The Impact of Technology on Services

eBay: A Virtual Community Where Almost Anything Can Be Auctioned

Auctions have been around since ancient times but have been geographically fragmented and time restricted, making it difficult for prospective buyers and sellers to meet. Pierre Omidyar, whose background was in computer science, was one of the first to recognize the Internet's potential for creating a more efficient auction marketplace. Working with Jeff Skoll, a Stanford MBA, he formed AuctionWeb in September 1995.[1]
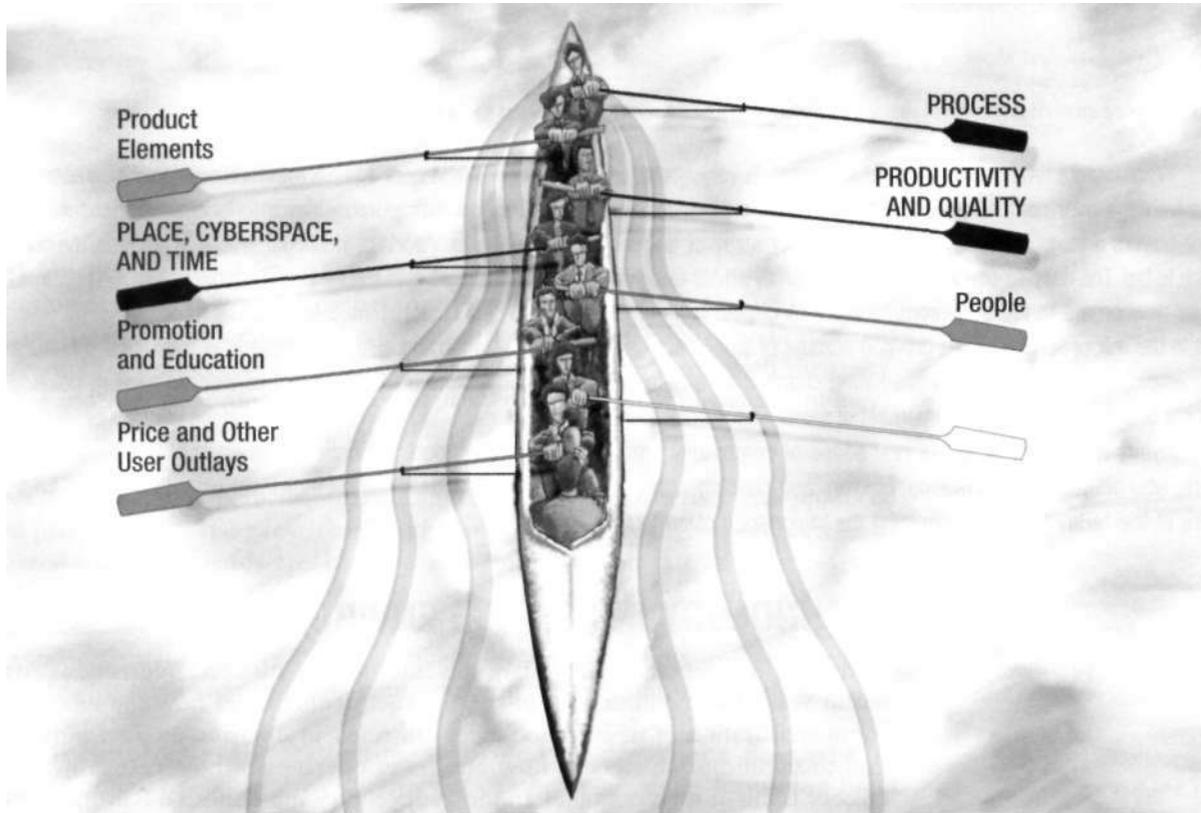
The two partners had limited expectations of what Omidyar later described as their "little hobby-experiment" and thought it wise to keep their day jobs. Initially, the business operated out of Omidyar's small apartment. Its tools were a laptop computer, a filing cabinet, an old school desk, and a Web site at a local Internet service provider. In order to develop a critical mass of transactions, users were charged no fees. The site itself had a very basic appearance.

But AuctionWeb soon began to take on a life of its own, with growth driven by word-of-mouth recommendations. Within six months, the two entrepreneurs had to buy their own server and began charging a listing fee to cover their rising costs. Before long, the operation was moved to a separate office, the company incorporated, and its first employee hired. Growth was driven almost entirely by word-of-mouth recommendations. Customers found that the service was not only effective but also fun to use. With few limitations on what could be sold (exceptions now include firearms, drugs, alcohol, human body parts, and surveillance equipment), the number of categories expanded dramatically in response to market interest.

With thousands of listed items selling every day and the number of employees increasing, Omidyar and Skoll recognized the need for additional capital and management expertise. Heeding advice from a venture capital firm to establish a leadership position before competitors could overtake them, they changed the company's name to eBay in September 1997 and began to seek additional customers by advertising on other Web sites and in targeted publications. By year-end, eBay had expanded its employee headcount to 41 and could boast 850,000 registered users and annual transactions of $340 million.

The following year, the founders recruited an experienced manager as CEO. They offered the job to Meg Whitman, who had developed experience in building brands with a number of well-known consumer product companies. Two things impressed Whitman as she mulled the offer. First, she saw that eBay was doing something that could not be done effectively offline—unlike most dot-com companies, which were simply Internet versions of offline businesses. Second, she was struck by the emotional commitment of eBay users to the service.

Growth continued at an explosive rate. When the company went public in September 1998, both founders became billionaires. During 2000, the value of goods traded on the eBay site exceeded $5 billion and by early 2001 the number of registered users had reached 18.9 million, trading goods in some 4,700 categories around the world. Despite strong efforts from competitors (including Amazon and Yahoo),

Product Elements

PLACE, CYBERSPACE, AND TIME

Promotion and Education

Price and Other User Outlays

PROCESS

PRODUCTIVITY AND QUALITY

People

eBay remained not only the largest online auction site but also the highest rated by the Internet quality measurement firm, G6mez.com, which cited its ease of use, on-site resources, and wide range of listings.

Unlike many dot-com companies, eBay neither owns nor handles the merchandise that is sold through its site. Instead, it brings buyers and sellers together and then facilitates trading. Buyers pay sellers through Billpoint, an online bill-payment service operated for eBay by Wells Fargo Bank; a seller may also request use of a third-party escrow service to whom the buyer sends payment *before* receiving the purchased item.

eBay's revenue comes from a nonrefundable insertion fee for each item listed for auction, plus a sliding final value fee based on the amount of the winning bid. The company's average "toll" on site traffic is roughly 8 percent of the value of auctioned merchandise, so revenues are large and rising fast. However, costs have risen rapidly, too. They include continued investments in Web infrastructure— which must precede rather than follow transaction growth in order to prevent system breakdowns—as well as heavy expenditures on marketing to build the brand and enhance customer service. Further investments are being made on overseas expansion and acquisition of companies in related fields to broaden eBay's array of services and categories. General and administrative expenses are also rising, but more slowly.

(continued)

© Learning Objectives

After reading this chapter, you should be able to

=^ explain the different types of technology applications in services

=^> recognize the implications of technological innovation for customers and employees

=£> describe the factors that have fueled the rapid growth of information technology

=^ understand how the Internet is transforming service strategy

=£> discuss guidelines for the effective use of technology in service organizations

What factors have spurred eBay's success? Its very size gives it an advantage over competitors in that sellers can expect to attract more buyers and, in turn, buyers find a broader array of items on which to bid. The easy-to-use Web site offers friendly advice and introduces newcomers to the eBay community. With growth has come a shift in the mix of sellers, with a growing number of small businesses now employing eBay as a major marketing channel; as a result, 20 percent of sellers account for 80 percent of sales.

Loyalty is reinforced by the real sense of community among users, who actively enjoy browsing, bidding, and chatting with other users at the "eBay Cafe." Recognizing the importance of protecting honest customers against fraud, eBay encourages users to post comments on their purchasing experiences, so that future bidders can review evaluations of individual sellers. In addition, the company offers a free program to insure every eligible transaction up to $250 (less a $25 deductible) in the case of actual fraud.

Underlying eBay's operations is a distinctive culture and some clearly expressed values. It has worked hard to develop customer trust, declaring that "eBay was founded with the belief that people are basically good. We believe that each of our customers, whether a buyer or a seller, is an individual who deserves to be treated with respect."

