Chapter 9

Achieving Operational Excellence and Customer Intimacy: Enterprise Applications

TECHNOLOGY HELPS NVIDIA ANTICIPATE THE FUTURE

In 1999, NVIDIA made history when it invented the graphics processing unit (GPU). Today, Nvidia's chips can be found in a broad range of products, including video game consoles, smartphones, tablets, auto infotainment systems, and supercomputers. Headquartered in Santa Clara, California, the company has 7,000 employees across 20 countries, and earned $3.5 billion in revenue in 2011.

Because so many Nvidia chips are made for the consumer electronics industry, one of the company's toughest challenges is to accurately forecast customer demand and to adjust its inventory levels accordingly. Consumer trends can be fickle and subject to sudden shifts one way or the other. If, for example, the demand for a video game console drops unexpectedly, Nvidia might be stuck with thousands of excess chips for those systems, which represents a significant loss for the company.

Nvidia's chips are created long before they are sold to customers, requiring production planners to make estimates of how much material the company will need and how much production time to schedule at Nvidia's foundries, which are located primarily in Asia. When Nvidia's customers estimated how many Nvidia chips they would need, Nvidia's planners made their own independent estimates. Using these estimates, Nvidia would buy enough material (primarily silicon wafers) in advance and schedule enough capacity at the company's foundries (which are primarily in Asia) to meet what it thought would be the right level of demand.

Business units would meet with Nvidia's finance unit to discuss the number of chips to be produced, based on high-level estimates. Nvidia's chip operations group, which was responsible for the actual production, never received the forecasts and could only see existing inventory. Nvidia's production department used spreadsheets to create rough inventory forecasts, but those spreadsheets did not allow planners to drill down, sort data by product, compare different types of inventory, or view data by business segment, and the data for these spreadsheets had to be gathered from a number of systems.

Management received a wake-up call when Nvidia switched its old manufacturing process to a 40 nanometer process. The company was forced to carry inventory created by the old manufacturing process as well as for customers who were not ready to change. Management discovered that the current system lacked the ability to handle the complexity of two separate sets of inventory and was unable to balance supply and demand for its new products and its existing products, as well as predict how long it would take for its customers to transition to the 40 nanometer method. Nvidia wound up with way too much inventory, and when it started cutting back, its suppliers were caught off guard.

To address these problems, Nvidia set up a supply chain steering committee to review its supply chain processes. The steering committee recommended that Nvidia replace its spreadsheet-based inventory forecasting system with something more current. SAP software proved to be the logical choice. Most of Nvidia's data were already located within
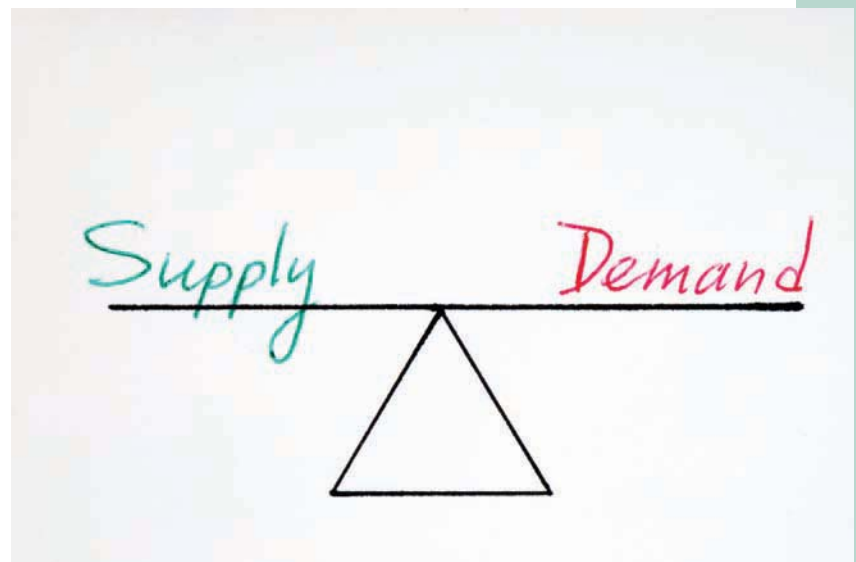
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its SAP advanced planning and optimization (APO) system. Nvidia built a customized interface on top of its APO system for its new inventory forecasting solution using SAP BusinessObjects Web Intelligence. SAP BusinessObjects Web Intelligence is a tool for analyzing business data and creating ad hoc reports, with access to company data via an easy-to-use Web-based interface.

Another part of the solution was to use SAP BusinessObjects Dashboards to create state-of-the-art supply and demand dashboards where executives could easily access high-level inventory data. Using these dashboards, Nvidia executives are able to drill down into details at the product level and to perform forward- and backward-looking calculations, with or without inventory reserves. The information is presented in user-friendly charts and tables.

These solutions allow Nvidia to forecast inventory levels for the next four quarters based on anticipated demand, as well as to view six months' worth of current inventory. The error rate has been reduced to 3 percent or less compared to a 5 percent error rate in the company's old spreadsheet-based forecasts. With a $500 million tied up in inventory, the company saves $25 million by being able to reduce its forecasting errors.

Not only has the new system improved accuracy, the dashboards have also helped to reduce the amount of time required for Nvidia executives and planners to build and approve a forecast. The old manual system required 140 hours to prepare a quarterly forecast; the new system has reduced that to only 30 hours. Best of all, all of Nvidia's inventory data are located centrally and are accessible to all of the company's different business divisions. Nvidia now has a consistent method of forecasting, instead of multiple models, and managers clearly are able to make better decisions.
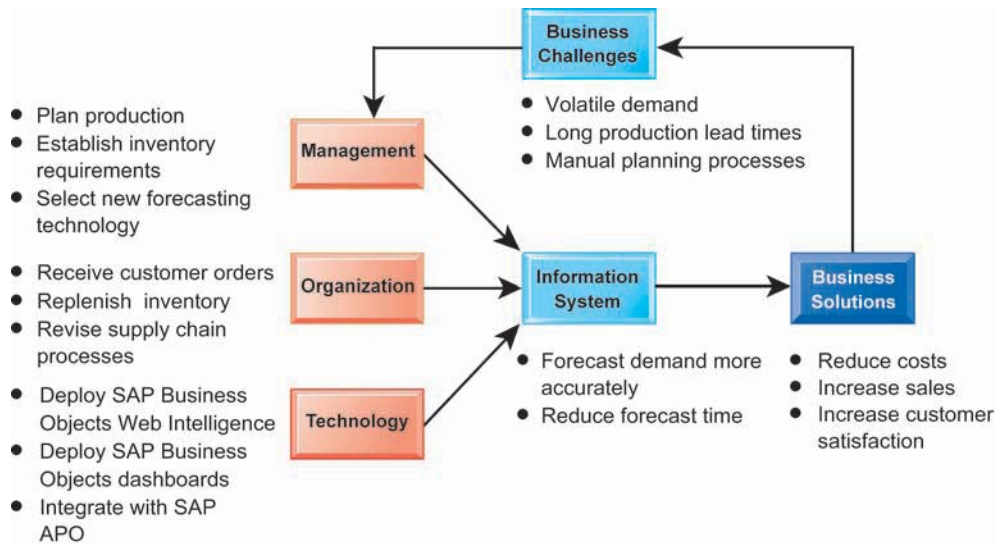
Sources: David Hannon, "Inventory Forecasting at Nvidia," SAP *InsiderPROFILES*, April–June 2012; www.nvidia.com, accessed July 20, 2012; andwww.mysap.com, accessed July 20, 2012.

Nvidia's problems with inventory forecasting illustrate the critical role of supply chain management systems in business. Nvidia's business performance was impeded because it could not balance supply and demand for its products. Costs were unnecessarily high because the company was unable to accurately determine the exact amount of each of its chips needed to fulfill orders and hold just that amount in inventory. Production plans were based on "best guesses." Sometimes this left the company holding too much inventory it couldn't sell or not enough to fulfill customer orders.

The chapter-opening diagram calls attention to important points raised by this case and this chapter. Nvidia supplies the consumer electronics industry, where customer tastes change rapidly and demand is very volatile. The company has a fairly long production lead time required to fulfill orders. Nvidia used a spreadsheet-based planning system that was heavily manual and unable to forecast precisely.

Nvidia's management realized it needed better forecasting tools and appointed a supply chain steering committee to recommend a solution. The company was able to create a much more accurate inventory forecasting system by using SAP BusinessObjects Web Intelligence and BusinessObjects Dashboards to analyze data that had already been captured in its SAP Advanced Planning and Optimization (APO) system. These tools have made it much easier for Nvidia's management to access and analyze production data for forecasting and inventory planning, greatly improving both decision making and operational efficiency.

Here are some questions to think about: How did Nvidia's inability to forecast demand affect its suppliers and customers? How is Nvidia's business affected by having a global supply chain?

- Plan production
- Establish inventory requirements
- Select new forecasting technology

- Receive customer orders
- Replenish inventory
- Revise supply chain processes

- Deploy SAP Business Objects Web Intelligence
- Deploy SAP Business Objects dashboards
- Integrate with SAP APO

Management

Organization

Technology

Business Challenges
- Volatile demand
- Long production lead times
- Manual planning processes

Information System
- Forecast demand more accurately
- Reduce forecast time

Business Solutions
- Reduce costs
- Increase sales
- Increase customer satisfaction

9.1 ENTERPRISE SYSTEMS

Around the globe, companies are increasingly becoming more connected, both internally and with other companies. If you run a business, you'll want to be able to react instantaneously when a customer places a large order or when a shipment from a supplier is delayed. You may also want to know the impact of these events on every part of the business and how the business is performing at any point in time, especially if you're running a large company. Enterprise systems provide the integration to make this possible. Let's look at how they work and what they can do for the firm.

WHAT ARE ENTERPRISE SYSTEMS?

Imagine that you had to run a business based on information from tens or even hundreds of different databases and systems, none of which could speak to one another? Imagine your company had 10 different major product lines, each produced in separate factories, and each with separate and incompatible sets of systems controlling production, warehousing, and distribution.

At the very least, your decision making would often be based on manual hard-copy reports, often out of date, and it would be difficult to really understand what is happening in the business as a whole. Sales personnel might not be able to tell at the time they place an order whether the ordered items are in inventory, and manufacturing could not easily use sales data to plan for new production. You now have a good idea of why firms need a special enterprise system to integrate information.

Chapter 2 introduced enterprise systems, also known as enterprise resource planning (ERP) systems, which are based on a suite of integrated software modules and a common central database. The database collects data from many different divisions and departments in a firm, and from a large number of key business processes in manufacturing and production, finance and accounting, sales and marketing, and human resources, making the data available for applications that support nearly all of an organization's internal business

FIGURE 9.1   HOW ENTERPRISE SYSTEMS WORK
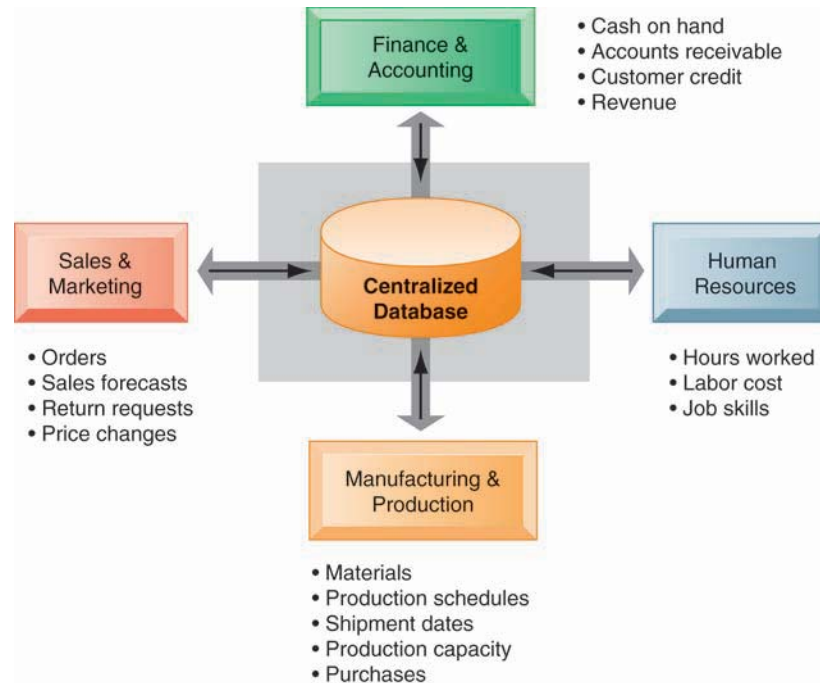
Enterprise systems feature a set of integrated software modules and a central database that enables data to be shared by many different business processes and functional areas throughout the enterprise.

activities. When new information is entered by one process, the information is made immediately available to other business processes (see Figure 9.1).

If a sales representative places an order for tire rims, for example, the system verifies the customer's credit limit, schedules the shipment, identifies the best shipping route, and reserves the necessary items from inventory. If inventory stock were insufficient to fill the order, the system schedules the manufacture of more rims, ordering the needed materials and components from suppliers. Sales and production forecasts are immediately updated. General ledger and corporate cash levels are automatically updated with the revenue and cost information from the order. Users could tap into the system and find out where that particular order was at any minute. Management could obtain information at any point in time about how the business was operating. The system could also generate enterprise-wide data for management analyses of product cost and profitability.

ENTERPRISE SOFTWARE

Enterprise software is built around thousands of predefined business processes that reflect best practices. Table 9.1 describes some of the major business processes supported by enterprise software.

Companies implementing this software would have to first select the functions of the system they wished to use and then map their business processes to the predefined business processes in the software. (One of our Learning Tracks shows how SAP enterprise software handles the procurement process for a new piece of equipment.) A firm would use configuration tables provided by the software manufacturer to tailor a particular aspect of

TABLE 9.1 BUSINESS PROCESSES SUPPORTED BY ENTERPRISE SYSTEMS

Financial and accounting processes, including general ledger, accounts payable, accounts receivable, fixed assets, cash management and forecasting, product-cost accounting, cost-center accounting, asset accounting, tax accounting, credit management, and financial reporting
Human resources processes, including personnel administration, time accounting, payroll, personnel planning and development, benefits accounting, applicant tracking, time management, compensation, workforce planning, performance management, and travel expense reporting
Manufacturing and production processes, including procurement, inventory management, purchasing, shipping, production planning, production scheduling, material requirements planning, quality control, distribution, transportation execution, and plant and equipment maintenance
Sales and marketing processes, including order processing, quotations, contracts, product configuration, pricing, billing, credit checking, incentive and commission management, and sales planning

the system to the way it does business. For example, the firm could use these tables to select whether it wants to track revenue by product line, geographical unit, or distribution channel.

If the enterprise software does not support the way the organization does business, companies can rewrite some of the software to support the way their business processes work. However, enterprise software is unusually complex, and extensive customization may degrade system performance, compromising the information and process integration that are the main benefits of the system. If companies want to reap the maximum benefits from enterprise software, they must change the way they work to conform to the business processes defined by the software.

To implement a new enterprise system, Tasty Baking Company identified its existing business processes and then translated them into the business processes built into the SAP ERP software it had selected. To ensure it obtained the maximum benefits from the enterprise software, Tasty Baking Company deliberately planned for customizing less than 5 percent of the system and made very few changes to the SAP software itself. It used as many tools and features that were already built into the SAP software as it could. SAP has more than 3,000 configuration tables for its enterprise software.

Leading enterprise software vendors include SAP, Oracle, IBM, Infor Global Solutions, and Microsoft. There are versions of enterprise software packages designed for small and medium-sized businesses and on-demand versions, including software services running in the cloud (see Section 9.4).

BUSINESS VALUE OF ENTERPRISE SYSTEMS

Enterprise systems provide value both by increasing operational efficiency and by providing firmwide information to help managers make better decisions. Large companies with many operating units in different locations have used enterprise systems to enforce standard practices and data so that everyone does business the same way worldwide.

Coca-Cola, for instance, implemented a SAP enterprise system to standardize and coordinate important business processes in 200 countries. Lack of standard, company-wide business processes prevented the company from leveraging its worldwide buying power to obtain lower prices for raw materials and from reacting rapidly to market changes.

Enterprise systems help firms respond rapidly to customer requests for information or products. Because the system integrates order, manufacturing, and delivery data, manufacturing is better informed about producing only what

customers have ordered, procuring exactly the right amount of components or raw materials to fill actual orders, staging production, and minimizing the time that components or finished products are in inventory.

Alcoa, the world's leading producer of aluminum and aluminum products with operations spanning 31 countries and over 200 locations, had initially been organized around lines of business, each of which had its own set of information systems. Many of these systems were redundant and inefficient. Alcoa's costs for executing requisition-to-pay and financial processes were much higher and its cycle times were longer than those of other companies in its industry. (Cycle time refers to the total elapsed time from the beginning to the end of a process.) The company could not operate as a single worldwide entity.

After implementing enterprise software from Oracle, Alcoa eliminated many redundant processes and systems. The enterprise system helped Alcoa reduce requisition-to-pay cycle time by verifying receipt of goods and automatically generating receipts for payment. Alcoa's accounts payable transaction processing dropped 89 percent. Alcoa was able to centralize financial and procurement activities, which helped the company reduce nearly 20 percent of its worldwide costs.

Enterprise systems provide much valuable information for improving management decision making. Corporate headquarters has access to up-to-the-minute data on sales, inventory, and production, and uses this information to create more accurate sales and production forecasts. Enterprise software includes analytical tools for using data captured by the system to evaluate overall organizational performance. Enterprise system data have common standardized definitions and formats that are accepted by the entire organization. Performance figures mean the same thing across the company. Enterprise systems allow senior management to easily find out at any moment how a particular organizational unit is performing, determine which products are most or least profitable, and calculate costs for the company as a whole.

For example, Alcoa's enterprise system includes functionality for global human resources management that shows correlations between investment in employee training and quality, measures the company-wide costs of delivering services to employees, and measures the effectiveness of employee recruitment, compensation, and training.

9.2 SUPPLY CHAIN MANAGEMENT SYSTEMS

If you manage a small firm that makes a few products or sells a few services, chances are you will have a small number of suppliers. You could coordinate your supplier orders and deliveries using a telephone and fax machine. But if you manage a firm that produces more complex products and services, then you will have hundreds of suppliers, and your suppliers will each have their own set of suppliers. Suddenly, you are in a situation where you will need to coordinate the activities of hundreds or even thousands of other firms in order to produce your products and services. Supply chain management (SCM) systems, which we introduced in Chapter 2, are an answer to the problems of supply chain complexity and scale.

THE SUPPLY CHAIN

A firm's **supply chain** is a network of organizations and business processes for procuring raw materials, transforming these materials into intermediate and

finished products, and distributing the finished products to customers. It links suppliers, manufacturing plants, distribution centers, retail outlets, and customers to supply goods and services from source through consumption. Materials, information, and payments flow through the supply chain in both directions.

Goods start out as raw materials and, as they move through the supply chain, are transformed into intermediate products (also referred to as components or parts), and finally, into finished products. The finished products are shipped to distribution centers and from there to retailers and customers. Returned items flow in the reverse direction from the buyer back to the seller.

Let's look at the supply chain for Nike sneakers as an example. Nike designs, markets, and sells sneakers, socks, athletic clothing, and accessories throughout the world. Its primary suppliers are contract manufacturers with factories in China, Thailand, Indonesia, Brazil, and other countries. These companies fashion Nike's finished products.

Nike's contract suppliers do not manufacture sneakers from scratch. They obtain components for the sneakers—the laces, eyelets, uppers, and soles—from other suppliers and then assemble them into finished sneakers. These suppliers in turn have their own suppliers. For example, the suppliers of soles have suppliers for synthetic rubber, suppliers for chemicals used to melt the rubber for molding, and suppliers for the molds into which to pour the rubber. Suppliers of laces have suppliers for their thread, for dyes, and for the plastic lace tips.

Figure 9.2 provides a simplified illustration of Nike's supply chain for sneakers; it shows the flow of information and materials among suppliers, Nike, Nike's distributors, retailers, and customers. Nike's contract manufacturers are

FIGURE 9.2 NIKE'S SUPPLY CHAIN
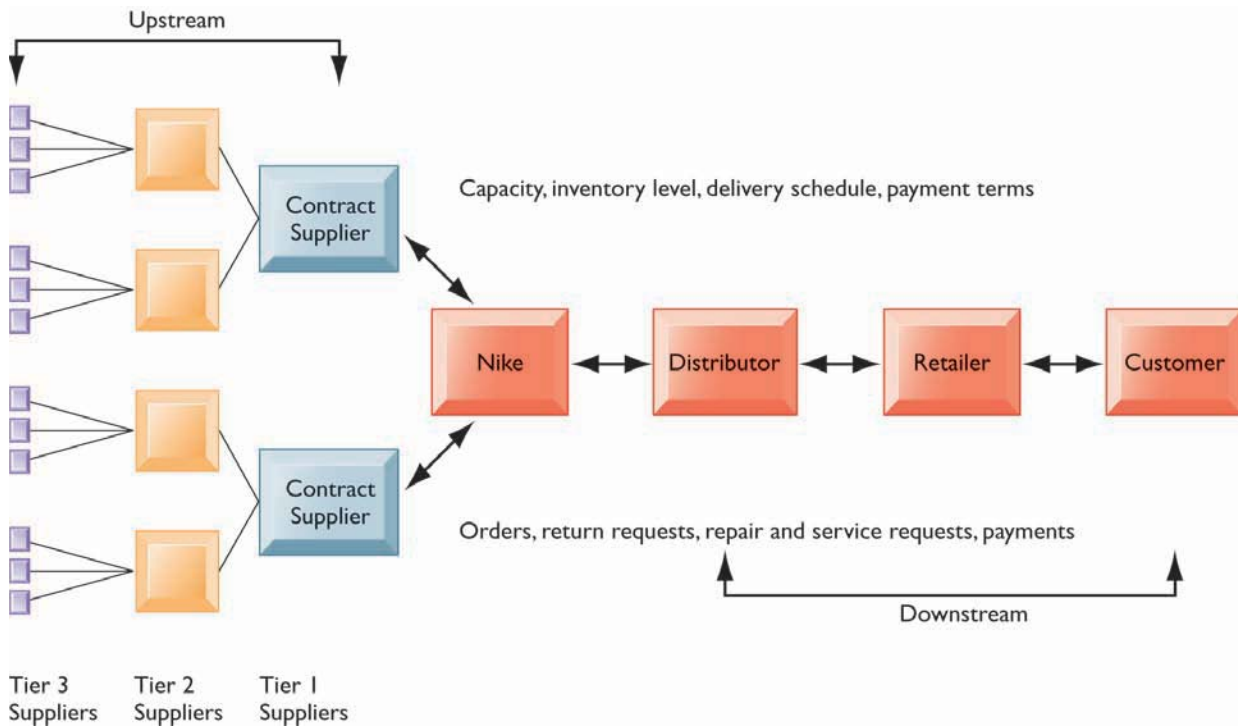
This figure illustrates the major entities in Nike's supply chain and the flow of information upstream and downstream to coordinate the activities involved in buying, making, and moving a product. Shown here is a simplified supply chain, with the upstream portion focusing only on the suppliers for sneakers and sneaker soles.

its primary suppliers. The suppliers of soles, eyelets, uppers, and laces are the secondary (Tier 2) suppliers. Suppliers to these suppliers are the tertiary (Tier 3) suppliers.

The *upstream* portion of the supply chain includes the company's suppliers, the suppliers' suppliers, and the processes for managing relationships with them. The *downstream* portion consists of the organizations and processes for distributing and delivering products to the final customers. Companies doing manufacturing, such as Nike's contract suppliers of sneakers, also manage their own *internal supply chain* processes for transforming materials, components, and services furnished by their suppliers into finished products or intermediate products (components or parts) for their customers and for managing materials and inventory.

The supply chain illustrated in Figure 9.2 has been simplified. It only shows two contract manufacturers for sneakers and only the upstream supply chain for sneaker soles. Nike has hundreds of contract manufacturers turning out finished sneakers, socks, and athletic clothing, each with its own set of suppliers. The upstream portion of Nike's supply chain would actually comprise thousands of entities. Nike also has numerous distributors and many thousands of retail stores where its shoes are sold, so the downstream portion of its supply chain is also large and complex.

INFORMATION SYSTEMS AND SUPPLY CHAIN MANAGEMENT

Inefficiencies in the supply chain, such as parts shortages, underutilized plant capacity, excessive finished goods inventory, or high transportation costs, are caused by inaccurate or untimely information. For example, manufacturers may keep too many parts in inventory because they do not know exactly when they will receive their next shipments from their suppliers. Suppliers may order too few raw materials because they do not have precise information on demand. These supply chain inefficiencies waste as much as 25 percent of a company's operating costs.

If a manufacturer had perfect information about exactly how many units of product customers wanted, when they wanted them, and when they could be produced, it would be possible to implement a highly efficient **just-in-time strategy**. Components would arrive exactly at the moment they were needed and finished goods would be shipped as they left the assembly line.

In a supply chain, however, uncertainties arise because many events cannot be foreseen—uncertain product demand, late shipments from suppliers, defective parts or raw materials, or production process breakdowns. To satisfy customers, manufacturers often deal with such uncertainties and unforeseen events by keeping more material or products in inventory than what they think they may actually need. The *safety stock* acts as a buffer for the lack of flexibility in the supply chain. Although excess inventory is expensive, low fill rates are also costly because business may be lost from canceled orders.

One recurring problem in supply chain management is the **bullwhip effect**, in which information about the demand for a product gets distorted as it passes from one entity to the next across the supply chain. A slight rise in demand for an item might cause different members in the supply chain—distributors, manufacturers, suppliers, secondary suppliers (suppliers' suppliers), and tertiary suppliers (suppliers' suppliers' suppliers)—to stockpile inventory so each

has enough "just in case." These changes ripple throughout the supply chain, magnifying what started out as a small change from planned orders, creating excess inventory, production, warehousing, and shipping costs (see Figure 9.3).

For example, Procter & Gamble (P&G) found it had excessively high inventories of its Pampers disposable diapers at various points along its supply chain because of such distorted information. Although customer purchases in stores were fairly stable, orders from distributors would spike when P&G offered aggressive price promotions. Pampers and Pampers' components accumulated in warehouses along the supply chain to meet demand that did not actually exist. To eliminate this problem, P&G revised its marketing, sales, and supply chain processes and used more accurate demand forecasting.

The bullwhip is tamed by reducing uncertainties about demand and supply when all members of the supply chain have accurate and up-to-date information. If all supply chain members share dynamic information about inventory levels, schedules, forecasts, and shipments, they have more precise knowledge about how to adjust their sourcing, manufacturing, and distribution plans. Supply chain management systems provide the kind of information that helps members of the supply chain make better purchasing and scheduling decisions.

