E-Commerce: Mechanisms, Platforms, and Tools

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Contents

Learning Objectives

Upon completion of this chapter, you will be able to:

1. Describe the major electronic commerce (EC) activities and processes and the mechanisms that support them.
2. Define e-marketplaces and list their components.
3. List the major types of e-marketplaces and describe their features.
4. Describe electronic catalogs, search engines, and shopping carts.
5. Describe the major types of auctions and list their characteristics.
6. Discuss the benefits and limitations of e-auctions.
7. Describe bartering and negotiating online.
8. Describe virtual communities.
9. Describe social networks as EC mechanisms.
10. Understand virtual worlds and their use in EC.
11. Describe the emerging technologies of augmented reality and crowdsourcing.
12. Describe Web 3.0 and define Web 4.0.

OPENING CASE: PINTEREST: A NEW KID ON THE E-COMMERCE BLOCK

An e-commerce site talked about a great deal since 2011 is Pinterest.

The Opportunity

Pinterest is a social bookmarking website where users "pin" images on a virtual "pinboard." The social bookmarking of images has been practiced on the Internet all over the world, for several years. The company's founders saw the business potential and the success of similar companies in Brazil and China. Furthermore, they succeeded in attracting initial venture capital (see Chapter 16) to expand the business. For a guide, see Leland (2013), and for statistics, see Smith (2014).

The Solution

Pinterest is a company that provides virtual pinboards that allow users to organize and share images found on the Web (referred to as "pins"). The pinned images ("boards") are organized by any category the user wants and placed on a virtual pinboard, just like on a real bulletin board. For example, one can collect pictures of sailboats and pin them on one pinboard, with appropriate text explanation. You can collect decorations for your home on another pinboard, while you collect Chinese recipes on a third pinboard. Millions of people create pinboards and anyone can search and view them. You can also add friends to your account and "follow" them. According to their website, 'Pinterest is a tool for collecting and organizing the things that inspire you' (see **about.pinterest.com/**). For more about what Pinterest is and how it works, see **sheknows.com/living/articles/852875/ pinterest-what-it-is-how-to-use-it-and-why- youll-be-addicted**.

Having many visitors and a rapid growth rate are necessary but not sufficient for EC success. Viable business and revenue models are also needed.

The Business and Revenue Models

Pinterest does not have a formal revenue model. (The company is privately held and it does not have to report about such a model to the public.) It looks as though the company's current priority is growth, as expressed in its mission statement. Nevertheless, many people speculate about (or suggest) revenue opportunities for the company, some of which are provided next.

Yang's Suggestions

Quora Corporation posted a question on its website: "How does Pinterest generate revenue?" One of the most comprehensive answers received was provided by "Avid Pinterest User" Yang (2012) who presented 13 *potential* monetization opportunities in four categories: charging advertisers (e.g., see Dembosky 2013), charging e-commerce partners, charging users, and charging other B2B partners. Most of these opportunities have existed in EC for years (e.g., charging for premium services, creating an online retail shop, using an affiliate program, and building a comprehensive advertisement scheme).

Selling Data for Market Research and Analysis

Brave (2012) suggested selling customer data available on Pinterest to retailers who can use analytics, including data mining, to conduct market research using this data. Customer data may reveal important statistical associations and relationships between consumer behavior, content (e.g., product recommendations, personalization, ads), and services and products provided. These associations can be used for one-to-one relationships and segmentation, as well as for marketing promotions and advertisements. Retailers can use *affinity modeling* and analysis to ascertain relationships so retailers can better understand consumer purchasing behavior. This enables optimal marketing *communication strategies*. Brave also noted that by pinning and re-pinning at Pinterest, consumers show their affinity to certain themes or specific products. Brave provided the following types of affinity data: connection between products and themes, segmenting people based on their affinity to products, or to a collection of products in specific themes.

Other Suggestions for Doing Business on Pinterest

- Hemley (2012) provides 26 different suggestions in an A-Z guide (e.g., A=Add a Pinterest "Follow" and/or "Pin it" Button; B=Brands and Pinterest; C=Crowdsourcing and so forth)
- Hub Spot (**hubspot.com**) offers a free e-book titled "How to Use Pinterest for Business" (**offers.hubspot.com/how-to-use-pinterest- for-business**). It includes information such as

how to create a Pinterest business account and how Pinterest works.

- Mitroff (2012) suggested using the approach of Zappos Corporation. This approach, which is called *PinPointing*, involves product recommendations based on what customers pin. Pinterest may collaborate with retailers such as Zappos to jointly create product recommendations. (See **pinpointing.apps.zappos.com/**.)
- Wikipedia lists several potential revenue sources at **en.wikipedia.org/wiki/Pinterest**.
- For more suggestions see **business.pinterest. com/en/pinterest-guides**.

Using Pinterest for Advertising and Marketing

Most of the suggestions cited above, as well as suggestions by others, concentrate on advertising and marketing opportunities. For comprehensive coverage, see Cario (2013), Hayden (2012), and Miles and Lacey (2012). For how retailers can use Pinterest, see Jopson and Kuchler (2013).

Results and Managerial Issues

Pinterest is the fastest growing social network ever, and according to a marketing service (Experian 2012), Pinterest is the third most popular social network on the Web, behind Facebook and Twitter (up from 7th place in November 2011). As of July 2013, the total number of Pinterest users worldwide was 70 million (**smallbusiness. yahoo.com/advisor/30-reasons-market-business-pinterest-2014-infographic-184545665.html**).

Similar reports on this amazing growth rate and popularity are provided by comScore and other reporting companies. This growth has attracted over $200 million in venture capital in 2012/2013 and generated many suggestions on money-making possibilities with Pinterest (e.g., see Carr 2012; Loren and Swiderski 2012).

In January 2014, the valuation of Pinterest was about $3.8 billion. Should the company be able to generate significant revenue, it probably will go to the IPO route, in which case the valuation may be much higher. Let us look now at

some managerial issues facing the company. Representative managerial issues are:

Legal Concerns

Many people collect images from the Internet to build their pinboards (and possibly a brand) without asking permission from the content creators, giving them an attribute, or compensating them. Some of the collected material is formally copyrighted; other material may be considered copyrighted. A similar problem exists with material used on Facebook or by bloggers. According to Pinterest's 'Terms of Use,' members are "solely responsible for what they pin and repin." Furthermore, users must have explicit permission from the owners of contents to post them. According to Shontell (2012), one lawyer deleted all her Pinterest boards out of fear of copyright violation. Note that Pinterest places all blame and potential legal fees on its users (who may have to pay the legal fees incurred by Pinterest also). Pinterest has taken several steps to alleviate the legal concerns of users (e.g., see Hempel 2012). The company is continuously adding measures to minimize the legal problems. For example, in May 2012, the company added a feature that facilitates the attribution of credit to content creators. For a discussion, see Hornor (2012). Finally, legal concerns may include dealing with the spammers who are busy on the site.

The Competition

The popularity of Pinterest has resulted in many attempts to clone the company. Since the core concept is basically image sharing, it may not be patentable; therefore, competitors try to jump into niche markets. For example, TripAdvisor (**tripadvisor.com**) concentrates on travel. We Heart It (**weheartit.com**) is a Brazilian company (operating in the U.S.) that is very similar to Pinterest. An emerging competitor is Fancy (**fancy.com**), which partnered with Google+ in 2013. Several companies concentrate on adult entertainment and pornography. Indirect competitors are several Chinese companies that operate in a culturally different environment (see McKenzie 2012). Companies such as Facebook

and Google may initiate a competitive service. Some believe that Pinterest may take business away from both Facebook and Twitter due to its better match with the business world.

Conclusion

According to Hempel (2012), Pinterest is more business oriented than Facebook or Twitter and visitors tend to buy more from there, although the latter companies drive more visitors to their sites. It seems that Pinterest has some potential benefits for small businesses (e.g., designers). Many companies already use Pinterest to derive benefits (e.g., see the Etsy case in Chapter 3 and Volpe 2012). However, these applications do not currently provide any revenue to Pinterest. The success of Pinterest will be determined by its revenue model and the company's profitability.

Sources: Based on Brave (2012), Carr (2012), Hempel (2012), Jopson and Kuchler (2013), Loren and Swiderski (2012), Yang (2012), and Volpe (2012).

LESSONS LEARNED FROM THE CASE

Pinterest is a social network that connects people who find interesting images on the Web. At the same time, Pinterest is a platform on which several activities of EC can be supported. For example, companies can build pinboards that promote their brands. Pinterest can be used as a platform for facilitating innovations via idea-generation and sharing. Pinterest is a derivative of Web 2.0 and social media and as such, it is a new mechanism for supporting EC. Other social media mechanisms that are covered in this chapter are social networks and virtual worlds; different types of social media tools such as blogs, microblogs, and wikis, are discussed in Online File W2.1. This chapter also covers the traditional mechanisms of EC such as marketplaces, merchant software, and auctions.

2.1 ELECTRONIC COMMERCE MECHANISMS: AN OVERVIEW

The many EC models and types of transactions presented in Chapter 1 are enabled by different mechanisms. To begin with, most B2C applications are conducted on the Internet. In addition, the generic enablers of any information system including databases, networks, security, software and server software, operating systems, hardware (Web servers), and hosting services need to be established. Added to the above are the specific EC mechanisms presented in this chapter, such as electronic markets, shopping carts, e-catalogs, and support services such as payment and order fulfillment. In addition to of all of the above, there are different methods for executing EC, such as buying at a fixed price or at an auction, and each method has a different support mechanism. Finally, there are the Web 2.0-based collaboration and communication mechanisms (e.g., Twitter) and special platforms such as the one used by Pinterest. In this chapter, we describe the major EC mechanisms so that you will be able to understand their uses in the forthcoming chapters.

EC Activities and Support Mechanisms

EC activities are divided into six categories, which are listed on the left side of Figure 2.1. Each activity is supported by one or more EC mechanisms, which are shown on the right side of Figure 2.1, along with the section number in this chapter where they are presented. Additional mechanisms exist for special activities, such as payment (Chapter 11), security (Chapter 10), and order fulfillment (Chapter 12). Also, standard IT technologies such as RFID, EDI, and extranets are described in Online Tutorial T2.

In the next section, we describe online markets. Before we do this, however, we will describe what happens during a typical purchasing process.
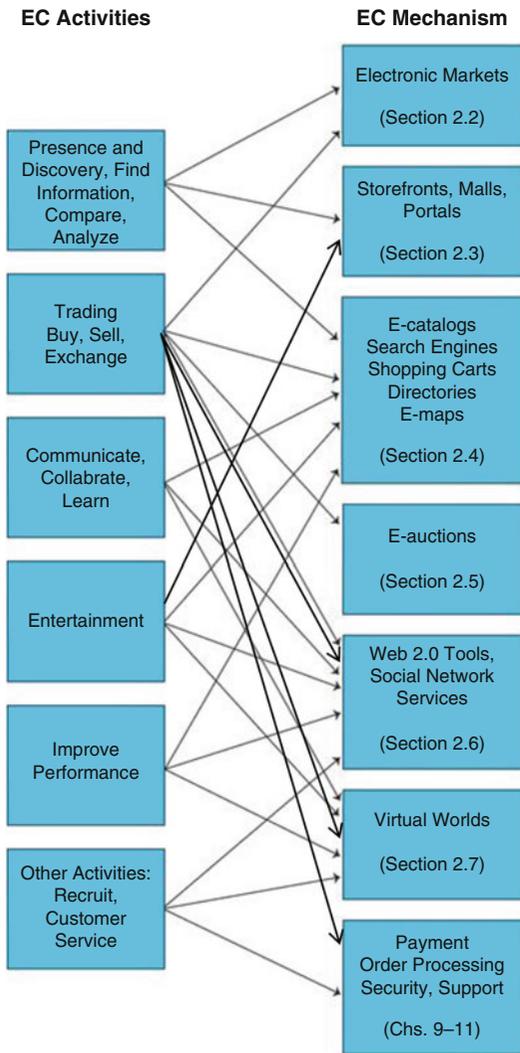
EC Activities   **EC Mechanism**

Figure 2.1 The EC activities–mechanism connection

The Online Purchasing Process

Customers buy goods online in different ways. The most common is purchasing from catalogs at fixed prices. Sometimes prices may be negotiated or discounted. Another way to determine price is *dynamic pricing*, which refers to non-fixed prices such as those in auctions or stock (commodity) exchanges.

The process starts with a buyer logging on to a seller's website, registering (if needed), and entering an online catalog or the buyer's "My Account." E-catalogs can be very large, so using a search engine may be useful. Buyers usually like to compare prices; therefore, an online price comparison service can be useful (now available on smartphones). Some sellers (e.g., American Airlines, Amazon.com) provide price comparisons showing competitors. If not satisfied, the buyer may abandon the seller's site. If satisfied, the buyer will place the chosen item in a virtual *shopping cart* (or bag). The buyer may return to the seller's catalog to choose more items. Each selected item is placed in the shopping cart. When the item selection is completed, the buyer goes to a checkout page, where a shipment option is selected from a menu (e.g., standard, next day). Finally, a payment option is selected. For example, **newegg.com** allows you to pay by credit card, PayPal, check after billing, in installments, and so on. After checking all the details for accuracy, the buyer *submits* the order. This process is illustrated in Figure 2.2.

The major mechanisms that support this process are described in Sections 2.3 and 2.4 of this chapter. The place where buying and selling occurs is called an *e-marketplace,* which we introduce next.

SECTION 2.1 REVIEW QUESTIONS
1. List the major EC activities.
2. List the major EC mechanisms.
3. Describe the online purchasing process

2.2   E-MARKETPLACES

Electronic markets play a central role in the digital economy, facilitating the exchange of information, goods, services, and payments. In executing the trading process, e-marketplaces create economic value for buyers, sellers, market intermediaries, as well as for society at large.

Markets (electronic or otherwise) have four major functions: (1) enabling transactions to occur by providing a meeting place for buyers and sellers; (2) enabling the flow of relevant information; (3) providing services associated with market transactions, such as payments and escrow; and (4) providing auxiliary services such as legal, auditing, and security (see Table 2.1).
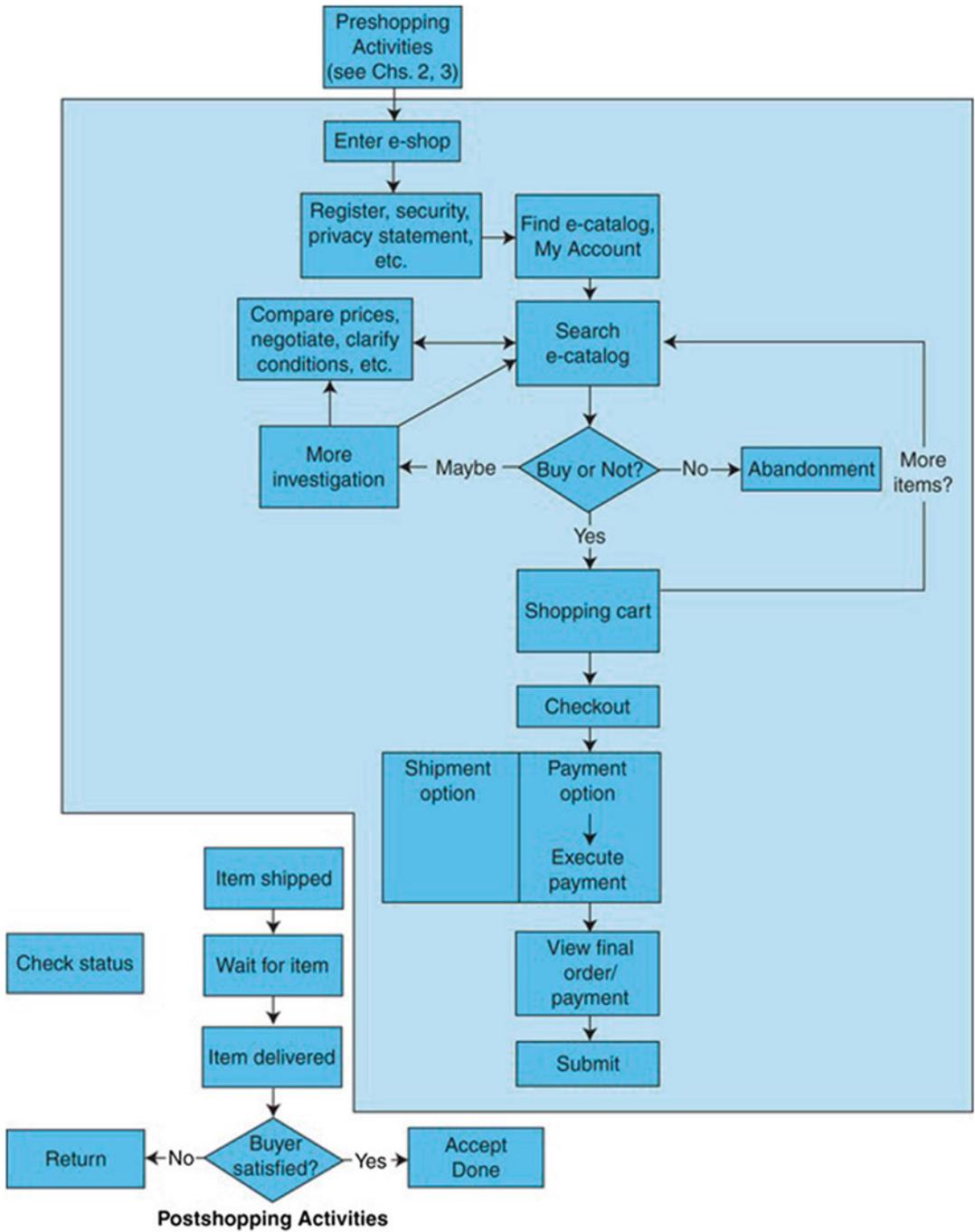
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                          Preshopping
                           Activities
                         (see Chs. 2, 3)
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Check status  Item delivered       Submit
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   Return ◀─ No ─ Buyer      ─ Yes ─▶  Accept
                satisfied?              Done

          Postshopping Activities
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Figure 2.2 The buying process in e-markets

Electronic Markets

The *electronic market* is the major venue for conducting EC transactions. An **e-marketplace** (also called *e-market, virtual market,* or *marketspace*), is an electronic space where sellers and buyers meet and conduct different types of transactions. Customers receive goods and services for money (or for other goods and services, if bartering is used). The functions of an e-market are the same as those of a physical marketplace; however, computerized systems tend to make electronic markets much more efficient by providing more updated information and various support services, such as rapid and smooth executions of transactions.

