

chapter

Fueling Globalization through Information Systems

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In today's world, the effects of globalization can be seen everywhere. Whether you buy products or services, almost everything (except for maybe a haircut at your local barbershop) can be produced somewhere else in the world. For example, retailer Wal-Mart buys much of the products it sells from China—it is said that if Wal-Mart were a country, it would be China's eighth-largest trading partner (Jingjing, 2004). Similarly, all kinds of services are now being outsourced to foreign countries, no matter whether the service is software development, the transcription of documents, or the design of components for large commercial aircraft. In this chapter, you will learn how globalization evolved and how information systems fuel this trend towards an ever-shrinking world. After reading this chapter, you will be able to answer the following:

- 1 Define globalization, describe how it evolved over time, and describe the key drivers of globalization.
- 2 Describe the emerging opportunities for companies operating in a digital world.
- 3 Explain the factors companies have to consider when operating in a digital world.
- 4 Describe international business and information systems strategies used by companies operating in a digital world.

The next section examines the evolution of globalization, followed by a discussion of challenges facing companies operating in a global digital world. Then different international business strategies and associated international information systems strategies are examined. Other aspects of the relationship between globalization and information systems, such as the *digital divide* (see Chapter 10—Managing Information Systems Ethics and Crime), will be examined throughout the remainder of the book. Finally, our discussion of globalization is intentionally limited to how information systems are fueling globalization; for more comprehensive discussions, see Friedman's *The World Is Flat* (2005) or Viotti and Kauppi's *International Relations and World Politics* (2006).

Managing in a Digital World: Casino Gaming

Las Vegas, Nevada, continues to draw 38 million visitors a year—who spend \$36 billion annually, \$6 billion on gaming alone—because people love playing the slot machines, matching wits with other gamblers at the poker and black-jack tables, playing roulette, and otherwise placing bets on games of chance. The concept is called gaming, and experts say it's probably ingrained in the human psyche.

As you might suspect, given the popularity of gaming, the industry has been at the forefront of technological innovation. Take, for example, the MGM Grand casino and hotel in Las Vegas. The Grand's enterprise resource planning (ERP) system encompasses booking, ticket sales, housekeeping, employee hiring and firing, dining, security, and other activities for all of the following:

- 5,034 guest rooms, including 751 suites
- 2,000-seat theater with live performances nightly
- 16,800-seat Grand Garden Arena featuring megaconcerts and special events
- Five bars and two world-renowned nightclubs
- 740-seat theater featuring headline entertainers
- 14 large restaurants and many smaller concessions
- 380,000-square-foot, state-of-the-art conference facilities
- Shopping mall with high-end shops
- Championship 18-hole golf course
- More than 170,000 square feet of gaming facilities

Technology allows the MGM Grand to manage all this with ease through its ERP system, where integration is the name of the game. Take gamer (player) information services, for example. A valued high-stakes player can enjoy complimentary meals, MGM Grand-financed shopping sprees, or free tickets to a boxing match—all of which are tracked by the player's room key. Room-key tracking of valued players lets the hotel/casino offer services and products tailored to those players. Thanks to MGM's technological resources, customers can be tracked at any of the company's facilities, including MGM Grand Las Vegas, Bellagio, The Mirage, Treasure Island, New York-New York, and MGM Grand Detroit.

Gaming-management software vendors include such well-known companies as Konami, the Japanese software development company known for the popular games Frogger and Dance Dance Revolution. The 30-year-old company maintains a division devoted strictly to manufacturing and selling gaming machines and gaming management systems internationally.

Radio frequency identification (RFID), a technology used for years in employee ID badges, the cattle industry,

FIGURE 2.1

Online gaming is a global business.



toll roads, merchandise monitoring, and passports, is also set to become a prominent player in the gaming industry. For instance, in the past, card players presented their cards to a pit boss who manually recorded the amount players bet and how long they gambled. Now, casinos can use RFID technology to accomplish the same task. Through equipment integrated into a casino's ERP system, RFID monitors at gambling tables can access in real time information such as how much the player is holding in chips and the amount bet per hour.

The next big innovation after coinless slot machines (that use charge cards instead of cash) in the casino industry is mobile gaming. Las Vegas casinos such as the Venetian have started field trials with converted PDAs that enable guests to play a variety of games from almost anywhere in the hotel. As Nevada state law only allows gambling in public spaces, such devices cannot be used in hotel rooms or parking garages. Other than that, people can use mobile devices to gamble while waiting in the ticket line for a nightly show, while waiting for the next course at dinner, or while being in a meeting at the hotel's convention center.

While brick-and-mortar gaming palaces will always be popular with the betting public, online gambling is one of the fastest-growing segments of electronic commerce (see Figure 2.1). Despite the fact that online gambling is mostly illegal in the United States, American gamblers wager an estimated \$6 billion annually. Since the estimated 2,300 online gambling sites are based overseas, U.S. anti-online-gambling laws have been difficult if not impossible to enforce. In May 2006, in an attempt to crack down on cyberspace gambling, the U.S.

House of Representatives passed a bill that would prohibit online games such as poker, blackjack, and roulette. The bill sought to update the 1961 Federal Wire Wager Act by outlawing the electronic transmission of funds to pay gambling fees and debts. The American Gaming Association (AGA), the gambling industry's largest lobbyist, once opposed online gambling but is against current attempts at legislation outlawing online gambling, and in 2006 the AGA recommended a study of the feasibility of legalizing it.

Undoubtedly, businesses that make up the gambling industry will continue to take advantage of technological innovation to manage their organizations. And online gambling, which is totally dependent on technology, will either thrive as in the past or will dwindle in the United States as laws are passed prohibiting it.

Questions

1. How do you feel about online gaming, should it be open and legalized? Why or why not?
2. How could global Internet gambling be regulated or controlled so that consumers were protected from fraudulent sites?
3. How does Internet gambling lead to increased globalization?

Sources:

Erica Werne, "Crackdown on Internet Gambling Advances in Congress," *Digital CAD*, May 25, 2006, <http://www.digitalcad.com/articles/viewarticle.jsp?id=44332>

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http://www.mgmgrand.com/pages/pressroom_hotel_view.asp?HotelPressID=39

Evolution of Globalization

Over the past centuries, **globalization** has come a long way, from separate nation-states on different continents to what we see today, a world where people and companies can enjoy worldwide communication and collaboration, with fewer and fewer barriers. Globalization is defined as the integration of economies throughout the world, enabled by innovation and technological progress (IMF, 2002). In his book *The World Is Flat*, New York Times foreign affairs columnist Thomas L. Friedman has characterized the evolution of globalization as having three distinct phases (see Figure 2.2), differing in the focal point and primary drivers of this evolution (see Table 2.1 for an overview of each phase). While it had taken humankind thousands of years to discover that the world is round, Friedman argues that forces of globalization are now creating a “flat” world. One consequence of this “flattening” that was not mentioned by Friedman is an increase in the speed of change. Not only did large-scale changes take place in many industries, but the pace of these changes steadily increased as well. Next, we examine how globalization evolved and how the world first became round, reduced in size, and now “flattened.”

Globalization 1.0

The first stage, termed **Globalization 1.0** by Friedman, began in the late fifteenth century and ended about 1800. During those times, India was famous for its wealth of spices and other goods; however, getting there, for example, by traveling east was very cumbersome and dangerous, as no sea route had been discovered until the end of the fifteenth century. Even then, sailing to India going east included circumnavigating the entire continent of Africa, including a dangerous passage around the Cape of Good Hope (South Africa). When Christopher Columbus set sail in August 1492 to discover a westward route to India, he was convinced, contrary to popular belief at that time, that the earth was round. However, instead of discovering a new route to India, he discovered the Americas, opening up new areas for discovery and new sources for resources.

During Globalization 1.0, mainly European countries were globalizing, attempting to extend their territories into the New World. Power—from domesticated horses (for transportation and agriculture), wind (for grinding grain and sailing), and, in the late stages, steam (then used primarily for mining)—was the primary driver of this stage of globalization. Collectively, this evolution brought continents closer together, shrinking the world

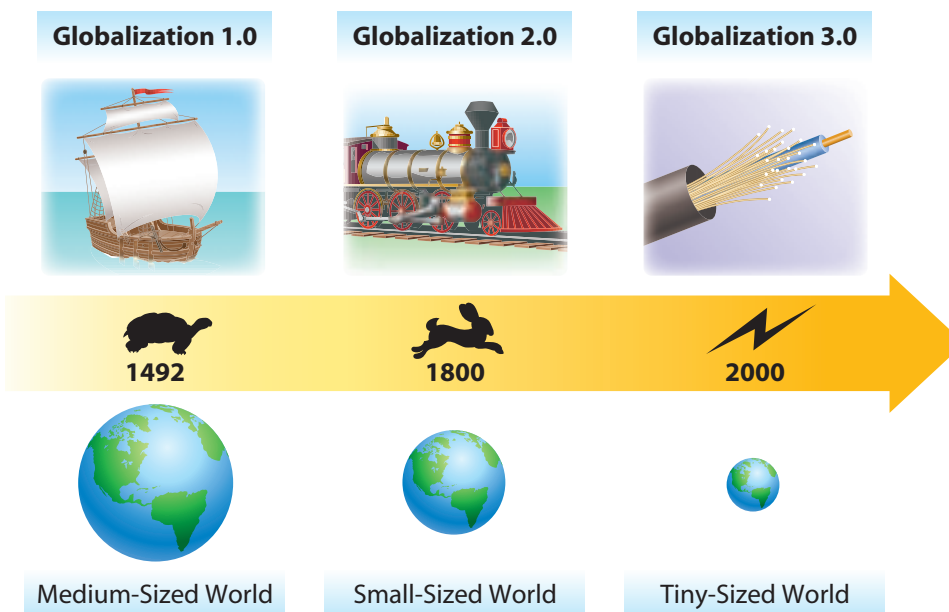


FIGURE 2.2

Evolution of globalization.

TABLE 2.1 Phases of Globalization

Globalization Phase	Time	Primary Entities Globalizing	Region Globalizing
1.0	1492–1800	Countries	Europeans and Americans
2.0	1800–2000	Companies	Europeans and Americans
3.0	2000–now	Individuals and small groups	Worldwide

“from size large to size medium.” During those times, industries changed slowly, and any changes took generations. While many industries (such as the apparel industry) changed, most people didn’t notice how it affected their lives because of the slow pace of change.

Globalization 2.0

In 1800, **Globalization 2.0** started, lasting up until 2000 (being interrupted only by the Great Depression and the two world wars). During Globalization 2.0, the world shrunk from “size medium to size small,” as companies (rather than just countries) started to globalize. While people were constantly innovating, changes still took quite some time. For example, it took more than a generation before people felt the effects of the industrial revolution. In the early stages of Globalization 2.0, the steam engine led to falling costs for the transportation of goods, both on land using railroads and on sea using steamships. Technological inventions such as the telegraph and, later, telephones, personal computers, satellites, and early forms of the Internet tremendously reduced telecommunication costs. The reduction of transportation and telecommunication costs spurred a growing market for products and labor. However, it was still mainly Americans and Europeans driving globalization.

Globalization 3.0

Around 2000, **Globalization 3.0** began, with individuals and small groups from virtually every nation joining the globalization movement, shrinking the world from “size small to size tiny.” Not only did the world shrink, but this shrinking brought with it an even faster pace of change. People now feel the effects of industry changes within decades, and new industries have emerged that no one would have imagined only a few decades ago. For example, Google, the company that now dominates the search engine market and is one of the world’s largest companies, was incorporated only in 1998. In the next sections, we will discuss the factors enabling Globalization 3.0 and how these factors have forever transformed the world.