FIGURE 9.3   THE BULLWHIP EFFECT
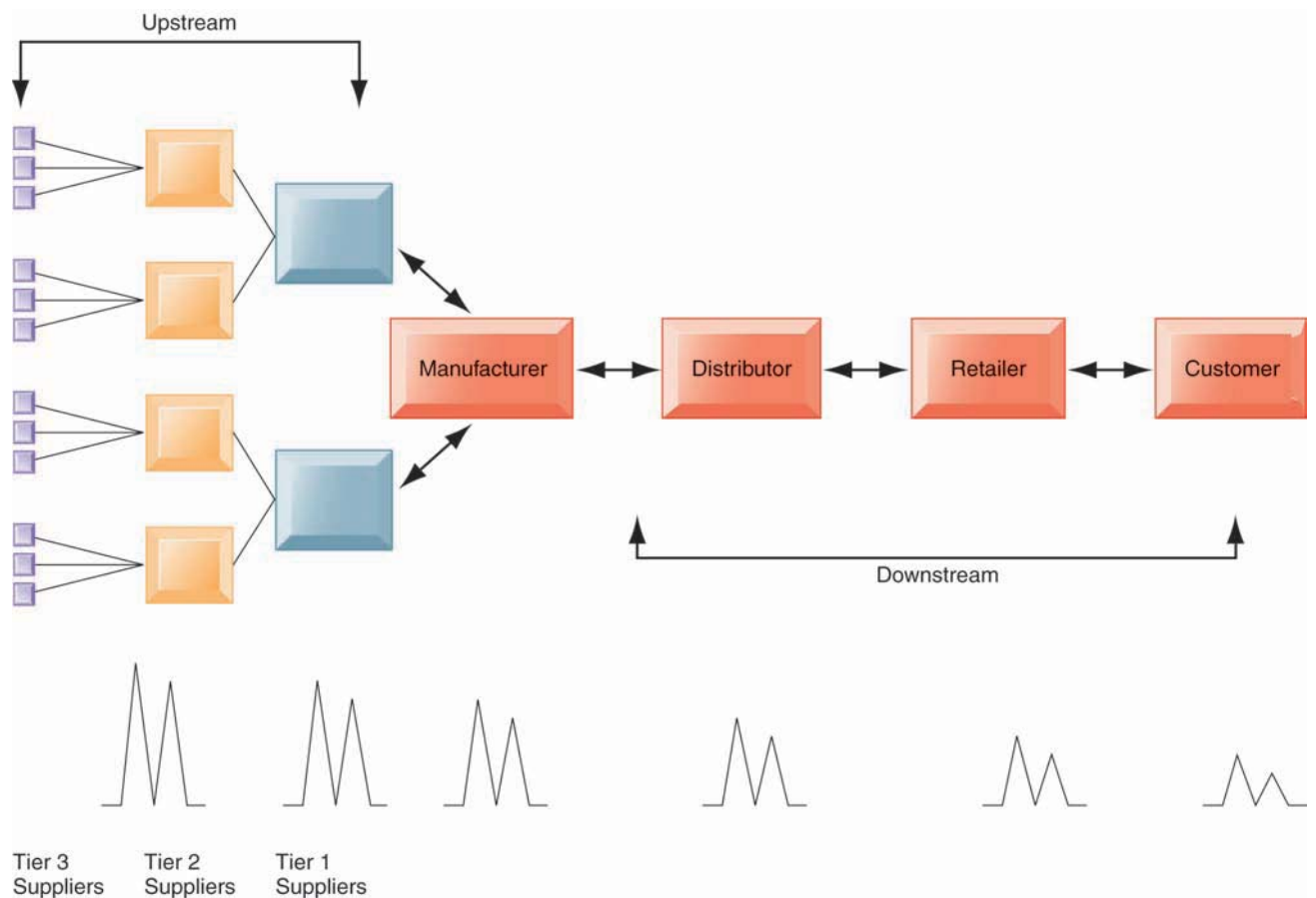
Inaccurate information can cause minor fluctuations in demand for a product to be amplified as one moves further back in the supply chain. Minor fluctuations in retail sales for a product can create excess inventory for distributors, manufacturers, and suppliers.

SUPPLY CHAIN MANAGEMENT SOFTWARE

Supply chain software is classified as either software to help businesses plan their supply chains (supply chain planning) or software to help them execute the supply chain steps (supply chain execution). **Supply chain planning systems** enable the firm to model its existing supply chain, generate demand forecasts for products, and develop optimal sourcing and manufacturing plans. Such systems help companies make better decisions such as determining how much of a specific product to manufacture in a given time period; establishing inventory levels for raw materials, intermediate products, and finished goods; determining where to store finished goods; and identifying the transportation mode to use for product delivery.

For example, if a large customer places a larger order than usual or changes that order on short notice, it can have a widespread impact throughout the supply chain. Additional raw materials or a different mix of raw materials may need to be ordered from suppliers. Manufacturing may have to change job scheduling. A transportation carrier may have to reschedule deliveries. Supply chain planning software makes the necessary adjustments to production and distribution plans. Information about changes is shared among the relevant supply chain members so that their work can be coordinated. One of the most important—and complex—supply chain planning functions is **demand planning**, which determines how much product a business needs to make to satisfy all of its customers' demands. JDA Software, SAP, and Oracle all offer supply chain management solutions.

Supply chain execution systems manage the flow of products through distribution centers and warehouses to ensure that products are delivered to the right locations in the most efficient manner. They track the physical status of goods, the management of materials, warehouse and transportation operations, and financial information involving all parties. The Oracle Transportation Management system used by Land O'Lakes is an example, as is the Warehouse Management System (WMS) used by Haworth Incorporated. Haworth is a world-leading manufacturer and designer of office furniture, with distribution centers in four different states. The WMS tracks and controls the flow of finished goods from Haworth's distribution centers to its customers. Acting on shipping plans for customer orders, the WMS directs the movement of goods based on immediate conditions for space, equipment, inventory, and personnel.

The Interactive Session on organizations describes how DP World is using RFID technology to increase the efficiency of its customers' supply chains. Through the use of RFID-enabled scanning and tracking technology, DP World is enhancing customer satisfaction through optimized supply chain flow, which is enabling smoother, faster, and more effective delivery of customers' containers.

GLOBAL SUPPLY CHAINS AND THE INTERNET

Before the Internet, supply chain coordination was hampered by the difficulties of making information flow smoothly among disparate internal supply chain systems for purchasing, materials management, manufacturing, and distribution. It was also difficult to share information with external supply chain partners because the systems of suppliers, distributors, or logistics providers were based on incompatible technology platforms and standards. Enterprise and supply chain management systems enhanced with Internet technology supply some of this integration.

INTERACTIVE SESSION: ORGANIZATIONS

DP WORLD TAKES PORT MANAGEMENT TO THE NEXT LEVEL WITH RFID

DP (Dubai Ports) World has reason to be proud of its accomplishment of becoming one of the leading terminal operators in the world. Today, DP World has 60 terminals across 6 continents, and 11 new terminals are under development. The firm employs an international professional team of more than 30,000 people to serve customers in some of the most dynamic economies in the world.

DP World has adopted a customer-centric approach to enhancing its customers' supply chains by providing quality, innovative services to effectively manage container, bulk, and other terminal cargo. The firm invests heavily in terminal infrastructures, technologies, and people to best serve its customers.

Like other global port and terminal operators, DP World helps shippers around the world address the often complex and costly challenges of managing the supply chain. One of the typical problems encountered in container terminal operations is traffic congestion at port entry points. This congestion is often due to delays introduced by lengthy procedures and paper-based logistics. In response, DP World has introduced many IT-based solutions to enhance terminal capacity utilization. These solutions include the electronic custom release of cargo, Electronic Data Interchange (EDI) reporting, two-way digital radio communications, and the "e-token" advanced booking system.

DP World management wanted to take things a step further and decided to make the loading and unloading of containers operate on "just in time" principles to improve container turnaround. It found that Radio Frequency Identification (RFID) technology was an effective way of increasing the efficiency of truck movements through port access gates. Today, DP World uses RFID-enabled automatic gate systems at the port terminals it operates in Dubai and Australia. According to Mohammed Al Muallem, managing director of DP World UAE, the introduction of an automated gate system would not only eliminate traffic congestion but would also help to eliminate a number of lengthy procedures, increasing productivity at the ports, and improving customer satisfaction. This will in turn, increase the turnaround of shipping goods.

Prior to the RFID deployment, DP World spent several months performing proof-of-concept trials involving several competing RFID suppliers. Because of the rugged environmental conditions at the ports, DP World required that 99.5 percent of all tags be read successfully, which was a key challenge for many vendors. After extensive testing and evaluation, DP World selected Identec Solutions, a global leader in active wireless tracking solutions, as its RFID supplier.

How does the RFID tracking system work? Trucks that visit a port terminal are equipped with active RFID tags supplied by Identec Solutions that are fixed on the rear chassis. As a truck moves towards the gate, its unique tag ID number is read by an RFID reader, which is integrated with an automated gate system. At the gate, an optical character recognition (OCR) system determines if the truck is loaded with a container, identifies the ID number of the truck's container, and reads the truck license plate number as a backup identification. The system uses the supplied information to automatically issue a ticket to the driver that specifies the lane the truck should proceed to in order to load or unload the container. The system can also automatically determine if the truck is on time, which is essential information for the efficient pickup and drop off of containers. As the truck leaves the gate, the RFID tag is read once again, and the driver receives a receipt for the completed transaction.

RFID has enabled DP World to increase the productivity of container handoffs, speed the entry and exit of trucks through terminal gates, and increase fuel efficiency. Victoria Rose, regional office project coordinator at DP World Sydney maintained that RFID would improve gate efficiency through improved truck management, reducing queues and congestion around gates, and removing the number of trucks from public roads by streamlining procedures.

Identec's RFID-based solution has also enabled DP World to improve customer satisfaction by enhancing the efficiency of customers' supply chains through smoother, faster, and more effective delivery of their containers at terminal gates. The elimination of lengthy paper transactions and

manual inspections at gates and the reduction in manual data input errors demonstrate DP World's customer-centric approach to delivering a superior level of service. The technology also allows transport companies to save time, increase revenues, and reduce costs.

DP World's use of RFID has also helped it to tighten security by providing better accuracy on inbound and outbound truck movements through the terminals. For instance, the system can automatically check whether a truck has a booking and whether it is authorized to enter the port.

As a next step, DP World will consider expanding its use of RFID-enabled scanning and tracking technology to further optimize supply chain flow. In the future, Rose hopes DP World will focus on

investigating its use within the yard, and how data captured can be used.

Sources: Dave Friedlos, "RFID Boosts DP World's Productivity in Australia," RFID Journal, July 27, 2009 (www.rfidjournal.com/article/ view/5086, accessed October 20, 2010); Rhea Wessel, "DP World Ramps Up Its Dubai Deployment," RFID Journal, August 13, 2009 (www.rfidjournal.com/article/view/5130, accessed October 20, 2010); "DP World UAE Implements Automated Gate System at Jebel Ali Port," The Zone, May-June 2008 (www.jafza.ae/mediafiles/ 2008/10/23/20081023_Issue-11.pdf, accessed October 20, 2010), p. 11; DP World (www.dpworld.com, accessed October 20, 2010); Identec Solutions (www.identecsolutions.com, accessed October 20, 2010).

Case contributed by Faouzi Kamoun, The University of Dubai

CASE STUDY QUESTIONS

1. How did Identec Solutions' RFID-based technology help DP World increase the efficiency and effectiveness of its customers' supply chains?

2. Describe two improvements that resulted from implementing the Identec RFID-based solution.

3. How does the concept of supply chain execution relate to this interactive session?

4. What managerial, organizational, and technological challenges might DP World have faced in the early stages of the RFID project's deployment?

A manager uses a Web interface to tap into suppliers' systems to determine whether inventory and production capabilities match demand for the firm's products. Business partners use Web-based supply chain management tools to collaborate online on forecasts. Sales representatives access suppliers' production schedules and logistics information to monitor customers' order status.

Global Supply Chain Issues

More and more companies are entering international markets, outsourcing manufacturing operations, and obtaining supplies from other countries as well as selling abroad. Their supply chains extend across multiple countries and regions. There are additional complexities and challenges to managing a global supply chain.

Global supply chains typically span greater geographic distances and time differences than domestic supply chains and have participants from a number of different countries. Performance standards may vary from region to region or from nation to nation. Supply chain management may need to reflect foreign government regulations and cultural differences.

The Internet helps companies manage many aspects of their global supply chains, including sourcing, transportation, communications, and international finance. Today's apparel industry, for example, relies heavily on outsourcing to contract manufacturers in China and other low-wage countries. Apparel companies are starting to use the Web to manage their global supply chain and production issues. (Review the discussion of Li & Fung in Chapter 3.)

In addition to contract manufacturing, globalization has encouraged outsourcing warehouse management, transportation management, and related operations to third-party logistics providers, such as UPS Supply Chain Solutions and Schneider Logistics Services. These logistics services offer Web-based software to give their customers a better view of their global supply chains. Customers are able to check a secure Web site to monitor inventory and shipments, helping them run their global supply chains more efficiently.

Demand-Driven Supply Chains: From Push to Pull Manufacturing and Efficient Customer Response

In addition to reducing costs, supply chain management systems facilitate efficient customer response, enabling the workings of the business to be driven more by customer demand. (We introduced efficient customer response systems in Chapter 3.)

Earlier supply chain management systems were driven by a push-based model (also known as build-to-stock). In a **push-based model**, production master schedules are based on forecasts or best guesses of demand for products, and products are "pushed" to customers. With new flows of information made possible by Web-based tools, supply chain management more easily follows a pull-based model. In a **pull-based model**, also known as a demand-driven or build-to-order model, actual customer orders or purchases trigger events in the supply chain. Transactions to produce and deliver only what customers have ordered move up the supply chain from retailers to distributors to manufacturers and eventually to suppliers. Only products to fulfill these orders move back down the supply chain to the retailer. Manufacturers use only actual order demand information to drive their production schedules and the procurement of components or raw materials, as illustrated in Figure 9.4. Walmart's continuous replenishment system described in Chapter 3 is an example of the pull-based model.

The Internet and Internet technology make it possible to move from sequential supply chains, where information and materials flow sequentially from company to company, to concurrent supply chains, where information flows in many directions simultaneously among members of a supply chain network. Complex supply networks of manufacturers, logistics suppliers, outsourced manufacturers, retailers, and distributors are able to adjust immediately to changes in schedules or orders. Ultimately, the Internet could create a "digital logistics nervous system" throughout the supply chain (see Figure 9.5).

BUSINESS VALUE OF SUPPLY CHAIN MANAGEMENT SYSTEMS

You have just seen how supply chain management systems enable firms to streamline both their internal and external supply chain processes and provide management with more accurate information about what to produce, store, and move. By implementing a networked and integrated supply chain management system, companies match supply to demand, reduce inventory

FIGURE 9.4 **PUSH- VERSUS PULL-BASED SUPPLY CHAIN MODELS**
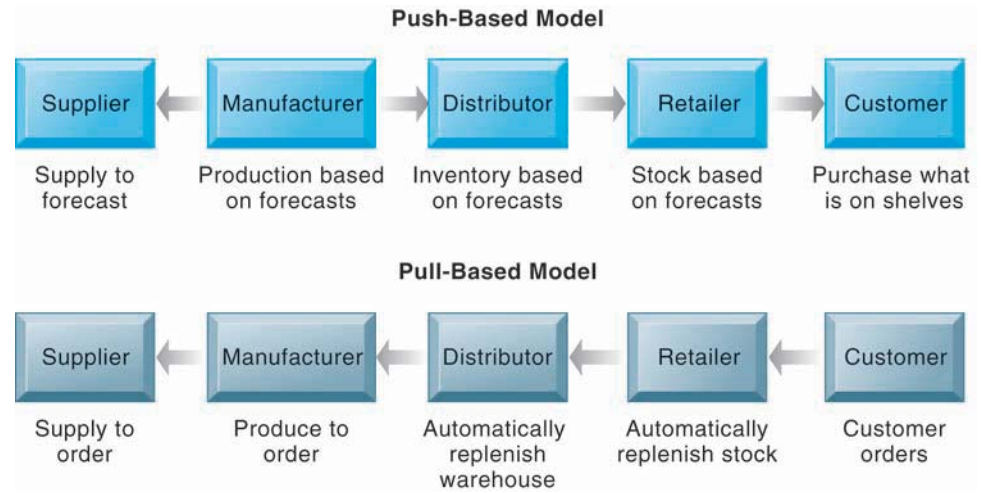
The difference between push- and pull-based models is summarized by the slogan "Make what we sell, not sell what we make."

levels, improve delivery service, speed product time to market, and use assets more effectively.

Total supply chain costs represent the majority of operating expenses for many businesses and in some industries approach 75 percent of the total operating budget. Reducing supply chain costs has a major impact on firm profitability.

FIGURE 9.5 **THE EMERGING INTERNET-DRIVEN SUPPLY CHAIN**
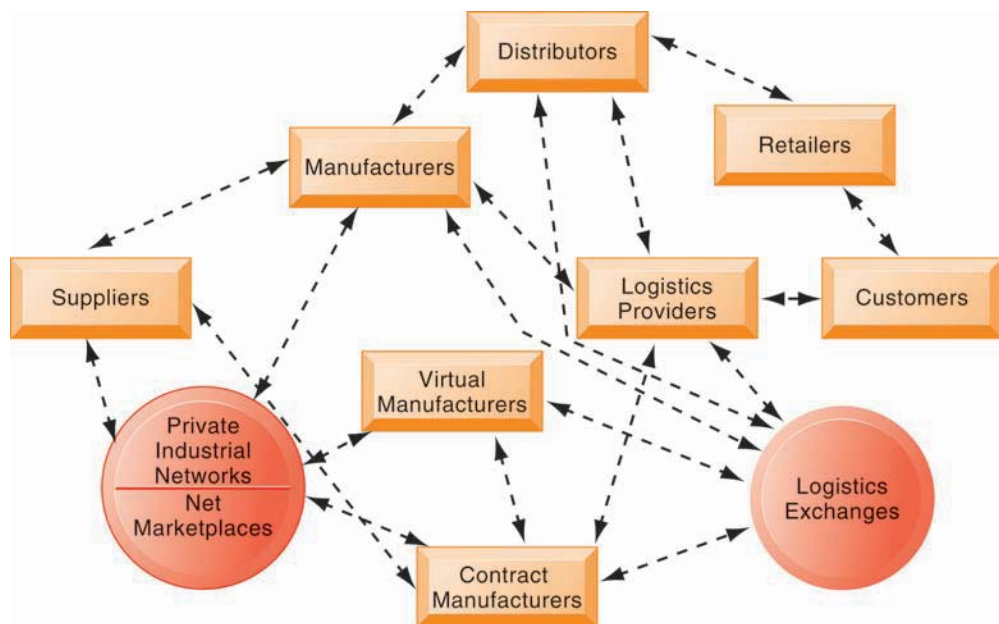
The emerging Internet-driven supply chain operates like a digital logistics nervous system. It provides multidirectional communication among firms, networks of firms, and e-marketplaces so that entire networks of supply chain partners can immediately adjust inventories, orders, and capacities.

In addition to reducing costs, supply chain management systems help increase sales. If a product is not available when a customer wants it, customers often try to purchase it from someone else. More precise control of the supply chain enhances the firm's ability to have the right product available for customer purchases at the right time.

9.3 CUSTOMER RELATIONSHIP MANAGEMENT SYSTEMS

You've probably heard phrases such as "the customer is always right" or "the customer comes first." Today these words ring truer than ever. Because competitive advantage based on an innovative new product or service is often very short lived, companies are realizing that their most enduring competitive strength may be their relationships with their customers. Some say that the basis of competition has switched from who sells the most products and services to who "owns" the customer, and that customer relationships represent a firm's most valuable asset.

WHAT IS CUSTOMER RELATIONSHIP MANAGEMENT?

What kinds of information would you need to build and nurture strong, long-lasting relationships with customers? You'd want to know exactly who your customers are, how to contact them, whether they are costly to service and sell to, what kinds of products and services they are interested in, and how much money they spend on your company. If you could, you'd want to make sure you knew each of your customers well, as if you were running a small-town store. And you'd want to make your good customers feel special.

In a small business operating in a neighborhood, it is possible for business owners and managers to really know their customers on a personal, face-to-face basis. But in a large business operating on a metropolitan, regional, national, or even global basis, it is impossible to "know your customer" in this intimate way. In these kinds of businesses there are too many customers and too many different ways that customers interact with the firm (over the Web, the phone, e-mail, blogs, and in person). It becomes especially difficult to integrate information from all theses sources and to deal with the large numbers of customers.

A large business's processes for sales, service, and marketing tend to be highly compartmentalized, and these departments do not share much essential customer information. Some information on a specific customer might be stored and organized in terms of that person's account with the company. Other pieces of information about the same customer might be organized by products that were purchased. There is no way to consolidate all of this information to provide a unified view of a customer across the company.

This is where customer relationship management systems help. Customer relationship management (CRM) systems, which we introduced in Chapter 2, capture and integrate customer data from all over the organization, consolidate the data, analyze the data, and then distribute the results to various systems and customer touch points across the enterprise. A **touch point** (also known as a contact point) is a method of interaction with the customer, such as telephone, e-mail, customer service desk, conventional mail, Facebook, Twitter, Web site, wireless device, or retail store. Well-designed CRM systems provide a

FIGURE 9.6   **CUSTOMER RELATIONSHIP MANAGEMENT (CRM)**

CRM systems examine customers from a multifaceted perspective. These systems use a set of integrated applications to address all aspects of the customer relationship, including customer service, sales, and marketing.

single enterprise view of customers that is useful for improving both sales and customer service (see Figure 9.6.)

Good CRM systems provide data and analytical tools for answering questions such as these: What is the value of a particular customer to the firm over his or her lifetime? Who are our most loyal customers? It can cost six times more to sell to a new customer than to an existing customer. Who are our most profitable customers? What do these profitable customers want to buy? Firms use the answers to these questions to acquire new customers, provide better service and support to existing customers, customize their offerings more precisely to customer preferences, and provide ongoing value to retain profitable customers.

CUSTOMER RELATIONSHIP MANAGEMENT SOFTWARE

Commercial CRM software packages range from niche tools that perform limited functions, such as personalizing Web sites for specific customers, to large-scale enterprise applications that capture myriad interactions with customers, analyze them with sophisticated reporting tools, and link to other major enterprise applications, such as supply chain management and enterprise systems. The more comprehensive CRM packages contain modules for **partner relationship management (PRM)** and **employee relationship management (ERM)**.

PRM uses many of the same data, tools, and systems as customer relationship management to enhance collaboration between a company and its selling partners. If a company does not sell directly to customers but rather works through distributors or retailers, PRM helps these channels sell to customers directly. It provides a company and its selling partners with the ability to trade information and distribute leads and data about customers, integrating lead generation, pricing, promotions, order configurations, and availability. It also

provides a firm with tools to assess its partners' performances so it can make sure its best partners receive the support they need to close more business.

ERM software deals with employee issues that are closely related to CRM, such as setting objectives, employee performance management, performance-based compensation, and employee training. Major CRM application software vendors include Oracle, SAP, Salesforce.com, and Microsoft Dynamics CRM.

Customer relationship management systems typically provide software and online tools for sales, customer service, and marketing. We briefly describe some of these capabilities.

Sales Force Automation (SFA)

Sales force automation modules in CRM systems help sales staff increase their productivity by focusing sales efforts on the most profitable customers, those who are good candidates for sales and services. CRM systems provide sales prospect and contact information, product information, product configuration capabilities, and sales quote generation capabilities. Such software can assemble information about a particular customer's past purchases to help the salesperson make personalized recommendations. CRM software enables sales, marketing, and delivery departments to easily share customer and prospect information. It increases each salesperson's efficiency in reducing the cost per sale as well as the cost of acquiring new customers and retaining old ones. CRM software also has capabilities for sales forecasting, territory management, and team selling.
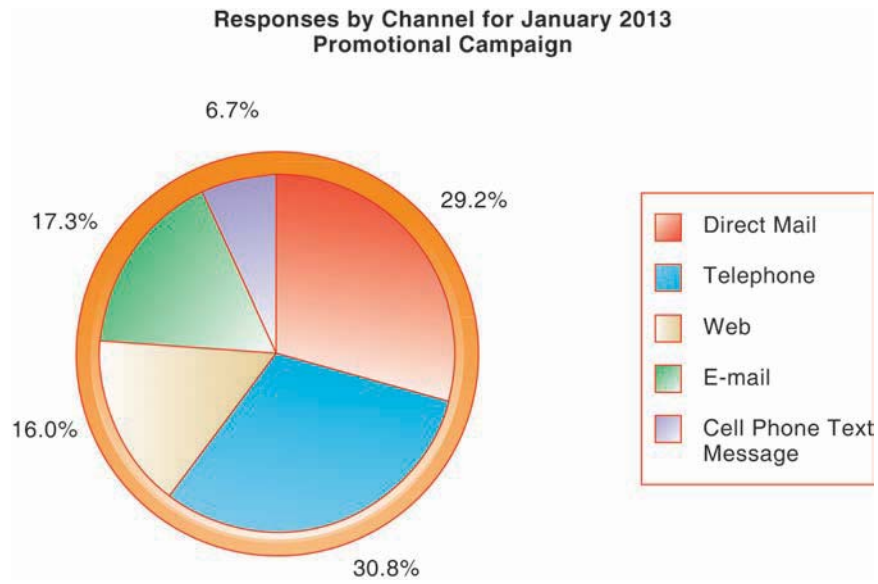
Customer Service

Customer service modules in CRM systems provide information and tools to increase the efficiency of call centers, help desks, and customer support staff. They have capabilities for assigning and managing customer service requests.

One such capability is an appointment or advice telephone line: When a customer calls a standard phone number, the system routes the call to the correct service person, who inputs information about that customer into the system only once. Once the customer's data are in the system, any service representative can handle the customer relationship. Improved access to consistent and accurate customer information helps call centers handle more calls per day and decrease the duration of each call. Thus, call centers and customer service groups achieve greater productivity, reduced transaction time, and higher quality of service at lower cost. The customer is happier because he or she spends less time on the phone restating his or her problem to customer service representatives.

CRM systems may also include Web-based self-service capabilities: The company Web site can be set up to provide inquiring customers personalized support information as well as the option to contact customer service staff by phone for additional assistance.

Marketing

CRM systems support direct-marketing campaigns by providing capabilities for capturing prospect and customer data, for providing product and service information, for qualifying leads for targeted marketing, and for scheduling and tracking direct-marketing mailings or e-mail (see Figure 9.7). Marketing modules also include tools for analyzing marketing and customer data, identifying profitable and unprofitable customers, designing products and services to satisfy specific customer needs and interests, and identifying opportunities for cross-selling.

FIGURE 9.7   HOW CRM SYSTEMS SUPPORT MARKETING

Responses by Channel for January 2013 Promotional Campaign

6.7%
29.2%
17.3%
16.0%
30.8%

Direct Mail
Telephone
Web
E-mail
Cell Phone Text Message

Customer relationship management software provides a single point for users to manage and evaluate marketing campaigns across multiple channels, including e-mail, direct mail, telephone, the Web, and wireless messages.

Cross-selling is the marketing of complementary products to customers. (For example, in financial services, a customer with a checking account might be sold a money market account or a home improvement loan.) CRM tools also help firms manage and execute marketing campaigns at all stages, from planning to determining the rate of success for each campaign.

Figure 9.8 illustrates the most important capabilities for sales, service, and marketing processes that would be found in major CRM software products. Like enterprise software, this software is business-process driven, incorporating hundreds of business processes thought to represent best practices in each of these areas. To achieve maximum benefit, companies need to revise and model their business processes to conform to the best-practice business processes in the CRM software.

Figure 9.9 illustrates how a best practice for increasing customer loyalty through customer service might be modeled by CRM software. Directly servicing customers provides firms with opportunities to increase customer retention by singling out profitable long-term customers for preferential treatment. CRM software can assign each customer a score based on that person's value and loyalty to the company and provide that information to help call centers route each customer's service request to agents who can best handle that customer's needs. The system would automatically provide the service agent with a detailed profile of that customer that includes his or her score for value and loyalty. The service agent would use this information to present special offers or additional service to the customer to encourage the customer to keep transacting business with the company. You will find more information on other best-practice business processes in CRM systems in our Learning Tracks.