EC has increased market efficiency by expediting and or improving the functions listed in Table 2.1. Furthermore, EC has been able to significantly decrease the cost of executing these functions.

The emergence of *electronic marketplaces*, especially Internet-enabled ones, has changed several of the processes used in trading and supply chains. In many cases, these changes, driven by technology, have frequently resulted in:

- Lower the search time for information and cost to buyers
- Reduced information misunderstanding between sellers and buyers
- Possible reduction in the time gap between purchase and possession of physical products purchased online (especially if the product can be digitized)
- The ability of market participants to be in different locations while trading online
- The ability to conduct transactions at any time (24/7) from any place.

Components of and the Participants in E-Marketplaces

The major components and players in a *marketspace* are customers, sellers, products and services (physical or digital), infrastructure, a front

end, a back end, intermediaries and other business partners, and support services such as security and payments. A brief description of each follows:

- **Customers.** More than 2 billion Internet users worldwide are potential buyers of goods and services offered on the Internet. These consumers are looking for bargains, customized items, collectors' items, entertainment, socialization, and more. The social customers have more power than regular customers. They can search for detailed information, compare prices, bid, and sometimes negotiate. Buying organizations are also customers, accounting for more than 85% of EC volume and value activities.
- **Sellers.** Millions of webstores are advertising and offering a huge variety of items. These stores are owned by companies, government agencies, or individuals. Every day it is possible to find new offerings of products and services. Sellers can sell directly from their websites or from public e-marketplaces.
- **Products and services.** One of the major differences between the *marketplace* and the *marketspace* is the possible digitization of products and services in a marketspace. Although both types of markets can sell physical products, they can also sell **digital products**, which are goods that can be transformed into a digital format. However, in marketspaces, buyers can buy digitized products online, anytime and from any place in seconds, and receive the purchased goods instantly. In addition to the digitization of software, music, and airline tickets, it is possible to digitize dozens of other products and services, as shown in Online File W2.2. Digital products have different cost curves than those of physical products. In digitization, most of the costs are fixed, and variable costs are very low. Thus, profits

will increase rapidly as volume increases, once the fixed costs are paid.

- **Infrastructure.** The marketspace infrastructure includes electronic networks, databases, hardware, software, and more.
- **Front end.** Customers interact with a marketspace via a **front end.** The major components of the front end can include the seller's portal, electronic catalogs, a shopping cart, a search engine, an auction engine, a payment gateway, and all other activities related to placing orders.
- **Back end.** All the activities that are related to order aggregation and fulfillment, inventory management, purchasing from suppliers, accounting and finance, insurance, payment processing, packaging, and delivery are done in what is termed the **back end** of the business.

- **Intermediaries.** In marketing, an **intermediary** is typically a third party that operates between sellers and buyers. Intermediaries of all kinds offer their services on the Web. Some intermediation is done manually; many kinds are done electronically. The role of these electronic intermediaries is frequently different from that of regular intermediaries (such as wholesalers or retailers), as will be seen throughout the text, especially in Chapters 3 and 4. For example, online intermediaries create and manage the online markets. They help match buyers and sellers, provide escrow services, and help customers and/or sellers complete transactions. Physical intermediaries may be eliminated and their jobs be computerized (fully or partially) as described next.

Table 2.1 Functions of a market

Matching of buyers and sellers	Facilitation of transactions	Institutional infrastructure
• Determination of product offerings. Product features offered by sellers Aggregation of different products	• Communication Posting buyers' requests Posting RFQs	• Legal Commercial code, contract law, dispute resolution, intellectual property protection
• Search (buyers for sellers, and sellers for buyers) Price and product information Organizing bids and bartering Matching the seller's offerings with the buyer's preferences	• Mechanisms: provide catalogs, etc.	• Regulatory Rules and regulations, compliance, monitoring, enforcement
• Price discovery Process determination of prices Enabling price comparisons	• Logistics Delivery of information, goods, or services to buyer	• Discovery Provides market information (e.g., about competition, government regulations)
• Others Providing sales leads Providing W2.0 tools Arranging auction	• Settlement Transfer of payments to sellers Escrow services	
	• Trust Credit system, reputations, rating agencies such as *Consumer Reports* and the BBB, special escrow and online trust agencies	

Sources: Based on Bakos (1998), *E-Market Services* (2006), and the authors' experiences

Disintermediation and Reintermediation

Intermediaries usually provide three types of services: (1) they provide relevant information about demand: supply, prices, and trading requirements. (2) they help match sellers and buyers; and/or (3) they offer value-added services such as transfer of products, escrow, payment arrangements, consulting, or assistance in finding a business partner. In general, the first and second types of services can be fully automated, and thus it is likely to be assumed by e-marketplaces, infomediaries, and portals that provide free or low-fee services. The third type requires expertise, such as knowledge of the industry, the market, the products, and the technological trends, and therefore can only be partially automated.

Intermediaries that provide only (or mainly) the first two types of services may be eliminated; this phenomenon is called **disintermediation**. An example is the airline industry and its push for selling electronic tickets directly by the airlines. Most airlines require customers to pay $25 or more per ticket processed by an employee via telephone. This results in the *disintermediation* of many travel agents from the purchasing process. In another example, discount stockbrokers that only execute trades manually are disappearing. However, brokers who manage electronic intermediation are not only surviving but may also be prospering (e.g., **priceline.com** and **expedia.com** in the travel industry and **tdameritrade.com** in stock trading). This phenomenon, in which disintermediated entities or newcomers take on new intermediary roles, is called *reintermediation* (see Chapter 3).

Disintermediation is more likely to occur in supply chains involving several intermediaries, as illustrated by Case 2.1.

CASE 2.1: EC APPLICATION: HOW BLUE NILE INC. IS CHANGING THE JEWELRY INDUSTRY

Blue Nile Inc. (**bluenile.com**), a pure-play online e-tailer that specializes in diamonds and jewelry, capitalized on online diamond sales as a dot-com start-up in 1999. The company is a textbook case of how EC fundamentally changes the way that an industry conducts its business. For information about the company, see **quotes.wsj.com/NILE/company-people**.

The Opportunity

Using the B2C EC model – eliminating the need for physical stores – Blue Nile was able to offer discounts of 35%, yet it became profitable in a short time. (The cost of operating online stores is very low.)

What are the critical success factors of the company? First, they offer large discounts. For example, you can purchase a $6,000 diamond for $4,000, which attracts more customers. Second, Blue Nile offers a huge selection of diamonds online and provides more information about diamonds than many physical jewelry stores can offer. In May 2012, Blue Nile offered about 60,000 round diamonds that could be used to build a customized engagement rings. No physical store can offer so many diamonds. Third, the company provides educational guides as well as independent (and trusted) quality ratings for every stone. A customer can look over a rating scale for cut, clarity, color, and so on, and then compare prices using Bizrate (**bizrate.com**) and other online stores. Note that there usually is a 30-day 100% money-back guarantee (now an online industry standard). This provides customers with a comfort level of trust against fraud and gives Blue Nile a competitive edge against stores that take the stones back but charge a fee. The site provides live chat, payment options, build-your-own engagement ring, gift ideas, and much more. The company has a mobile app for iPhone and Android users (**m.bluenile.com**).

The Results

Blue Nile's sales reached $129 million in 2003 (a 79% increase over 2002), with a net income of $27 million. In 2013, net sales were $450 million (**marketwatch.com/story/blue-nile-announces-**

fourth-quarter-and-full-year-2013-financial-results-2014-02-06 and **investor.bluenile.com/releasedetail.cfm?ReleaseID=823747**). The company became the eighth-largest specialty jewelry company in the United States and went public in 2004 (one of the most successful IPOs of that year). While sales fell during the economic downturn in 2008, in 2009 and 2010 the company rallied again with a 2.3% growth.

In order to sell $450 million in jewelry in 1 year, a traditional retail chain needs over 300 stores and over 3,000 employees. Blue Nile does it with one 10,000-square-foot warehouse and 193 employees. The company also bypasses the industry's complex supply chain, in which a diamond may pass through five or more middlemen before reaching a retailer. Because they are a large buyer, they can deal directly with original suppliers.

As a result, some 465 small jewelry stores closed in 2003 alone. The survivors specialize in custom-crafted pieces. Large traditional companies compete with Blue Nile by offering online merchandise, becoming click-and-brick multichannel organizations, and by streamlining their supply chain and customer service.

The future seems to be clear, as can be seen in Bloomberg (2004), in the case of Roger Thompson, a small jeweler in Lambertville, New Jersey, who said, "Anyone with half a brain who wants a diamond engagement ring will go to the Internet." In the meantime, grooms who propose with Blue Nile rings can save $3,000 to $5,000.

Note that, the competition in the jewelry business is very intense, not only from jewelry retailers (both offline and online, e.g., **bidz.com**; that now also sell fashion and apparel, fine art, and accessories), but also from general e-tailers such as **overstock.com** and **amazon.com**.

Sources*: Based on Rivlin (2007), Bloomberg (2004), *BusinessWeek Online* (2006), **en.wikipedia.org/wiki/Blue_Nile_Company**, and **bluenile.com/about-blue-nile** (both accessed March 2015).

Questions
1. Using the classification of EC (Section 1.2, Chapter 1), how would you classify the Blue Nile's business?
2. In what ways is the company changing its industry?
3. What are the critical success factors of the company?
4. Research Blue Nile's affiliate marketing programs. Write a report. Include how this program helps Blue Nile.
5. Competition between Blue Nile and Amazon.com will continue to increase. In your opinion, which one will win? (Visit their websites and see how they sell jewelry.)
6. Compare the following three sites: **diamond.com**, **ice.com**, and **bluenile.com**.
7. Follow the performance of Blue Nile's stock since 2003 (symbol: NILE, go to **money.cnn.com**). Compare it to the performance of the market average. What is your conclusion?
8. Find the payment options at Blue Nile when you shop there.

Types of E-Marketplaces

The term *marketplace* differs once it referred to the Web. It is sometimes refers to as e-marketplace or marketspace. We distinguish two types of e-marketplaces: private and public.

Private E-Marketplaces
Private e-marketplaces are those owned and operated by a single company. **Starbucks.com**, **dell.com**, **target.com**, and **united.com** sell from their websites. Private markets are either sell-side or buy-side. In a **sell-side e-marketplace**, a company, (e.g., **net-a-porter.com** or **cisco.com**) will sell either standard or customized products to individuals (B2C) or to businesses (B2B); this type of selling is considered to be *one-to-many*. In a **buy-side e-marketplace,** a company purchases from many potential suppliers; this type of purchasing is considered to be *many-to-one*, and it is a B2B activity. For example, some hotels buy

their supplies from approved vendors that come to its e-market. Walmart (**walmart.com**) buys goods from thousands of suppliers. Private marketplaces can be open only to selected members and are not publicly regulated. We will return to the topic of private e-marketplaces in Chapters 3 (B2C) and 4 (B2B).

Public E-Marketplaces

Public e-marketplaces are in many cases B2B markets. They often are owned by a third party (not a seller or a buyer) or by a group of buying or selling companies (referred to as a *consortium*), and they serve many sellers and many buyers. These markets also are known as *exchanges* (e.g., a stock exchange). They are open to the public and usually are regulated by the government or the exchange's owners. Public e-marketplaces (for B2B) are discussed in detail in Chapter 4.

SECTION 2.2 REVIEW QUESTIONS

1. Define e-marketplace and describe its attributes.
2. What is the difference between a physical marketplace and an e-marketplace (marketspace)?
3. List the components of a marketspace.
4. Define a digital product and provide five examples.
5. Describe private versus public e-markets.

2.3   CUSTOMER SHOPPING MECHANISMS: WEBSTORES, MALLS, AND PORTALS

Several kinds of interactions exist among sellers, buyers, and e-marketplaces. The major B2C mechanisms are *webstores* (*storefronts)* and *Internet malls*. Let us elaborate on these, as well as on the gateways to e-marketplaces – portals.

Webstores

A **webstore (**or **storefront)** refers to a single company's (or individual seller's) website where products and services are sold.

Webstores may target an industry, a location, or a niche market (e.g., **cattoys.com**). The webstore may belong to a manufacturer (e.g., **geappliances.com** and **dell.com**), to a retailer (e.g., **amazon.com** and **wishlist.com.au**), to individuals selling from home, or to another type of business. Note that companies that sell services (such as insurance) may refer to their webstores as *portals*.

A webstore includes tools known as *merchant software* (available in a suite), that are necessary for conducting online sales. The most common tools are an *electronic catalog*; a *search engine* that helps the consumer find products in the catalog; an *electronic shopping cart* for holding items until checkout; *e-auction facilities* where auctions take place; a *payment gateway* where payment arrangements can be made; a *shipment center* where shipping arrangements are made; and *customer services*, which include product and warranty information and CRM.

Microsites

A *microsite* is a webpage(s) that acts as a supplement to a primary website, but is external to it. It expands on the content by adding editorial, commercial, or educational material.

Electronic Malls

In addition to shopping at individual webstores, consumers can shop in electronic malls (e-malls). Similar to malls in the physical world, an **e-mall (online mall)** is an online shopping location where many stores present their catalogs. The mall charges commission from the sellers based on their sale volume. For example, the Emall of Maine (**emallofmaine.com**) is an e-mall that aggregates products, services, and providers in the state of Maine. It contains a directory of vacation services and product categories and the vendors in each category. When a consumer indicates the category he or she is interested in, the consumer is transferred to the appropriate independent *webstore*. This kind of mall does not provide any shared services; it is merely a directory. Other malls, such as **choicemall.com**, or **etsy.com** (see

Chapter 3) do provide some shared services. Both **yahoo.com** and **ebay.com** operate electronic malls.

Web (Information) Portals

A *portal* is an information gateway that is used in e-marketplaces, webstores, and other types of EC (e.g., in e-collaboration, intrabusiness, and e-learning). A **Web (information) portal** is a single point of access, through a Web browser, to critical business information located inside and outside of organizations. This information is aggregated and is accessed and presented in a consistent way. Many Web portals personalize for users. Note that wireless devices are becoming portals for both enterprise and Internet access. A schematic view of a portal is shown in Figure 2.3. Information sources (external and internal) are shown on the left side, and integrated and process data are shown as output on the monitor's screen. Web portals offer some generic services such as e-mail, news, stock prices, entertainment, shopping capabilities, and so forth.