Key Factors Enabling Globalization 3.0 In the last decade of the twentieth century, a number of technological and societal changes took place, and many of the changes contributed to a flatter world. In his book, Friedman provides a list of 10 forces that flattened the world (see Table 2.2). While the list of forces could be extended almost endlessly (or be debated as to their ultimate significance), we will focus on those discussed by Friedman given their broad popularity.

FLATTENER #1: 11/9/89—THE FALL OF THE BERLIN WALL. The fall of the Berlin Wall and the downfall of communism is one of the key events flattening the world. Built in 1961 to keep East German citizens from emigrating (or escaping) to West Germany, the Berlin Wall quickly became the symbol of the division of Germany and the existence of an “iron curtain” between Western and communist countries. Following an autumn of mass demonstrations in 1989, the East German government announced on November 11, 1989, that its citizens were finally permitted to cross the border to West Germany; in the days and weeks after that date, people from all over the world participated in dismantling the wall (see Figure 2.3). The fall of the Berlin Wall and the opening of the border between East and West Germany marked the end of the Cold War between communist and capitalist countries and the breakup of the Eastern bloc, freeing millions of people. At once, people

Key Enabler **Detecting Intermittent Electrical Faults**

Picture this: Your car sputters when you step on the gas to drive up steep hills. You take it to the repair shop and explain the problem, but mechanics can find nothing wrong, and when they drive the car, it doesn't sputter going up hills. You're frustrated but have no choice but to pay your bill and hope it doesn't happen again.

Now, picture this: A light comes on in an airplane cockpit during a flight, indicating that an emergency door is not properly sealed. When the plane lands, mechanics check the light and the door and find nothing wrong. The incident repeats several times, but mechanics fail to find a problem. Finally, an emergency exit door comes off during flight, and the plane crashes, killing all passengers and crew members.

In both scenarios, the problem was "intermittent electrical faults"—inconvenient in the first instance, fatal in the second.

The good news is that Sandia National Laboratories, a national security company that works closely with the U.S. government, has produced a technique called pulsed arrested spark discharge (PASD), which makes hard-to-find intermittent electrical faults easier to locate and repair.

The Boeing Company, manufacturer of commercial airplanes, is among the first to use PASD technology. For instance, in July 2006, Boeing mechanics using PASD found a potentially dangerous short circuit hiding in the miles of electrical wiring in a Boeing 747 tested in New Mexico. As used in airplane maintenance, the technology works like this: Technicians plug the PASD device (about the size of a suitcase) into bundles of wires

simultaneously. The device then checks for small insulation breaks that could cause intermittent faults. The device sends a nanosecond burst of high-voltage electricity through wiring bundles, making any potential short circuit appear before it would normally do so. Because the voltage is higher than that normally used in airplanes, the electrical pulse jumps from the smallest wiring insulation fault (which to ordinary instrumentation seems undamaged) either to the bulkhead or to another nearby damaged wire. The spark generated by the PASD device—like static electricity leaping from hand to doorknob—in effect lights up the invisibly damaged spot like car headlights at night light up a deer's eyes. The nanosecond burst is then measured to see the amount of time it takes to return to its source. Thus, the test tells technicians the exact location of the problem. The high-voltage burst does no damage because it lasts for such a short time.

In addition to the commercial airline industry, the military is interested in using PASD technology to test wiring in submarines and tanks, where wiring is difficult to access. Undoubtedly, other industries, such as auto repair, will find the technology useful as well.

Since wiring ages, tiny breaks can occur and present huge problems. PASD technology can help ensure that vital connections, as in aircraft, do not lead to irreparable damage.

Sources: Anonymous, "Preemptive Spark Helps Find Intermittent Electrical Short Circuits in Airplanes," *Science Daily* (June 21, 2006), <http://www.sciencedaily.com/releases/2006/06/060621084401.htm>



in many former communist countries could enjoy greater freedoms. For many companies, this meant a tremendous increase in potential customers as well as access to a huge, talented labor pool in the former Eastern bloc countries.

Around the same time, Microsoft released the first version of the Windows operating system, which over time became the world standard in PC operating systems, enabling people from all over the world to use a common computing platform.

FLATTENER #2: 8/9/95—THE RELEASE OF THE NETSCAPE WEB BROWSER. The second big flattener was the Internet browser—the “killer app” that enabled everyone who had a computer and a modem to view Web pages. While the first Web site went live in 1991, viewing and navigating early Web sites was very cumbersome, and the Internet, in its

TABLE 2.2 Ten Forces That Flattened the World

Flattener	Event or Trend	Description
1	November 9, 1989	The fall of the Berlin Wall and the fall of communism, opening up of new markets for talent and products
2	August 9, 1995	Netscape went public; the company introduced the first mainstream Web browser
3	Work flow software	Standards and de facto standards enabling computers to “talk to each other” and facilitate collaboration
4	Supply chaining	Horizontal collaboration between suppliers, retailers, and customers
5	Open sourcing	Online communities building software and continuously improve it using peer review
6	Outsourcing	Companies having certain business functions (such as telephone support) conducted by other companies, often in a different country
7	Offshoring	Companies setting up entire plants in different countries to reduce costs
8	In-sourcing	Logistics companies (such as UPS) offering complete supply chain solutions to other businesses
9	In-forming	Everyone with Internet access having incredible amounts of information and entertainment at their fingertips
10	The steroids	Technologies amplifying the other flatteners by making things digital, mobile, virtual, and personal

FIGURE 2.3

Flattener #1: Tearing Down the Berlin Wall.



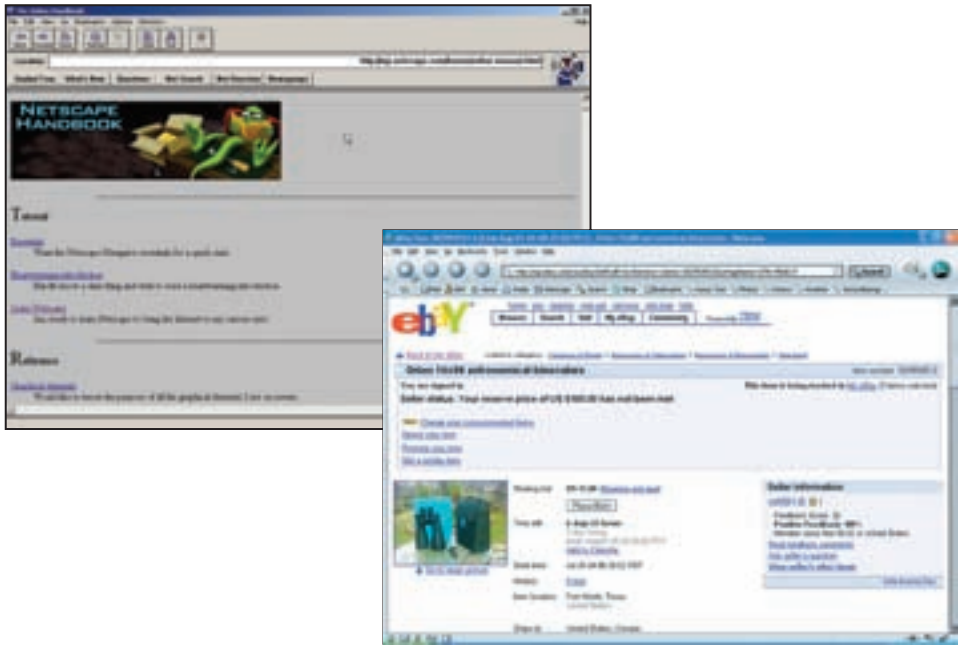


FIGURE 2.4

Flattener #2: Netscape Browser—Then and Today.

infancy, was not used by the general public (see Technology Briefing 5—The Internet and the World Wide Web). On August 9, 1995, Netscape, the company that released the first mainstream browser only a year before (see Figure 2.4), went public. Later in 1995, Netscape even integrated an e-mail component into its browser, allowing people not only to view Web pages but also to communicate using the Internet. Thus, the Netscape browser can be regarded as a cornerstone in giving individuals easy access to the Internet. In addition to opening up the possibilities of the Internet for the general public, Netscape helped set a standard for the transport and display of data that other companies and individuals could build on, making the Internet even easier to use and more powerful than ever. Although many companies had

Net Stats

Online Searching

The Google search engine has become so popular with Internet users that the word “Google” is often used as a verb.¹ (I “Googled” the restaurant to see its reviews.) Yahoo! and

Microsoft’s MSN are also well-known search engines. Table 2.3 compares the percentage Internet surfers used each search engine in 2004 and 2005.



TABLE 2.3 Top Three U.S. Search Share Rankings by Percentage Points, December 2004 and 2005

Search Engine	December 2004 Search Share (%)	December 2005 Search Share (%)	Change (percentage points)
Google	43.1	48.8	5.7
Yahoo!	21.7	21.4	-0.3
MSN	14.0	10.9	-3.1

Source: Nielsen/NetRatings, February 2006.

¹Although “googled” is synonymous with searching, Google.com is becoming concerned that its use as a verb is a copyright infringement. See http://www.nzherald.co.nz/category/story.cfm?c_id=55&objectid=10396133.

some internal computer networks, it was the widespread adoption of the Internet that enabled companies to interconnect in new ways. Widespread adoption of the Internet also allowed organizations to benefit from the political and societal changes during that time.

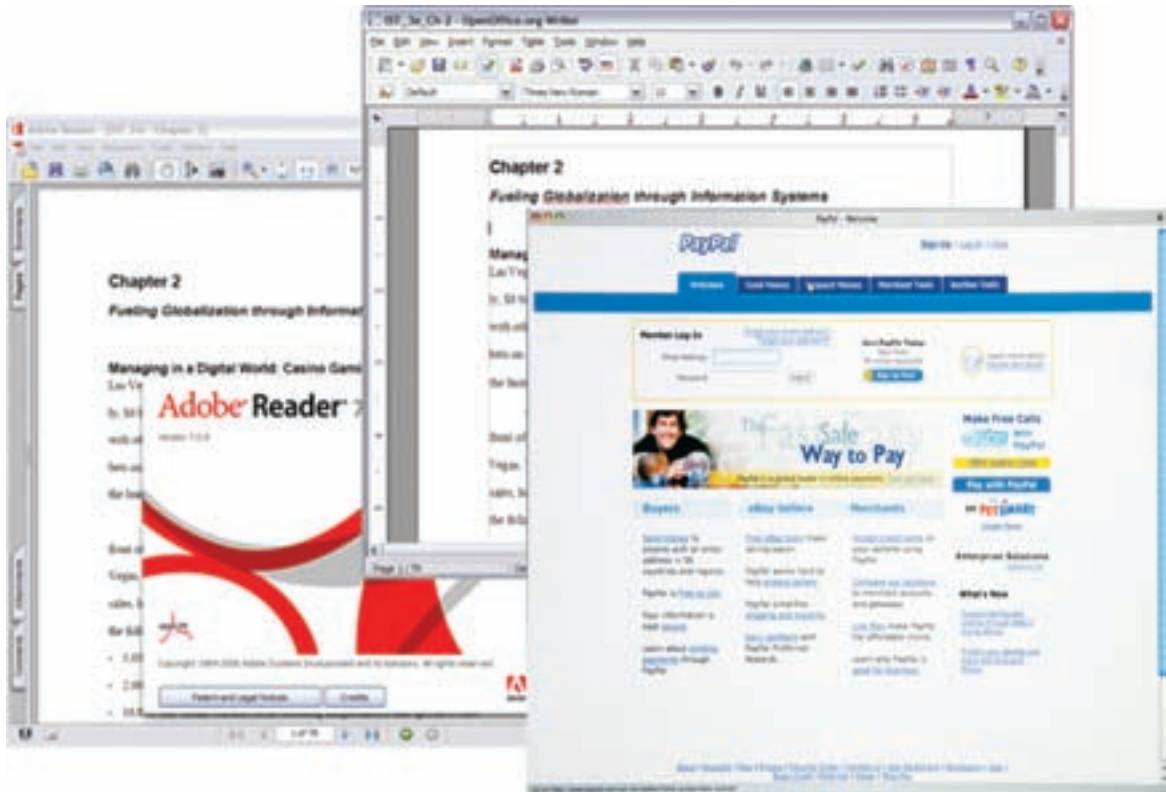
In the final years of Globalization 2.0, the Internet really took off, and many young entrepreneurs envisioned a variety of new business models based on the possibilities the Internet offered. At the same time, companies supplying the network infrastructure saw the need to provide more and faster connections, leading to a tremendous *overinvestment* in telecommunications infrastructure, such as fiber-optic cable, which is used to transmit very large amounts of data at the speed of light (see Technology Briefing 4—Networking). Only a few years later, many of the new ventures (most of which operated at a loss in order to gain initial market share) proved not to be viable, often because of inexperienced management and uncontrolled spending. With the bursting of the dot-com bubble, stock prices plummeted, causing many people to lose much of their retirement money that had been invested in the stock market. However, the burst of the dot-com bubble also helped make the transition from Globalization 2.0 to Globalization 3.0.