FIGURE 9.8   CRM SOFTWARE CAPABILITIES
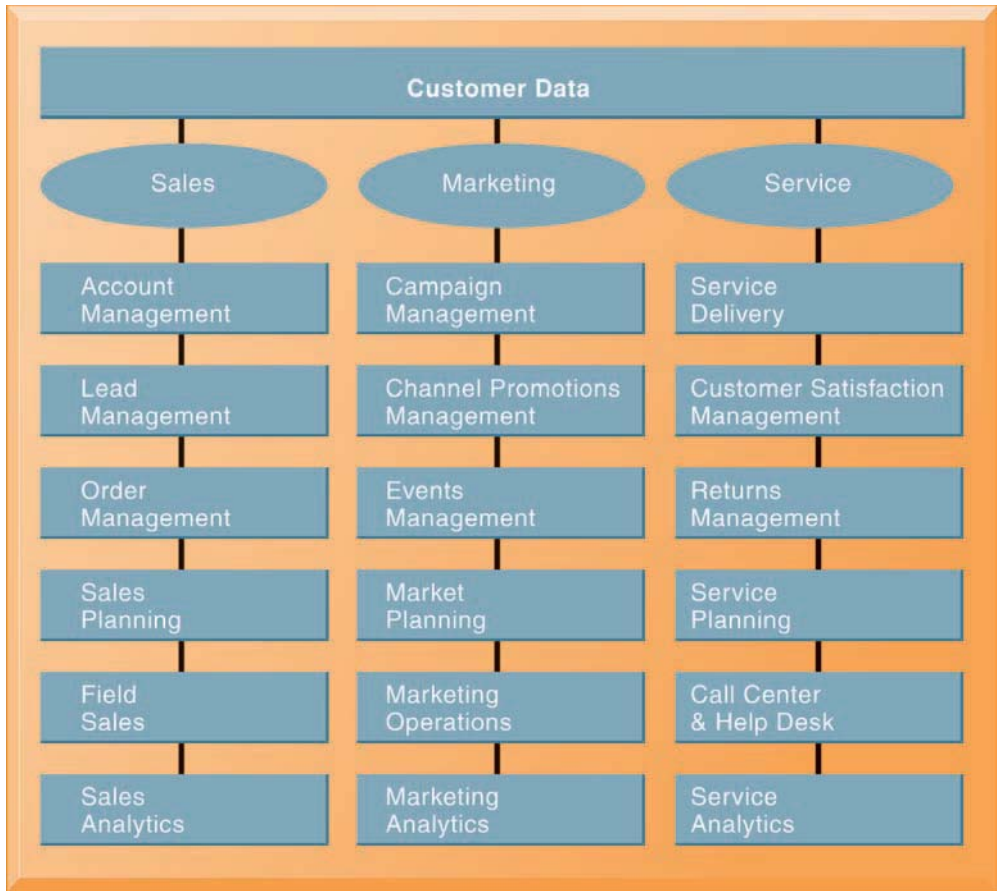
The major CRM software products support business processes in sales, service, and marketing, integrating customer information from many different sources. Included are support for both the operational and analytical aspects of CRM.

FIGURE 9.9   CUSTOMER LOYALTY MANAGEMENT PROCESS MAP
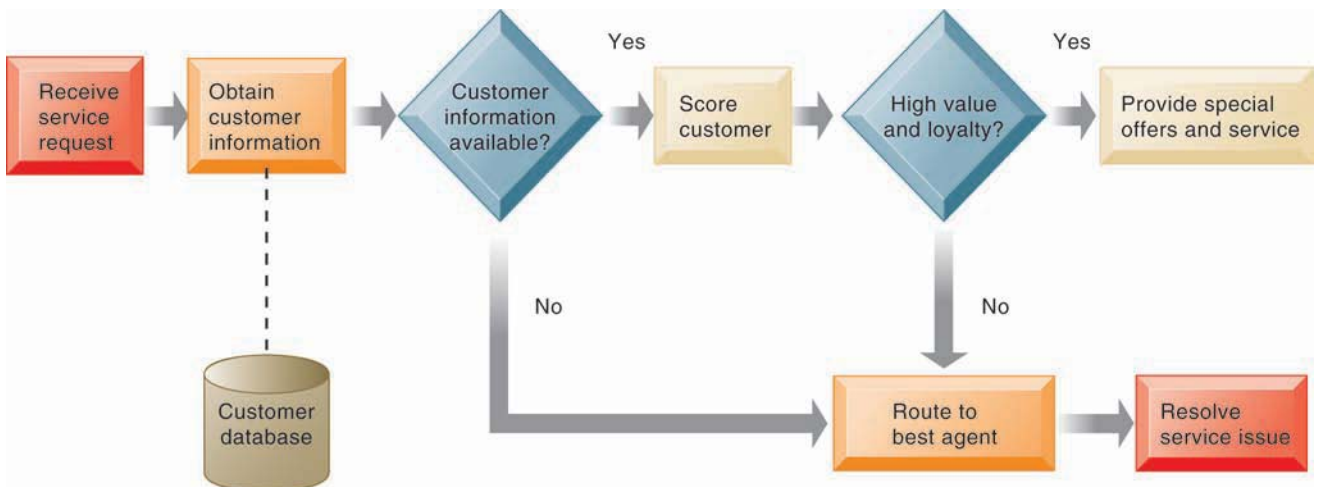
This process map shows how a best practice for promoting customer loyalty through customer service would be modeled by customer relationship management software. The CRM software helps firms identify high-value customers for preferential treatment.

OPERATIONAL AND ANALYTICAL CRM

All of the applications we have just described support either the operational or analytical aspects of customer relationship management. **Operational CRM** includes customer-facing applications, such as tools for sales force automation, call center and customer service support, and marketing automation. **Analytical CRM** includes applications that analyze customer data generated by operational CRM applications to provide information for improving business performance.

Analytical CRM applications are based on data from operational CRM systems, customer touch points, and other sources that have been organized in data warehouses or analytic platforms for use in online analytical processing (OLAP), data mining, and other data analysis techniques (see Chapter 6). Customer data collected by the organization might be combined with data from other sources, such as customer lists for direct-marketing campaigns purchased from other companies or demographic data. Such data are analyzed to identify buying patterns, to create segments for targeted marketing, and to pinpoint profitable and unprofitable customers (see Figure 9.10).

Another important output of analytical CRM is the customer's lifetime value to the firm. **Customer lifetime value (CLTV)** is based on the relationship between the revenue produced by a specific customer, the expenses incurred in acquiring and servicing that customer, and the expected life of the relationship between the customer and the company.

BUSINESS VALUE OF CUSTOMER RELATIONSHIP MANAGEMENT SYSTEMS

Companies with effective customer relationship management systems realize many benefits, including increased customer satisfaction, reduced direct-marketing costs, more effective marketing, and lower costs for customer

FIGURE 9.10 ANALYTICAL CRM
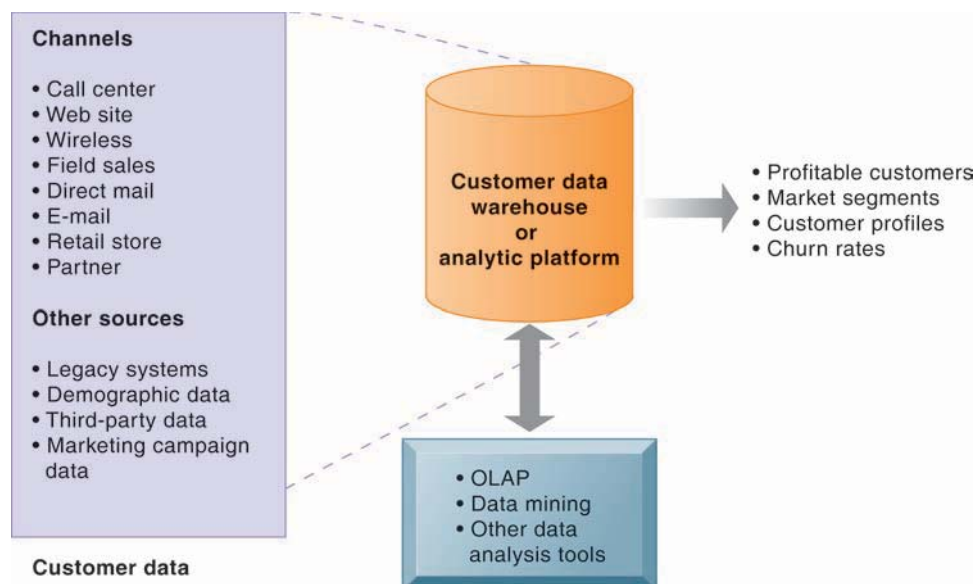
Analytical CRM uses a customer data warehouse or analytic platform and tools to analyze customer data collected from the firm's customer touch points and from other sources.

acquisition and retention. Information from CRM systems increases sales revenue by identifying the most profitable customers and segments for focused marketing and cross-selling.

Customer churn is reduced as sales, service, and marketing better respond to customer needs. The **churn rate** measures the number of customers who stop using or purchasing products or services from a company. It is an important indicator of the growth or decline of a firm's customer base.

9.4 ENTERPRISE APPLICATIONS: NEW OPPORTUNITIES AND CHALLENGES

Many firms have implemented enterprise systems and systems for supply chain and customer relationship management because they are such powerful instruments for achieving operational excellence and enhancing decision making. But precisely because they are so powerful in changing the way the organization works, they are challenging to implement. Let's briefly examine some of these challenges, as well as new ways of obtaining value from these systems.

ENTERPRISE APPLICATION CHALLENGES

Promises of dramatic reductions in inventory costs, order-to-delivery time, as well as more efficient customer response and higher product and customer profitability make enterprise systems and systems for supply chain management and customer relationship management very alluring. But to obtain this value, you must clearly understand how your business has to change to use these systems effectively.

Enterprise applications involve complex pieces of software that are very expensive to purchase and implement. It might take a large Fortune 500 company several years to complete a large-scale implementation of an enterprise system or a system for SCM or CRM. The total cost for an average large system implementation based on SAP or Oracle software, including software, database tools, consulting fees, personnel costs, training, and perhaps hardware costs, runs over $12 million. The implementation cost of an enterprise system for a mid-sized company based on software from a "Tier II" vendor such as Epicor or Lawson averages $3.5 million. Changes in project scope and additional customization work add to implementation delays and costs (Kanaracus, 2012; Wailgum, 2009).

Enterprise applications require not only deep-seated technological changes but also fundamental changes in the way the business operates. Companies must make sweeping changes to their business processes to work with the software. Employees must accept new job functions and responsibilities. They must learn how to perform a new set of work activities and understand how the information they enter into the system can affect other parts of the company. This requires new organizational learning.

Supply chain management systems require multiple organizations to share information and business processes. Each participant in the system may have to change some of its processes and the way it uses information to create a system that best serves the supply chain as a whole.

Some firms experienced enormous operating problems and losses when they first implemented enterprise applications because they didn't understand how much organizational change was required. For example, Kmart had trouble getting products to store shelves when it first implemented i2 Technologies supply chain

management software. The i2 software did not work well with Kmart's promotion-driven business model, which created sharp downward spikes in demand for products. Overstock.com's order tracking system went down for a full week when the company replaced a homegrown system with an Oracle enterprise system. The company rushed to implement the software, and did not properly synchronize the Oracle software's process for recording customer refunds with its accounts receivable system. These problems contributed to a third-quarter loss of $14.5 million that year.

Enterprise applications also introduce "switching costs." Once you adopt an enterprise application from a single vendor, such as SAP, Oracle, or others, it is very costly to switch vendors, and your firm becomes dependent on the vendor to upgrade its product and maintain your installation.

Enterprise applications are based on organization-wide definitions of data. You'll need to understand exactly how your business uses its data and how the data would be organized in a customer relationship management, supply chain management, or enterprise system. CRM systems typically require some data cleansing work.

Enterprise software vendors are addressing these problems by offering pared-down versions of their software and "fast-start" programs for small and medium-sized businesses and best-practice guidelines for larger companies. The Interactive Session on Technology describes how on-demand and cloud-based tools deal with this problem as well.

Companies adopting enterprise applications can also save time and money by keeping customizations to a minimum. For example, Kennametal, a $2 billion metal-cutting tools company in Pennsylvania, had spent $10 million over 13 years maintaining an ERP system with over 6,400 customizations. The company is now replacing it with a "plain vanilla," non-customized version of SAP enterprise software and changing its business processes to conform to the software (Johnson, 2010).

NEXT-GENERATION ENTERPRISE APPLICATIONS

Today, enterprise application vendors are delivering more value by becoming more flexible, Web-enabled, and capable of integration with other systems. Stand-alone enterprise systems, customer relationship management systems, and supply chain management systems are becoming a thing of the past. The major enterprise software vendors have created what they call *enterprise solutions*, *enterprise suites*, or e-business suites to make their customer relationship management, supply chain management, and enterprise systems work closely with each other, and link to systems of customers and suppliers. SAP Business Suite, Oracle e-Business Suite, and Microsoft Dynamics suite (aimed at mid-sized companies) are examples, and they now utilize Web services and service-oriented architecture (SOA) (see Chapter 5).

SAP's next-generation enterprise applications incorporate SOA standards and are able to link SAP's own applications and Web services developed by independent software vendors. Oracle also has included SOA and business process management capabilities in its Fusion middleware products. Businesses can use these tools to create platforms for new or improved business processes that integrate information from multiple applications.

Next-generation enterprise applications also include open source and on-demand solutions, as well as more functionality available on mobile platforms. Open source products such as Compiere, Apache Open for Business (OFBiz), and Openbravo lack the functionality and support provided by

commercial enterprise application software, but are attractive to companies such as small manufacturers because there are no software licensing charges and fees are based on usage. For small and medium-sized businesses in select countries, SAP now offers cloud-based versions of its Business One OnDemand and Business ByDesign enterprise software solutions. Software as a service (SaaS) and cloud-based versions of enterprise systems are starting to be offered by smaller vendors such as NetSuite and Plex Online. The Interactive Session on Technology describes some of the cloud-based systems for CRM. Over time, more companies will be choosing to run all or part of their enterprise applications in the cloud on an as-needed basis.

Social CRM and Business Intelligence

CRM software vendors are enhancing their products to take advantage of social networking technologies. These social enhancements help firms identify new ideas more rapidly, improve team productivity, and deepen interactions with customers. For example, Salesforce IdeaExchange enables subscribers to harness the "wisdom of crowds" by allowing their customers to submit and discuss new ideas. Dell Computer deployed this technology to encourage its customers to suggest and vote on new concepts and feature changes in Dell products. Chapter 2 described Salesforce Chatter, which enables users to create Facebook-like profiles and receive real-time news feeds about co-workers, projects, and customers. Users can also form groups and post messages on each other's profiles to collaborate on projects.

Employees who interact with customers via social networking sites such as Facebook and Twitter are often able to provide customer service functions much faster and at lower cost than by using telephone conversations or e-mail. Customers who are active social media users increasingly want—and expect—businesses to respond to their questions and complaints through this channel.

Social CRM tools enable a business to connect customer conversations and relationships from social networking sites to CRM processes. The leading CRM vendors now offer such tools to link data from social networks into their CRM software. Salesforce.com and Oracle CRM products are incorporating technology to monitor, track, and analyze social media activity in Facebook, LinkedIn, Twitter, YouTube, and other sites.

Salesforce recently acquired social media monitoring company Radian6, which helps companies such as Dell, GE, Kodak, and UPS monitor, analyze, and engage in hundreds of millions of social media conversations. Salesforce has added these capabilities to its software line. Oracle has enhanced its CRM products with Buzzient, which provides tools for integrating social media with enterprise applications. The Buzzient platform automatically collects information from a huge number of online sources in real time and analyzes the content based on users' specifications. Buzzient supplies this information to CRM systems to help companies uncover sales leads and identify customer support issues.

Business Intelligence in Enterprise Applications Enterprise application vendors have added business intelligence features to help managers obtain more meaningful information from the massive amounts of data generated by these systems. Included are tools for flexible reporting, ad hoc analysis, interactive dashboards, what-if scenario analysis, and data visualization (see the Chapter 12 Interactive Session on Management). Rather than requiring users to leave an application and launch separate reporting and analytics tools, the vendors are starting to embed analytics within the context of the application itself. They are also offering complementary stand-alone analytics products, such as SAP Business Objects and Oracle Business Intelligence Enterprise Edition.

CUSTOMER RELATIONSHIP MANAGEMENT HEADS TO THE CLOUD

Salesforce.com is the most successful enterprise-scale software as a service (SaaS) and the undisputed global leader in cloud-based customer relationship management (CRM) systems. Users can access Salesforce applications anywhere through an Internet-enabled mobile device or a connected computer. Subscriptions start as low as $15 per user per month for the pared-down Group version for small sales and marketing teams, with monthly subscriptions for large enterprises ranging from $65–$250 per user.

Salesforce has over 100,000 customers. Small businesses find the on-demand model especially appealing because there are no large up-front hardware and software investments or lengthy implementations on corporate computer systems. Fireclay Tile, a 37-employee environmentally friendly sustainable tile manufacturer, adopted Salesforce and realized multiple benefits. Salesforce's e-mail and Web-to-lead capabilities helped the company quadruple new sales leads. (Web-to-lead automatically adds leads collected from the Web to the company's master database). A task feature automatically generates specific tasks based on the type of lead (architect, contractor, dealer, or homeowner) and the stage in the sales process. The system automates customer service functions including order confirmations, follow-up customer satisfaction surveys, and shipping notifications

Salesforce's social tools enable Fireclay to compete successfully against large flooring manufacturers and other custom tile producers by providing superior customer service. The company uses Salesforce.com to maintain customer profiles, so its sales, service, and production teams have complete customer views as soon as leads come in from the Web. Fireclay's internal social network based on Salesforce Chatter helps employees track orders and work closely together to meet customer needs. Customer satisfaction has increased 90 percent.

But Salesforce.com also appeals to large companies. Dr. Pepper Snapple Group adopted Salesforce CRM to replace an outmoded Excel application that required extensive manual data input to compile reports on more than 50 beverage brands and to track sales performance against objectives in real time. The system now tracks field activities for more than 10,000 accounts, with automated reports and dashboards monitoring key performance indicators, sales calls, and sales volume. The Wall Street Journal, Pitney Bowes, Kimberly-Clark, and Starbucks are among Salesforce's other large corporate CRM users.

Not to be outdone, established on-premise enterprise software companies such as Oracle have moved into cloud software services. Pricing starts at $70 per month per user. Oracle's CRM on Demand system has many capabilities, including embedded tools for forecasting and analytics and interactive dashboards. Subscribers are able to use these tools to answer questions such as "How efficient is your sales effort?" or "How much are your customers spending?"

GRT Hotels & Resorts, a leading hotel group in South India with 10 hotels, used Oracle CRM on Demand to create a centralized CRM system for all of its properties. The system makes it possible for all the hotels in the group to share customer data, such as room and rate preferences, and to create unified marketing programs that eliminate unnecessary price competition between the company's hotels. GRT believes that by making customer behavior data available for forecasting sales and by creating more targeted marketing campaigns, the CRM system has increased productivity about 25 percent. Managers are able to monitor the number of customer calls that employees answer each month regarding bookings and general hotel information to identify underperformers. GRT management believes that using a hosted CRM service with a monthly fee costs 65 percent less than if it had purchased and maintained its own CRM software. Moreover, Oracle's centralized, secure Web-based CRM application ensures that confidential data, such as promotion plans, cannot be removed by GRT employees when they leave the organization.

While traditional enterprise software vendors like Oracle are using their market-leading position to penetrate the cloud-based application market, newcomers such as SugarCRM have found success, even among larger companies. Thomas Cook France, a subsidiary of the worldwide Thomas Cook Group Travel plc, is an example. Thomas Cook France has 1,700 employees and is the second largest travel company in France, providing leisure travel programs for groups of 15 travelers. The company

is able to distinguish itself among competitors and Internet travel services by providing an outstanding customer experience. Thomas Cook France had been using pen and paper to track most of its calls and other customer interactions, so its customer data were fragmented and redundant, and could not be used by management to analyze agent productivity and revenue opportunities.

SugarCRM monthly subscriptions range from $30–$100 per user. Thomas Cook France found SugarCRM to be a user-friendly yet scalable system that could be customized, deployed quickly, and managed without a large internal information systems staff. With the help of Synolia consultants, Thomas Cook had its SugarCRM system up and running within 15 days. Cook's agents are able to manage leads with integration and importation into their system. The system allows for team and role-based access and the ability to attach documents to contacts. In addition, Thomas Cook France is using the CRM software for high-level outbound e-mail marketing efforts, FAQ modules, and dashboards that

drive immediate business activities and also analyze high-level business issues.

Not all companies experience gains of that magnitude, and cloud computing does have drawbacks. Many companies are concerned about maintaining control of their data and security. Although cloud computing companies are prepared to handle these issues, availability assurances and service level agreements are not always available. Companies that manage their CRM apps with a cloud infrastructure have no guarantees that their data will be available at all times, or even that the provider will still exist in the future, although CRM vendors have taken great pains to address these issues.

Sources: "Salesforce.com Inc. 10-K Report," March 9, 2012; Ziff Davis," SMB On Demand CRM Comparison Guide, January 2012; "Fireclay Heats Up Its Small Business as a Social Enterprise," www.salesforce.com, accessed July 17, 2012; "GRT Hotels & Resorts Increases Productivity by 25%, Improves Customer Service and Resource Allocation with Centralized CRM System," www.oracle.com, May 1, 2012; www.sugarcrm.com, accessed July 17, 2012; and "Thomas Cook Begins a Successful CRM Voyage with SugarCRM and Synolia," SugarCRM, 2010.

CASE STUDY QUESTIONS

1. What types of companies are most likely to adopt cloud-based CRM software services? Why? What companies might not be well-suited for this type of software?

2. What are the advantages and disadvantages of using cloud-based enterprise applications?

3. What management, organization, and technology issues should be addressed in deciding whether to use a conventional CRM system versus a cloud-based version?

The major enterprise application vendors also offer portions of their products that work on mobile handhelds. You can find out more about this topic in our Chapter 7 Learning Track on Wireless Applications for Customer Relationship Management, Supply Chain Management, and Healthcare.

LEARNING TRACK MODULES

The following Learning Tracks provide content relevant to topics covered in this chapter.

1. SAP Business Process Map

2. Business Processes in Supply Chain Management and Supply Chain Metrics

3. Best-Practice Business Processes in CRM Software

Review Summary

1. *How do enterprise systems help businesses achieve operational excellence?*

   Enterprise software is based on a suite of integrated software modules and a common central database. The database collects data from and feeds the data into numerous applications that can support nearly all of an organization's internal business activities. When new information is entered by one process, the information is made available immediately to other business processes.

   Enterprise systems support organizational centralization by enforcing uniform data standards and business processes throughout the company and a single unified technology platform. The firmwide data generated by enterprise systems helps managers evaluate organizational performance.

2. *How do supply chain management systems coordinate planning, production, and logistics with suppliers?*

   Supply chain management (SCM) systems automate the flow of information among members of the supply chain so they can use it to make better decisions about when and how much to purchase, produce, or ship. More accurate information from supply chain management systems reduces uncertainty and the impact of the bullwhip effect.

   Supply chain management software includes software for supply chain planning and for supply chain execution. Internet technology facilitates the management of global supply chains by providing the connectivity for organizations in different countries to share supply chain information. Improved communication among supply chain members also facilitates efficient customer response and movement toward a demand-driven model.

3. *How do customer relationship management systems help firms achieve customer intimacy?*

   Customer relationship management (CRM) systems integrate and automate customer-facing processes in sales, marketing, and customer service, providing an enterprise-wide view of customers. Companies can use this customer knowledge when they interact with customers to provide them with better service or to sell new products and services. These systems also identify profitable or nonprofitable customers or opportunities to reduce the churn rate.

   The major customer relationship management software packages provide capabilities for both operational CRM and analytical CRM. They often include modules for managing relationships with selling partners (partner relationship management) and for employee relationship management.

4. *What are the challenges posed by enterprise applications?*

   Enterprise applications are difficult to implement. They require extensive organizational change, large new software investments, and careful assessment of how these systems will enhance organizational performance. Enterprise applications cannot provide value if they are implemented atop flawed processes or if firms do not know how to use these systems to measure performance improvements. Employees require training to prepare for new procedures and roles. Attention to data management is essential.

5. *How are enterprise applications taking advantage of new technologies?*

   Enterprise applications are now more flexible, Web-enabled, and capable of integration with other systems, using Web services and service-oriented architecture (SOA). They also have open source and on-demand versions and are able to run in cloud infrastructures or on mobile platforms. CRM software has added social networking capabilities to enhance internal collaboration, deepen interactions with customers, and utilize data from social networking sites. Open source, mobile, and cloud versions of some of these products are becoming available.

Key Terms

Analytical CRM, 386
Bullwhip effect, 374
Churn rate, 387
Cross-selling, 384
Customer lifetime value (CLTV), 386
Demand planning, 376
Employee relationship management (ERM), 382
Enterprise software, 370
Just-in-time strategy, 374

Operational CRM, 386
Partner relationship management (PRM), 382
Pull-based model, 379
Push-based model, 379
Social CRM, 389
Supply chain, 372
Supply chain execution systems, 376
Supply chain planning systems, 376
Touch point, 381

Review Questions

1. How do enterprise systems help businesses achieve operational excellence?
   - Define an enterprise system and explain how enterprise software works.
   - Describe how enterprise systems provide value for a business.

2. How do supply chain management systems coordinate planning, production, and logistics with suppliers?
   - Define a supply chain and identify each of its components.
   - Explain how supply chain management systems help reduce the bullwhip effect and how they provide value for a business.
   - Define and compare supply chain planning systems and supply chain execution systems.
   - Describe the challenges of global supply chains and how Internet technology can help companies manage them better.
   - Distinguish between a push-based and a pull-based model of supply chain management and explain how contemporary supply chain management systems facilitate a pull-based model.

3. How do customer relationship management systems help firms achieve customer intimacy?

   - Define customer relationship management and explain why customer relationships are so important today.
   - Describe how partner relationship management (PRM) and employee relationship management (ERM) are related to customer relationship management (CRM).
   - Describe the tools and capabilities of customer relationship management software for sales, marketing, and customer service.
   - Distinguish between operational and analytical CRM.

4. What are the challenges posed by enterprise applications?
   - List and describe the challenges posed by enterprise applications.
   - Explain how these challenges can be addressed.

5. How are enterprise applications taking advantage of new technologies?
   - How are enterprise applications taking advantage of SOA, Web services, open source software, and wireless technology?
   - Define social CRM and explain how customer relationship management systems are using social networking.

Discussion Questions

1. Supply chain management is less about managing the physical movement of goods and more about managing information. Discuss the implications of this statement.

2. If a company wants to implement an enterprise application, it had better do its homework. Discuss the implications of this statement.

3. Which enterprise application should a business install first: ERP, SCM, or CRM? Explain your answer.

Hands-On MIS Projects

The projects in this section give you hands-on experience analyzing business process integration, suggesting supply chain management and customer relationship management applications, using database software to manage customer service requests, and evaluating supply chain management business services.

Management Decision Problems

1. Toronto-based Mercedes-Benz Canada, with a network of 55 dealers, did not know enough about its customers. Dealers provided customer data to the company on an ad hoc basis. Mercedes did not force dealers to report this information. There was no real incentive for dealers to share information with the company. How could CRM and PRM systems help solve this problem?