Types of Portals

Portals can assume many shapes. One way to distinguish among them is to look at their content, which can vary from narrow to broad, and their community or audience, which also can differ. The major types of portals are as follows:

- **Commercial (public) portals.** These popular portals offer content for anyone. Although they can be customized by the user, they are still intended for broad audiences and offer fairly routine content, some in real time (e.g., a stock ticker and news). Examples of such sites are **yahoo.com**, **google.com**, and **msn.com**.
- **Corporate (private) portals.** Corporate portals provide organized access to internal corporate information. These also are known as *enterprise portals* or *enterprise information portals*. Corporate portals appear in different forms and are described in detail in Chapters 4 and 5. Examples of e-commerce portals can be found at **ibm.com/software/products/en/websphere-portal-family**.
- **Patient Portals.** Several companies offer patient portals. For example, Quality Systems, Inc. (**qsii.com**) and **mypop.healthcarepartners.com**. Quality Systems provides software for health care providers so they can offer information for their patients (in English, Spanish and Chinese) via a portal. Patients have access to their personal information. The portal also allows communication between patients and their caregivers. Called 'Next Gen Patient Portal the portal increases patients' engagement in their healthcare.
- **Publishing portals.** These portals are intended for communities with specific interests and involve relatively little customization of content; however, they provide extensive online search features and some interactive capabilities. Examples of such sites are **techweb.com** and **zdnet.com**.
- **Mobile portals. Mobile portals** are portals that are accessible from mobile devices (see Chapter 6 for details). An increasing number of portals are accessible via mobile devices. One example of such a mobile portal is i-mode, which is described in Chapter 6.
- **Voice portals. Voice portals** are websites, usually portals, with audio interfaces. This means that they can be accessed by a standard telephone or a cell phone. AOLbyPhone (**aolbyphone.com**) is an example of a service that allows users to retrieve e-mail, news, and other content from AOL via telephone. It uses both speech recognition and text-to-speech technologies. Products by
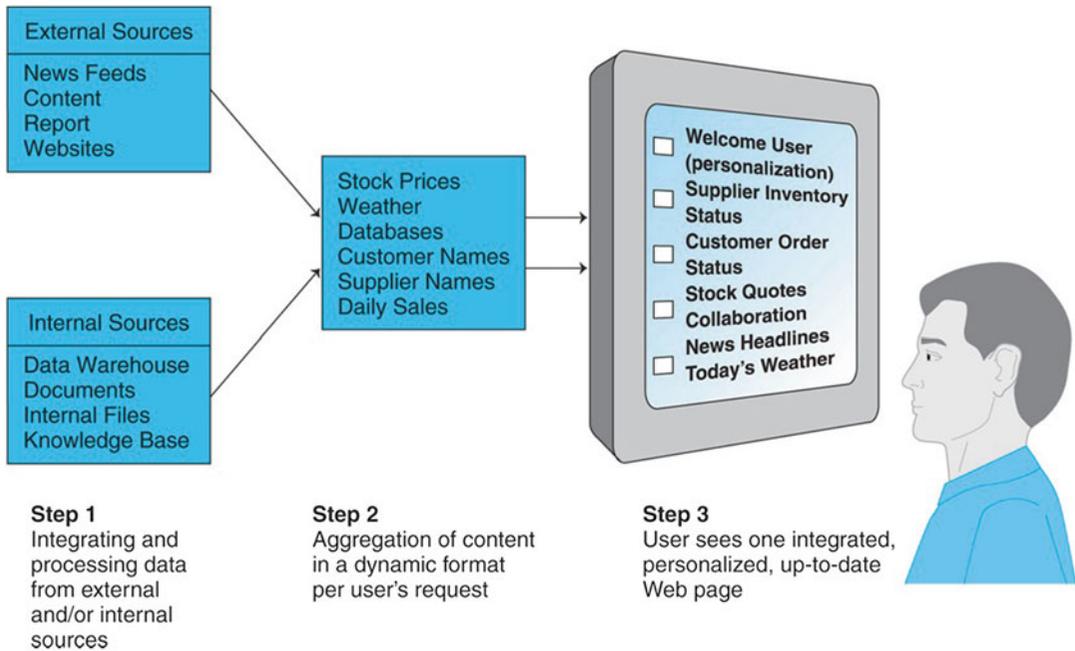
Figure 2.3   How a portal works

companies such as Microsoft's Tellme (**tmaa.com/microsoftand247inc.html**) and Nuance OnDemand (**nuance.com/ for-business/by-solution/customer- service-solutions/solutions-services/ hosted-contact-center-solutions/ index.htm**) offer access to the Internet from telephones, as well as tools to build voice portals. Voice portals are especially popular for 1–800 numbers (enterprise 800 numbers) that provide self-service to customers with informa- tion available in Internet databases (e.g., finding your balance or last deposit made at your bank).

- **Knowledge portals.** Knowledge por- tals enable easy access to knowledge by knowledge workers and facilitate collaboration.
- **Communities' portals.** These are usu- ally parts of online communities. They are dedicated to some theme and may be sponsored by a vendor such as Sony.
- An example is 17173.co-- portal for gamers in China.

The Roles and Value of Intermediaries in E-Marketplaces

Intermediaries, such as brokers, play an impor- tant role in commerce by providing value-added activities and services to buyers and sellers. There are several types of intermediaries. The most well-known intermediaries in the physical world are wholesalers and retailers.

The two major types of *online intermediaries* are brokers and infomediaries.

Brokers

A *broker* in EC is a person or a company that facilitates transactions between buyers and sellers. The following are different types of brokers:

- **Trading.** A company that aids online trading (e.g., E*TRADE or eBay).
- **Organization of online malls.** A com- pany that organizes many online stores in one place (e.g., Yahoo! Shopping and Alibaba.com).
- **Comparison agent.** A company that helps consumers compare prices, encourages

user comments, and provides customer service at different stores (e.g., Bizrate for a great diversity of products and Hotwire, Inc. for travel-related products and services.

- **Shopping aids provider.** A company that helps online shopping by providing escrow, payments, shipping, and security (e.g., PuntoMio, Inc.).
- **Matching services.** These services match entities such as jobs to applicants, and buyers to sellers.

Distributors in B2B

A special type of intermediary in e-commerce is the B2B *e-distributor*. These intermediaries connect manufacturers with business buyers (customers), such as retailers (or resellers in the computer industry). **E-distributors** aggregate product information from many manufacturers, sometimes thousands of them, in the e-distributor's catalog. An example is W.W. Grainger (**grainger. com**). The distributor buys the products and then sells them, as supermarkets do.

SECTION 2.3 REVIEW QUESTIONS

1. Describe webstores and e-malls.
2. List the various types of webstores and e-malls.
3. What are Web (information) portals? List the major types.
4. Describe e-distributors.

2.4 MERCHANT SOLUTIONS: ELECTRONIC CATALOGS, SEARCH ENGINES, AND SHOPPING CARTS

To enable selling online, a website usually needs *EC merchant server software*. Merchant software includes several tools and platforms. Such software offers basic tools that include electronic catalogs, search engines, and shopping carts; all are intended to facilitate the electronic trading process.

One example of such software is osCommerce, which is open-source software (see **oscommerce.com**). Another example can be seen at **smallbusiness.yahoo.com/ecommerce**.

Electronic Catalogs

Catalogs have been printed on paper for generations. Recently, electronic catalogs on a DVD (or CD-ROM) and on the Internet have gained popularity. **Electronic catalogs (e-catalogs)** consist of a product database, directory, and a presentation function. They are the backbone of most e-commerce sales sites. For merchants, the objective of e-catalogs is to advertise and promote products and services. For the customer, the purpose of such catalogs is to locate information on products and services. E-catalogs can be searched quickly with the help of search engines. Some offer tools for interactions. For an example, see Infinisys 'Change My Image' for Microsoft Windows at **en.infinisys.co.jp/product/cmimage**, and for Macintosh at **en.infinisys.co.jp/product/cmimage_mac**. This product permits a buyer to insert his/her photo and then change the hairstyle and color in the photo, so the buyer can see his/her look with a new hairstyle. E-catalogs can be very large; for example, Amazon.com's catalog contains millions of products.

Most early online catalogs were static presentations of text and messages from paper catalogs. However, online catalogs have evolved to become more dynamic, customizable, and integrated with selling and buying procedures, shopping carts, order taking, and payment. E-catalogs may include video clips. The tools for building them are being integrated with merchant software suites and Web hosting tools (e.g., see **smallbusiness.yahoo.com/ecommerce**). Examples of a simple product catalog can be seen at JetPens (**jetpens.com** and Starbucks Store (**store.starbucks.com**).

Although used only occasionally in B2C commerce, customized catalogs are used frequently in B2B e-commerce.

EC Search Activities, Types, and Engines

Search activities are popular in EC, and many tools for conducting searches are available. A study by Stambor (2010) published in *Internet Retailer* revealed that 94% of shoppers conduct research online before making any purchase, and 61% use a search engine when shopping online. Consumers may search inside one company's catalog to find a product or service, or use Google or Bing to find companies that sell the product they need. Here we describe only the essentials for EC search. For a video illustration, see "Google Commerce Search" (2009) by Google+ Your Business (2:15 minutes) at **youtube.com/watch?v=gj7qrotOmVY**. To read publications on electronic research and e-commerce at the Research at Google website, see **research.google.com/pubs/EconomicsandElectronicCommerce.html**. Let us now look at three major types of searches.

Types of EC Searches

The three major types of EC searches are *Internet/Web search, enterprise search,* and *desktop search.*

Internet/Web Search. This is the most popular search that involves looking for any documents on the Web. According to Pew Research Internet Project (**pewinternet.org**) and other statistical sites (e.g., see **infoplease.com/ipa/A0921862.html**), finding information is one of the most frequent activities done on the Web.

Enterprise Search. An **enterprise search** describes the search for information *within* the files and databases of an organization. For example, Google has a powerful Enterprise Search Appliance (known as GSA).

Desktop Search. A **desktop search** involves a search of a user's own com-

puter files (e.g., using **copernic.com** or **windows.microsoft.com/en-us/windows7/products/features/windows-search**). Searching for documents is done by looking through all the information that is available on the user's PC. A simple example is the ability to search all files related to your e-mail archive. A search also can be extended to photos, USB ports, and Word documents. For details, see **pcmag.com/encyclopedia/term/41175/desktop-search**.

All search types discussed above are accomplished by using search software agents.

Search Engines

Customers tend to ask for information (e.g., requests for product information or pricing) in similar ways. This type of request is repetitive, and answering such requests manually is costly. Search engines deliver answers economically and efficiently by matching questions with frequently asked question (FAQ) templates, which respond with "canned" answers. In general, a **search engine** is a computer program that can access databases of Internet or intranet resources, search for specific information or keywords, and report the results.

Google and Bing are the most popular search engines in the U.S. Baidu is the primary search engine in China. Portals such as Yahoo! and MSN have their own search engines. Special search engines organized to answer certain questions or search in specified areas include **ask.com**, **mamma.com**, and **looksmart.com**. Thousands of different public search engines are available (see **searchengineguide.com**). Each of these tools excels in one area. These can be very specialized with different capabilities. In addition, many companies have their own enterprise search engines. For example, Endeca Commerce from Oracle (**oracle.com/technetwork/apps-tech/commerce/endeca-commerce/index.html**) is a

special search engine for online catalogs. For more information about training in Oracle Endeca Commerce, see **education.oracle.com/pls/web_prod-plq-dad/ou_product_category.getPage?p_cat_id=338**.

Voice-Powered Search
To ease searching, especially when using a smartphone, Google introduced a voice-powered tool (Google Voice Search; **google.com/insidesearch/features/voicesearch/index-chrome.html**) that allows you to skip the keyboard altogether. The first product was included as part of iPhone's mobile search application. It allows you to talk into your phone, ask any question, and the results of your query are provided on your iPhone. In addition to asking questions by talking into your iPhone, you can also listen to search engine results. For an example of Apple's intelligent personal assistant, "Siri," see **apple.com/ios/siri** and **imore.com/siri**.

Video and Mobile Search
There are dozens of dedicated search tools and sites that will search for videos and other images. Some of them, such as **bing.com/videos** will search across multiple sites; others, such as YouTube will search only for their own content. For a list of over 40 sites (compiled in 2010) see **thesearchenginelist.com/video-search**. For another example, the search engine Bing has a search feature that allows you to listen to more than 5 million fulllength songs.

Mobile Search
Several search engines are adapted to mobile search. Notable are Google, Yippy, and Yahoo!

Visual Shopping Search Engine
Visual search means looking for information that is presented visually (photos, images, etc.) For an overview, see **scholarpedia.org/article/Visual_search**. This technology can be used to support e-commerce. For example, **google.com/shopping** provides a visual search engine based on machine learning and computer vision that focuses on consumer products.

The technology lets users see what terms like "red high-heeled pumps" mean. It also created algorithms that evaluate how well red pumps match specific clothing the consumer plans to buy. Visual search is popular when conducted on mobile devices.

Social Network Search Engines
Social network search, also known as *social search* is a class of online search engines that help people find material about social networking activities, such as in user generated content, discussion groups, or recommendations. Like all search engines, these organize, prioritize, and filter search results. Examples of such search engines are: **socialmention.com** – 'real time social media search and analysis,' **yoname.com** – 'people search across social networks, blogs, and more,' **bing.com/explore/social**. For an overview, see the blog "Social is the Next Search" available at **info.gigya.com/rs/gigya/images/Gigya-Social-The-Next-Search.pdf**. For a discussion of the benefits and concerns, see **en.wikipedia.org/wiki/Social_search**.

Shopping Carts

An **electronic shopping cart** (also known as *shopping bag* or *shopping basket*) is software that allows customers to accumulate items they wish to buy before they arrange payment and check out, much like a shopping cart in a supermarket. The electronic shopping cart software program automatically calculates the total cost, and adds tax and shipping charges when applicable. Customers can review and revise their shopping list before finalizing their purchase by clicking on the "submit" button.

Shopping carts for B2C are fairly simple (visit **amazon.com** to see an example), but for B2B, a shopping cart may be more complex. Shopping cart software is sold or provided free to store builders as an independent component outside a merchant suite (e.g., see **networksolutions.com/e-commerce/index-v3.jsp** – 'create an

online store now, **zippycart.com**, and **easycart. com**). It also is embedded in merchants' servers, such as **smallbusiness.yahoo.com/ecommerce**. Free online shopping carts (trials and demos) are available at **volusion.com** and **1freecart.com**; powered by MyFreeCommerce.com. For shopping cart applications for Facebook, see **ecwid. com/facebook-app.html** and the Ecwid app page on Facebook at **facebook.com/ecwid**.

Product Configuration (Self Customization)

A key characteristic of EC is the ability to self-customize products and services, as done by **dell.com**, **nike.com**, or **jaguarusa.com**. Manufacturers like to produce customized products in economical and rapid ways so that the price of their products will be competitive.

Questions and Answers Online

Intelligent search engines can answer users' questions. A leading engine is **ask.com**, a subsidiary of IAC. As of 2009, Ask.com had over 300 million questions and answers in its database (see **billhartzer.com/pages/askcom-unveils-database-of-300-million-questions-and-answers**). The Q&A service matches answers from the database to questions users ask. For details, see **ask.com** and **answers.ask.com**. A competing engine is **answers.com**, a question and answer (Q&A) site, which comprises **wiki-answers.com**. Wiki Answers is a community-generated social knowledge Q&A platform available in several languages. People ask questions on the platform and the community answers them. Another similar platform is **answers. wikia.com/wiki/Wikianswers**.

SECTION 2.4 REVIEW QUESTIONS

1. List and briefly describe the dimensions by which electronic catalogs can be classified.
2. List the benefits of e-catalogs.
3. Describe an electronic shopping cart.
4. Describe voice- and vision-related search engines.
5. What is self-customization?

2.5   AUCTIONS, BARTERING, AND NEGOTIATING ONLINE

One of the most interesting market mechanisms in e-commerce is the electronic auction. Auctions are used in B2C, B2B, C2C, G2B, and G2C.

Definition and Characteristics

An *online auction* is an electronic space where sellers and buyers meet and conduct different types of transactions. This market mechanism uses a competitive process where a seller solicits consecutive bids from buyers (forward e-auctions) or a buyer solicits bids from sellers (reverse e-auctions). A wide variety of online markets qualify as auctions using this definition. Prices are determined dynamically by the bids. Auctions, an established method of commerce for generations, deal with products and services when conventional marketing channels are ineffective or inefficient. For example, e-auctions can expedite the clearance of items that need to be liquidated or sold quickly. Rare coins, stamps, and other collectibles are frequently sold at e-auctions.

