CHAPTER

12

LAUNCHING A SUCCESSFUL ONLINE BUSINESS AND EC PROJECTS

Content

Learning Objectives

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

1. Understand the fundamental requirements for initiating an online business.

2. Describe the process of initiating and funding a start-up e-business or large e-project.

3. Understand the process of adding EC initiatives to an existing business.

4. Describe the issues and methods of transforming an organization into an e-business.

5. Describe the process of acquiring Web sites and evaluating building versus hosting options.

6. Understand the importance of providing and managing content and describe how to accomplish this.

7. Evaluate Web sites on design criteria, such as appearance, navigation, consistency, and performance.

8. Understand the process of building a Webstore.

9. Discuss the major steps in developing an EC system.

10. Describe the major EC development strategies and list their major advantages and disadvantages.

11. List the various EC application development methods along with their benefits and limitations.

12. Describe the criteria used in selecting software vendors and packages.

VODAFONE ESSAR OF INDIA

Vodafone Essar is a subsidiary of Vodafone Group Plc., a global mobile telephony company. Vodafone Essar operates in India, and in September 2009 it had about 83 million subscribers (about 26 percent of India's total mobile base) and was growing at 25 to 30 percent annually. The company needed an enabled Web platform to provide EC services to customers, employees, and partners.

The Problem

The rapid growth of the company, the size of the country served, the large number of subscribers, and the intense competition in the mobile telecommunications industry forced the company to develop a superb communication system with its customers and business partners. The old Web presence (static, HTML pages) was inadequate. A study pointed to a need for an e-commerce-enabled interactive portal that would care for customers, employees, and partners. The requirements of this EC application were many and diversified, since the company wanted to offer new services that would provide competitive advantage. The need for more functionalities, speed, ease of use, etc., became a necessity as well as the need for quick implementation of any attempted solution.

The project was a very large scale one since it required robustness, scalability, high availability, flexibility, and security. Also integration with back-end systems was needed to facilitate order fulfillment.

The company wanted to revamp its Web site, envisioning a Web portal that could enhance its Web site and extend value-added service functionalities on the Web; integrate with the telecommunication systems to offer content optimized for mobile phones; and integrate with the B2B extranet and/or its partners' Web sites. E-commerce functionality was an integral and integrated part of this service enablement and customer-care goals.

There was no detailed justification of the need for the portal and no quantitative analysis. Competitive and market forces and the rapid growth were considered qualitatively in the decision to undertake the project.

The Solution

Since the company's IT team was unable to build such a project by themselves in time, the company decided to outsource the system development. The company contacted three leading vendors. Discussions with all three companies, proposals to meet the needs rapidly, integration considerations, reputation of the vendors and their employees, and more factors were weighted in the vendor selection process. Furthermore, a mapping of the system requirements against the vendors' product offering was also done. The winner was Microsoft.

The solution implemented by the Microsoft team was a customer-focused, e-commerce-enabled Internet platform that is flexible enough to grow with the rapid growth of the company's business. The platform enables self-care by customers—they are able to buy services, download content, and transact with Vodafone on their own. The solution also integrates seamlessly with the company's mobile platform and with hosted services and external service providers—a strategic direction of corporate's "Software as a Service" (SaaS) initiative.

The portal's back end was based on Microsoft Customer Care Framework (CCF) 2006, Microsoft Office SharePoint Server 2007, and Microsoft Commerce Server 2007. The middle tier utilized SQL Server 2008 and Microsoft Connected Services Framework 3.0. The portal interfaces with

Vodafone's line-of-business applications, which provides for service-oriented architecture (SOA).

Microsoft Office SharePoint Server 2007 provides advantages such as comprehensive content management and enterprise search, accelerating shared business processes, and it facilitates information-sharing across the organization's boundaries. Commerce Server 2007 enables the creation of full-featured Web business applications, extension of business across communication networks, and integration of e-commerce solutions within the existing IT infrastructure.

CCF is an enterprise software solution for contact and self-care centers that delivers a unified corporate agent desktop system that consolidates data from core business systems such as billing, CRM, and order management applications to the customer service agent desktop. CCF enables dramatic improvements in the contact centers' efficiency by delivering an improved, consistent customer experience.

The platform promises high availability, security, performance efficiency, and faster deployment of new services. Partner management is more efficient; and third-party applications and services can be acquired and integrated quickly. It has support for multiple end-user devices, such as desktops, mobile phones, Xbox, or the Zune.

Implementation took about six months. Given the scale of the project, it could have taken double that time in other

organizations. This speed was the result of superb planning and the expertise of the corporate IT team and the Microsoft experts.

The first phase of the solution enables a high-end and feature-rich corporate Web site for Vodafone. Customers can register themselves, log in, browse the catalogs of value-added services and order or download their choices, pay their bills, and manage their subscriptions. New connections can also be bought via the portal. The portal supports third-party payment gateways from multiple providers to provide flexibility in payment and billing mechanisms.

The portal houses other business applications as well. For instance, prospective employees can upload their résumés for Vodafone's HR team. For partners, the portal acts as a publishing platform. They can view their transaction and billing details and access Vodafone's CRM.

In the second phase, integration with the mobile platform and the extranet network and portal has been done. This enables the availability of e-commerce services on mobile phones; business partner employees can use their mobile phones for nearly all the transactions that they can do on the offline Web portal.

The Results

The portal offers a secure and user-friendly platform and good response time. All the functionalities that were desired are fully supported. About 10 million subscribers regularly used the portal in 2009.

Specifically five benefits have been achieved:

1. **Robustness, scalability, and security.** The robustness and performance efficiency of the portal translates to higher consumer satisfaction. The portal provides high availability for all services; assures a highly secure environment for user registration, e-commerce transactions, and subscription management; and is scalable to meet the growing needs of Vodafone, as it foresees exponential future growth.

2. **E-Commerce customer support.** The support for e-commerce transactions (the biggest factor in deciding to rebuild the portal) enables flexible payment mechanisms and value-added services in an easy-to-use, user-friendly format.

3. **Integration with other applications.** The portal integrates seamlessly with Microsoft products and applications and content that Vodafone uses in other applications; thus, Vodafone's partners can easily use the portal interface to access those applications.

4. **Good response time.** The portal enables users to conduct transactions quickly.

5. **Reduced time to market.** The platform enables Vodafone to create and deploy new services quickly. Third-party or hosted applications and services can also be acquired and integrated in a short period of time.

Sources: Compiled from Microsoft (2008) and *vodafone.in* (accessed November 2009).

WHAT WE CAN LEARN . . .

Many organizations need to replace manual or outdated computerized systems with a Web-based EC one, which is exactly what happened to Vodafone Essar. The first step was to envision the new system and its capabilities and to justify it. Justification can be quantitative and/or qualitative. In this case, there was a strategic need to do so, and the justification was qualitative due to the intangible benefits. This is usually the first step in developing EC systems as described in this chapter.

From this point on, Vodafone followed a typical EC development process, which is described in this chapter. The major activities, after the EC requirements were articulated, were: selecting a vendor to plan and implement the EC. (Most organizations today, use vendor(s) for at least some of the development activities.) Next, Vodafone selected the system components and the development tools from the vendor. A joint vendor-company team was established to manage the implementation. Once the system was completed, its success was measured. The process described in this case is suitable to a large company that needed B2C and B2B capabilities on a large scale. This chapter also presents several alternative development options that can be fitted to different companies under different circumstances.

12.1 GETTING INTO E-COMMERCE AND STARTING A NEW ONLINE BUSINESS

Belew and Elad (2009) provide a complete guide on how to start an online business. This chapter describes some of the steps involved in setting up an e-business.

GETTING INTO E-COMMERCE

In this chapter, we will discuss some of the most common ways of starting an e-business. Specifically, this chapter presents the following topics:

◗ Starting a new online business (a start-up; see Section 12.1)
◗ Adding e-commerce initiative(s) to an existing business (i.e., becoming a click-and-mortar organization; see Section 12.2)
◗ Transforming to an e-business (Section 12.2)

Almost any e-commerce initiative will require support activities and services, as well as plans for attracting visitors to a Web site. This chapter presents the following with regards to these types of activities:

◗ Developing a Web site (Section 12.3)
◗ Hosting the Web site and selecting and registering a domain name (Section 12.4)
◗ Developing, updating, and managing the content of a Web site (Section 12.5)
◗ Designing a Web site for maximum usability (Section 12.6)
◗ Providing support services (Section 12.7)

According to Hise (2007), becoming an owner of a business has become a national obsession in the United States, and the percentage of Internet businesses is increasing rapidly.

AN E-START-UP IS A START-UP

Before we start our discussion, we need to emphasize that an e-start-up is basically a start-up and, as such, must consider all the issues faced by a physical start-up. Many books, magazines, and articles are dedicated to starting a new business. Magazines such as *Entrepreneur* are fully dedicated to start-ups. Copeland and Malik (2006) provide a 16-step process and guidelines for building a bulletproof start-up. They also provide a list of "things to avoid," "tools you need," "tips for success," and more. The Internet is contributing to what Hise (2007) calls "America's love affair with entrepreneurship." Several centers for information technology start-ups exist, some sponsored by major software companies.

Example: Microsoft Startup Center

The Microsoft Startup Center offers free step-by-step guidance, tips, and resources for starting a business, including an e-business. A wealth of information is provided under eight general headings: "The Rules," "Office Setup," "Your Brand," "Marketing," "Sales," "Finances," "The Details," and, last but not the least, "Employees."

The Startup Center provides links to the IRS (tax), the U.S. Patent and Trademark Office, Startup Nation, and other resources, including Bank of America's Small Business Resource Center, which also offers valuable step-by-step tips. From furniture resources to how to jumpstart marketing with a free Web site from Office Live, the Microsoft Startup Center is worth viewing.

Remember, new business owners should always seek the guidance of a professional tax consultant, accountant, and/or attorney to verify that all legal requirements have been

met before starting and operating a business. For more information, see microsoft.com/smallbusiness/startup-toolkit.

One of the major steps in launching any start-up is to find a viable product (service). This may take a long time, because the concept comes first, followed by a prototype, and then a market test. Also, finding the correct business model is critical (see Chapter 1 and the Online Tutorial).

Umesh et al. (2005) provide some interesting guidelines to avoid dot-com failures. Specifically, they suggest looking at: (1) the growth rate of the intended market, (2) the timing of market entry, (3) revenue flow, and (4) what part of the cycle a market is in. For a free 14-session guide to starting a business, see myownbusiness.org/course_list.html.

CREATING A NEW COMPANY OR ADDING AN ONLINE PROJECT

In Chapter 1, we described the case of Zappos where an interesting idea and strategy led to a very successful online company. Most new businesses—brick-and-mortar, pure-play, or click-and-mortar—begin in a similar manner. The following three steps describe the process:

1. **Identify a consumer or business need in the marketplace.** Many businesses simply begin with a good idea. A magazine article, a personal observation, an unsolved problem, a small irritation, or a friend's suggestion may trigger an idea, and the prospective business owner sees a gap between what people want and what is available. For an example, see Case 12.1 (p. 12-6). Note that the key here is *innovation*.

2. **Investigate the opportunity.** Just because a person perceives that an opportunity exists does not mean that it is real. Perhaps the potential number of individuals interested in purchasing the proposed product or service is too small. Perhaps the cost of manufacturing, marketing, and distributing the product or providing the service is too large. The revenue model may be wrong, others may have tried already and failed, satisfactory substitute products may be available, and so on. For example, online grocery shopping would seem like a wonderful opportunity—relieving busy professionals of the time-consuming and tiresome task of regular visits to a grocery store. Many have tried to provide large- and small-scale online grocery ventures (e.g., Netgrocer, Peapod, HomeGrocer, Webvan), but most have failed or continue to lose money because they misjudged the logistical problems associated with grocery warehousing and delivery. This is why it is so important to develop a business plan. One of the purposes of a *business plan* is to determine the feasibility and viability of a business opportunity in the marketplace.

3. **Determine the business owner's ability to meet the need.** Assuming that a realistic business opportunity exists, does the prospective business owner have the ability to convert the opportunity into success? Some personal qualities are important: Is the business in an industry the prospective business owner knows well? Is it something the entrepreneur loves doing? Are family and friends supportive? Business skills in staff recruitment, management, negotiation, marketing, and financial management are required, as well as entrepreneurial attitudes such as innovation, risk taking, and being proactive. Many good ideas and realistic initiatives have failed in the execution stage because the owners or other principals of the business lacked sufficient business skills to make it a reality. Boo.com, for example, seemingly had a great concept (retailing ultramodern, designer clothing) and superior software, but it failed because of the inability of management to organize the business and manage the projects necessary to bring Boo.com online before it burned through $120 million of start-up capital (Cukier 2000).

The process for developing EC projects in existing companies is similar to that of starting a new business, except that step 3, just mentioned, changes to: "Determine the organization's ability to meet the need."

EC Application
INNOVATION AND CREATIVITY AT AMAZON.COM

Call it fate or call it the right person having the right idea at the right time. Whatever you call it, the idea behind Amazon.com and its founder, Jeff Bezos, seemed destined for each other.

Bezos graduated from Princeton University with a degree in computer science, and his first job was in electronic commerce, building an EDI network for settling cross-border equity transactions. A few jobs later, he was a senior vice president at the hedge fund firm D. E. Shaw, responsible for exploring new business opportunities on the Internet. It was then that his intelligence, entrepreneurial talents, computing education, and e-commerce experience all came together in a brilliant idea: The most logical thing to sell over the Internet was books. Several years later he added dozens of other products.

Why books? Bezos was willing to bet that book buyers would be willing to give up the cozy, coffee-shop, browsing environment of the local bookstore if he could offer them the "earth's biggest bookstore," fantastic customer service, and features that no physical bookstore could match—customer book reviews, author interviews, personalized book recommendations, and more.

The rest of the story is the stuff of legend. Bezos left his six-figure Wall Street salary and wrote the Amazon.com business plan. The Amazon.com Web site was built in a cramped, poorly insulated garage. When Amazon.com launched in July 1995, a bell would ring every time the server recorded a sale. Within a few weeks, the constant bell ringing became unbearable, and they turned it off. Today, in one day, Amazon.com sells thousands of products to over 3 million customers.

In the late 1990s and early 2000s, Amazon.com invested $2 billion in physical warehouses and in other expansion opportunities. This was in line with Bezos' vision for Amazon.com as "broader than books and music."

After years of large losses, Amazon.com announced its first small profit in the fourth quarter of 2001. As of 2005, the company is increasingly more profitable.

During its first decade of operation, Amazon.com changed its business model several times, adding innovative ideas. It also acquired other companies or stakes in companies in several countries (e.g., *joyo.com*—the largest e-tailer of books, music, and videos in China). Amazon Services, Inc., a subsidiary of Amazon.com, has joint projects with a number of different partners (e.g., American Express). Amazon Theater offers film viewing from its Web site, as well as many more innovations. In 2008, Amazon.com expanded into downloadable books (recall the Kindle 2 e-book reader in Chapter 6), music, and movies.

Bezos is indeed an innovator. His most original idea is his vision of Blue Origin, a futuristic center for suborbital spaceships. In the last few years, he has worked on commercializing space trips. Bezos' Blue Origin commercial space venture is developing a vehicle to take occupants on a 10-minute ride to the edge of space, nearly 60 miles (96 kilometers) above the earth and back (see Quitter 2008). Perhaps it will only be a matter of time before customers can purchase tickets for space trips from Amazon.com. It all began with a smart entrepreneur whose life experiences gave him a brilliant idea that led to the founding of a legendary e-tailing company.

Sources: Compiled from *Business Wire* (2004), Klotz (2005), and Quitter (2008).

Questions

1. What were the opportunities and needs in the consumer market that inspired Bezos to create Amazon.com?
2. What factors, at both personal and business levels, led Bezos to his brilliant idea?
3. Visit Amazon.com and find some of its recent innovations. List five.

Some Tips for Success

Winnick (2006) provides the following five "secrets" to help you come up with the next big thing:

1. **Do your homework.** Research what's really happening in the world. Simple innovations are not understated. They have to be tangibly more effective than anything already on the market. For example, attend ExpoMart, where the annual Innovation New Product Exposition (INPEX), takes place.

2. **Aim for excitement.** Make your customers say "wow" or "finally," such as Bezos' initiative to take customers into space.
3. **Whittle, shape, iterate, and repeat.** Test and improve the ideas and prototypes several times. Your designers and developers can do this.
4. **Get real.** Build physical prototypes to get feedback from friends, suppliers, and customers (see Copeland and Malik 2006).
5. **Avoid creating a gizmo.** Beware of creating a product (service) with obvious faults, even if it looks like a brilliant design. Even though a product (service) must be attractive to customers, it must also work.

Beyond these general platitudes about what it takes to start a prosperous business, the owner of an online business must consider some requirements that reflect the online nature of the business. The first of these is the need to understand Internet culture. Activities such as spam, extensive use of graphics, forced visitor registration, and intrusive pop-up browser windows are counter to the accepted norms of behavior on the Internet.

Cloning

Entrepreneurs all over the globe try to clone or copycat the Web's most successful Web sites, such as eBay, Amazon.com, Facebook, and YouTube. For example, Amazon.gr called itself "Greece's Biggest Bookstore," and had much the same look and feel as Amazon.com's site at the time when Amazon.com referred to itself as the "Earth's biggest bookstore." This site is no longer live. CarSpace.com is a site with content provided by Edmunds for people who like cars. It has all the features you'd expect on a site like MySpace, but its community members are mostly interested in cars.

PLANNING ONLINE BUSINESSES

Planning an online business is similar to planning for any start-up venture in that it centers on a business plan.

