CHAPTER OBJECTIVES

In this chapter you will learn to:

1. Apply e-commerce architecture to hospitality networks.
2. Identify e-commerce functions for hospitality organizations.
3. Identify the technical components of e-commerce networks used by hospitality organizations.
INTRODUCTION

What pictures come into your mind when you think about the hospitality industry? Most people have visions of hotels, airlines, cruise ships, restaurants, health spas, and the like, based on their personal experiences. All aspects of the industry are involved in business processes at the operations level. Business processes consist of transactions and interactions with guests or customers, employees, and even other businesses. A transaction is an activity, such as checking in to a hotel or placing an order in a restaurant. Interactions include the relationships that take place during each transaction. A desk agent at a hotel takes the opportunity to create a positive first impression with a guest during the check-in process. An experienced restaurant server provides information about the preparation of menu items to enhance the dining experience. Hospitality differs from most other industries in that interactions create memorable customer experiences, whereas transactions merely satisfy basic customer expectations.

The business of the hospitality business consists primarily of interactions (guest relations) that occur during the flawless processing of transactions. Since we are involved in conducting a business, we are engaged

On-the-Job Training

You are working as an intern for a large meeting planning company. One of the clients of the company is planning a professional conference that will take place in Orlando. The conference attendees will book their own rooms on a transient basis. Your manager assigns you to help with the account. She asks you to identify suitable hotels around the perimeter of the meeting site and list the posted transient room rates for each of those hotels. In the next step of the project you will contact each hotel and solicit a discount room rate for conference attendees who book in advance. Your report is due to go to the manager in five days. As you review the requirements for this report, you ponder the quickest and easiest way to get the information.

To be continued . . .
in the practice of commerce. *Commerce* is a broad term that is used to de-
scribe the activities of businesses or commercial enterprises. **Electronic commerce** involves transactions and interactions that occur through computer telecommunications media, such as the Internet. **E-commerce** is the shorthand term used to describe electronic commerce. Before the popularity of the Internet, most business transactions and in-
teractions took place in person in a commercial building made of “bricks
and mortar.” Beginning in the late 1990s, some retail establishments
started to offer customers the option of transacting online or in person.
These businesses usually are referred to as “clicks ’n bricks” today. There
are other businesses that engage in commerce exclusively over the
Internet, such as amazon.com; those businesses formerly were referred to
as dot-coms. Today e-commerce professionals call them “clicks-without-
bricks” enterprises.

---

**E-COMMERCE TRANSACTIONS**

Electronic commerce includes all business functions that may be processed
over telecommunications networks in any industry. For this reason the
term *e-business* is used interchangeably with *e-commerce*. General e-business
or e-commerce transactions may occur at four levels of interaction.

**The Four Levels of E-Commerce Transactions**

**B2C** transactions involve business-to-consumer interactions. A person
who goes online to book an airline reservation (consumer) is engaged in
that transaction with the reservations department for an airline (business).

**B2B** transactions occur between two business entities. Let us say you
book a hotel room through Orbitz, an online broker of travel and lodging
arrangements. Orbitz is a business that prepurchases blocks of rooms
from a given hotel (another business) for sale to you at discount prices.
The arrangement between Orbitz and the hotel is a B2B transaction,
whereas your interaction as an online customer of Orbitz is a B2C
transaction.

**B2E** consists of transactions that occur between a business and its
employees. Delta Air, for example, provides an electronic system for flight
mechanics to order replacement parts for aircraft called INIRN, which
stands for “I Need It Right Now.” In this case the business is providing
an electronic service for its employees.

**C2C** transactions occur between two or more consumers (consumer-
to-consumer). eBay is an example of a business that exists to bring
together consumers who wish to sell merchandise with consumers who are looking to buy items over the Internet. Figure 5.1 shows the e-commerce transaction categories.

**Intranets and Extranets**

Do all e-commerce transactions occur over the Internet? Those transactions look as though they occurred over the Internet, but some of them really use private networks that only appear to be the Internet. There are three points of access to an e-commerce site: the Internet, intranets, and extranets. The Internet is a public domain that consists of an unknown number of servers around the world. An Internet user surfs the Internet via a browser: software such as Netscape or Internet Explorer. The same scheme is true for users of both intranets and extranets, leading to the appearance of Internet use for those users.
An **intranet** permits access to private network areas by individuals who are employed or otherwise affiliated with a hospitality organization. Individuals who have permission to enter the company intranet will access it directly from the Ethernet network while they are at the workplace. Individuals may gain access from remote locations through the Internet website for that organization. Once they enter the company’s intranet, they are surfing on a private network that is owned by that hospitality company. Some employees use intranets to perform their jobs from their homes or other remote locations, a process known as **telecommuting**. For instance, a hotel reservations agent could forward a phone extension to her home and book guest reservations through an intranet that interfaces with the central reservations system.