There are several types of auctions, each with its own specialties and procedures. (For coverage, see **en.wikipedia.org/wiki/Online_auction_business_model**.) Auctions can be conducted on *public* auction sites, such as **ebay.com**, or on *private* auction sites, which may be by invitation only. For example, the state of New York periodically auctions old vehicles from its fleet on eBay.

Dynamic Pricing

One major characteristic of auctions is that they are based on dynamic pricing. **Dynamic pricing** refers to prices that are not fixed, but are allowed to fluctuate, and are determined by supply and demand. In contrast, catalog prices are fixed, as are prices in department stores, supermarkets, and most webstores.

Dynamic pricing appears in several forms. Perhaps the oldest forms are negotiation and bargaining, which have been practiced for many generations in open-air markets. The most popular today are online auctions.

Traditional Auctions Versus E-Auctions

Traditional, physical auctions are still very popular. However, the volume traded on e-auctions is significantly larger and continues to increase. In addition, person-to-person auctions are done mostly online.

Limitations of Traditional Offline Auctions

Traditional offline auctions, regardless of their type, have several limitations. They usually last only a few minutes, or even seconds, for each item sold. This rapid process may give potential buyers little time to make a decision, so they may decide not to bid. Therefore, sellers may not get the highest possible price; bidders may not get what they really want, or they may pay too much for the items. Additionally, in many cases, the bidders do not have much time to examine the goods before placing a bid. Bidders have difficulty learning about auctions and cannot compare what is offered at each location. Bidders must usually be physically present at auctions; thus, many potential bidders are excluded.

Similarly, it may be difficult for sellers to move goods to an auction site. Commissions are fairly high because a physical location must be rented, the auction needs to be advertised, and an auctioneer and other employees need to be paid. Electronic auctioning removes these drawbacks.

Electronic Auctions

The Internet provides an infrastructure for executing auctions electronically at lower cost, with a wide array of support services, and with many more participating sellers and buyers than physical auctions. Individual consumers and corporations can both participate in this rapidly growing and very convenient form of e-commerce. According to an IBISWorld report, e-commerce and Internet auction industry sales are expected to increase to 10% to $278 billion in the U.S. in 2013 (from $219 billion in 2011). The annual growth rate of the industry is expected to increase at a rate of 11.6% in the 5 years to 2013 (between 2007 and 2012 was 10.4%) (IBISWorld 2012, 2013).

Electronic auctions (e-auctions) are similar to offline auctions except that they are conducted online. E-auctions (or online auctions) have been in existence since the 1980s over LANs (e.g., for flowers; see Saarinen et al. 2006). Host sites on the Internet, which were started in 1995, serve as brokers, offering services for sellers to post their goods for sale and enabling buyers to bid on those items.

Major online auction sites, such as eBay (see Online File W2.3), offer consumer products, electronic parts, artwork, vacation packages, airline tickets, and collectibles, as well as excess supplies and inventories that are being auctioned off by businesses. Another type of B2B online auction is used to trade special types of commodities, such as electricity transmission capacities and gas and energy options (e.g., see **energyauctionexchange.com**). Furthermore, conventional business practices that traditionally have relied on contracts and fixed prices increasingly are converted into auctions with bidding for online procurements.

For a comparison of 10 online auction sites (2014), see **online-auction-sites.toptenreviews.com**.

Types of Auctions

It is customary to classify auctions into the following major types based on how many buyers and sellers are involved.

One Buyer, One Seller

In this configuration, one can use negotiation, bargaining, or bartering. The resulting price will be determined by each party's bargaining power, supply and demand in the item's market, and (possibly) business environment factors.

One Seller, Many Potential Buyers

In this configuration, the seller uses a **forward auction**, which is an auction where a seller entertains bids from multiple buyers. (Because forward auctions are the most common and traditional form, they often are simply called *auctions*.) The four major types of forward auctions are *English* and *Yankee* auctions, in which bidding prices increase as the auction progresses, and *Dutch* and *free-fall* auctions, in which bidding prices decline as the auction progresses. Each of these can be used for either liquidation or for market efficiency.

Example: Warren Buffet's Annual Power Lunch Auctions

Every year, Warren Buffet, the famous U.S. investment guru, has an auction with the prize being a lunch with him; the winner may also bring along up to seven friends. The winner pays big money for the honor. The money is donated to a charity called the Glide Foundation, which helps the poor and homeless in San Francisco. In the past, Buffett charged $30,000 per group. Since July 2003, Buffett has placed the invitation on an online auction (eBay). In

2003, bidders pushed the bid from $30,000 to $250,100. The highest winning bid was in 2012, by an anonymous bidder, in the record-setting amount of $3,456,789. However, in 2014, the highest bid was $2.2million. In addition to benefiting the needy, the auction provides an opportunity for people (with money) to meet Mr. Buffett.

One Buyer, Many Potential Sellers

Two popular types of auctions in which there is one buyer and many potential sellers are reverse auctions (tendering) and name-your-own-price auctions.

Reverse Auctions

When there is one buyer and many potential sellers, a **reverse auction (bidding** or **tendering system)** is in place. In a reverse auction, the buyer places an item he or she wants to buy for a bid (or *tender*) on a *request for quote* (RFQ) system. Potential suppliers bid on the item, reducing the price sequentially (see Figure 2.4). In electronic bidding in a reverse auction, several rounds of bidding may take place until the bidders do not reduce the price any further. The winning supplier
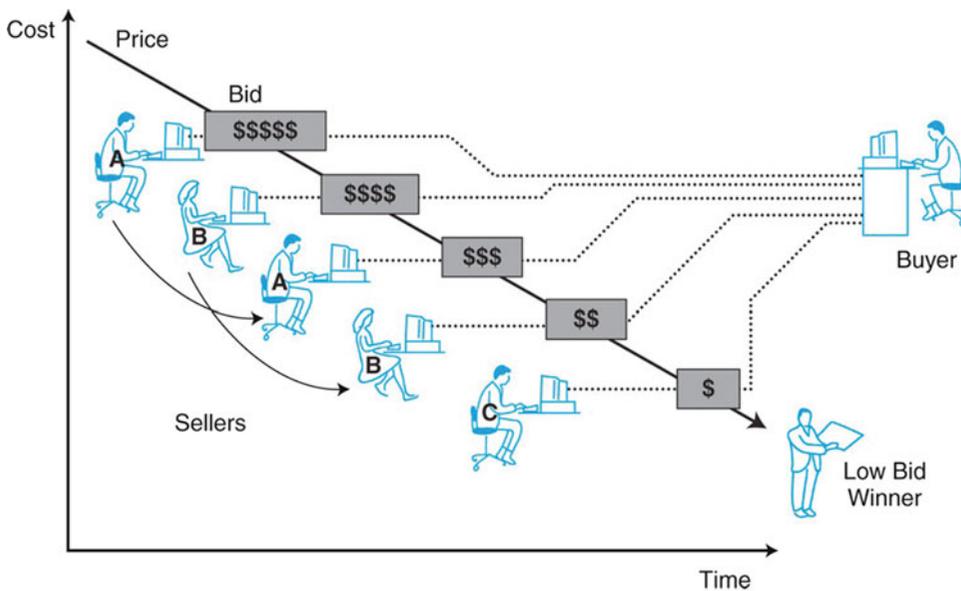
Figure 2.4 The reverse auction process

is the one with the lowest bid (assuming that only price is considered). Reverse auctions are primarily a B2B or G2B mechanism. (For further discussion and examples, see Chapter 4, including its opening case).

The Name-Your-Own-Price Model

Priceline.com pioneered the **name-your-own-price model**. In this model, a would-be buyer specifies the price (and other terms) that he or she is willing to pay to any willing and able seller. For example, Priceline.com (**priceline.com**) presents consumers' requests to sellers, who fill as much of the guaranteed demand as they wish at prices and terms requested by buyers. The sellers may come up with counter offers managed by Priceline. Alternatively, Priceline.com searches its own database that contains the participating vendors' lowest prices and tries to match supplies with requests. Priceline.com asks customers to guarantee acceptance of the offer if it is at or below the requested price by giving a credit card number. This is basically a C2B model, although some businesses also use it.

Many Sellers, Many Buyers

When there are many sellers and many buyers, buyers and their bidding prices are matched with sellers and their asking prices based on the quantities on both sides. Stocks and commodities markets are typical examples of this configuration. Buyers and sellers may be individuals or businesses. Such an auction is also called a **double auction**.

Penny Auctions

A *bidding fee auction*, also called a **penny auction**, is a new type of online forward auction in which participants must pay a small nonrefundable fee each time they place a bid (usually in small increments above the previous bid). When the time expires, the last participant to have placed a bid wins the item and also pays the final bid price, which is usually significantly lower than the retail price of the item. For a tutorial, see the video titled "BidBidSold Penny Auction Site Tutorial" (2:23 minutes) at **youtube.com/watch?v=ngr2kJcnAr4**.

Because most bidders will receive nothing in return for their paid bids, some observers have stated that the fee spent on the bid is actually equivalent to a lottery or wager. The auctioneer receives income both in the form of the fees collected for each participant bidder as well as in the form of a commission for the winning bid. Examples of penny auction companies are **us.madbid.com** and **quibids.com/en**. At **100auctionsites.com**, you can find a list of several penny auction companies. Some companies allow the auction's unsuccessful bidders to use all their bidding fees toward a purchase of items at regular or slightly discounted prices. Users need to be careful of scams. For additional information, see **en.wikipedia.org/wiki/Bidding_fee_auction**.

Several other innovative auctions are available.

Benefits and Limitations of E-auctions

E-auctions are becoming important selling and buying channels for many companies and individuals. E-auctions enable buyers to access goods and services anywhere auctions are conducted. Moreover, almost perfect market information is available about prices, products, current supply and demand, and so on. These characteristics provide benefits to all.

Benefits of E-Auctions

The auction culture seems to revolutionize the way customers buy, sell, and obtain what they want. A listing of the benefits of e-auctions to sellers, buyers, and e-auctioneers is provided in Table 2.2.

Limitations of E-Auctions

E-auctions have several limitations. The most significant limitations are minimal security, the possibility of fraud, and limited participation.

Minimal Security

Some of the C2C auctions conducted on the Internet are not secure because they are done in an unencrypted (or poorly protected) environment. This means that credit card numbers can be stolen during the payment process. Payment methods such as PayPal (**paypal.com**) can be

Table 2.2 Benefits of e-auctions

Benefits to sellers	Benefits to buyers	Benefits to E-auctioneers
• Increased revenues from broadening bidder base and shortening cycle time. Can sell anywhere globally	• Opportunities to find unique items and collectibles	• Higher repeat purchases. **marketresearch.com** found that auction sites, such as eBay, tend to garner higher repeat-purchase rates than the top B2C sites, such as Amazon.com
• Opportunity to bargain instead of selling at a fixed price. Can sell at any time and conduct frequent auctions	• Entertainment. Participation in e-auctions can be entertaining and exciting (e.g. virtual live auction site **tophatter.com**)	• High "stickiness" to the Web site (the tendency of customers to stay at sites longer and come back more often). Auction sites are frequently "stickier" than fixed-priced sites. Stickier sites generate more ad revenue for the e-auctioneer
• Optimal price setting determined by the market (more buyers, more information)	• Convenience. Buyers can bid from anywhere, even using a mobile device; they do not have to travel to a physical auction place	• Easy expansion of the auction business
• Sellers can gain more customer dollars by offering items directly (saves on the commission to intermediaries; also, physical auctions are very expensive compared to e-auctions)	• Anonymity. With the help of a third party, buyers can remain anonymous	
• Can liquidate large quantities quickly. • Improved customer relationship and loyalty (in the case of specialized B2B auction sites and electronic exchanges)	• Possibility of finding bargains, for both individuals and organizations	

used to solve the problem (see Chapter 10). In addition, some B2B auctions are conducted over highly secure private lines.

Possibility of Fraud

In many cases, auction items are unique, used, or antique. Because the buyer cannot see and touch the items, the buyer may receive something different than she (or he) had in mind. In addition, products may be defective. Buyers may also commit fraud (e.g., by receiving goods or services without paying for them). Thus, the fraud rate in e-auctions is relatively high. For a discussion of e-auction fraud and fraud prevention, see **fraud.org/scams/internet-fraud/online-auctions**. For information

on internet fraud in general, see **fraud.org/learn/internet-fraud** and for information for sellers, see **fraud.org/component/content/article/2-uncategorised/62-seller-beware**. Lately, several people have warned about fraud on penny auctions sites. For examples of scams, see **tomuse.com/penny-auction-fraud-scam-cheat-bidders**.

Limited Participation

Some auctions are by invitation only; others are open only to dealers. Limited participation may be a disadvantage to sellers, who usually benefit from as large a pool of buyers as possible. Buyers also may be unhappy if they are excluded from participation.

Impacts of Auctions

Because the trade objectives and contexts for auctions are very diverse, the rationale behind auctions and the motives of the different participants for setting up auctions are quite different. The following are some representative impacts of e-auctions.

Auctions as a Mechanism to Determine a Price

Given their characteristics, auctions create a market where prices are determined. This is especially true in markets for unique or rare items. Typical examples are fine art or rare stamp auctions. For example, wine collectors can find a global wine auction site at **winebid.com**.

Auctions and Social Networks

Some social networks enable auctions (e.g., see Internet Exercise #3).

Online Bartering

Bartering, the exchange of goods and services, is the oldest method of trade. Today, it is done primarily between organizations. The problem with bartering is that it is difficult to match trading partners. Businesses and individuals may use classified ads to advertise what they need and what they offer in exchange, but they still may not be able to find what they want. Intermediaries may be helpful, but they are expensive (20–30% commissions) and very slow.

E-bartering (electronic bartering) – bartering conducted online – can improve the matching process by attracting more partners to the barter. In addition, matching can be done faster, and as a result, better matches can be found. Items that are frequently bartered online include office space, storage, and factory space; unused facilities; and labor, products, and banner ads. (Note that e-bartering may have tax implications that need to be considered.)

E-bartering is usually done in a **bartering exchange**, a marketplace where an intermediary arranges the transactions. These exchanges can be very effective. Representative bartering websites include **u-exchange.com** – 'Trade anything, Pay nothing,' **swapace.com** – 'Swap anything for anything,' and **barterdepot.com**. The typical bartering process works like this: First, the company tells the bartering exchange what it wants to offer. The exchange then assesses the value of the company's products or services and offers it certain "points" or "bartering dollars." The company can use the "points" to buy the things it needs from a participating member in the exchange.

Bartering sites must be financially secure; otherwise, users may not have a chance to use the points they accumulate. (For further details, see **virtualbarter.net** and **barternews.com**.)

Online Negotiating

Dynamic prices also can be determined by *negotiation*. Negotiated pricing is commonly used for expensive or specialized products. Negotiated prices also are popular when large quantities are purchased. Much like auctions, negotiated prices result from interactions and bargaining among sellers and buyers. Negotiation also deals with terms, such as the payment method, timing, and credit. Negotiation is a well-known process in the offline world (e.g., in real estate, automobile purchases, and contract work). A simple peer-to-peer (P2P) negotiation can be seen at **ioffer.com**. For more on negotiation in P2P money lending, see the ZOPA and Prosper cases in Online File W7.1. *Online (electronic) negotiation* may be more effective and efficient than offline negotiation.

SECTION 2.5 REVIEW QUESTIONS
1. Define auctions and describe how they work.
2. Describe the benefits of e-auctions over traditional (offline) auctions.
3. List the four major types of auctions.
4. Distinguish between forward and reverse auctions.
5. Describe the "name-your-own-price" auction model.
6. Describe penny auctions.
7. List the major benefits of auctions to buyers, sellers, and auctioneers.

8. What are the major limitations of auctions?
9. List the major impacts of auctions on markets.
10. Define bartering and describe the advantages of e-bartering.
11. Explain the role of online negotiation in EC.

2.6   VIRTUAL COMMUNITIES AND SOCIAL NETWORKS

A *community* is a group of people with common interests who interact with one another. A **virtual community** is one where the interaction takes place over a computer network, mainly the Internet. Virtual communities parallel typical physical communities, such as neighborhoods, clubs, or associations, but people do not meet face-to-face. Instead, they meet online. Virtual communities offer several ways for members to interact, collaborate, and trade (see Table 2.3 for types of virtual communities).