2. Office Depot sells a wide range of office supply products and services in the United States and internationally. The company tries to offer a wider range of office supplies at lower cost than other retailers by using just-in-time replenishment and tight inventory control systems. It uses information from a demand forecasting system and point-of-sale data to replenish its inventory in its 1,600 retail stores. Explain how these systems help Office Depot minimize costs and any other benefits they provide. Identify and describe other supply chain management applications that would be especially helpful to Office Depot.

Improving Decision Making: Using Database Software to Manage Customer Service Requests

Software skills: Database design; querying and reporting
Business skills: Customer service analysis

In this exercise, you'll use database software to develop an application that tracks customer service requests and analyzes customer data to identify customers meriting priority treatment.

Prime Service is a large service company that provides maintenance and repair services for close to 1,200 commercial businesses in New York, New Jersey, and Connecticut. Its customers include businesses of all sizes. Customers with service needs call into its customer service department with requests for repairing heating ducts, broken windows, leaky roofs, broken water pipes, and other problems. The company assigns each request a number and writes down the service request number, identification number of the customer account, the date of the request, the type of equipment requiring repair, and a brief description of the problem. The service requests are handled on a first-come-first-served basis. After the service work has been completed, Prime calculates the cost of the work, enters the price on the service request form, and bills the client. This arrangement treats the most important and profitable clients—those with accounts of more than $70,000—no differently from its clients with small accounts. Managment would like to find a way to provide its best customers with better service. Management would also like to know which types of service problems occur most frequently so that it can make sure it has adequate resources to address them.

Prime Service has a small database with client account information, which can be found in MyMISLab. Use database software to design a solution that would enable Prime's customer service representatives to identify the most important customers so that they could receive priority service. Your solution will require more than one table. Populate your database with at least 10 service requests. Create several reports that would be of interest to management, such as a list of the highest—and lowest— priority accounts and a report showing the most frequently occurring service problems. Create a report listing service calls that customer service representatives should respond to first on a specific date.

Achieving Operational Excellence: Evaluating Supply Chain Management Services

Software skills: Web browser and presentation software
Business skills: Evaluating supply chain management services

In addition to carrying goods from one place to another, some trucking companies provide supply chain management services and help their customers manage their information. In this project, you'll use the Web to research

and evaluate two of these business services. Investigate the Web sites of two companies, UPS Logistics and Schneider Logistics, to see how these companies' services can be used for supply chain management. Then respond to the following questions:

- What supply chain processes can each of these companies support for their clients?
- How can customers use the Web sites of each company to help them with supply chain management?
- Compare the supply chain management services provided by these companies. Which company would you select to help your firm manage its supply chain? Why?

Video Cases

Video Cases and Instructional Videos illustrating some of the concepts in this chapter are available. Contact your instructor to access these videos.

Collaboration and Teamwork Project

In MyMISLab, you will find a Collaboration and Teamwork Project dealing with the concepts in this chapter. You will be able to use Google Sites, Google Docs, and other open source collaboration tools to complete the assignment.

Summit Electric Lights Up with a New ERP System
CASE STUDY

Summit Electric Supply is one of the top wholesale distributors of industrial electrical equipment and supplies in the United States, with 500 employees and nearly $358 million in sales in 2011. Summit operates in four states and has a global export division based in Houston, a marine division based in New Orleans, and a sales office in Dubai.

Summit distributes products that include motor controls, wire and cable, cords, lighting, conduit and fittings, wiring devices, support systems and fasteners, outlet boxes and enclosures, and transformers and power protection equipment. The company obtains finished goods from manufacturers and then sells them to electrical contractors working on projects ranging from small construction jobs to sophisticated industrial projects. As a distributor, Summit Electric Supply is a "middle man" on the supply chain, and must be able to rapidly handle a high volume of transactions and swift inventory turnover.

Since its founding in 1977 in Albuquerque, New Mexico, Summit has grown very quickly. Unfortunately, its homegrown legacy information systems built in the 1980s could not keep up with the business. One legacy system was for sales entries and purchase orders and another was for back-end reporting. Integration between the two systems was done manually in batches. The systems could only handle a fixed number of locations and limited the range of numbers that could be used on documents. This meant that Summit's information systems department had to use the same range of document numbers over again every few months. Once the company found it could no longer process its nightly inventory and financial updates in the amount of time that was available, the systems had reached their breaking point. A new solution was in order.

Summit started looking for a new enterprise resource planning (ERP) system. This would prove to be challenging, because the company's legacy systems were so old that the business had built many of its processes around them. A new system would require changes to business processes and the way people worked.

Summit also found that most of the available ERP software on the market had been designed for manufacturing or retailing businesses, and did not address some of the unique processes and priorities of the distribution industry. Summit needed a system that could handle a very large number of SKUs (stock-keeping units, which are numbers or codes for identifying each unique product or item for sale) and transactions, very short lead times for order processing, inventory distributed in various models, products sold in one quantity that could be sold in another, and no-touch inventory. Summit handles some products that are shipped directly from the manufacturer to the customer's job site.

Scalability and inventory visibility were Summit's top requirements. The company needed a system that would handle orders and inventory as it continued its rapid pace of growth. In the distribution business, the lead times for fulfilling an order can be only minutes: a Summit customer might call to place an order while driving to pick up the order, so the company has to know immediately what product is available at what location.

After extensively reviewing ERP vendors, Summit selected ERP software from SAP because of its functionality in sales and distribution, materials management, and financials, and its knowledge of the distribution business. Summit visited other electrical distributors using SAP, including some of its competitors, to make sure the software would work in its line of business. Summit was able to go live with its new ERP system across 19 locations in January 2007.

Nevertheless, Summit still had to customize its SAP software to meet its unique business requirements. Most SAP delivery and material scheduling functions were designed for overnight processing, because many industries have longer lead times for order fulfillment. Waiting for overnight inventory updates would significantly delay Summit's sales. Summit found it could solve this problem by running smaller, more frequent updates for just the material received during the day, rather than running big inventory updates less often. This provided more timely and accurate snapshots of what was actually available in inventory so that orders could be rapidly processed.

Wire and cable are one of Summit's most popular product categories. Summit buys these products by the reel in lengths up to 5,000 feet and then cuts them into various lengths to sell to customers. This

makes it difficult to determine how much of this type of inventory has been sold and when it is time to replenish. To address this issue, Summit used a batch management solution in SAP's ERP materials management software that treats a wire reel as a batch rather than as a single product. Every time a customer buys a length of wire, the length can be entered into the system to track how much of the batch was sold. Summit is able to use this capability to find which other customers bought wire from the same reel and trace the wire back to the manufacturer.

To accommodate large customers with long-term job sites, Summit sets up temporary warehouses on-site to supply these customers with its electrical products. Summit still owns the inventory, but it's dedicated to these customers and can't be treated as standard inventory in the ERP system. SAP's ERP software didn't support that way of doing business. Summit used some of the standard functionality in the SAP software to change how it allocated materials into temporary storage locations by creating a parent-child warehouse relationship. If, for instance, Summit's Houston office has several temporary on-site warehouses, the warehouses are managed as subparts of its main warehouse. That prevents someone from selling the consigned inventory in the warehouse.

Summit's old legacy systems used separate systems for orders and financials, so the data could not be easily combined for business intelligence reporting and analysis. To solve this problem, Summit implemented SAP's NetWeaver BW data warehouse and business intelligence solution to make better use of the data in its ERP system. These tools have helped the company evaluate the profitability of its sales channels, using what-if scenarios. For instance, Summit is now able to analyze profitability by sales person, manufacturer, customer, or branch. Business intelligence findings have encouraged Summit to focus more attention to areas such as sales order quotations and to supplier performance and delivery times. Management has much greater visibility into how the organization is operating and is able to make better decisions.

Summit's SAP software also produced a significant return on investment (ROI) from automating sales tax processing and chargebacks. In the distribution industry, chargebacks occur when a supplier sells a product at a higher wholesale price to the distributor than the price the distributor has set with a retail customer. A chargeback agreement allows the distributor to bill the manufacturer an additional contracted amount in order to make some profit on the deal.

Processing chargebacks requires a very close comparison of sales to contracts, and a distributor can have hundreds or thousands of different chargeback contracts. The distributor must not only be able to identify chargeback deals but also provide the manufacturer with sufficient documentation of the specific chargeback contract that is being invoked. Chargeback management is a large part of any wholesale distributor's profit model, and Summit was losing revenue opportunities because its chargeback process was flawed.

In the past, Summit's outdated legacy system was not able to handle the volume and complexity of the company's chargeback agreements, and reporting capabilities were limited. Processing chargebacks required a great deal of manual work. Summit employees had to pore through customer invoices for specific manufacturers to identify which chargebacks Summit could claim. They would then input the data they had found manually into a Microsoft Excel spreadsheet. Gathering and reviewing invoices sometimes took an entire month, and each month the paper copies of the invoices to give to Summit's vendors consumed an entire case of paper. By the time Summit's vendors responded to the chargeback invoices, the invoices were two or three months old. This cumbersome process inevitably missed some chargebacks for which Summit was eligible, resulting in lost revenue opportunities.

As part of its ERP solution, Summit implemented the SAP Paybacks and Chargebacks application, which was developed specifically for the distribution industry. At the end of each business day, this application automatically reviews Summit's billing activity for that day and compares it to all chargeback agreements loaded in the SAP system. (Summit's system automatically keeps track of 35 vendors with whom it has more than 6,600 chargeback agreements.) Where there is a match, a chargeback can be claimed, and the application creates a separate chargeback document outside of the customer invoice. Depending on the type of vendor, the application consolidates identified chargebacks by vendor daily or monthly, and automatically submits the information to the vendor along with the chargeback document. The vendor can then approve the chargeback or make changes, which are reconciled against individual chargeback documents.

The new system processes chargebacks much more quickly and also makes it possible for Summit to review them more frequently. Where vendors are

exchanging data with Summit electronically, Summit is able to make a chargeback claim and obtain vendor approval the same day. By fully automating the chargeback process, the company has increased its chargeback claims by 118 percent over its legacy systems, thereby boosting chargeback revenue as a percentage of sales. Summit is now able to see which vendors, customers, and products are producing the most chargeback revenue.

A key lesson from Summit's ERP implementation was not to force the new system to look like the legacy system. Not only is such customization expensive to set up and maintain, it can perpetuate outdated ways of doing business. According to Summit's CIO David Wascom, "We've done a lot to maintain flexibility (for our users), but still run within a standard SAP business flow."

Sources: "Summit Electric Supply Energizes Its ERP 6.0 Upgrade with Panaya," www.panayainc.com, accessed July 14, 2012; www.summit.com, accessed July 14, 2012; David Hannon, "Bringing More Revenue to the Table," SAP InsiderPROFILES, April–June 2011 and "Finding the Right ERP Fit," SAP InsiderPROFILES, January–March 2011; "Summit Electric Supply Drives Business Transformation Through SAP and ASUG," SAPInsider (October–December 2010), and Neetin Datar, "Summit Electric Improves Chargebacks," SAP.info, June 18, 2009.

CASE STUDY QUESTIONS

1. Which business processes are the most important at Summit Electric Supply? Why?

2. What problems did Summit have with its old systems? What was the business impact of those problems?

3. How did Summit's ERP system improve operational efficiency and decision making? Give several examples.

4. Describe two ways in which Summit's customers benefit from the new ERP system.

5. Diagram Summit's old and new process for handling chargebacks.

Chapter 10

E-commerce: Digital Markets, Digital Goods

LEARNING OBJECTIVES

After reading this chapter, you will be able to answer the following questions:

1. What are the unique features of e-commerce, digital markets, and d*igit*al goods?

2. What are the principal e-commerce business and revenue models?

3. How has e-commerce transformed marketing?

4. How has e-commerce affected business-to-business transactions?

5. What is the role of m-commerce in business, and what are the most important m-commerce applications?

6. What issues must be addressed when building an e-commerce presence?

Interactive Sessions:

Location-Based Marketing and Advertising

Social Commerce Creates New Customer Relationships

CHAPTER OUTLINE

GROUPON'S BUSINESS MODEL: SOCIAL AND LOCAL

Groupon is a business that offers subscribers daily deals from local merchants. The catch: a group of people (usually at least 25) has to purchase the discounted coupon (a "Groupon"). If you really want to go to that Italian restaurant in your area with a 50 percent discount coupon, you will need to message your friends to pay for the coupon as well. As soon as the minimum number of coupons is sold, the offer is open to everyone.

Here's how it works: Most Groupon deals give the customer 50 percent off the retail price of a product or service offered by a local merchant. For example, a $50 hair styling is offered at $25. The Groupon offer is e-mailed to thousands of potential customers within driving distance of the retailer. If enough people use their PCs or smartphones to sign up and buy the Groupon, the deal is on, and the customer receives a Groupon by e-mail. Groupon takes a 50 percent cut of the revenue ($12.50), leaving the merchant with $12.50. In other words, the merchant takes a haircut of 75 percent! Instead of generating $50 in revenue for hair styling, the merchant receives only $12.50.

Who wins here? The customer gets a hairstyling for half price. Groupon gets a hefty percentage of the Groupon's face value. The merchant receives many (sometimes too many) customers. Although merchants may lose money on these single offers, they are hoping to generate repeat purchases, loyal customers, and a larger customer base. Moreover, the deals are short term, often good for only a day. The hope: lose money on a single day, make money on all the other days when regular prices are in effect. It's a customer acquisition cost.

Founded in 2008 by Andrew Mason, Groupon rocketed to prominence in less than three years, going public in June 2011. By that time, Groupon had more than 83 million customers, operated in 43 countries, and had sold over 70 million Groupons. Nevertheless, Groupon, like many social network sites, has been struggling to show a profit. In 2011, it lost $254 million on $1.6 billion in revenue. Its biggest expense is customer acquisition. Groupon clearly believes that new customers are worth it: Groupon spent $768 million in marketing in 2011.

The question is whether Groupon's business model can work in the long run. Critics point out that Groupon's revenue per customer has been falling, the conversion rate of customers into subscribers is slowing down, the tens of millions of e-mails Groupon uses to inform users of deals are poorly targeted, there are increasingly fewer Groupons sold per customer, and the revenue per Groupon is falling.

The solution, according to the company, is scale: get big really quick, and develop the brand so that competitors will never be able to find an audience. With enough customers and fast enough growth, Groupon may still turn out to be profitable. Groupon embarked on an acquisition spree in the first part of 2012, purchasing companies such as Uptake, Hyperpublic, Adku, and FeeFighters, which it believes will help its position in the small and medium-sized business market.
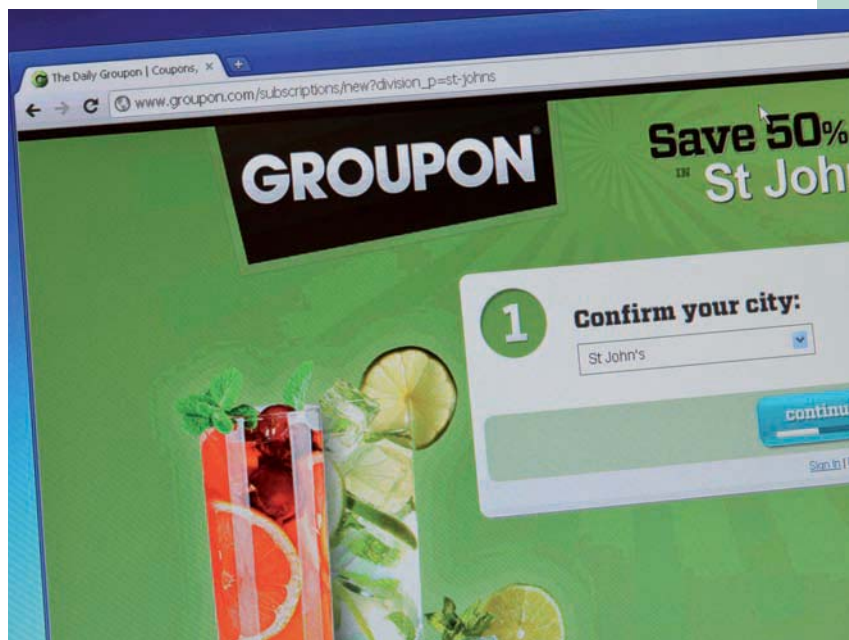
© Web Pix / Alamy

No one knows if this business strategy will work. Many merchants report that the Groupon deals are not creating a larger group of repeat customers. Instead, only the most price-sensitive customers show up at the door, and then never return when prices go back to normal levels. Competitors are springing up everywhere around the globe, including Google Offers and AmazonLocal.

Groupon may overcome some of the hurdles it faces by virtue of its brand and scale. But investors will want a return, and Groupon's biggest challenge will be showing a profit of any kind in the next few years.

Sources: Alistair Bart, "Groupon's New Operations Czar Grasps Shaky Helm," Reuters, August 22, 2012; Shayndi Rice and Shira Ovide, "Groupon Investors Give Up," *The Wall Street Journal*, August 20, 2012; Stephanie Clifford and Claire Cain Miller, "Ready to Ditch the Deal," *The New York Times*, August 17, 2012; Chunka Moi, "Google Offers a Two-Pronged Attack on Groupon's Business Model," *Forbes*, June 29, 2011; Jenna Wortham, "Loopt Flips Daily Deal Model Upside Down With U-Deal," *The New York Times*, June 23, 2011; Don Dodge, "How Does Groupon Work? Is Its Business Model Sustainable?" Dondodge.wordpad.com, June 11, 2011; Michel de la Merced, "Is Groupon's Business Model Sustainable?" *The New York Times*, June 8, 2011; and Utpal M. Dholakia, "How Effective are Groupon Promotions for Businesses?" Rice University, March 12, 2011.

Groupon combines two of the major new trends in e-commerce: localization and social networks. Selling goods and services on the Internet is increasingly based on social networking—friends recommending friends, as is the case with Groupon, and companies targeting individuals and their friends who are members of social networking communities such as Facebook and Twitter. E-commece is also becoming increasingly localized, as companies armed with detailed knowledge of customer locations target special offers of location-based goods and services. There are mobile apps for Groupon as well as for many other companies that are increasingly pitching and selling over mobile platforms, and e-commerce is becoming more mobile as well.

The chapter-opening diagram calls attention to important points raised by this case and this chapter. The business challenge facing Groupon is how to create a profitable business that can take advantage of Internet technology and social networking tools in the face of powerful competitors. Groupon's management decided to base its business model on localization and social technology. The business earns revenue by asking people to recruit their friends and acquaintances to sign up for discount coupons to create a "critical mass" of potential customers for a local product or service. Participating merchants sign up with the expectation of attracting large numbers of new customers. But Groupon has serious competition, participating merchants do not always reap benefits, and it is unclear whether the business model is solid and profitable.

Here are some questions to think about: How does Groupon take advantage of social networking and location technology? Do you think this business model is viable? Why or why not?
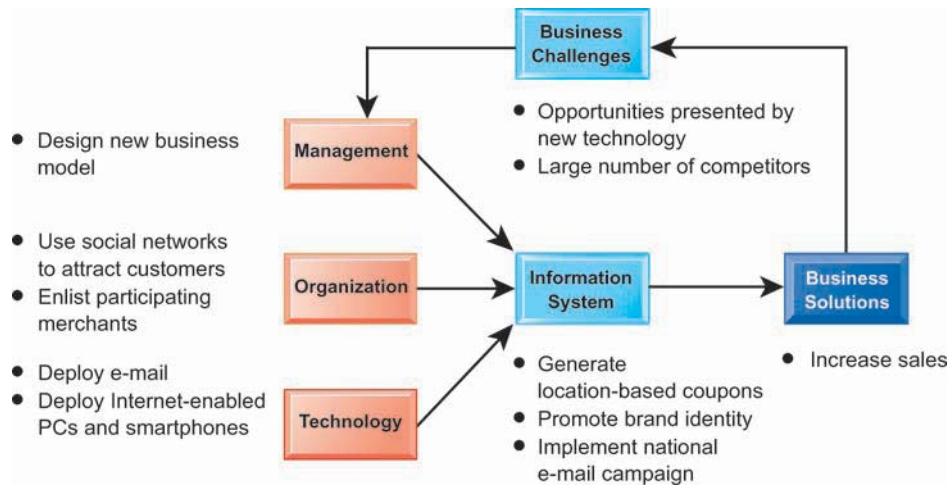
10.1 E-COMMERCE AND THE INTERNET

Bought an iTunes track lately, streamed a Netflix movie to your home TV, purchased a book at Amazon, or a diamond at Blue Nile? If so you've engaged in e-commerce. In 2012, an estimated 184 million Americans went shopping online, and 150 million purchased something online as did millions of others worldwide. And although most purchases still take place through traditional channels, e-commerce continues to grow rapidly and to transform the way many companies do business. In 2012, e-commerce consumer sales of goods, services, and content will reach $363 billion, about 9 percent of all retail sales, and it is growing at 15 percent annually (compared to 3.5 percent for traditional retailers) (eMarketer, 2012a). In just the past two years, e-commerce has expanded from the desktop and home computer to mobile devices, from an isolated activity to a new social commerce, and from a Fortune 1000 commerce with a national audience to local merchants and consumers whose location is known to mobile devices. The key words for understanding this new e-commerce in 2013 are "social, mobile, local."

E-COMMERCE TODAY

E-commerce refers to the use of the Internet and the Web to transact business. More formally, e-commerce is about digitally enabled commercial transactions between and among organizations and individuals. For the most part, this means transactions that occur over the Internet and the Web. Commercial transactions involve the exchange of value (e.g., money) across organizational or individual boundaries in return for products and services.

E-commerce began in 1995 when one of the first Internet portals, Netscape.com, accepted the first ads from major corporations and popularized the idea that the Web could be used as a new medium for advertising and sales. No one envisioned at the time what would turn out to be an exponential growth curve for e-commerce retail sales, which doubled and tripled in the early years. E-commerce grew at double-digit rates until the recession of 2008–2009 when growth slowed to

FIGURE 10.1 THE GROWTH OF E-COMMERCE
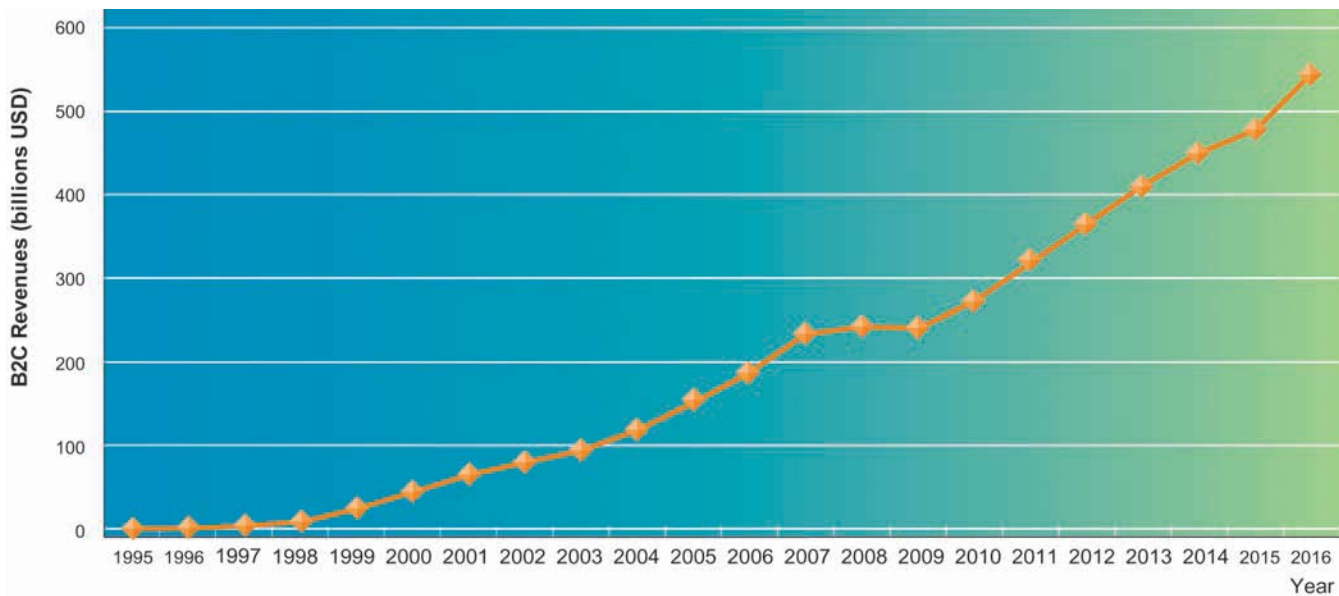
Retail e-commerce revenues grew 15–25 percent per year until the recession of 2008–2009, when they slowed measurably. In 2012, e-commerce revenues are growing again at an estimated 15 percent annually.

a crawl. In 2009, e-commerce revenues were flat (Figure 10.1), not bad considering that traditional retail sales were shrinking by 5 percent annually. In fact, e-commerce during the recession was the only stable segment in retail. Some online retailers forged ahead at a record pace: Amazon's 2009 revenues were up 25 percent over 2008 sales. Despite the continuing slow growth in 2012, the number of online buyers increased by 5 percent to 150 million, and the number of online retail transactions was up 7 percent. Amazon's sales grew to $48 billion in 2011, up an incredible 41 percent from 2010!

Mirroring the history of many technological innovations, such as the telephone, radio, and television, the very rapid growth in e-commerce in the early years created a market bubble in e-commerce stocks. Like all bubbles, the "dot-com" bubble burst (in March 2001). A large number of e-commerce companies failed during this process. Yet for many others, such as Amazon, eBay, Expedia, and Google, the results have been more positive: soaring revenues, fine-tuned business models that produce profits, and rising stock prices. By 2006, e-commerce revenues returned to solid growth, and have continued to be the fastest growing form of retail trade in the United States, Europe, and Asia.

- Online consumer sales grew to an estimated $362 billion in 2012, an increase of more than 15 percent over 2010 (including travel services and digital downloads), with 150 million people purchasing online and an additional 34 million shopping and gathering information but not purchasing (eMarketer, 2012a).

- The number of individuals of all ages online in the United States expanded to 239 million in 2012, up from 147 million in 2004. In the world, over 2.3 billion people are now connected to the Internet. Growth in the overall Internet population has spurred growth in e-commerce (eMarketer, 2012b).

- Approximately 82.5 million households have broadband access to the Internet in 2012, representing about 69 percent of all households (96 percent of all Internet households have broadband).

- About 122 million Americans now access the Internet using a smartphone such as an iPhone, Droid, or BlackBerry. Mobile e-commerce has begun a rapid growth based on apps, ring tones, downloaded entertainment, and location-based services. Mobile commerce will add up to about $11.7 billion in 2012 (roughly double 2010's revenue). Amazon sold an estimated $1.5 billion in retail goods to mobile users in 2011. In a few years, mobile phones will be the most common Internet access device. Currently half of all mobile phone users access the Internet using their phones.

- On an average day, an estimated 158 million adult U.S. Internet users go online. About 114 million send e-mail, 114 million use a search engine, and 87 million get news. Around 93 million use a social network, 46 million do online banking, 54 million watch an online video, and 33 million look for information on Wikipedia (Pew Internet & American Life Project, 2012).

- B2B e-commerce-use of the Internet for business-to-business commerce and collaboration among business partners expanded to more than $4.1 trillion.

The e-commerce revolution is still unfolding. Individuals and businesses will increasingly use the Internet to conduct commerce as more products and services come online and households switch to broadband telecommunications. More industries will be transformed by e-commerce, including travel reservations, music and entertainment, news, software, education, and finance. Table 10.1 highlights these new e-commerce developments.