Business Plan

Every new online business needs at least an informal business plan. As defined in Chapter 11 and the Online Tutorial, a **business plan** is a written document that identifies a company's goals and outlines how the company intends to achieve those goals and at what cost. The primary reason an entrepreneur writes a business plan is to use it to acquire funding from a bank, an angel investor, a venture capitalist, or the financial markets. Similarly, in an existing business a *business case* needs to be written for any new large EC project so management can decide whether to fund it. A business plan also is important for a new venture as a tool to recruit senior management and to convince business partners to make a commitment to the business. A business plan helps ensure a thriving business by encouraging an entrepreneur to set goals, anticipate problems, set measures for success, and keep the business on track after starting it. A business plan forces the entrepreneur to be realistic about the business's prospects. Sometimes the most successful outcome of a business plan is a decision not to proceed. For all aspects of business plans for start-up companies, see hjventures.com.

For a sample of business plan software, see planware.org, planmagic.com, and abs-usa.com. Palo Alto Software (paloalto.com) offers Business Plan Pro 2007, which includes more than 500 sample plans. Another resource is Microsoft's Small Business Center at microsoft.com/smallbusiness/hub.mspx. For more on getting started with a

business plan
A written document that identifies a company's goals and outlines how the company intends to achieve the goals and at what cost.

business plan in a small company, see smallbusiness.yahoo.com. The Online Tutorial on this book's Web site explores this topic in further depth and offers a detailed explanation of how to prepare a business plan. Also see en.wikipedia.org/wiki/Business_plan and Session 2 at myownbusiness.org/course_list.html.

The Business Case

An existing brick-and-mortar business looking to move online (either to add EC projects or to transform itself to an e-business) needs a **business case**—a document that is used to *justify* the investment of organizational resources in a specific application or project (see the discussion in Chapter 11). A business case for a large, resource-intensive EC project resembles a business plan. The Online Tutorial includes details on how to write a business case and the similarities and differences in writing such a business case and business plan. For a small or medium-size project, the business case can be much simpler. A high-level template for a business case that you can use to justify new online applications, such as a new e-procurement, e-learning, an extranet, or participation in a social network, is shown next.

business case
A document that justifies the investment of internal, organizational resources in a specific application or project.

A HIGH-LEVEL BUSINESS CASE TEMPLATE

This template shows the justification for the expenditure of resources on a specific online project or initiative in an existing business. If the business is considering a number of different initiatives, you should prepare a separate business plan or case for each one. If the initiative is for a new business, it will require a more comprehensive business plan. The template includes the following components:

◗ **Goals.** Begin with a specific description of what the business intends to achieve through the initiative—increased sales, reinforcement of the brand or corporate image, improved customer support, reduction in communications and marketing costs, and so forth. A useful approach is to define the problem, propose a solution, and describe the expected outcomes or impacts. Conclude this section with goals—one or more statements that succinctly describe a desired future condition toward which the business will direct its efforts. Here, it will be advantageous to use a business model.

◗ **Cost savings.** If one or more goals include reduction of existing expenditures, then calculate the following: (1) an itemized and quantified list of existing costs that the project will affect and (2) the estimated levels of savings that the project will generate (e.g., reduce long-distance telephone costs by 45 percent). Multiply the costs by the saving levels to find the expected reduction of expenditures. You should estimate these savings for a short-term time frame, perhaps the first three years of the project's operation.

◗ **New revenue.** If one or more of the goals suggests an increased revenue stream, then calculate (1) an itemized and quantified list of existing net income (revenue from sales minus cost of sales) the application or project will affect and (2) the estimated levels of new sales that you expect (e.g., increase product sales by 12 percent). When you multiply the net income by the increased sales levels, you get the expected amount of increased revenue. Do this for the same multiyear time frame as used in the cost-savings calculation.

◗ **Extra benefits.** List and, if possible, quantify any additional fiscal benefits that are associated with the project (e.g., improved staff productivity, faster collection of outstanding debts). If these are difficult to estimate, it is best to list them, but don't quantify them nor add them to the benefits identified previously. This approach

will produce an overall more conservative estimate of benefits, building in an extra cushion for project success in the event that the business does not realize all quantified benefits.

◗ **Cost of the solution.** This is an itemized and quantified list of costs associated with the online project. You should estimate both direct costs (e.g., amortized costs of Web site development and Web site hosting) and indirect costs (e.g., staff training) for the period.

◗ **Net benefits.** Add together all benefits (i.e., cost savings, new revenue, extra benefits) and subtract the costs. The result should be a specific amount of expected monetary gains (or losses) resulting from successful implementation of the project in each year of the period being examined.

◗ **Recommendation.** Summarize the decision that is being recommended in light of the foregoing analysis. If the net benefit result is strongly positive, then a decision to proceed is likely, and you can start the next steps (e.g., a risk analysis, customer survey, staff hiring). If the results are slightly positive or negative in one or all years of operation, you can still justify the decision to proceed on the basis of seeing the online initiative as a long-term strategy, a competitive imperative, or simply the cost of staying in business. If the bottom line is strongly negative, then the most likely outcome will be a decision that there is no justification for the project, saving the business a lot of time and money. Even that can be viewed as a positive outcome of a business case.

For details of this high-level template, see Online Tutorial T1. For many specific templates, see score.org/template_gallery.html.

FUNDING A NEW ONLINE BUSINESS

Launching an online business can be expensive. The brave entrepreneur is usually willing to invest personal funds from savings, open personal lines of credit, or take a second mortgage out on his or her house, but these sources of "bootstrap funding" are unlikely to be sufficient. According to Maier (2005), entrepreneurs should "bootstrap" as long as possible, but not wait too long to tap into the venture community.

If the new venture involves significant risk, traditional sources of debt financing, such as a bank loan, can be difficult or impossible to get. For other sources of funding for a start-up business, see Rutgers (2009). For an introduction to sources of e-business funding, see businesspartners.com.

First Round of Initial Funding: Angel Investors and Incubators

When the entrepreneur's personal funds are insufficient, the entrepreneur will go to friends, family members, or to *angel investors*. An **angel investor** is a wealthy individual who contributes personal funds and possibly expertise at the earliest stage of business development. Angel investors can be found through organizations such as the Angel Capital Association (angelcapitalassociation.org) and newspapers, magazines, and business-oriented social networks (e.g., LinkedIn).

An angel investor may provide the developer with an office, hardware, software, salary, and access to human and financial resources. In most cases, the angel investor also provides guidance or access to management expertise. In addition to sometimes-altruistic goals, the angel investor is looking for a reasonable return on the investment. In other words, the angel investor is almost always a preventure-capital funding source and may be paid later from the infusion of venture capital funds. An angel investor is an excellent source of funding for the entrepreneur; however, angel funding is scarce and difficult to find.

angel investor
A wealthy individual who contributes personal funds and possibly expertise at the earliest stage of business development.

Another important source of support, if not direct funding, for preventure-capital firms is an incubator. An **incubator** is a company, university, or nonprofit organization that supports promising businesses in their initial stages of development. Although some incubators offer start-up funding, the primary purpose of most incubators is to offer a variety of support services—office space, accounting services, group purchasing, reception services, coaching, and information technology consulting—at little or no cost. In return, the incubator receives a modest fee, equity in the company, or both (en.wikipedia.org/wiki/Business_incubator).

Second Round Financing: Venture Capital

One major source of funding new ventures is *venture capital*. **Venture capital (VC)** is money invested in a business by an individual, a group of individuals (venture capitalists), or a funding company in exchange for equity in the business. Venture capitalists tend to invest in companies that have identified what seems to be an outstanding business opportunity, have taken some action to make the opportunity happen (e.g., written a new software application, secured a patent, built an interesting social network that attracts many visitors, conducted some promising experiments, or recruited key personnel), and need an infusion of funds and management expertise to expand the business. Some venture capitalists may have connections with CEOs who would be good strategic guides for the business; others may be more market specific. It is therefore important to match your VC with your business. Venture capitalists usually invest large sums of money and expect, in return, some management control and a profit on their investment within three to five years, when the successful start-up goes public (an IPO) or when a larger company merges with it or acquires it.

The downside for the start-up business to acquire VC is minimal; it loses some control over the business in return for funds it is unlikely to acquire from any other source. The more difficult problem is finding VC. Due to the many dot-com failures in 2000 and onward, many VC sources have disappeared, and competition for venture capital is fierce.

Some well-known VC companies are vFinance Capital (vfinance.com), the Westlake Securities (westlakesecurities.com), and Garage Technology Ventures (garage.com), which was founded by personal-computing guru Guy Kawasaki. Venture capitalists may be start-ups. Most of them lost large amounts of money for their investors during the dot-com bust. For more information, see the National Venture Capital Association (nvca.org), the Venture Capital Marketplace (v-capital.com), Mobius Venture Capital (mobiusvc.com), and VC Fodder (vcfodder.com).

Additional Funding: A Large Partner

As part of a VC investment or after the depletion of VC money, one or more large companies may step into the process. For example, Yahoo!, IBM, Microsoft, Motorola, Google, Time Warner News Corp., and Oracle have invested in hundreds of EC start-up companies. Eventually, they may acquire the start-up completely. Such investments are frequently done in complementary or competing areas. For example, Yahoo! is a major investor in Google and in Baidu in China; News Corp. acquired the start-up MySpace; and Google invested in dozens of companies related to advertising, including the purchase of YouTube in 2006. Microsoft purchased a part in Facebook in 2008, and eBay owns 25 percent of Craigslist. Google and other EC companies are buying companies even before they try to get the VC support.

The IPO

Once the company is well known and successful, it will go to a stock exchange to raise money via an initial public offering (IPO). In such offerings, investors will pay a much larger amount of money per share than that paid by the initial and secondary funding source, sometimes

5 or 10 times more per share. A vivid example is the launch of Alibaba (Chapter 5); its IPO was valued in the billions of U.S. dollars on the Hong Kong stock exchange in October 2007. (The stock is now listed on the OTC market in the United States.)

Section 12.1 ▶ REVIEW QUESTIONS

1. List the major steps in the process of building an online business.
2. Describe the formation process of a typical online business.
3. What special requirements must an online business consider in its formation? In e-business planning?
4. What is a business case, and how does it contribute to business success?
5. Describe initial, secondary, and IPO funding options available to a start-up.
6. What is an angel investor? An incubator?
7. How does a VC company support a start-up?

12.2 ADDING E-COMMERCE INITIATIVES OR TRANSFORMING TO AN E-BUSINESS

Creating an e-business start-up certainly is exciting, but it also is very risky. As with any other business, the failure rate is very high. However, in cyberspace the uncertainties, plus lack of experience, may result in an even higher rate of failure. Nevertheless, thousands of new online businesses have been created since 1995, mostly small ones (see Chapter 11). A much more common strategy is adding one or several EC initiatives to an existing business.

ADDING EC INITIATIVES TO AN EXISTING BUSINESS

Almost all medium-to-large organizations have added or plan to add EC initiatives to the existing business. The most common additions are:

- **A Webstore.** Adding an online sales channel is common in both B2C (e.g., godiva.com, walmart.com) and B2B (e.g., ibm.com). The required investment is fairly low, because inexpensive Webstore hosting and software is available from many vendors (see Sections 12.5 and 12.9). A Webstore can be built fairly quickly, and the damage in case of failure may not be too large.

- **A portal.** As discussed in Chapter 2, there are several types of corporate portals. Almost all companies today have one or several portals that they use for external and/or internal collaboration and communication. A Webstore for employees or for external customers will include a portal. Adding a portal (or several portals) may be a necessity, and it may not be preceded by a formal business case. Issues of content and design, as well as security, are of utmost importance. Because many vendors offer portal-building services, vendor selection may be an important issue.

- **E-procurement.** This EC initiative is popular with large companies, as described in Chapter 5. E-procurement frequently requires a business plan and extensive integration (both internally and externally), so an EC architecture must be in place.

- **Auctions and reverse auctions.** Large corporations need to consider building their own auction or reverse auction (for e-procurement) sites. Although forward auctions can be added to a Webstore at a reasonable cost, a reverse auction usually requires more integration with business partners and, consequently, a larger investment and a business case.

◗ **M-commerce.** Many companies are embarking on wireless applications inside the organization and on selling and advertising via m-commerce technologies.
◗ **Enterprise social networks and Web 2.0 tools.** Many large companies now offer blogs and wikis; others (e.g., Toyota, Coca-Cola, Wells Fargo Bank) operate enterprise social networks.

Organizations may consider other types of EC initiatives, following the business models presented in Chapter 1. For example, Qantas (qantas.com.au) sells tickets online directly from its Web site and from a B2B exchange; it buys supplies and services from its e-procurement site as well as from several exchanges; it provides e-training for its employees; operates several corporate portals; offers online banking services to its employees; provides e-CRM and e-PRM; manages its frequent flyer program; supports a wireless notification system to customers; and so on. Large companies, such as GE and IBM, have hundreds of active EC projects.

TRANSFORMATION TO AN E-BUSINESS

As the brick-and-mortar organization implements more EC projects, it becomes a click-and-mortar organization, and eventually an e-business. Being an e-business does not imply that the organization is a pure-play company; it just means that it conducts as many processes as possible online. A rapid or large-scale change from brick-and-mortar to e-business involves organizational transformation. For planning such a transformation, see Basu and Muylle (2007), who outline a detailed process for such a transformation.

What Is Organizational Transformation?

Organizational transformation is a comprehensive concept that implies a major organizational change. According to McKay and Marshall (2004), a *transformation* is not only a major change, but also a sharp break from the past. The key points in understanding organizational transformation are as follows:

◗ The organization's ways of thinking and vision will fundamentally change.
◗ There will be revolutionary changes to the process and context involved in creating a new organizational vision and rethinking business models and business strategy.
◗ The change must involve a substantial break from previous ways of acting. It will likely involve discovering and developing new opportunities and new ways of doing things.
◗ The change must permeate through and impact on the behavior of a majority of organizational members.
◗ The change will involve creating new systems, procedures, and structures that not only enable and dictate how new processes function, but that will also impact on the deeply embedded business models and understandings that drive the organization.

An e-business transformation is not solely about technology. Technologies must be integrated with possible changes in business strategy, processes, organizational culture, and infrastructure.

How an Organization Can Be Transformed into an E-Business

Transforming an organization, especially a large company, into an e-business can be a very complex endeavor. For an organization to transform itself into an e-business, it must

transform several major processes, such as procurement, sales, CRM, and manufacturing, as well as deal with *change management*.

Such a transformation involves several strategic issues. Lasry (2002) raised several of these issues in an investigation of the rate at which brick-and-mortar retail firms adopt the Web as an additional sales channel. He examined organizational strategies, such as internal restructuring, the formation of joint ventures, and outsourcing. He concluded that implementing EC requires a disruptive and potentially hazardous change in core features. He suggests that companies spin off EC activities as part of the transformation process. Müller-Lankenau et al. (2006) provide a comprehensive description of the transformation to e-business, describing both the internal and external processes supported by IT, as shown in Exhibit 12.1. They then show the support of IT at each stage. Finally, they describe the necessary *change management* activities. *Baseline*

EXHIBIT 12.1   Road Map to Transformation
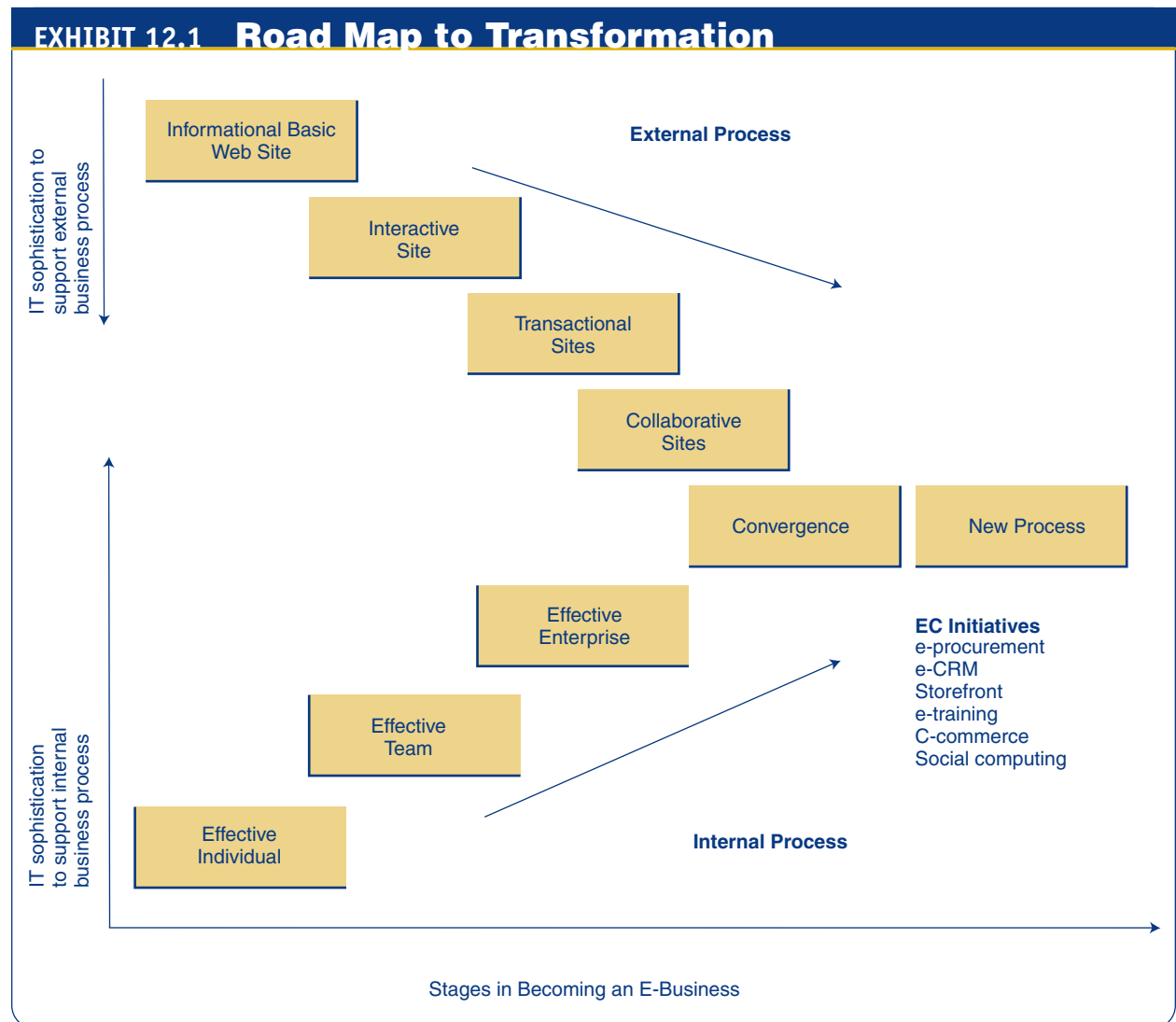
Source: Ginige, A., et al. "A Road Map for Successfully Transforming SMEs into E-Business." *Cutter IT Journal* (May 2001). Used with permission of the author.

