Instructor’s Manual: Chapter 3

Building an E-commerce Presence

# Teaching Objectives

* Discuss the questions you must ask and answer, and the steps you should take, in developing an e-commerce presence.
* Explain the process that should be followed in building an e-commerce presence.
* Identify and explain the major considerations in choosing Web server and e-commerce merchant server software.
* Explain the issues involved in choosing the most appropriate hardware for an e-commerce site.
* Identify additional tools that can improve Web site performance.
* Explain the important considerations involved in developing a mobile Web site and building mobile applications.

# Key Terms

SWOT analysis, p. 177

systems development life cycle (SDLC), p. 182

business objectives, p. 183

system functionalities, p. 183

information requirements, p. 183

system design specification, p. 184

logical design, p. 184

physical design, p. 184

outsourcing, p. 184

WordPress, p. 186

content management system (CMS), p. 186

co-location, p. 188

unit testing, p. 191

system testing, p. 191

acceptance testing, p. 191

benchmarking, p. 192

system architecture, p. 194

two-tier architecture, p. 194

multi-tier architecture, p. 194

site management tools, p. 196

dynamic page generation, p. 198

Web application server, p. 199

e-commerce merchant server software, p. 200

online catalog, p. 200

shopping cart, p. 201

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open source software, p. 202

hardware platform, p. 204

stateless, p. 204

I/O intensive, p. 205

scalability, p. 207

vertical scaling, p. 207

horizontal scaling, p. 207

Common Gateway Interface (CGI), p. 211

Active Server Pages (ASP), p. 212

Java, p. 212

Java Server Pages (JSP), p. 213

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mobile Web app, p. 218

native app, p. 218

hybrid app, p. 219

mobile first design, p. 221

responsive Web design (RWD), p. 221

adaptive Web design (AWD), p. 221

# Brief Chapter Outline

*USA Today Redesigns*

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 What’s the Idea (The Visioning Process)

 Where’s the Money: Business and Revenue Model

 Who and Where Is the Target Audience

 What Is the Ballpark? Characterize the Marketplace

 Where’s the Content Coming from?

 Know Yourself: Conduct a SWOT Analysis

 Develop an E-commerce Presence Map

 Develop a Timeline: Milestones

 How Much Will This Cost?

3.2 Building an E-commerce Presence: A Systematic Approach

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Systems Analysis/Planning: Identify Business Objectives, Systems Functionality, and Information Requirements

Systems Design: Hardware and Software Platforms

Building the Systems: In-House versus Outsourcing

*Insight on Business: Weebly Makes Creating Web Sites Easy*

Testing the System

Implementation and Maintenance

Factors in Optimizing Web Site Performance

3.3 Choosing Software

 Simple versus Multi-tiered Web Site Architecture

 Web Server Software

 Application Servers

 E-commerce Merchant Server Software Functionality

 Merchant Server Software Packages (E-commerce Software Platforms)

3.4 Choosing Hardware

Right-sizing Your Hardware Platform: The Demand Side

 Right-sizing Your Hardware Platform: The Supply Side

3.5 Other E-commerce Site Tools

 Web Site Design: Basic Business Considerations

 Tools for Web Site Optimization

 Tools for Interactivity and Active Content

 Personalization Tools

The Information Policy Set

*Insight on Society: Designing for Accessibility*

3.5 Developing a Mobile Web Site and Building Mobile Applications

 Planning and Building a Mobile Presence

 Mobile Presence: Design Considerations

 Cross-Platform Mobile App Development Tools

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 *Insight on Technology: Building a Mobile Presence*

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# Teaching Suggestions

This chapter walks students through the general process of building an e-commerce presence. It lays out a methodology for approaching the problem. It also considers the major issues in building an e-commerce presence and identifies some of the tools available that can help entrepreneurs and business managers. The chapter is based on the real-world experiences of the authors.