WHY E-COMMERCE IS DIFFERENT

Why has e-commerce grown so rapidly? The answer lies in the unique nature of the Internet and the Web. Simply put, the Internet and e-commerce technologies are much more rich and powerful than previous technology revolutions like radio, television, and the telephone. Table 10.2 describes the unique features of the Internet and Web as a commercial medium. Let's explore each of these unique features in more detail.

Ubiquity

In traditional commerce, a marketplace is a physical place, such as a retail store, that you visit to transact business. E-commerce is ubiquitous, meaning that is it available just about everywhere, at all times. It makes it possible to shop from your desktop, at home, at work, or even from your car, using smartphones. The result is called a **marketspace**—a marketplace extended beyond traditional boundaries and removed from a temporal and geographic location.

From a consumer point of view, ubiquity reduces **transaction costs**—the costs of participating in a market. To transact business, it is no longer necessary that you spend time or money traveling to a market, and much less mental effort is required to make a purchase.

Global Reach

E-commerce technology permits commercial transactions to cross cultural and national boundaries far more conveniently and cost effectively than is true in traditional commerce. As a result, the potential market size for e-commerce merchants is roughly equal to the size of the world's online population (estimated to be more than 2 billion).

In contrast, most traditional commerce is local or regional—it involves local merchants or national merchants with local outlets. Television, radio stations

TABLE 10.1 THE GROWTH OF E-COMMERCE

BUSINESS TRANSFORMATION

- E-commerce remains the fastest growing form of commerce when compared to physical retail stores, services, and entertainment.

- Social, mobile, and local commerce have become the fastest growing forms of e-commerce.

- The first wave of e-commerce transformed the business world of books, music, and air travel. In the second wave, nine new industries are facing a similar transformation scenario: marketing and advertising, telecommunications, movies, television, jewelry and luxury goods, real estate, online travel, bill payments, and software.

- The breadth of e-commerce offerings grows, especially in the services economy of social networking, travel, information clearinghouses, entertainment, retail apparel, appliances, and home furnishings.

- The online demographics of shoppers broaden to match that of ordinary shoppers.

- Pure e-commerce business models are refined further to achieve higher levels of profitability, whereas traditional retail brands, such as Sears, JCPenney, L.L.Bean, and Walmart, use e-commerce to retain their dominant retail positions.

- Small businesses and entrepreneurs continue to flood the e-commerce marketplace, often riding on the infrastructures created by industry giants, such as Amazon, Apple, and Google, and increasingly taking advantage of cloud-based computing resources.

- Mobile e-commerce begins to take off in the United States with location-based services and entertainment downloads including e-books, movies, and television shows.

TECHNOLOGY FOUNDATIONS

- Wireless Internet connections (Wi-Fi, WiMax, and 3G/4G smartphones) grow rapidly.

- Powerful smartphones, tablet computers, and mobile devices support music, Web surfing, and entertainment as well as voice communication. Podcasting and streaming take off as mediums for distribution of video, radio, and user-generated content.

- The Internet broadband foundation becomes stronger in households and businesses as transmission prices fall. More than 82 million households had broadband cable or DSL access to the Internet in 2012, about 69 percent of all households in the United States (eMarketer, 2012a).

- Social networking software and sites such as Facebook, MySpace, Twitter, LinkedIn, and thousands of others become a major new platform for e-commerce, marketing, and advertising. Facebook hits 1 billion users worldwide, and 160 million in the United States (comScore, 2012).

- New Internet-based models of computing, such as smartphone apps, cloud computing, software as a service (SaaS), and Web 2.0 software greatly reduce the cost of e-commerce Web sites.

NEW BUSINESS MODELS EMERGE

- More than half the Internet user population have joined an online social network, contribute to social bookmarking sites, create blogs, and share photos. Together these sites create a massive online audience as large as television that is attractive to marketers. In 2012, social networking accounts for an estimated 20 percent of online time.

- The traditional advertising industry is disrupted as online advertising grows twice as fast as TV and print advertising; Google, Yahoo, and Facebook display nearly 1 trillion ads a year.

- Newspapers and other traditional media adopt online, interactive models but are losing advertising revenues to the online players despite gaining online readers. The New York Times adopts a paywall for its online edition and succeeds in capturing 500,000 subscribers.

- Online entertainment business models offering television, movies, music, sports, and e-books surge, with cooperation among the major copyright owners in Hollywood and New York and with Internet distributors like Apple, Amazon, Google, YouTube, and Facebook.

TABLE 10.2 EIGHT UNIQUE FEATURES OF E-COMMERCE TECHNOLOGY

E-COMMERCE TECHNOLOGY DIMENSION	BUSINESS SIGNIFICANCE
Ubiquity. Internet/Web technology is available everywhere: at work, at home, and elsewhere via desktop and mobile devices. Mobile devices extend service to local areas and merchants.	The marketplace is extended beyond traditional boundaries and is removed from a temporal and geographic location. "Marketspace" anytime, is created; shopping can take place anywhere. Customer convenience is enhanced, and shopping costs are reduced.
Global reach. The technology reaches across national boundaries, around the earth.	Commerce is enabled across cultural and national boundaries seamlessly and without modification. The marketspace includes, potentially, billions of consumers and millions of businesses worldwide.
Universal Standards. There is one set of technology standards, namely Internet standards.	With one set of technical standards across the globe, disparate computer systems can easily communicate with each other.
Richness. Video, audio, and text messages are possible.	Video, audio, and text marketing messages are integrated into a single marketing message and consumer experience.
Interactivity. The technology works through interaction with the user.	Consumers are engaged in a dialog that dynamically adjusts the experience to the individual, and makes the consumer a co-participant in the process of delivering goods to the market.
Information Density. The technology reduces information costs and raises quality.	Information processing, storage, and communication costs drop dramatically, whereas currency, accuracy, and timeliness improve greatly. Information becomes plentiful, cheap, and more accurate.
Personalization/Customization. The technology allows personalized messages to be delivered to individuals as well as groups.	Personalization of marketing messages and customization of products and services are based on individual characteristics.
Social Technology. The technology supports content generation and social networking.	New Internet social and business models enable user content creation and distribution, and support social networks.

and newspapers, for instance, are primarily local and regional institutions with limited, but powerful, national networks that can attract a national audience but not easily cross national boundaries to a global audience.

Universal Standards

One strikingly unusual feature of e-commerce technologies is that the technical standards of the Internet and, therefore, the technical standards for conducting e-commerce are universal standards. They are shared by all nations around the world and enable any computer to link with any other computer regardless of the technology platform each is using. In contrast, most traditional commerce technologies differ from one nation to the next. For instance, television and radio standards differ around the world, as does cell telephone technology.

The universal technical standards of the Internet and e-commerce greatly lower **market entry costs**—the cost merchants must pay simply to bring their goods to market. At the same time, for consumers, universal standards reduce **search costs**—the effort required to find suitable products.

Richness

Information **richness** refers to the complexity and content of a message. Traditional markets, national sales forces, and small retail stores have great richness: They are able to provide personal, face-to-face service using aural and visual cues when making a sale. The richness of traditional markets makes them powerful selling or commercial environments. Prior to the development of the Web, there was a trade-off between richness and reach: The larger the audience reached, the less rich the message. The Web makes it possible to deliver rich messages with text, audio, and video simultaneously to large numbers of people.

Interactivity

Unlike any of the commercial technologies of the twentieth century, with the possible exception of the telephone, e-commerce technologies are interactive, meaning they allow for two-way communication between merchant and consumer. Television, for instance, cannot ask viewers any questions or enter into conversations with them, and it cannot request that customer information be entered into a form. In contrast, all of these activities are possible on an e-commerce Web site. Interactivity allows an online merchant to engage a consumer in ways similar to a face-to-face experience but on a massive, global scale.

Information Density

The Internet and the Web vastly increase **information density**—the total amount and quality of information available to all market participants, consumers, and merchants alike. E-commerce technologies reduce information collection, storage, processing, and communication costs while greatly increasing the currency, accuracy, and timeliness of information.

Information density in e-commerce markets make prices and costs more transparent. **Price transparency** refers to the ease with which consumers can find out the variety of prices in a market; **cost transparency** refers to the ability of consumers to discover the actual costs merchants pay for products.

There are advantages for merchants as well. Online merchants can discover much more about consumers than in the past. This allows merchants to segment the market into groups that are willing to pay different prices and permits the merchants to engage in **price discrimination**—selling the same goods, or nearly the same goods, to different targeted groups at different prices. For instance, an online merchant can discover a consumer's avid interest in expensive, exotic vacations and then pitch high-end vacation plans to that consumer at a premium price, knowing this person is willing to pay extra for such a vacation. At the same time, the online merchant can pitch the same vacation plan at a lower price to a more price-sensitive consumer. Information density also helps merchants differentiate their products in terms of cost, brand, and quality.

Personalization/Customization

E-commerce technologies permit **personalization**: Merchants can target their marketing messages to specific individuals by adjusting the message

to a person's clickstream behavior, name, interests, and past purchases. The technology also permits **customization**—changing the delivered product or service based on a user's preferences or prior behavior. Given the interactive nature of e-commerce technology, much information about the consumer can be gathered in the marketplace at the moment of purchase. With the increase in information density, a great deal of information about the consumer's past purchases and behavior can be stored and used by online merchants.

The result is a level of personalization and customization unthinkable with traditional commerce technologies. For instance, you may be able to shape what you see on television by selecting a channel, but you cannot change the content of the channel you have chosen. In contrast, the *Wall Street Journal* Online allows you to select the type of news stories you want to see first and gives you the opportunity to be alerted when certain events happen.

Social Technology: User Content Generation and Social Networking

In contrast to previous technologies, the Internet and e-commerce technologies have evolved to be much more social by allowing users to create and share with their personal friends (and a larger worldwide community) content in the form of text, videos, music, or photos. Using these forms of communication, users are able to create new social networks and strengthen existing ones.

All previous mass media in modern history, including the printing press, use a broadcast model (one-to-many) where content is created in a central location by experts (professional writers, editors, directors, and producers) and audiences are concentrated in huge numbers to consume a standardized product. The new Internet and e-commerce empower users to create and distribute content on a large scale, and permit users to program their own content consumption. The Internet provides a unique many-to-many model of mass communications.

KEY CONCEPTS IN E-COMMERCE: DIGITAL MARKETS AND DIGITAL GOODS IN A GLOBAL MARKETPLACE

The location, timing, and revenue models of business are based in some part on the cost and distribution of information. The Internet has created a digital marketplace where millions of people all over the world are able to exchange massive amounts of information directly, instantly, and for free. As a result, the Internet has changed the way companies conduct business and increased their global reach.

The Internet reduces information asymmetry. An **information asymmetry** exists when one party in a transaction has more information that is important for the transaction than the other party. That information helps determine their relative bargaining power. In digital markets, consumers and suppliers can "see" the prices being charged for goods, and in that sense digital markets are said to be more "transparent" than traditional markets.

For example, before auto retailing sites appeared on the Web, there was a significant information asymmetry between auto dealers and customers. Only the auto dealers knew the manufacturers' prices, and it was difficult for consumers to shop around for the best price. Auto dealers' profit margins depended on this asymmetry of information. Today's consumers have access to a legion of Web sites providing competitive pricing information, and three-fourths of U.S. auto buyers use the Internet to shop around for the best

deal. Thus, the Web has reduced the information asymmetry surrounding an auto purchase. The Internet has also helped businesses seeking to purchase from other businesses reduce information asymmetries and locate better prices and terms.

Digital markets are very flexible and efficient because they operate with reduced search and transaction costs, lower **menu costs** (merchants' costs of changing prices), greater price discrimination, and the ability to change prices dynamically based on market conditions. In **dynamic pricing**, the price of a product varies depending on the demand characteristics of the customer or the supply situation of the seller. For instance, online retailers from Amazon to Walmart change prices on many products based on time of day, demand for the product, and users' prior visits to their sites.

These new digital markets may either reduce or increase switching costs, depending on the nature of the product or service being sold, and they may cause some extra delay in gratification. Unlike a physical market, you can't immediately consume a product such as clothing purchased over the Web (although immediate consumption is possible with digital music downloads and other digital products.)

Digital markets provide many opportunities to sell directly to the consumer, bypassing intermediaries, such as distributors or retail outlets. Eliminating intermediaries in the distribution channel can significantly lower purchase transaction costs. To pay for all the steps in a traditional distribution channel, a product may have to be priced as high as 135 percent of its original cost to manufacture.

Figure 10.2 illustrates how much savings result from eliminating each of these layers in the distribution process. By selling directly to consumers or reducing the number of intermediaries, companies are able to raise profits while charging lower prices. The removal of organizations or business process layers responsible for intermediary steps in a value chain is called **disintermediation**.

Disintermediation is affecting the market for services. Airlines and hotels operating their own reservation sites online earn more per ticket because they have eliminated travel agents as intermediaries. Table 10.3 summarizes the differences between digital markets and traditional markets.

FIGURE 10.2 THE BENEFITS OF DISINTERMEDIATION TO THE CONSUMER
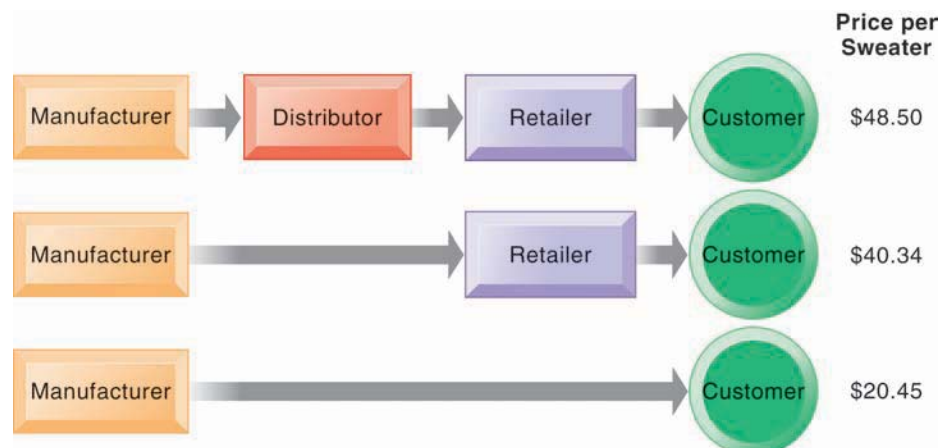
The typical distribution channel has several intermediary layers, each of which adds to the final cost of a product, such as a sweater. Removing layers lowers the final cost to the consumer.

TABLE 10.3 DIGITAL MARKETS COMPARED TO TRADITIONAL MARKETS

	DIGITAL MARKETS	TRADITIONAL MARKETS
Information asymmetry	Asymmetry reduced	Asymmetry high
Search costs	Low	High
Transaction costs	Low (sometimes virtually nothing)	High (time, travel)
Delayed gratification	High (or lower in the case of a digital good)	Lower: purchase now
Menu costs	Low	High
Dynamic pricing	Low cost, instant	High cost, delayed
Price discrimination	Low cost, instant	High cost, delayed
Market segmentation	Low cost, moderate precision	High cost, less precision
Switching costs	Higher/lower (depending on product characteristics)	High
Network effects	Strong	Weaker
Disintermediation	More possible/likely	Less possible/unlikely

Digital Goods

The Internet digital marketplace has greatly expanded sales of digital goods. **Digital goods** are goods that can be delivered over a digital network. Music tracks, video, Hollywood movies, software, newspapers, magazines, and books can all be expressed, stored, delivered, and sold as purely digital products. Today, all these products are delivered as digital streams or downloads, while their physical counterparts decline in sales.

In general, for digital goods, the marginal cost of producing another unit is about zero (it costs nothing to make a copy of a music file). However, the cost of producing the original first unit is relatively high—in fact, it is nearly the total cost of the product because there are few other costs of inventory and distribution. Costs of delivery over the Internet are very low, marketing costs often remain the same, and pricing can be highly variable. (On the Internet, the merchant can change prices as often as desired because of low menu costs.)

The impact of the Internet on the market for these kinds of digital goods is nothing short of revolutionary, and we see the results around us every day. Businesses dependent on physical products for sales—such as bookstores, music stores, book publishers, music labels, and film studios—face the possibility of declining sales and even destruction of their businesses. Newspapers and magazines subscriptions to hard copies are declining, while online readership and subscriptions are expanding.

Total record label industry revenues have fallen from $14 billion in 1999, to $5.4 billion estimated in 2012, a drop of 61 percent, due almost entirely to the decline in CD album sales, and the growth of digital music services (both legal and illegal music piracy). On the plus side, the Apple iTunes Store has sold 16 billion songs for 99 cents each since opening in 2001, providing the industry with a digital distribution model that has restored some of the revenues lost to digital music channels. Since iTunes, illegal downloading has been cut in half,

and legitimate online music sales are estimated to be approximately $4 billion in 2012. As cloud streaming services expand, illegal downloading will decline further. In that sense, Apple, along with other Internet distributors, saved the record labels from extinction. In 2012, digital music sales accounted for over 50 percent of all music revenues for the first time. Yet the music labels make only about 32 cents from a single track download or from a streamed track.

Hollywood has not been similarly disrupted by digital distribution platforms, in part because it is more difficult to download high-quality, pirated copies of full-length movies. To avoid the fate of the music industry, Hollywood has struck lucrative distribution deals with Netflix, Google, Amazon, and Apple. Nevertheless, these arrangements are not enough to compensate entirely for the loss in DVD sales, which fell 50 percent from 2006 to 2012, although this is changing rapidly as the online distributors like Netflix are forced to pay billions for high-quality Hollywood content. In 2012, for the first time, consumers will view more and pay more for Web-based movie downloads, rentals, and streams than for DVDs or related physical products. As with television, the demand for feature-length Hollywood movies appears to be expanding in part because of the growth of smartphones and tablets. In addition, the surprising resurgence of music videos, led by the Web site VEVO, is attracting millions of younger viewers on smartphones and tablets. Online movies began a growth spurt in 2010 as broadband services spread throughout the country. In 2011, movie viewing doubled in a single year. In 2012, about 60 million Internet users are expected to view movies, about one-third of the adult Internet audience. Online movie viewing is growing faster than all video viewing (which includes TV shows). While this rapid growth will not continue forever, there is little doubt that the Internet is becoming a movie distribution channel that rivals cable television. Table 10.4 describes digital goods and how they differ from traditional physical goods.

10.2 E-COMMERCE: BUSINESS AND TECHNOLOGY

E-commerce has grown from a few advertisements on early Web portals in 1995 to over 9 percent of all retail sales in 2012 (an estimated $362 billion), surpassing the mail order catalog business. E-commerce is a fascinating combination of business models and new information technologies. Let's start with a basic understanding of the types of e-commerce, and then describe e-commerce

TABLE 10.4 HOW THE INTERNET CHANGES THE MARKETS FOR DIGITAL GOODS

	DIGITAL GOODS	TRADITIONAL GOODS
Marginal cost/unit	Zero	Greater than zero , high
Cost of production	High (most of the cost)	Variable
Copying cost	Approximately zero	Greater than zero, high
Distributed delivery cost	Low	High
Inventory cost	Low	High
Marketing cost	Variable	Variable
Pricing	More variable (bundling, random pricing games)	Fixed, based on unit costs

business and revenue models. We'll also cover new technologies that help companies reach over 184 million online consumers in the United States, and an estimated 2 billion more worldwide.

TYPES OF E-COMMERCE

There are many ways to classify electronic commerce transactions—one is by looking at the nature of the participants. The three major electronic commerce categories are business-to-consumer (B2C) e-commerce, business-to-business (B2B) e-commerce, and consumer-to-consumer (C2C) e-commerce.

- **Business-to-consumer (B2C)** electronic commerce involves retailing products and services to individual shoppers. BarnesandNoble.com, which sells books, software, and music to individual consumers, is an example of B2C e-commerce.
- **Business-to-business (B2B)** electronic commerce involves sales of goods and services among businesses. ChemConnect's Web site for buying and selling chemicals and plastics is an example of B2B e-commerce.
- **Consumer-to-consumer (C2C)** electronic commerce involves consumers selling directly to consumers. For example, eBay, the giant Web auction site, enables people to sell their goods to other consumers by auctioning their merchandise off to the highest bidder, or for a fixed price. Craigslist is the most widely used platform used by consumers to buy from and sell directly to others.

Another way of classifying electronic commerce transactions is in terms of the platforms used by participants in a transaction. Until recently, most e-commerce transactions took place using a personal computer connected to the Internet over wired networks. Several wireless mobile alternatives have emerged: smartphones, tablet computers like iPads, and dedicated e-readers like the Kindle using cellular networks, and smartphones and small tablet computers using Wi-Fi wireless networks. The use of handheld wireless devices for purchasing goods and services from any location is termed **mobile commerce** or **m-commerce**. Both business-to-business and business-to-consumer e-commerce transactions can take place using m-commerce technology, which we discuss in detail in Section 10.3.

E-COMMERCE BUSINESS MODELS

Changes in the economics of information described earlier have created the conditions for entirely new business models to appear, while destroying older business models. Table 10.5 describes some of the most important Internet business models that have emerged. All, in one way or another, use the Internet to add extra value to existing products and services or to provide the foundation for new products and services.

Portal

Portals are gateways to the Web, and are often defined as those sites which users set as their home page. Some definitions of a portal include search engines like Google and Bing even if few make these sites their home page. Portals such as Yahoo, Facebook, MSN, and AOL offer powerful Web search tools as well as an integrated package of content and services, such as news, e-mail, instant messaging, maps, calendars, shopping, music downloads, video streaming, and more, all in one place. Initially, portals were primarily "gateways" to

TABLE 10.5 INTERNET BUSINESS MODELS

CATEGORY	DESCRIPTION	EXAMPLES
E-tailer	Sells physical products directly to consumers or to individual businesses.	Amazon RedEnvelope.com
Transaction broker	Saves users money and time by processing online sales transactions and generating a fee each time a transaction occurs.	ETrade.com Expedia
Market creator	Provides a digital environment where buyers and sellers can meet, search for products, display products, and establish prices for those products. Can serve consumers or B2B e-commerce, generating revenue from transaction fees.	eBay Priceline.com
Content provider	Creates revenue by providing digital content, such as news, music, photos, or video, over the Web. The customer may pay to access the content, or revenue may be generated by selling advertising space.	WSJ.com GettyImages.com iTunes.com Games.com
Community provider	Provides an online meeting place where people with similar interests can communicate and find useful information.	Facebook Google+ iVillage, Twitter
Portal	Provides initial point of entry to the Web along with specialized content and other services.	Yahoo Bing Google
Service provider	Provides Web 2.0 applications such as photo sharing, video sharing, and user-generated content as services. Provides other services such as online data storage and backup.	Google Apps Photobucket.com Dropbox

the Internet. Today, however, the portal business model provides a destination site where users start their Web searching and linger to read news, find entertainment, meet other people, and be exposed to advertising. Portals generate revenue primarily by attracting very large audiences, charging advertisers for ad placement, collecting referral fees for steering customers to other sites, and charging for premium services. In 2012, portals (not including Google or Bing) generated an estimated $8.5 billion in revenues. Although there are hundreds of portal/search engine sites, the top four portals (Yahoo, Facebook, MSN, and AOL) gather more than 95 percent of the Internet portal traffic because of their superior brand recognition (eMarketer, 2012).

E-tailer

Online retail stores, often called **e-tailers**, come in all sizes, from giant Amazon with 2011 revenues of more than $48 billion, to tiny local stores that have Web sites. An e-tailer is similar to the typical bricks-and-mortar storefront, except that customers only need to connect to the Internet to check their inventory and place an order. Altogether, online retail will generate about $224 billion in revenues for 2012. The value proposition of e-tailers is to provide convenient, low-cost shopping 24/7, offering large selections and consumer choice. Some e-tailers, such as Walmart.com or Staples.com, referred to as "bricks-and-clicks," are subsidiaries or divisions of existing physical stores and carry the same products. Others, however, operate only in the virtual world, without

any ties to physical locations. Amazon, BlueNile.com, and Drugstore.com are examples of this type of e-tailer. Several other variations of e-tailers—such as online versions of direct mail catalogs, online malls, and manufacturer-direct online sales—also exist.

Content Provider

While e-commerce began as a retail product channel, it has increasingly turned into a global content channel. "Content" is defined broadly to include all forms of intellectual property. **Intellectual property** refers to all forms of human expression that can be put into a tangible medium such as text, CDs, or DVDs, or stored on any digital (or other) media, including the Web. Content providers distribute information content, such as digital video, music, photos, text, and artwork, over the Web. The value proposition of online content providers is that consumers can find a wide range of content online, conveniently, and purchase this content inexpensively, to be played, or viewed, on multiple computer devices or smartphones.

Providers do not have to be the creators of the content (although sometimes they are, like Disney.com), and are more likely to be Internet-based distributors of content produced and created by others. For example, Apple sells music tracks at its iTunes Store, but it does not create or commission new music.

The phenomenal popularity of the iTunes Store, and Apple's Internet-connected devices like the iPhone, iPod, and iPad, have enabled new forms of digital content delivery from podcasting to mobile streaming. **Podcasting** is a method of publishing audio or video broadcasts via the Internet, allowing subscribing users to download audio or video files onto their personal computers or portable music players. **Streaming** is a publishing method for music and video files that flows a continuous stream of content to a user's device without being stored locally on the device.

Estimates vary, but total download, streaming, and subscription media revenues for 2012 are estimated at $19 billion annually. They are the fastest growing segment within e-commerce, growing at an estimated 20 percent annual rate.

Transaction Broker

Sites that process transactions for consumers normally handled in person, by phone, or by mail are transaction brokers. The largest industries using this model are financial services and travel services. The online transaction broker's primary value propositions are savings of money and time, as well as providing an extraordinary inventory of financial products and travel packages, in a single location. Online stock brokers and travel booking services charge fees that are considerably less than traditional versions of these services.

Market Creator

Market creators build a digital environment in which buyers and sellers can meet, display products, search for products, and establish prices. The value proposition of online market creators is that they provide a platform where sellers can easily display their wares and where purchasers can buy directly from sellers. Online auction markets like eBay and Priceline are good examples of the market creator business model. Another example is Amazon's Merchants platform (and similar programs at eBay) where merchants are allowed to set up stores on Amazon's Web site and sell goods at fixed prices to consumers. This is reminiscent of open air markets where the market creator operates a facility (a town square) where merchants and consumers meet. Online market creators will generate about $18 billion in revenues for 2012.

Service Provider

While e-tailers sell products online, service providers offer services online. There's been an explosion in online services. Web 2.0 applications, photo sharing, and online sites for data backup and storage all use a service provider business model. Software is no longer a physical product with a CD in a box, but increasingly software as a service (SaaS) that you subscribe to online rather than purchase from a retailer, or an app that you download. Google has led the way in developing online software service applications such as Google Apps, Google Sites, Gmail, and online data storage services.

Community Provider

Community providers are sites that create a digital online environment where people with similar interests can transact (buy and sell goods); share interests, photos, videos; communicate with like-minded people; receive interest-related information; and even play out fantasies by adopting online personalities called avatars. The social networking sites Facebook, Google + , Tumblr, LinkedIn, and Twitter; online communities such as iVillage; and hundreds of other smaller, niche sites such as Doostang and Sportsvite all offer users community-building tools and services. Social networking sites have been the fastest growing Web sites in recent years, often doubling their audience size in a year. However, they are struggling to achieve profitability.

E-COMMERCE REVENUE MODELS

A firm's **revenue model** describes how the firm will earn revenue, generate profits, and produce a superior return on investment. Although there are many different e-commerce revenue models that have been developed, most companies rely on one, or some combination, of the following six revenue models: advertising, sales, subscription, free/freemium, transaction fee, and affiliate.