(baselinemag.com) offers a calculator to measure the cost and value of business transformation. For details on business transformation, see Strassmann (2007).

Business Process Reengineering (BPR)

Several studies have examined the transformation to e-business. For example, Chen and Ching (2002) have explored the relationship of BPR and e-business and the change process both for individuals and organizations. They propose a process of redesigning an organization for e-business, providing several research propositions. Others have explored the use of simulation modeling for enabling transformation to e-business, examining the BPR process and using simulation and process maps to support the process. Turban et al. (2011) describes the use of business intelligence in BPR. Finally, organizational change issues in transformation to e-business need to be addressed.

Business Process Management

business process management (BPM)
Method for business restructuring that combines workflow systems and redesign methods; covers three process categories—people-to-people, systems-to-systems, and systems-to-people interactions.

Business process management has been used to facilitate organizational transformation. The term **business process management (BPM)** refers to activities performed by businesses to improve their processes. Although such improvements are hardly new, software tools called *business process management systems* have made such activities faster and cheaper. BPM systems monitor the execution of the business processes so that managers can analyze and change processes in response to data, rather than in response to a hunch. BPM differs from BPR in that it deals not just with one-time changes to the organization, which is what BPR does, but with long-term consequences. The major activities of BPM are process design, process execution, and process monitoring. For details, see en.wikipedia.org/wiki/Business_process_management and Jeston and Nelis (2008).

Software Tools for Facilitating Transformation to E-Business

Several vendors offer methodologies and tools to facilitate transformation to e-business (e.g., see IBM 2006). Using special methodologies, organizations in the public sector, such as the Federal Aviation Administration, the Office of the Comptroller in New York City, as well as public utilities, can achieve dramatic cost and cycle time reductions.

Change Management

Transforming an existing business to an e-business or adding a major e-commerce initiative means a manager must change business processes and the manner in which people work, communicate, and are promoted and managed. According to Ash and Burn (2006), this requires systematic attention to learning processes, organizational culture, technology infrastructure, people's thinking, and systems. Employees, business partners, and even customers may resist such a change. Ash and Burn have developed a model of e-business change as well as a model for managing e-business change. Chu and Smithson (2007) provide a case study for organizational change in an automobile manufacturer. For more on change management, see en.wikipedia.org/wiki/Change_management.

Section 12.2 ▶ REVIEW QUESTIONS

1. Which EC initiatives are brick-and-mortar organizations most likely to add?
2. Describe the steps in becoming an e-business and the major activities involved in the process.
3. List some of the issues involved in transforming to an e-business.
4. Define BPR and BPM.
5. Describe the major characteristics (key points) of organizational transformation.

12.3   BUILDING OR ACQUIRING A WEB SITE

Every online business needs a Web site. A Web site is the primary way any firm doing business on the Internet advertises its products or services and attracts customers. Many Web sites also sell products and services. The Web site may be a Webstore, a portal, an auction site, and so on. How can an organization build or acquire such a site (see Rutgers 2009)? First, let's examine the major different types of Web sites that exist. An entrepreneur can start an online business for just $300 (Swanhill 2009).

CLASSIFICATION OF WEB SITES

Web sites come in all shapes and sizes. One of the major distinctions made in Web site classification is the level of functionality inherent in the site:

◗ An **informational Web site** does little more than provide information about the business and its products and services. For many brick-and-mortar businesses, an informational "brochureware" Web site is perfectly satisfactory. The major purpose is to have a *presence* on the Web.

◗ An **interactive Web site** provides opportunities for the customers and the business to communicate and share information. An interactive site will contain all the information about products and services that an informational site does, but it also delivers informational features intended to encourage interaction between the business and customers or among customers, such as an e-newsletter, product demonstrations, blogs, and customer discussion forums. An interactive Web site will strongly encourage feedback by including contact e-mail addresses; providing feedback forms, wikis, and blogs; and promoting completion of online surveys. Features such as the ability to search the site, a well-designed site map, and mouseovers (clickable buttons that change shape or color when a visitor passes a mouse cursor over the button) make navigation more interactive. Value-added tools such as currency converters, price comparisons, calendars, and various types of calculators (e.g., a mortgage calculator on a bank's Web site) can enhance interactivity.

◗ At a higher level of interactivity are **attractors**—Web site features that attract and interact with site visitors. Attractors such as games, puzzles, prize giveaways, contests, and electronic postcards (e-cards) encourage customers to find the Web site, visit again, and recommend the site to their friends. For example, Ragu's Web site does not sell spaghetti sauce or other Ragu products, but the recipes, customer interaction ("talk to Mama"), and other features make this an attractor-loaded site that increases *brand awareness* and sells Ragu's products in the customer's next trip to the grocery store. Coca-Cola and Disney have similar sites.

◗ A **transactional Web site** sells products and services. These Web sites typically include information and interactivity features but also have sell-side features, such as a shopping cart, a product catalog, a customer-personalized account, a shipping calculator, and the ability to accept credit cards to complete the sale.

◗ A **collaborative Web site** is a site that allows business partners to collaborate (i.e., it includes many supportive tools; see Chapter 6). B2B exchanges may also provide collaboration capabilities.

BUILDING A WEB SITE

Assuming that a business has completed the preparatory work of business formation—writing a business plan, deciding what type of site it wants to build, and acquiring initial funding—it is ready to build a site. The process of building the site is illustrated in Exhibit 12.2. Templates are available at smallbusiness.yahoo.com/webhosting/websitetemplates.php.
The forthcoming sections discuss each of the steps illustrated in Exhibit 12.2.

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informational Web site
A Web site that does little more than provide information about the business and its products and services.

interactive Web site
A Web site that provides opportunities for the customers and the business to communicate and share information.

attractors
Web site features that attract and interact with visitors in the target stakeholder group.

transactional Web site
A Web site that sells products and services.
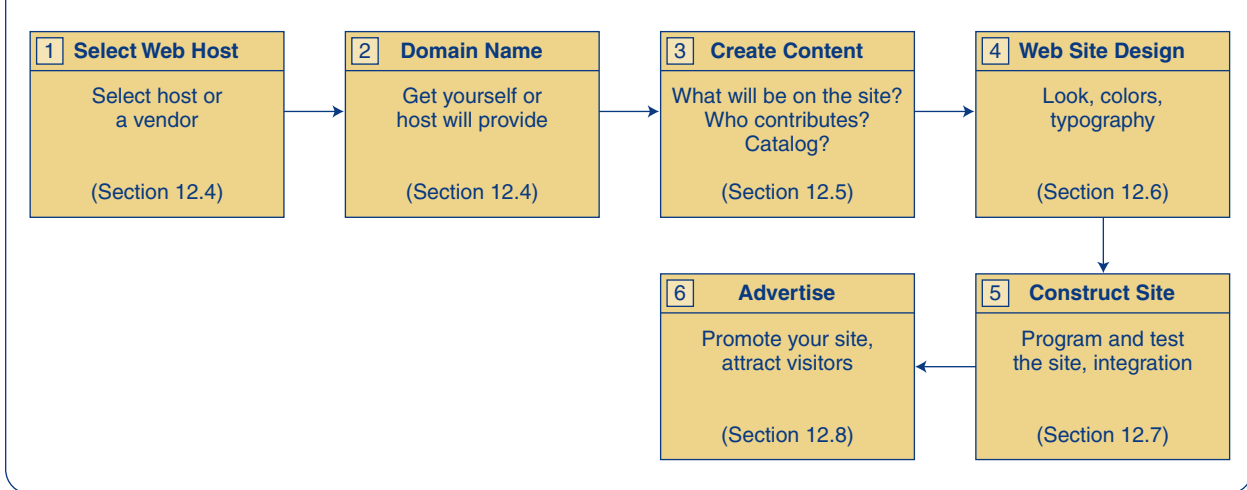
collaborative Web site
A site that allows business partners to collaborate.

EXHIBIT 12.2   The Process of Building a Web Site

1 **Select Web Host**	2 **Domain Name**	3 **Create Content**	4 **Web Site Design**
Select host or a vendor	Get yourself or host will provide	What will be on the site? Who contributes? Catalog?	Look, colors, typography
(Section 12.4)	(Section 12.4)	(Section 12.5)	(Section 12.6)

6 **Advertise**	5 **Construct Site**
Promote your site, attract visitors	Program and test the site, integration
(Section 12.8)	(Section 12.7)

Section 12.3 ▶ REVIEW QUESTIONS

1. Distinguish among informational, interactive, transactional, and collaborative Web sites.
2. List the six steps in building a Web site.

12.4   WEB SITE HOSTING AND OBTAINING A DOMAIN NAME

This section discusses the decisions about whether to own (self-host) or rent, where to host the Web site (storebuilder service, ISP, pure Web hosting service, or self-hosting), and about the site's domain name in making these decisions. For details, see Rutgers (2009).

WEB HOSTING OPTIONS

The following are the major Web hosting options.

Storebuilder Service

storebuilder service

A hosting service that provides disk space and services to help small and microbusinesses build a Web site quickly and cheaply.

A **storebuilder service** provides Web hosting as well as storage space, templates, and other services to help small businesses build a Web site quickly and inexpensively.

An example of a company that offers comprehensive store-building hosting services and software is Yahoo! Web Hosting. Yahoo!'s base service offers Web hosting as well as customized templates and other support for $9.95 per month; the next plan up, which is offered for $11.95 a month, offers additional services; a package for professionals that includes security features is available for $12.95 a month. All levels of Yahoo! Web Hosting include access to template-based software, SiteBuilder, which offers more than 330 customizable templates. The software can be used to build a Webstore quickly and easily (see Section 12.9 and Team Assignment 4). Yahoo!'s Web Hosting package also provides marketing tools, domain name selection assistance, a payment gate, storage (disk) space, and shipment services. The package also works with Yahoo! Merchant Solutions, which is described in Section 12.9. Yahoo! Web Hosting usually offers a Web site address (e.g., a URL, such as smallbusiness.yahoo.com/mybusiness), management tools, security features, and Internet connection maintenance. Yahoo! combines Web

hosting and store building, but other vendors may separate the two functions, as shown later in this section.

The advantage of a storebuilder service is that it is a quick, easy, and inexpensive way to build a Web site. The disadvantages are the lack of a strong online identity, limited functionality (e.g., accepting credit cards may not be possible), dependence on the service for proper management of connectivity to the site, and some lack of differentiation (the Web site tends to look like other sites because everyone is using the same set of templates). Despite the disadvantages, storebuilder services are the prime choice of small and sometimes medium-size businesses (see Case 12.2).

CASE 12.2

EC Application

HOW SMALL COMPANIES USE A STOREBUILDER SERVICE

The following are illustrative examples of how small companies build e-stores using storebuilder services.

◗ Ken and Pat Gates retired in 2001. While surfing the Internet, they discovered how easy it was to go into e-commerce. The couple decided to sell online products related to their favorite collegiate sports teams. Using Yahoo!'s Web Hosting service and templates, in 2003 they built their store, College Sports Stuff (*collegesportsstuff.com*), and generated $35,000 in sales. By 2005, they covered 62 teams, including non-college ones, tripling their sales. Their store ships customers' orders within an hour.

◗ Using Yahoo!'s SiteBuilder software, Springwater Woodcraft, an established Canadian furniture manufacturer, was able to add a new sales channel (*springwaterwoodcraft.com*). The software helped not only with sales but also with accounting. It also led the company into the international market.

◗ Taylor Made adidas Golf (TMaG) is the world's leading manufacturer of metal and wood golf clubs. When it launched the revolutionary r7 Quad, TMaG had to make sure that its customers (golf retailers) would understand the new product and its benefits in order to transform those benefits into customer sales. To do that, TMaG created courses that it offered online to educate golf retailers. Using Yahoo! Merchant Solutions, it rapidly launched the e-training B2B project (*tmagconnection.com*). Participation in the course was high, and when the store opened online, it attracted 15 percent of all TMaG customers, who placed $600,000 in orders in the first three months. The company has created several other Webstores (e.g., one for selling its products to employees of TMaG's parent company).

◗ In 2002, Jack Sheng teamed up with a couple childhood friends to sell electronic gadgets on eBay. When they knew they had a viable business, they started a Yahoo!

store. He knew he needed a reliable and flexible e-commerce platform that could grow with his business. Trusting the Yahoo! name, he found that the Yahoo! Merchant Solutions service allows him to carry thousands of products without running out of shelf space. Using the stable platform, the site doesn't slow for customers, in spite of the large number of products involved. Yahoo! also offers flexibility and customization of the store. Integration with Yahoo! Sponsored Search allows him to add tracking codes in order to measure his online marketing effectiveness and determine which online ads and keywords work best; Yahoo! Search Marketing has helped his online store grow exponentially; and integration with PayPal offers a consistent customer experience as well as reducing fraud. Using both eBay (auctions) and Yahoo! (selling) maximizes exposure to customers while minimizing the cost of acquiring customers for each channel. The business still sells cool electronic gadgets on eBay and Yahoo!, including accessories for cell phones, PDAs, and computers. But they now carry 3,000 separate accessory SKUs on *eforcity.com*—*plus* 30,000 DVD titles. The business has been growing about 100 percent every year using Yahoo! Merchant Solutions.

Sources: Compiled from Yahoo! (2006–2009) and authors' experience.

Questions

1. What benefits did the owners of these businesses derive from using Yahoo!'s services?

2. Identify the common elements in all these cases.

3. Why would a large company, such as TMaG, use templates to create a B2B site?

EBay also offers Webstore software tools for its merchants. For more on eBay stores, see pages.ebay.com/storefronts/seller-landing.html. Amazon.com offers a similar service (see webstore.amazon.com/WebStore-for-eCommerce-Business). The advantage of going with storebuilder services is that hosting at Yahoo! Store, Amazon.com, or eBay exposes the sellers to the large number of potential buyers who visit these sites (e.g., see Elms 2006).

A Dedicated Hosting Service

Web hosting service
A dedicated Web site hosting company that offers a wide range of hosting services and functionality to businesses of all sizes.

A **Web hosting service** is a dedicated Web site hosting company that offers a wide range of hosting services and functionality to businesses of all sizes. Companies such as Hostway (hostway.com), Go Daddy (godaddy.com), Mosso (at rackspacecloud.com), and 1&1 (1and1.com) offer more and better services than a storebuilder service because Web site hosting is their core business. Almost all Web hosting companies have internal Web design departments to ensure the cooperation between the designer and the host. Also, functionality such as database integration, shipping and tax calculators, sufficient bandwidth to support multimedia files, shopping carts, site search engines, and comprehensive site statistics are likely to be readily available. Major services are offered by IBM Global Services (ibm.com/services/us/gbs/bus/html/bcs_index.html) and Microsoft (see microsoft.com/smallbusiness/startup-toolkit).

ISP Hosting Combined with Web Design

ISP hosting service
A hosting service that provides an independent, stand-alone Web site for small and medium-sized businesses.

The same company that delivers e-mail and Web access to a business probably can host the company's Web site. An **ISP hosting service** provides an independent, stand-alone Web site for small and medium-sized businesses. The ISP will probably provide additional hosting services (e.g., more storage space, simple site statistics, credit card gateway software) at the same or a slightly higher cost than the storebuilder services. The List of ISPs (thelist.com) provides lists of ISPs and providers of commercial Internet access.

The major difference between a storebuilder and an ISP hosting service is that with the ISP service, the time-consuming and sometimes expensive task of designing and constructing the Web site becomes the responsibility of the EC business.

Self-Hosting

self-hosting
When a business acquires the hardware, software, staff, and dedicated telecommunications services necessary to set up and manage its own Web site.

With **self-hosting,** the business acquires the hardware, software, staff, and dedicated telecommunications services necessary to set up and manage its own Web site. Self-hosting is beneficial when a business has special requirements, such as maximum data security, protection of intellectual property, or, most likely, when the business intends to have a large and complex site.

The disadvantages of self-hosting are the cost and the speed of construction. The other Web hosting options allow the hosting company to amortize the costs of site hosting across hundreds or thousands of customers. A business that hosts its own Web site will have to bear these costs alone, not to mention concerns about security and full-time Web site management. These costs must be weighed against the benefits of better control over site performance and increased flexibility in site design, improvement, and functionalities.

REGISTERING A DOMAIN NAME

Selecting a domain name is an important marketing and branding consideration for any business. The domain name will be the business's online address, and it provides an opportunity to create an identity for the business.

Domain Names

A **domain name** is a name-based address that identifies an Internet-connected server. Usually, it is designated by the portion of the address that comes to the left of .com or .org and includes the .com or .org. The domain name should be an easy-to-remember name (e.g., congress.gov) that the *domain name system* (DNS) maps to a corresponding IP address (e.g., 140.147.248.209). Each domain name must include a top-level domain (TLD). This is either a general top-level domain (e.g., .com or .biz for commercial businesses, .org for nonprofit organizations, .name for individuals), or it is a country-code top-level domain (ccTLD) (e.g., .au for Australia, .jp for Japan). Most ccTLDs also have a *second-level domain name* that indicates the type of organization (e.g., redcross.org.au, yahoo.co.jp). At the left side of the domain name is the organization's name (e.g., dell.com), a brand name (coca-cola.com), or a generic name (e.g., plumber.com).