Individuals or companies that are not employees or “insiders” of a hospitality organization may be permitted access to private areas of a network through an extranet. These connections almost always are made from remote locations; thus, **extranet** users enter through the hospitality company’s Internet website. Extranet users include vendors, consultants, and service providers who do business with the hospitality organization. In some cases, special customers, such as airline frequent fliers, may be given extranet access to review their accounts and take advantage of certain privileges.

Users of intranets and extranets may think they are using the Internet because the access points to private networks are “seamless.” That is, it appears to the user that he or she is using the Internet even though he or she has accessed areas of a private network. This is the case because intranets and extranets use the same types of browsers and search engines that are available on the Internet.

**SPAN AND SCOPE OF E-COMMERCE**

What specific business functions are provided through e-commerce? It is the nature of some industries to provide all their functions and services to others via electronic networks. However, this is not the case with hospitality and tourism organizations, in which the core business involves the creation of memorable F2F (face-to-face) experiences. Many hospitality functions, though, are available through electronic means for the convenience of customers, employees, and commercial enterprises that do business with our industry. Figure 5.2 depicts e-commerce business functions for the hospitality industry.
Management Information Systems

Electronic information systems provide the foundation for all e-commerce transactions. This function falls within the domain of management information systems (MISs), which link information technologies with information systems to support enterprise transactions and interactions. MIS technologies include hardware, software, databases, and application programs that are used to convert data into usable information. Information systems use telecommunication tools to create networks that provide connectivity within the hospitality organization and beyond through the Internet. There is thorough discussion of electronic information systems in Chapter 6.

Marketing

The majority of hospitality e-commerce systems are focused on the marketing business function. Marketing involves the management of the pricing, placement, and promotion of products and services provided by a specific hospitality enterprise. E-marketing uses electronic networks for the promotion and placement of products and services. For instance, W Hotels, a portfolio of luxury-boutique properties owned by the
Starwood Hotel Group, was one of the first to offer online “virtual tours” of its properties. This enables a prospective client to conduct site visits without having to travel to each property. Most branded hotels provide this promotion feature today. If a client makes the decision to book a group with one of the properties, the arrangements also may be made online; this is an example of electronic placement of the hotel product.
Accounting

Suppose the online client books her group with a specific W Hotel and wants to establish a master folio with billing arrangements at the time of booking. The sales agent will have to make these arrangements through the accounting office for the hotel. The accounting function is responsible for all financial transactions, including accounts payable, accounts receivable, payroll, journal entries, ledgers, banking, and cashiering. In this case, the client will establish a credit account (ledger) with the hotel that will translate into a master folio that places all the charges incurred at the hotel to that ledger account. At the time of group departure from the hotel, the ledger account is transmitted to accounts receivable for billing and payment by the client in accordance with the instructions made available on the ledger. Once the payment is received by the hotel, the ledger will be cleared, with the account being marked as “paid in full.” If the reservation requires a cash deposit, the client can provide payment with her corporate credit card through a secure electronic payment system, which provides for encrypted payment transactions to protect the credit card information from access by unauthorized individuals referred to as “network sniffer.” The majority of accounting transactions are handled electronically through private computer networks that link operating departments as well as corporate offices. Interfaces for client transactions usually are located on Web pages that may be accessed through the Internet.

Operations

Some hospitality organizations establish electronic connections with vendors, which are companies that provide materials, equipment, and supplies to a hospitality organization. This type of connection, which is called an electronic data interchange (EDI), permits the electronic exchange of inventory information, purchase orders, invoices, and funds transfers to settle accounts.