The key point for students to take away from this chapter is that building an e-commerce presence is a complex undertaking akin to building an entirely new information system. Major physical and human resources are required, and many firms find it cost-effective to outsource a part or all of the effort to specialized firms. On the other hand, building an e-commerce presence has never been easier or cheaper. In general, the cost of building an e-commerce presence in 2014 is one-tenth the cost in the year 2000. This should be encouraging to any budding entrepreneurs in your class.

The opening case, *USA Today Redesigns*, examines some of the factors involved in the redesign of USA Today’s Web site and mobile apps. Here are some questions you can pose to the class to spark discussion about the case:

* What were USA Today’s objectives in redesigning its e-commerce presence?
* What considerations, if any, unique to the newspaper business were involved?
* What did USA Today do to meet the needs of mobile device users?

## Key Points

*Imagining Your E-commerce Presence.* The first section of the chapter (pages 174 to 180) walks the student through the process of creating an e-commerce presence, by developing an idea, understanding how the idea can potentially make money, defining the target audience and the marketplace and determining what the content looks like. An important part of this effort involves performing a SWOT analysis, developing a presence map, and creating a timeline.

*A Method for Building E-commerce Sites.*In the early years of e-commerce, Web sites were often built one page at a time, with little advance planning. Many disasters resulted. Section 3.2 of the text borrows the systems analysis and design framework from large-scale systems and applies it to building an e-commerce Web site (which in reality is a large-scale system). Table 3.2 helps you walk students through business objectives, the level of system functionality needed, and information requirements. This plants the idea that systems, information, and business objectives are intimately connected.

This is also a good time to introduce the issue of outsourcing options and tool options. Figure 3.4 covers most of the outsourcing options, and Figure 3.5 illustrates the range of tool options. The *Insight* *on Business* case, *Weebly Makes Creating Web Sites Easy* highlights Weebly, a company that was once a small start-up itself, that enables a small business to create a Web site easily and inexpensively. Some discussion questions for this case might include the following:

* What value does Weebly offer to small businesses?
* Are there any drawbacks to using Weebly to create an e-commerce presence?
* How are service providers like Weebly changing the nature of e-commerce?

Figure 3.10 provides a brief summary of factors to consider when optimizing the performance of a Web site. This can be useful in wrapping up the discussion on building a Web site.

*Choosing the Right Software.*Students are curious about where all the software needed to operate a Web site will come from. They often confuse Web server hardware with Web server software, confusion made possible by the widespread use of the generic “Web server” phrase. Three figures and tables capture the essence of this section. Figure 3.11 is a good place to start with a description of both a simple and a complex architecture for a Web site. Table 3.4 then provides a list of basic functionality provided by Web server software, while Table 3.5 provides a list of the many different types of application servers. Table 3.6 lists some open source software options for students who are interested in “doing it themselves” and “building their own.” You may want to walk students through each of these figures and tables.

*Choosing the Right Hardware.*Students often want to know what hardware is required to run a Web site and how much is needed. Web sites can be very simple. You can run a Web site in your basement with a telephone line and a single sever, but it would not be able to serve many users very effectively. You may wish to start students with Figure 3.13, which shows what happens to processors as load increases. You will want to emphasize the impact of user profile and Web page content on performance—the more interactive the content the more processor power is needed.

*The Variety of Site Development Tools.* In addition to server software and hardware, site developers use a wide variety of tools to build and manage an e-commerce site. Design elements such as widgets and mashups enhance user interest and involvement. CGI, ASP/ASP.NET, Java, JSP, JavaScript, ActiveX , VBScript, ColdFusion, PHP, Ruby on Rails, and Django are all tools used to handle interactive elements on Web pages. You may want to construct a table or PowerPoint slide that lists each of the tools and their respective functions.

*Information Policy Set.*Many site developers do not understand that a commercial Web site needs to have a set of information policies established by management that govern how information gathered at the site will be used. The *Insight on Society* case, *Designing for Accessibility* asks students to think about how a site can be designed to serve the needs of disabled users, including the sight and hearing challenged.