<div style="float:right; width:30%;">

domain name

A name-based address that identifies an Internet-connected server. Usually it refers to the portion of the address to the left of .com and .org, etc.

</div>

Domain Name System and Its Implementation

The **domain name system (DNS)** is a hierarchical naming system for computers, services, or any resource participating in the Internet; it is like a directory. An often used analogy to explain the DNS is that it serves as the "phone book" for the Internet by translating human-friendly computer host names into IP addresses.

The DNS makes it possible to assign domain names to groups of Internet users in a meaningful way, independent of each user's physical location.

Domain name assignment is under the authority of the Internet Corporation for Assigned Names and Numbers (ICANN; icann.org). ICANN has delegated responsibility for domain name registration procedures and database administration in the general TLDs to top-level domain administrators such as Afilias (for .info), Public Interest Registry (for .org), and VeriSign Global Registry Services (for .com and .net). Similarly, regional Internet registries administer the ccTLDs (e.g., Nominet for the .uk domain, Japan Registry Service for .jp).

Hundreds of ICANN-accredited registrars carry out the actual registration of domain names. These are located in various countries, but most are in the United States. A list of these registrars is available at icann.org/registrars/accredited-list.html. A domain name registrar is a business that assists prospective Web site owners with finding and registering a domain name of their choice.

Some investors and speculators have made a fortune from buying domain names and then selling them. Sloan (2007) provides an overview of how this is done, including how the domain owner collects money from advertisers. Some domain name owners have over 5,000 names, and one owner built a $30 million empire.

A useful resource for learning more about domain names and the registration process is About Domains (aboutdomains.com), which offers "guides and resources for successful Internet presence," including a domain name glossary, a registration FAQ file, and "horror stories" from domain name owners who have had bad experiences with registrars. Also see "How to Register a Domain Name" at 2 Create a Website (2createawebsite.com). You can also get a domain name at smallbusiness.yahoo.com/domains.

<div style="float:right; width:30%;">

Domain Name System (DNS)

A hierarchical naming system for computers, services, or any resource participating in the Internet; it is like a directory.

</div>

Section 12.4 ▶ REVIEW QUESTIONS

1. What are the advantages and disadvantages of the different Web hosting options?
2. What is a mirror site? Why would a company use a mirror site?
3. What criteria should an online business consider in choosing a Web hosting service?
4. What is a domain name? Why is selecting a domain name an important step for going online?
5. How are domain names controlled in order to avoid duplication?

12.5   CONTENT CREATION, DELIVERY, AND MANAGEMENT

content
The text, images, sound, and video that make up a Web page.

Content is the text, images, sound, and video that comprises Web pages. Creating and managing content is critical to Web site success because content is what a visitor is looking for at a Web site, and content is what the Web site owners use to sell the site, the product or service, and the company that stands behind the site. A successful Internet presence has always been about effective delivery of the information the visitor wants—"Content is king!" This section describes the role content plays in successful online business operations and the key aspects of creating, delivering, and managing Web site content. For details, see Rutgers (2009).

CATEGORIES AND TYPES OF CONTENT

Providing content to EC sites may be a complex job because of the variety and quantity of sources from which to acquire content and the fact that the content must be updated frequently. Also, B2B content, especially in online catalogs, may include pictures, diagrams, and even sound. In addition, content may involve security, quality, and permission issues.

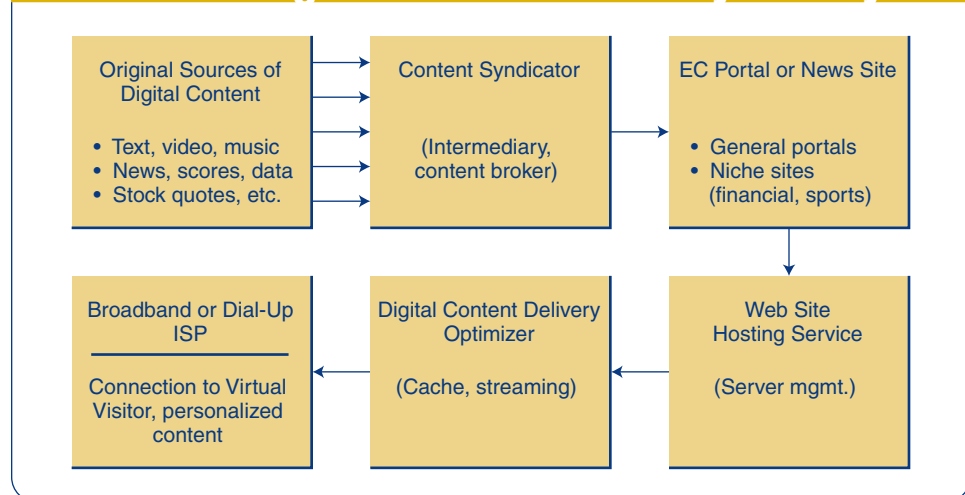**dynamic Web content**
Content that must be kept up-to-date.

One of the difficulties in Web content management is that some content needs to be kept up-to-the-minute (e.g., news, stock prices, weather). This is referred to as **dynamic Web content**, as distinguished from *static Web content*, which is updated infrequently.

For each type of content, companies may use a different approach for content creation and delivery. Exhibit 12.3 shows the content life cycle. As shown in the exhibit, once content is created, it may appear in different formats (e.g., text, video, music). Then, it moves to a content syndicator. A syndicator (to be described later in this section) moves the content to a portal or news site. From there, a hosting service moves the content, possibly via an optimizer (such as akamai.com). The optimizer delivers the content to the final consumer. We will discuss this process and its elements in more detail a bit later.

EXHIBIT 12.3   Digital Content Delivery Life Cycle

Original Sources of Digital Content	Content Syndicator	EC Portal or News Site
• Text, video, music • News, scores, data • Stock quotes, etc.	(Intermediary, content broker)	• General portals • Niche sites (financial, sports)

| Broadband or Dial-Up ISP

Connection to Virtual Visitor, personalized content | Digital Content Delivery Optimizer

(Cache, streaming) | Web Site Hosting Service

(Server mgmt.) |

Primary and Secondary Content

Content should include more than information about the product itself (the *primary content*). A Web site also should include *secondary content* that offers marketing opportunities, such as the following:

◗ **Cross-selling.** Using content for **cross-selling** means offering similar or complementary products and services to increase sales. In the offline world, the McDonald's question, "Would you like fries with that?" exemplifies cross-selling. In the online world, Amazon.com offers book buyers options such as "customers who bought this book also bought . . ." and "look for similar books by subject."

◗ **Up-selling.** Creating content for **up-selling** means offering an upgraded version of the product in order to boost sales and profit. McDonald's practices up-selling every time a sales clerk asks a combo-meal buyer, "Would you like to super size that?" Amazon.com offers "great buy" book combinations (buy two complementary books for slightly more than the price of one).

◗ **Promotion.** A coupon, rebate, discount, or special service is secondary content that can increase sales or improve customer service. Amazon.com frequently offers reduced or free shipping charges, and it promotes this offer *on each* product page.

◗ **Comment.** Reviews, testimonials, expert advice, voting by users, or further explanation about the product can be offered after introducing the product. Amazon.com book pages always have editorial and customer reviews of the book, and the "look inside this book" feature sometimes allows Web site visitors to preview book contents online.

cross-selling
Offering similar or complementary products and services to increase sales.

up-selling
Offering an upgraded version of the product in order to boost sales and profit.

CREATION OR ACQUISITION OF CONTENT

Where does content come from? The site's owners and developers create the content on most sites. Typically, it begins by collecting all the content that is currently available (e.g., product information, company information, logos). Then the value of additional content—e-newsletters, discussion forums, customer personalization features, FAQ pages, and external links—is assessed for inclusion in the Web site. Customers can generate content—through product reviews, testimonials, discussion forums, and other ways. Business partners downstream in the supply chain also can provide content.

Buying Content

Content can be purchased or licensed. Lonely Planet, the Australian travel guide company, and the popular Mobile Travel Guide both sell travel information to Web sites such as Travelocity. *Content syndicators* such as Wilson Internet Services (wilsonweb.com/syndicate) serve as intermediaries that link content creators with businesses interested in acquiring content. Finally, some individuals and businesses, such as Mike Valentine's WebSite 101 (website101.com/email/newsletters-email/free-content-small-business-ezine), provide free content and ask only for proper attribution in return.
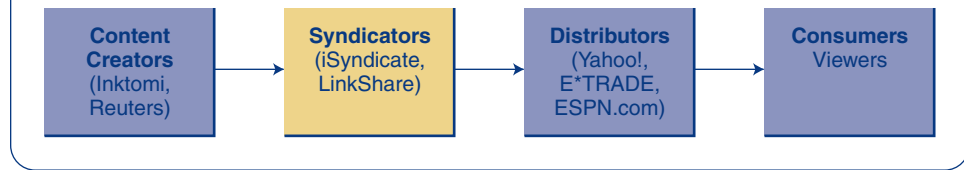
Buying from a Syndicator

Syndication involves the sale of the same content to many customers, who then integrate it with other offerings and resell it or give it away for free. Syndication has been extremely popular in the world of entertainment and publishing but was rare elsewhere until the arrival of the Internet. The digitization of products and services, and the resulting ease with which information can flow, makes syndication a popular business model (e.g., see yellowbrix.com). Exhibit 12.4 shows the syndication supply chain. Web syndication is

syndication
The sale of the same good (e.g., digital content) to many customers, who then integrate it with other offerings and resell it or give it away free.

EXHIBIT 12.4   The Syndication Supply Chain

Content Creators (Inktomi, Reuters) → Syndicators (iSyndicate, LinkShare) → Distributors (Yahoo!, E*TRADE, ESPN.com) → Consumers Viewers

done in many cases by using RSS feeds. In such a case, content is arranged into a standardized structure of heading, content summary, and links to original sources. For details on RSS feeds, see Cong and Du (2008).

Content Delivery Networks

Using *content delivery networks (CDNs)*, companies can update content, improve the quality of the site, increase consistency, control content, and decrease the time needed to create or maintain a site. Akamai (akamai.com) provides CDNs.

In B2B, the information contained in electronic catalogs is of extreme importance. Companies can create and maintain the content in-house, or they can outsource such tasks.

DELIVERING CONTENT TO USERS (DISTRIBUTORS)

Thus far, we have discussed the role of intermediaries and other third-party B2B providers in channeling digital content to the sites that display the content to consumers. Our discussion now turns to the next step in the content delivery chain, the task of delivering digital content to customers.

Personalizing Content

personalized content
Web content that matches the needs and expectations of the individual visitor.

Personalized content is Web content that is prepared to match the needs and expectations of the individual visitor. Such content enables visitors to find the information they need faster than at traditional sites, resulting in more visitors coming to the site. The process begins by asking to design a page (e.g., myGoogle, myYahoo!) or tracking the visitor's behavior on the Web site via cookies. This information is provided to server software that generates dynamic Web pages that contain content the visitor can use. Amazon.com's Web site is the king of personalized content, offering content such as recommendations for products based on previous purchases, recently viewed items, and even a personalized "Welcome Back" message for repeat visitors. The downside of personalization is that it may be expensive and can slow performance.

Delivering Content by E-Newsletter

e-newsletter
A collection of short, informative articles sent at regular intervals by e-mail to individuals who have an interest in the newsletter's topic.

One of the most effective strategies for delivering content of interest to potential customers is an e-mail newsletter. An **e-newsletter** is a collection of short, informative content sent at regular intervals via e-mail to individuals who have an interest in the newsletter's topic. Examples are *E-Marketer Daily* and *Commerce Minutes*. An e-newsletter can support the business and the product.

CONTENT MANAGEMENT AND MAINTENANCE

content management
The process of adding, revising, and removing content from a Web site to keep content fresh, accurate, compelling, and credible.

Content management is the process of collecting, publishing, revising, updating, and removing content from a Web site to keep content fresh, accurate, compelling, and credible. Almost all sites begin with a high level of relevant content, but over time

material becomes dated, irrelevant, or incorrect. Content management makes sure a site remains relevant and accurate long after the initial push to launch the site is over. For details on content management, see Henri and Heroux (2008).

Content Testing and Updating

An obvious task in content management is testing the content. Web managers need to make extensive and frequent checks of material for accuracy, clarity, typos, poor punctuation, misspelled words, and inconsistencies. For more on content testing, see optimost.com.

Measuring Content Quality

How does a company know if the content on its Web site is meeting its e-commerce goals? How does a company know if it is delivering what its customers need? They do it by comparing the content to quality standards. In addition, content must meet privacy requirements, copyright and other legal requirements, language translation needs, and much more. You may use guidelines for knowledge management as well. Metrics are available from W3C (w3c.org/pics) and periodically in *Baseline* magazine. Measuring the quality of content also requires appropriate Web traffic measurement tools.

Pitfalls of Content Management

Companies face various content management pitfalls. The top six content management pitfalls and the best practices for avoiding them are found in Exhibit 12.5.

Content Management Software

Content management software allows nontechnical staff to create, edit, and delete content on the company's Web site. The driving forces behind content management software (CMS) include the desire for companies to empower content owners to manage

EXHIBIT 12.5 Content Management Pitfalls and Their Solutions	
Problem or Pitfall	**Solution**
Picking content management software before developing solid requirements and the business case	Convert some of the resources currently being expended on software evaluation to a deeper examination of the company's own content and business needs.
Not getting a clear mandate from the top to proceed	Get business leaders onboard; you will need their strategic direction and a mandate for change.
Underestimating integration and professional service needs	Budget two to four times the cost of software license for consulting, customization, and integration.
Hiring inexperienced developers to integrate and extend the software	Hire good developers with content management software experience to implement mediocre software. This is always preferable to excellent software in the hands of novice integrators.
Depending entirely on an outside company to make changes to the system	Involve your own technical people closely in the initial development, even if you are outsourcing the integration. Do not skimp on training.
Thinking your migration will be painless despite what the content management system provider tells you	Start to prepare yourself for a content management system by cleaning up your HTML code and organizing your content. This takes longer than you might think!

Sources: Compiled from Byrne (2002) and Nielsen (2005).

their own content and the inability of the computing services staff to keep up with demands for new or changed content on the Web site.

For more on CMS, see emc.com and vignette.com.

CATALOG CONTENT AND ITS MANAGEMENT

Much of the content in B2B and B2C sites is catalog based. Chapter 2 discussed the benefits of electronic catalogs. Although there are many positive aspects of electronic catalogs, poorly organized ones may deter buyers. Companies need to make sure that their catalog content is well managed.

For B2B buyers who aggregate suppliers' catalogs on their own Web sites, content management begins with engaging suppliers and then collecting, standardizing, classifying, hosting, and continually updating their catalog data. That is no small task, considering that most large buying organizations have hundreds, or even thousands, of suppliers, each using different data formats and nomenclature to describe their catalog items. The management of catalog content has some unique aspects and options.

Content for Large EC Sites

Content creation and management for a large EC site can be slow and expensive. Many software vendors provide content management tools. One example is Oracle. For details see oracle.com/us/products/middleware/content-management/index.htm.

Section 12.5 ▶ REVIEW QUESTIONS

1. What is content? Dynamic content? Personalized content?
2. How can a business use content for cross-selling? For up-selling? For promotion?
3. Where does content come from? Identify four sources of Web site content. What is content creation?
4. What is syndication? How does it relate to content?
5. What e-newsletter content does a subscriber value most?
6. What is the purpose of content management?

12.6   WEB SITE DESIGN

The goal of any Web site is to deliver quality content to its intended audience and to do so with an elegant design. With the Web site's content in hand, the Web site owner's next task is Web site design, which includes information architecture, navigation design, use of colors and graphics, and maximizing site performance. The purpose of this section is to enable you to contribute to the design of a Web site when working with professionals. For details, see Rutgers (2009).

Successful Web site design is about meeting customer expectations. Design starts with identifying customer needs, expectations, and problems. Then a site is designed to meet those needs and expectations or to solve the customers' problems. Pratt (2007) provides the following guideline for a successful Web site:

1. Build it for users (useful for the user, not necessarily the company).
2. Make it useful (e.g., usability test).
3. Construct the site so information is easy to find.
4. Make it suitable for all users, including those with disabilities.

5. Build a comprehensive, responsive, and effective site.
6. Measure the site against the best of its peer group.
7. Build trust; be up front about security, privacy, and marketing policies.
8. Assign ownership to users, but work as a team with the technical people.
9. Set priorities; do the most beneficial stuff first.
10. Watch for new developments and encourage innovation.

There are several design criteria such as interactivity, scalability, and security. The focus of this section is on the fundamental design criteria of navigation, consistency, performance, appearance, and quality assurance.

Examples of well-designed sites are those of Intel, Sears, HP, Medco, Procter & Gamble, Johnson & Johnson, IBM, Pfizer, and Bank of America.

INFORMATION ARCHITECTURE

A Web site's **information architecture** determines how a site organizes, labels, and navigates its Web pages to support browsing and searching. Information architecture begins with designing the site's structure. The most common site structure is hierarchical. Exhibit 12.6 shows a typical hierarchical structure for an online store. Most hierarchical Web sites are built wide and shallow, putting 3 to 10 sections in the second level and limiting most sections to two or three levels.

information architecture
How the site and its Web pages are organized, labeled, and navigated to support browsing and searching throughout the Web site.