Human Resources

The human resources (HR) function of a hospitality organization is responsible for the recruitment, selection, development, and retention of employees. Human resources departments use e-commerce over the Internet to announce job openings. In some cases the HR office will provide online applications for employment to be filled out by interested job candidates. Some HR offices also use B2E networks to communicate with existing company employees. This is done by setting up a portal for employees to view benefit plans, file insurance claims, access other ben-
efits, and even take advantage of employee discounts on products and services offered by outside organizations. A portal is a location on a telecommunications network for access by all the members of a special-interest group. In this case an employee portal provides a single location for all the workers in a hospitality organization to view information, complete online forms, and access perquisites and other benefits associated with their employment.

E-COMMERCE APPLICATIONS FOR HOSPITALITY ORGANIZATIONS

The hospitality industry is composed of many service-oriented businesses. Those businesses include lodging facilities such as hotels, resorts, motels, and bed and breakfasts and hostels run by innkeepers. The public foodservice domain includes upscale and midrange full-service, theme, casual dining, and quick service restaurants. The travel sector is composed of airline, cruise line, ground transportation, and tour organizations. Golf, tennis, and city and yacht clubs as well as health spas, casinos, theme parks/attractions, showrooms, and nightclubs fall within the recreation/entertainment sector. Finally, there are the convention, conference, retreat, and banquet facilities that constitute the meetings and events segment of the industry. All these businesses may implement e-commerce systems and strategies at the B2C level. Some of them also may include B2B, B2E, and even C2C applications. Figure 5.3 shows the different sectors of the hospitality and tourism industry.

Lodging

Most B2C e-commerce in the lodging sector focuses on product and/or service awareness as well as the placement of reservations. Hotel websites are listed with major search engines on the World Wide Web to enhance the chances of discovery by consumers who are seeking lodging facilities at desired destinations. Hotel websites are designed with plentiful photo graphics that allow visitors to inspect the facility, grounds, guestrooms, and amenities visually. Many hotel websites provide enhanced multimedia presentations designed to give virtual tours of the facilities to prospective guests, using streaming videos and 360-degree viewing platforms of lobby areas, guestrooms, meeting facilities, and other full-service amenities.

Visitors to the sites may click on pricing information as well as package deals and other special booking incentives. Many larger hotel chains
provide a link to a reservations system portal, permitting clients to book reservations online. In these cases the hotel will provide a secure billing feature for potential guests to secure the reservation with a major credit card. Others will take room reservations via e-mail or provide a phone number to connect to the central reservations office. From a general e-commerce perspective, the purpose of most hotel websites is for shoppers to discover and evaluate the products being offered by a specific lodging facility to encourage the placement of a reservation.

In many cases, search engines take Web surfers to the sites of lodging brokers such as Hotels.com and Orbitz. These companies are known as intermediaries, organizations that purchase blocks of hotel rooms for

**Intermediaries**
Organizations that purchase blocks of hotel rooms for resale to travelers, often at discounted rates.
resale to travelers, often at discounted rates. Travelers who use these services actually are booking guestrooms through third-party entities that perform services similar to those formerly provided by travel agents. Hotels contract with these intermediaries to fill guestrooms during non-peak occupancy periods.

**Travel and Foodservice**

Restaurant and travel companies employ B2C e-commerce strategies that are similar to those used by the lodging sector. In the case of restaurants, the purpose of the website is to use graphics and multimedia to entice customers to reserve a table either online or by phone. The same thing is true for cruise vacations and ground tours. Travel organizations, in contrast, focus on ticket pricing and availability through their websites. Airline websites, for instance, have tables and limited graphics for visitors to view. The visitor enters destination information into windows that launch tables that display available flights and pricing information. A link to the central reservation system is available for those who decide to book a specific flight. Similar to the case in the lodging industry, many individuals book their flights through intermediaries such as cheap-tickets.com and priceline.com.

**Meetings and Events**

E-commerce strategies for the meetings and events sector of the hospitality industry closely mirror those for the lodging sector, with one exception. This sector is focused solely on group bookings, which means the client is the host of a group. The hotel market consists of both group and transient (individual) bookings. The website for a meetings and events facility is designed to entice a host to book the facility for a group of individuals.

**Recreation and Entertainment**

Recreation and entertainment sector e-commerce strategies are perhaps the narrowest in scope among the hospitality niches. Most of these sites exist to provide product discovery, awareness, and evaluation. They do not for the most part seek a booking transaction from website visitors. In the case of recreation and social clubs, some are private, which means individuals must purchase memberships to use the facility. These transactions still occur mostly on a face-to-face basis. Public clubs encourage nonmember visitation; however, most clubs arrange tee and court times by phone. Yacht clubs are in the business of renting dockage to boaters, and these arrangements usually are made by phone, by mail, or in
person. Show venues commonly assign ticket purchases to centralized global systems such as Ticketron, whereas nightclubs and theme parks are mostly in the business of selling tickets “at the door.”