TECHNOLOGY IN SERVICE ENVIRONMENTS

Reflecting success stories like eBay, the Internet has attracted tremendous coverage in recent years. The rapid growth of the Internet demonstrates how the introduction and commercialization of new technologies can result in dramatic product innovations and lead to significant changes in how businesses operate and how people live and work. History is full of such examples. In the 19th century, the Industrial Revolution helped to usher in widespread use of such key technologies as water and steam power, railroads and electricity. People living in the 20th century found their lifestyles and opportunities shaped by innovations—such as personal automobiles, universal telephone service, global air travel, radio, television, computers, and satellites—that would have been unimaginable to earlier generations. As inhabitants of the 21st century, we can look forward to continuing new applications of technology in almost every area of our lives, giving us new options in fields such as financial services, education, medicine, entertainment, and transportation.

Each generation tends to use the word *technology* to describe, rather loosely, the practical application of cutting-edge tools and procedures. While many different types of technologies affect our lives, our focus in this chapter is on those that impact the way services are produced, delivered, and marketed. We begin with a brief look at different kinds of technology applications in services. Then we examine strategic issues related to the use of information technology in service delivery, with particular emphasis on the Internet and the World Wide Web. In the course of the chapter we explore whether companies should view technology as a strategic thrust in their business or just another operations tool, look at how new technologies impact productivity and service quality, and consider the potential for getting customers to use technology-based self-service options.

Different Types of Technology

At least six types of technology have implications for the service sector—power and energy, physical design, materials, methods, genetic biology, and information. The application of one type of technology in any service industry often requires assistance from some of the others.

Power and Energy Technology The search is on for improved sources of power. One important development is more sophisticated approaches to renewable energy, such as solar and wind power. The equipment is often owned by entrepreneurs who act as small generating services, selling power to utility companies. There has also been huge progress in miniaturization of batteries; their bulk and weight have been reduced while battery life and strength have increased. Such batteries power small portable IT equipment like laptop computers, pagers, and cellular phones that are widely used by many service businesses. By

facilitating mobile communications and service delivery in cyberspace, they enhance employee responsiveness and provide greater flexibility for customers.

Physical Design Technology   Creating smaller, lighter, faster, or more efficient equipment often requires new approaches to design. Laptops and cell phones look very different from desktop computers and conventional telephones. High-speed catamaran ferries are another example of innovative physical design. These ships, with their new hull designs and water jet propulsion systems (an alternative form of power technology), are revolutionizing marine transportation.

Materials Technology   New manufacturing techniques and materials have produced advanced plastics and metal alloys that make possible not only high-speed airfoils or miniaturized high-tech hardware, but also such mundane objects as energy-saving lighting to provide better security in shopping mall parking lots. Modern railroad cars make widespread use of materials technology, including metal composites for lightweight bodies, vandal-resistant plastics, artificial fibers for easy cleaning, and shatterproof insulating glass for good views without compromising climate control and safety.

Methods Technology   Here, attention is focused on developing new ways of working, including self-service by customers. It can be as simple as furnishing hotel bedrooms with box beds to simplify the cleaning task for housekeepers or installing beverage dispensers with automatic metering in a restaurant so that workers can perform other tasks while cups are filling.[2] Or it can be as complex as designing procedures for a hospital emergency room, an all-telephone bank, or an automated warehouse. Methods technology emphasizes that human involvement and success may depend on getting employees and customers to perform unfamiliar new tasks. To ensure that new methods are "user friendly," operations managers need to seek early and full participation of HR and marketing specialists in both design and implementation.

Biotechnology   "Biotech" includes research into the development and application of such procedures as gene splicing and gene therapy. Relevant service applications center around advances in medical treatments or development of genetically altered foods that might be served in restaurants. However, the long-term impact of these practices remains uncertain and their use—especially for broader public consumption—requires rigorous advance testing and thoughtful consideration of ethical criteria.

Information Technology   IT encompasses several key elements, beginning with the capture of data and its storage in memory systems. These systems may range in scope from a credit card's magnetic strip containing 200 bytes (equivalent to roughly three lines of typescript) to the terabytes of a super computer or data warehouse. IT is often identified with sophisticated hardware. But software is actually the key element in turning data into useful information (such as customer account profiles) or the intelligence found in expert systems that tell users—or even machines—what decisions to make. IT not only makes possible new service concepts such as Internet auctions, but potentially impacts almost every aspect of service.

Creating New Ways of Working

Before implementing new strategies to take advantage of emerging or improved technologies, managers have to ask how existing work patterns will need to change if an innovation is to fulfill its promise. There's an important link between IT and methods

Research via Internet: FieldSource can survey almost any demographic or lifestyle target group within its million-strong panel.

technology. Hammer and Champy make the point that companies often use IT simply to speed up existing processes. They claim that "the real power of technology is not that it can make the old processes work better, but that *it enables organizations to break old rules and create new ways of working*"[3] (emphasis added). In the case of IT, they argue that instead of "embedding outdated processes in silicon and software, we should be using the power of technology to radically redesign business procedures and dramatically improve their performance." (This assumes that firms are fully aware of what their existing processes are and emphasizes the value of blueprinting as a visual tool for process design or redesign.)

Service leaders employ technology as an active component of strategy. They seek to create and nurture a corporate culture that welcomes change and new methods of working. Many firms have their own technology units whose work is devoted to exploring how innovations might best be used to create value for customers and stock-holders, higher quality, greater productivity, and a competitive advantage for the firm. The most desirable innovations are those that fulfill several—or even all—of these objectives simultaneously. Companies that want to be on the cutting edge of new technology applications often work closely with university researchers and innovative manufacturers to shape the development of emerging technologies.

Technology and Innovation

In previous chapters, we described some dramatic instances of how technology has stimulated and facilitated innovation in the service sector. But service managers need to be realistic about technology's potential to create profitable results for their firms. In his book, *Megamistakes: Forecasting and the Myth of Technological Change*, Steven Schnaars writes of what he calls a bias toward optimism. "Optimism," he says, "results from being enamored of technological wonder. It follows from focusing too intently on the under-

lying technology."[4] Much has been made of the Internet's potential for facilitating new business concepts and improving business productivity through savings in activities such as purchasing and delivery costs.[5] But rushing to adopt new technologies without thinking through the implications for employees, customers, and the overall operating system can be a recipe for disaster, as evidenced by the failure of many dot-com companies (see the box, "What Caused the Dot-Com Meltdown?"). Michael Porter, respected for his work on competitive strategy, argues persuasively that:

> We need to move away from the rhetoric about "Internet industries, "e-business strategies," and a "new economy" and see the Internet for what it is: an enabling technology— a powerful set of tools that can be used, wisely or unwisely, in almost any industry and as part of almost any strategy.^

What Caused the Dot-Com Meltdown?

Few business phenomena have caused quite such a stir in the past half-century as the rapid rise and fall of the companies popularly known as the "dot-coms." During the late 1990s, numerous businesses were created to take advantage of the possibilities offered by the Internet. Enthusiasm was contagious. Speakers on the lecture circuit proclaimed that "the Internet changes everything" and predicted dismal prospects for established firms without an Internet presence. Venture capitalists and investors poured money into dot-coms, many of which launched initial public offerings and for a while saw their stock prices rise at a dizzying rate, making their founders multimillionaires and even billionaires—at least on paper. Yet by mid-2000, most dot-coms were struggling and their once lofty stock prices had shriveled. A much-reported succession of failures began and continued into 2001. What went wrong?

A key problem was flawed business models, in particular how the company was expected to make money. In trying to attract customers through low prices, many Internet-based retailers found that their margins were too slim—if, indeed, there was any margin at all—to cover higher than anticipated costs. Heavy expenditures were required for construction and operation of automated warehouses, while delivery costs were sometimes higher than the shipping charges imposed on orders. Operating an effective Web site proved more complex than predicted. Additional funds were needed to improve customer service, handle complaints, and accept merchandise returns.

Content provider companies, whose product consisted of information about specialized topics, found that many people didn't like to pay for information—especially if most of it could be found free elsewhere. Generating original material proved costly, since most dot-coms lacked the economies of scale and media affiliations enjoyed by portals such as Yahoo or AOL. Meantime, revenues received from advertising on their sites failed to match expectations.

Among other key problems faced by dot-coms were the high marketing costs of attracting visitors to their sites and intense competition from both traditional businesses and other online companies in the same field. Many "e-tailers" learned the hard way that running an Internet site isn't cheap, that when you don't carry your own inventory you lose control over pricing, that customers get angry when orders aren't filled promptly, and that what were anticipated as fixed administrative and infrastructure costs often turned out to be semi-variable, increasing stepwise with growth.