Advertising Revenue Model

In the **advertising revenue model**, a Web site generates revenue by attracting a large audience of visitors who can then be exposed to advertisements. The advertising model is the most widely used revenue model in e-commerce, and arguably, without advertising revenues, the Web would be a vastly different experience from what it is now. Content on the Web—everything from news to videos and opinions—is "free" to visitors because advertisers pay the production and distribution costs in return for the right to expose visitors to ads. Companies will spend an estimated $166 billion on online advertising in 2012, and an estimated $39.5 billion of that amount on online advertising (in the form of a paid message on a Web site, paid search listing, video, app, game, or other online medium, such as instant messaging). In the last five years, advertisers have increased online spending and cut outlays on traditional channels such as radio and newspapers. In 2012, online advertising will grow at 15 percent and constitute about 30 percent of all advertising in the United States. Television advertising has also expanded along with online advertising revenues.

INTERACTIVE SESSION: ORGANIZATIONS

LOCATION-BASED MARKETING AND ADVERTISING

In October 2010, the UK-based cell phone carrier O2 launched the country's first large-scale, location-based service for delivering targeted marketing to mobile devices. The concept of targeted marketing is considered to be a vital part of any business. O2 Media, the mobile marketing division of the company, already uses customer data to provide personalized marketing to companies. For example, an iPhone application ("app") for a theme park that was targeted at families with children had great success, with approximately 30 percent of those targeted eventually downloading the app. The traditional targets for marketing are age, gender, interests, and so on. Location-based marketing can go further by targeting marketing at the right individuals at the right time, when they are in the right location to make a purchase.

Here's how O2's system works. O2 customers opt into the system by providing their age, gender, and interests. When customers are near an outlet that matches their profile, they receive an SMS message for discounts or other special offers. As of O2's launch, it was limited to providing discounts to Starbucks coffee shops and outlets supplying L'Oréal hair products, but O2 Media was confident that other partners will come on board.

The service is based on a technology called "geo-fencing," which is provided to O2 by a California based company called Placecast. In 2009, Placecast conducted a trial, under the name of ShopAlerts, involving three different types of retailers— American Eagle Outfitters (clothing for young adults), North Face (outdoor equipment and apparel), and Sonic (fast-food outlet). Although there may be some overlap between potential customers at these three retailers, plenty of people will fit one category but not the other two. Targeted marketing reduces the likelihood of relevant marketing messages being lost in "junk mail"; that is, customers get SMS messages that they know are probably relevant. According to research carried out by Placecast on ShopAlerts users, most customers opened the alerts immediately, and 65 percent made a purchase as a result of receiving the SMS message (interestingly, not always a purchase mentioned in the message).

O2 had to resolve several issues with this type of marketing.

- Opt in and opt out. Customers must be able to opt out of the system at any time and must be required to opt in at the start.

- Age. The O2 scheme is not available to customers younger than age 16.
- Data sharing. The targeted marketing is based on information supplied by the customer. This data must not be shared with other customers.
- Frequency. Because the SMS is triggered by the customer moving into the geo-fenced area, there is a danger that the customer will be bombarded with messages as he or she walks up and down the street. The Placecast American trial capped messages at one per every 48 hours and three per week. The O2 scheme limits the frequency of messages to one per day.
- Devices. The O2 scheme works on any mobile phone. It is not necessary to download an app (i.e., a smartphone is not required), and it does not affect the device's battery life.

As you might expect, O2 and its partners were enthusiastic about the venture. According to Shaun Gregory, managing director of O2 Media, the market potential is huge and this is a modern and efficient way to reach a mass audience in one go. Hal Kimber, head of CRM for L'Oréal, noted that the opportunity was very exciting and L'Oréal would learn a great deal which it could implement in future initiatives.

The use of text alerts for marketing does need to consider the potential customer and their use of texting. A survey conducted in October 2010 by comScore, a marketing research company that studies online behavior, found huge differences in mobile behavior in different parts of the world. The survey included cell phone users in Japan, the United States, and Europe. The researchers found that in the European sample more than 80 percent of people sent SMS messages to one another; in the United States the figure was 66.8 percent. In Japan, however, the figure was much lower—40.1 percent. Of course the lack of enthusiasm for sending messages does not necessarily reflect an unwillingness to receive marketing texts.

It appears that in Japan the emphasis is less on the opt-in approach of Placecast and more on location- based mobile advertising, a more sophisticated way of changing the advertising that a user receives when using an application. For example, someone using an iPhone or Android app typically also sees banner advertisements. AdLocal (now part of Yahoo! Japan) has the largest share of Japan's location-based advertising market (valued at US $1 billion!), and such technology can make sure that the advertising that the

user receives is based not necessarily on who they are but where they are. Advertisers create their own advertisements using a wizard and then specify the desired locations and dates to display them (for special promotions, discounts, etc.). It seems that the success of this type of intelligent marketing is likely to spread to the United States and Europe.

Sources: "O2 Launches UK's First Location-Based Mobile Marketing," O2 news release, October 15, 2010; Katheryn Koegel, "Consumer

Insights on Location-based Mobile Marketing," January 2010; "comScore Releases First Comparative Report on Mobile Usage in Japan, United States, and Europe," comScore press release, October 7, 2010; Farukh Shaikh, "Yahoo Japan Scoops Up Location-Based Mobile Ad Firm Cirius Technologies," eBrands, August 17, 2010 (http://news.ebrandz.com/yahoo/2010/3515-yahoo-japan-scoops-uplocation-based-mobile-ad-firm-cirius-technologies-.html, accessed October 25, 2010).

Case contributed by Andy Jones, Staffordshire University

CASE STUDY QUESTIONS

1. Two different approaches to capturing consumer interest are described in this case. How do the Placecast and AdLocal approaches differ?

2. Do you think that targeted advertising is better than a blanket approach? What is the difference for the advertiser? For the consumer?

3. The information from the comScore survey did not differentiate between age groups, only

country. Do you think there are differences in behavior among different age groups that would make location-based marketing better for one group than another?

4. Think of businesses in your area that might benefit from joining the O2 scheme. What could they offer?

Web sites with the largest viewership or that attract a highly specialized, differentiated viewership and are able to retain user attention ("stickiness") are able to charge higher advertising rates. Yahoo, for instance, derives nearly all its revenue from display ads (banner ads) and to a lesser extent search engine text ads. Ninety-five percent of Google's revenue derives from advertising, including selling keywords (AdWord), selling ad spaces (AdSense), and selling display ad spaces to advertisers (DoubleClick). Facebook will display one-third of the trillion display ads shown on all sites in 2012. Facebook's users spend an average of over 8 hours a week on the site, far longer than any of the other portal sites.

Sales Revenue Model

In the **sales revenue model**, companies derive revenue by selling goods, information, or services to customers. Companies such as Amazon (which sells

books, music, and other products), LLBean.com, and Gap.com, all have sales revenue models. Content providers make money by charging for downloads of entire files such as music tracks (iTunes Store) or books or for downloading music and/or video streams (Hulu.com TV shows). Apple has pioneered and strengthened the acceptance of micropayments. **Micropayment systems** provide content providers with a cost-effective method for processing high volumes of very small monetary transactions (anywhere from $.25 to $5.00 per transaction). The largest micropayment system on the Web is Apple's iTunes Store, which has more than 250 million credit customers who frequently purchase individual music tracks for 99 cents. MyMISlab has a Learning Track with more detail on micropayment and other e-commerce payment systems.

Subscription Revenue Model

In the **subscription revenue model**, a Web site offering content or services charges a subscription fee for access to some or all of its offerings on an ongoing basis. Content providers often use this revenue model. For instance, the online version of *Consumer Reports* provides access to premium content, such as detailed ratings, reviews, and recommendations, only to subscribers, who have a choice of paying a $5.95 monthly subscription fee or a $26.00 annual fee. Netflix is one of the most successful subscriber sites with more that 25 million subscribers in September 2012. The Wall Street Journal has the largest online subscription newspaper with more than 1 million online subscribers. To be successful, the subscription model requires that the content be perceived as having high added value, differentiated, and not readily available elsewhere nor easily replicated. Companies successfully offering content or services online on a subscription basis include Match.com and eHarmony (dating services), Ancestry.com and Genealogy.com (genealogy research), Microsoft's Xboxlive. com (video games), and Pandora.com (music).

Free/Freemium Revenue Model

In the **free/freemium revenue model**, firms offer basic services or content for free, while charging a premium for advanced or special features. For example, Google offers free applications but charges for premium services. Pandora, the subscription radio service, offers a free service with limited play time and advertising, and a premium service with unlimited play. The Flickr photo-sharing service offers free basic services for sharing photos with friends and family, and also sells a $24.95 "premium" package that provides users unlimited storage, high-definition video storage and playback, and freedom from display advertising. The idea is to attract very large audiences with free services, and then to convert some of this audience to pay a subscription for premium services. One problem with this model is converting people from being "free loaders" into paying customers. "Free" can be a powerful model for losing money.

Transaction Fee Revenue Model

In the **transaction fee revenue model**, a company receives a fee for enabling or executing a transaction. For example, eBay provides an online auction marketplace and receives a small transaction fee from a seller if the seller is successful in selling an item. E*Trade, an online stockbroker, receives transaction fees each time it executes a stock transaction on behalf of a customer. The transaction revenue model enjoys wide acceptance in part because the true cost of using the platform is not immediately apparent to the user.

Affiliate Revenue Model

In the **affiliate revenue model**, Web sites (called "affiliate Web sites") send visitors to other Web sites in return for a referral fee or percentage of the revenue from any resulting sales. For example, MyPoints makes money by connecting companies to potential customers by offering special deals to its members. When members take advantage of an offer and make a purchase, they earn "points" they can redeem for free products and services, and MyPoints receives a referral fee. Community feedback sites such as Epinions and Yelp receive much of their revenue from steering potential customers to Web sites where they make a purchase. Amazon uses affiliates who steer business to the Amazon Web site by placing the Amazon logo on their blogs. Personal blogs often contain display ads as a part of affiliate programs. Some bloggers are paid directly by manufacturers, or receive free products, for speaking highly of products and providing links to sales channels.

SOCIAL NETWORKING AND THE WISDOM OF CROWDS

One of the fastest growing areas of e-commerce revenues are Web 2.0 online services, which we described in Chapter 7. The most popular Web 2.0 service is social networking, online meeting places where people can meet their friends and their friends' friends. Every day over 93 million Internet users in the United States visit a social networking site like Facebook, Google+, Tumblr, MySpace, LinkedIn, and hundreds of others.

Social networking sites link people through their mutual business or personal connections, enabling them to mine their friends (and their friends' friends) for sales leads, job-hunting tips, or new friends. Google+, MySpace, Facebook, and Friendster appeal to people who are primarily interested in extending their friendships, while LinkedIn focuses on job networking for professionals.

At **social shopping** sites like Pinterest, Kaboodle, ThisNext, and Stylehive, you can swap shopping ideas with friends. Facebook offers the Like button and Google the +1 button to let your friends know you admire something, and in some cases, purchase something online. Online communities are also ideal venues to employ viral marketing techniques. Online viral marketing is like traditional word-of-mouth marketing except that the word can spread across an online community at the speed of light, and go much further geographically than a small network of friends.

The Wisdom of Crowds

Creating sites where thousands, even millions, of people can interact offers business firms new ways to market and advertise, to discover who likes (or hates) their products. In a phenomenon called "the **wisdom of crowds**," some argue that large numbers of people can make better decisions about a wide range of topics or products than a single person or even a small committee of experts (Surowiecki, 2004).

Obviously this is not always the case, but it can happen in interesting ways. In marketing, the wisdom of crowds concept suggests that firms should consult with thousands of their customers first as a way of establishing a relationship with them, and second, to better understand how their products and services are used and appreciated (or rejected). Actively soliciting the comments of your customers builds trust and sends the message to your customers that you care what they are thinking, and that you need their advice.

Beyond merely soliciting advice, firms can be actively helped in solving some business problems using what is called **crowdsourcing**. For instance,

in 2006, Netflix announced a contest in which it offered to pay $1 million to the person or team who comes up with a method for improving by 10 percent Netflix's prediction of what movies customers would like as measured against their actual choices. By 2009, Netflix received 44,014 entries from 5,169 teams in 186 countries. The winning team improved a key part of Netflix's business: a recommender system that recommends to its customers what new movies to order based on their personal past movie choices and the choices of millions of other customers who are like them (Howe, 2008; Resnick and Varian, 1997). In 2012, BMW launched a crowdsourcing project to enlist the aid of customers in designing an urban vehicle for 2025. Kickstarter.com is arguably one of the most famous e-commerce crowd funding sites where visitors invest in start-up companies.

Firms can also use the wisdom of crowds in the form of prediction markets. **Prediction markets** are established as peer-to-peer betting markets where participants make bets on specific outcomes of, say, quarterly sales of a new product, designs for new products, or political elections. The world's largest commercial prediction market is Betfair, founded in 2000, where you bet for or against specific outcomes on football games, horse races, and whether or not the Dow Jones will go up or down in a single day. Iowa Electronic Markets (IEM) is an academic market focused on elections. You can place bets on the outcome of local and national elections. In the United States, the largest prediction market is Intrade.com where users can buy or sell shares in predictions.

E-COMMERCE MARKETING

While e-commerce and the Internet have changed entire industries and enabled new business models, no industry has been more affected than marketing and marketing communications. The Internet provides marketers with new ways of identifying and communicating with millions of potential customers at costs far lower than traditional media, including search engine marketing, data mining, recommender systems, and targeted e-mail. The Internet enables **long tail marketing**. Before the Internet, reaching a large audience was very expensive, and marketers had to focus on attracting the largest number of consumers with popular hit products, whether music, Hollywood movies, books, or cars. In contrast, the Internet allows marketers to inexpensively find potential customers for products where demand is very low. For instance, the Internet makes it possible to sell independent music profitably to very small audiences. There's always some demand for almost any product. Put a string of such long tail sales together and you have a profitable business.

The Internet also provides new ways—often instantaneous and spontaneous—to gather information from customers, adjust product offerings, and increase customer value. Table 10.6 describes the leading marketing and advertising formats used in e-commerce.

Many e-commerce marketing firms use behavioral targeting techniques to increase the effectiveness of banner, rich media, and video ads. **Behavioral targeting** refers to tracking the clickstreams (history of clicking behavior) of individuals on thousands of Web sites for the purpose of understanding their interests and intentions, and exposing them to advertisements that are uniquely suited to their behavior. Proponents believe this more precise understanding of the customer leads to more efficient marketing (the firm pays for ads only to those shoppers who are most interested in their products) and larger sales and revenues. Unfortunately, behavioral targeting of millions of Web users also
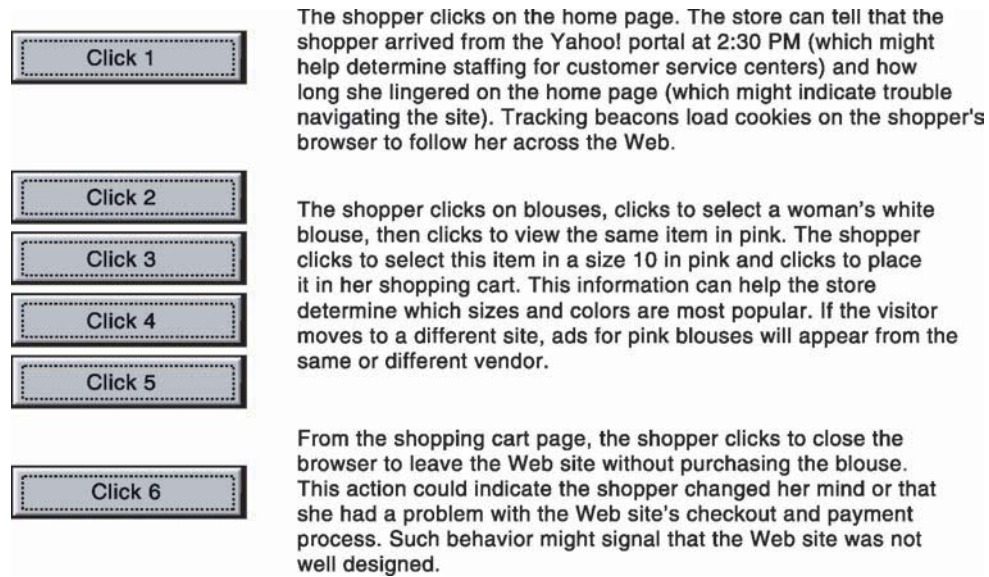
TABLE 10.6 ONLINE MARKETING AND ADVERTISING FORMATS (BILLIONS)

MARKETING FORMAT	2012 REVENUE	DESCRIPTION
Search engine	$17.6	Text ads targeted at precisely what the customer is looking for at the moment of shopping and purchasing. Sales oriented.
Display ads	$8.7	Banner ads (pop-ups and leave-behinds) with interactive features; increasingly behaviorally targeted to individual Web activity. Brand development and sales. Includes blog display ads.
Video	$2.9	Fastest growing format, engaging and entertaining; behaviorally targeted, interactive. Branding and sales.
Classified	$2.6	Job, real estate, and services ads; interactive, rich media, and personalized to user searches. Sales and branding.
Rich media	$1.8	Animations, games, and puzzles. Interactive, targeted, and entertaining. Branding orientation.
Lead generation	$1.7	Marketing firms that gather sales and marketing leads online, and then sell them to online marketers for a variety of campaign types. Sales or branding orientation.
Sponsorships	$1.61	Online games, puzzles, contests, and coupon sites sponsored by firms to promote products. Sales orientation.
E-mail	$.22	Effective, targeted marketing tool with interactive and rich media potential. Sales oriented.

leads to the invasion of personal privacy without user consent. When consumers lose trust in their Web experience, they tend not to purchase anything.

Behavioral targeting takes place at two levels: at individual Web sites and on various advertising networks that track users across thousands of Web sites. All Web sites collect data on visitor browser activity and store it in a database. They have tools to record the site that users visited prior to coming to the Web site, where these users go when they leave that site, the type of operating system they use, browser information, and even some location data. They also record the specific pages visited on the particular site, the time spent on each page of the site, the types of pages visited, and what the visitors purchased (see Figure 10.3). Firms analyze this information about customer interests and behavior to develop precise profiles of existing and potential customers. In addition, most major Web sites have hundreds of tracking programs on their home pages, which track your clickstream behavior across the Web by following you from site to site and re-target ads to you by showing you the same ads on different sites. The leading online advertising networks are Google's DoubleClick, Yahoo's RightMedia, and AOL's Ad Network. Ad networks represent publishers who have space to sell, and advertisers who want to market online. The lubricant of this trade is information on millions of Web shoppers, which helps advertisers target their ads to precisely the groups and individuals they desire.

This information enables firms to understand how well their Web site is working, create unique personalized Web pages that display content or ads for products or services of special interest to each user, improve the customer's experience, and create additional value through a better understanding of the shopper (see Figure 10.4). By using personalization technology to modify the Web pages presented to each customer, marketers achieve some of the

FIGURE 10.3 WEB SITE VISITOR TRACKING

Click 1

The shopper clicks on the home page. The store can tell that the shopper arrived from the Yahoo! portal at 2:30 PM (which might help determine staffing for customer service centers) and how long she lingered on the home page (which might indicate trouble navigating the site). Tracking beacons load cookies on the shopper's browser to follow her across the Web.

Click 2

Click 3

Click 4

Click 5

The shopper clicks on blouses, clicks to select a woman's white blouse, then clicks to view the same item in pink. The shopper clicks to select this item in a size 10 in pink and clicks to place it in her shopping cart. This information can help the store determine which sizes and colors are most popular. If the visitor moves to a different site, ads for pink blouses will appear from the same or different vendor.

Click 6

From the shopping cart page, the shopper clicks to close the browser to leave the Web site without purchasing the blouse. This action could indicate the shopper changed her mind or that she had a problem with the Web site's checkout and payment process. Such behavior might signal that the Web site was not well designed.

E-commerce Web sites and advertising platforms like Google's DoubleClick have tools to track a shopper's every step through an online store and then across the Web as shoppers move from site to site. Close examination of customer behavior at a Web site selling women's clothing shows what the store might learn at each step and what actions it could take to increase sales.

FIGURE 10.4 WEB SITE PERSONALIZATION

User ⇄ Web site

Based on your portfolio and recent market trends, here are some recommendations.

Welcome back, Steve P. Munson. Check out these recommended titles: One Minute Manager
Leading Change
Results-Based Leadership

Sarah,
Here are the items you want to bid on: Halogen reading lamp
Portable reading lamp
LED book reading lamp

Firms can create unique personalized Web pages that display content or ads for products or services of special interest to individual users, improving the customer experience and creating additional value.

benefits of using individual salespeople at dramatically lower costs. For instance, General Motors will show a Chevrolet banner ad to women emphasizing safety and utility, while men will receive different ads emphasizing power and ruggedness.

What if you are a large national advertising company with many different clients trying to reach millions of consumers? What if you were a large global manufacturer trying to reach potential consumers for your products? With millions of Web sites, working with each one would be impractical. Advertising networks solve this problem by creating a network of several thousand of the most popular Web sites visited by millions of people, tracking the behavior of these users across the entire network, building profiles of each user, and then selling these profiles to advertisers. Popular Web sites download dozens of Web tracking cookies, bugs, and beacons, which report user online behavior to remote servers without the users' knowledge. Looking for young, single consumers, with college degrees, living in the Northeast, in the 18–34 age range who are interested purchasing a European car? Not a problem. Advertising networks can identify and deliver hundreds of thousands of people who fit this profile and expose them to ads for European cars as they move from one Web site to another. Estimates vary, but behaviorally targeted ads are generally 10 times more likely to produce a consumer response than a randomly chosen banner or video ad (see Figure 10.5). So-called advertising exchanges use this same technology to auction access to people with very specific profiles to advertisers in a few milliseconds. In 2012, about 20 percent of online display ads are targeted, and the rest depend on the context of the pages shoppers visit, the estimated demographics of visitors, or so-called "blast and scatter" advertising, which is placed randomly on any available page with minimal targeting, such as time of day or season.

FIGURE 10.5 HOW AN ADVERTISING NETWORK SUCH AS DOUBLECLICK WORKS
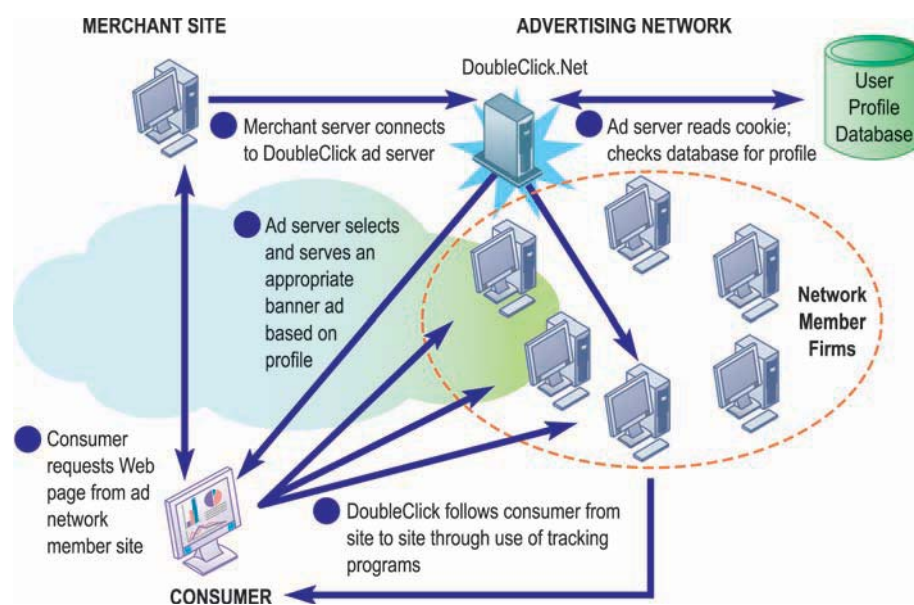
Advertising networks and their use of tracking programs have become controversial among privacy advocates because of their ability to track individual consumers across the Internet.

Social E-commerce and Social Network Marketing

Social e-commerce is commerce based on the idea of the digital **social graph**. The digital social graph is a mapping of all significant online social relationships. The social graph is synonymous with the idea of a "social network" used to describe offline relationships. You can map your own social graph (network) by drawing lines from yourself to the 10 closest people you know. If they know one another, draw lines between these people. If you are ambitious, ask these 10 friends to list and draw in the names of the 10 people closest to them. What emerges from this exercise is a preliminary map of your social network. Now imagine if everyone on the Internet did the same, and posted the results to a very large database with a Web site. Ultimately, you would end up with Facebook or a site like it. The collection of all these personal social networks is called "the social graph."

According to small world theory, you are only six links away from any other person on earth. If you entered your personal address book, say 100 names, on to a list and sent it to your friends, and they in turn entered 50 new names of their friends, and so on, six times, the social network created would encompass 31 billion people! The social graph is therefore a collection of millions of personal social graphs (and all the people in them). So it's a small world indeed, and we are all more closely linked than we ever thought.

Ultimately, you will find that you are directly connected to many friends and relatives, and indirectly connected to an even larger universe of indirect friends and relatives (your distant second and third cousins, and their friends). Theoretically, it takes six links for any one person to find another person anywhere on earth.

If you understand the inter-connectedness of people, you will see just how important this concept is to e-commerce: The products and services you buy will influence the decisions of your friends, and their decisions will in turn influence you. If you are a marketer trying to build and strengthen a brand, the implication is clear: Take advantage of the fact that people are enmeshed in social networks, share interests and values, and communicate and influence one another. As a marketer, your target audience is not a million isolated people watching a TV show, but the social network of people who watch the show, and the viewers' personal networks. Table 10.7 describes four features of social commerce that are driving its growth.

In 2012 and 2013, one of the fastest growing media for branding and marketing is social media. Expenditures for social media marketing are much smaller than television, magazines, and even newspapers, but this will change in the future. Social networks in the offline world are collections of people who voluntarily communicate with one another over an extended period of time. Online social networks, such as Facebook, MySpace, LinkedIn, Twitter, Tumblr, and Google+, along with tens of other sites with social components, are Web sites that enable users to communicate with one another, form group and individual relationships, and share interests, values, and ideas. Individuals establish online profiles with text and photos, creating an online profile of how they want others to see them, and then invite their friends to link to their profile. The network grows by word of mouth and through e-mail links. One of the most ubiquitous graphical elements on Web sites in 2012 is Facebook's Like button, which allows users to tell their friends they like a product, service, or content. Facebook processes around 50 million Likes a day, or 1.5 billion a year.

While Facebook, with 150 million U.S. monthly visitors, receives most of the public attention given to social networking, the other top four social sites are growing very rapidly with the exception of MySpace. LinkedIn has grown 58 percent in 2012 to reach 40 million monthly visitors; Twitter grew 13 percent

TABLE 10.7 **FEATURES OF SOCIAL COMMERCE**

SOCIAL COMMERCE FEATURE	DESCRIPTION
Social sign-on	Web sites allow users to sign into their sites through their social network pages on Facebook or another social site. This allows Web sites to receive valuable social profile information from Facebook and use it in their own marketing efforts.
Collaborative shopping	Creating an environment where consumers can share their shopping experiences with one another by viewing products, chatting, or texting. Friends can chat online about brands, products, and services.
Network notification	Creating an environment where consumers can share their approval (or disapproval) of products, services, or content, or share their geo-location, perhaps a restaurant or club, with friends. Facebook's ubiquitous Like button is an example. Twitter tweets and followers are another example.
Social search (recommendations)	Enabling an environment where consumers can ask their friends for advice on purchases of products, services, and content. While Google can help you find things, social search can help you evaluate the quality of things by listening to the evaluations of your friends, or their friends. For instance, Amazon's social recommender system can use your Facebook social profile to recommend products.

in 2012 to reach 37 million; and the social blogging site Tumblr reached 27 million people a month, growing 166 percent that year. MySpace, in contrast, has been shrinking but nevertheless attracted 28 million visitors a month in 2012. According to ComScore, about 20 percent of the total time spent online in the United States was spent on social network sites, up from around 8 percent in 2007 (ComScore, 2012). The fastest growing smartphone applications are social network apps: about 30 percent of smartphone users use their phones to visit social sites. Half of all visits to Facebook in 2012 come from smartphones.