In the aftermath of the burst of the dot-com bubble, many Internet companies went into bankruptcy, creating less demand for and oversupply of the telecommunications infrastructure that had been installed just a few years before. This, in turn, caused infrastructure providers to fail, and much of the infrastructure had to be sold for a fraction of the cost. While the short-term consequences were devastating for many companies and individual investors, the most notable long-term consequence was falling telecommunications costs, enabling the collaboration of individuals and small groups we see today.

FLATTENER #3: WORK FLOW SOFTWARE. The third flattener Friedman mentions is what he broadly calls **work flow software** (see Figure 2.5), a variety of software applications that allow people worldwide to communicate. While the Netscape browser

FIGURE 2.5

Flattener #3: Work flow software.



enabled people to access the Internet, other standards allowed different people and different companies all over the world to communicate seamlessly. For example, eXtensible Markup Language (XML; see Chapter 8—Building Organizational Partnerships using Enterprise Information Systems) enabled computer programs to “talk” to other programs so that, for example, a computer in an automobile manufacturing plant could automatically order a new shipment of windshield wipers from a supplier once the inventory reached a certain level. This and a variety of other transactions could be handled without human intervention, thanks to standards allowing different computers from different computer manufacturers, running different operating systems, to communicate. Today, XML is even used for saving document formatting information in open source applications such as OpenOffice (see Technology Briefing 2—Information Systems Software).

In addition to XML, various other de facto standards emerged, easing the ability for individuals and companies from all over the world to communicate and engage in commerce. Worldwide use of productivity software such as Microsoft Word or Adobe Acrobat enabled information sharing, while standard online payment systems such as PayPal provided a common global currency to fuel commerce (see Chapter 5—Enabling Commerce Using the Internet). Providing individuals anywhere in the world with the ability to communicate, share documents, or transfer money, regardless of the underlying computing platform or local currency, is fueling global collaboration of companies, small groups, and individuals.

FLATTENER #4: SUPPLY CHAINING. The fourth flattener is *supply chaining*, the tight integration of retailers, their suppliers, and their customers. One of the best-known examples is the supply chain of the giant retailer Wal-Mart (see Figure 2.6). Wal-Mart leverages the other flatteners to create a seamless supply chain (see Chapter 8) to get the goods from the manufacturers to the customers. Not only does Wal-Mart receive the information about their stores’ sales, they also transmit this vital data to the manufacturers so that they can anticipate when the next shipment is needed, how their products sell, and what products may need improvement to increase sales. Wal-Mart has recently introduced *RFID* (*radio frequency identification*) tags into their supply chain, allowing them to track where the goods are in the supply chain as well as when their products are sold and to whom.

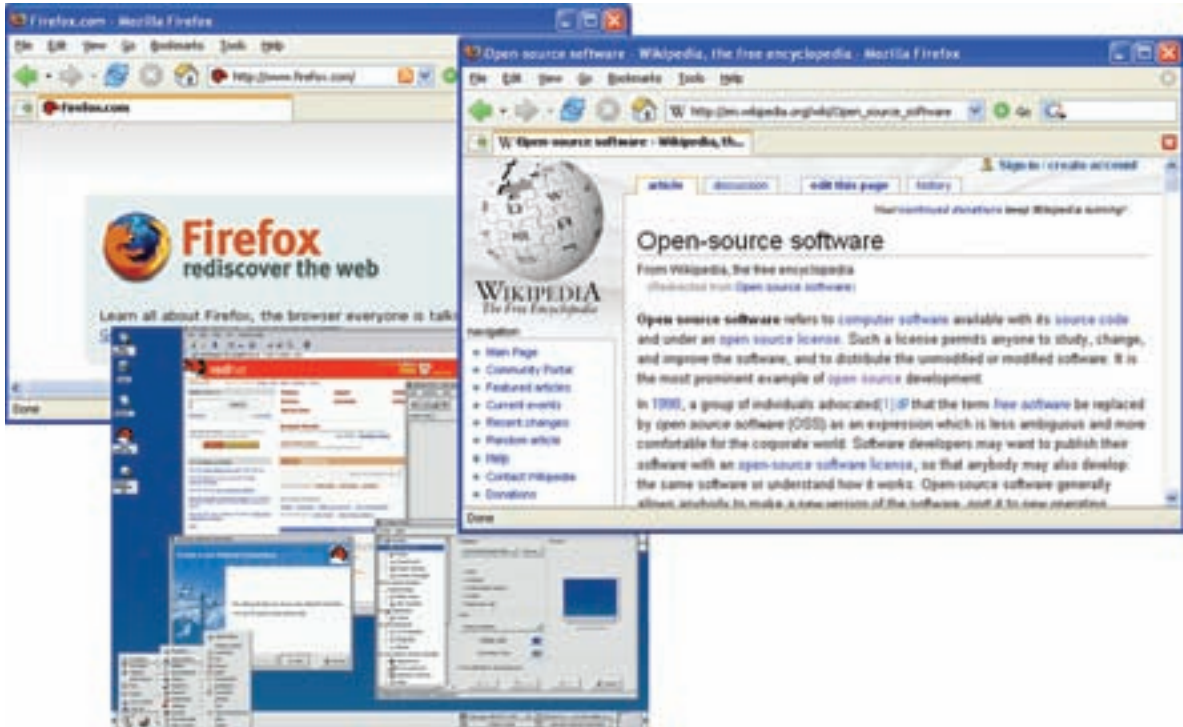


FIGURE 2.6

Flattener #4: Supply chaining at Wal-Mart is fueling globalization.

FIGURE 2.7

Flattener #5: Open sourcing.



FLATTENER #5: OPEN SOURCING. Demonstrated by software products such as the Linux operating system, the Firefox Web browser, or the OpenOffice office suite, the open-source community has made different software, as well as the software's source code, freely available to everyone (see Figure 2.7). As discussed in Technology Briefing 2, software developers, geeks, and other techies all over the world use the communication and collaboration capabilities offered by the Internet to create new pieces of software. The software created is in a constant state of evolution, as people critique each other's work, improve the software, fix flaws, and so on. The enormous success of the Firefox Web browser or of the Web server software Apache has even forced established software companies to launch new and improved versions of their own, proprietary software. The power of open sourcing is further demonstrated by the fact that in September 2006, 61 percent of all Web sites were hosted on Apache Web servers (Netcraft, 2006).

Another example of open sourcing is the successful online encyclopedia *Wikipedia*, the content of which can be created and updated by anyone with an Internet connection. As there is a huge community reviewing all latest edits, flaws in the entries are usually quickly detected and fixed. Open sourcing thus has made content, information, and software available to anyone with an Internet connection, enabling new and easier forms of collaboration between individuals, small groups, and companies.

The term **wiki** refers to Web sites allowing users to add, remove, or edit content, and is now often used synonymously with open-source dictionaries. Many organizations are now developing their own wiki sites to provide a place where users can share their knowledge. One example of this is eBay (www.ebaywiki.com), which utilizes this open source system to allow users to create, edit, and police the contents of eBay's gigantic wiki.

FLATTENER #6: OUTSOURCING. One country that has benefited tremendously from the flatteners mentioned before is India. While the American economy paid for the huge

**FIGURE 2.8**

Flattener #6: Outsourcing

overinvestment in telecommunications infrastructure during the dot-com bubble, India profited from the sudden drop in telecommunications cost after the dot-com bubble burst. During the dot-com era, many American companies turned to India for talented employees, as the supply of American engineers was all but dried up and companies had to look overseas for qualified employees (see Figure 2.8). After the stock market crashed, companies had to watch their expenditures much more closely than before and again turned to India. This time, they decided to hire Indian engineers not only because of the availability but primarily because outsourcing work to India was much more cost effective than performing those functions at home. We introduced outsourcing in Chapter 1—Managing in a Digital World and examine this important topic later in this and subsequent chapters.

FLATTENER #7: OFFSHORING. While outsourcing means having certain organizational functions (such as back-office functions) performed by other companies and potentially in other countries, **offshoring** adds a whole new dimension. When China officially joined the World Trade Organization in 2001, it agreed to follow certain accepted standards of trade and fair business practices. Before, the slow opening of the Chinese market was seen as an opportunity to *sell products* to the huge Chinese markets; afterward, companies saw the opportunity to *produce goods* in China (see Figure 2.9). Now, instead of just outsourcing certain activities, companies set up entire factories in countries such as China in order to mass-produce goods at a fraction of the price it would cost to produce these goods in the United States or even in Mexico.

FLATTENER #8: IN-SOURCING. The eighth major flattener is **in-sourcing**, which refers to the delegation of a company's core operations to a subcontractor that specializes in that operation. For example, United Parcel Service (UPS) is becoming a leading sourcing provider. In addition to providing their traditional service offerings of delivering packages to worldwide destinations, UPS started offering complete supply chain solutions to companies (see Figure 2.10). Traditionally, online retailers such as Nike.com would handle all online customer orders themselves. However, through an in-sourcing arrangement, UPS manages Nike's warehouse and handles product packing and shipping as well as payment collection from customers so that Nike can concentrate on its core competencies, such as the design of new athletic shoes. Similarly, near their sort station in Lexington, Kentucky, UPS employees manage distribution facilities for a vast array of companies, even packaging bulk consumer electronics into retail packages or repairing Toshiba laptop

FIGURE 2.9

Flattener #7: Offshoring.



FIGURE 2.10

Flattener #8: In-sourcing at UPS.



computers. In some instances, it is not the manufacturer’s repair team coming to a customer to perform on-site repair or maintenance but rather a team of certified UPS technicians. In these examples, UPS acts as a department within the organizations; UPS employees come into an organization, analyze the organization’s processes, and take over entire functions. Thus, such in-sourcing agreements require great amounts of trust, and for the outside observer, it is often hard to see that a different company (such as UPS) is performing the actual work. Given the scope of the in-sourcing arrangements and the nature of the tasks (i.e., complete supply chain solutions), such activities could usually not be performed from offshore locations.

FLATTENER #9: IN-FORMING. For the individual, **in-forming** is what outsourcing, in-sourcing, or supply chaining is for companies. With the Web and powerful search engines such as Google, Yahoo!, or MSN, every person who has access to the Internet can now build his or her “own personal supply chain . . . of information, knowledge, and entertainment” (Friedman, 2005, p. 153). Using the possibilities of the Internet, an incredible number of people all over the world now have access to all kinds of information; this access to information has enabled people to get a more complete picture of what’s happening in the world, and people have to depend less on propaganda and censored media (see Figure 2.11). Now, people have an incredible amount of information at their fingertips, and in the near future, people will be able to access almost any book without even having to go to a physical library.