After studying 109 failed dot-coms, the Boston Consulting Group identified the following main reasons for failure (in some cases, there was more than one reason per company):

Poor revenue, cost, and profit model	59
No competitive advantage	55
Lack of benefit to consumers	34
Problems in organization and execution	15
Ineffective warehouse management and fulfillment	8
Firm's Web site conflicted with existing business partners	6

Marketing expenditures designed to build brand recognition and attract customers to company Web sites were often misdirected. No fewer than 17 dot-coms, representing a wide array of business activities, each spent $2.2 million for a 30-second TV spot during the 2000 Super Bowl. Observers concluded that many dot-coms had failed to understand that branding is not a strategy and that brand recognition alone doesn't necessarily lead to usage and brand loyalty.

Source: Marcia Vickers, "Models from Mars," *Business Week.* 4 September 2000, 106-107; Jerry Useem and Eryn Brown, "Dot-coms: What Have We Learned?" *Fortune,* 30 October 2000, 82-104; Matt Kranz, "What Detonated Dot-bombs?" USA *Today.* 4 December 2000, B1-B2; Paula Hjelt, "Collapse of the E-Universe," *Fortune,* 5 February 2001, 164-165,

Leading service firms treat technology as a critical component of their overall business strategy. These companies continuously explore ways to use technological innovations to create value for customers and stockholders, enhance quality and productivity, and provide a competitive advantage for the firm. Such innovations often present opportunities for—or even require—a change of strategy among existing firms. As we saw in Chapter 11, Kinko's has integrated the Internet into the firm's business model, using cyberspace to supplement existing, place-based delivery systems. Strategies of this nature are often referred to as **clicks and mortar** (also known as "clicks and bricks"). Other firms, like the software retailer Egghead (now <u>Egghead.com</u>), have abandoned physical space entirely in favor of the cyberspace alternative. Amazon.com, eBay, Webvan, and other "pure play" Internet firms have never had traditional retail outlets. From the customer's perspective, the goods they sell may be tangible but the companies themselves exist only in cyberspace.

clicks and mortar: a strategy of offering service through both physical stores and virtual storefronts via Web sites on the Internet.

IT AND THE AUGMENTED SERVICE PRODUCT

What do advances in IT mean for the augmented service product? As shown in Chapter 7, the supplementary services that surround the core, facilitating its use and enhancing its value, can be divided into eight categories: information, consultation, order taking, hospitality, safekeeping, exceptions, billing, and payment. We used the metaphor of a flower to depict the augmented service product as a core that is encircled by eight petals. In Chapter 11, we noted that a majority of the supplementary services represented by these petals are information dependent and can therefore be delivered electronically through such media as telephone, fax, electronic kiosks, or the Internet, rather than physically. When the core product itself is information based, then it, too, can be delivered through electronic channels.

As a result, there are many opportunities to employ IT when designing service strategy. And even though hospitality and safekeeping involve physical processes, there's still a need to record information about customer preferences and behavior relating to these supplementary elements. Figure 16.1 illustrates ways in which a Web site can be used to deliver or enhance service for each of the petals of the Flower of Service. In most instances, there's an opportunity to improve productivity by encouraging customers to perform self-service. Let's now examine in more detail some of the ways in which IT can be used to deliver different types of supplementary services.

Information and Consultation

Customers need information about the goods and services that they buy, including confirmation of orders and documentation of account activity. The Internet can enhance such service features. Well-designed sites provide the information that customers need about the firm and its services. Many sites include a section labeled FAQ (for "frequently asked questions") and an e-mail connection for additional follow-up to a customer service rep or specialist. Some even offer company-sponsored chat rooms where customers can talk with each other.

Employees can be transformed into instant experts by giving them easy access to relevant information. When a customer in Boston telephoned FedEx late one afternoon to request a pickup, the agent told him it was too late. However, there was still time, she added, to deposit his package in a FedEx drop box—would he like street directions to the nearest one? When he said yes, she gave him easily understood instructions on how to find the box, including references to local landmarks. The customer was impressed, complimented her on the clear directions, and said "You really know Boston well, you
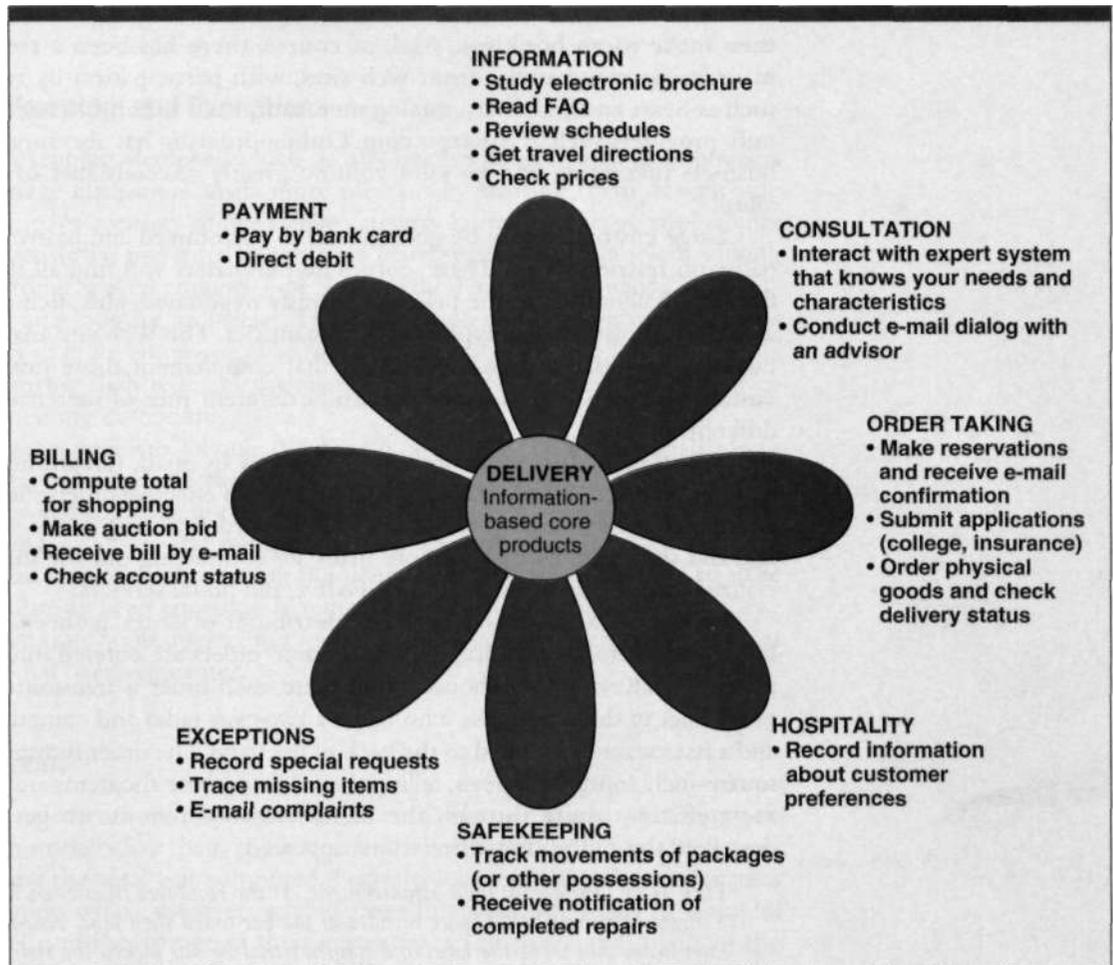
INFORMATION
- Study electronic brochure
- Read FAQ
- Review schedules
- Get travel directions
- Check prices

PAYMENT
- Pay by bank card
- Direct debit

CONSULTATION
- Interact with expert system that knows your needs and characteristics
- Conduct e-mail dialog with an advisor

BILLING
- Compute total for shopping
- Make auction bid
- Receive bill by e-mail
- Check account status

DELIVERY
Information-based core products

ORDER TAKING
- Make reservations and receive e-mail confirmation
- Submit applications (college, insurance)
- Order physical goods and check delivery status

EXCEPTIONS
- Record special requests
- Trace missing items
- E-mail complaints

SAFEKEEPING
- Track movements of packages (or other possessions)
- Receive notification of completed repairs

HOSPITALITY
- Record information about customer preferences

FIGURE 16.1
Applying the Power of the Internet to Core and Supplementary Services

must come from around here!" "No," she replied, "I work in the Chicago area and I've never even been to Massachusetts. I'm just reading this information off my computer screen!" FedEx had used the knowledge of local employees in Boston to create and record directions that any employee could subsequently access and provide with confidence. However, because even landmarks can change, such information needs to be periodically reviewed for accuracy.