EXHIBIT 12.6   A Simple Hierarchical Web Site Structure
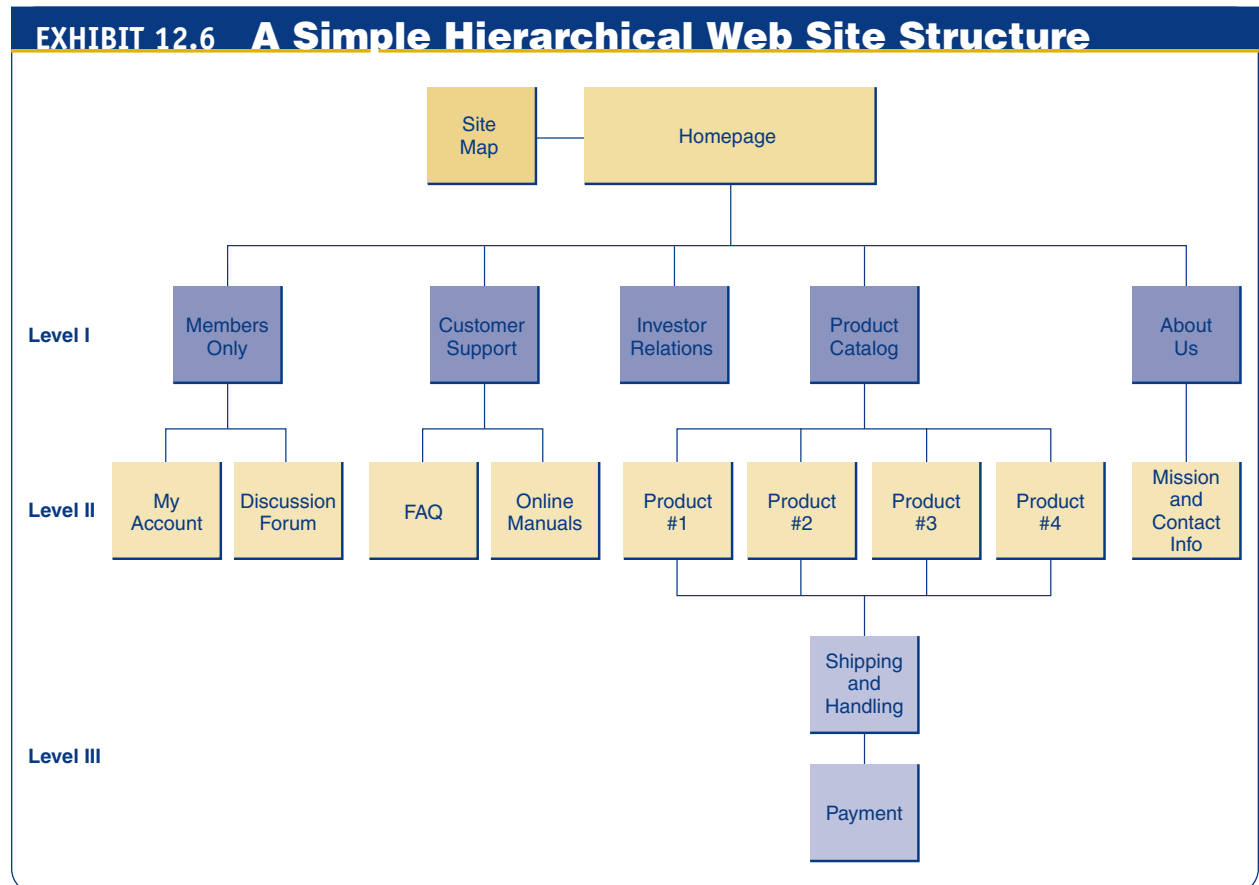
A Web site typically includes a *homepage* that welcomes a visitor and introduces the site; *help* pages that assist the visitor to use or navigate through the site; *company* pages that inform the visitor about the online business; *transaction* pages that lead the customer through the purchase process; and *content* pages that deliver information about products and services at all stages of the purchase process, from information search to postpurchase service and evaluation.

SITE NAVIGATION

site navigation
Aids that help visitors find the information they need quickly and easily.

The purpose of **site navigation** is to help visitors quickly and easily find the information they need on a Web site. Among the questions considered in site navigation are: How will visitors enter a site? How will visitors use the site? How will they find what is available at the site? How will they get from one page to another and from one section to another? How will visitors find what they are looking for? Site navigation has to help visitors find information quickly, because visitors do not want to take the time to figure out how to move around a site.

The simplest navigation aid is a *navigation bar* (see example in Exhibit 12.7). A navigation bar provides the visitor an opportunity to link to likely destinations (e.g., homepage, "about us") and major sections of the Web site (e.g., product catalog, customer support).

Site Map and Navigation

A navigation bar almost always appears at the top of the page where it will load first in the browser window and be visible "above the fold." However, if the page contains banner ads, then the navigation bar should be placed prominently below the ads. Why? Frequent Web users develop "banner ad blindness" in which they ignore banner ads and everything above them.

A second navigation bar should appear at the bottom of every page. Then, visitors who have read the page and have not found what they are looking for can easily be guided to where they need to go next.

PERFORMANCE (SPEED)

Speed ranks at or near the top of every list of essential design considerations, for good reason. Visitors who have to wait more than a few seconds for a Web page to load are likely to hit the "stop" or "back" button and go somewhere else.

A number of factors affect the speed at which the page transfers from the Web server to the client's browser. Factors out of the control of the Web designer and site owner are the visitor's modem speed, the bandwidth available at the customer's ISP, and, to some degree, the current bandwidth available at the Web host's location. The critical factor that is under the control of the Web designer is the content and design of the page. A competent Web designer will know what can be done to improve a page's download speed or at least give it the appearance of loading fast. The most widely recognized cause of long download times is a large graphic or a large number of small graphics on a single page.

EXHIBIT 12.7   A Typical Navigation Bar

Home	Products	Support	Community	Guided Tour	About Us

COLORS AND GRAPHICS

The Web is a colorful and graphic world, and colors, pictures, artwork, and video can be used effectively if used correctly.

The key to effective use of color and graphics is to design the site to match the expectations of the target audience. Financial services sites tend to use formal colors (e.g., green, blue) with simple charts to illustrate the text but not many pictures.

WEB SITE USABILITY

Usability measures the quality of a user's experience when interacting with a product or system—whether a Web site, software application, mobile technology, or any user-operated device.

In general, **usability** refers to how well users can learn and use a product or a Web site to achieve their goals as well as how satisfied they are with that process. Usability means that people who use the Web site can do so quickly and easily to accomplish their tasks and may also consider such factors as cost-effectiveness and usefulness. On the Web, usability is a necessary condition for survival.

According to Nielsen (2005) and usability.gov, the following factors determine usability:

usability (of Web site)
The quality and usefulness of the user's experience when interacting with the Web site.

◗ **Ease of learning.** How fast can a user who has never seen the user interface before learn it sufficiently well to accomplish basic tasks? How easy and intuitive is it to learn to use the Web site?
◗ **Efficiency of use.** Once an experienced user has learned to use the system, how fast can he or she accomplish tasks?
◗ **Memorability.** If a user has used the system before, can he or she remember enough to use it effectively the next time, or does the user have to start over again learning everything?
◗ **Error frequency and severity.** How often do users make errors while using the system, how serious are these errors, and how can users recover from these errors?
◗ **Subjective satisfaction.** How much does the user like using the system? How pleasant is it to use the Web site design?

Section 12.6 ◗ REVIEW QUESTIONS

1. Describe 10 criteria used to judge Web site design.
2. Name four site navigation aids.
3. Why is performance a key design criterion? What slows performance?
4. Describe some issues for proper use of color and graphics on a Web site.
5. What is usability? List the major factors used to determine usability.

12.7 A FIVE-STEP APPROACH TO DEVELOPING AN E-COMMERCE SYSTEM

Once it has been determined that a business can benefit from an online presence, the business type, the product line, the business's organization, and the budget dictate what functionality the Webstore should have and how the Web site should be developed. Companies can choose from a number of different types of Web sites, including B2C,

B2B, exchanges, and the like. Sites of a particular type (e.g., retailer, provider of business services, manufacturer, distributor/wholesaler, media, travel/entertainment) usually use the same underlying applications and provide similar sorts of functionality. Although this simplifies the task of creating the underlying application architecture, the site requirements must still be considered carefully. Before discussing the best approach to developing a site, it would be useful to review previous chapters to consider the major characteristics, functionalities, and requirements of the EC system being developed. Some typical capabilities of Webstores are shown in Exhibit 12.8.

A well-developed Web site not only adds to the value of products or services being offered, but it also enhances the worth of the company. Therefore, once you have a clear understanding of the e-commerce system requirements and consider all the elements of the e-commerce system (see Exhibit 12.9), it is important that a firm
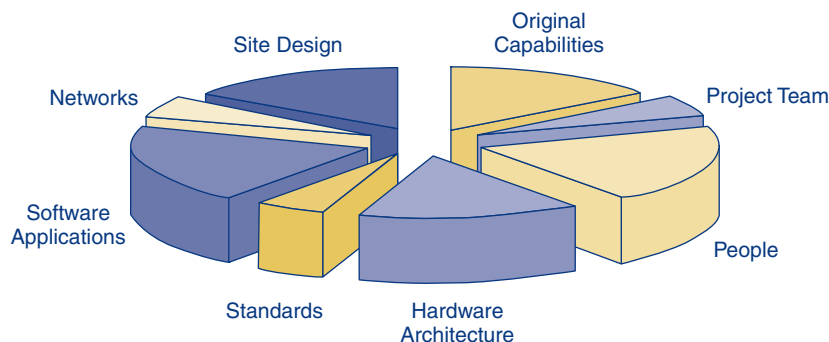
EXHIBIT 12.8   Capabilities Needed by Webstore Users

Buyers Need the Ability To:	Sellers Need the Ability To:
• Discover, search for, evaluate, and compare products for purchase using e-catalogs. • Select products to purchase and negotiate or determine their total price. • Place an order for desired products using a shopping cart. • Pay for the ordered products, usually through some form of credit. • Confirm an order, ensuring that the desired product is available. • Track orders once they are shipped.	• Provide access to a current catalog of product offerings, allowing prospective buyers to analyze and evaluate the offerings. • Provide an electronic shopping cart in which buyers can assemble their purchases. • Verify a customer's credit and approve the customer's purchase. • Process orders (back-end services). • Arrange for product delivery. • Track shipments to ensure that they are delivered. • Provide the means for buyers and visitors to register at the site, to make comments, or to request additional information. • Answer customers' questions or pass queries and requests to a Web-based call center. • Analyze purchases in order to customize buyers' experiences. • Provide Web-based postsale support. • Create the capability for cross-selling and up-selling. • Provide language translation if needed. • Measure and analyze the traffic at the site to modify and maintain the various applications.

EXHIBIT 12.9   Elements of an E-Commerce System

Labels: Site Design, Original Capabilities, Networks, Project Team, Software Applications, People, Standards, Hardware Architecture
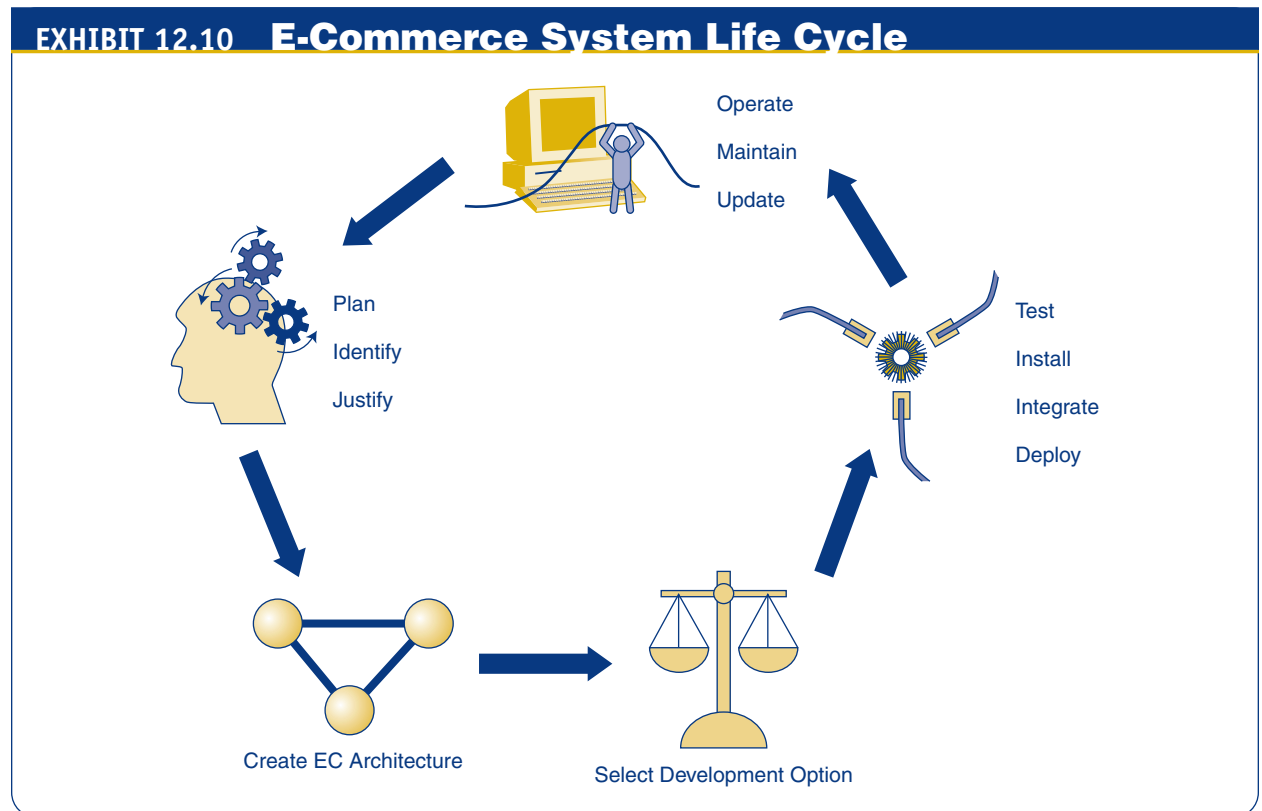
Source: Drawn by C. Pollard.

choose the correct development strategy to obtain the greatest return on its investment. The diversity of e-business models and applications, which vary in size from small stores to global exchanges, requires a variety of development methodologies and approaches.
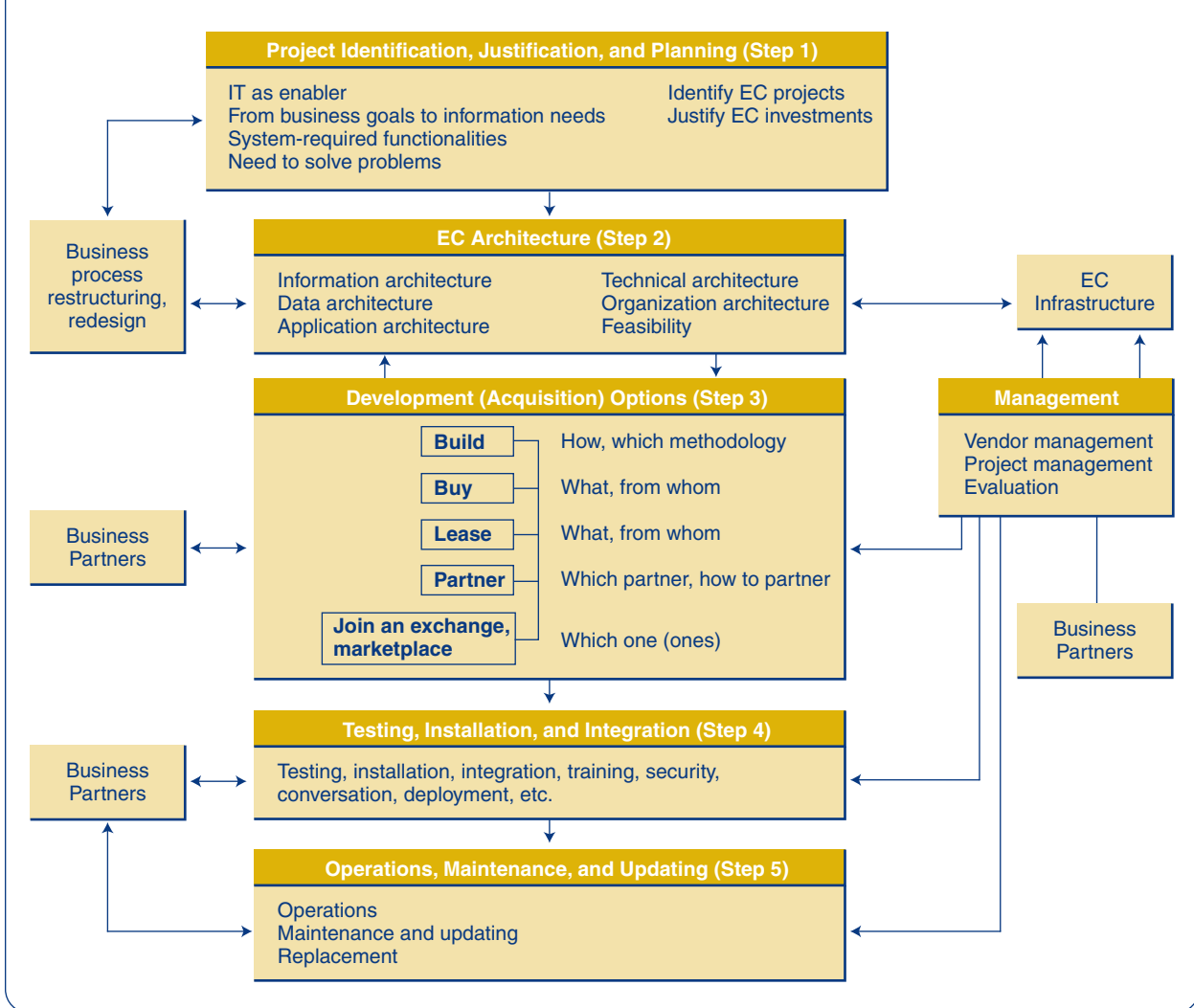
For example, small Webstores with a few key components can be developed with HTML, Java, Web 2.0, or another programming language. They also can be implemented with commercial packages, leased from an application service provider (ASP), or purchased from a site builder. Larger or special EC applications can be developed in-house or outsourced (see the opening case). Building medium to large applications requires extensive integration with existing information systems, such as corporate databases, intranets, enterprise resource planning (ERP), and other application programs. Therefore, although the process of building EC systems can vary, in many cases, it tends to follow a fairly standard format.