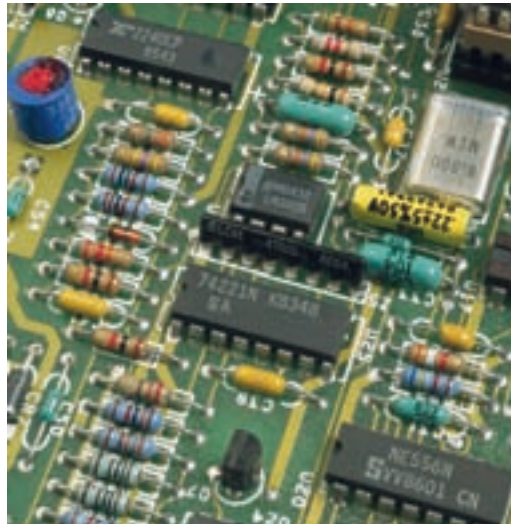
FLATTENER #10: THE STEROIDS. The last group of flatteners, which Friedman calls “the steroids,” are technologies that make different forms of collaboration “digital, mobile, virtual, and personal” (p. 161). This group of technologies amplifies all the flatteners discussed previously (see Figure 2.12). By digitizing content—from book, to music,



FIGURE 2.11
Flattener #9: In-forming.

FIGURE 2.12

Flattener #10: The steroids.



photographs, or virtually any business document—people can collaborate easier than ever before, benefiting from lightning-fast transmission of information. Similarly, the collaboration becomes virtual in that people using these technologies never have to think about the underlying standards or technologies enabling the collaboration; greater mobility enables collaboration from a wide variety of locations without being tied to one's office or desk. Finally, certain flatteners, such as in-forming, are available to everyone with an Internet connection, making the new forms of collaboration very personal.

What are some examples of these “steroids”? The tremendous increase in computing power and storage capacity is one of these steroids, enabling people to collaborate, manipulate pictures, or even record songs using their computers. Further, people can collaborate worldwide using technologies such as Skype, which allows free PC-to-PC video and voice calls to anywhere in the world. A final example is the growth in mobile infrastructures, to the point where people can access the vast resources enabled by the other nine flatteners no matter where they are—be it on a train, in a coffee shop, or even aboard an aircraft.

Although any one of these flatteners may be powerful, it's their *convergence* that makes Globalization 3.0 possible. Friedman refers to this as a “triple convergence,” where three complementary events ushered in Globalization 3.0. First, as with many things, the flatteners are complementary, but it is their combination that leads to effects greater than

Change Agents **Niklas Zennström, Cofounder and Chief Executive Officer of Skype**

Niklas Zennström, born in 1966, is a Swedish citizen with degrees in business and computer science from Uppsala University in Sweden, cofounded Skype, a free Internet communication service, with Janus Friis. Although other VoIP

(Voice-over Internet Protocol) services exist, Skype is unique in that it is free, and the telecommunications service now boasts over 28 million subscribers. Skype users can make online calls for free and for a small charge can also call anyone with a landline. “The idea of charging for calls belongs to the last century,” Zennström has remarked. “Skype software gives people new power to affordably stay in touch with their friends and family by taking advantage of their technology and connectivity investments.”

Zennström began his career at Tele2, a small European telecommunications service, where he acquired valuable knowledge about the telecommunication industry. Also before Skype, Zennström and Janus Friis created KaZaA, peer-to-peer file downloading software that became the most downloaded software on the Internet, now totaling approximately 380 million downloads. KaZaA was later sold to Sharman Networks. Zennström also created get2net, a European ISP, and Altnet, a company that was the first to provide secure P2P services.

Zennström sold Skype to eBay in October 2005 and remains the company's chief executive officer. In 2006, Time magazine called Zennström and Friis “Telephone Revolutionaries” and named them to be among the 100 most influential people who are transforming the world.

Sources: http://www.businessweek.com/magazine/content/05_22/b3935421.htm

http://en.wikipedia.org/wiki/Niklas_Zennstr%C3%B6m

<http://www.time.com/time/magazine/article/0,9171,1187489,00.html>

FIGURE 2.13

Niklas Zennström, cofounder and chief executive officer of Skype.



the sum of their parts. Second, many people wonder why, even though some of these flatteners have been around for a while, their impacts have yet to be significantly felt. Friedman argues that, as with any major breakthrough, there is often a time lag until one sees the impact in a measurable way. In other words, just because a change is not initially viewed as groundbreaking does not mean that significant changes are not taking place. Finally, because of the global scale of the flatteners, enabling more people than ever to participate in new forms of collaboration who are at various stages of participation in the global village, we are only at the *beginning* of Globalization 3.0—the deep and pervasive impacts of this phase are in its infancy.

The Rise of Outsourcing As discussed previously, one phenomenon that has seen a huge increase due to the decrease in telecommunication costs is the *outsourcing* of services. Traditionally, functions such as the manufacturing of goods were outsourced to

other countries, based primarily on the cost of labor. For example, while many *manufactured* goods are imported from China, many U.S. companies also have their goods produced in so-called **maquiladoras**—assembly plants located on the Mexican side of the U.S.–Mexican border—to take advantage of lower wages and less stringent regulations. Then, in the years leading to Globalization 3.0, companies started to outsource *services* to other countries, starting with the development of computer software and the staffing of customer support and marketing call centers. Today, a wide variety of services—ranging from telephone support to tax returns—are outsourced to different countries, be it Ireland, China, or India. Even highly specialized services such as reading X-rays by skilled radiologists are outsourced by U.S. hospitals to doctors around the globe, often while doctors in the United States are sleeping. However, companies operating in a digital world have to carefully choose where to outsource, looking at factors such as English proficiency, salaries, or geopolitical risk. While countries such as India remain popular for outsourcers, other formerly popular countries (such as Singapore, Canada, or Ireland) are declining due to rising salaries. With these shifts, outsourcers are constantly looking at nascent and emerging countries such as Bulgaria, Egypt, Ghana, or Vietnam, each of which has some particular benefits to offer (see Table 2.4). Obviously, outsourcers have to weigh the potential benefits (e.g., cost savings) and drawbacks (e.g., higher geopolitical risk) of outsourcing to a particular country.

TABLE 2.4 Outsourcing Destinations by Country

Country	Ranking	English Proficiency	Entry-level Programmer Salary (US\$ 1,000)	Relative Geopolitical Risk
Asia				
India	Leading	Very good	5-10	Moderate
China	Challenging	Poor	5-10	Moderate
Malaysia	Challenging	Fair	10-15	Moderate
Philippines	Challenging	Very good	5-10	High
Vietnam	Nascent	Fair	<5	Moderate
Thailand	Nascent	Poor	5-10	Moderate
Singapore	Declining	Fair	15-20	Low
Europe				
Czech Republic	Challenging	Good	10-15	Moderate
Poland	Challenging	Good	10-15	Moderate
Hungary	Challenging	Poor	10-15	Moderate
Russia	Challenging	Poor	10-15	Moderate
Romania	Emerging	Good	5-10	Moderate
Bulgaria	Emerging	Fair	5-10	Moderate
Ukraine	Emerging	Poor	5-10	Moderate
Ireland	Declining	Excellent	>20	Low
Middle East				
Egypt	Emerging	Very good	<5	High
Israel	Declining	Very good	15-20	Moderate
Africa				
South Africa	Challenging	Very good	10-15	Moderate
Ghana	Nascent	Very good	5-10	High
The Americas				
Mexico	Challenging	Poor	10-15	Moderate
Costa Rica	Emerging	Very good	10-15	Moderate
Brazil	Emerging	Poor	5-10	High
Argentina	Nascent	Fair	5-10	Moderate
Canada	Declining	Excellent	>20	Low

Source: Adapted from “Global Outsourcing Guide, CIO Magazine, July 15, 2006.

TABLE 2.5 Examples of Global Outsourcing

Industry	Examples
Airlines	British Airways outsources customer relations and passenger revenue accounting to India. Delta outsources reservation functions to India.
Airplane design	Parts of Airbus and Boeing airplanes are designed and engineered in Moscow, Russia.
Consulting	McKinsey outsources global research division to India. Ernst & Young moves part of tax preparation to India.
Insurance	British firm Prudential PLC moves call center operations to India.
Investment banking	Lehman Brothers outsources IT services to India.
Retail banking	Worldwide banking group HSBC moves back-office operations to India.
Credit card operations	American Express moves a variety of services to India.
Government	The Greater London Authority outsourced the development of a road toll system to India.
Telecommunications	T-mobile outsources part of its content development and portal configuration to India.

Source: Adapted from EBS (2006).

Today, the outsourcing market exceeds \$500 billion annually and is predicted to rapidly increase over the next decade. Additionally, nearly 90 percent of all large organizations are expected to use some form of global IT outsourcing by 2006. Companies are choosing to outsource business activities for a variety of reasons, including the following (King, 2003):

- To reduce or control costs
- To free up internal resources
- To gain access to world-class capabilities
- To increase revenue potential of the organization
- To reduce time to market
- To increase process efficiencies
- To outsource noncore activities
- To compensate for a lack of specific capabilities or skills

Fueled by Globalization 2.0 and 3.0, outsourcing is now a fact of life, and no matter which industry you're in, you will likely feel the effects of outsourcing (see Table 2.5). With Globalization 3.0, individuals will have to ask themselves how they can seize the global opportunities and how they will be able to compete with individuals from all over the world who might be able to do their job at the same quality but at a lower cost. The next sections will outline some opportunities made possible by increasing globalization.

Opportunities of Operating in a Digital World

Clearly, globalization has opened up many opportunities, brought about by falling transportation and telecommunication costs. Today, shipping a bottle of wine from Australia to Europe merely costs a few cents, and using the Internet, people can make PC-to-PC phone calls around the globe for free. To a large extent, fueled by television and other forms of media, the increasing globalization has moved cultures closer together—to the point where people now talk about a “global village.” Customers in all corners of the world can receive television programming from other countries or watch movies produced in Hollywood,

helping to create a shared understanding about forms of behavior or interaction, desirable goods or services, or even forms of government. Over the past decades, the world has seen a democratization of many nations, enabling millions of people to enjoy freedoms they had never experienced before. All of this makes operating in a digital world much easier than ever before.