Questions for class discussion might include the following:

* Why might some merchants be reluctant to make their Web sites accessible to disabled Americans?
* How can Web sites be made more accessible?
* Should all Web sites be required by law to provide “equivalent alternatives” for visual and sound content?
* What additional accessibility problems do mobile devices pose?

*Developing a Mobile Web Site and Building Mobile Applications.* This section introduces students to some issues surrounding developing a mobile Web site and building mobile applications. If possible, spend some time talking about the differences between mobile Web sites that are optimized for the mobile platform versus regular Web sites that are not, and what impact that might have on the m-commerce opportunities for the site. Although students are undoubtedly very familiar with different apps, they may not understand the distinction between a mobile Web app, a native app, and a hybrid app. Table 3.12 applies the systems analysis and design framework first introduced in Section 3.1 and Table 3.1 to developing a mobile presence, and Table 3.13 highlights some unique features that students should be aware of that need to be taken into account when designing for the mobile platform. The section on mobile presence design considerations also covers several new trends in this area, including mobile first design philosophy, responsive Web design (RWD) and adaptive Web design (AWD). A new section on cross-platform mobile app development tools highlights some of the various tools now available that make creating cross-platform mobile apps relatively easy and inexpensive. The *Insight on Technology* case, *Building a Mobile Presence*, discusses the issues involved in developing a mobile app or mobile Web site, particularly for small businesses.

Questions for class discussion might include the following:

* What are the key differences between user experience on a Web site and a mobile site?
* Why would a mobile Web site or app from the same merchant need different content or functionality?
* In which cases would a merchant want to develop a mobile app over a mobile Web site?

The concluding case provides a rich illustration of both the business and technology considerations that shaped the development (and re-development) of Orbitz’s mobile Web site and apps.

# Case Study Questions

1. **When compared to traditional desktop customers, why are mobile phone users much more likely to book a room or airline reservation for the same day?**

**Mobile users, especially business travelers, often have no desktop or rarely use it because they are traveling. On the road, their travel plans change frequently and require the ability to change flights and reservations on the same days as they are traveling.**

2. **In the mobile design project of 2011, why did Orbitz management decide to construct a mobile web site for corporate users rather than a native app?**

**Managers wanted a single mobile Web site, rather than several mobile native apps for different mobile phones, which could be used by any mobile browser regardless of its operating system or manufacture**.

3. **Why has Orbitz decided to go with native apps for each mobile platform (iOS, Android, and Kindle Fire) instead of a single mobile Web site as it did with the Orbitz for Business mobile site**?

**Native apps are much faster than traditional HTML code, and probably faster than HTML5, which requires a rendering engine to construct mobile Web pages. The native apps can perform all the functions of an HTML5 or desktop version of the reservation system, but execute much faster**.

*4. What issues does syncing recent user searches across devices pose?*

Privacy is one of the primary issues posed by Orbitz’s ability to sync recent user searches across devices.

# End-of-Chapter Questions

1.What elements do you need to address when developing a vision for an e-commerce presence?

The elements that need to be addressed when developing a vision for an e-commerce presence includes a statement of mission, identification of the target audience, characterization of the market space, a strategic analysis, an Internet marketing matrix, and a development timeline.

*2 Name the four main kinds of e-commerce presence and the different platforms for each type.*

The four main times of e-commerce presence are Web sites, e-mail, social media and offline media. Platforms for Web sites include traditional desktops, and mobile smartphones and tablets. Platforms for e-mail include internal lists and purchased lists. Social media platforms include Facebook, Twitter, and other social media sites, as well as blogs. Platforms for offline media include print, TV, and radio.

3.Identify the different phases used in a one-year timeline for the development of an e-commerce presence, and the related milestones for each phase.