Order Taking

How can technology make it easier for customers to place orders and for suppliers to take them? The key to improving productivity and quality in order-entry processes lies in minimizing the time and effort required of both parties, while also ensuring completeness and accuracy. Placing orders in person, by voice telephone, or by mail and fax are still widespread practices, but the Internet offers a cheaper option for such transactions.

Airlines, for example, encourage customers to check flight schedules on the Web and make their own reservations (Southwest Airlines notes that the cost per booking via Internet is about $1 as compared to $10 via a travel agent—and "somewhere in between" via a Southwest reservations agent[7]). Hotel chains enable customers to

research different offerings in each city served, review maps of hotel locations, and then make room bookings. And, of course, there has been a tremendous growth in ordering merchandise from Web sites, with participation by traditional retailers such as Sears and Wal-Mart, catalog merchants such as Lands' End, and new Internet-only providers such as asAmazon.com. Online ordering has also surged in business-to-business marketing and its sales volume greatly exceeds that of online consumer sales.

Large customers may be given access to customized and password-protected Web pages on restricted sites. There, corporate purchasers will find all the items that their firm normally orders at the prices previously negotiated, plus such useful information as ordering history and typical order quantities. The Web site may also prompt the buyer to consider additional products that complement those just ordered. Another customer's pages will probably contain a different mix of merchandise at somewhat different prices.

Whether customers order physical goods by mail, telephone, fax, Internet, or another medium, a vital challenge is to manage an effective order-entry process. Prompt execution of each order involves tasks such as order picking in the warehouse, packaging, and shipment. More and more firms are contracting out the shipping task to specialized intermediaries such as UPS, FedEx, and postal services.

McKesson, a San Francisco-based distributor of drugs, pioneered new methods of filling orders from retail druggists. Electronic orders are entered into the central computer at McKesson's warehouse. From there, each order is transmitted wirelessly to an order filler in the warehouse who wears a two-way radio and computer on the forearm and a laser scanner strapped to the back of the hand. The order is displayed on the three-square-inch computer screen, telling the worker where the items are and laying out the most efficient route through the 22,000-item warehouse to get them. As *Fortune* described this innovation when it first appeared:

> *Dick Tracy would gasp with astonishment. As the employee chooses each item, he points a finger, like some lethal space invader, at the bar-coded shelf label beneath it, shooting a laser beam that scans the label and confirms that he has picked the right product. When the order is complete, his arm-borne computer radios the warehouse's main computer, updating inventory numbers and the bill. The result: a 10% reduction in order errors and a hefty rise in the productivity of order takers*^

The McKesson example illustrates the need to change work methods to take advantage of new IT developments. In this instance, employees were actively involved in a pretest of the new technology, offering suggestions for design refine-

Southwest Airlines promotes access to its Web site for checking frequent flyer "Rapid Rewards" status.

ments. Now, the way they work has changed and the machine prompts them on how best to proceed.

Hospitality, Safekeeping, and Exceptions

Hospitality and safekeeping elements, which usually involve tangible actions in physical settings, help to make customers' visits more pleasant by treating them as welcome guests and taking care of a variety of needs. The category known as exceptions includes both special requests (often presented at the time of reservation) and problem solving when things go wrong. Special requests, especially medical and dietary needs, are common in the travel and lodging industries. The basic challenge is to ensure that each request is passed on to those employees who will be responsible for fulfilling it. The role of IT consists of storing such requests, passing them on to the relevant department or person, and documenting execution.

Technology speeds problem solving, too. USAA, a Texas-based firm specializing in insurance for military families and their dependents around the world, scans all documents electronically and stores them on optical disks. It also digitizes recordings of telephone calls reporting accidents, and stores them with scans of photos and reports from lawyers, doctors, and appraisers concerning the same claim. The space required to store claim dossiers has already been enormously reduced (the company used to have a large warehouse), and the time wasted searching for missing dossiers—which were often on somebody's desk—has been eliminated.

Billing and Payment

Bills and account statements are important documents, whether displayed in paper or electronic form. Customers like them to be clear and informative, and itemized in ways that make plain how the total was computed. Forward-looking companies use market research to determine what customers expect from financial statements in terms of structure and detail, and then program their computers to organize and highlight the information in useful ways. When a Boston-based bank surveyed customers' preferences for bank statement formats, it found that people's opinions varied. Rather than trying to design a new statement that incorporated something for everybody but would have delighted nobody, the bank created three different formats offering varying degrees of detail and emphasis and let customers select the one they preferred.

Merrill Lynch continues to enhance the way it documents information on its award-winning monthly CMA (cash management account) statements, which have to integrate data on investment activity—including purchases, sales, dividend and interest receipts, and investment value—with details of checking and Visa card transactions. The first page provides boxed summaries, with comparative data for the previous month and year to date, plus charts showing asset distribution and trends in total account value during recent months. Clients can also review their account data on password-protected Web sites. At year-end, clients also receive an annual summary of checking and Visa card activity, organized by expense category, both monthly and for the year. Many clients find this information useful when preparing their taxes.

Wireless networks allow firms to take the checkout to the customer, rather than vice versa. At many rental car return lots, attendants take details of the fuel level, odometer reading, and driver's contract, then use a handheld device to print out a bill on the spot. In France, restaurant servers bring a wireless card reader to the table when it's time to pay. The amount is entered, the user's card is verified, and then the machine (about the size of a handheld video game) prints out the bill for the cus-

tomer to sign. Machines such as these save time for customer and supplier alike, as well as reducing paperwork and minimizing the potential for errors that comes from manual transfer of data.

THE DIGITAL REVOLUTION

When computers were first developed for commercial purposes, they were used mainly for recordkeeping and backstage operations in large companies. Individual customers first noticed their application in fields such as bank statements in the late 1950s and airline reservations in the 1960s. By the 1970s, the technology of transmitting data by telecommunications had become sophisticated enough to permit creation of ATM networks in retail banking. The 1980s saw the advent of personal computers, modems, and fax machines, enabling customers and businesses to contact each other in new ways. In the mid-1990s, the technological focus shifted to the Internet.

The Power of Networks

Behind the Internet and many other IT innovations lies the merger of two separate technologies—computers and telecommunications. Underlying the global revolution that has resulted from this merger, which George Gilder described as a change that "leaves all previous technological history in its wake,"[9] are five key factors:

Moore's Law: a scientific theory that predicts a doubling of computing power for the same price every 18 months.

>- An enormous and sustained increase in computing power, paralleled by a rapid fall in the cost of this power (**Moore's Law** predicts a doubling of computing power for the same price every 18 months).

>- Digitization of all types of information—from the analog waves of radio, television, and telephone calls to the images of movies and graphics—so that they can be stored and manipulated in the binary language of computers.

>- A huge increase in the capacity of telecommunications as new satellite and microwave linkages are installed and fiber-optic cable replaces conventional "twisted pair" and coaxial cables.

>- A miniaturization of hardware and batteries that makes it possible to create a wide array of portable telecomputing devices.

>- Advances in software, digital switching technology, and network architecture that enable high-quality voice, picture, and data transmissions to move seamlessly between different types of terminals located all over the world.

Collectively, these developments are fueling the rapid evolution of the Internet and its best-known component, the World Wide Web. The Internet is constructed of huge numbers of servers (large computers that control customers' e-mail and Web pages). As a global "network of networks" that links both individuals and businesses around the world, the Internet is open to all who can connect to it.

A fundamental characteristic of networks is that they increase in value dramatically with each additional node or user.[10] **Metcalfe's Law** (named for Robert Metcalfe, founder of 3Com Corporation) specifies that the utility of a network—whether of telephones, computers, or people—is the square of its number of users. Consider your telephone. It's useless if disconnected and would be of limited value if few of your friends, family members, or the organizations that you needed to contact could receive phone calls. The more people you can reach—and the more who can reach you—the more valuable the network. This fact helps explain the early emphasis placed by Web start-ups such as eBay and Amazon.com on growing their customer bases quickly instead of

Metcalfe's Law: a scientific theory specifying that the utility of a network is the square of its number of users.

seeking immediate profits. Stimulating rapid growth requires both an attractive, well-executed service and heavy expenditures on marketing communication, thus necessitating substantial working capital.

E-Commerce: New Paradigms in Communication and Distribution

Regis McKenna, a consultant to high-technology companies, argues that marketing's traditional, research-based connections to customers are no longer sufficient in a real-time world:

> [M]ore continuous connections with customers can provide information that focus groups and surveys cannot. . . . The knowledge of indh'idual customer needs that companies can capture through technology harkens back to the days when the butcher, baker, and candlestick maker knew their clientele personally. . . . In that setting, customer service relationships were built on face-to-face transactions. . . . Today's technology can recreate the conversation between the shopkeeper and the customer.