The traditional *systems development life cycle (SDLC)* systematically leads developers through six analysis and design stages: problem identification, analysis, logical design, physical design, implementation, and maintenance. The SDLC is the basis for development of the majority of traditional business systems (see Whitten and Bentley 2007 for more details on this approach). However, innovative new software and hardware are enabling a move to a more streamlined approach to e-commerce development, as discussed in Case 12.1. Exhibits 12.10 and 12.11 show the five major steps needed to develop a typical e-commerce application.

EXHIBIT 12.10   E-Commerce System Life Cycle

Source: Drawn by C. Pollard.

EXHIBIT 12.11 The EC Application Development Process

Project Identification, Justification, and Planning (Step 1)

IT as enabler | Identify EC projects
From business goals to information needs | Justify EC investments
System-required functionalities
Need to solve problems

Business process restructuring, redesign

EC Architecture (Step 2)

Information architecture | Technical architecture
Data architecture | Organization architecture
Application architecture | Feasibility

EC Infrastructure

Development (Acquisition) Options (Step 3)

Build — How, which methodology
Buy — What, from whom
Lease — What, from whom
Partner — Which partner, how to partner
Join an exchange, marketplace — Which one (ones)

Business Partners

Management

Vendor management
Project management
Evaluation

Business Partners

Testing, Installation, and Integration (Step 4)

Testing, installation, integration, training, security, conversation, deployment, etc.

Business Partners

Operations, Maintenance, and Updating (Step 5)

Operations
Maintenance and updating
Replacement

Business Partners

STEP 1: IDENTIFYING, JUSTIFYING, AND PLANNING EC SYSTEMS

EC applications, like all other information systems, are usually built to enable one or more business processes. Consequently, their planning must be aligned with that of the organization's overall business plan and the specific processes involved. Always remember that existing processes may need to be restructured to take full advantage of the benefits of the supporting IT. Furthermore, each application must be carefully analyzed, using different methods, such as the methodology discussed in the opening case, to ensure that it will have the needed functionality to meet the requirements of the business processes and the users and that its benefits will justify its cost. Both of these activities may be complex, but they are necessary, especially for systems that require high investment to acquire, operate, and maintain. The output of this step is a decision to go with a specific application, with a timetable, budget, and assigned responsibility. This first step is typically performed in-house (with consultants if needed). All other steps can be completed either in-house or outsourced.

STEP 2: CREATING AN EC ARCHITECTURE

An **EC architecture** is a plan for organizing the underlying infrastructure and applications of a site. The plan specifies the following:

◗ Information and data required to fulfill the business goals and vision
◗ Application modules that will deliver and manage the information and data
◗ Specific hardware and software on which the application modules will run
◗ Necessary security, **scalability**, and reliability required by the applications
◗ Human resources and procedures for implementing the architecture

Various IT tools and methodologies can be used to support the creation of an application architecture. Because the creation of an architecture is an iterative process, collaborative methodologies, such as *joint application development (JAD)*, are especially useful in identifying and modifying system requirements.

For example, TD Banknorth, a leading banking and financial services company headquartered in Portland, Maine, wanted to upgrade its online customer services to provide information fast enough so that customers would not have to send e-mails or make phone calls. With the help of RightNow's on-demand solutions and professional services, TD Banknorth increased its 24-hour maximum response rate to customer e-mails from a mediocre 90 percent level to an impressive 97 percent and lowered e-mail volume by 55 percent, to about 35 messages a day.

The results obtained from step 2 are routed to a steering committee at the strategic planning level. Based on the results of step 2, the application portfolio may be changed. For example, the steering committee may discourage or scale down the specific project because it is too risky. Once the architecture is determined and the project gets final approval, a decision about *how* to develop the specific EC application must be made and a development option chosen.

STEP 3: SELECTING A DEVELOPMENT OPTION

EC applications can be developed through several alternative approaches that will be discussed in detail in Section 12.8. The major options are:

◗ Build the system in-house.
◗ Have a vendor build a customized system.
◗ Buy an existing application and install it, with or without modifications, by yourself or through a vendor.
◗ Lease standard software from an application service provider (ASP), lease as a service (SaaS), or lease via utility computing.
◗ Enter into a partnership or alliance that will enable the company to use someone else's application.
◗ Join a third-party e-marketplace, such as an auction site, a bidding (reverse auction) site, or an exchange, that provides needed capabilities to participants (e.g., Yahoo! Store).
◗ Use a combination of approaches.

The criteria for selecting from among the various options were presented in Section 12.3. Once an option is chosen, the system can be developed. At the end of this step, an application is ready to be installed and made available. No matter what option is chosen, it is important to keep in mind that all the different applications that support the various capabilities of the Web site must be coordinated and considerable

EC architecture
A plan for organizing the underlying infrastructure and applications of a site.

scalability
How big a system can grow in various dimensions to provide more service; measured by total number of users, number of simultaneous users, or transaction volume.

collaboration between developers and users is necessary. In addition, there is a strong possibility that the firm will work with vendor(s) and/or software provider(s). In this case, the firm will need to manage its vendor relationships (see Section 12.9).

STEP 4: INSTALLING, TESTING, INTEGRATING, AND DEPLOYING EC APPLICATIONS

Once a system has been developed, the next step involves getting the application up and running in the selected hardware and network environment. One of the steps in installing an application is connecting it to back-end databases, to other applications, and often to other Web sites. For example, if a prospective customer orders a product from a site, it would be helpful if the site could determine if the product is in stock. To do this, the ordering system would need to be connected to the inventory system. This step can be done in-house or outsourced.

At this point, the modules that have been installed need to be tested using a series of different tests:

> ◗ **Unit testing.** Test each module one at a time.
> ◗ **Integration testing.** Test the combination of modules acting in concert.
> ◗ **Usability testing.** Test the quality of the user's experience when interacting with the site.
> ◗ **Acceptance testing.** Determine whether the site meets the firm's original business objectives and vision.

Once all the Web site applications pass all the tests, they can be made available to the end users. At this stage, developers may need to address issues such as conversion strategies, training, and resistance to change.

STEP 5: OPERATIONS, MAINTENANCE, AND UPDATES

It typically takes more time, effort, and money to operate and maintain a site than it does to build and install it in the first place. To enjoy continual usage, a site needs to be updated frequently. For example, at a B2C site, new products need to be added to the catalog, prices need to be changed, and new promotions need to be run. These changes and updates need to undergo the same testing procedures used during the installation process. Additionally, usage patterns and performance need to be studied to determine which parts of the underlying applications should be modified or eliminated from the site.

MANAGING THE DEVELOPMENT PROCESS

The development process can be fairly complex and must be managed properly. For medium-to-large applications, a project team is usually created to manage the process and the vendors. Collaboration with business partners also is critical. As shown in various chapters of this book, some e-business failures are the result of a lack of cooperation by business partners. For example, a firm can install a superb e-procurement system, but if its vendors do not use it properly, the system will collapse. Projects can be managed with project management software (see examples of various project management software at en.wikipedia.org/wiki/Comparison_of_project_management_software). Best practice management also includes periodic evaluations of system performance. Standard project management techniques and tools are useful for this task. Finally, do not rule out the possibility that implementing an EC project may require restructuring one or more business processes.

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unit testing
Testing application software modules one at a time.

integration testing
Testing the combination of application modules acting in concert.

usability testing
Testing the quality of the user's experience when interacting with a Web site.

acceptance testing
Determining whether a Web site meets the original business objectives and vision.

Section 12.7 ▶ REVIEW QUESTIONS

1. Examine 10 different Web sites and choose your 5 favorites.
2. Go to the Web site of each of the developers/Webmasters of your 5 favorite Web sites. What expertise do they profess to have? What projects have they completed? Would you feel comfortable hiring their services?
3. List the major steps in developing an EC application.
4. Define the various types of testing used during the EC development process.

12.8 DEVELOPMENT STRATEGIES FOR E-COMMERCE MAJOR APPLICATIONS

If the desired Web site is relatively simple, a firm may decide to build the Web site itself. However, the firm must ask a few questions: Is the firm capable of developing the site? Does the firm have access to the proper tools to create the pages? If the firm does not have these capabilities, it is usually best to turn over the task to a professional developer. The ideal developer is one who can design a site with the correct look and feel, who has an in-depth knowledge of search engine optimization, and who is able to correctly handle any complex coding that may be required. A useful site for finding an experienced Web site designer is WebDesigners-Directory (webdesigners-directory.com). Other resources for developing a Web site are available at Sell IT! (sellitontheweb.com). The Microsoft Small Business Center (microsoft.com/smallbusiness/resources/technology/ecommerce/5_common_e_commerce_site_mistakes.mspx) offers some tips for avoiding five common e-commerce mistakes associated with overall site design and infrastructure. Regardless of the complexity of the site, three basic options for developing an EC Web site are available:

1. **Develop the site in-house** either from scratch or with off-the-shelf components.
2. **Buy a packaged application** designed for a particular type of EC site.
3. **Lease the application** from a third party.

Each of these approaches has its benefits and limitations, and it is important to remember that the development options are not mutually exclusive. A combination of hard and soft project and change management methodologies can guide successful in-house development of enterprise-wide information systems. Each of these development options is discussed in detail next.

IN-HOUSE DEVELOPMENT: INSOURCING

The first generation of EC development was accomplished largely through proprietary programming and in-house development that is widely referred to as **insourcing.** Using this approach, the Internet browser serves as the development platform. The programmers write EC systems using a combination of HTML and script languages such as HTX, CGI, IDC, and JavaScript. Databases developed on top of a database management system (DBMS) usually serve as the information repository to store EC data. Although this first generation of EC development has built up valuable experience and achieved industrial momentum, the lack of **reusability** (i.e., the likelihood a segment of source code can be used again to add new functionalities with slight or no modification) in current EC applications and the lack of **interoperability** (i.e., the ability to connect people, data, diverse systems, and standards) created a great barrier to widespread application of EC.

insourcing
In-house development of applications.

reusability
The likelihood a segment of source code can be used again to add new functionalities with slight or no modification.

interoperability
Connecting people, data, and diverse systems; the term can be defined in a technical way or in a broad way, taking into account social, political, and organizational factors.

Although in-house development—insourcing—can be time-consuming and costly, it may lead to EC applications that better fit an organization's strategy and vision and differentiate it from the competition. Companies that have the resources to develop their e-business application in-house may follow this approach in order to differentiate themselves from the competition, which may be using standard applications that can be bought or leased. The in-house development of EC applications, however, is a challenging task, because most applications are novel, have users from outside the organization, and involve multiple organizations.

Insourcing Options

Developers have three major options for building an application in-house:

◗ **Build from scratch.** This option is used rarely. It should be considered only for specialized applications for which components are not available. It is expensive and slow, but it may provide the best fit.

◗ **Build from components.** The required applications are often constructed from standard components (e.g., Web servers such as Apache or Microsoft's IIS) using Web scripting languages, such as PHP, Microsoft's Active Server Pages (ASP), JavaServer Pages (JSP), or ColdFusion. These scripting languages make it easier to integrate application functionality with back-end databases and other back-office systems (e.g., order entry).

◗ **Enterprise application integration.** The **enterprise application integration (EAI)** option is similar to the build from components option, but instead of using components, an entire application is employed. This is an especially attractive option when applications from several business partners need to be integrated.

enterprise application integration (EAI)
Class of software that integrates large systems.

Insourcing is a challenging task that requires specialized IT resources. For this reason, most organizations usually rely on packaged applications or completely outsource the development and maintenance of their EC sites.

BUY THE APPLICATIONS (OFF-THE-SHELF APPROACH)

A number of commercial packages provide standard features required by EC applications. These packages are ready to turn on and operate. This option is also known as a **turnkey approach;** the package is ready to use without further assembly or testing.

The turnkey approach involves buying a commercial package, installing it as is, and starting it up. Buying a commercial package requires much less time and money than in-house development. When selecting a particular package, the package should not only satisfy current needs, but it must also be flexible enough to handle future ones; otherwise, the package may quickly become obsolete. Additionally, because one package can rarely meet all of an organization's requirements, it is sometimes necessary to acquire multiple packages. In this case, the packages need to be integrated with each other and with other software and data.

turnkey approach
Ready to use without further assembly or testing; supplied in a state that is ready to turn on and operate.

This option has several major advantages:

◗ Many different types of off-the-shelf software packages are available.
◗ It saves time and money (compared to in-house development).
◗ The company need not hire programmers specifically dedicated to an EC project.
◗ The company knows what it is getting before it invests in the product.
◗ The company is neither the first nor the only user.
◗ The price is usually much lower than the in-house option.
◗ The vendor updates the software frequently.

This option also has some major disadvantages:

◗ Software may not exactly meet the company's needs.
◗ Software may be difficult or impossible to modify, or it may require huge process changes.
◗ The company may experience loss of control over improvements and new versions.
◗ Off-the-shelf applications can be difficult to integrate with existing systems.
◗ Vendors may drop a product or go out of business.

For a directory of vendors of EC turnkey systems, see softwaresearch.us/search.aspx?keywords=E+commerce+turnkey. The buy option is especially attractive if the software vendor allows for modifications. However, the option may not be as attractive in cases of high obsolescence rates or high software cost. In such cases, leasing may be a more appealing option.

OPTIONS FOR ACQUIRING WEBSTORES

Webstores can be acquired in several ways:

◗ **Build them from scratch.** Pioneering Webstores, such as hothothot.com, wine.com, and amazon.com, built their stores from scratch. Specifically, they designed them and then hired programmers to program all the necessary software. The major advantage of this approach is that the site owner can customize the site to his or her liking. The disadvantages are that the process is slow, expensive, and error prone and requires constant maintenance. Consequently, today only large corporations build their Webstores from scratch. Most companies use other alternatives (see Bracken 2006).

◗ **Build them from components.** This option is faster and less expensive than the first one. The site owner purchases off-the-shelf components (or sometimes obtains them for free), such as a shopping cart, an e-catalog, and a payment gate, and then assembles them. The site owner can replace the components if they become obsolete; therefore, the site owner can save on maintenance. The downside is that the resulting site may not fit the online business owner's needs very well. See Section 12.3 for information on how to build a site from components. An example of this type of solution is Microsoft's Site Server Commerce Edition, which has a built-in wizard that helps users model their own online business processes graphically. This approach, however, is usually more costly than building from templates and may take longer. In addition, it usually requires some in-house technical expertise for installation of the required hardware and software as well as for continued operation and maintenance. Network Solutions (networksolutions.com) provides many such components.

◗ **Build with templates (storebuilders).** As described earlier in the chapter, using storebuilders is one of the most viable options for starting an online business. Several vendors provide storebuilding templates. Some provide them free, free for 30 days, or for a nominal monthly fee that includes hosting the site on their servers. Using this approach is especially attractive to small businesses because the cost is relatively low (usually $10 to $99 per month), the business can construct the store in one or a few days, and it does not require extensive programming skills. The site owner basically fills out forms and attaches pictures. Another major benefit of this approach is that hosting is usually provided, as well as support services such as payment collection, shipments, and security. Furthermore, the vendor will take care of all software maintenance. Many vendors also offer store and inventory management as well as other features, as described later in this section. Finally, and perhaps most important, if the site owner uses a vendor such as Yahoo!, eBay, or Amazon.com, the

site will be included in the vendor's e-marketplace, which provides a great deal of exposure. The downside of this approach is that it limits the site owner to the available templates and tools. However, some vendors provide a professional version that allows customization. Representative vendors that provide templates are:

◗ Yahoo! Small Business offers Yahoo! Merchant Solutions (smallbusiness.yahoo.com/ecommerce)
◗ eBay ProStores (prostores.com; see Elms 2006)
◗ Hostway (hostway.com)
◗ GoEmerchant (goemerchant.com)
◗ StoreFront eCommerce (storefront.net)
◗ 1&1 Hosting (1and1.com)
◗ Go Daddy (godaddy.com)
◗ Shopping.com (shopping.com)
◗ Amazon.com ProMerchant (amazonservices.com)
◗ ShoppingCartsPlus (shoppingcartsplus.com)

For a comparison and evaluation of these vendors and others, see ecommerce-software-review.toptenreviews.com. To compare this and other products go to: shopping-cart-review.toptenreviews.com/goemerchant-i-store-review.html. The major criteria used are: feature set, ease of use, ease of installation, ease of set up, documentation, and fraud protection.

YAHOO! SMALL BUSINESS

Yahoo! offers one of the most popular Webstore packages at smallbusiness.yahoo.com. It offers three levels of merchant solutions: starter, standard, and professional. The capabilities and fees of each plan are available on Yahoo!'s Web site. Yahoo! offers a step-by-step guide that explains how Yahoo! Merchant Solutions ("sell online") works and how you can use it to build, manage, and market an online business. Yahoo! also offers three related services: Web hosting, sponsored advertising, and posting of job ads. Read on to gain valuable tips and guidance that will help you succeed in developing your own Webstore.

Getting Started

Yahoo! provides a summary of an e-commerce basics guide as found in Insights and Additions 12.1. You can do the walk-through at smallbusiness.yahoo.com/ecommerce/basics.php. Also see Snell (2006).

Take a Tour and See the Videos

To see all the features that come with Yahoo! Merchant Solutions, you can take a tour (click "Tour" at smallbusiness.yahoo.com/ecommerce/tour.php). Once welcomed, you will see a slideshow that lists its capabilities. Notable features include the following: Web hosting and domain name registration; e-mail; EC tools (shopping cart, payment processing, inventory management); business tools and services (site design, marketing, site management); order processing tools; site development tools (site editor, templates, uploading content, for example, with Yahoo! SiteBuilder); finding and keeping customers (per Chapter 4; from e-mail campaigns to cross-selling suggestions); payment acceptance tools; tax calculators; order notification and confirmations; and performance-tracking tools (statistics, drill-downs, measuring the effectiveness of marketing campaigns). Finally, watch the videos about success stories of small businesses.