Phase 1 is planning, which involves envisioning the e-commerce presence and determining personnel. The related milestone is a Web mission statement. Phase 2 is Web site development, which involves acquiring content, developing a site design, and arranging hosting for the site. The related milestone is a Web site plan. Phase 3 is Web implementation, and involves developing keywords and metatags, focusing on search engine optimization, and identifying potential sponsors/advertisers. The related milestone is a functional Web site. Phase 4 is a social media plan, and involves identifying appropriate social platforms and content for your products and services. The related milestone is a social media plan. Phase 5 is social media implementation, which involves further developing a Facebook, Twitter, and Pinterest presence. The related milestone is a functioning social media presence. Phase 6 is a mobile plan, and involves developing a mobile plan including considering options for porting your Web site to smartphones. The related milestone is a mobile media plan.

4.Define the systems development life cycle and discuss the various steps involved in creating an e-commerce site.

The systems development life cycle is a methodology for understanding the business objectives of any system so that an appropriate solution can be designed. The five major steps in the SDLC for an e-commerce site are: systems analysis, systems design, building the system, testing the system, and implementation. In the systems analysis step, the business objectives for the site are identified. The list of the necessary capabilities for the site is translated into lists of the types of information systems and the elements of information that will be needed to achieve them. Next, the main components in the system and their relationships to one another must be identified. The system design includes a data flow diagram and the physical components that will need to be purchased. After the system has been built and programmed, the program modules must be tested one at a time and then the site must be tested as a whole, examining every conceivable path a user might try to utilize while on the site. Implementation of an e-commerce site includes the continuing maintenance that will be needed over the life of the site to keep it functional, including correcting mistakes and continuing to improve, update, and modify links and other site features.

*5. Discuss the differences between a simple logical and simple physical Web site design.*

A simple, logical design for a Web site describes the flow of information at the site including the processing functions that must be performed and the databases that will provide information. It also includes a description of the security and emergency backup procedures and the controls that will be used in the system. A simple physical design, on the other hand, translates the logical design into the physical components that will be needed such as the servers, software, and size of the telecommunications link, backup servers, and security system.

6. Why is a Web site so costly to maintain? Discuss the main factors that impact cost?

Web sites are so costly to maintain because code must be debugged; hyperlinks must be tested and repaired continually; emergencies must be handled; reports, data files, and links to backend databases must be maintained and updated as necessary. General administrative tasks of the site require attention including updating the products and prices. Changes and enhancements to the system are also continually being made so that the site is always adapting to changing market conditions. All of this requires a Web team that includes programmers, designers, and business managers from the marketing, sales support, and production departments. This will ensure timely response to customer feedback and that the site is adequately monitored for correct prices and links with updated page display.

7. What are the main differences between single-tier and multi-tier site architectures?

Single-tier site architecture simply consists of a server machine running the basic Web server software. Multi-tier site architecture, on the other hand, provides much more functionality by linking a Web server layer that can include multiple Web servers to a middle tier that includes many Web application servers, which provide a wide variety of transaction processing tasks. This middle layer is also linked to a backend layer that includes existing databases, human resources systems, corporate applications, financial data, and enterprise systems. A multi-tiered site typically employs several or more physical computers each running some of the software applications and sharing the workload across many computers.

8. What is a content management system and what function does it serve?

A content management system (CMS) is a database software program specifically designed to manage structured and unstructured data and objects in a Web site environment. A CMS provides Web managers and designers with a centralized control structure to manage Web site content.

9.What is open source software and how can it be used in creating an e-commerce presence?

Open source software is software developed by a community of programmers and designers, and is free to use and modify. There are open source options for creating a Web server, an online shopping cart and catalog, for credit card processing, for databases, for analytics, and a variety of programming/scripting languages as well. The advantage of using open source Web building tools is that you get exactly what you want, a truly customized unique Web site. The disadvantage is that it will take several months for a single programmer to develop the site and get all the tools to work together seamlessly.