Opportunities of Reaching New Markets

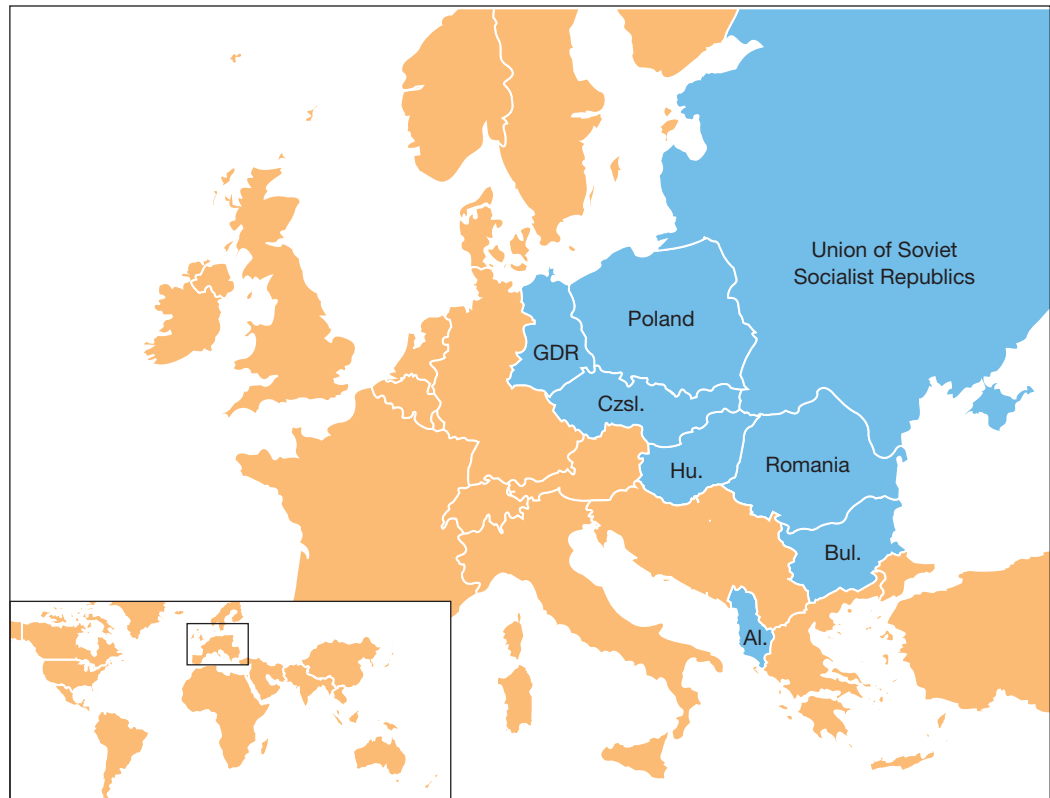
After the fall of communism, new markets opened up for countless companies. The fall of the Berlin Wall and the following reunification of Germany, for example, increased the size of the German market from 64 million to 80 million people. Similarly, the fall of communism in other Eastern Bloc countries such as Poland, Romania, and the former Soviet Union enabled the sales of products to literally millions of new customers (see Figure 2.14).

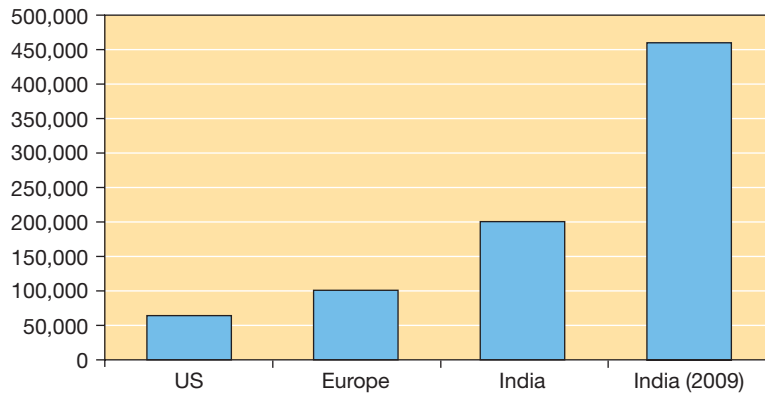
Opportunities of a Global Workforce

With the decrease in communication costs, companies can now draw on a large pool of skilled professionals from all over the globe. Some companies outsource to different regions exactly because the availability of skilled labor is high. Many countries, such as Russia, China, and India, offer high-quality education, leading to an ample supply of well-trained people at low cost. While enrollment in the sciences or engineering is dropping in the United States, other countries are producing engineering graduates at an unprecedented pace (Mallaby, 2006). In 2005, for example, 200,000 young engineers graduated from Indian universities, while the United States produced only about a third as many; likewise, Europe produced only about half the number of India (see Figure 2.15).

FIGURE 2.14

Former Eastern Bloc countries.



**FIGURE 2.15**

Engineering graduates in the United States, Europe, and India.

While the number of engineering students in the West is plummeting, enrollments in Asia and India in particular are rapidly expanding (e.g., India reported having over 450,000 students enrolled in engineering programs in 2005). Some countries are actively building entire industries around certain competencies, such as software development or tax preparation in India and call centers in Ireland. For companies operating in the digital world, this can be a huge opportunity, as they can “shop” for qualified, low-cost labor all over the world. On the other hand, the consulting company McKinsey believes that out of the 2.5 million Indian university graduates, only 10 to 25 percent (depending on the field of study) are considered employable by multinational companies, mainly because of differences in the quality of the education and the differences in language skills (Farrell, Kaka, and Stürze, 2005).

The factors discussed in this section translate into a number of direct opportunities for companies, including greater and larger markets to sell products and larger pools of qualified labor. Nevertheless, while globalization has brought tremendous opportunities to companies, they also face a number of daunting challenges when operating in the global marketplace. Next, we highlight some of these challenges.

Challenges of Operating in a Digital World

Traditionally, companies acquired resources and produced and sold goods or services all within the same country. Such domestic businesses did not have to deal with any challenges posed by globalization but also could not leverage the host of opportunities. The challenges faced can be broadly classified into governmental, geoeconomic, and cultural challenges. See Table 2.6 for a summary of the challenges of operating in a digital world.

Governmental Challenges

Many challenges faced by companies are of governmental nature. These challenges are associated with factors such as the overall political system, regulations (including data sharing), or even Internet access. In the following sections, we will highlight some of these challenges faced when operating in a digital world.

Political System Challenges First and foremost, companies operating in the digital world have to consider the overall political climate of their host country. One factor to consider here is whether the host country is a market economy or whether it is a planned economy. When operating in a country that is less free than the home country, a company might face tight restrictions regarding what can be produced or sold, how much can be produced or sold, or to whom the products can be sold.

Further, although companies now have access to more countries than ever before, political stability is one issue to consider when operating outside one’s home country. In many countries, the political systems are less stable than in the United States or in Western

TABLE 2.6 Challenges of Operating in a Digital World

Broad Challenges	Specific Challenges	Examples
Governmental	Political system	Market versus planned economy; political instability
	Regulatory	Taxes and tariffs; import and export regulations
	Data sharing	EU Data Protection Directive
	Internet access and individual freedom	Internet censorship in various countries
Goeconomic	Time zone differences	Videoconferences across different time zones
	Infrastructure related reliability	Differences in network infrastructures throughout the world
	Differences in welfare	Migration and political instability caused by welfare differences between rich and poor countries
	Demographic	Aging population in the United States and Western Europe; younger workforce in other countries
	Expertise	Availability of labor force and salary differences
Cultural	Working with different cultures	Differences in power distance, uncertainty avoidance, individualism/collectivism, masculinity/femininity, concept of time, and life focus
	Challenges of offering products or services in different cultures	Naming and advertising for products; intellectual property

Europe, and companies have to consider whether to invest huge sums into specific countries, as foreign companies operating in politically unstable countries risk losing their assets due to confiscation, military coups, upheavals, or civil wars.

Regulatory Challenges As most countries have their own sovereign governments, taxes, laws, and regulations differ from country to country, and companies have to follow the rules of their host countries. For example, many countries impose a variety of different taxes and **tariffs** in order to regulate the flow of goods and services into and out of the country. Such taxes and tariffs exist for almost all categories of products, from bananas to computer hardware, and differ widely depending on the product category. The nature and amount of such taxes and tariffs has to be considered when deciding whether to import or export goods and services, manufacture in a foreign country, and so on.

Other regulations concerning the flow of goods and services are embargoes and export regulations. **Embargoes** are typically limiting (or prohibiting) trade with one particular country. For example, the U.S. embargo of Cuba is intended to isolate the Cuban government economically; thus, it prohibits the export of goods into Cuba, the import of Cuban goods (such as rum or cigars) into the United States, and most forms of travel to Cuba. Other embargoes are targeted at countries accused of sponsoring terrorist activities; these countries include Syria, Iran, and North Korea, among others. Thus, embargoes limit many forms of trade with a specific country.

In contrast, **export regulations** are directed at limiting the export of certain goods to other countries. While the export of goods such as missile technology from the United States to almost any country is severely restricted, other products may be exported to

some, but not other countries. The U.S. Department of Commerce maintains lists to cross-check which types of products cannot be exported to which countries. For some products, such regulations can be quite complicated. For example, while the desktop version of the computer program PGP (Pretty Good Privacy, a data encryption technology; see Chapter 6—Securing Information Systems) can be exported to almost any country (with the exception of embargoed countries), PGP's software development kit can be sold only to users (including government users) in European Union (EU) member countries and close trading partners, to nongovernment users only in all other countries, and not at all to users in embargoed countries. As you can see, companies dealing with certain product categories have to be well aware of the laws and regulations governing the sale of their products.

Often, companies have to produce in certain countries in order to win sales contracts. For example, Boeing produces some airplane parts in China for two important reasons. First, there are significant cost savings associated with manufacturing in China. Second and more important, the Chinese government requires the manufacturing of at least some aircraft components in China in exchange for large aircraft orders (Holmes, 2006). Similarly, the United States has various **quotas** permitting foreign businesses to export only a certain number of products to the country; therefore, to overcome such quotas, many foreign car manufacturers (such as BMW, Toyota, or Mercedes-Benz) started producing automobiles in the United States.

Data-Sharing Challenges One area that has recently come to concern is the regulation of **transborder data flows**. Spurred by the decrease in telecommunications costs, companies started to outsource many business functions to other countries; for example, companies today outsource integral functions such as accounting or human resources to India, where the same quality of service can be provided at a fraction of the cost of performing the same functions in the United States or the EU. However, to outsource such functions, much (sometimes sensitive) data has to be transferred to different countries, which is where the problems start. Recently, the EU passed a directive that prohibits the transfer of data to countries with less stringent data protection laws. Thus, while it is now easier to transfer data between countries within the EU, it is much harder to transfer data from an EU member country to a nonmember country. While this poses challenges to companies from EU member countries (e.g., a German insurance company outsourcing its call center to India), this also introduces difficulties for international companies operating in the EU; for example, can a U.S.-based company transfer certain data from a European subsidiary back to the home office? In most cases no. As such, these limitations significantly restrict a company's ability to utilize common business processes (e.g., in the financial or health care sector), making it much more difficult and expensive to operate globally. However, currently, only a few countries have data protection laws as stringent as those of the EU, and a U.S. company outsourcing certain services to India, for example, does not face such challenges.

Internet Access and Individual Freedom When operating in a global digital world, companies will also have to consider Internet access issues. While people in some countries probably have access to almost all places on the Internet, people in others face many limitations in terms of the content they will be able to see or the applications they will be able to use. For example, in Germany and France, sites displaying fascist symbols and racist propaganda are banned by law; however, their citizens still have the possibility to visit prohibited content on sites hosted outside those countries. In other countries, such content is completely blocked, and people have no way to access banned content. Likewise, China restricts the use of Voice over Internet Protocol technology (a technology enabling phone calls over the Internet; see Technology Briefing 4) in order to be able to monitor phone conversations. Thus, Chinese Internet users are not able to use such technologies.

The French organization "Reporters without Borders" (www.rsf.fr) maintains a list of countries listed as "enemies of the Internet." Countries ranging from Belarus to Vietnam block all types of content that the governments deem inappropriate, with topics including primarily politics, religion, and sex. While many countries regulate the Internet by maintaining blacklists of sites and providing Internet access only through state-owned Internet service

providers, some countries (such as Cuba or North Korea) block Internet access altogether, allowing only a handful of people with special permission to access the Internet. Operating in such countries brings about all sorts of issues regarding mainly how to comply with such regulations and whether a company should comply with such rules on ethical grounds. For example, U.S. Internet search portals MSN and Yahoo! recently faced an ethical dilemma when they were requested to reveal the identity of Chinese citizens posting dissident messages on Web logs hosted on those sites. Clearly, the Internet poses great challenges not only for companies operating globally but also for countries that are imposing control or limiting the freedom of their citizens.