Marketers cannot ignore these huge audiences which rival television and radio in size. In 2012, 72 percent of the U.S. Fortune 500 companies had a Twitter account, 66 percent had a Facebook account, 62 percent had a YouTube account, and 28 percent had a corporate blog. Marketers will spend over $3 billion on social network marketing in 2012 (twice the level of 2010), about 9 percent of all online marketing (eMarketer Inc., 2012).

Marketing via social media is still in its early stages, and companies are experimenting in hopes of finding a winning formula. Social interactions and customer sentiment are not always easy to manage, presenting new challenges for companies eager to protect their brands. The Interactive Session on Management provides specific examples of companies' social marketing efforts using Facebook and Twitter.

B2B E-COMMERCE: NEW EFFICIENCIES AND RELATIONSHIPS

The trade between business firms (business-to-business commerce or B2B) represents a huge marketplace. The total amount of B2B trade in the United States in 2012 is estimated to be about $16 trillion, with B2B e-commerce (online

INTERACTIVE SESSION: MANAGEMENT

SOCIAL COMMERCE CREATES NEW CUSTOMER RELATIONSHIPS

To most people, Facebook and Twitter are ways to keep in touch with friends and to let them know what they are doing. For companies of all shapes and sizes, however, Facebook and Twitter have become powerful tools for engaging customers. Location-based businesses like gourmet food trucks can tweet their current location to loyal followers and fans. Appointment-based businesses can easily tweet or post cancellations and unexpected openings. Larger companies run sweepstakes and promotions. And companies of all sizes have an opportunity to shape the perception of their brands and to solidify relationships with their customers.

Companies are rolling out ads that capitalize on the social media features of Facebook to achieve greater visibility. For example, many Facebook ads feature the ability to 'Like' a brand, send a virtual gift, answer a poll question, or instantly stream information to your news feed. Twitter has developed many new offerings to interested advertisers, like 'Promoted Tweets' and 'Promoted Trends'. These features give advertisers the ability to have their tweets displayed more prominently when Twitter users search for certain keywords.

Levi's was one of the first national brands to use Facebook and Twitter to allow consumers to socialize and share their purchases with friends. The Levi's Facebook page has posted 500,000 Like messages posted by friends sharing their favorite jeans. Within the first week of its share campaign, Levis received 4,000 Likes. The company began using Twitter in 2010 by creating a "Levi's Guy," 23-year-old USC graduate Gareth, to interest customers. He has over 6,000 followers and is responsible for responding to queries and engaging in conversations about the Levi's brand on Twitter. In 2011, the company created a personalized Friends Store where shoppers can see what their friends Liked and bought.

The all-purpose electronics retailer Best Buy has 4.6 million fans on Facebook and 200,000 followers on Twitter. Best Buy uses a dedicated team of Twitter responders, called the "Twelp Force," to answer user questions and respond to complaints. Because Best Buy has so many social media followers who are generating feedback on social networks and related sites, the company uses text mining to gather these data and convert them to useful information. Best Buy has a central analytical platform that can ana-

lyze any kind of unstructured data it supplies. The company uses that information to gauge the success of promotions, which products are hot and which are duds, and the impact of advertising campaigns.

Wrigleyville Sports is a small business with three retail stores and e-commerce sites selling sports-related clothing and novelties like a panini maker that puts the Chicago Cubs logo on your sandwich. The company has been building a Facebook following for over three years. Facebook page posts use much of the same content as its e-mail campaigns, but the company's Twitter campaigns have to be condensed to 140 characters. Some Wrigleyville promotions use all of these channels while others are more social-specific. For example, in 2011, the company ran a Mother's Day contest on its Facebook page exhorting visitors to post a picture of Mom demonstrating why she's the biggest Chicago Cubs fan. Wrigleyville tracks purchases related to its promotions with its NetSuite customer relationship management system and is able to tell which promotions yield the most profitable new customers. Wrigleyville knows which customers responded, how much they spent, and what they purchased, so it can measure conversion rates, the value of keyword buys, and the ultimate return on campaigns.

Many companies are running online ads that focus less on pitching their products than on promoting their Facebook pages and Twitter accounts. The ads feature menu tabs and allow users to click within the ad to see a brand's Twitter messages or Facebook Wall posts in real time, or to watch a brand's video content from YouTube—all within the Web page where the ad appears. Incorporating live content from Facebook and Twitter makes online ads appear less "static" and more current than other content.

For example, a recent online ad for the Mrs. Meyers cleaning brand stating "Clean should smell better" instructed users to "hover to expand." When a cursor was placed over the ad, it exposed an area that displayed Facebook Wall posts, Twitter postings about Mrs. Meyers, or a company video, all without leaving the Web page being visited. Consumers spent an average of 30 seconds interacting with the ad, compared to 11 seconds for other types of online ads, according to Google. Consumers were also more likely to click on a "Learn More" button to go to Mrs. Meyers' own Web site, with 35 of every 1,000 users

clicking through, compared with an average of just one in 1,000 for traditional online ads.

Even if the Facebook or Twitter postings in ads show brands apologizing about missteps or customer complaints, advertisers may still benefit. Today, the more honest and human companies appear, the more likely consumers are to like them and stick with them. For example, JCD Repair, a six-year-old iPhone, iPad, and Android repair business based in Chicago, found that encouraging customers to post reviews of its service on Facebook, Yelp, and Google+ Local helped generate more business. Although the vast majority of the reviews are overwhelmingly positive, Matt McCormick, JCD's owner, believes that even the bad reviews can be useful. A bad review here and there not only helps you look more credible, it can also give you very valuable feedback on what you're doing wrong, McCormick believes. It also gives you a chance to set the situation right with the customer. If you deal with problems swiftly and set things right, people are impressed.

Still, the results can be unpredictable, and not always beneficial, as Starbucks learned. Starbucks runs contests on Twitter regularly and uses the service to spread free product samples. In 2009, Starbucks launched a social media contest that was essentially a scavenger hunt for advertising posters. Users who found the posters and posted photos of them on Twitter would win a prize. The campaign backfired. At the urging of anti-Starbucks protesters, users flooded Starbucks' Twitter feed with pictures of employees and protesters holding signs criticizing Starbucks' labor practices.

Sources: Melinda F. Emerson, "Even Bad Reviews on the Web Can Help Your Business," *The New York Times*, July 17, 2012; Doug Henschen, "How to Get from CRM to Social," *InformationWeek*, February 22, 2012; Betsy Sigman, "Social Media Helps Build Strong Brands," Baseline, March 9, 2012; Andrew Adam Newman, "Brands Now Direct Their Followers to Social Media," *The New York Times*, August 3, 2011; Geoffrey A. Fowler, "Are You Talking to Me?" *The Wall Street Journal*, April 25, 2011; "In a Few Words, Growth," *The Wall Street Journal*, June 6, 2011; "Starbucks and Twitter: Hash Tag Hell," Viva Visibility, vivavisibilityblog.com/hash-tag-hell/; and "Anti-Starbucks Filmmakers Hijack the Coffee Company's Own Twitter Marketing Campaign," bloggasm.com, May 21, 2009.

CASE STUDY QUESTIONS

1. Assess the management, organization, and technology issues for using social media to engage with customers.

2. What are the advantages and disadvantages of using social media for advertising, brand building, market research, and customer service?

3. Give some examples of management decisions that were facilitated by using social media to interact with customers.

4. Should all companies use Facebook and Twitter for customer service and advertising? Why or why not? What kinds of companies are best suited to use these platforms?

B2B) contributing about $4.1 trillion of that amount (U.S. Census Bureau, 2012; authors' estimates). By 2016, B2B e-commerce should grow to about $5.6 trillion in the United States. The process of conducting trade among business firms is complex and requires significant human intervention, and therefore, it consumes significant resources. Some firms estimate that each corporate purchase order for support products costs them, on average, at least $100 in administrative overhead. Administrative overhead includes processing paper, approving purchase decisions, spending time using the telephone and fax machines to search for products and arrange for purchases, arranging for shipping, and receiving the goods. Across the economy, this adds up to trillions of dollars annually being spent for procurement processes that could potentially be automated. If even just a portion of inter-firm trade were automated, and parts of the entire procurement process assisted by the Internet, literally trillions of dollars might be released for more productive uses, consumer prices potentially would fall, productivity would increase, and the economic wealth of the nation would expand. This is the promise of B2B e-commerce. The challenge

of B2B e-commerce is changing existing patterns and systems of procurement, and designing and implementing new Internet-based B2B solutions.

Business-to-business e-commerce refers to the commercial transactions that occur among business firms. Increasingly, these transactions are flowing through a variety of different Internet-enabled mechanisms. About 80 percent of online B2B e-commerce is still based on proprietary systems for **electronic data interchange (EDI)**. Electronic data interchange enables the computer-to-computer exchange between two organizations of standard transactions such as invoices, bills of lading, shipment schedules, or purchase orders. Transactions are automatically transmitted from one information system to another through a network, eliminating the printing and handling of paper at one end and the inputting of data at the other. Each major industry in the United States and much of the rest of the world has EDI standards that define the structure and information fields of electronic documents for that industry.

EDI originally automated the exchange of documents such as purchase orders, invoices, and shipping notices. Although many companies still use EDI for document automation, firms engaged in just-in-time inventory replenishment and continuous production use EDI as a system for continuous replenishment. Suppliers have online access to selected parts of the purchasing firm's production and delivery schedules and automatically ship materials and goods to meet prespecified targets without intervention by firm purchasing agents (see Figure 10.6).

Although many organizations still use private networks for EDI, they are increasingly Web-enabled because Internet technology provides a much more flexible and low-cost platform for linking to other firms. Businesses are able to extend digital technology to a wider range of activities and broaden their circle of trading partners.

Take procurement, for example. Procurement involves not only purchasing goods and materials but also sourcing, negotiating with suppliers, paying for goods, and making delivery arrangements. Businesses can now use the Internet to locate the lowest-cost supplier, search online catalogs of supplier products, negotiate with suppliers, place orders, make payments, and arrange transportation. They are not limited to partners linked by traditional EDI networks.

The Internet and Web technology enable businesses to create new electronic storefronts for selling to other businesses with multimedia graphic displays and interactive features similar to those for B2C commerce. Alternatively, businesses can use Internet technology to create extranets or electronic marketplaces for linking to other businesses for purchase and sale transactions.

FIGURE 10.6 ELECTRONIC DATA INTERCHANGE (EDI)
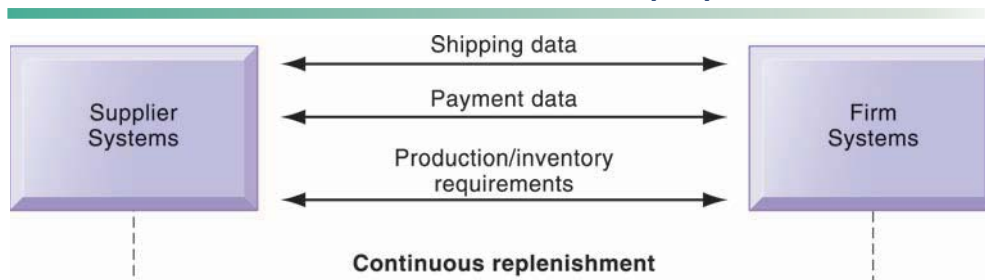
Companies use EDI to automate transactions for B2B e-commerce and continuous inventory replenishment. Suppliers can automatically send data about shipments to purchasing firms. The purchasing firms can use EDI to provide production and inventory requirements and payment data to suppliers.

FIGURE 10.7 A PRIVATE INDUSTRIAL NETWORK
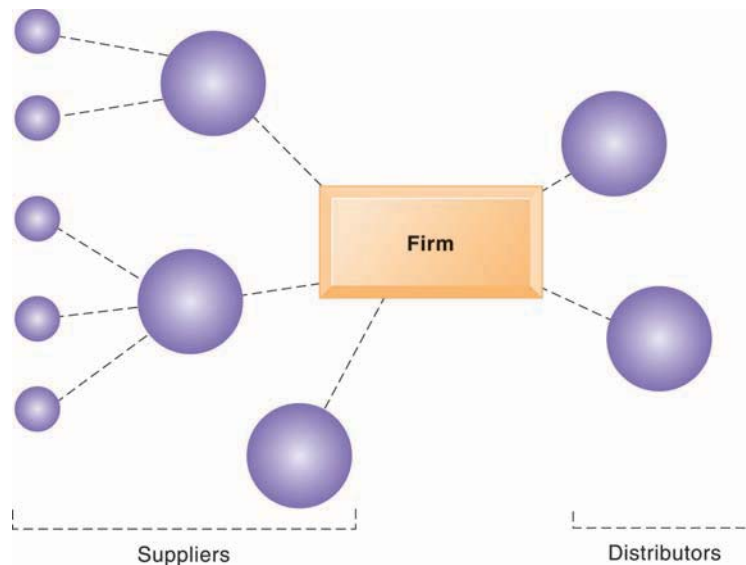
A private industrial network, also known as a private exchange, links a firm to its suppliers, distributors, and other key business partners for efficient supply chain management and other collaborative commerce activities.

Private industrial networks typically consist of a large firm using a secure Web site to link to its suppliers and other key business partners (see Figure 10.7). The network is owned by the buyer, and it permits the firm and designated suppliers, distributors, and other business partners to share product design and development, marketing, production scheduling, inventory management, and unstructured communication, including graphics and e-mail. Another term for a private industrial network is a **private exchange**.

An example is VW Group Supply, which links the Volkswagen Group and its suppliers. VW Group Supply handles 90 percent of all global purchasing for Volkswagen, including all automotive and parts components.

Net marketplaces, which are sometimes called e-hubs, provide a single, digital marketplace based on Internet technology for many different buyers and sellers (see Figure 10.8). They are industry owned or operate as independent intermediaries between buyers and sellers. Net marketplaces generate revenue from purchase and sale transactions and other services provided to clients. Participants in Net marketplaces can establish prices through online negotiations, auctions, or requests for quotations, or they can use fixed prices.

There are many different types of Net marketplaces and ways of classifying them. Some Net marketplaces sell direct goods and some sell indirect goods. **Direct goods** are goods used in a production process, such as sheet steel for auto body production. **Indirect goods** are all other goods not directly involved in the production process, such as office supplies or products for maintenance and repair. Some Net marketplaces support contractual purchasing based on long-term relationships with designated suppliers, and others support short-term spot purchasing, where goods are purchased based on immediate needs, often from many different suppliers.

Some Net marketplaces serve vertical markets for specific industries, such as automobiles, telecommunications, or machine tools, whereas others serve horizontal markets for goods and services that can be found in many different industries, such as office equipment or transportation.

FIGURE 10.8 A NET MARKETPLACE
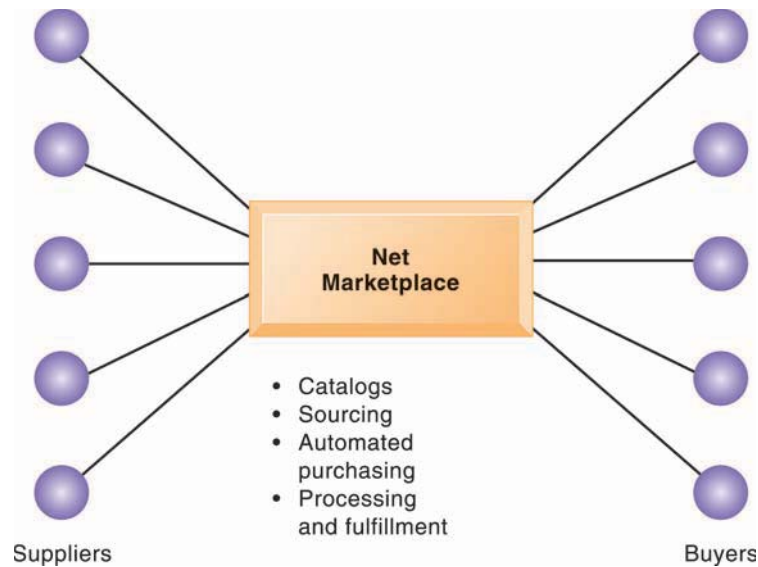
Net marketplaces are online marketplaces where multiple buyers can purchase from multiple sellers.

Exostar is an example of an industry-owned Net marketplace, focusing on long-term contract purchasing relationships and on providing common networks and computing platforms for reducing supply chain inefficiencies. This aerospace and defense industry-sponsored Net marketplace was founded jointly by BAE Systems, Boeing, Lockheed Martin, Raytheon, and Rolls-Royce plc to connect these companies to their suppliers and facilitate collaboration. More than 70,000 trading partners in the commercial, military, and government sectors use Exostar's sourcing, e-procurement, and collaboration tools for both direct and indirect goods.

Exchanges are independently owned third-party Net marketplaces that connect thousands of suppliers and buyers for spot purchasing. Many exchanges provide vertical markets for a single industry, such as food, electronics, or industrial equipment, and they primarily deal with direct inputs. For example, Go2Paper enables a spot market for paper, board, and kraft among buyers and sellers in the paper industries from over 75 countries.

Exchanges proliferated during the early years of e-commerce but many have failed. Suppliers were reluctant to participate because the exchanges encouraged competitive bidding that drove prices down and did not offer any long-term relationships with buyers or services to make lowering prices worthwhile. Many essential direct purchases are not conducted on a spot basis because they require contracts and consideration of issues such as delivery timing, customization, and quality of products.

10.3 THE MOBILE DIGITAL PLATFORM AND MOBILE E-COMMERCE

Walk down the street in any major metropolitan area and count how many people are pecking away at their iPhones or BlackBerrys. Ride the trains, fly the planes, and you'll see your fellow travelers reading an online newspaper,

watching a video on their phone, or reading a novel on their Kindle. In five years, the majority of Internet users in the United States will rely on mobile devices as their primary device for accessing the Internet. M-commerce has taken off.

In 2012, m-commerce represented about 10 percent of all e-commerce, with about $30 billion in annual revenues generated by retail goods and services, apps, advertising, music, videos, ring tones, applications, movies, television, and location-based services like local restaurant locators and traffic updates. However, m-commerce is the fastest growing form of e-commerce, with some areas expanding at a rate of 50 percent or more per year, and is estimated to grow to $150 billion in 2016 (see Figure 10.9). In 2012, there were an estimated 4 billion cell phone users worldwide, with over 855 million in China and 242 million in the United States (eMarketer, 2012 (M-commerce sales); eMarketer, 2012 (mobile phone users)).

The main areas of growth in mobile e-commerce are retail sales at the top Mobile 400 companies, including Amazon and eBay (about $18.8 billion); sales of Apple and Android apps (about $8.7 billion); and sales of digital content music, TV shows and movies (about $3 billion) (Internet Retailer, 2012). These estimates do not include mobile advertising or location-based services.

M-commerce applications have taken off for services that are time-critical, that appeal to people on the move, or that accomplish a task more efficiently than other methods. The following sections describe some examples.

LOCATION-BASED SERVICES AND APPLICATIONS

Location-based services include geosocial services, geoadvertising, and geo-information services. Seventy-four percent of smartphone owners use location-based services. What ties these activities together and is the foundation for mobile commerce is global positioning system (GPS) enabled map services

FIGURE 10.9   CONSOLIDATED MOBILE COMMERCE REVENUES
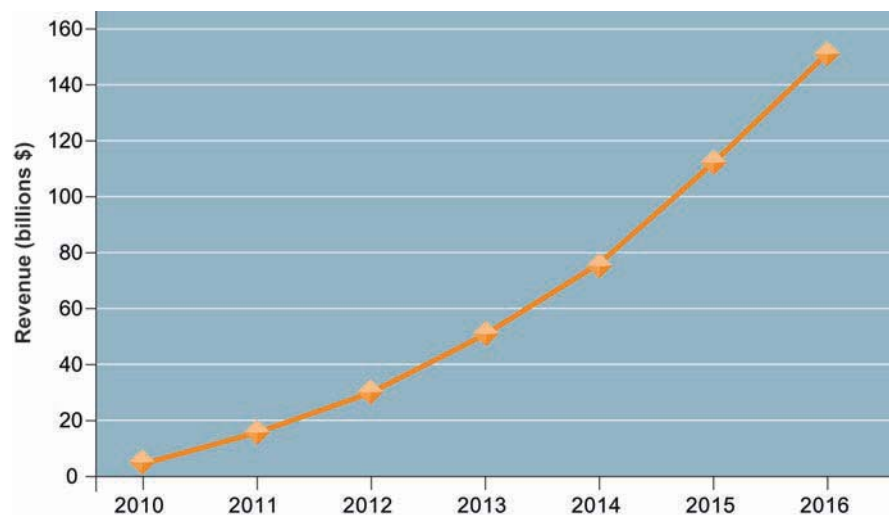
Mobile e-commerce is the fastest growing type of B2C e-commerce although it represents only a small part of all e-commerce in 2012.

available on smartphones. A **geosocial service** can tell you where your friends are meeting. **Geoadvertising services** can tell you where to find the nearest Italian restaurant, and **geoinformation services** can tell you the price of a house you are looking at, or about special exhibits at a museum you are passing.

Wikitude.me is an example of a geoinformation service. Wikitude.me provides a special kind of browser for smartphones equipped with a built-in GPS and compass that can identify your precise location and where the phone is pointed. Using information from over 800,000 points of interest available on Wikipedia, plus thousands of other local sites, the browser overlays information about points of interest you are viewing, and displays that information on your smartphone screen, superimposed on a map or photograph that you just snapped. For example, users can point their smartphone cameras towards mountains from a tour bus and see the names and heights of the mountains displayed on the screen. Wikitude.me also allows users to geo-tag the world around them, and then submit the tags to Wikitude in order to share content with other users.

Foursquare, Gowalla (now owned by Facebook), Loopt, and new offerings by Facebook and Google are examples of geosocial services. Geosocial services help you find friends, or be found by your friends, by "checking in" to the service, announcing your presence in a restaurant or other place. Your friends are instantly notified. About 20 percent of smartphone owners use geosocial services. The popularity of specialized sites like Foursquare has waned as Facebook and Google + have moved into geosocial services and turned them into extensions of their larger social networks.

Loopt has 5 million users in 2012. The service doesn't sell information to advertisers, but does post ads based on user location. Loopt's target is to deal with advertisers at the walking level (within 200 to 250 meters). Foursquare provides a similar location-based social networking service to 22 million registered users, who may connect with friends and update their location. Points are awarded for checking in at designated venues. Users choose to have their check-ins posted on their accounts on Twitter, Facebook, or both. Users also earn badges by checking in at locations with certain tags, for check-in frequency, or for the time of check-in. More than 500,000 local merchants worldwide use the merchant platform for marketing.

Connecting people to local merchants in the form of geoadvertising is the economic foundation for mobile commerce. Mobile advertising in 2012 will reach $2.6 billion in 2012. Geoadvertising sends ads to users based on their GPS locations. Smartphones report their locations back to Google and Apple. Merchants buy access to these consumers when they come within range of a merchant. For instance, Kiehl Stores, a cosmetics retailer, sent special offers and announcements to customers who came within 100 yards of their store (eMarketer, 2012).

OTHER MOBILE COMMERCE SERVICES

Banks and credit card companies are rolling out services that let customers manage their accounts from their mobile devices. JPMorgan Chase and Bank of America customers can use their cell phones to check account balances, transfer funds, and pay bills. An estimated 134 million people bank online at least once a month.

Although the mobile advertising market is currently small ($2.6 billion), it is rapidly growing (up 44 percent from last year and expected to grow to over $12 billion by 2016), as more and more companies seek ways to exploit new

databases of location-specific information (eMarketer, 2012). The largest providers of mobile display advertising are Apple's iAd platform and Google's AdMob platform (both with a 21 percent market share) followed by Millenial Media. Facebook is a distant fourth but moving rapidly to catch up. Alcatel-Lucent offers a new service to be managed by Placecast that will identify cell phone users within a specified distance of an advertiser's nearest outlet and notify them about the outlet's address and phone number, perhaps including a link to a coupon or other promotion. Placecast's clients include Hyatt, FedEx, and Avis Rent A Car.

Yahoo displays ads on its mobile home page for companies such as Pepsi, Procter & Gamble, Hilton, Nissan, and Intel. Google is displaying ads linked to cell phone searches by users of the mobile version of its search engine, while Microsoft offers banner and text advertising on its MSN Mobile portal in the United States. Ads are embedded in games, videos, and other mobile applications.

Shopkick is a mobile application that enables retailers such as Best Buy, Sports Authority, and Macy's to offer coupons to people when they walk into their stores. The Shopkick app automatically recognizes when the user has entered a partner retail store and offers a new virtual currency called "kickbucks," which can be redeemed for Facebook credits, iTunes Gift Cards, travel vouchers, DVDs, or immediate cash-back rewards at any of the partner stores.

Fifty-five percent of online retailers now have m-commerce Web sites—simplified versions of their Web sites that make it possible for shoppers to use cell phones to place orders. Clothing retailers Lilly Pulitzer and Armani Exchange, Home Depot, Amazon, Walmart, and 1–800 Flowers are among those companies with apps for m-commerce sales.

Games and Entertainment

Smartphones and tablets have developed into portable entertainment platforms. Smartphones like the iPhone and Android-based devices offer downloadable and streaming digital games, movies, TV shows, music, and ring tones.

Users of broadband services from the major wireless vendors can stream on-demand video clips, news clips, and weather reports. MobiTV, offered by Verizon Wireless, AT&T Wireless, and other mobile carriers, features live TV programs, including MSNBC and Fox Sports. Film companies are starting to produce short films explicitly designed to play on mobile phones. User-generated content is also appearing in mobile form. Facebook, MySpace, YouTube, and other social networking sites have versions for mobile devices. In 2012, the top 10 most popular apps on Facebook are games, led by *Words with Friends*, *FarmVille*, and *CityVille*, each with over 5 million daily users.

10.4 BUILDING AN E-COMMERCE PRESENCE

Building a successful e-commerce presence requires a keen understanding of business, technology, and social issues, as well as a systematic approach. In 2012, an e-commerce presence is not just a corporate Web site, but may also include a social network site on Facebook, a Twitter company feed, and smartphone apps where customers can access your services. Developing and coordinating all these different customer venues can be difficult. A complete treatment of the topic is beyond the scope of this text, and students should

consult books devoted to just this topic (Laudon and Traver, 2013). The two most important management challenges in building a successful e-commerce presence are (1) developing a clear understanding of your business objectives and (2) knowing how to choose the right technology to achieve those objectives.

PIECES OF THE SITE-BUILDING PUZZLE

Let's assume you are a manager for a medium-sized, industrial parts firm of around 10,000 employees worldwide, operating in eight countries in Europe, Asia, and North America. Senior management has given you a budget of $1 million to build an e-commerce site within one year. The purpose of this site will be to sell and service the firm's 20,000 customers, who are mostly small machine and metal fabricating shops around the world. Where do you start?