As service firms grow larger and extend their operations across broader geographic areas, corporate managers may become far removed from the day-to-day operations of the business—and thus from intimate dialog with their customers. This development requires new efforts to understand and record customer needs so that representatives of the firm can reach out to each customer across time and geography. The interactive nature of the Web facilitates exchanges between customers and suppliers concerning customized information, advice, order entry, order status, and complaints. It shifts power from sellers to buyers by allowing conversations among customers through such mechanisms as chat-rooms and user groups. Independent virtual communities may evolve based on specific topics ranging from hobbies to health care. In a few instances, groups of discontented customers have even created negative Web sites (some bearing a variant of the corporate name plus the suffix "sucks") to air their complaints.[12]

The larger the number of households and businesses gaining access to the Internet (preferably through fast, broadband connections), the greater its potential. With no cost penalties to either suppliers or customers for accessing geographically distant sites, the size of the potential market for many products is greatly expanded. In turn, customers may be exposed to more choices and can more easily compare prices. Unlike traditional broadcast networks, the Internet is interactive. E-mails and the Web can be used as communication channels to supplement or replace traditional brochures, instruction manuals, press releases, sales promotion, and advertising.

However, managers need to recognize that creating and maintaining Web sites and their content can be expensive. Even such apparently simple tasks as composing and responding to e-mail messages costs money, and if a firm fails to respond promptly and effectively to customer e-mails, it may lose those customers and generate negative word-of-mouth. eBay's experience shows that major investments are needed in Web infrastructure and customer service as the firm grows in order to avoid system crashes and ensure prompt response to customer queries.

When physical goods are ordered through the Web, the cost of fulfillment, packaging, and shipping can be substantial. Provision must also be made for returns of unsatisfactory merchandise. The strategic issue for these types of companies is how to add more value through Internet-based relationships than they might through conventional distribution in the form of face-to-face contacts, telephone interactions, or mail order—and how to do so profitably (see the box "Webvan: Groceries from Cyberspace to Your Home or Office").

For many people, the term *e-commerce* conjures up images of purchasing from high-profile retail sites, making airline reservations, or conducting banking transactions online. In practice, however, use of the Net is more pervasive in business and industrial

settings. In b2b (business-to-business) markets, where communities with common business interests lead to powerful networks of relationships, offline communities can readily be moved online. In the b2c (business-to-consumer) world, by contrast, communities must typically be formed and built from the ground up.[13]

Speed, choice, and cost savings have become key forces in business procurement.[14] Research suggests that b2b e-commerce has the potential to cut costs anywhere from 2 percent (in the coal industry) to as much as 29—39 percent (for electronic components). Most industries can expect savings in the range of 10—20 percent.[15] Companies are achieving these savings by reorganizing their procurement functions and reengineering traditional value chains. In their book *Blown to Bits,* Evans and Wurster describe how some existing supply chains are being completely dismantled and reformulated, in a process they call deconstruction.[16]

Forrester Research has forecast that intercompany trade in which the final order is placed over the Internet will amount to $2.7 trillion by 2004.[17] Although much e-commerce consists of companies marketing their products directly to customers, some entrepreneurs have created Web-based brokerages or "e-marketplaces," using the power of the network to bring buyers and sellers together in auctions, exchanges, and consolidated purchasing arrangements.[18] But this strategy has produced a competitive response from large industrial purchasers. Not wishing to lose control over their supplier relationships, some major buyers have created their own sites to facilitate interactions with suppliers.[19]

Webvan: Groceries from Cyberspace to Your Home or Office

Following its merger with HomeGrocer.com, Webvan.com was one of the few survivors among the many innovative "dot-com" firms created to offer home delivery of groceries and household products ordered by customers through the Internet. In early 2001, Webvan served ten major metropolitan areas. The company's target market included dual-income families and single professional workers who were too busy (or too exhausted!) to visit the supermarket themselves; parents with small children; and seniors or people with chronic illnesses who found city travel uncomfortable or impossible. The service depended on its couriers, who got 99 percent of grocery orders to their destinations within the 30-minute delivery window specified by customers.

Webvan also targeted the business market with a service called *Webvan@work,* which delivered drinks, snacks, prepared foods, and some office supplies to small- and medium-sized businesses. This service helped to increase productivity by keeping Webvan couriers more consistently occupied, since business deliveries were usually made during the workday, when the number of home deliveries was small.

Although most customers seemed very satisfied by Webvan's service, its future remained uncertain at the dawn of the 21st century. Its stock price had dropped dramatically during 2000, following the failure of several high-profile online grocers (including the industry pioneer, Peapod, which was purchased by the Dutch grocery giant Royal Ahold). Investors and analysts were wary about the long-term profitability of Webvan's business model, because making its customers happy had proved to be an expensive proposition; in fact, the company lost $241.6 million on sales of $57.5 million in 2000.

Yet another major challenge loomed large on Webvan's horizon. Some bricks-and-mortar grocers were currently exploring a similar delivery method as a supplement to their own retail stores. Safeway had invested $30 million for a 50 percent stake in GroceryWorks, a small online company destined to become the chain's Internet division. It planned to compete directly against virtual companies in urban areas where its grocery stores were already established. Hence, many observers wondered how long Webvan could survive as an independent company.

OUR ONLINE SHOPPERS DON'T JUST "ADD TO SHOPPING CART." THEY "ADD TO FREIGHT CAR."

THE BEST-RUN E-BUSINESSES RUN SAP

B2B e-commerce: There's more at stake with an order for 20,000 pounds (9 tonnes) of ammonia than one for just a couple of books.

The Internet, Intranets, and Extranets

To make the best use of Internet technology, marketers need to understand the difference between the Internet and the more restricted networks known as Intranets and Extranets. Figure 16.2 clarifies their different characteristics and how they relate to each other.

The **Internet** is a public network, accessible to all. It's an open, free-ranging array of millions of computer hosts, offering access to e-mail and all unrestricted Web activity that is available to any user around the world. As such, it provides countless sources of information on companies, government agencies, economic activities, vital statistics, the media, and academia. However, as experience has shown, it's vulnerable to attack from hackers.

Intranets are composed of e-mail and Web site networks that are internal to specific organizations and restricted to authorized personnel. For security reasons, some companies deliberately keep their Intranets disconnected from the outside world. Corporate Intranets link a firm's vital activities, facilitate access to important information—including that needed to serve customers better—and speed communication among different departments and geographically separated offices. In a sense, Intranets help a widely dispersed organization create a virtual corporation in cyberspace. Some companies have completely revitalized their operations by using in-house information networks to show employees how to work both better and smarter.[20]

Extranets form the core of most Internet business-to-business commerce and are generally open to suppliers, distributors, retailers, and other alliance partners, as well as large corporate customers. However, they can also be found in consumer settings, especially among businesses promoting sales to a group of known customers. Extranets are typically reached through a published Web address that contains a secured link to a restricted site, whose access is limited to authorized users. Access may require advance registration and use of a password. Extranets enable firms to engage in active conversations with known users and thus offer a high degree of personalization. They have become common in supply chains and are leading to a restructuring of these chains.

Internet; a public network that includes all e-mail and Web activity that is open and available to any user— around the world.

Intranets: e-mail and Web site networks that are internal to specific organizations, available only to authorized employees and other personnel, and protected from outside access.