10. What are the main factors to consider when choosing an e-commerce suite?

Some of the main factors to consider include functionality included, support for different business models such as B2C and B2B, business process modeling tools, visual site management tools and reporting, performance and scalability, connectivity to existing business systems, compliance with standards, global and multicultural capability, and ability to deal with varying local sales tax and shipping rules.

*11. What are some methods for achieving personalization and customization?*

There are a number of methods for achieving personalization and customization. For instance, you could personalize Web content if you knew the personal background of the visitor. You could also analyze the pattern of clicks and sites visited for every customer who enters your site. The primary method for achieving personalization and customization is through the placement of cookie files on the user’s client computer. A cookie is a small text file placed on the user’s client computer that can contain any kind of information about the customer, such as customer ID, campaign ID, or purchases at the site. And then, when the user returns to the site, or indeed goes further into your site, the customer’s prior history can be accessed from a database. Information gathered on prior visits can then be used to personalize the visit and customize the product.

*12. What are the eight most important factors impacting Web site design, and how do they affect a site’s operation?*

The most important factors impacting Web site design are:

* Functionality: The site must have pages that load quickly, perform correctly, and send the user to the requested information about the product offerings.
* Informational: The site must have links that the customer can find easily in order to obtain information about the company and the products it offers.
* Ease of use: The site must have a simple foolproof navigation scheme.
* Redundant navigation: The site must have alternative paths to reach the same content.
* Ease of purchase: There should be no more than one or two clicks required for the purchasing procedure.
* Multi-browser functionality: The site should work with the popular browsers.
* Simple graphics: The site should not use distracting graphics and/or sounds that the user cannot control.
* Legible text: The site should avoid the use of backgrounds that distort text or make it difficult to read.

Failure to pay attention to these factors will adversely affect the operation of a site because users will find the site frustrating to navigate and view, they will have difficulty obtaining information about the products, and they will determine that making a purchase will be far too complicated.

*13. What is CGI and how does it enable interactivity?*

Common Gateway Interface (CGI) is a set of standards for communication between a browser and a program running on a server that allows for interaction between the user and the server. CGI permits an executable program to access all the information within incoming requests from clients. The program can then generate all the output required to make up the return page (the HTML, script code, text, etc.), and send it back to the client via the Web server. For instance, if a user clicks the My Shopping Cart button, the server receives this request and executes a CGI program. The CGI program retrieves the contents of the shopping cart from the database and returns it to the server. The server sends an HTML page that displays the contents of the shopping cart on the user’s screen. All the computing takes place on the server side (this is why CGI programs and others like it are referred to as “server-side” programs).

*14. What are some of the unique features that must be taken into account when designing a mobile Web presence?*

*Features that need to be taken into account when designing a mobile Web presence include the following: Mobile hardware is smaller and therefore there are more resource constraints in data storage and processing power. The mobile platform is also constrained by slower connection speeds than desktop Web sites. As a result, file sizes need to be kept smaller and the number of files sent to the user reduced. Mobile displays are much smaller and require simplification. Some screens are not good in sunlight. Touch screen technology introduces new interaction routines different from the traditional mouse and keyboard. The mobile platform is not a good data entry tool, although it can be a good navigational tool. Therefore choice boxes and lists need to be simplified so that the user can easily scroll and touch-select the options.*

15. *What are Java and JavaScript? What role do they play in Web site design?*

Java is a programming language that allows programmers to create interactivity and active content on the client machine. It alleviates the load on the server because the Java programs or applets are downloaded to the client and executed on the client’s computer. A Java Virtual Machine (VM) is now included in all browsers that will send a request to the server to download and execute the program and allocate page space to display the results. Java can be used to display interesting graphics and create interactive environments such as calculators or calendars. However, different vendors have produced different versions of the language and today many firms will not allow Java applets through their security firewalls. Many Java applets crash or perform poorly, wasting system resources on functions that are sometimes not very important and that do not add much to the page design. Hence, they are not widely in use today by corporate Web sites.