Geoeconomic Challenges

These are just a few factors companies have to consider when operating in a digital world. Other factors to consider are of **geoeconomic** nature, that is, the combination of economic and political factors that influence a region. Especially in the times before Globalization 3.0, the necessity to travel in order to conduct business in a foreign country was a big factor, considering the time needed to reach overseas destinations, the lost productivity due to time differences, and so on. For highly paid executives, a two-day trip to London can cost large sums of money, for airplane tickets, overnight stays, travel days, and lost productivity due to jet lag and other factors. The Internet in general and Globalization 3.0 in particular have reduced much of the need for business travel by enabling low-cost and high-quality videoconferencing. One such example is the partnership between computer company Hewlett-Packard and Dreamworks SKG (the makers of animated movies such as *Shrek*), who built a collaboration studio intended to simulate face-to-face meetings across the globe. Although only one such room costs about \$400,000 and the monthly service fees can be as high as \$18,000, the reduced need for business travel can still easily translate into significant savings in costs and time for companies conducting business globally.

Time Zone Challenges One factor that videoconferencing cannot resolve is the time difference between different countries. On the one hand, companies can use the time difference for their advantage; on the other hand, the time difference may actually hinder collaboration. For example, Symantec, a maker of antivirus software, has set up laboratories around the globe such that different teams can work on fighting viruses around the clock. When a team in California quits for the night, a team in Tokyo (where it's morning) can take over; when the team in Tokyo has finished their day's work, they hand off the project to a team in Europe, which then hands it back to the team in the United States (an approach called "following the sun"). However, the time differences can also cause friction, especially if real-time meetings (such as videoconferences) are needed. A good example is that of a U.S. telecommunications giant with subsidiaries in different European countries. Traditionally, the company's employees in Los Angeles prefer to hold weekly business meetings on a particular day of the week right after lunch. For employees of the European subsidiaries who have to "join" the conferences (via either phone or videoconferencing), this means coming in to work late in the evening once a week, as 1:00 P.M. in Los Angeles is 10:00 P.M. in Frankfurt (see Figure 2.16).

Infrastructure-Related Challenges Another challenge facing companies operating in a digital world is differences in infrastructure, both in terms of the classic infrastructure (such as roads, electricity, and sewage systems) and in terms of connectivity. While in most Western countries the telecommunications infrastructures are fast and reliable, in many other countries connectivity is not always a given. A network outage somewhere in Africa can effectively bring the communications infrastructure of an entire country to a screeching halt. Having backup plans for such incidents is imperative when operating in different regions providing different level of services. We will discuss infrastructure-related issues in more detail in Chapter 4—Managing the Information Systems Infrastructure.

Challenges Related to Economic Welfare Although the fall of communism and the other factors enabling Globalization 3.0 have helped to open up new markets and globalization has contributed to unprecedented growth in global per-capita gross domestic

FIGURE 2.16

International time zones.



product (GDP), this growth has not been evenly distributed throughout the world. According to organizations such as the International Monetary Fund, the gap between rich and poor countries has widened, as the per-capita GDP has increased sixfold in the richest 25 percent of all nations, whereas it only has increased threefold in the poorest 25 percent. For many companies, the poorest countries thus do not constitute viable markets, and the expansion in potential customer base is only hypothetical. Further, this inequality can have other (and potentially more serious) consequences, such as political instability or increased migration toward the richer countries.

For many established companies, there is also new competition coming from poorer countries. For example, companies like the Brazilian aircraft manufacturer Embraer, the Chinese appliances manufacturer Haier, or the Indian tractor and auto manufacturer Mahindra have gained extensive experience in operating in markets characterized by tough competition and low profit margins. Now, these emerging giants have started entering the European and American markets, and established companies do not only face their competition in emerging markets, but also in their traditional home markets, as the emerging giants can offer products at prices much below those established companies can offer (Engardio, Arndt, and Smith, 2006).

Demographic Challenges

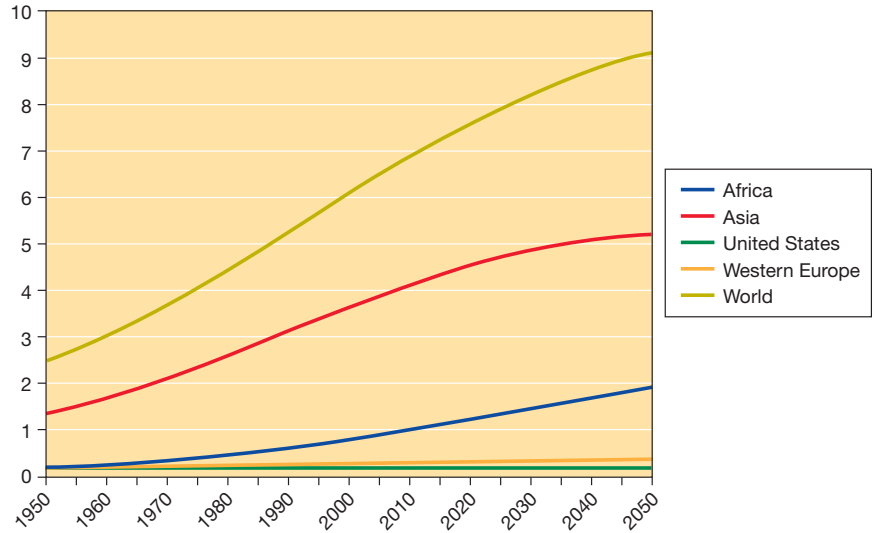
Companies operating in a digital world will also have to consider different demographic trends occurring worldwide. Specifically, the populations of the United States, many European countries, and Japan are increasingly getting older. At the same time, the population of other countries is getting younger and younger. While this may be an opportunity for companies to try to replace their aging workforce with new talent, it can also pose a challenge, as much of this younger workforce is lacking the necessary work experience.

Many low-wage countries have an abundance of people; in addition, the populations of such countries are growing at much higher rates than those of most Western nations (see Figure 2.17). As these countries are very poor, it is unlikely that the population growth will directly translate into a larger qualified labor pool or a larger market for products and services.

Expertise Related Challenges The nature of the workforce can also pose significant challenges for companies operating in a digital world. Different countries have different concentrations of skilled workers and differing costs for those workers (see Table 2.7).

FIGURE 2.17

World population, 1950–2050 (in billions).



For example, most industrial nations have made significant investments in building a large base of skilled information systems personnel. However, these workers will typically also be much more costly to employ than those from less developed countries. The types of skills prevalent in different countries may also vary. Depending on the region, the lack of skilled labor can be a real problem for companies operating in other countries, as companies might not always be able to hire people with the right set of skills.

Cultural Challenges

The third broad class of challenges can be classified as cultural challenges. Although people speak of the emerging “global village,” its existence is often very superficial, and companies operating in a digital world still have to consider a variety of cultural differences, some of which can pose quite complex challenges.

How National Cultures Differ Hofstede (2001) defines **culture** as the “collective programming of the mind that distinguishes the members of one group or category of people from another” (p. 9). Culture is manifested in how individuals view a variety of

TABLE 2.7 Salary Differences Have Helped to Make Global Outsourcing Popular

2006 Average Salary for Experienced IT Managers in Various Countries		
Rank	Country	Pay (US\$)
1	Switzerland	161,900
2	Germany	126,700
3	Denmark	116,000
4	Japan	112,300
5	Belgium	109,600
6	Ireland	108,800
7	UK	105,700
8	Hong Kong	97,600
9	Italy	93,900
10	Spain	93,200
14	United States	89,100
34	India	26,500

Source: Adapted from: www.finfacts.com.

Ethical Dilemma 

Underground Gaming Economy

In the United States in 2006, real estate appreciated at a colossal rate, pricing many middle-income families out of buying a house; gasoline prices rose to a phenomenal \$3.00 per gallon and up; and health care costs again spiraled out of sight. It's the real world, and those of us who live and work in it develop skills to cope.

Things in Project Entropia, a virtual world with a real cash economy, aren't much better. Colonists on Calypso must still fight off dangerous enemies, the Ped is still worth only 10 cents against the U.S. dollar, and the price of ore-rich property is rising.

Project Entropia is one of many massive multiplayer online role-playing games (MMORPGs). Other online role-playing games include but are not limited to Sony's Everquest, George Lucas's Star Wars Galaxies, Second Life, and Ultima Online. Players pay monthly subscription fees and assume virtual identities called avatars. Estimates are that more than 100 million people play worldwide, and the gaming companies report that subscriptions total over \$3.6 billion a year.

In most MMORPGs, gamers slay enemies, build houses and businesses, choose professions, pick up mystical attributes, and fill their virtual bank accounts with gold and cash. Each player's avatar "lives" in the game's virtual community. A recent trend, however, is for players who do not play just for fun to play to collect virtual tools, gold, or cash and then sell the booty for real cash. The dollar amounts involved are usually relatively small, say, \$70 for 10 million gold sets in Ultima Online, but there have been notable exceptions. In November 2005, for example, Jon Jacobs, a film producer from Miami, Florida, paid \$100,000 for a virtual resort in Project Entropia. "I have invested in a business that offers numerous opportunities for generating revenue," Jacobs said. He pointed out that the digital resort includes 1,000 hotel rooms that could be sold for \$100 each, a stadium for hosting hunting or combat competitions, and a nightclub.

The practice of buying and selling assets from MMORPGs has become so prevalent that the virtual moguls have a name: "farmers." The popular auction site eBay daily lists thousands of items taken from MMORPGs under its Internet Games category. Items for sale range from characters that have advanced to higher levels of a game to weapons, gold, and other items captured in a game.

Farming has become especially popular in China, where companies employ rows of gamers who play for up to 12 hours at a time, collecting virtual assets and ascending to the highest levels of a game—all of which the companies will sell.

Critics of this new virtual economy say that it penalizes gamers who play strictly for fun but allows those with cash to spend to advance through levels of a game they have not mastered. Others say there is nothing wrong with players buying advantages that let them play at higher levels without putting in large amounts of time.

Some game companies have banned farmers from the playing field. For example, Blizzard Entertainment, the makers of World of Warcraft, a game that boasts more than 5.5 million subscribers, has permanently banned over 1,000 users following its investigation into the selling of virtual goods. Similarly, *PC Gamer*, America's largest gaming magazine, stopped taking advertisements from companies that trade in virtual goods and characters from MMORPGs, and in early 2007, eBay banned the sale of virtual goods, such as currency or avatars.

The companies cite ethical reasons for penalizing farmers, but they also realize that farmers can eventually impact revenues, as gamers who don't buy and sell attributes refuse to play with those who do.

Sources: Jay Wrolstad, "Virtual Resort Sells for \$100,000," *Newsfactor Magazine Online* (November 11, 2005), http://www.newsfactor.com/story.xhtml?story_id=39369

Elizabeth Millard, "Inside the Underground Economy of Computer Gaming," *Newsfactor Magazine Online* (January 4, 2006), http://www.newsfactor.com/story.xhtml?story_id=40592&page=2

About Entropia Universe, <http://www.entropiauniverse.com/en/rich/5035.html>



cultural dimensions, such as power distance, uncertainty avoidance, individualism/collectivism, masculinity/femininity, concept of time, and life focus (see Table 2.8). In essence, each nation has its own culture, which can often have important implications for companies operating in a digital world. One area where such challenges often surface is the interaction between a company's headquarters and a subsidiary in a different culture.

POWER DISTANCE. **Power distance** refers to how different societies handle the issue of human inequality and sheds light on the inherent power structure within organizations and teams. Some cultures are higher in power distance, preferring strong authority or autocracy, while other cultures are lower in power distance, fostering more collaborative teamwork and less hierarchical structures. Consequently, differences in power distance can pose serious challenges.