All sectors of the hospitality industry embrace the use of B2C e-commerce, although with certain limitations arising from the intimate nature of the services that are provided to guests and clients. It is feasible for hospitality organizations to offer e-commerce solutions for customers to research core products, learn about those products, and be stimulated to engage in booking transactions in most cases. However, product distribution and customer support functions take place in person, which is not the case with the alternatives available to retail operations.

Many sectors of the hospitality industry provide retail outlets such as gift shops that sell specialized products, including packaged food items and logo merchandise, to the public. These items may be marketed, ordered, and distributed to customers through e-commerce interfaces within hospitality organizations. Although the sales of such items are often lucrative, the retail aspect is ancillary to the core products and services provided by hospitality companies.

TECHNICAL COMPONENTS OF E-COMMERCE

All computer networks consist of two major areas: the front end and the back end.

**Front and Back Ends**

The **front end** of an e-commerce network consists of points of access for end users, which include customers, employees, and business affiliates. The **back end** of the network contains interfaced components designed to provide e-commerce services to the end users. Both ends of the system include computer hardware, software, and telecommunication interfaces. A pictorial representation of a typical e-commerce network is given in Figure 5.4.

The front-end computers are those to the right side of the **firewall**: a computer communications processor that filters all network traffic to provide a safe transfer point for access to a network and transmission to other networks. The Internet exists at the farthest point from the e-commerce network that lies to the left of the firewall. Authorized Web users may access various servers within the network, including intranets and extranets, from remote locations. Conversely, individuals at the
worksite can use the network to launch out to the Internet. Hence, there is a two-way exchange between the e-commerce network of servers and the Internet.

The back-end network architecture consists of two layers of servers. The first layer is just behind the firewall, where the local network server, transaction server, and Internet information servers may be accessed directly by end users. This layer is interfaced with a number of core servers that may include corporate databases and transaction-processing servers in the second layer. The intermediary between end users and the firewall is an electronic component called a router. Users access the firewall through the router and pass the security clearance process to enter the Internet information server.

The site server holds an index of files written in **Hypertext Markup Language (HTML)**, a code used to generate Web pages. Web pages
display text information, graphics, and hyperlinks to other Web directories. They often include multimedia presentations that are run by Java script applets. When a user accesses a site, the first page to pop up is called the home page or index page. This page provides an introduction to the site and contains the links used to access different areas of the site. The individual with primary responsibility for Web page design and maintenance is called a webmaster. The server is connected to the company’s local network server, which provides a gateway to other back-end servers.

Other back-end servers may include corporate databases that provide all business functions. In addition, a second transaction server may exist in the second layer that is interfaced with the first transaction server in the first layer of the back end. A secure payment server also may be located in the second layer to process payments through financial institutions. Other servers in this layer (not shown in Figure 5.4) may include a Standard Query Language server that may be interfaced with the corporate database and credit verification and profiling servers.

**Processing Features of E-Commerce Networks**

The processing features of an e-commerce network are listed below:

- **Security and access control** takes place within the firewall and includes authentication, user profiles, and log-on records.
- **Search applets** are used to find locations from the index of server files.
- **Content maintenance** ensures that information on the Web pages is current and appropriate for users to view.
- **Catalog management** includes product and/or service information and pricing calculations.
- **Payment management** involves the maintenance, security, and linkages with payment servers.
- **Workflow management** consists of logical configurations for user interaction and transaction processing.
- **Event notification** includes transaction messaging and advertisement notices sent to profiled end users.