Conversely, JavaScript is a programming language that is used to control the objects on an HTML page and handle interactions with the browser. It is commonly used to control verification and validation of user input, such as confirming that a valid phone number or e-mail address has been entered. It is much more acceptable to corporations because it is more stable and is restricted to the operation of requested HTML pages.

*16. What are the advantages and disadvantages of mobile first design?*

Mobile first design has several advantages. Instead of creating a full-featured design for a desktop Web site that then needs to be scaled back, mobile first design focuses on creating the best possible experience given mobile platform constraints and then adding back elements for the desktop platform, progressively enhancing the functionality of the site. Proponents of mobile first design argue that it forces designers to focus on what is most important, and this helps create a lean and efficient mobile design that functions much better than a design that begins with a traditional platform that must be stripped down to work on mobile. Mobile first design is not without its challenges, however. It can be more difficult for designers who are more comfortable with the more traditional process.

*17. What is the difference between a mobile Web app and a native app?*

A mobile Web appis an application built to run on the mobile Web browser built into a smartphone or tablet computer. In the case of Apple, the native browser is Safari. Generally it is built to mimic the qualities of a native app using HTML5 and Java. Mobile Web apps are specifically designed for the mobile platform in terms of screen size, finger navigation, and graphical simplicity. Mobile Web apps can support complex interactions used in games and rich media, perform real-time, on-the-fly calculations, and can be geo-sensitive using the smartphone’s built-in global positioning system (GPS) function. Mobile Web apps typically operate faster than mobile Web sites but not as fast as native apps. A native appis an application designed specifically to operate using the mobile device’s hardware and operating system. These stand-alone programs can connect to the Internet to download and upload data, and can operate on this data even when not connected to the Internet. Download a book to an app reader, disconnect from the Internet, and read your book. Because the various types of smartphones have different hardware and operating systems, apps are not “one size fits all” and therefore need to be developed for different mobile platforms. An Apple app that runs on an iPhone cannot operate on Android phones. As you learned in Chapter 2, native apps are built using different programming languages depending on the device for which they are intended, which is then compiled into binary code, and which executes extremely fast on mobile devices, much faster than HTML or Java-based mobile Web apps. For this reason, native apps are ideal for games, complex interactions, on-the-fly calculations, graphic manipulations, and rich media advertising.

*18. In what ways does a hybrid mobile app combine the functionality of a mobile Web app and a native app?*

A hybrid apphas many of the features of both a native app and a mobile Web app. Like a native app, it runs inside a native container on the mobile device and has access to the device’s APIs, enabling it to take advantage of many of the device’s features, such as a gyroscope, that are normally not accessible by a mobile Web app. It can also be packaged as an app for distribution from an App store. Like a mobile Web app, it is based on HTML5, CSS3, and JavaScript, but uses the device’s browser engine to render the HTML5 and process the JavaScript locally.

*19. What is PHP and how is it used in Web development?*

PHP is an open source, general purpose scripting language that is most frequently used in server-side Web applications to generate dynamic Web page content, although it can also be used for client-side graphical user interface applications. PHP is also a part of many Web application development frameworks, such as CakePHP, CodeIgniter, and others, and is also part of the LAMP (Linux, Apache, MySQL, PHP) open source Web development model for building dynamic Web sites and web applications. According to W3Techs, PHP is, by far and away, the most commonly used server-side scripting language (used by over 80% of the Web sites whose server-side programming language it was able to identify. Netcraft’s Web Server Survey has found PHP on over 240 million sites.