Insights and Additions 12.1 Yahoo!'s Steps for Starting an E-Business

E-Commerce Basics

Starting your first online store? Here's what it takes to open a store, increase sales, and manage it successfully.

Setting Up an Online Store

Step 1. Sign Up and Design Your Store

After you sign up for Merchant Solutions, you should choose how you want to design and build your store.

We provide three easy options to do this:
◗ Use our easy tools and customizable Web site designs.
◗ Use your own design tool, such as Dreamweaver or other popular third-party tools.* (This option is generally used by advanced users.)
◗ Have your store built by a professional designer and developer in our network, for an additional fee.

Step 2. Add Products to Your Store

As you are designing and building your store, gather together information about the products you plan to sell, like description, price, size, and color. We give you two simple options to enter your product details quickly and accurately:

◗ Type in the information directly into your online product database.
◗ Upload all your product details from Excel.

Step 3. Set Up Payment Methods

In order to accept and process online payments, you need to sign up for an online payment processing service like PayPal or a merchant account.

We provide:
◗ An easy application process to get either a merchant account with Chase Paymentech or a PayPal account, or both.
◗ Support for existing merchant accounts that are compatible with FDMS Nashville platform.

Step 4. Set Up Shipping

Choose which shipping carriers you will offer your customers and set up shipping rates for your products.

We provide an easy shipping tool that allows you to:
◗ Use any shipping carrier, including the USPS, UPS, and FedEx.
◗ Set up shipping rates based on product weight, destination, order total, or other preferences, using a simple step-by-step interface.

◗ Automatically calculate and display shipping fees in the customer's shopping cart so shoppers can see their total costs early in the checkout process.

Step 5. Set Up Sales (or Added-Value) Tax

The determination of whether you are required to collect sales tax depends on the state in which your business is registered and the types of goods or services being sold. Contact your state's tax department for more information.

We provide:
◗ A wizard to help you set up tax rates for your products.
◗ Ability to calculate and display taxes in the customer's shopping cart.

Step 6. Open for Business

Simply click the Open for Business button and you are ready to start accepting orders.

Managing and Marketing an Online Store

Now that you are open for business, you are ready to start processing orders and marketing your store to increase sales.

Step 1. Manage Orders

You will need to review orders as they come in and either authorize or cancel them if they are deemed fraudulent. Occasionally, you may also have to process exchanges or issue refunds.

We provide:
◗ Automatic fax** or e-mail alerts whenever you receive a new order.
◗ An easy-to-use order management system so you can process and track orders.
◗ Tools to help you identify and block fraudulent orders.

Step 2. Ship Orders

Once you approve the order, it is ready for shipment.

We provide tools to:
◗ Print packing slips, invoices, and UPS shipping labels from within your order management system.
◗ Send automatic e-mail updates to customers when their orders ship.

Step 3. Receive Payments

When you receive an order, your customer's credit card information is sent to their credit card bank for approval. After receiving approval, you have to click the "Sale" button in your order management system to charge the credit

Insights and Additions 12.1 *(continued)*

card and have the funds transferred to your merchant account.

We provide:

⏵ Secure transmission of customer information between your store, the credit card bank, and your merchant account provider, so you can receive payment.

Step 4. Market Your Store

Building your store is not enough. You need to drive shoppers to your store by marketing online.

We provide:

⏵ Resources to learn how to market online.
⏵ Automatic submission of your store to Yahoo! Search and Google.
⏵ $100 credit with Yahoo! Search Marketing.*** Discounts on a range of online marketing services, like Yahoo! Shopping.

Step 5. Promote Your Products

There are several ways to increase order size and encourage repeat purchases.

We provide:

⏵ Up-sell and cross-sell tools to display related items during checkout to encourage shoppers to purchase more products.**
⏵ Ability to set up and offer coupons and gift certificates.**
⏵ Discounting capabilities such as taking a percentage off an item or the total order.

Step 6. Track Site Statistics

Learn how your customers use your store and update your strategy based on what you learn!

We provide:

⏵ 40 reports that cover key business statistics such as sales results, referring Web sites, and Web site traffic.
⏵ Ability to export your data for further analysis in Excel or other applications. Yahoo! Merchant Solutions gives you all the tools you need to set up and run a successful online store. Plus, get immediate answers to your questions with 24-7 customer support, e-mail support, online help, and Getting Started guides.

*Third-party tools such as Adobe® Dreamweaver® must be purchased separately.

**Available in Standard and Professional plans only.

***Offer open to new U.S. Sponsored Search advertisers only. (A new advertiser is one who has not advertised with Yahoo! Search Marketing for the past 13 months.) Each account requires a nonrefundable $30 initial deposit. Advertisers signing up for Self Serve will receive a $100 credit into the account. Initial credits are nonrefundable and will be applied to click-charges. There is a minimum bid requirement of $0.10 per click-through. Limit one offer per customer, and one use per customer on a single account. Sellers of certain legally restricted products may require third-party certification at extra cost. Search listings subject to editorial review. Offer may not be combined with any other offers or discounts, separated, redeemed for cash, or transferred. Other terms and conditions may apply; see Advertiser Terms and Conditions when you sign up.

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Using the Templates

You can build your store in several ways. Your primary tool is the easy-to-use Store Editor. You can create a homepage and set up various store sections and add to them. You can upload content developed in Microsoft FrontPage, Macromedia Dreamweaver, or Yahoo! SiteBuilder.

outsourcing
A method of transferring the management and/or day-to-day execution of an entire business function to a third-party service provider.

OUTSOURCING/LEASING EC APPLICATIONS

The use of outside contractors or external organizations (often software vendors) to acquire EC applications is called **outsourcing.** It is a method of transferring the management and/or day-to-day execution of an entire business function to a third-party service provider. Outsourcing is a valuable option that more and more companies are using.

In many cases, systems need to be built quickly, and the special expertise of outside contractors and software vendors is necessary.

Large companies may choose outsourcing when they want to experiment with new EC technologies without a great deal of up-front investment. Outsourcing also allows large firms to protect their internal networks and to gain expert advice. Small firms with limited IT expertise and tight budgets also find outsourcing advantageous.

Outsourcers can perform any or all tasks in EC applications development. For example, they can plan, program, and build applications and integrate, operate, and maintain them. It is useful for firms to develop good relationships with outsourcers.

Outsourcing Options

Several types of vendors offer services for creating and operating EC applications:

- ◗ **Software houses.** Many software companies, from IBM to Oracle, offer a range of outsourcing services for developing, operating, and maintaining EC applications.
- ◗ **Outsourcers and others.** IT outsourcers, such as EDS (now HP Enterprise Services at hp.com), offer a variety of services. Also, the large CPA companies and management consultants (e.g., Accenture) offer some outsourcing services.
- ◗ **Telecommunications companies.** Increasingly, the large telecommunications companies are expanding their hosting services to include the full range of IT and EC solutions. MCI, for example, offers Web Commerce services for a monthly fee.

Although the trend to outsource is rising, so is the trend to conduct outsourcing offshore—mainly in India and China. This approach is not without risks. For example, although outsourcing offshore may lead to substantial dollar savings, offshore labor skills may be inferior to those found onshore, and the resultant quality of the Web site development may be unacceptable.

OTHER DEVELOPMENT OPTIONS

Besides the three major options for developing EC applications (buy, develop in-house, and outsource/lease), several other options are currently available and are appropriate under certain circumstances:

- ◗ **Join an e-marketplace.** With this option, the company "plugs" itself into an e-marketplace. For example, a company can place its catalogs in Yahoo!'s marketplace. Visitors to Yahoo!'s store will find the company's products and will be able to make purchases. The company pays Yahoo! monthly space-rental fees. In such a case, Yahoo! is a hosting service for the company as well. As for development, the company will use templates to build its store, and it can start to sell after only a few hours of preparation work.
- ◗ **Join an auction or reverse auction third-party site.** Joining a third-party site is another alternative. Again the plug-in can be done quickly. Many companies use this option for certain e-procurement activities.
- ◗ **Form joint ventures.** Several different joint-venture partnerships may facilitate e-business application development. For example, four banks in Hong Kong developed an e-banking system. In some cases, a company can team up with another company that already has an application in place.
- ◗ **Join a consortium.** This option is similar to the previous one, except that the company will be one of the e-market owners. Thus, the company may have more control over the market architecture.

◗ **Use a hybrid approach.** A hybrid approach combines the best of what the company does internally with an outsourced strategy to develop contracted partnerships. Hybrid models work best when the outsourced partner offers a higher level of security, faster time to market, and service-level agreements.

SELECTING A DEVELOPMENT OPTION

Before choosing the appropriate development option, you need to consider a number of issues in order to generate a list of requirements and capabilities. The following is a list of representative questions that need to be addressed when defining requirements:

◗ **Customers.** Who are the target customers? What are their needs? What kind of marketing tactics should a business use to promote the store and attract customers? How can a business enhance customer loyalty?

◗ **Merchandising.** What kinds of products or services will the business sell online? Are soft (digitized) goods or hard goods sold? Are soft goods downloadable?

◗ **Sales service.** Can customers order online? How? Can they pay online? Can they check the status of their order online? How are customer inquiries handled? Are warranties, service agreements, and guarantees available for the products? What are the refund procedures?

◗ **Promotion.** How are the products and services promoted? How will the site attract customers? Are coupons, manufacturer's rebates, or quantity discounts offered? Is cross-selling possible?

◗ **Transaction processing.** Is transaction processing in real time? How are taxes, shipping and handling fees, and payments processed? Are all items taxable? What kinds of shipping methods will the site offer? What kinds of payment methods, such as checks, credit cards, or cybercash, will the site accept? How will the site handle order fulfillment?

◗ **Marketing data and analysis.** What information, such as sales, customer data, and advertising trends, will the site collect? How would the site use such information for future marketing?

◗ **Branding.** What image should the Webstore reinforce? How is the Webstore different from those of the competition?

The initial list of requirements should be as comprehensive as possible. It is preferable to validate the identified requirements through focus-group discussions or surveys with potential customers. The business can then prioritize the requirements based on the customers' preferences. The final list of prioritized requirements serves as the basis for selecting and customizing the appropriate package or designing a Webstore from scratch.

Section 12.8 ◗ REVIEW QUESTIONS

1. List the major e-commerce development options.
2. Define insourcing.
3. List some of the pros and cons of using packaged EC applications.
4. Compare the buy option against the lease option. What are the benefits and risks associated with each option?
5. Compare the other development options. If you were the owner of a small company trying to establish a new Webstore, which would you choose?

6. List the various options for acquiring a Webstore.
7. What are the advantages of building with templates? What are the disadvantages?
8. List the typical features of a Webstore.
9. What are some of the selection criteria for a software option?

12.9   VENDOR AND SOFTWARE SELECTION

Few organizations, especially SMEs, have the time, financial resources, or technical expertise required to develop today's complex e-business systems. This means that most EC applications are built with hardware, software, hosting services, and development expertise provided by outside vendors such as Nvisage (nvisage.co.uk/whatwedo/ecommerce-development.html), a Web development firm that provides state-of-the-art Web application and software solutions. Thus, a major aspect of developing an EC application revolves around the selection and management of these vendors and their software offerings. Exhibit 12.12 shows the flow and interaction of the following six steps used to select a software vendor and/or e-commerce package:

1. Identify potential vendors and software.
2. Determine evaluation criteria and weight the importance of each.
3. Evaluate vendors and packages.

EXHIBIT 12.12   The Process of Selecting a Software Vendor and EC Package
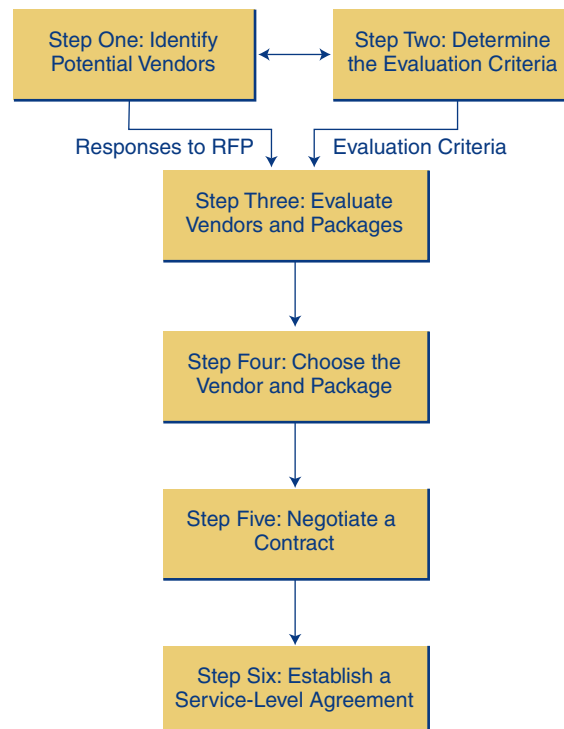
4. Choose the vendor and package based on criteria, weights, and feedback.
5. Negotiate a contract and obtain legal advice.
6. Establish a mutually agreeable service-level agreement (SLA).

STEP 1: IDENTIFY POTENTIAL VENDORS AND SOFTWARE

Potential vendors can be identified from software catalogs, lists provided by hardware vendors, technical and trade journals, consultants experienced in the application area, peers in other companies, and Web searches. These sources often yield so many vendors and packages that one must use some preliminary evaluation criteria to eliminate all but a few of the most promising ones from further consideration. For example, one can eliminate vendors that are too small or that have no track record or that have a questionable reputation. Also, packages may be eliminated if they do not have the required features or will not work with available hardware or the operating system, communications network, or database management software.

STEP 2: DETERMINE THE EVALUATION CRITERIA AND WEIGHT THE IMPORTANCE OF EACH

The most difficult and crucial task in evaluating a vendor and a packaged system is to determine a weighted set of detailed criteria for choosing the best vendor and package. Some areas in which detailed criteria should be developed are vendor characteristics, functional requirements of the system, technical requirements the software must satisfy, the amount and quality of documentation provided, and vendor support of the package.

These criteria should be documented in a **request for proposal (RFP),** which is sent to potential vendors to invite them to submit a proposal describing their software package and how it would meet the company's needs. The RFP provides the vendors with information about the objectives and requirements of the system, the environment in which the system will be used, the general criteria that will be used to evaluate the proposals, and the conditions for submitting proposals. It may also request a list of current users of the package who may be contacted, describe in detail the form of response that is desired, and require that the package be demonstrated at the company's facilities using specified inputs and data files.

request for proposal (RFP)

Notice sent to potential vendors inviting them to submit a proposal describing their software package and how it would meet the company's needs.

STEP 3: EVALUATE VENDORS AND PACKAGES

Vendor responses to an RFP generate massive volumes of information that must be evaluated to determine the gaps between the company's needs (as specified by the requirements) and the capabilities of the vendors and their application packages. Often, the vendors and packages are given an overall score by assigning an importance weight to each of the criteria, ranking the vendors on each of the weighted criteria (say 1 to 10) and then multiplying the ranks by the associated weights. A short list of potential suppliers can be chosen from those vendors and packages with the highest overall scores.

STEP 4: CHOOSE THE VENDOR AND PACKAGE BASED ON CRITERIA, WEIGHTS, AND FEEDBACK

Once a short list has been prepared, negotiations can begin with vendors to determine how their packages might be modified to remove any discrepancies with the company's desired EC application. Thus, one of the most important factors in the decision is the additional development effort that may be required to tailor the system to the company's needs or at least to integrate it into the company's environment. Additionally, the opinions of the users who will work with the system and the IT personnel who will have to support the system must be considered.

STEP 5: NEGOTIATE A CONTRACT AND OBTAIN LEGAL ADVICE

The contract with the software vendor is very important. Not only does it specify the price of the software, but it also determines the type and amount of support to be provided by the vendor. The contract will be the only recourse if the system or the vendor does not perform as specified. Furthermore, if the vendor is modifying the software to tailor it to the company's needs, the contract must include detailed specifications (essentially the requirements) of the modifications. Also, the contract should describe in detail the acceptance tests the software package must pass.

Contracts are legal documents, and they can be quite tricky. Experienced contract negotiators and legal assistance may be needed. Many organizations have software purchasing specialists who assist in negotiations and write or approve the contract. They should be involved in the selection process from the start. If an RFP is used, these purchasing specialists may be very helpful in determining its form and in providing boilerplate sections of the RFP.

STEP 6: ESTABLISH A MUTUALLY AGREEABLE SERVICE-LEVEL AGREEMENT

Service-level agreements (SLAs) are formal agreements regarding the division of work between a company and its vendors. Such divisions are based on a set of agreed-upon milestones, quality checks, "what-if" situations, how checks will be made, and what is to be done in case of disputes. If the vendor is to meet its objectives of installing EC applications, it must develop and deliver support services to meet these objectives. An effective approach to managing SLAs must achieve both facilitation and coordination. SLAs do this by (1) defining the partners' responsibilities, (2) providing a framework for designing support services, and (3) allowing the company to retain as much control as possible over their own systems.

service-level agreement (SLA)
A formal agreement regarding the division of work between a company and a vendor.

Section 12.9 ▶ REVIEW QUESTIONS

1. List the major steps in selecting an EC application vendor and package.
2. Describe a request for proposal (RFP).
3. Describe a service-level agreement (SLA).

MANAGERIAL ISSUES

Some managerial issues related to this chapter are as follows.

1. **What does it take to create a successful online business?** The ability of a business to survive, and thrive, in the marketplace depends on the strength of the business concept, the capabilities of the entrepreneur, and successful execution of the business plan. Creativity, entrepreneurial attitudes, and management skills represent a human capital investment that every potentially successful business needs (Umesh et al. 2005). This is true for both online and offline businesses. However, to succeed in online business, management needs to consider additional factors, such as e-business models, revenue models, synergy and conflict between the online and offline channels, Web site management, and integration of information systems for EC and back-end systems.