Characteristics of Traditional Online Communities and Their Classification

Most virtual communities are Internet-based, known also as *Internet communities*.

Hundreds of thousands of communities exist on the Internet, and the number is growing rapidly. Pure-play Internet communities may have thousands, or even hundreds of millions of members. By early 2014 (its 10th anniversary), Facebook had grown to about 1.23 billion members around the world (see **businessweek.com/articles/2014-01-30/facebook-turns-10-the-mark-zuckerberg-interview**). This is one major difference from traditional purely physical communities, which usually are smaller. Another difference is that offline communities frequently are confined to one geographic location, whereas only a few online communities are geographically confined. For images of virtual communities, do a Google search.

Table 2.3 Types of virtual communities

Community type	Description
Transaction and other business activities	Facilitate buying and selling Combines an information portal with an infrastructure for trading. Members are buyers, sellers, intermediaries, etc., who are focused on a specific commercial area (e.g., fishing)
Purpose or interest	No trading, just exchange of information on a topic of mutual interest. Examples: Investors consult The Motley Fool (**fool.com**) for financial advice; music lovers go to **mp3.com**
Relations or practices	Members are organized around certain life experiences. Examples: **ivillage.com** caters to women and **seniornet.com** is for senior citizens. Professional communities also belong to this category. Examples: **aboutus.org/Isworld.org** is a space for information systems faculty, students, and professionals
Fantasy/role playing	Members share imaginary environments. Examples: sports fantasy teams at **espn.com** see **games.yahoo.com**, **horseracegame.com**
Social networks	Members communicate, collaborate, create, share, form groups, entertain, and more. Facebook is the leader
Virtual worlds	Members use avatars to represent themselves in a simulated 3-D environment where they can play games, conduct business, socialize, and fantasize about whatever they like

Classifications of Virtual Communities

Virtual communities can be classified in several ways.

Public Versus Private Communities

Communities can be designated as *public*, meaning that their membership is open to anyone. The owner of the community may be a privately held corporation (e.g., Twitter), public for profit, or non-profit organizations. Many of the large social networks, including Facebook, belong to the public for profit category.

In contrast, *private* communities belong to a company, an association, or a group of companies

and their membership is limited to people who meet certain requirements (e.g., work for a particular employer or work in a particular profession). Private communities may be internal (e.g., only employees can be members), or external (for customers).

Classification Categories

Another option is to classify the members as *traders, players, just friends, enthusiasts*, or *friends in need*. A more common classification recognizes six types of Internet communities: (1) transaction, (2) purpose or interest, (3) relations or practices, (4) fantasy, (5) social networks, and (6) virtual worlds.

The most popular type of virtual community today is the social network, the subject of our next section.

Online Social Networks and Social Network Sites

Let us first define social networks and then look at some of the services they provide and capabilities.

A Definition and Basic Information

As you may recall, in Chapter 1 we defined a *social network* site as a company, such as Facebook, that provides free Web space and tools for its community members to build profiles, interact, share, connect, and create and publish content.

A list of the characteristics and capabilities of social networks was provided in Section 1.3 of Chapter 1.

Social Network Services

Social network services (or sites) are companies that host social communities. They are also known as *social networks*.

Social networks appear in a variety of forms; the most well-known, mostly social-oriented net-

work is Facebook. LinkedIn is a business-oriented network.

The Size of Social Network Sites

Social network sites are growing rapidly, with some having over 100 million members. For example, in late 2013, Pinterest had 70 million members. The typical annual growth of a successful site is 40–50% in the first few years and 15–25% thereafter. For a list of the major sites (including user counts), see **leveragenewagemedia.com/blog/social-media-infographic** and **en.wikipedia.org/wiki/List_of_social_networking_websites**.

A Global Phenomenon

Although Facebook, Pinterest, Twitter, Google+, and other social networks attract the majority of media attention in the United States, they also have many members in other countries. Other country-based social network sites are proliferating and growing in popularity worldwide. For example, **renren.com**, **weixin.qq.com** and **us.weibo.com** are large communities in China; **mixi.jp** has been widely adopted in Japan; and **vk.com** in Europe (primarily in Russia). Dutch users have embraced **hyves.nl**; and Nasza Klasa (**nk.pl**) has captured Poland. **Hi5.com**, a social network (now part of Tagged) has been popular in Latin America, the U.S., South America, and Europe. **Migente.com** is an English language site geared toward the Hispanic community. Additionally, previously popular communication and community services have begun implementing social networking features. For example, the Chinese instant messaging service **qq.com** became one of the largest social networking services in the world once it added profiles and made friends visible to one another. Finally, Cyworld conquered the Korean market by adding 'buddies.' Note that, international entrepreneurs, inspired by the success of the largest social network sites and their capabilities, have created their own local clones of successful U.S. companies. Information about the magnitude of social networks is changing

rapidly; therefore, to get the most up-to-date data, go to **alexa.com** and **comscore.com**.

Representative Capabilities and Services Provided by Social Network Sites

Social network sites provide many capabilities and services such as:

- Users can construct a Web page where they present their profile to the public.
- Users can create a circle of friends who are linked together.
- The site provides discussion forums (by subgroup, by topic).
- Photo, video, and document viewing and sharing (streaming videos, user-supplied videos) are supported.
- Wikis can be used to jointly create documents.
- Blogs can be used for discussion, dissemination of information, and much more.
- These sites offer community e-mail and instant messaging (IM) capabilities.
- Experts can be made available to answer member queries.
- Consumers can rate and comment on products and services.
- Online voting may be available to poll member opinions.
- The site may provide an e-newsletter.
- The site supports conference (group) chatting, combined with document and image sharing.
- Message and bulletin board services are available for posting information to groups and individuals on the website.
- The site provides storage for content, including photos, videos, and music.
- Users can bookmark self-created content.
- Users can find other networks, friends, or topics of interest.

These capabilities can make social networks user-friendly.

Business-Oriented Public Social Networks

Business-oriented social networks, also known as *professional social networks*, are social networks whose primary objective is to facilitate business. The prime example here is **linkedin.com**, which provides business connections and enables recruiting and finding jobs. Another example is **craigslist.org**, the largest classified ad site, which offers many social-oriented features (see Case 2.2 later in this section). Another example is The Brain Yard, a place for executives to find news, knowledge and contacts. Finally, **doximity.com** is a medical network for U.S. physicians and health care professionals. Businesses are using business social networks to advertise their brands as well as making and enhancing contacts globally.

Example of a Business-Oriented Social Network

Originating in Germany, **xing.com** is a business network that attracts millions of executives, sales representatives, and job seekers from over 200 countries (2014 data). The site offers secure services in 16 languages. According to **xing.com** and the authors' experiences, users can visit the site to:

- Establish new business contacts and find sales trends.
- Promote themselves professionally to employers.
- Identify experts that can give their advice on problems and opportunities (for a fee or for free).
- Participate in or organize meetings and events.
- Develop and grow a network of contacts.
- Control the level of privacy and ensure that their personal data are protected.
- Keep up-to-date with industry groups.

Some Capabilities of Business-Oriented Networks

With Web 2.0 tools, companies can engage users in new innovative ways (for an example, see Online File W2.4). More direct communication

is achieved by offering additional ways for consumers to engage and interact among themselves and with organizations. For example, a company can:

- Encourage consumers to rate and comment on products and services.
- Allow consumers to create their own topic areas and build communities (forums) around shared interests possibly related to a company's products.
- Hire bloggers or staff editors who can lead discussions about customer feedback.
- Provide incentives such as sweepstakes and contests for customers to get involved in new product (service) design and marketing campaigns.
- Encourage user-made videos about products/services and offer prizes for winning video ads.
- Provide interesting stories in e-newsletters.

An interesting business-oriented company that uses classified ads is **craigslist.org**, which is described in Case 2.2.

CASE 2.2: EC APPLICATION: CRAIGSLIST: THE ULTIMATE ONLINE CLASSIFIED COMMUNITY

If you want to find (or offer) a job, housing, goods and services, social activities, romance, advice, and much more in over 700 local sites in 13 languages, and in more than 70 countries worldwide (2014 data), go to Craigslist (**craigslist.org**). The site has much more information than you will find in newspapers. According to their website, Craigslist receives 80 million new classified ads every month. Each month there are more than 60 million visitors to the site in the United States alone (see **craigslist.org/about/factsheet**).

Finally, there are over 50 billion page views per month. For more statistics, see **alexa.com/siteinfo/craigslist.org** and **siteanalytics.compete.com/craigslist.com/#.Uw27nfmICm4**. According to Alexa.com, Craigslist is the eleventh most visited site in the United States.

In addition, Craigslist features over 100 topical discussion forums with more than 200 million user postings. Every day, people from 700 local sites in 70 countries worldwide check classified ads and interact on forums. Craigslist is considered by many as one of the few websites that could change the world because it is simply a free social-oriented, popular, and useful notice site. Although many other sites offer free classifieds, no other site comes close to Craigslist.

- It gives people a voice.
- It is consistent and champions down-to-earth values.
- It illustrates simplicity.
- It has social-networking capabilities.
- It can be used for free in most cases (you can post free ads, except for business; for rent, or for sale ads in a few large cities; some employment ads; and for adult and therapeutic services).
- It is effective and well visited.

For more information, see **craigslist.org/about/factsheet**.

Users cite the following reasons for the popularity of Craigslist:

As an example of the site's benefits, we provide the personal experience of one of the authors, who needed to rent his condo in Long Beach, California. The usual process to get the condo rented would take 2–4 weeks and $400 to $700 in newspaper ads, plus ads in local online sites for rental services. With Craigslist, it took less than a week at no cost. As more people discover Craigslist, the traditional newspaper-based classified ad industry will probably be the loser;

ad rates may become lower, and fewer ads will be printed.

In some cities, Craigslist charges for "help wanted" ads and apartments listed by brokers. In addition, Craigslist may charge for ads with rich media features.

Concerns About Craigslist

Critics charge that some users post illegitimate or false ads on the site and the Craigslist staff are unable to effectively monitor this practice. Some users have complained about questionable ads and scams being posted. Craigslist also attracts criminals seeking to commit fraud by paying with bad checks. The anonymity of Craigslist's users as well as the lack of ratings encourages unlawful acts.

Another concern is that adult services make up a significant portion of the total traffic on the site and may involve illegal activities, especially concerning minors. With the sheer volume of users and ads posted per day, such monitoring is not possible given the modest workforce of only 40 plus that the site employs (data of 2014). (As of September 8, 2010, Craigslist has been trying to control such activities.)

On the other side, many supporters contend that attempts to control Craigslist may simply cause users to use other, less-regulated sites.

In China, a company called 58.com Inc. (**58. com**) is modeled after Craigslist and provides similar information and generates sizeable revenue and profits. The company is listed in the NYSE under the symbol WUBA.

Sources: Based on Clark (2008), Liedtke (2009), and **craigslist.org** (accessed May 2014).

Questions
1. Identify the business model used by Craigslist.
2. Visit **craigslist.org** and identify the social network and business network elements.
3. What do you like about the site? What do you dislike about it?
4. Why is Craigslist considered by some as a site that "could change the world?"

5. What are some of the risks and limitations of using this site?

Private (or Enterprise) Social Networks

In addition to public-oriented business social networks such as LinkedIn and Craigslist, there are many private social networks (also called enterprise networks) within an organization. An example is the opening case in Chapter 1 (Starbucks). Other companies with notable internal networks for employees only include Northwestern Mutual. According to the company, they have an internal blog ("Mutualblog") and a Yammer account internally, which is used by over 1,000 employees to dialog and make connections on non-proprietary topics. Private networks are for employees, business partners, and customers.

Business Models and Services Related to Social Networking

Social networking sites provide innovative business models, ranging from customer reviews of food and night life in India (**burrp.mumbai. com**), to users who dress up paper dolls that look like celebrities (**stardoll.com**). New revenue models are being created almost daily. Although some generate limited revenue, others succeed. Lately, the Pinterest model has become popular, as described in Chapter 7.

Many communities attract advertisers. For example, **vivapets.com** attracts pet lovers with wiki contributions in its attempt to catalog all pet breeds. The site attracts hundreds of thousands of unique visitors per month. Obviously, pet food-related vendors are interested in placing ads there.

Some of the popular social-oriented services are:
1. **Xanga.com** hosts blogs, photoblogs, and social networking profiles. Users of Xanga are referred to as "Xangans." Xanga was originally launched as a site for sharing book and music

reviews. Today it is one of the most popular blogging and networking services, with an estimated 10,000,000–100,000,000 million users worldwide. Xanga has a very popular blogring in Hong Kong, Macao, and Singapore. (A *blogring* links together a number of blogs that share mutual interests and can be searched by subject matter). In 2013 the company was planning to get involved in online gambling.

2. **Digg.com** is a community-based website that takes short reports from members on podcasts, news articles, and videos, which are then voted on by other participants. Digg is available on a website, iPhone app, and daily e-mail.

Mobile Social Commerce

Mobile computing is growing faster than any other type of EC computing. According to Bent (2014), mobile data traffic grew 81% (from 820 petabytes per month in 2012 to 1.5 exabytes per month in 2013). This clearly boosts mobile commerce. According to The Retail Bulletin (2012), 64% of smartphone consumers used them to shop online. In subsequent chapters, we will discuss many mobile applications. Here we present the basic definitions, technologies, and a few examples.

Mobile Social Networking

Mobile social networking refers to social networking where members chat and connect with one another using any mobile device. Most major social networking websites now offer mobile services. According to Protalinski (2012), in July 2012 the number of mobile subscribers accessing Facebook was 543 million out of a total membership of 955 million. By Q4 2013, Facebook had 945 million mobile users out of a total 1.23 billion million monthly active users (see **techcrunch.com/2014/01/29/facebook-is-a-mobile-ad-company** and **newsroom.fb.com/Company-info**). Some social networking sites offer mobile-only services (e.g., **path.com** and **javagala.ru**).

Mobile social networking is especially popular in Japan, South Korea, and China, generally due to better data pricing (flat rates are widespread in Japan). In Japan and South Korea, where 4G networks offer more bandwidth, the leaders in social networking are **mixi.jp** and Mobage by Dena (**mbga.jp**). Numerous other mobile social networking sites have been launched in Japan. For statistics on the exponential growth of mobile social networks, see **comscore.com**.

Experts predict that mobile social networks will experience explosive growth, as evidenced in 2012. For how social platforms are powering mobile commerce see Gupta (2011).

Mobile Enterprise Networks

Several companies have developed (or fully sponsor) mobile-based social networks. For example, Coca-Cola has a social network that can only be accessed by mobile devices. There Coca-Cola employees attempt to influence young people to buy its products.

Examples of Social Mobile Commerce Applications

There are several types of social mobile applications. Illustrative examples are provided next.

Example 1

Coca-Cola created a social network under its Sprite brand (Sprite Yard), which is only accessible via cellphones. The network was aimed at the youth market, and members could set profiles, meet friends, share photos and so on. The idea was to use the site mainly for promoting the brand. To attract visitors, the company offered free content (music and video clips). However, the free access requires a PIN code found under Coca-Cola bottle lids. This service was discontinued in 2013.

Example 2

IBM is a leader in social commerce adoption on mobile devices. Following are some examples of IBM's initiatives according to Taft (2011).

- IBM Mobile Connect (formerly IBM Lotus Mobile Connect) (social media and social

networks building software, abbreviated as Connect) is popular in industry.. Customers can get immediate access to blogs, wikis, and other tools. They can also share photos, videos, and files on major mobile devices (e.g., Android, BlackBerry, iOS).

- IBM Connections allows people to generate and vote on ideas at work (see **ibm.com/connections/blogs/SametimeBlog/?lang=en**).
- The capabilities in IBM Connections 4.0, such as Moderations, or Ideation Blogs, enabled workers to embrace networks of engaged people.

Example 3

A poll conducted by **travelclick.com** in October 2011 revealed that half of the participating hoteliers around the globe are investing in mobile technologies to support social commerce (see **bizreport.com/2011/10/travelclick-hotels-to-invest-more-in-mobile-social-marketing.html**).

With the current technology, we also see a trend toward sophisticated interactions of Internet social networks with images, voice, and videos. This is expected to be a powerful managerial and marketing feature in the near future.