*20. How does responsive Web design differ from adaptive Web delivery?*

Responsive Web design (RWD)tools and design techniques make it possible to design a Web site that automatically adjusts its layout and display according to the screen resolution of the device on which it is being viewed, whether a desktop, tablet, or smartphone. RDW uses the same HTML code and design for each device, but uses CSS (which determines the layout of the Web page) to adjust the layout and display to the screen’s form factor. One problem with RDW, particularly if not coupled with mobile first design, is that the responsive Web site still has the size and complexity of a traditional desktop site, sometimes making it slow to load and perform on a mobile device. Adaptive Web design was developed to deal with this issue. With adaptive Web design (AWD) (sometimes also referred to as adaptive delivery or responsive Web design with server-side components (RESS)), the server hosting the Web site detects the attributes of the device making the request and, using predefined templates based on device screen size along with CSS and JavaScript, loads a version of the site that is optimized for the device. AWD has a number of advantages compared to RWD, including faster load times, the ability to enhance or remove functionality on the fly, and typically a better user experience, particularly for businesses where user intent differs depending on the platform being used.

**Projects**

1. *Go to the Web site of Wix, Weebly, or another provider of your choosing that allows you to create a simple e-tailer Web site for a free trial period.*  *Create a Web site. The site should feature at least four pages, including a home page, product page, shopping cart, and contact page. Extra credit will be given for additional complexity and creativity. Come to class prepared to present your e-tailer concept and Web site.*

Students should be able to build a basic Web site using the tools provided on these sites. Note that it may not be possible for students to build at least four pages (depending on the free functionality provided by these two sites at the time this project is assigned), so credit should not be deducted if that is in fact the case.

*2.* *Visit several e-commerce sites, not including those mentioned in this chapter, and evaluate the effectiveness of the sites according to the eight criteria/functionalities listed in Table 3.11. Choose one site you feel does an excellent job on all the aspects of an effective site and create a presentation including screen shots to support your choice.*

The purpose of this project is to extend the critical thinking skills of students as they examine Web sites. For each factor listed on Table 3.11, the students should evaluate the Web site for effectiveness of design. For example, the students should evaluate how clearly the digital catalog conveys the essence of each product using graphics, or other methods such as streaming video, and how effectively products are portrayed in textual descriptions. Students can choose sites at which they are actually shopping or they can simply browse, but they should go through the steps of executing a transaction so that they can evaluate the shopping cart/payment system and ease of purchase. They should also navigate to multiple pages at each site so that they can evaluate the ease of use and redundancy of navigation. The presentation might include screen shots of product graphics, navigation bars, and pages from the site displayed in multiple browsers.

1. *Imagine that you are in charge of developing a fast-growing start-up’s e-commerce presence. Consider your options for building the company’s e-commerce presence in-house with existing staff, or outsourcing the entire operation. Decide which strategy you believe is in your company’s best interest and create a brief presentation outlining your position. Why choose that approach? And what are the estimated associated costs, compared with the alternative? (You’ll need to make some educated guesses here—don’t worry about being exact.)*

The purpose of this project is to get students to begin to consider the managerial decision making process. If they choose to build in-house they might mention such factors as an in-place staff of professionals who are trained for this task including graphic artists, Web designers, programmers, and project managers. They may also posit that they are prepared to purchase a top-of-the-line prepackaged site-building tool that will be scalable as the firm expands its customer base. They may also argue that their firm sells a highly specialized product so that the need for a customized Web site is high or that their staff, which is already highly trained, will be able to build a site that does exactly what the company needs. Moreover, they may believe that the staff who will participate in the building of the site will be able to change the site more rapidly to adapt to any changes in the business environment. Students who opt for outsourcing might mention such factors as the risks involved in building such complex features as shopping carts, credit card authentication and processing systems, inventory management systems, and order processing systems. They may also argue that the risk of ending up with a poorly functioning site is just too great, and that staff will face a long, difficult learning curve. Costs for building in-house might include the salaries of any additional professionals who will have to be hired, the cost of a prepackaged site-building tool, or the costs of additional software or technology that will have to be purchased to build credit card authentication systems. Costs for outsourcing may include an expensive site-building package and costs for hiring an outside vendor to modify the package.