Extranets: networks that are reached through a published Web address containing a secured link to a restricted site, whose access is limited by password to authorized users.
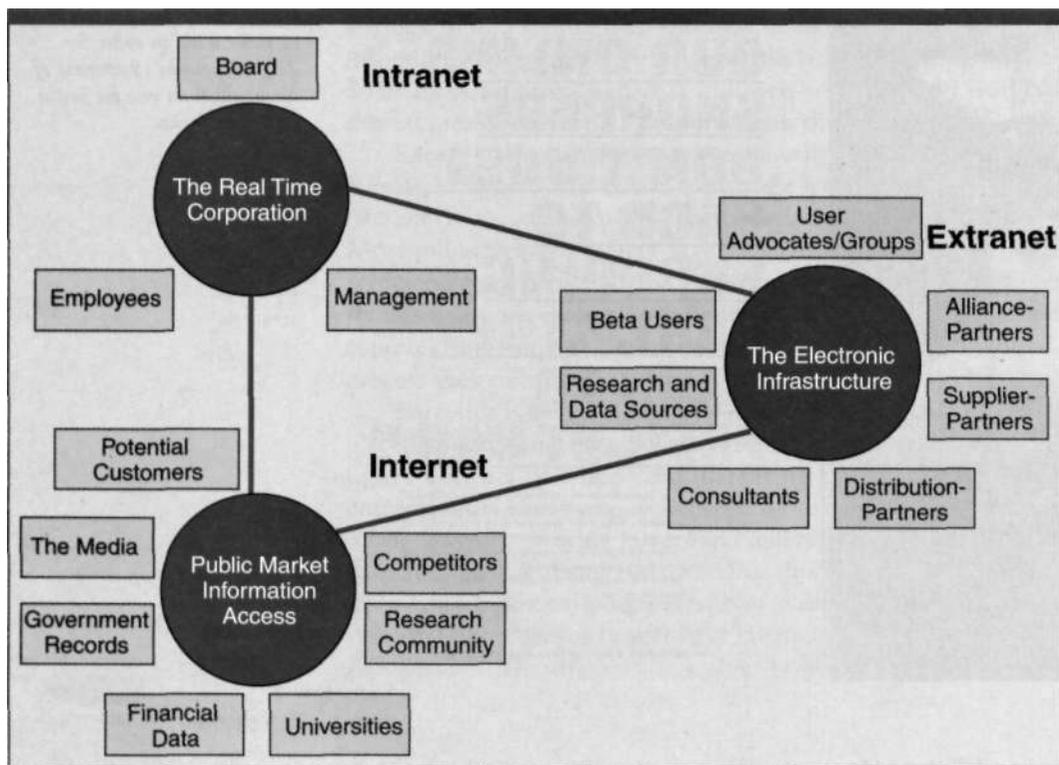
FIGURE 16.2

"he Intranet, Extranet,
and Internet

SERVICE STRATEGY AND THE INTERNET

Recent years have witnessed rapid growth in Internet commerce for both goods and services. The potential of the Internet (which includes both e-mail and the Web) extends to every element of service management.[21] It offers marketers exciting opportunities for service innovation, allowing marketers to create new service concepts—such as eBay's online auctions or Amazon's virtual bookstore—as well as adding new product elements and introducing new dynamics to communication, pricing, and distribution strategies in existing organizations. Although an intangible medium in itself, the Web's ability to integrate text, sound, and video creates interesting options to simulate physical evidence of services.

Many companies are attracted to the Internet by its potential for improving the productivity of service processes. At the same time, the Web's ability to combine centralized control with the responsiveness of speed and customization can, if properly implemented, lead to improvements in service quality, too. One way the Web can improve productivity is by enabling customers to perform more self-service tasks. As a result, the human factor plays a lesser role on the Web than in face-to-face or even telephone-based contact. But the people dimension still has a vital role to play in problem solving and service recovery. In fact, these two service dimensions will provide a key source of competitive advantage as Internet marketing matures.

Adaptive and Transformative Approaches to Strategy

Senior executives must decide to what extent the Web should become the driving force behind their firm's business strategy, as opposed to an enhancement of the existing, more traditional strategy. Alternative strategies can be divided into two broad

groups—**adaptive applications** in which the Web supplements existing marketing arrangements and **transformative applications** in which the Internet becomes the major driver of the firm's strategy. For an example of shifting from an adaptive to a transformative strategy, consider the evolution of the brokerage firm, Charles Schwab (see box).

Unlike Schwab, many companies have chosen to hedge their bets by viewing the Internet as an additional medium for marketing communications, a supplement to telephone ordering procedures, or another way to deliver information-based services. Since Web sites can play a variety of tactical and strategic roles, service managers should choose the business model that is most appropriate at a particular point in time.

adaptive applications: situations in which the Web supplements a company's existing market arrangements.

transformative applications: situations in which the Internet becomes the major driver of a firm's strategy.

Technology and the Evolution of Charles Schwab

The Charles Schwab Corporation, which now describes itself as "a different kind of full-service broker," was founded as a discount securities broker to take advantage of the abolition of fixed commission rates in 1975. The company's initial service was very basic—accurate and timely execution of investment transactions for clients who conducted their own research and made their own investment decisions. By 1979-1980, Schwab's expanding customer base and transaction volumes enabled the firm to make significant investments in back-office technology and to offer new services like money market mutual funds and asset management accounts. By adding value through automation, Schwab altered its market position from one based on low-price transactions to one that promoted value-added service at a low price.

In 1995 Schwab introduced its "StreetSmart" software package, which allowed account holders to trade through their computers and to obtain online access to current investment information. But in 1996, a new and well-funded competitor, ETRADE, offered online trading at a flat rate of $29.99 a trade. Schwab promptly launched Web-based online trading through a separate business unit called e-Schwab. Pricing soon became a sore point. Customers who telephoned their orders to a Charles Schwab call center still paid a commission, averaging $80 a trade; whereas the price at e-Schwab (originally $39) had been reduced to $29.95 in response to E*TRADE's cut to $19.95.

In 1998, the firm made a strategic shift, merging e-Schwab with Charles Schwab, adopting a single low-rate scale for all customers, and rebuilding its business model around the Internet. The firm's goal was to create a new segment in the brokerage business—the mid-tier broker—offering most of the service and advice provided by a full-service broker at a fraction of the cost. Thanks to rapid growth, the firm recovered from the revenue impact of this move in only 14 months.

To attract new customers, the firm changed its message from one emphasizing technology to one that demystified online investing and focused on the customer's whole experience with Schwab. It emphasized value, based on such innovations as online access to expert systems that help customers match their investment goals to, for example, specific mutual funds. Unlike other online brokers, Schwab's customers could choose between doing business online, by telephone, or in one of the firm's bricks-and-mortar stores. They could get advice by downloading articles, participating in online investment forums with experts and business leaders, sharing ideas with other Schwab investors, or—for a fee of several hundred dollars—meeting with a specialist for an in-depth portfolio analysis and consultation.

Schwab's success has forced traditional full-service brokers to reexamine their pricing policies and to consider offering online service too. In the meantime, however, Schwab has taken steps to strengthen its appeal to its long-time customers—around 175,000 out of a total of 6.6 million—who now have investable assets of more than $1 million and are at risk of defecting to high-service private banks. In January 2000, Charles Schwab announced the purchase of U.S. Trust Co., an asset management firm catering to the very wealthy.

Reflecting on the strategic role of the Internet at Schwab, the company's chief information officer, Dawn Lepore, remarked "to win in this new economy, the Internet must be integrated and imbedded into your company—not tacked on top of your existing business model."

Source: Kent Dorwin, "Repositioning a Leading Stockbroker," *Long Range Planning,* November-December 1988, 13-19; Jeffrey M. Laderman, "Remaking Charles Schwab," *Business Week,* 25 May 1998, 122-129; Mary Modahl, *Now or Never* (New York; Harper Business, 2000}, 119-125; and Louise Lee and Mike McNamee, "Can Schwab Hang on to Its Heavy Hitters?" *Business Week,* 31 January 2000, 46; and www.aboutschwab.com, February 2001.

Customer Interactions with Web Sites

As we showed in Chapter 4, individuals can be segmented according to their willingness and ability to use technology.[22] A fundamental split exists between those with access to the Internet and those without. Users without home connections may still have access available at work, school, a library, or even an Internet cafe. Although computer ownership and Internet access are rising in all countries (60 percent of the U.S. population had access in early 2001), there is concern about individuals on the other side of the so-called "Digital Divide" who are isolated from the Internet economy due to lack of resources or poor education.

Understanding people's habits is also important. As shown in Table 16.1, not everyone with Internet access actually uses it to visit Web sites (many just use it for occasional e-mail). The average amount of time spent surfing per month varies from almost nine and a half hours for active users in the United States to less than half that amount in Ireland; but across six countries, the average amount of time per session is surprisingly consistent—about half an hour. Americans have more frequent sessions than Internet users in other countries and view more Web pages, but they actually visit fewer unique sites, suggesting more in-depth visits to a more limited array of sites. An open question is whether such behavior makes it harder for a new site to attract attention.

Web sites vary according to the level of customer interaction that they demand. Three different categories of Web site can be identified, offering different levels of capability.[23]

>- *Publishing sites* are basically electronic brochures, catalogs, newspapers, magazines, or even encyclopedias that can be updated as frequently as the sponsor wishes. They offer the same information to all visitors and are best thought of as a broadcasting medium. They typically contain numerous pages organized around many different topics, which users can search and retrieve as they wish. Some also feature animated graphics and sound. However, interaction between a company and its Web site visitors is limited. In a simple publishing site, the only customer data available comes from counting clicks by visitors.