2. **Is creating a Web site a technical task or a management task?** It is both. Although somewhat expensive, the technical skills required to build a Web site are readily available in the marketplace. The prerequisite managerial skills are somewhat more difficult to find. Online business owners need to possess traditional business skills as well as understand the technical aspects of building a Web site in order to be able to hire and work with information architects, Web designers, and Web site hosting services. Management should be able to map the business goals with a combination of solution sets, such as

e-marketplaces, CRM, SCM, and ERP. The integration policy should connect the internal entities and enable collaboration with external partners.

3. **What should my new business give to funders?** It depends on the stage of the business. In the early stage, funders are concerned about the sales growth rate and market share. Losses may be tolerated as long as the growth is high and the vision of future profit is clear. However, the eventual concern will be the realized profit and stock price. The important thing is to maintain control by keeping 51 percent of the shares (at least up to the IPO).

4. **What are important factors for successful Web site management?** To manage the Web site successfully, the online business owner needs to select an appropriate Web hosting service, maintain value-creating contents, and promote the Web site so that new customers will visit. The alternatives to Web hosting are storebuilder services, dedicated hosting, ISP hosting services, and self-hosting. To maintain the quality of the site's content, a policy for acquiring, testing, and updating content should be established. Personalization is also important. Social networking may be adopted as an important source of content collection from the open public.

5. **Do our business goals match well with e-business solutions?** When one thinks of the Web, one may immediately think of technologies and solutions. Surely technology is necessary; however, we should not forget about identifying our goals. It is very important to map a combination of solutions that will lead to our goals. The spectrum of solutions covers goals related to e-marketplace, ERP, CRM, SCM, data warehouse, data mining, and enterprise application integration (EAI) tools. Since it is not easy to recruit experts on all these solutions, it is unavoidable that we rely on the external business and solution consulting for the right judgment.

6. **What is the development strategy for our enterprise information system, including EC?** Since the technologies for EC have become standardized and available, the most critical factors in developing EC systems are the right selection of EC solutions (such as e-procurement, SCM, and CRM) and integrating them with ERP, existing modules, and external partners. To be compatible with external partners, adopting global standards such as RosettaNet and ebXML is necessary. However, following these sophisticated standards is not cost-effective unless there is a high volume of transactions. This is true for most small and medium enterprises; designing the right combination of tight integration with loose integration is a very important factor in making the EC system cost-effective.

7. **What is the outsourcing strategy?** Many large-scale enterprises are capable of building and running their own EC Web sites. However, EC Web sites require complex integration, security, and excellent performance. Outsourcing has become the major trend in order to reduce the large development investment. These services enable companies to start small and evolve to full-featured functions through the use of ASPs, Internet malls, and software vendors that offer merchant server and EC applications. Outsourcing is strongly recommended, particularly for small companies. Nevertheless, some parts should be built in-house (insourced) to secure more direct control over data management. Thus, the integration of internal systems and outsourced systems is a challenging issue. EAI can enhance the flexibility of integration with multiple external systems that adopt different standards.

8. **Which strategy should we choose for vendor selection: inside-out or outside-in approach?** Because most EC applications are built from packaged applications and components, or are outsourced to a third party, the success of the EC application rests on choosing the best vendor and package. Two approaches are the inside-out approach (an ERP package provided by a vendor expands its scope to encompass the e-business components like SCM and CRM) and the outside-in approach (the best-of-the-breed of e-business components are integrated with an ERP package). Recently, the solution of inside-out tends to win the market because design by a single vendor provides a more consistent architecture.

9. **How do we balance the experts' views with users' requirements?** The direct and indirect users of an EC system are likely to be the most knowledgeable individuals concerning requirements and which alternatives will be the most effective. Users are also the most affected by a new information system. IS analysts and designers, however, are likely to be the most knowledgeable individuals concerning technical and data management issues. These professionals, too, are likely the most experienced in arriving at viable EC systems solutions. Thus, the right mixture of user involvement and information systems expertise is crucial.

SUMMARY

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

1. **Fundamental requirements for initiating an online business.** A good idea becomes a successful online business when owners with the required skills, attitudes, and understanding of Internet culture execute a powerful business plan.

2. **Funding options for a start-up online business.** Incubators usually provide support services, whereas angel investors and venture capitalists provide funds for a prospective online business. The business and business owners usually benefit greatly from these arrangements, but the funding sources are scarce and competition for funds is stiff.

3. **Adding e-initiatives.** Adding e-initiatives (or projects) is common. A large project requires a business case. Additions are made gradually that eventually make the business a click-and-mortar one. Common projects are e-procurement, e-CRM, and a Webstore.

4. **Transformation to e-business.** In an e-business, all possible processes are conducted online. Achieving such a state in a large organization is a complex process involving change management.

5. **Web site hosting options for an online business.** Storebuilder services, ISPs, dedicated Web site hosting services, and self-hosting give online business owners a range of options in deciding how and where to host the Web site. A well-chosen domain name is an "address for success," a way of making the site easy to find and remember. Choosing a domain name is an important step in setting up the hosting site.

6. **Provide content that attracts and keeps Web site visitors.** Content is king. Content can be created, purchased, or acquired for free and used for site promotion, sales, and building customer relationships. Successful Web sites offer content that the site's target audience wants and expects.

7. **Design a visitor-friendly site.** Although text is content rich and inexpensive, a text-only site is a barren and unmemorable site. Select graphics and colors with the site's business goals and visitors' needs in mind. Web site owners and designers should never overestimate the attention span of the site visitor, so it is best to include small graphics that are few in number so that the end result is an attractive page that also will load fast. The key to visitor-friendly navigation is to project a visitor's mental map on the Web site: where they are, where they were, where they should go next, and how to get to where they want to be.

8. **The process of building a Webstore.** Assuming that you know what you want to sell and how to do it, you need to obtain a domain name and arrange for hosting. Then, you need to design the site and fill it with appropriate content. Your Webstore needs to have support services (such as payment) and be secure. You must also promote the site in order to attract buyers.

9. **The major steps in developing an EC system.** Because of their cost and complexity, EC sites need to be developed in a systematic fashion. The development of an EC site should proceed in steps. First, an EC application portfolio is defined based on an organization's strategy. Second, the EC architecture is created. Next, a decision is made whether to build, buy, or outsource the development. Third, the system is installed, tested, and deployed. Finally, the system goes into maintenance mode, with continual changes being made to ensure the system's continuing success.

10. **The major EC application development strategies, along with their advantages and disadvantages.** EC sites and applications are rarely built from scratch. Instead, enterprises buy a packaged EC suite and customize it to suit their needs, or they outsource the development to a third party. A new generation of Web tools is taking the programmer out of the development process and empowering more users to develop their own Web sites. The selection of one option over another should be based on a systematic comparison of a detailed list of requirements that examines important considerations such as flexibility, information needs, user friendliness, hardware, and software resources.

11. **The varied EC application development methods, along with their benefits and limitations.** Once a strategy has been determined, numerous development methods can be used to develop an EC system. These include Web 2.0, software as a service (SaaS), utility computing, cloud computing, and many others listed and detailed within the

chapter. Depending on the resources available to the organization developing the EC system and the requirements of the system, one or more of the different development methods will be chosen to create the most efficient and effective solution.

12. **EC application outsourcing options.** Many enterprises elect to outsource the development and maintenance of their EC sites and applications. The most common type of EC applications outsourcing is the use of software as a service (SaaS). Utility computing is another popular option, and the emerging concept of cloud computing is growing in popularity. An enterprise can rely on an existing e-marketplace or exchange. A Webstore can be hosted by an Internet mall. Or an enterprise could enter into a joint development agreement with a venture partner or a consortium. Again, the choice depends on the functional requirements of the EC site or application, the costs involved, the time frame, and the available IT resources.

13. **The major components of software packages and EC application suites.** A Webstore has the same requirements as a brick-and-mortar Webstore. Simple sites can be built from a packaged electronic catalog or merchant server software. More complex online Webstores and other types of EC sites (e.g.,

B2B, exchanges, etc.) can be built from comprehensive EC suites such as Microsoft's Commerce Server or IBM's WebSphere Commerce suite. A payment gate and a site search engine are useful.

14. **Every type of EC application has a long list of functional requirements.** Fortunately, most of these requirements can be met by packaged applications. Online Webstores can be developed with the aid of electronic catalog or merchant server software. Similarly, B2C, B2B, and exchange applications of all sorts can be constructed from components that have the listed functionalities.

15. **Criteria used in selecting software vendors and packages.** A systematic process should be used in selecting a third-party tool or an outsourcing company. Among the key steps in making the selection are (1) identifying potential vendors and packages, (2) detailing the evaluation criteria, (3) using the criteria to produce a short list of possible vendors, (4) choosing a candidate from the short list, (5) negotiating the deal and modifications needed to meet overall application needs, and (6) establishing an SLA to define who is responsible for specific aspects of the development and maintenance and what quality metrics will be used for the services to be rendered.

KEY TERMS

QUESTIONS FOR DISCUSSION BY INDIVIDUAL STUDENTS

1. Compare and contrast the creation of a new online business and the establishment of an online initiative in an existing company. Consider factors such as resource acquisition, start-up processes, and competitor analysis.

2. How is an e-business plan different from a traditional business plan?

3. Describe organizational transformation, and discuss some of the difficulties involved.

4. How would you decide which Web site hosting option an online business should use? List and briefly explain factors to consider in your decision.

5. Who should be on a Web site development team for a small business? For a large business?

6. Several times in this chapter we advise online business owners to gather competitive intelligence from competitors (e.g., in SEO, what sites link to competitor sites). Is this ethical? Why or why not?

7. Why is a store such as **cattoys.com** not economically feasible offline?

8. Yahoo! provides many services, including Web site hosting, storebuilding tools, and an online mall. List the benefits of these services. What are the drawbacks, if any?

9. How is usability related to Web site design?

10. Discuss the advantages of leasing an application over purchasing one.

11. A large company with a number of products wants to start selling on the Web. Should it use a merchant server or an EC application suite? Assuming it elects to use an EC application suite, how would you determine whether the company should outsource the site or run it in-house?

12. An enterprise wants to modify its EC site so that it conforms more closely with the company's overall business strategies. What sorts of online data are available for this purpose? What types of business strategy questions can be addressed by these data?

TOPICS FOR CLASS DISCUSSION

1. Discuss the logic of outsourcing the combined Web hosting and site construction. What are some of the disadvantages?

2. Should a small business maintain its own Web site? Why or why not? Should a large business maintain its own Web site? Why or why not?

3. What are the trade-offs in giving the customer everything possible (e.g., personalized content, high-resolution graphics, a feature-full site) and the fundamental rules of Web design?

4. What capabilities are offered by B2B and B2C EC applications? How do they differ?

INTERNET EXERCISES

1. Go to the vFinance Capital (**vfinance.com**) and the National Venture Capital Association (**nvca.org**) and identify any trends or opportunities in acquiring start-up funding.

2. Go to a Yahoo! category, such as tourist agencies or insurance companies, and pick 10 sites. Classify them as informational, interactive, or transactional Web sites. Make a list of any informational, interactive, or transactional features.

3. Many individuals try to make a living simply by buying and selling goods on eBay. Visit **ebay.com** and make a list of the ways in which these entrepreneurs use cross-selling and up-selling in their sales activities.

4. Visit the Webmaster Forums (**webmaster-forums. net**). Register (for free) and visit the Web site critique

area. Compare the design rules offered in this chapter with some of the Web sites offered for critique at the site. Offer at least one design suggestion to a Webmaster who is soliciting feedback.

5. Explore the Web to find five dedicated Web site hosting services. Compare them using the criteria listed in this chapter. Write a report based on your findings.

6. Go to **godaddy.com**. Examine its Traffic Blazer product. How can it help you with an online business?

7. Enter **1and1.com**. Examine its hosting, development, and other tools. Take the Test Drive. Compare it with services offered by **jstreettech.com**. Write a report.

8. Go to **checkout.google.com** and find the services offered to buyers. Why is shopping here faster than at Amazon.com or Yahoo!?

9. Enter **emc.com** and find its enterprise content management products. Write a report.

10. Access **choicemall.com**. Visit some of the online stores in the mall. What are the functionalities of the mall? What are some of the benefits of the online mall to the participating vendors? To shoppers? Do you think a shopper is better off using an online mall or using a search engine to locate a store providing a product of interest? In what ways could Choice Mall improve the chances that buyers will make return visits?

11. Visit a large Webstore of your choice. What functions does it provide to shoppers? In what ways does it make shopping easy? In what ways does it make shopping more enjoyable? What support services does it provide?

TEAM ASSIGNMENTS AND PROJECTS

1. Enter **entrepreneurs.about.com**. Each team member should select two or three of the "browse topics" and relate it to online businesses. Make a presentation to the class.

2. Enter **myownbusiness.org/s2/index.html**. Obtain a template and design a business plan for your class EC project.

3. Form two teams, a client team and a Web design team. After suitable preparation, both teams meet for their first Web site planning meeting. Afterward, both teams critique their own and the other team's performance in the meeting.

4. Enter **webhosting.yahoo.com/ps/sb/index.php** and download the SiteBuilder. As a team, build a Webstore for your dream business. You can try it for free for 30 days. Use the design features available. Have visitors check out the site. The instructor and class will review the sites for design and usability. Awards will be given to the best stores. Alternatively, you may use the equivalent tools from eBay or **1and1.com**.

5. Select a series of Web sites that cater to the same type of buyer (e.g., several Web sites that offer CDs or computer hardware). Divide the sites among several teams and ask each team to prepare an analysis of the different sorts of functions provided by the sites, along with a comparison of the strong and weak points of each site from the buyer's perspective.

6. Several vendors offer products for creating Webstores. The Web sites of these vendors usually list those online stores that currently use their software (customer success stories). Assign each team a number of vendors. Each team should prepare reports comparing the similarities and differences among the vendors' sites and evaluating the customers' success stories. Do the customers take advantage of the functionality provided by the various products?

7. As a team, explore the desired capabilities of various EC applications (B2B, B2C, auctions, portals, G2C, etc.). Look at the capabilities of these applications and at their functionalities, and then compare the two (see Section 12.8 for a list of functionalities). If the functionalities of the applications are not sufficient, explain what additional functionalities are needed.

Closing Case

DEVELOPING A WEB 2.0 PLATFORM TO ENABLE INNOVATIVE MARKET RESEARCH AT DEL MONTE

The Problem

Utilizing the latest innovations in technology can often give companies a competitive advantage, particularly if they are the first to use that technology in the marketplace. Even if a company is not the first to market, keeping up with technology trends and capabilities often becomes a necessity to thrive in the business world. One key to using technology to create a competitive advantage is to observe what strides are being made in various industries or sectors, and then develop that idea or tool to be applicable to the business at hand.

One major trend in today's society is social networking. Sites such as Facebook and MySpace have caused a phenomenon—especially among teenagers and young adults. Social networks are powerful tools that allow people to build or maintain relationships with others around the world. Now the idea has evolved to incorporate social networking into businesses. One such company to introduce social networking into its business environment is Del Monte.

Del Monte is known mostly for manufacturing canned fruits and vegetables. In addition to these products, Del Monte also produces 9Lives, Gravy Train, Meow Mix, Milk-Bone, College Inn, Contadina, and StarKist. Once Del Monte made the decision to experiment with social networking, it had to decide how to best implement it to support its diverse product line.

The Solution

Even though Del Monte executives could see the value of a social networking system, the IT department was not equipped to handle the implementation of a social network. So, Del Monte recruited MarketTools, a firm that specializes in market collection and analysis and also has experience with Web 2.0 capabilities.

With the help of MarketTools, Del Monte's Web site now offers a platform for customers to chat and blog about products, or share tips and recipes.

MarketTools can search millions of blogs in order to recognize key ideas and trends among consumers. The information that customers share with each other is collected and analyzed by MarketTools. They then team with another company, such as Umbria (a division of J.D. Power and Associates and a pioneer in drawing market intelligence from the online community), to assist them in further analyzing and profiling the information collected and stored in data warehouses. By utilizing social networks, Del Monte can conduct market research much more efficiently. Focus groups have become a thing of the past. All that is required now is to sift through the vast amount of customer information that is collected in cyberspace.

The Result

Del Monte used this method of market research when developing a dog treat, Snausages Breakfast Bites. By paying attention to customer blogs and by posting questions to customers, Del Monte concluded that owners of small dogs would be the major purchasers of Snausages Breakfast Bites. Del Monte depended on the dog lovers group for guidance in the development of this product. By doing so, a smaller treat was produced, packaging decisions were revised, product cycle time was reduced to six months, and Del Monte was able to cut costs.

Sources: Steel (2008) and Greengard (2008).

Questions

1. What motivated Del Monte to use social networking?
2. Relate the capabilities of the social network site to the market research activities (be specific on a one-to-one basis).
3. Compare the methods used here to both computerized and noncomputerized focus groups.

ONLINE RESOURCES
available at pearsonhighered.com/turban

Comprehensive Educational Web Sites

▶ **bplans.com**: Sample business plans.
▶ **libserv2.rutgers.edu/rul/rr_gateway/research_guides/busi/ecomm.shtml**: A comprehensive EC guide.
▶ **microsoft.com/smallbusiness/startup-toolkit**: Software for small start-ups.
▶ **smallbusiness.yahoo.com/ecommerce/features.php**: E-store templates.
▶ **sba.gov/smallbusinessplanner**: Business plan advice.
▶ **entrepreneur.com**: Information on starting a business.
▶ **onlinebusiness.about.com**: A guide for beginners.
▶ **networksolutions.com**: Domain names and hosting.
▶ **entrepreneurs.about.com**: All about starting a business.

▶ **mivamerchant.com/resources**: All about starting an online business.
▶ **myownbusiness.org/s2**: How to write a business plan (templates provided).
▶ **ecommercedevelopmentcenter.com/services.asp**: E-Commerce Development Center resources and links.
▶ **fstc.org**: Financial Services Technology Consortium.
▶ **webbuyersguide.com/resource/brief.aspx?id=13626&category=92&sitename=webbuyersguide&kc=newseditors022809&src=newseditors022809**: The Gartner Magic Quadrant for E-Commerce.

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