly into an entry. The company also posted videos on YouTube (*youtube.com/stormhoekwines*) and pictures at *flickr.com/flickr.com/search/?w=all&q=stormhoek&m=text*.

- **Shopping.** The blog site acted as a portal to Stormhoek and included support for order placement and shopping carts for promotional "swag," such as posters and T-shirts.
- **Mashups.** An interactive map was integrated into the wiki using mashup software. This allowed dinner hosts to display a map of the location of the event. Also, guests could click an event on the map to make a reservation, get a reservation confirmation, send a query to the host, and receive photos of the house and the hosts. The company's wiki also had a link to host-blogger's home page.
- **Social networks.** The company has a page at Facebook with news, a discussion group, information, photos, videos, and a dedicated group.

The parties were attended by over 4,500 people, and the publicity enabled the vineyard to triple sales in two years, mainly in the United Kingdom. The only problem was of *blog spam*—random comments that were automatically posted by marketers for promotions. This required a daily cleaning of unwanted postings.

The blogging resulted in word-of-mouth publicity. The blogging was done by a professional blogger, Hugh Macleod, at *gapingvoid.com*. The blog offered a free bottle of wine. Macleod also organized the 100 dinners described earlier. RSS pioneer Dave Winer attended one of the dinners. A final word: Stormhoek wine is really good. Viral marketing cannot sell bad wine.

Sources: Compiled from Bennett (2007), McNichol (2007), *stormhoek.com*, and *New Communications Review* (2006).

Questions

1. What was the corporate blog used for?
2. What were the hosts' blogs used for?
3. What capabilities were introduced by the mashups?

4. How did the wiki help in communication and collaboration?
5. Why do you think the Web 2.0 technologies were successful in increasing sales?
6. What is blog spam and why is it a problem?

NONPROFIT CASE

Canadian Food for the Hungry International Improves Relief Efforts

Canadian Food for the Hungry International (CFHI, fhcanada.org/) is a nonprofit agency located in British Columbia, Canada. CFHI sends emergency relief supplies—food, water, bedding, medical supplies, and other essentials—to disaster-struck and impoverished areas around the world.

CFHI has been expanding its role. It is also a leader in *sustainable development* by working with communities and teaching them to build the skills and resources they need to thrive. Like any growing organization, CFHI found that as its workload increases, so does the need to operate efficiently and to enhance its ability to reach donors via its Web site. CFHI's IT platform could not support the growth and real-time capabilities that the organization needed to continue its mission, which is to make the world a little better.

CFHI implemented NetSuite (netsuite.com). According to CFHI IT manager Mark Petzold, the organization needed to integrate its disparate systems and improve its ability to update its Web site immediately to reflect a natural disaster that had just occurred anywhere in the world. NetSuite was selected because of its flexibility and features, for example, it can put up links on the Web site to take donations almost immediately after a natural disaster. After the 2008 earthquake in China and cyclone in Myanmar, CFHI was taking and getting donations the very next day. That lets the organization get help to those who needed it faster.

Speed and Inventory Management are Crucial to Nonprofits

It's not common to think that at a nonprofit speed is of the essence, marketing and customer relationships are crucial, and so is having cutting-edge IT to make it all happen. At CFHI, all of those capabilities and tools are critical for the following reasons.

- Communities in distress need help fast—and that means donations need to stream in quickly via CFHI's Web site.
- Supply inventories need to be tracked and managed carefully.
- Donors must be treated like customers—able to see results, get answers, and occasionally be reminded that there are even more ways they can help.

CFHI has benefited tremendously from its new IT platform, which supports e-commerce, CRM, inventory management, reporting, marketing, and accounting.

Improved Donor Relationships and Loyalty

Donors want to see the disaster relief efforts in need of their financial support. Now, links on CFHI's Web site can be created almost instantaneously in NetSuite. With the organization's previous system, the same Web site redesign usually required a week and outside help. With easily configurable e-commerce software, online donations come in faster following a disaster—and get where they need to faster. The two key benefits are:

- Online donations have increased by almost 300 percent.
- Reports that used to take one week to compile now take one minute.

B2E—Business-to-Employee Enhancement

Another benefit with NetSuite's Web-based architecture is that CFHI staff can work from any location. Being able to access the CFHI system via the Web greatly enhances employees' productivity.

Dashboards give employees live data on their handhelds. Employees can click and see how many kids they are sponsoring, see how many new donors and donations have come in, and see how these numbers compare to past numbers. They get instant insight into how they are doing and where to focus to best achieve their objectives and mission.

Employees in the call center can access a complete, up-to-date record when a donor calls in, letting them see the caller's history and enabling them to provide more personalized service. That creates a sense of professionalism that helps retain repeat donors.

Sources: Compiled from Canadian Food for the Hungry International (2009) and Netsuite (2010).

Questions

1. Explain the similarities between CFHI's "business" needs and those of a for-profit organization.
2. Compare donor loyalty to customer loyalty.
3. Why does real-time data matter to donors?
4. What are the benefits of NetSuite's architecture?
5. Why are dashboards important to performance?
6. What other enhancements might improve the mission of CFHI?

ANALYSIS USING VISUALIZATION

Creating Visualizations Using Public Online Data Sets

Visit ManyEyes and click onto data sets, *manyeyes.alphaworks.ibm.com/manyeyes/datasets*. Click on “create visualization” and read how to *create a visualization in three easy steps*.

1. Then select a recent data set that has been uploaded to Many Eyes. The link in the “data” column takes you to a view of the data set itself. The blue “Visualize” button lets you visualize the data.
2. Read the other sections of “Learn More.”
3. Create four different visualizations and save each to a file or print your results. Many Eyes uses Java applet technology. In a few browsers, you may need to download Sun’s Java Plugin to see the visualizations.
4. Review and compare your results.
5. What is the value of visualization?

Resources on the Book’s Web Site



More resources and study tools are located on the Student Web Site and on WileyPLUS. You’ll find additional chapter materials and useful Web links. In addition, self-quizzes that provide individualized feedback are available for each chapter.

Case for Chapter 6 is available at wiley.com/college/turban:

6.1 A Decade of E-Government Development in Hong Kong (1998 to 2007)

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