^*Databases and forms sites* combine publishing power with search engines that enable visitors to retrieve information in response to requests. Thus they offer interactivity and dialog. Much basic e-commerce is accomplished with capabilities that include the ability to get customized information, select products, and submit purchase orders. A user's interrogation of this type of site might include questions like: "Which Banana Republic store is closest to my home address and how do I get there?" or "What flights are available tomorrow between Houston and Mexico City?"

TABLE 16.1

Variations by Country in Average Internet Usage by Individuals

	Monthly data			Per session data			
	Percent with access actually surfing	**No. sessions**	**Time online (hours)**	**Unique sites visited**	**Page views**	**Time online (minutes)**	**Page views**
USA	63	19	9.5	11	671	30	36
Australia	50	12	7.2	15	468	35	38
Ireland	47	9	4.5	17	329	30	40
New Zealand	47	15	7.4	21	421	30	29
Singapore	23	13	6.9	20	506	32	40
UK	44	II	5.2	17	400	28	36

Source: Compiled from data by NielseiV/NetRatings, March 2000.

>- *Personalization sites* offer the most sophisticated approach, because they are capable of dynamically creating a page catering to a specific individual. Moving beyond an "ask-respond" interaction into a dialog, they may anticipate user choices and suggest possible alternatives. Users must be prepared to reveal at least part of their identities and wants (by creating a customer profile) in order to benefit from such customization, and the site must be programmed to respond appropriately. eBay's auctions require personalization, since each item for sale requires separate treatment. Constructing, maintaining, and upgrading these sophisticated sites is an expensive proposition and the task is often outsourced.

Internet Revenue Models

Web sites are the public face of an organization's Internet operations. As any Internet surfer knows, not all Web sites are created equal. Apart from ease of navigation, quality of presentation, and volume of information, they also differ in terms of what they can do for customers. Some traditional organizations still employ Web sites as little more than electronic brochures, designed to supplement other elements in the marketing communication mix, without attempting to link exposure directly to sales. By contrast, pure Internet firms—the so-called dot-coms—seek to generate revenues from direct sales responses, partners, or advertisers. There are two basic kinds of revenue models: provider-based and user-based.

Provider-Based Revenue Models   This approach to doing business on the Web is based on obtaining fees from other companies who wish to reach visitors to a specific provider's site.

>- *Content sponsorship* requires one or more sponsors to pay a fixed price for a defined period, based on the projected number of visitors, in return for having their names prominently displayed on the site, typically in some form of banner advertising. If the number of visitors changes in the future, so will the price—much as happens with newspaper circulation or TV viewership—since the goal is exposure to the advertiser's name. This approach is suitable for publishing sites, especially when the site owner does not expect to charge customers for access or downloading.

>- *Retail alliances* involve exclusive or near-exclusive deals for a firm to be the preferred vendor in a specific product category (e.g., books, music, cars). Vendors pay substantial fees—often millions of dollars a year on popular sites—for the right to have a clickable link in a prominent spot on the site. Fees are determined by the anticipated volume of traffic and the extent of competitive exclusion.

>> *Prospect fees* (also known as *click-through fees)* tie the payments for clickable links to the number of visitors who complete some action. At the simplest level, these fees are based on the number of visits to the advertiser's site. More sophisticated measures of performance include marketing-relevant behavior such as filling out a form or downloading software.

*» *Syndicated selling* involves payment of sales commissions to affiliated sites when a customer clicks through from one site (an affiliate) to make a purchase on another, linked site. Online booksellers such as Barnes and Noble often enter into affiliate relationships with sites that can promote sales of books on particular topics.

From the standpoint of the site owner, fixed sponsorship fees offer the advantage of upfront payments that can help finance future improvements. However, many marketers have grown skeptical about the effectiveness of advertising on the Web and of site sponsorship. Moving to a pricing policy based on prospect fees or sales commissions is risky because the site's revenue becomes dependent on both traffic to the site and the advertiser's success in motivating behavior. If a Web site fails to attract many visitors and only

a small percentage of them click through to the advertiser and buy something, then the revenue stream will be minimal.

User-Based Revenue Models   The most widespread form of e-commerce (especially in the b2c domain) seeks revenues directly from customers, making it easy to evaluate effectiveness and profitability. Revenues from customer transactions may include direct sales of merchandise or services, subscription fees for the right of access to a restricted Web site with valued content, time-based pay-per-view fees, or pay-per-use transaction charges, such as accessing and downloading copies of articles from a publishing site. In the case of auction sites like eBay, revenues usually take the form of listing fees and commissions paid by sellers on the selling prices they obtain.

Competing on the Web

Throughout business history, the failure rate for new businesses (and new products) has always been high and dot-coms are proving no exception, with a majority of Internet start-ups predicted to disappear through bankruptcy, merger, or takeover. A number of traditional firms, especially channel intermediaries in b2b supply chains that no longer add value, will also disappear.

Although some established organizations have been very successful in reinventing their operations to take advantage of the Internet, others were left behind in the rush to add a Web presence and have been struggling to catch up. As service businesses become more experienced with online environments, they face a number of challenges in developing successful e-commerce marketing strategies and competing effectively on the Internet.[24]

>- **Limited consumer exposure and buying.** Consumers tend do more browsing than buying, surfing from site to site. The average amount of time spent at any given Web site is surprisingly short, ranging from as little as 3 minutes for adult sites (which charge a high per-minute fee to view their often sexually explicit content) to 15 minutes for visits to finance, insurance, and investment sites (see Table 16.2). Overall, the average time spent per page on a site is less than a minute. The shorter the time, of course, the less opportunity there is to catch the visitor's attention with on-site advertising. In 2000, fewer than 20 percent of surfers used the Web regularly to purchase goods or services. In fact, the majority of online buyers are businesses rather than individuals.

>- **Chaos and clutter.** The millions of Web sites on the Internet collectively provide a staggering amount of information. But many sites go unnoticed, and those that are visited must capture visitors' attention within a matter of seconds or risk losing them to another site.

3* **Security.** Many consumers worry about making credit card payments online. Businesses are afraid that their computer systems might be invaded for espionage or sabotage purposes. Viruses are also a major concern. The Internet is becoming more secure, but there is an ongoing race between new security measures and new code-breaking tactics.

>- **Ethical concerns.** Consumers are fearful that companies might collect information about them online and use it in unauthorized ways (like selling it to other firms who would then use it to create personal profiles or to e-mail unwanted advertising messages). An investigation of 674 commercial Web sites by the U.S. Federal Trade Commission in 1997 revealed that 92 percent collected personal information, but only 14 percent disclosed what they did with it. Since then, threats of government intervention have prompted many Web merchants to post privacy policies. (However, these policies did not stop some failed dot-com companies from selling their customer lists to help offset bankruptcy-

	Minutes
Adult	3.2
Health and fitness	5.0
Corporate information	5.7
Telecom/Internet services	6.6
Travel	7.2
Government/nonprofit	7.9
News and information	8.5
Sweepstakes/coupons	8.5
Search engines/portals	9.0
Sports	11.0
Entertainment	11.6
Online communities	13.0
Finance/insurance/investment	**15.0**

TABLE 16.2

Average Time Spent at a Web Site by Category of Site

Source: Nielsen//NetRatings, June 2000 (www.nielsen-netratings.com).

related costs.) A more recent survey indicated that 90 percent of the online marketers in their sample believed that their current Web site privacy self-regulation systems are adequately protecting consumers' rights.[25] But many consumers remain unconvinced.

>- **Consumer backlash.** While the Web has shifted power to consumers by giving them more product information than ever before, it has also given them a more effective means for expressing their dissatisfaction. Rogue Web pages developed by irate consumers or former employees have taken on a range of big-name companies, including Wal-Mart, United Airlines, and Burger King.

The nature of doing business on the Web is continually evolving. Customers are becoming more demanding as the novelty of visiting Web sites and making electronic purchases wears off. As in conventional retailing, some firms seek to add value through service innovations, whereas others just compete on price. However, retail firms that seek to provide high levels of Internet service recognize that purchasers need to feel as comfortable making decisions online as they would in a store, where they can examine the merchandise and speak with a sales rep (see the box, "Lands' End Takes Its Business Online").

Few service businesses can be all-Internet operations. That option is available only to companies marketing information-based core products that can be delivered directly through the Web (like insurance, loans, and banking services) or whose service is to facilitate exchanges of information (such as auction sites and b2b exchanges). People-processing services like airlines and hotels must still serve their customers at physical locations. For them, the Internet is a way to build closer relationships with customers while minimizing the cost of taking reservations. The Internet plays a similar function for possession-processing services. Traditional retailers of physical goods will always need physical channels to get their merchandise to customers. The decision facing them is whether to continue operating retail stores or to focus (like Lands' End and other catalog/Internet retailers) on merchandise selection, marketing, and order taking, while contracting out many physical distribution aspects to a specialist logistics firm.