4. Choose two of the e-commerce software packages and prepare an evaluation chart that rates the packages on key factors discussed in the section “Choosing an E-commerce Software Package.” Which package would you choose if you were developing a Web site of the type described in this chapter, and why?

The best way for students to approach this project is to choose two of the e-commerce suites and conduct an online research study to find articles in the popular and technical press that evaluate the products based upon the key factors listed in the chapter. Reading articles and comparisons of the suites will give students insight into just how difficult the process of choosing an e-commerce suite can be for a manager. Answers of course will vary according to the suites chosen and the opinions of the authors of the articles collected. One possible comparison based upon product evaluations from various sources is:

(Table is based on a scale of 1–10)

|  |  |  |
| --- | --- | --- |
|  | Commerce Server 10 | IBM WebSphere CommerceExpress Edition |
| Functionality | 8.5 | 7.8 |
| Support for different business models | 7.5 | 8.0 |
| Business processing models | 9.2 | 7.5 |
| Visual site management tools | 9.0 | 8.0 |
| Performance and scalability | 7.5 | 8.2 |
| Connectivity to existing business systems | 7.5 | 9.0 |
| Compliance with standards | 9.0 | 8.0 |
| Global and multicultural ability | 8.0 | 9.0 |
| Local sales tax and shipping rules | 8.0 | 8.0 |

IBM’s WebSphere Commerce Express Edition provides templates, Set Up Wizards, and a large set of store and catalog editing tools. It offers a scalable architecture and extensive customizability, and can support many different business models, from B2C, B2B, and C2C, as well as electronic downloads. It offers good multilingual support, and provides good integration with backend systems, including existing DB2 and Oracle databases. Unlike Microsoft’s product, it can be run on a number of different server platforms, including Linux and Windows. However, it does not appear to have as many high-end reporting tools as Microsoft’s product.

Commerce Server 10 (formerly Microsoft Commerce Server) is also extensible, and includes many pre-defined reports that can be run to analyze site activities and product sales data. It has very good analysis tools through SQL server data mining. Its main drawback is that it only runs on Web servers running Microsoft Windows Server. It also is customizable, but to do so, knowledge of Microsoft’s Visual Studio.NET tools is required.

*5. Choose one of the open source Web content management systems such as WordPress, Joomla, or Drupal, or another of your own choosing, and prepare an evaluation chart similar to that required by Project 4. Which system would you choose and why?*

The first task students must perform to complete this project is to choose an open source Web content management system. Once they have done so, the next step, as with Project 4, will be to conduct an online research study to find articles in the popular and technical press that evaluate the product. Answers will vary according to the system chosen and the opinions of the authors of the articles collected. Student evaluation charts should cover the following areas and explain whether they would purchase the system and why or why not:

* Community features
* Shopping cart
* Search engine
* Forum creation
* Ability to create blogs
* Multimedia capability
* Templates/themes
* Document management features
* Content management features
* Documentation for system
* Ease of use/learning curve required
* SSL compatibility/security
* Internationalization capabilities

**Companion Web Site, Learning Tracks, and Video Cases**

You can also direct your students to the Companion Web Site for the book, located at [www.azimuth-interactive.com/ecommerce11e](http://www.azimuth-interactive.com/ecommerce10e). There they will find a collection of additional projects and exercises for each chapter; links to various technology tutorials; information on how to build a business plan and revenue models; information on careers in e-commerce, and more. Learning Tracks that provide additional coverage of various topics and a collection of video cases that integrate short videos, supporting case study material, and case study questions are also available for download from the books’ Online Instructor Resource Center at www.pearsonglobaleditions.com/Laudon. Video Cases for this chapter include:

* Video Case 3.1 ESPN Goes to eXtreme Scale
* Video Case 3.2 Data Warehousing at REI: Understanding the Customer