UNCERTAINTY AVOIDANCE. The degree of **uncertainty avoidance** helps in understanding the risk-taking nature of a culture. From an outsourcing perspective, this might result in workers from some cultures being more cautious; this can be particularly troublesome when some workers, because of high levels of uncertainty avoidance, are not eager to adopt new technologies or techniques.

INDIVIDUALISM/COLLECTIVISM. A related dimension, **individualism/collectivism**, reflects the extent to which a society values the position of an individual versus the position of a group. In societies that are collectivist, peer pressure often plays an important role in shaping group interaction and decision making. Mixing both individually and collectively oriented individuals in an outsourcing project can often cause excessive conflict if not carefully managed.

MASCULINITY/FEMININITY. Additionally, **masculinity/femininity** refers to the degree to which a society is characterized by masculine qualities, such as assertiveness, or by feminine characteristics, such as nurturance, which can have important implications in terms of user preferences for technology, how user requirements are collected, or how teams assign roles and collaborate.

CONCEPT OF TIME. The **concept of time** can also differ across cultures, with some cultures having a relatively longer-term orientation, reflecting an appreciation for future

TABLE 2.8 Critical Cultural Dimensions for Various Countries

Critical Cultural Dimensions	Countries				
	Group 1: United States, Canada, Australia	Group 2: Germany, Austria, Switzerland	Group 3: Mexico Venezuela, Peru	Group 4: Japan	Group 5: India, Hong Kong, Singapore
Power distance	Moderately low	Moderately low	Moderately high	Moderately high	High
Individualism/ collectivism	High individualistic	Moderately individualistic	Moderate to highly collectivistic	Moderately collectivistic	Moderate to highly collectivistic
Masculinity/ femininity	Moderately masculine	Moderately masculine	Moderately to highly masculine	High masculinity	Masculine
Uncertainty avoidance	Moderately weak	Moderately strong	Moderately weak	Strong	Moderately weak
Concept of time	Long term	Long term	Short term	Long term	Short term
Life focus	Quantity	Quantity	Quality	More quality than quantity	Changing from quality to quantity

Source: Verma (1997); adapted from Owens and McLaurin (1993).

rewards, perseverance, and long-term planning. On the other hand, cultures with shorter-term orientation focus on the past and the current situation.

LIFE FOCUS. A last cultural dimension, **life focus**, contrasts the extent to which a culture focuses on the *quantity* versus the *quality* of life. A quantity-of-life orientation reflects a more competitive culture that values achievements and the acquisition of material goods. A quality-of-life orientation values relationships, interdependence, and concern for others. Life focus differences can influence group development, task and role assignments, and cause difficulties in the interaction between a company's headquarters and a subsidiary in a different culture.

Other Cultural Barriers In addition to the cultural barriers mentioned by Hofstede, there are many other barriers that can pose a challenge to companies operating in a digital world, including the following:

- **Language.** Communication language and norms
- **Work Culture.** Work skills, habits, and attitudes toward work
- **Aesthetics.** Art, music, and culture
- **Education.** Attitudes toward education and literacy
- **Religion, Beliefs, and Attitudes.** Spiritual institutions and values
- **Social Organizations.** Family and social cohesiveness

Each of these cultural elements can greatly influence interaction between employees in different countries, as outlined in Table 2.9. For example, the lack of a common language can often lead to disastrous results when communicating technical information, such as user requirements or design specifications. Likewise, differences in work culture can influence the employee's interaction. For instance, Europeans typically approach a project by focusing on its beginning and incrementally moving forward until the project is concluded. Americans, on the other hand, typically look at the end first and work backward to the start (Heichler, 2000). In sum, differences in language, work culture, and other cultural elements can have serious implications for managing in a digital world.

Other Challenges of Offering Products or Services in Different Cultures

Companies selling their products in foreign markets also have to consider different local cultures when deciding what to sell and how to market their products. For example,

TABLE 2.9 How Various Cultural Elements Can Affect Communication, Interaction, and Performance

Cultural Element	How It Can Impact Globalization Success
Language	Communication problems can influence efficiency, understanding, and performance.
Work culture	Different skills, work habits, and attitudes can influence performance and manpower constraints.
Aesthetics	Art, music, and dance reflect nonwork interests that can be used to enrich team communication and cohesiveness.
Education	Education level limits skill levels, technological sophistication, and infrastructure.
Religion, beliefs, and attitudes	Basic values and beliefs can influence attitudes toward work, promptness, punctuality, mutual trust, respect, and cooperation.
Social organization	Social norms of a society can influence formal and informal communication, including negotiations and job assignments.
Political life	Differing political systems can influence the delivery of supplies and equipment, human rights, legal system, and overall stability.

Source: Adapted from Verma (1997).

FIGURE 2.18

Illegally copied intellectual property is openly bought and sold in many countries.



different countries have different standards concerning what type of advertising is socially acceptable. Also, different cultures have different standards of dealing with intellectual property, such as computer software, digital music, or movies. While in most Western nations intellectual property is considered very important and is even protected by law, in other nations copying someone else's work is not seen as problematic. In fact, some cultures even regard it as flattery to copy the work of others. Thus, intellectual property infringements are common in many countries, reaching from counterfeiting Nivea Creme to mass-producing illegal copies of DVDs or computer software (see Figure 2.18). Finally, different norms and standards can cause problems for companies. For example, Wal-Mart did not consider that the standard sizes of pillowcases differed between the United States and Germany, and as a result, Wal-Mart's German stores ended up sitting on huge piles of U.S.-sized pillowcases. These and other problems eventually caused the retail giant to withdraw from the highly competitive German retail market.

Going Global: International Business Strategies in a Digital World

Before the era of globalization, most companies were solely operating in the domestic arena, conducting their activities exclusively in one country, starting from the acquisition of raw materials to the selling of final products. Although such businesses are likely to benefit from the flatteners that also spurred Globalization 3.0, **domestic companies** do not have to deal with many of the challenges brought about by globalization.

In today's digital world, the number of domestic companies is continually shrinking, with most domestic companies being relatively small (often local) businesses, such as local service providers, restaurants, farms, or retailers (e.g., independent grocery stores). Most of today's large companies, no matter if they are in car manufacturing (such as GM, Toyota, or DaimlerChrysler), insurance (Allianz or Munich Re), or consumer goods (Nestlé or Procter and Gamble), have some **international business strategy** for competing in different global markets.

e-Waste

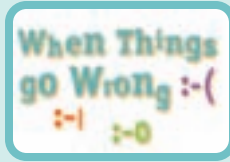
Americans bought an estimated \$125 billion worth of electronics in 2005—computers, monitors, cell phones, PDAs, DVD players, microwave ovens, and so on. Electronic products contain a mix of components that contain material, such as lead, mercury, cadmium, or PVCs, which are highly toxic when incinerated or buried in a landfill. For example, a conventional computer monitor contains 4 to 8 pounds of lead, and newer LCD screens contain mercury.

Since local landfills won't take hazardous waste, what happens to electronic gadgets when consumers no longer need or want them? (Landfills don't want them, but some consumers bury them in ordinary household garbage.) Some owners hand them down to someone else or pack them away in the back of a closet or garage. Others donate the items—whether they still function or not—to a charitable organization. But maybe the donations aren't so welcome.

In 2004 alone, Goodwill Industries International Inc. was flooded with more than 23 million pounds of electronic goods, most of which were unusable. Since recycling electronics costs money, Goodwill spokesperson Christine Nyirjesy Bragale told a reporter in January 2006, "Electronic waste is becoming a costly problem for us."

Three U.S. states—California, Maine, and Maryland—have followed examples from Europe and Japan in handling electronic waste disposal in that they impose a mandatory recycling fee either on consumers or manufacturers, they require manufacturers to take back the equipment for recycling, or they place responsibility on local governments for providing recycling centers. Although federal law in the United States prevents businesses from improperly disposing of e-waste, this law does not extend to households.

Unfortunately, although the export of hazardous waste to developing countries was banned in 1992, between 50 and 80 percent of America's e-waste continues to be shipped to Third World countries,



where environmental standards are less strict. So much e-waste has been deported that, in 2002, China banned its import.

To reduce the environmental impact and to facilitate recycling efforts, as of mid-

2006, the EU has banned toxic ingredients, such as lead, mercury, cadmium, and so on, from electronics, appliances, lighting equipment, medical equipment, and other consumer products. Prior to the EU mandate, a sparse few companies were concerned with the production of "green" hardware. Now, however, since Europe represents about 30 percent of the world market for electronic equipment, manufacturers are rushing to comply with the EU directive.

The need for stricter regulations concerning e-waste disposal has been recognized in the United States, and in January 2006, Congress had appointed a working group to determine a course of action. Legislation could take a while, however, but in the meantime more states may decide to formulate their own legislation. Clearly, disposing properly of e-waste is a problem that needs a solution if the environment is to be protected.

Sources: <http://www.intel.com/technology/mooreslaw/index.htm>
<http://www.strategiy.com/inews.asp?id=20051130063030>

Sherry Watkins, "E-Waste Epidemic," *Government Technology* (January 2, 2006), http://www.govtech.net/magazine/channel_story.php/97724

<http://www.canada.com/topics/technology/story.html?id=e8def77a-3a8f-420b-ad29-a9e08d03fca0&k=4739&p=3>

Anonymous, "Is America Exporting a Huge Environmental Problem?," *ABC News* (January 6, 2006), <http://www.abcnews.com/2020/Technology/story?id=1479506>

http://www.wired.com/news/technology/0,57151-1.html?tw=wn_story_page_next1

<http://www.cnn.com/2006/TECH/ptech/01/18/recycling.computers.ap/index.html>

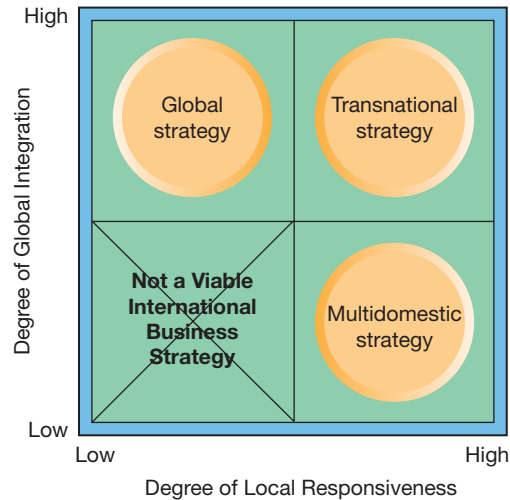
<http://www.mercurynews.com/mld/mercurynews/news/local/states/california/peninsula/13697994.htm>

<http://europa.eu.int/scadplus/leg/en/lvb/l21210.htm>

Such companies pursue either a multidomestic, global, or transnational strategy, depending on the degree of supply chain integration and necessary local customer responsiveness (Prahalad and Doz, 1987; Hitt, Ireland, and Hoskisson, 2005). On the one hand, businesses can benefit from global integration by utilizing economies of scale; on the other hand, a company's local subunits may benefit strongly from being able to quickly respond to changing conditions in local markets. Different

FIGURE 2.19

International business strategies.