Recent Innovative Tools and Platforms for Social Networking

A large number of software tools and platforms are available for social networking. Well known tools are blogs, microblogs, and wikis, which are described in Online File W2.1. Note that the capabilities of these tools are changing continuously. Here we provide a representative list of recent innovative tools:

- **Snapchat.com** – A mobile photo messaging service for "chatting" with friends through photos, videos, and captions "like 'texting' with pictures or videos" (see **webtrends.about.com/od/Iphone-Apps/a/What-Is-Snapchat.htm**).
- **Whatsapp.com** – According to its website, WhatsApp is a cross-platform free mobile messaging app for smartphones. Users can form groups, send each other unlimited images, video and audio media messages. The company was acquired by Facebook in 2014 for around $19 billion.
- **Ortsbo.com** – Enabler of real-time conversational translation mainly in social media.
- **Droid Translator** (**droid-translator.tiwinnovations.com**) – Translates phone calls, video chats (e.g., Skype), and text conversations into 29 different languages. (For more information, see Petroff 2014).
- **Tagged.com** – A maker of *social discovery* products that enable people to meet and socialize with other people through playing games, browsing features, shared interests, and more. You can share tags, browse profiles, and exchange virtual gifts.
- **Viber.com**, **line.me/en,** etc. – Companies that provide free voice and video calling, etc. for mobile devices and desktops (e.g. Viber for Desktop).
- **Instagram.com** – A free platform for sharing photos and videos. As a social network, it allows for creation of reviews, etc. (Acquired by Facebook in 2012.)
- **Hshtags.com**; ('A social media search engine dedicated to hashtags') –Enables users to see in real-time, all public content related to any keyword and join any related public conversation in real time (see **digitaltrends.com/social-media/new-search-engine-like-google-social-web**).

Mobile Community Activities

In many mobile social networks, devices can be utilized to conduct the same activities that are performed in a non-mobile configuration. Customers can even create their own mobile community.

Mobile video sharing, which sometimes is combined with photo sharing, is a new techno-

logical and social trend. Mobile video-sharing portals are becoming popular (e.g., see **myubo. com**). Many social networking sites offer mobile features.

SECTION 2.6 REVIEW QUESTIONS

1. Define virtual communities and describe their characteristics.
2. List the major types of virtual communities.
3. Define social network.
4. Describe mobile social commerce.
5. List some major social network sites.
6. Describe the global nature of social networks.
7. Describe social networking.
8. Describe mobile social networking and commerce

2.7   VIRTUAL WORLDS AS AN ELECTRONIC COMMERCE PLATFORM

A **virtual world** is a site for online communities in a computer-generated setting, where users socialize and work with one another through the use of avatars. The creation of objects, jobs, homes, and businesses in the 3D environment, which are owned by their residents, is the foundation of these worlds. It is an interactive environment, which is fun and satisfying. Virtual worlds (also referred to as *digital worlds* or *Metaverse*), usually structured as interactive 3-D virtual environments, are created for users to inhabit and interact in. Users feel as if they are actually within the environment because they have the ability to control certain features of the virtual world. Virtual worlds, according to Wikipedia, initially appeared in massively multiplayer online games; however, they are not limited to games. Players can create a character that travels between buildings, towns, and even planets and stars as well as conducting activities there. In a virtual world, you can be anyone you want. You can build a dream house, decorate it, have a job, or fly a spaceship. For a comprehensive overview, see Malaby (2009). For research directions, see Wasko et al. (2011). To learn more about Second Life, see **wiki.secondlife.com/wiki/Video_Tutorials**, and

the video titled "Philip Rosedale: Second Life, Where Anything Is Possible" (28:31 minutes) at **youtube.com/watch?v=lHXXsEtE3b4**.

Major Features

There are several different types and purposes of virtual worlds; however all share the following features (compiled from The Virtual Policy Network's 'A Virtual Worlds Primer' at **virtualpolicy.net/resources/virtual-worlds-primer**), and the authors' experiences:

- The worlds can be used by many users who access them via online interface
- The interface is mostly 3D, which is more engaging than 2D.
- All interactions are in real time from anywhere.
- Most of the content is user-generated. It is facilitated by tools provided on the sites.
- The virtual world is always in motion, regardless of the presence of its residents.
- Socialization is encouraged. Tools are provided for engagement and for creating groups and socially-oriented activities.

Additional features are:

- Communication among users can include text, graphical icons, visual gestures, video clips, sound, and so forth.
- Use of avatars is a common way to represent the residents of the virtual worlds.

Avatars

Residents of virtual worlds can represent themselves by 2-D or 3-D images known as avatars. **Avatars** are interactive, animated, computerized

"characters" that are graphical images designed to look like humans and are programmed to exhibit people's behavior. Avatars have unique names and can move around. Advanced avatars can "speak" and display behaviors such as emotions, gestures, and facial expressions. They can be fully automated to act like robots. Avatars are designed to gain the trust of users. Then, they can be programmed to perform human tasks. Many companies use avatars as tour guides or to staff virtual reception desks. For a demonstration of avatars in action, see **meez.com**.

The purpose of avatars is to make the human–computer interface more realistic. Thus, they are sometimes referred to as interactive *conversational characters*. They are being used extensively to support users' Internet chat with companies (e.g., Live Chat), representing the company's people. A popular use is the live chat with avatars. You ask questions and the avatar, using natural language processing, attempts to understand your question. Then, the avatar matches an answer from a database. For an example, see "Ted", at **tdameritrade.com**. Instant-messaging programs such as **google.com/hangouts** use avatars (e.g., see **hangoutapps.com**). Avatars can improve customer satisfaction and retention by offering personalized, one-to-one service. They also can help companies get to know their customers in order to better design promotions. For more on avatars you must see the 2009 movie *Avatar*.

Example 1: Jetstar Airways

According to Business Wire (2013), Nuance Communications, Inc., announced that Jetstar "has launched a new virtual assistant called 'Ask Jess,' which is based on Nuance Nina Web, an intelligent virtual assistant that delivers a human-like, conversational customer service experience. Customers simply type their request to Jess, and Jess provides the answers. Jetstar is the first airline to deploy Nuance Nina Web virtual assistant for customer service. The new Ask Jess virtual assistant draws on Nuance Nina, an intelligent virtual assistant that leverages innovative technology for natural language understanding and deliv-

ers a conversational interface to web visitors which stimulates human conversation. Nuance's Natural Language Understanding (NLU) technology allows applications like Ask Jess to understand a customer's intent through an interactive, text-based chat experience. By understanding what customers want, Ask Jess makes getting information on booking, baggage and seating easier than navigating pages on a Web site. Jetstar's Ask Jess virtual assistant is also fully integrated with the company's existing live chat service, delivering a seamless handover to human support when required." (To ask Jess a question, see **jetstar.com/au/en/customer-service**.)

Example 2: American TESOL

The American TESOL, Teaching English to Speakers of Other Languages Institute (**american-tesol. com/blogger/p=1367**) teaches and certifies qualified individuals to teach English worldwide. The company deploys multiple avatars throughout its website. The avatars provide tips for ESL (English as a Second Language) students to help them improve their conversational abilities. Other activities are:

- Engaging students with talking avatars
- Students introducing their avatars in Second Life
- Using avatars in text-to-movie and much more.
  For more information see **sanako.com**.

Business Activities and Value in Virtual Worlds

Virtual worlds provide an interesting platform for business activities. Businesses compete in virtual worlds, just like they do in the real world. Many companies and organizations now incorporate virtual worlds as a new form of advertising and sales.

There are several types of business activities in virtual worlds:

- Creating and managing a virtual business (see Terdiman 2008 for guidelines on how to do this)

- Conducting regular business activities (e.g., advertising, marketing, collaboration) within the framework of the virtual world
- Providing services for those who build, manage, or make money with virtual properties

For additional business activities, see Mahar and Mahar (2009) and Chapter 8.

In a cover story in *Businessweek Magazine*, Hof (2006) discusses the various opportunities for conducting business in Second Life. Specifically, he introduces seven residents who make substantial amounts of money. These include the Anshe Chung avatar, known as the "Rockefeller of Second Life." Her successful company buys virtual land from Second Life, "develops" it, and sells or rents it globally.

For more on business applications for virtual worlds, see **knowledge.wharton.upenn.edu/?s=virtual+worlds**.

Following is an example of how companies use virtual worlds in businesses:

Example: Market Research

Starwood Hotels constructed a prototype of its Aloft brand hotels before they were built in 2008. People using Second Life were asked to view the prototype and give the company their opinions on the model. Then, using the feedback, the company completed the design and built the hotel.

Using virtual worlds gives companies a chance to receive and examine feedback about new products or services. This can be crucial because it gives the companies insight into what the market and customers really want from new products. The 3D presentation helps users better understand products; thus giving companies a competitive edge. For other potential activities, see Mahar and Mahar (2009), Stinton (2013), and the closing case of this chapter. There is an increased use of avatars in help desks.

Example

Avatars guide and advise passengers in airports. As of 2012 you can see avatars acting as greeters in many airports in Europe (e.g., Paris) and the U.S. (New York), that are there to help passen-

gers by giving them information about ground transportation, etc. (see **abcnews.go.com/Travel/york-airports-introduce-avatars-assist-passengers/story?id=16957584**). The avatars are human sized. For a demonstration of the avatars in the New York airports, watch WNYC's video titled "Airport Avatar Demonstration" (47 seconds) at **youtube.com/watch?v=tI3YBf36twk**. Advanced avatars can conduct vocal conversations with passengers (sometimes in several languages). Similar avatars act as guides in some companies, universities, and tourist attractions. New York airports are working on developing avatars that will allow customers to ask questions about the airport (see **digitaltrends.com/cool-tech/new-york-airports-are-installing-virtual-avatars-to-help-visitors**).

Virtual Shopping

You can go shopping with friends while each shopper is located at his or her individual home. You enter a virtual store in the virtual mall and find jeans on sale. Your avatar tries on the jeans (the avatar's body's size is the same as yours) and displays it to your friends. If you like it, you may buy the pants online or visit the physical store later. Virtual shopping is gaining popularity (see Turban et al. 2015, and Chapter 7).

One type of virtual shopping is described next.

Trading Virtual Properties

As you will see in the closing case, trading virtual properties is a very popular activity in Second Life. **Habbo.com** (formerly known as Habbo Hotel), a Finnish social networking site for teenagers, sells more virtual furniture worldwide than the giant Swedish retailer IKEA sells actual furniture. The virtual furniture is designed by teens on the site who decorate their Habbo rooms with the furnishings. The teen users are buying not only furniture but also clothes, bags, etc., for their avatars.

SECTION 2.7 REVIEW QUESTIONS

1. Define virtual worlds.
2. Describe avatars. Why do we use them?

3. List some business activities in virtual worlds. Categorize them by type.
4. Describe virtual shopping.

2.8   EMERGING EC PLATFORMS: AUGMENTED REALITY AND CROWDSOURCING

Several technologies are used as platforms that enable innovative EC applications. Here we present two.

Augmented Reality

An increasing number of business applications use the technology of *augmented reality* (AR). See Marcom on a Dime (2010) for more details. The term AR has several definitions depending on its field of applications. According to Wikipedia, **augmented reality** is "a live or indirect view of a physical, real-world environment whose elements are *augmented* (or supplemented) by computer-generated sensory input such as sound, video, graphics or GPS data" (see **en.wikipedia.org/wiki/Augmented_reality**). Such an arrangement helps people enhance the sensory perception of reality. The computerized layer can be seen through an application on mobile devices such as smartphones, webcams, or 3D glasses (including 3D TV). Google developed Augmented Reality (AR) glasses called 'Google Glass' (see Chapter 6 and Bilton 2012). For how AR works, see Bonsor (2001). Bonsor also explains the relationship of AR to *virtual reality*.

Applications in E-Commerce
The major applications in e-commerce are in the areas of advertising and marketing (for details, see Rorick 2012), as will be described in Chapter 9. An application in real estate is described in Chapter 3. There are potentially many other areas of applications. For example, Hayes (2009) describes 16 business applications, while iPhoneness (2010) and Elliott (2009) describe more

potential applications. Finally, Wikipedia lists many e-commerce related applications of AR.

Example 1: Net-a-Porter
This innovative company (Chapter 1) is using an iPhone/iPad app to view an AR 'shopping window.' As can be seen in the video "Net-A-Porter Augmented Reality Shopping Windows" (1:37 minutes) available at **digitalbuzzblog.com/net-a-porter-augmented-reality-shopping-windows**, customers at the company's physical store can point the mobile device camera at a clothing display (e.g., in the stores or store windows), and see a 360 degree view of the clothes. They also can see presentations at fashion shows, price, availability, and other relevant information. Furthermore, the window shoppers can immediately buy the clothing online using their mobile device (for the download, see **itunes.apple.com/ne/app/net-a-porter/id318597939?mt=8**).

Example 2: IKEA
IKEA uses AR to show how its furniture can fit in your house. For details on this mobile phone app, see Truong (2013) and watch the video "Place IKEA Furniture in Your Home with Augmented Reality" at **youtube.com/watch?v=vDNzTasuYEw**.

Crowdsourcing

Another platform for e-commerce is crowdsourcing. Crowdsourcing is a platform for collective intelligence in e-commerce and social commerce (see the industry website **crowdsourcing.org**). Here we present the essentials of the technology. In Chapter 8 we present the applications that are based on this technology.

Definitions and Major Concepts
The term *crowd* refers to any group of people such as a group of consumers, employees of a corporation, or members of a social network who offer expertise. A *crowd* is frequently referred to a large group.

Figure 2.5 The elements
of crowdsourcing
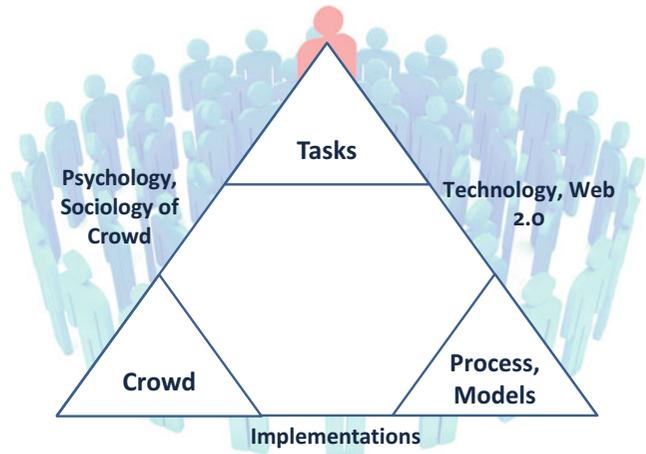
Applications in Social Gaming

AR is already used in several applications. According to **t-immersion.com/augmented-reality/use-cases/social-augmented-reality-games**, social AR gaming is a superb tool for generating marketing leads and brand recognition because of the huge number of players engaged in games connected with a product.

Crowdsourcing utilizes crowds to collectively execute tasks such as solving problems, innovating, or getting large projects completed by dividing the work among many people. The term was coined by Jeff Howe in June 2006 (Howe 2008). In the crowdsourcing process, the initiator recruits a crowd (e.g., customers) to create content, a cumbersome task (e.g., translating Wikipedia articles), or in research and development. This is based on the idea that two heads are better than one. The collective intelligence of large groups is assumed to be able to solve complex problems at low cost (Sherman 2011; Brabham 2013).

The basic elements of crowdsourcing are illustrated in Figure 2.5. Three elements are involved: the task(s) to be carried out, the crowd, which is used to work on the task and the models and processes used by the crowd (to execute the task). These elements are connected by features related to the tasks and the crowd (such as the psychology of the crowd), the technologies used (such as idea generation and voting), and imple-

mentation issues such as incentives paid to the participants.

The Process of Crowdsourcing

Crowdsourcing can be viewed as a collective problem-solving or work sharing process, and usually is conducted as a Web-based activity. In a typical use of crowdsourcing, problems are broadcast either to a known crowd (e.g., employees or business partners) or to an *unknown* group of participants (e.g., expert problem solvers or consumers). The communication usually starts as an open call for solutions (see first step in Figure 2.6). The members of the crowd are organized as online communities, and members submit individual solutions. The crowd may also discuss the solutions and may vote for a final short list. Alternatively, the short list is then prioritized (e.g., ranked). The final selection can be made by the crowd or by management (Figure 2.6). The winning individuals in the crowd are well compensated, either monetarily or with special recognition. In other cases, the only rewards may be the satisfaction with a job well done. The use of crowdsourcing can yield results from amateurs or unrecognized professionals.