First, you must be aware of the main areas where you will need to make decisions. On the organizational and human resources fronts, you will have to bring together a team of individuals who possess the skill sets needed to build and manage a successful e-commerce site. This team will make the key decisions about technology, site design, and social and information policies that will be applied at your site. The entire site development effort must be closely managed if you hope to avoid the disasters that have occurred at some firms.

You will also need to make decisions about your site's hardware, software, and telecommunications infrastructure. The demands of your customers should drive your choices of technology. Your customers will want technology that enables them to find what they want easily, view the product, purchase the product, and then receive the product from your warehouses quickly. You will also have to carefully consider your site's design. Once you have identified the key decision areas, you will need to think about a plan for the project.

BUSINESS OBJECTIVES, SYSTEM FUNCTIONALITY, AND INFORMATION REQUIREMENTS

You need to answer this question when planning your Web site: "What do we want the e-commerce site to do for our business?" The key lesson to be learned here is to let the business decisions drive the technology, not the reverse. This will ensure that your technology platform is aligned with your business. We will assume that you have identified a business strategy and chosen a business model to achieve your strategic objectives. But how do you translate your strategies, business models, and ideas into a working e-commerce site?

Your planning should identify the specific business objectives for your site, and then you must develop a list of system functionalities and information requirements. Business objectives are simply capabilities you want your site to have. System functionalities are types of information systems capabilities you will need to achieve your business objectives. The information requirements for a system are the information elements that the system must produce in order to achieve the business objectives.

Table 10.8 describes some basic business objectives, system functionalities, and information requirements for a typical e-commerce site. The objectives must be translated into a description of system functionalities and ultimately into a set of precise information requirements. The specific information requirements for a system typically are defined in much greater detail than Table 10.8

TABLE 10.8 **SYSTEM ANALYSIS: BUSINESS OBJECTIVES, SYSTEM FUNCTIONALITY, AND INFORMATION REQUIREMENTS FOR A TYPICAL E-COMMERCE SITE**

| BUSINESS OBJECTIVE	SYSTEM FUNCTIONALITY	INFORMATION REQUIREMENTS
Display goods	Digital catalog	Dynamic text and graphics catalog
Provide product information (content)	Product database	Product description, stocking numbers, inventory levels
Personalize/customize product	Customer on-site tracking	Site log for every customer visit; data mining capability to identify common customer paths and appropriate responses
Execute a transaction payment	Shopping cart/payment system	Secure credit card clearing; multiple options
Accumulate customer information	Customer database	Name, address, phone, and e-mail for all customers; online customer registration
Provide after-sale customer support	Sales database and customer relationship management system (CRM)	Customer ID, product, date, payment, shipment date
Coordinate marketing/advertising	Ad server, e-mail server, e-mail, campaign manager, ad banner manager	Site behavior log of prospects and customers linked to e-mail and banner ad campaigns
Understand marketing effectiveness	Site tracking and reporting system	Number of unique visitors, pages visited, products purchased, identified by marketing campaign
Provide production and supplier links	Inventory management system	Product and inventory levels, supplier ID and contact, order quantity data by product

indicates. The business objectives of an e-commerce site are similar to those of a physical retail store, but they must be provided entirely in digital form, 24 hours a day, 7 days a week.

BUILDING THE WEB SITE: IN-HOUSE VERSUS OUTSOURCING

There are many choices for building and maintaining Web sites. Much depends on how much money you are willing to spend. Choices range from outsourcing the entire Web site development to an external vendor to building everything yourself (in-house). You also have a second decision to make: will you host (operate) the site on your firm's own servers or will you outsource the hosting to a Web host provider? There are some vendors who will design, build, and host your site, while others will either build or host (but not both). Figure 10.10 illustrates the alternatives.

The Building Decision

If you elect to build your own site, there are a range of options. Unless you are fairly skilled, you should use a pre-built template to create the Web site. For example, Yahoo! Merchant Solutions, Amazon Stores, and eBay all provide

FIGURE 10.10 CHOICES IN BUILDING AND HOSTING WEB SITES
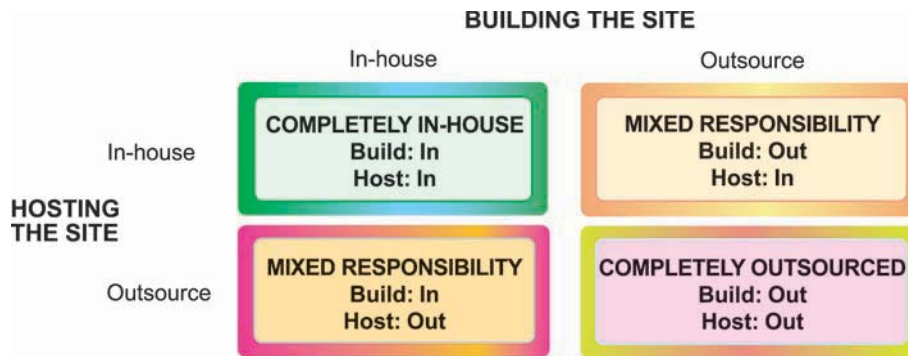
You have a number of alternatives to consider when building and hosting an e-commerce site.

templates that merely require you to input text, graphics, and other data, as well as provide the infrastructure to run the Web site once it has been created. This is the least costly and simplest solution, but you will be limited to the "look and feel" and functionality provided by the template and infrastructure.

If you have some experience with computers, you might decide to build the site yourself. There is a broad variety of tools, ranging from those that help you build everything truly "from scratch," such as Adobe Dreamweaver, Adobe InDesign, and Microsoft Expression, to top-of-the-line prepackaged site-building tools that can create sophisticated sites customized to your needs.

The decision to build a Web site on your own has a number of risks. Given the complexity of features such as shopping carts, credit card authentication and processing, inventory management, and order processing, development costs are high, as are the risks of doing a poor job. You will be reinventing what other specialized firms have already built, and your staff may face a long, difficult learning curve, delaying your entry to market. Your efforts could fail. On the positive side, you may able to build a site that does exactly what you want, and develop the in-house knowledge to revise the site rapidly if necessitated by a changing business environment.

If you choose more expensive site-building packages, you will be purchasing state-of-the-art software that is well tested. You could get to market sooner. However, to make a sound decision, you will have to evaluate many different software packages and this can take a long time. You may have to modify the packages to fit your business needs and perhaps hire additional outside consultants to do the modifications. Costs rise rapidly as modifications mount. A $4,000 package can easily become a $40,000 to $60,000 development project simply because of all the code changes required.

The Hosting Decision

Now let's look at the hosting decision. Most businesses choose to outsource hosting and pay a company to host their Web site, which means that the hosting company is responsible for ensuring the site is "live" or accessible, 24 hours a day. By agreeing to a monthly fee, the business need not concern itself with technical aspects of setting up and maintaining a Web server, telecommunications links, or specialized staffing. With a **co-location agreement**, your firm purchases or leases a Web server (and has total control over its operation) but

FIGURE 10.11 COMPONENTS OF A WEB SITE BUDGET
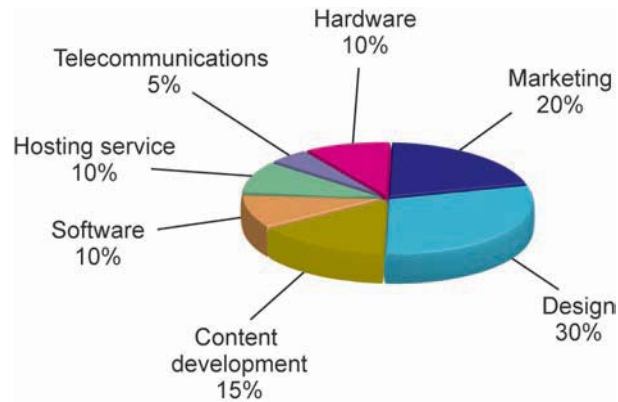
locates the server in a vendor's physical facility. The vendor maintains the facility, communications lines, and the machinery. In the age of cloud computing, it is much less expensive to host your Web site in virtualized computing facilities. In this case, you do not purchase the server, but rent the capabilities of a cloud computing center such as Rackspace (a popular hosting site). There is an extraordinary range of prices for cloud hosting, ranging from $4.95 a month to several hundred thousands of dollars per month depending on the size of the Web site, bandwidth, storage, and support requirements. Very large providers (such as IBM, HP, and Oracle) achieve large economies of scale by establishing huge "server farms" located strategically around the country and the globe. What this means is that the cost of pure hosting has fallen as fast as the fall in server prices, dropping about 50 percent every year.

Web Site Budgets

Simple Web sites can be built and hosted with a first-year cost of $5,000 or less. The Web sites of large firms with high levels of interactivity and linkage to corporate systems cost several million dollars a year to create and operate. For instance, Bluefly, which sells discounted women's and men's designer clothes online, invested over $5.3 million in connection with the redevelopment of its Web site. In 2011, Bluefly had online sales of $88 million, and is growing revenues at 10 percent a year. Its e-commerce technology budget is over $8 million a year, roughly 10 percent of its total revenues (Bluefly, Inc., 2011).

Figure 10.11 provides some idea of the relative size of various Web site cost components. In general, the cost of hardware, software, and telecommunications for building and operating a Web site has fallen dramatically (by over 50 percent) since 2000, making it possible for very small entrepreneurs to create fairly sophisticated sites. At the same time, the costs of system maintenance and content creation have risen to make up more than half of typical Web site budgets. Providing content and smooth 24/7 operations are both labor-intensive.

LEARNING TRACK MODULES

The following Learning Tracks provide content relevant to topics covered in this chapter:

1. E-commerce Challenges: The Story of Online Groceries
2. Build an E-commerce Business Plan
3. Hot New Careers in E-commerce
4. E-commerce Payment Systems

Review Summary

1. *What are the unique features of e-commerce, digital markets, and digital goods?*

   E-commerce involves digitally enabled commercial transactions between and among organizations and individuals. Unique features of e-commerce technology include ubiquity, global reach, universal technology standards, richness, interactivity, information density, capabilities for personalization and customization, and social technology.

   Digital markets are said to be more "transparent" than traditional markets, with reduced information asymmetry, search costs, transaction costs, and menu costs, along with the ability to change prices dynamically based on market conditions. Digital goods, such as music, video, software, and books, can be delivered over a digital network. Once a digital product has been produced, the cost of delivering that product digitally is extremely low.

2. *What are the principal e-commerce business and revenue models?*

   E-commerce business models are e-tailers, transaction brokers, market creators, content providers, community providers, service providers, and portals. The principal e-commerce revenue models are advertising, sales, subscription, free/freemium, transaction fee, and affiliate.

3. *How has e-commerce transformed marketing?*

   The Internet provides marketers with new ways of identifying and communicating with millions of potential customers at costs far lower than traditional media. Crowdsourcing utilizing the "wisdom of crowds" helps companies learn from customers in order to improve product offerings and increase customer value. Behavioral targeting techniques increase the effectiveness of banner, rich media, and video ads. Social commerce uses social networks and social network sites to improve targeting of products and services.

4. *How has e-commerce affected business-to-business transactions?*

   B2B e-commerce generates efficiencies by enabling companies to locate suppliers, solicit bids, place orders, and track shipments in transit electronically. Net marketplaces provide a single, digital marketplace for many buyers and sellers. Private industrial networks link a firm with its suppliers and other strategic business partners to develop highly efficient and responsive supply chains.

5. *What is the role of m-commerce in business, and what are the most important m-commerce applications?*

   M-commerce is especially well-suited for location-based applications, such as finding local hotels and restaurants, monitoring local traffic and weather, and providing personalized location-based marketing. Mobile phones and handhelds are being used for mobile bill payment, banking, securities trading, transportation schedule updates, and downloads of digital content, such as music, games, and video clips. M-commerce requires wireless portals and special digital payment systems that can handle

micropayments. The GPS capabilities of smartphones make possible geoadvertising, geosocial, and geoinformation services.

6.   *What issues must be addressed when building an e-commerce presence?*
    Building a successful e-commerce site requires a clear understanding of the business objectives to be achieved by the site and selection of the right technology to achieve those objectives. E-commerce sites can be built and hosted in-house or partially or fully outsourced to external service providers.

Key Terms

Advertising revenue model, 416
Affiliate revenue model, 420
Behavioral targeting, 421
Business-to-business (B2B), 413
Business-to-consumer (B2C), 413
Co-location, 437
Community providers, 416
Consumer-to-consumer (C2C), 413
Cost transparency, 408
Crowdsourcing, 420
Customization, 409
Digital goods, 411
Direct goods, 430
Disintermediation, 410
Dynamic pricing, 410
Electronic data interchange (EDI), 429
E-tailer, 414
Exchanges, 431
Free/freemium revenue model, 419
Geoadvertising, 433
Geoinformation services, 433
Geosocial services, 433
Indirect goods, 430
Information asymmetry, 409
Information density, 408
Intellectual property, 415
Location-based services, 432

Long tail marketing, 421
Market creator, 415
Market entry costs, 408
Marketspace, 405
Menu costs, 410
Micropayment systems, 419
Mobile commerce (m-commerce), 413
Net marketplaces, 430
Personalization, 408
Podcasting, 415
Prediction market, 421
Price discrimination, 408
Price transparency, 408
Private exchange, 430
Private industrial networks, 430
Revenue model, 416
Richness, 408
Sales revenue model, 418
Search costs, 408
Social graph, 425
Social shopping, 420
Streaming, 415
Subscription revenue model, 419
Transaction costs, 405
Transaction fee revenue model, 419
Wisdom of crowds, 420

Review Questions

1.   What are the unique features of e-commerce, digital markets, and digital goods?

   • Name and describe four business trends and three technology trends shaping e-commerce today.

   • List and describe the eight unique features of e-commerce.

   • Define a digital market and digital goods and describe their distinguishing features.

2.   What are the principal e-commerce business and revenue models?

   • Name and describe the principal e-commerce business models.

   • Name and describe the e-commerce revenue models.

3.   How has e-commerce transformed marketing?

   • Explain how social networking and the "wisdom of crowds" help companies improve their marketing.

   • Define behavioral targeting and explain how it works at individual Web sites and on advertising networks.

   • Define the social graph and explain how it is used in e-commerce marketing.

4.   How has e-commerce affected business-to-business transactions?

- Explain how Internet technology supports business-to-business electronic commerce.
- Define and describe Net marketplaces and explain how they differ from private industrial networks (private exchanges).

5. What is the role of m-commerce in business, and what are the most important m-commerce applications?

- List and describe important types of m-commerce services and applications.

6. What issues must be addressed when building an e-commerce presence?

- List and describe each of the factors that go into the building of an e-commerce Web site.
- List and describe four business objectives, four system functionalities, and four information requirements of a typical e-commerce Web site.
- List and describe each of the options for building and hosting e-commerce Web sites.

Discussion Questions

1. How does the Internet change consumer and supplier relationships?

2. The Internet may not make corporations obsolete, but the corporations will have to change their business models. Do you agree? Why or why not?

3. How have social technologies changed e-commerce?

Hands-On MIS Projects

The projects in this section give you hands-on experience developing e-commerce strategies for businesses, using spreadsheet software to research the profitability of an e-commerce company, and using Web tools to research and evaluate e-commerce hosting services.

Management Decision Problems

1. Columbiana is a small, independent island in the Caribbean that has many historical buildings, forts, and other sites, along with rain forests and striking mountains. A few first-class hotels and several dozen less-expensive accommodations can be found along its beautiful white sand beaches. The major airlines have regular flights to Columbiana, as do several small airlines. Columbiana's government wants to increase tourism and develop new markets for the country's tropical agricultural products. How can a Web presence help? What Internet business model would be appropriate? What functions should the Web site perform?

2. Explore the Web sites of the following companies: Blue Nile, J.Crew, Lowe's, and Priceline. Determine which of these Web sites would benefit most from adding a company-sponsored blog to the Web site. List the business benefits of the blog. Specify the intended audience for the blog. Decide who in the company should author the blog, and select some topics for the blog.

Improving Decision Making: Using Spreadsheet Software to Analyze a Dot-Com Business

Software skills: Spreadsheet downloading, formatting, and formulas
Business skills: Financial statement analysis

Pick one e-commerce company on the Internet, for example, Ashford, Buy.com, Yahoo, or Priceline. Study the Web pages that describe the company and explain its purpose and structure. Use the Web to find articles that comment on the company. Then visit the Securities and Exchange Commission's Web site at www. sec.gov to access the company's 10-K (annual report) form showing income statements and balance sheets. Select only the sections of the 10-K form containing the desired portions of financial statements that you

need to examine, and download them into your spreadsheet. (MyMISLab provides more detailed instructions on how to download this 10-K data into a spreadsheet.) Create simplified spreadsheets of the company's balance sheets and income statements for the past three years.

- Is the company a dot-com success, borderline business, or failure? What information provides the basis of your decision? Why? When answering these questions, pay special attention to the company's three-year trends in revenues, costs of sales, gross margins, operating expenses, and net margins.
- Prepare an overhead presentation (with a minimum of five slides), including appropriate spreadsheets or charts, and present your work to your professor and classmates.

Achieving Operational Excellence: Evaluating E-Commerce Hosting Services

Software skills: Web browser software
Business skills: Evaluating e-commerce hosting services

This project will help develop your Internet skills in commercial services for hosting an e-commerce site for a small start-up company.

You would like to set up a Web site to sell towels, linens, pottery, and tableware from Portugal and are examining services for hosting small business Internet storefronts. Your Web site should be able to take secure credit card payments and to calculate shipping costs and taxes. Initially, you would like to display photos and descriptions of 40 different products. Visit Yahoo! Small Business, GoDaddy, and Comcast Business Class and compare the range of e-commerce hosting services they offer to small businesses, their capabilities, and costs. Also examine the tools they provide for creating an e-commerce site. Compare these services and decide which you would use if you were actually establishing a Web store. Write a brief report indicating your choice and explaining the strengths and weaknesses of each.

Video Cases

Video Cases and Instructional Videos illustrating some of the concepts in this chapter are available. Contact your instructor to access these videos.

Collaboration and Teamwork Project

In MyMISLab, you will find a Collaboration and Teamwork Project dealing with the concepts in this chapter. You will be able to use Google Sites, Google Docs, and other open source collaboration tools to complete the assignment.

To Pay or Not to Pay: Zagat's Dilemma
CASE STUDY

Founded by Tim and Nina Zagat, the Zagat Survey has collected and published ratings of restaurants by diners since 1979. Zagat publishes surveys for restaurants, hotels, and nightlife in 70 major cities. Zagat has come a long way from its roots in the early 1980s, when the food-loving Zagats started compiling lists of their favorite restaurants for personal use and to share with their closest friends. But with the rise of the Internet, e-commerce, and mobile technology, Zagat has struggled to find a business model that stayed true to the company's origins.

To generate their first survey, the Zagats polled 200 people, and increased that number over time. Executives, tourists, and New York foodies alike found the list to be indispensable. Spurred by this success, the Zagats decided to publish their survey themselves. The few booksellers that took a risk in stocking the book were rewarded with sales so robust that the Zagat Surveys became best sellers.

The pair also published similar lists for other major cities, including Chicago, San Francisco, and Washington, D.C. In addition to print books, Zagat opened a unit that creates custom guides for corporate clients, like the ones at Citibank. For a long time, this business model was sufficient to ensure that Zagat Survey was successful and profitable.

When the dot-com bubble came along, venture capitalists were attracted to Zagat for its brand recognition—the Zagat name is instantly recognizable to food-lovers, travelers, and restaurateurs alike. Zagat was one of the first companies to popularize user-generated content, collecting restaurant reviews from its readers, aggregating those reviews, and computing ratings. In addition to numeric rating scores, the survey also includes a short descriptive paragraph that incorporates selected quotations from several reviewers' comments about each restaurant or service. Venture capitalists saw that Zagat had a golden opportunity to migrate its content from offline to online, Web, and mobile.

Of the many decisions the Zagats faced in bringing their content to the Web, perhaps the most important- was how much to charge for various types of content. They ultimately decided to place all of their content behind a pay wall, relying on the Zagat brand to entice customers to purchase full online access. One of the most prominent members of the Zagat investment group was Nathan Myhrvold, formerly the chief technology officer at Microsoft. Myhrvold supported the Zagats' decision to use a pay wall for their content and maintained that putting all of their content online for free would have undermined their book sales.

Although Myhrvold and the Zagats themselves favored the pay wall, other Zagat investors argued that placing content online for free allowed companies like Yelp to get its results on the first page of Google search results, which is critical for maintaining the strength of a brand in today's advertising environment. By not taking this approach, Zagat left itself open to be surpassed by Yelp, Groupon, Google Places, and other similar services offering free content supported by advertising from local businesses. Sure enough, these companies soon began attracting numbers of online visitors that dwarfed Zagat's.

In 2008, the Zagats tried to sell their company. They failed to do so, partially due to Yelp's growing popularity. Prospective buyers were more intrigued by Yelp's much larger online audience and growth potential. The Zagats' failure to sell the company in 2008 highlighted their failure to effectively go digital. Food blogs and similar sites abound on the Web nowadays, but Zagat was in a unique position to get there first and establish itself as a market leader, and it failed to do so.

For much of 2011, Zagat continued to lag behind Yelp and other free review sites in the battle for eyeballs. Yelp drew much greater traffic than Zagat.com. From January to April 2012, Zagat.com had only 310,000 visitors, while Yelp had 31 million. The Zagat Web site claimed it has more users, but the disparity was still significant.

Zagat saw its fortunes change in September 2011, when Google paid $151 million to buy the company. Although the Zagats had sought $200 million in 2008, the deal was considered by analysts to be generous. Google was seeking to establish itself in the local search marketspace, and after failing to purchase Yelp for $500 million in 2009, Zagat was next on their shopping list. In fact, after the Yelp deal fell through, Google and Yelp have become heated rivals, and Yelp has alleged that Google is rigging its search results to favor its own services over those of its competitors.

In the year following the acquisition, Google and Zagat worked together to allow Zagat reviews to appear alongside Google searches on various platforms. Google wanted to use Zagat's customer generated guide format and apply it to any place that can be searched for: restaurants, retail outlets, nightlife, hotels, resorts, spas, golf courses, and more. A growing percentage of Google searches are for information on nearby locations—20 percent of all searches, and 40 percent of that subset are made using mobile phones.

In May 2012, Google formally announced the inclusion of Zagat guides and online reviews in its new service, Google + Local. With this service, Google hopes to more effectively compete with Yelp in local search. Because Google values eyeballs over all else, the company opted to remove the pay wall from Zagat content for the first time. Zagat had been charging $25 per year or $5 per month for access to its online reviews. Zagat will still charge $10 a year to use its iPhone app, and after a free six-month trial, it will charge $25 annually to see reviews on devices running Android. Still, normal Google searches on the Web will feature Zagat content for free, and Google is considering dropping the other subscription fees for mobile devices.

Google hopes to combine Zagat reviews with its mapping technology to better compete with Yelp. Trying out both services highlights some of the differences between them. Zagat.com's home page is streamlined, with a minimal number of search boxes and links immediately available. Restaurant reviews are organized by several major "hub" cities as well as popular lists of the top restaurants of a certain type. Clicking on a restaurant shows visitors a portion of the data Zagat maintains on that restaurant. For example, the site now shows the percentage of users that "like" the restaurant, and several featured reviews. Many more reviews of the restaurant are available if the user wants to keep scrolling.

Yelp's front page is much busier and less streamlined than Zagat's, but has a great deal more content available immediately. The front page has lists of the most popular restaurants, retail outlets, bars and clubs, and many other categories, all free to the user. Looking for a dentist in New York City? Yelp has reviews of doctors and dentists that include videos put together by the practices to give visitors more information. Like Zagat.com, Yelp's reviews are organized into a similar list of larger cities, but reviews exist for almost any location you can think of, including less prominent cities and towns. Google is also working towards the goal of ubiquity.

Yelp's strategy is to sell local advertisements wherever businesses exist and to provide free content funded by these sales. Yelp has also relied more on individual reviewers. Instead of distilling reviews into one coherent whole, as Zagat's does, Yelp allows its reviewers to post full, unaltered reviews, which allows top reviewers to gain followings and even receive invitations to special events. The drawback of this approach is that many reviews are far longer than necessary and individual reviews may contain distortions or false claims designed to damage reputations. Zagat reviews give a clearer and more concise impression of a restaurant than most Yelp reviews, and they are aggregated and given a score.

Investors believe that Yelp is on "a different trajectory" because of its unique business model. Zagat sold content to consumers and corporations; Yelp sells advertising to local businesses. Many analysts believe there is much more potential for growth with Yelp's business model than with Zagat's old model because it is a useful advertising vehicle for small businesses everywhere, not just major cities. Zagat may also have hurt itself with its slow response to the emergence of the mobile digital platform.

Most analysts agree that Zagat could have avoided this state of affairs by making a more aggressive effort to go digital. The choice to use a pay wall may be the biggest culprit. But did it necessarily hurt Zagat's bottom line? The company has always been profitable, according to Tim and Nina Zagat. Other successful Web sites have used a pay wall. Zagat book revenue is still strong—the New York survey is still on the New York nonfiction best-seller list, and its corporate custom guide unit is very profitable. Despite their acquisition by Google, the Zagats plan to continue to publish their physical books. Nevertheless, it's also possible that going with a pay wall before establishing a loyal online audience may not be the right time to make the move towards a paid model.

So far, the pairing of Google and Zagat has been successful, and will allow the two companies to better compete with Yelp in local search. But Google also hopes that incorporating Zagat's user-generated content model into Google + will help its fledgling social network to better compete with Facebook by providing uniquely valuable services to its users. Google envisions Google + users searching for "pizza", and being given a map with the closest pizzerias marked with Zagat reviews, some of which may be written by their friends on the network. For Google, acquiring Zagat was just one of a myriad of acquisitions they made in 2011; but from Zagat's

perspective, its acquisition represents another phase in a long e-commerce journey, and illustrates the difficulty of developing just the right business model for your company.

Sources: Glenn Collins, "Google to Use Zag to Refine Local Search," *The New York Times*, May 30, 2012; Michael Liedtke, "Google's Giving Away Free Zag Ratings in Search Results," Associated Press, May 31, 2012; Samantha Murphy, "Google Plus Local Unlocks the Power of Zag, Mashable.com, May 30, 2012; Tim Carmody, "Google Buys Zagat to Reinvent Mobile Search Engine," *Wired*, September 10, 2011; Adam Clark Estes, "Google Buying Zagat Makes Instant Sense," *Atlantic Wire*, September 8, 2011; Leena Rao, "Zagat.com Relaunches With More Free Content, Including Maps, Lists, Third-Party Reviews," TechCrunch.com, February 21, 2011; Erik Berte, "As Online Competition Grows, Zagat.com Relaunches With More Free Features," FoxBusiness.com, February 21, 2011; Ben Parr, "Yelp's Growth is Accelerating, Despite Increased Competition From Groupon & Google," Mashable.com, February 17, 2011; "ZAGAT for Android Features Foodspotting Photos, Foursquare Tips and In-App Review Capabilities," PR Newswire, February 7, 2011; and Ron Lieber, "Zagat Survey Aims to Regain Its Online Balance," *The New York Times*, November 13, 2010.

CASE STUDY QUESTIONS

1. Evaluate Zagat using the competitive forces and value chain models.

2. Compare Zagat's and Yelp's e-commerce business models. How have those models affected each company's Web strategy?

3. Why was Zagat's content well suited for the Web and for the mobile digital platform?

4. Do you think Zagat's decision to use a pay wall for its Web site was a mistake? Why or why not?

5. Will Zagat's acquisition by Google make it more competitive? Explain your answer.