**Access Process for Web Users**

A Web user will begin by logging on to an Internet Service Provider. Next, the user will launch a Web browser such as Netscape or Internet Explorer to reach the default home page established by the user. If the user is unsure of the Universal Resource Locator (URL) address of an e-commerce site, he will invoke a search engine such as Google or Yahoo! The user enters key words to start the search for the e-commerce site. The user then clicks on the URL address provided by the search engine, which takes him to the home page for the e-commerce site. Figure 5.5 shows this process.
The home page contains links to various servers that support the site from the back end (content maintenance). Let’s say the user has visited the site for an airline and wants to view the availability and pricing of flights for a specific range of dates (catalog management). The user clicks on a link to view flights (search applets). He may be asked for profile information such as frequent flier identification to gain entry through the firewall into the flight availability database (security and access). When the user finds a suitable flight, he is linked to the airline’s central reservation system (CRS) to book a reservation (workflow management). Once the flight is selected, the user is transferred to a secure payment server to enter credit card information (payment management). When the payment is verified, a confirmation number appears on the user’s screen and a receipt is sent to the user’s e-mail account (event notification). This completes the booking transaction for the user. The profile of the user is entered into the marketing database of the airline for future e-mail advertisement notifications (future event notification).
On-the-Job Training . . . Continued

While pondering your steps in producing the report for the meeting planning company, you decide to take a strategic approach to getting hotel information. First, you conduct a Google search of hotel intermediaries and find three companies. Next, you enter the website of each intermediary and request a listing of hotels in the targeted area. The result of this search is a list of 20 suitable hotels. You then plug in your occupancy dates and request daily rates for each hotel on the list. The result of this activity is a listing of 20 hotels, types of accommodations, and posted room rates for each hotel.

Next, you compose a letter that identifies you as representing the meeting planning company. The letter includes dates of occupancy and projected room blocks. The letter serves as a request for discounted guestroom rates for the conference attendees. You save the letter in your word processor. You then locate the website URLs for each of the hotels. Upon entering each site, you review posted guestroom rates for your dates of occupancy. Before leaving each site, you click on the e-mail icon and paste your letter to the hotel e-mail account.

You open your spreadsheet software and enter the hotel information, room rates from each of the three intermediaries, and posted rates from each hotel website. As you finish entering the information, you realize it is time to go home.

When you return to the office the next morning, you find a number of e-mails waiting for you from many of the hotel reservation managers. By lunchtime all the hotels have responded to you with their best discounted rates. As soon as you return from lunch, you enter this information on your spreadsheet.

You glance at the spreadsheet, which now reveals the following: a listing of 20 suitable hotels, posted rates from three intermediaries, posted rates from each hotel website, and discounted rates from each hotel. It is just 24 hours since the manager gave you this assignment. You hand a copy of the spreadsheet to the manager, and she is shocked that you found so much information in such a short period. She asks, “How were you able to get so much information so quickly?” You reply, “Oh, it is just a little trick I learned in school about working smarter, not harder.” You both chuckle, and you leave the office knowing that the boss is very impressed with your efficiency.
This chapter provided a snapshot of the e-commerce systems that are used in the hospitality and tourism industry. We learned that hospitality customer service consists of transactions and interactions. The core transactions of our business involve intimate face-to-face interactions, which have certain limitations in regard to the use of e-commerce in the hospitality industry compared with other enterprises, such as retail. However, certain electronic applications are appropriate for the convenience of guests and clients.

Although the main telecommunications link for e-commerce is the Internet, private networks such as extranets and intranets are also part of the e-commerce landscape. The major functions of B2C, B2B, and B2E e-business include management information systems and the marketing, accounting, human resources, and operations departments. The chapter gave examples of these functions as they are applied to various hospitality business sectors.

Next, there was a discussion of the technical aspects of hospitality e-commerce from the perspectives of the front end used by customers, businesses, and employees and the back end of the system, where transaction processing takes place. The chapter described the processing features of hospitality e-commerce systems and concluded with a discussion of the processes in action from a Web user’s perspective.

**Discussion Questions**

1. What are your thoughts on e-commerce applications to the hospitality industry? Do you see areas where new applications may be developed, or do you think the current applications are sufficient?
2. What are the advantages and disadvantages of implementing intranets for hospitality workers to use? Do you think intranets can enhance productivity? Why or why not?
3. If you were a webmaster for a hospitality e-commerce site, what actions might you take to improve the site’s Web pages?
4. Toward the end of the chapter we discussed a Web user’s access to an airline site. See if you can replicate these activities for booking a hotel guestroom.

**Key Terms**

Accounting
B2B
B2C
B2E
Back end
C2C
E-commerce
Electronic commerce
Electronic data interchange (EDI)
E-marketing
Extranet
Firewall
Front end
Human resources
Hypertext Markup Language (HTML)
Intermediaries
Intranet
Management information systems (MIS)
Marketing
Portal
Secure electronic payment systems
Telecommuting
Vendors