Example

In 2008, Starbucks introduced My Starbucks Idea (**mystarbucksidea.force.com**), a social media site designed to solicit ideas and feedback from
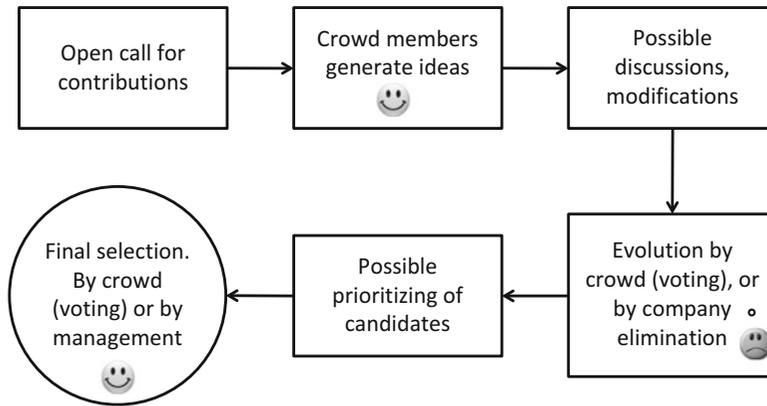
Figure 2.6 A typical crowdsourcing process

its customers (see opening case in Chapter 1). The site was built around four key themes: (1) ideas are user generated; (2) users can vote to short list ideas, discussing them before and/or after the vote; and (3) company employees act as "idea partners," providing answers to questions and leading discussions.

The process is visible to the entire Starbucks community. The members can see the status of each proposal.

Note that crowdsourcing focuses on innovation, creativity, and the problem-solving capabilities of a crowd organization. An overview of crowdsourcing is provided in BrightSightGroup's video titled "Jeff Howe - Crowdsourcing" (3:20 minutes) at **youtube. com/watch?v=F0-UtNg3ots**, also see **crowd-sourcing.org**, Sherman (2011) and Crowdsortium (**crowdsortium.org**). These specialists have developed best practices for the industry.

Benefits of Crowdsourcing
The major perceived benefits of crowdsourcing include the following:

- Problems can be analyzed or solved at comparative little cost. (Payment can be determined by the results; however, sometimes there is no monetary payment, just praise or accolades).
- Solutions can be reached quickly since many people work on the needed

research project simultaneously. Also, designs of products may be expedited.
- The contributing crowd may reside within the organization; therefore, talents may be discovered.
- By listening to the crowd, organizations gain first hand insight into the desires of their customers (or employees). There is built-in market research when the crowd is composed of customers.
- Crowdsourcing can tap into the global world of ideas. The crowd may include business partners, customers, academicians, etc., and the members of the crowd can reside in different countries.
- Customers tend to be more loyal if they participate in a company's problem solving project (see the opening case in Chapter 1).

For additional benefits to crowdsourcing, see Sherman (2011).

Uses of Crowdsourcing in E-Commerce
There are several EC applications of crowdsourcing – notable is the creation of Wikipedia. Sherman (2011) presents many successful applications; the major ones are described in Chapter 8.

SECTION 2.8 REVIEW QUESTIONS
1. Define augmented reality.
2. Describe how AR can facilitate EC.
3. Define crowdsourcing.
4. List the elements of crowdsourcing.
5. Describe the process of crowdsourcing.
6. What are the major benefits of crowdsourcing?
7. How is crowdsourcing used in EC?

2.9 THE FUTURE: WEB 3.0, WEB 4.0 AND WEB 5.0

Web 2.0 is here. What's next? The answer is a still-unknown entity referred to as *Web 3.0*, the future wave of Internet applications. Some of the desired capabilities of Web 3.0 will be discussed later in this section. In general, there is optimism about the future of the use of the Web 3.0 to facilitate EC (see **siliconangle.com/blog/2013/08/02/ the-future-of-ecommerce-with-web-3-0**).

Web 3.0: What Does the Future Hold?

Web 3.0 is projected to deliver a new generation of business applications that will see business and social computing converge. Web 3.0 could change the manner in which people live and work as well as the organizations where they work, and it may even revolutionize social networking (see Laurent 2010; Aghaei et al. 2012).

According to several experts, Web 3.0 could have the following capabilities:

- Make current applications smarter by introducing new intelligent features
- Provide easier and faster interaction, collaboration and user engagement
- Facilitate intelligent-based powerful search engines
- Provide more user-friendly application-creation and human-computer interaction capabilities
- Increase the wisdom and creativity of people

- Enable smarter machines (Gartner 2014)
- Enable much wider bandwidth
- Enable better visualization including 3-D tools
- Simplify the use of mobile computing and mobile commerce

For additional capabilities see Patel (2013).

Web 3.0 and the Semantic Web

One of the major possible platforms of Web 3.0 technologies is the *Semantic Web.*. The term was presented by the inventor of the Web, Tim Berners-Lee, who visualized the Semantic Web as the platform for making the Web smarter. There is no standard definition of **Semantic Web**. It is basically a group of methods that focus on machines (in contrast with Web 2.0 that focuses on people). The technology attempts to enable computers to understand the semantics (i.e., the meaning) of information, by using natural language understanding tools. For a video titled "Evolution Web 1.0, Web 2.0 to Web 3.0" (3.58 minutes) see **youtube.com/watch?v=bsNcjya56v8**.

A similar view regarding the role of the Semantic Web is expressed by Borland (2007), who believes that new Web 3.0 tools (some of which are already helping developers put together complex applications) will enhance and automate database searches, assist people in choosing vacation destinations, and make sorting through complicated financial data more efficient.

An experimental Semantic Web browser has been in use lately. This browser enables users to display data, draw graphs, and make browsing more interactive. (e.g., see **w3.org/standards/ semanticweb**). Another example would be "friend-of-a-friend" networks, where individuals in social networks provide data in the form of links between themselves and friends.

For a video titled "Web 3.0" (14:25 minutes) see **youtube.com/watch?v=CG9cPtIYy8Y**.

Concerns

The following are a few concerns regarding the implementation of Web 3.0 and the future of EC.

- **Future Threats.** According to Stafford (2006), Laurent (2010), and the authors' experiences, the following trends may slow the growth of EC and Web 3.0, and may even cripple the Internet.
  - **Security concerns.** Shoppers, as users of e-banking and other services, and members of social networks, worry about online security. The Web needs to be made safer.
  - **Lack of Net neutrality.** If the big telecommunications companies are allowed to charge companies for a guarantee of faster access, critics fear that small innovative Web companies could be demolished by the big companies that can afford to pay more for efficient Internet usage. (see Chapter 15).
  - **Copyright complaints.** The legal problems of YouTube, Craigslist, Wikipedia, and others may result in a loss of originality, dedication, and creativity of user-generated content.
  - **Insufficient connectivity.** Upstream bandwidths are still constraining applications, making uploading of video files a time-consuming task.
- **Language Fitness.** There will be a need to reconsider the existing spoken languages with Web 3.0 taxonomies and schemes.
- **Standards.** There will be a need for architectural standards for Web 3.0.

Therefore, some believe that the Semantic Web will never work (see the 91 minute video at **youtube.com/watch?v=oKiXpO2rbJM**).

Despite these concerns, Web 3.0 and e-commerce could thrive due to several innovations in the technological environment.

The Technological Environment

The future of EC and the Semantic Web is dependent on how far the relevant information technology advances (e.g., see Gartner 2014). Of the many predictions, we cite two here.

McKinsey & Company's Prediction

According to this prediction (Bughin et al. 2010), there are 10 tech-enabled business trends to watch. These include the developments in the global information grid, new collaboration technologies, and pervasive computing (Chapter 6).

Definitions, details, and discussions are provided by Bughin et al. (2010). Also, see Gartner's annual reports about Strategic Technology Trends at **gartner.com/technology/research**.

Nicholas Carr's Predictions

In his free e-book, Nicholas Carr (2008) discusses the following trends:

1. More intelligent computers
2. Larger and more efficient data centers based on cloud computing
3. Use of virtualization in computing infrastructure that will enable the running of any application on an external computing grid
4. Parallel processing grids that will cut processing costs by 90%
5. Utility and cloud computing will become the norm

Web 4.0

Web 4.0 is the Web generation after Web 3.0. It is still an unknown entity. It is known as Symbiotic Web (see Aghaei et al. 2012 for a description). However, Coleman and Levine (2008) envision it as being based on islands of intelligence and on being ubiquitous. For the evolution from Web 1.0 to Web 4.0 see Aghaei et al. (2012). For a discussion, see Koren (2013).

Web 5.0

According to Patel (2013), "Web 5.0 is still an underground idea in progress and there is no exact definition of how it would be. Web 5.0 can be considered as a Symbionet Web, decentralized." Patel provides some technical information.

SECTION 2.9 REVIEW QUESTIONS

1. What is Web 3.0, and how will it differ from Web 2.0?

2. Define Semantic Web.
3. List the major potential inhibitors and concerns of e-commerce and Web 3.0.
4. What are the major influencing computing and IT trends?
5. What are Web 4.0 and Web 5.0?

5. **Shall we take part in virtual worlds?** For many companies and applications, the technology is still immature and cumbersome. A good strategy is observing what other companies, especially in the same industry, are doing in Second Life.

MANAGERIAL ISSUES

Some managerial issues related to this chapter are as follows.

1. **Should we use auctions for selling?** A major strategic issue is whether to use auctions as sales channels. Auctions do have some limitations, and forward auctions may create conflicts with other distribution channels. If a company decides to use auctions, it needs to select auction mechanisms and determine a pricing strategy. These decisions determine the success of the auctions and the ability to attract and retain visitors on the selling site. Auctions also require support services. Decisions about how to provide these services and to what extent to use business partners are critical to the success of high-volume auctions.

2. **Should we barter?** Bartering can be an interesting strategy, especially for companies that lack cash, need special material or machinery, and have surplus resources. However, the valuation of what is bought or sold may be hard to determine, and the tax implications in some countries are not clear.

3. **How do we select merchant software?** There are many products and vendors on the market. Small businesses should consider offers from Yahoo! or eBay since the software is combined with hosting and offers exposure to the vendor-managed e-market. The functionalities of the software as well as the ease of building webstores need to be examined (see discussion in Chapter 13).

4. **How can we use Facebook and other social networks in our business?** There are many possibilities that are presented in Chapter 7, mostly in marketing and advertising. Any progressive organization should examine and experiment with social networking.

SUMMARY

In this chapter, you learned about the following EC issues as they relate to the chapter's learning objectives.

1. **Activities and mechanisms.** The major activities are information dissemination and presence, online trading, collaboration, entertainment, and search. The major mechanisms are marketplaces, webstores, shopping carts, catalogs, search engines, Web 2.0 tools, and virtual worlds.

    Most of the activities are between sellers and buyers. However, there also are collaboration activities among supply chain members as well as among people within organizations. EC attempts to automate the interaction process for the above activities.

2. **E-marketplaces and their components.** An e-marketplace or marketspace, is a virtual market that does not suffer from limitations of space, time, or borders. As such, it can be very efficient and effective. Its major components include customers, sellers, products (some digital), infrastructure, front-end processes, back-end activities, electronic intermediaries, other business partners, and support services.

    The role of intermediaries will change as e-markets develop: Some will be eliminated (disintermediation); others will change their roles and prosper (reintermediation). In the B2B area, for example, e-distributors connect manufacturers with buyers by aggregating e-catalogs of many suppliers. New value-added services that range from content creation to syndication are mushrooming.

3. **The major types of e-marketplaces.** In the B2C area, there are webstores and e-malls. In the B2B area, there are private and public e-marketplaces, which may be vertical

(within one industry) or horizontal (across different industries). Exchanges are the platform for many buyers and sellers to meet and trade. Different types of portals provide access to e-marketplaces.

4. **Electronic catalogs, search engines, and shopping carts.** The major mechanisms in e-markets are e-catalogs, search engines, software (intelligent) agents, and electronic shopping carts. These mechanisms, which are known as merchant suites, facilitate EC by providing a user-friendly and efficient shopping environment.

5. **Types of auctions and their characteristics.** In forward auctions, bids from buyers are placed sequentially, either in increasing mode or in decreasing mode. In reverse auctions, buyers place an RFQ and suppliers submit offers in one or several rounds. In name-your-own-price auctions, buyers specify how much they are willing to pay for a product or service, and an intermediary tries to find a supplier to fulfill the request. Penny auctions are forward auctions where a small fee is paid each time a bid is made. The final member to bid wins the auction when the designated time is up.

6. **The benefits and limitations of auctions.** The major benefits for sellers are the ability to reach many buyers, sell quickly, and save on intermediary commissions. Buyers have excellent access to auctions, and a chance to obtain bargains and collectibles while shopping from their homes. The major limitation is the possibility of fraud.

7. **Bartering and negotiating.** Electronic bartering can greatly facilitate the swapping of goods and services among organizations, thanks to improved search and matching capabilities, which is managed by bartering exchanges. Software agents can facilitate online negotiation.

8. **The structure and role of virtual communities.** Virtual communities create new types of business opportunities. They bring people with similar interests together at one website. (Such groups are a natural target for advertis-

ers and marketers.) Using chat rooms, discussion spaces, and so forth, members can exchange opinions about certain products and services. Of special interest are communities of transactions, whose interest is the promotion of commercial buying and selling. Virtual communities can foster customer loyalty. This may increase sales of products made by vendors that sponsor communities, and facilitate customer feedback for improving service and business operations.

9. **Social networks as EC mechanisms.** These are very large Internet communities that enable the sharing of content, including text, videos, and photos, and promote online socialization and interaction. Hundreds of social networks, are emerging around the world, competing for advertising money. Millions of corporations advertise, entertain, and even sell on social networks.

   Business-oriented communities concentrate on business issues, both in one country and around the world (e.g., recruiting, finding business partners). Social marketplaces meld social networks and some aspects of business. Notable business-oriented social networks are LinkedIn and XING. Some companies are active in public social networks such as Facebook. Other companies own and operate their own social networks within the company, which are known as enterprise social networks. Their members are usually employees and retirees. They are used mainly for collaboration, knowledge creation and preservation, training, and socialization. Many large companies have such networks (e.g., IBM, Wells Fargo, Northwestern Mutual).

10. **Virtual worlds.** These environments provide entertainment, trading of virtual property, discussion groups, learning, training, and much more. Everything is simulated, animated, and supported by avatars. Many companies have established presences in virtual worlds, especially in Second Life, mainly offering dissemination of information and advertising.

11. **Augmented Reality (AR) and crowdsourcing.** These emerging technologies facilitate two types of EC activities. AR blends visual aspects of computer and physical worlds. Thus, it can facilitate advertisement and presentation of information. It works by pointing a mobile device (e.g., smartphone) to a product or building and adds information to what you see (e.g., 360 degree view, price tag). Crowdsourcing solicits the wisdom of the crowd for idea-generation or problem solving. It also is used to divide a large task among many people, each of whom is executing a different, small subtask.

12. **Web 3.0 and Web 4.0.** Web 3.0, the next generation of the Web, will combine social and business computing. It will be more portable and personal, with powerful search engines, increased clout, and greater connectivity with the wireless environment and on-demand applications. Knowledge management will be one of its main pillars. The Semantic Web will play a major role in Web 3.0 applications. Web 3.0 and its applications will depend on IT trends such as the developments in cloud computing, utility computing, parallel processing, and machine intelligence. Web 4.0 is a futuristic Web that will be built on ubiquitous and intelligent systems. It will connect "islands" of intelligence from different sources.

KEY TERMS

Augmented reality
Avatar
Back end
Bartering
Bartering exchange
Business-oriented social network
Buy-side e-marketplace
Crowdsourcing
Desktop search
Digital products
Disintermediation
Double auction

Dynamic pricing
E-bartering (electronic bartering)
E-distributor
Electronic auction (e-auction)
Electronic catalog (e-catalog)
Electronic shopping cart
E-mall (online mall)
E-marketplace
Enterprise search
Forward auction
Front end
Intermediary
Mobile portal
Mobile social network
Name-your-own-price model
Penny auction
Reverse auction (bidding or tendering system)
Search engine
Sell-side e-marketplace
Semantic Web
Virtual community
Virtual world
Voice portal
Web 3.0
Web 4.0
Web (information) portal
Webstore (storefront)

DISCUSSION QUESTIONS

1. Compare physical marketplaces with marketspaces. What are the advantages and limitations of each?
2. Discuss the competitive advantage Craigslist has using classified ads.
3. Discuss the value of a virtual world as an EC environment. Why does it attract users? Why does it attract companies? How can it provide a competitive advantage to a company that has a presence there? What are its limitations?
4. Discuss the need for portals in EC.
5. How do business-oriented networks differ from regular social networks such as Facebook?
6. Why are social marketplaces considered to be a Web 2.0 application?