GUIDELINES FOR EFFECTIVE USE OF TECHNOLOGY

It's appropriate to conclude this chapter as we began it with a reminder that although technology will change the way many service firms interface with their customers in the future, not all new technical innovations will succeed. How should established service businesses—and especially retailers—approach the challenge of adapting to new

technologies? Some guidelines for choosing and using technological innovations effectively are provided below.[26]

1. **Use technology to create an immediate, tangible benefit for customers.** If consumers don't see how it is going to help them, they often assume it's going to be used against them (hence their concern that data-gathering technologies are becoming too intrusive).

2. **Make the technology easy to use.** From the consumer's viewpoint, many technologies actually make shopping more difficult. For example, research shows that it takes customers 20 to 30 minutes to learn how to use most text-based Internet grocery shopping programs. By contrast, it takes them only 2 to 3 minutes to learn in a three-dimensional virtual store modeled after a bricks-and-mortar store, because the latter is more intuitive.

3. **Execution matters: prototype, test, and refine.** Many potentially viable concepts fail from poor execution. For instance, when customers tried to use a "meal solution" video kiosk at one supermarket, they became frustrated by their inability to print out a menu and the machine fell into disuse. The source of the problem? The printer was out of paper, but there was no screen message to communicate this fact!

4. **Recognize that customers' responses to technology vary.** Certain personal characteristics are associated with customer readiness to embrace new technologies. These attributes include innovativeness, a positive view of technology, and

Lands' End Takes Its Business Online

Lands' End, the direct sales clothing marketer, wants to change the way customers purchase its products. The firm has a strong motivation to move its customers from telephone use to Web use, since printing and mailing 250 million catalogs a year accounts for 43 percent of its total operating costs. Operating a 3,000-person call center is also expensive. One of the company's innovations has been to allow both male and female customers to evaluate clothes on its Web site by creating and saving an online profile called "Your Personal Model." By entering the relevant information, customers can build a three-dimensional model that matches their body shape, hair style and color, skin tone, and face shape. With a single click, they can dress this customized model in selected clothing items and view it from different perspectives.

Lands' End is also integrating its Web site and telephone call center, just as it earlier integrated toll-free telephone calling with its mail-order catalog. While online, customers can contact a call center agent by clicking on a callback button and entering a telephone number for the agent to call. Alternatively, they can click on an instant text-message button and chat online in a text dialog. In both

instances, the customer's and agent's browsers are linked so that both can view the same Web page as they converse. As one researcher at the firm commented:

> We wanted a way to increase customer service. While some sites have taken the notion that the more they can reduce human interaction, the more cost effective their site would be, we've taken the exact opposite view. In the past few years, e-commerce was a novelty. But.. .now that people are used to the concept of shopping on line, they are starting to expect more. They want the same level of service they find when walking into a store or contacting a traditional call center. They want answers and access to knowledgeable agents.

In addition to selling to individual consumers, Lands' End makes substantial sales to corporations, often involving employee uniforms bearing a corporate logo. Purchasers can upload their logos to a special Lands' End site and then view how that logo would look on a particular item of clothing in various logo and color combinations. This option is very popular with customers, who not only save time and effort but also have greater confidence that they have made the right choice.

Source: "A Better Way to Get Clothes to Fit," *Newsweek,* 30 October 2000,18; Rebecca Quick, "Getting the Right Fit-Hips and All, *Wall Street Journal,* 18 October 2000, B 1; Mary Modahl, *Now or Never* (New York: HarperBusiness, 2000), 199-203; George V. Hulme, "Help! Companies Are Turning to Their Call Centers to Improve Customer Service on the Web," *Sales and Marketing Management,* February 2000, 78-82; Dana James, "Custom Goods Nice Means for Lands' End, *Marketing News,* 14 August 2000, 5-6.

the belief that it offers people increased control, flexibility, and efficiency in their lives. Factors that reduce customers' receptiveness to new technologies include distrust, a perceived lack of control, feelings of being overwhelmed by technology, and skepticism about its ability to work properly.[27] Research on technology anxiety has shown that customers may avoid using new technologies even if they understand the benefits. Educational efforts, including hands-on training, may be needed to minimize the impact of technology anxiety among both customers and employees. Providing alternative service delivery options allows customers to select the delivery method that best fits their needs.[28]

5. **Build systems that are compatible with the way customers make decisions.** Designers need to learn more about consumers' behaviors and observe them in action. One Internet start-up launched a grocery shopping system that grouped cold cereals by their main ingredients—rice, corn, wheat, etc. Unfortunately, many shoppers had trouble finding their favorite brands because they didn't know the ingredients!

6. **Study the effects of technology on what people buy and on how they shop.** Research in the United States shows that text-based home-shopping systems make consumers more price-sensitive than systems that display realistic images of the merchandise. In Sweden, a grocery store experimented with electronically adjusting prices according to the time of day. It found that a strategy of reducing prices in the evening increased sales by 40 percent during that time and doubled store traffic.

7. **Coordinate all technologies that touch the customer.** Whether a customer encounters a retailer via the Internet, a catalog, by telephone, or in the physical store, there should be some commonalities to the experience. Customers are often channel-blind. When they view a business as a single entity rather than a multi-channel operation, they expect a specific firm to offer the same merchandise at the same prices accompanied by the same knowledgeable and courteous service in all of its delivery channels, including the Internet.[29]

8. **Use technology to tailor marketing programs to individual customers' requirements.** Treating all customers alike puts traditional retailers at a disadvantage, since electronic retailers can use their databases to customize marketing programs instantly to match the needs of individual shoppers.

9. **Build systems that leverage existing competitive advantages.** Despite the role of cyberspace in electronic retailing, the constraints of time and space still exist. Consumers may not want to wait for a physical product to be shipped to them (assuming that it can be shipped at all). They may feel that a picture and specifications on a computer screen cannot fully compensate for not being able to see and touch the real thing. Bricks-and-mortar retailers should use technology in ways that magnify the positive differences separating them from their purely electronic competitors.

Conclusion

Technology in services goes beyond just information technology, central though that may be in modern life. Service managers also need to keep their eyes on developments in power and energy, biotechnology, physical design, methods of working, and materials. Changes in one technology often have a ripple effect, requiring leverage from other technologies to achieve their full potential. Every time technology changes, it creates threats to established ways of doing business and opportunities for new ways to offer

service. Service leaders often seek to shape the evolution of technological applications to their own advantage. Forward-looking firms are restructuring their firms around the Internet, rather than treating it as an "add-on."

Although there has been a rapid increase in the volume of electronic commerce, we are still in the early stages of the "Internet Revolution." Experts continue to disagree on its ultimate impact. What is clear is that many customers are choosing to move away from face-to-face contacts with suppliers in fixed locations to remote contacts "anywhere, anytime." As more households acquire computers—especially those with high-speed Internet access—electronic commerce is likely to expand even further. However, this doesn't necessarily mean an end to physical retailing activities as we know them, since shopping for many types of goods and services will retain its appeal as a social experience.

Firms delivering information-based services are likely to see their industries transformed by the advent of the Internet. However, many customers prefer the present high-contact systems (as in retail banking) and see no reason to switch to technology-driven self-service options. So firms will have to find ways to offer greater value or lower prices. Ongoing monitoring of technographic segments will help managers plan effective strategies for smooth, but possibly extended, transitions to more Web-based delivery processes.

Study Questions and Exercises

1. Why should service marketers be concerned about new developments in technology?

2. Briefly describe the six different technologies that have implications for services. Identify several cases in which the successful application of one technology may be dependent on one or more of the other technologies described.

3. Create separate versions of the electronic flower of service for (a) retail banking, (b) hotels, (c) freight transportation, (d) car insurance. For each service, prepare a "flower" diagram that shows relevant activities for each "petal" of the augmented service product.

4. Discuss the differences between the Internet, Intranets, and Extranets.

5. What is the distinction between adaptive applications and transformative applications when an established firm incorporates the Internet into its business activities? Provide an example of a company that has used (a) an adaptive strategy, (b) a transformative strategy.

6. Describe the three different levels of business models for Web sites and identify sites that illustrate each of these levels.

7. Select a specific service industry with multiple competitors and visit the Web sites of four different firms in that industry. Compare the capabilities and the quality of execution of the four sites, including ease of navigation. Discuss your conclusions concerning the role that each company's site plays in its overall business strategy.

8. What ethical issues do companies need to consider when using electronic commerce strategies?

Endnotes

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