7. Discuss the following statement: "Technically, you can put together a portal in a weekend, but culturally there are a slew of things to consider; therefore it takes much longer."

8. Discuss the pros and cons of selling cars via auctions.

9. Discuss the pros and cons of using avatars in help desks. What are the benefits? The limitations?

TOPICS FOR CLASS DISCUSSION AND DEBATES

1. Compare and contrast the efficiency of traditional markets with that of digital markets.

2. Some claim that social networking, especially microbloging and social network sites, displace the traditional electronic bulletin board systems. Discuss.

3. Discuss the advantages of dynamic pricing strategy over fixed pricing. What are the potential disadvantages of dynamic pricing?

4. Enter Facebook and search for companies that do auctions on the site. Identify the different types of auctions on the site.

5. What is the advantage of a business using eBay instead of conducting auctions from its own site? Distinguish between C2C and B2B cases.

6. Debate: Should companies build in-house social networks for external activities or use existing public social networks? (e.g., see Roberts 2008).

7. Debate: Should Craigslist and YouTube monitor and control what users publish there? Who will pay the cost?

8. Debate: Social network services can provide good security to enterprise social networks. However, security may limit users' creativity and disrupt the business. Should a company use such a service?

9. Debate: Some research suggests that the use of public social networks by employees during work hours can be good for a business because employees develop relationships and share information, which increases productivity and innovation. Others say it is a waste of time and ban the use of Facebook, YouTube, and other such sites at work.

10. Debate the business value of social networking. To start, read Tom Davenport's blog of October 2007 titled "Where's the 'Working' in Social Networking?" at **blogs.hbr.org/2007/10/wheres-the-working-in-social-n**.

11. Debate: Facebook and Twitter compete for advertisers' money. Which one has a better chance to get more ad money and why? (Consult Mangalindan 2010.)

12. Some of the largest social media networks exist in China (**qq.com**, **qzone.qq.com**, **us.weibo.com**, **weixin.qq.com** and **renren.com**). Find information about these networks and list their properties. How do they differ from U.S. social networks?

INTERNET EXERCISES

1. Enter **droid-translator.tiwinnovations.com** and **tranzactive.com** and compare their translation capabilities.

2. Examine how bartering is conducted online at **tradeaway.com**, **barterquest.com**, and **u-exchange.com**. Compare and contrast the functionalities and ease of use of these sites.

3. Enter **volusion.com** and identify all specific e-commerce mechanisms (or solutions) provided by the company.

4. Enter **respond.com** and request a product or a service. Once you receive replies, select the best deal. You have no obligation to buy. Write a short report based on your experience.

5. Enter **dtsearch.com** and find its capabilities. What type(s) of search does it conduct (e.g., desktop, enterprise, general)?

6. Enter **cars.com**. List all services available to both sellers and buyers of cars. Compare it to **carsdirect.com**. Finally, identify the revenue sources of both sites.

7. Enter **ups.com**.
   (a) Find out what information is available to customers before they send a package.
   (b) Find out about the "package tracking" system; be specific.
   (c) Compute the cost of delivering a $10'' \times 20'' \times 15''$ box, weighing 40 pounds, from your hometown to Long Beach, California. Compare the cost for the fastest delivery option with to the lowest possible delivery cost.
   (d) Prepare a spreadsheet using Excel for two different types of calculations available on the UPS site. Enter data to solve for two different calculations.
8. Register at Second Life, and enter the site.
   (a) Find what three corporations are doing on the site.
   (b) Find out what three universities are doing on the site.
   (c) Write a report on your findings.
9. Create an avatar on Second Life. Let your avatar interact with avatars of some companies. Why do we consider an avatar a mechanism for EC? Write a report.
10. Enter **ibm.com** and **oracle.com**. Prepare a list of the major products available for building corporate portals.
11. Enter **go.sap.com/index.html** and find the key capabilities of its enterprise portals. List the benefits of using five of the capabilities of SAP's portals.
12. Enter **networksolutions.com**. View the shopping cart demo. What features impress you the most and why? What related services does it provide? Compare it to **storefront. net**, **nexternal.com** and **ecwid.com**.
13. Enter the website of a social network service of your choice. Build a homepage. Add a chat room and a message board to your site using the free tools provided. Describe the other capabilities available. Make at least five new friends.
14. Enter **vivapets.com** and **dogster.com** and compare their offerings.
15. Enter **w3.org**. Find material about Semantic Web (SW); check their RDF/FAQ and search for some applications. Write a report.

16. Enter **secondlife.com** and find the commercial activities of the following avatars: Fizik Baskerville, Craig Altman, Shaun Altman, FlipperPA Peregrine, and Anshe Chung. Briefly describe what they represent.
17. Enter **zippycart.com** and read the article "13 Ecommerce Link Building Tactics for Your Online Store" at **zippycart.com/ecommerce-news/1430-13-ways-to-gain-inbound-links-to-your-online-store.html**. Write a brief summary.

TEAM ASSIGNMENTS AND PROJECTS

1. **Assignments Related to the Opening Case**
   (a) Why is Pinterest considered a social network?
   (b) What are the company's business and revenue models?
   (c) How can manufacturers advertise on Pinterest?
   (d) Compare Pinterest and We Heart It. Pay attention to the business models.
   (e) Pinterest has a large amount of money. How does it use this money on its website to increase its competitive advantage?
2. Assign each group a large e-tailer (e.g., Amazon.com, Walmart.com, Target.com, Dell.com, Apple.com, and HP.com). Trace the purchasing process. Look at the catalogs, search engines, shopping carts, Web 2.0 features, and any other mechanisms that improve e-shopping. Prepare a presentation that includes recommendations for improving the existing process.
3. Build your own business in Second Life (SL). This can be done by each member or each group. Determine what business you want to build. Then read Terdiman's book (2008), Mahar and Mahar's book (2009), or a similar book. Register at SL and begin to work. In your project, do the following:
   (a) Select a business category and develop a business strategy.
   (b) Develop a business plan and model for your virtual enterprise.

(c) Choose where (island or property) to establish a business. Explain your choice.

(d) Conduct a budget and cash flow analysis (see Appendix B in Terdiman 2008).

(e) Buy virtual land and other virtual properties.

(f) Develop marketing and advertising plans (examine the competition).

(g) Look for any possible revenues; make a pricing decision.

(h) Plan all support services using the SL tools.

(i) Watch for legal issues and other risks; plan their mitigation.

(j) Build the business (using the SL tools).

(k) Build a supporting blog. How would you use it for viral marketing?

4. Watch the O'Reilly Media video titled "Online Communities: The Tribalization of Business" (Part 1 is 6:15 minutes; Parts 2 and 3 are optional) at **youtube.com/watch?v=qQJ vKyytMXU** and answer the following questions:

(a) Why is the term tribalization used in the video?

(b) What are virtual communities?

(c) How can traditional businesses benefit from online communities?

(d) What is the value of communities for the customers?

(e) Compare social vs. marketing frameworks.

(f) How are virtual communities aligned with the businesses?

(g) Discuss the issues of measurements, metrics, and CSFs.

(h) Optional: View Part 2 (**youtube.com/ watch?v=U0JsT8mfZHc#t=15**) and Part 3 (**youtube.com/watch?v=AeE9VWQY 9Tc**) (6:50 and 10:24 minutes respectively), and summarize the major topics discussed.

5. The team's mission is to analyze Pinterest's U.S. and global competition, including similar companies in China and Brazil. Start by reading McKenzie (2012) about the Chinese social sites Meilishuo and Mogujie and compare them to Pinterest. Do the same for **weheartit. com**. Look at another country of your choice. Comment on the cultural differences. Write a report.

CLOSING CASE: MADAGASCAR'S PORT MODERNIZES CUSTOMS WITH TRADENET

Madagascar is an island-state in Africa whose port is critical to its trade activities and the overall economy. The country's customs operations play an essential part in the port operations.

The Problem

The trade administration process in this underdeveloped country used to be cumbersome and slow. This limited the trade volume and the customs revenue. Madagascar's 'Trading Across Borders' indicator position was one of the world's lowest (143rd ranking). The country's Logistics Performance Index was also low (120th place).

The Business Process

According to CrimsonLogic (2014), "Everyone exporting to Madagascar must first register and fill in an electronic form, called Advance Cargo Information – ACI…, for each consignment. The exporter attaches copies of the trade documents, such as the commercial invoice, bill of lading and certificate of origin to the BSC and these are then transmitted electronically to the Customs in Madagascar to be verified for consistency and risk profiling."

Once completed, the importer or customs broker can submit the customs declaration electronically.

Once submitted, the approval process begins. It may involve several government agencies, port container terminal management, commercial banks, and the country's Central Bank and Treasury. While the submission portion was computerized and fairly efficient, the approval process was not. Overall, the cargo clearance took over 15 days.

The Solution

Originally, Customs had been using ASYCUDA++ (a legacy computerized system designed by the United Nations Conference on Trade and Development). This system helped with the submission, but the overall process was still slow due to lack of integration of all participants' subsystems. The port had difficulties competing with other ports in the area that offered faster and more efficient customs management systems. Therefore, the Medagasy Community Network Services ("GasyNet") saw the need to create a single online platform to connect the entities in the trade community. They relied on a new system, which is an integration of TradeNet, an electronic data exchange, and ASYCUDA++.

What Is TradeNet?

TradeNet is an electronic data interchange (EDI) system (see Online Tutorial T2) developed in Singapore in 1989. It is now administered, operated, and maintained by CrimsonLogic of Singapore. TradeNet, which initially operated only in Singapore, is used today in several ports around the world, including Madagascar. The current system also includes Windows-based and Web-based portions. Using the TradeNet-based system the trading community can submit electronically all the forms needed by the Customs administration. The system then routes the applications for processing. Approved permits are then returned electronically to the senders via ASYCUDA++. The process starts before ships even enter the port. For an overview of TradeNet, see **customs.gov.sg/leftNav/trad/TradeNet/An+Overview+of+TradeNet.htm**, and the United Nations Economic Commission for Europe (**unece.org/energy.html**).

The Integrated System

In order to improve the flow of information and provide an efficient trade environment, the TradeNet system was integrated with ASYCUDA++. The importers input their customs declarations data into GasyNet, which in turn transmits the data to TradeNet, which enables all involved partners to share data and transmit results. The results that are returned to TradeNet are transferred to GasyNet and then to the importers. To use TradeNet, users need to buy special software from TradeNet Frontend Solution. The software enables data entry by the users (e.g., the customs declarations) from PC's or mobile devices. The system provides permit status information, company billing inquiries, ability to retrieve lost permits, acknowledgement notification, an audit trail, permit listings and more.

The system links the multiple partners in the trade by creating a single point of transaction for all the standard documents involved.

The Results

The system is an efficient platform for the B2B customs-related transactions. It reduced the cargo clearance time from more than 15 days to less than five days for sea shipments, which resulted in increased trade volume. In addition, customs revenue more than doubled in 5 years (accounting for around half of Madagascar's total income). Other recorded benefits include: elimination of unnecessary bureaucracy and cost reduction due to paperless processes.

Finally, Madagascar's 'Trading Across Borders' indicator improved from 143rd to 109th place, and their Logistics Performance Index ranking improved from 120th to 84th.

Sources: Based on Fjeldsted (2009), Crimson Logic (2014), and Singapore Customs (2014).

Questions

1. Describe the role of GasyNet in the process.
2. Describe the contribution of TradeNet.
3. What is the role of EDI in this system?
4. The TradeNet system is a typical B2B platform. Explain why.
5. Relate the content of this chapter to the case.

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allthingsweb20.com: Reference for locating the top social marketing sites.

informationweek.com: Large collection of EC-related material.

cioinsight.com: A comprehensive collection of all type of resources.

bloombergmarketing.blogs.com: A comprehensive Marketing Blog.

zdnet.com/blog/hinchcliffe: Dion Hinchcliffe's compendium of articles, reviews, galleries, videos, podcasts, and downloads about Enterprise 2.0.

awarenesstechnologies.com: A collection of webinars on social media, Web 2.0, ROI, and marketing.

GLOSSARY

Augmented reality "A live, copy, view of a physical, real-world environment whose elements are *augmented* (or supplemented) by computer-generated sensory input such as sound, video, graphics, or GPS data" (see **en.wikipedia.org/wiki/Augmented_reality**).

Avatar Interactive, animated, computerized characters designed to look like humans and are programmed to exhibit people's behavior.

Back end Where activities that are related to order aggregation and fulfillment, inventory management, purchasing from suppliers, accounting and finance, insurance, payment processing, packaging, and delivery.

Bartering The exchange of goods and services.

Bartering exchange A marketplace where an intermediary arranges barter transactions.

Business-oriented social network A social network whose primary objective is to facilitate business.

Buy-side e-marketplace Where a company purchases from many potential suppliers; this type of purchasing is considered to be *many-to-one*, and it is a B2B activity.

Crowdsourcing Utilizing crowds to collectively execute tasks such as solving problems, innovating, or getting large projects done by dividing the work among many people.

Desktop search The search of a user's own computer files. The search is done by looking through all the information that is available on the user's PC.

Digital products Goods that can be transformed to digital format.

Disintermediation Elimination of intermediaries between sellers and buyers because they offer only services that can be fully automated.

Double auction An auction in which multiple buyers and their bidding prices are matched with multiple sellers and their asking prices, considering the quantities on both sides.

Dynamic pricing Prices that are not fixed but that are allowed to fluctuate, and are determined by supply and demand.

E-bartering (electronic bartering) Bartering conducted online, usually in a bartering exchange.

E-distributor An entity that basically aggregates product information from many manufacturers, sometimes thousands of them, in the e-distributor's catalog.

E-mall (online mall) An online shopping center where many online stores present their catalogs.

E-marketplace An electronic space where sellers and buyers meet and conduct different types of transactions.

Electronic auction (e-auction) An auction conducted online.

Electronic catalog (e-catalog) The presentation of product information in electronic form; the backbone of most e-selling sites.

Electronic shopping cart Software that allows customers to accumulate items they wish to buy before they arrange payment and check out.

Enterprise search The search for information *within* the files and databases of an organization.

Forward auction An auction where a seller entertains bids from multiple buyers.

Front end The place where customers interact with a marketspace. The major components of the front end can include the seller's portal, electronic catalogs, a shopping cart, a search engine, an auction engine, a payment gateway and all other activities related to placing orders.

Intermediary A third party that operates between sellers and buyers.

Mobile portal A portal accessible via a mobile device.

Mobile social networking Social networking where members converse and connect with one another using any mobile device.

Name-your-own-price model Auction model in which a would-be buyer specifies the price (and other terms) he or she is willing to pay to any willing and able seller. It is a C2B model that was pioneered by Priceline.com.

Penny auction A new type of forward auction in which participants must pay a small nonrefundable fee each time they place a bid (usually in small increments above the previous bid). When time expires, the last participant to have placed a bid wins the item and also pays the final bid price.

Reverse auction (bidding or tendering system) Auction in which the buyer places an item for bid (tender) on a request for quote (RFQ) system, potential suppliers bid on the job, with the price reducing sequentially, and the lowest bid wins; primarily a B2B or G2B mechanism.

Search engine A computer program that can access databases of Internet resources, search for specific information or keywords, and report the results.

Sell-side e-marketplace A place where a company sells either standard or customized products to individuals (B2C) or to businesses (B2B); this type of selling is considered to be one-to-many.

Semantic Web A group of methods that focuses on machines (in contrast with Web 2.0 that focuses on people), trying to enable machines to understand the semantics (i.e., the meaning) of information using natural language understanding tools.

Virtual community A community where the interaction takes place over a computer network, mainly the Internet.

Virtual world A site for online communities in a computer-generated setting where users socialize and work with one another through the use of avatars. The creation of objects, jobs, homes, and businesses in the 3D environment is the foundation of these worlds and is fun and satisfying.

Voice portal A portal with audio interfaces that can be accessed by telephone or cell phone.

Web 3.0 A term used to describe the future of the World Wide Web. It is projected to deliver a new generation of business applications that will see business and social computing converge.

Web 4.0 The Web generation after Web 3.0. It is still an unknown entity. However, it is envisioned as being based on islands of intelligence and as being ubiquitous.

Web (information) portal A single point of access, through a Web browser, to critical business information located inside and outside organizations.

Webstore (storefront) A single company's (or individual seller's) website where products or services are sold.

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