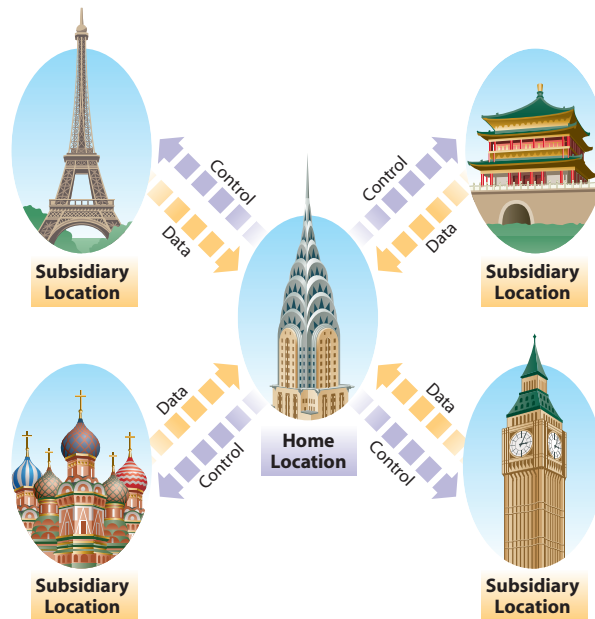
international business strategies are suited better for different situations (see Figure 2.19 and Table 2.10). In the following sections, we describe each of these various business models.

Multidomestic Business Strategy

The **multidomestic business strategy** is particularly suited for operations in markets differing widely. The multidomestic business strategy uses a loose federation of associated business units, each of which is rather independent in their strategic decisions. In other words, the degree of integration is very low, and the individual subunits can respond quickly to their respective market demands (Ghoshal, 1987). Multidomestic companies can thus be extremely flexible and responsive to the needs and demands of local markets, and any opportunities arising in local markets can be quickly seized. An example of a multidomestic company is the international arm of General Motors, the national subsidiaries of which produce cars that are customized to the specific local markets (e.g., Opel in Germany and Vauxhall in Great Britain). However, working in a decentralized fashion, much of the knowledge generated is retained at the local subsidiaries, and knowledge transfer between the individual subsidiaries is often limited, leading to inefficiencies and mistakes that potentially can be repeated across subsidiaries (Bartlett and Ghoshal, 1998). In sum, for companies following a multidomestic business strategy, very little data and control information flows between the home and subsidiary locations (see Figure 2.20).

TABLE 2.10 When to Use International Business Strategies

Strategy	Description	Strengths	Weaknesses	When to Use
Multidomestic	Federation of associated business units; decentralized	Ability to quickly react to local conditions	Differing product offerings limit economies of scale, and limited interunit communication limits knowledge sharing	Very heterogeneous markets
Global	Centralized organization with standardized offerings across markets	Standardized product offerings allow achieving economies of scale	Inability to react to local market conditions	Homogeneous markets
Transnational	Some aspects centralized, others decentralized; integrated network	Can achieve benefits of multidomestic and global strategies	Difficult to manage; very complex	Integrated global markets

**FIGURE 2.20**

Multidomestic business strategy.

Global Business Strategy

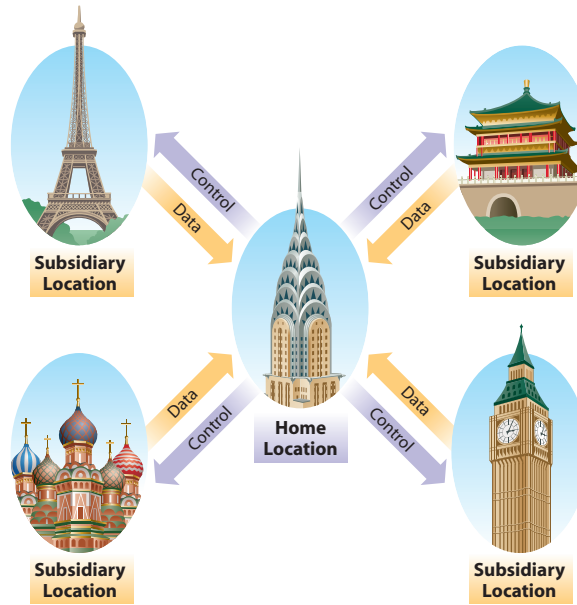
The **global business strategy**, in contrast, works much more in a centralized fashion. Companies are using this strategy primarily to achieve economies of scale by producing identical products in large quantities for a variety of different markets. As the decisions are made at the headquarters, the organization can be characterized as a centralized hub (Bartlett and Goshal, 1998). A good example of a global strategy is Coca-Cola; while there are some products made for local tastes, the core product (Coke) is the same in all markets, and only aspects such as product advertising differ. The headquarters gives the overall strategic direction and thus has tight control of the entire company as well as the knowledge that is generated within the company. However, the need to achieve economies of scale prohibits implementation of local strategies, and thus a global company cannot react to local challenges and opportunities as quickly as multidomestic companies. Here, extensive data flows from the subsidiaries to the home location, and the home location exerts strong control on the subsidiaries (see Figure 2.21).

Transnational Business Strategy

An emerging strategy is the **transnational business strategy**. Having realized the benefits and drawbacks of multidomestic and global business strategies, companies using a transnational business strategy selectively decide which aspects of the organization should be under central control and which should be decentralized. This business strategy allows companies to leverage the flexibility offered by a decentralized organization (to be more responsive to local conditions) while at the same time reaping economies of scale enjoyed by centralization. An example of a transnational company is Unilever, which decides when to centralize and when to decentralize, depending on the products and the local markets. However, this business strategy is also the most difficult, as the company has to strike a balance between centralization and decentralization. In contrast to global organizations, where most of the resources are centralized in the companies' home countries, different resources in a transnational company can be centralized in different countries, depending on where the company can achieve the greatest returns or cost savings. Further, different decentralized resources are interdependent; this is in contrast to the other organizational forms, where there is usually one direction of the flow of resources. In a transnational company, for example, semiconductors for computer chips might be

FIGURE 2.21

Global business strategy.

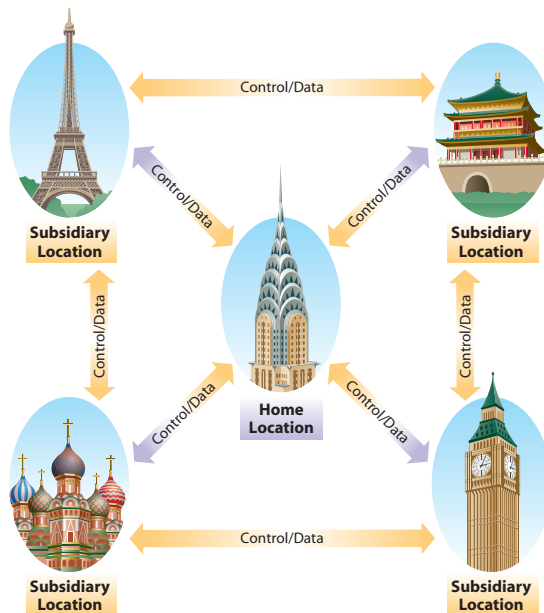


produced in a state-of-the-art factory in Dresden, Germany; shipped to a Southeast Asian country to be assembled into a final product; and then shipped back to Western Europe to be sold to an individual customer. Bartlett and Ghoshal (1998) characterize transnational companies as integrated networks, requiring a great deal of effort in terms of managing the different interdependencies, tasks, and communication among the different units. In sum, both data and control can flow in any direction, depending on the specific business process (see Figure 2.22).

Different types of information systems can best support these different organizational forms. While we will discuss global implications throughout the book, in the next section we will provide a high-level overview of information systems supporting companies operating in a digital world.

FIGURE 2.22

Transnational business strategy.



Brief Case

Transnational Development

As information systems gain complexity, they often cost more for companies to maintain, especially in such areas as employee training, supply chain simplification, accounting practices, customer service, tracking customer trends and preferences, and information systems maintenance. As IS costs increase, those services become well suited to outsourcing. And since a company's bottom line is always a vital concern, if outside sources can provide IT services at less cost than providing them in-house, the decision to outsource is often a no-brainer.

Take, for example, the Wrigley Company, the world's largest manufacturer of chewing gum, including such brands as Juicy Fruit, Big Red, Doublemint, and Wrigley's Spearmint. Wrigley sells nearly half of all gum sold in the United States, and consumers in 150 countries buy Wrigley's brands.

Marketing research is considered the top priority in the Wrigley Company, including such activities as consumer preference studies, marketing trends tracking, and advertis-

ing campaign and new product testing. The company's Marketing Research Department plans and coordinates activities with European branches located in Germany, the United Kingdom, the Czech Republic, and Russia.

Wrigley's Marketing Research Department needed a single corporate marketing research database, and in 2002 the Russian Marketing Research branch initiated the development of a marketing research work flow automation system. The system was implemented first in the Moscow branch and, after a year of successful use, was also installed in the Marketing Research branches in Germany, the United Kingdom, and the Czech Republic. In the future, Wrigley plans to install the automated system in all branches globally.

Questions

1. What can companies like Wrigley learn in one market and apply in another?
2. Is Wrigley's transnational IS development approach optimal, or should a more centralized approach be used?

Sources: <http://www.aplana.com/pcbbase/customerinfo.asp?id=16>

Operating in a Digital World Using Information Systems

Organizations use a variety of information systems strategies to manage international operations most effectively. For example, Nestlé, one of the world's largest food producers, with over 500 factories and operations in more than 70 countries, is also considered to be one of the world's most globalized companies. Firms such as Nestlé that are operating in multiple nations can pursue three distinct types of information systems strategies: (1) multinational, (2) global, and (3) transnational information systems strategies (Ramarapu and Lado, 1995) (see Table 2.11). We describe each in this section.

TABLE 2.11 Global Information Systems Strategies

IS/Business Strategy	Systems	Communications	Data Resources
Multinational	Decentralized systems	Direct communication between home office and subsidiary	Local databases
Global	Centralized systems	Multiple networks between home office and subsidiaries	Data sharing between central home office and subsidiaries
Transnational	Distributed/shared systems; Internet-enabled applications	Enterprise-wide linkages	Common global data resources

Source: Adapted from Ramarapu and Lado (1995).

Multinational Information Systems Strategy

Multidomestic companies often pursue a **multinational information systems strategy** to support their international operations. In order to support the loose confederacy of various different local subsidiaries and the decentralized nature of the decision making, each organizational subsidiary has its own decentralized systems. Although the systems within the different business units may be integrated, there is no centralized IS structure. The communications take place primarily between the different subsidiaries and the home office; thus, there is no focus on the communication between the different subsidiaries (this is why there is only limited knowledge transfer among the subsidiaries). As the different subsidiaries are very independent, they retain the decentralized local data processing centers that are responsive to local needs and regulations and at the same time use information technology to integrate them loosely into the framework of the parent organization.

Global Information Systems Strategy

In contrast, the tightly controlled global business strategy greatly benefits from the integration achieved by a **global information systems strategy**. To achieve this, standards are introduced to enable a centralized infrastructure. As the home office coordinates most of the strategic decisions of the local subsidiaries, multiple networks between the home office and the subsidiaries are needed for both communication and data sharing. In contrast to the multinational IS strategy, data does not stay at the local subsidiaries, which reduces the potential for duplication, but at the same time introduces issues related to transborder data flows (primarily in EU countries).

Transnational Information Systems Strategy

In order to create an integrated network between the home office and the multiple local subsidiaries, transnational businesses usually pursue a **transnational information systems strategy**. In such strategy, there is much communication among the different subunits as well as between the home office and the subunits, and many systems are distributed and/or shared; in this way, a subsidiary can access the systems and resources of other subsidiaries. Similarly, key data is shared throughout the company to enable a seamless integration of processes. Much of the communication, data, and application sharing is enabled by intranet, extranet, and Web-based applications (see Chapter 5).

Industry Analysis



The Automobile Industry

Could Ford Motor Company end up as the last of Detroit's "big three" car companies to be based in the United States? This question buzzed around the automobile industry in July 2006 after billionaire Kirk Kerkorian, General Motors' (GM's) largest individual shareholder, proposed that GM merge with Japan's Nissan Motor Company and France's Renault.

Auto industry experts have claimed for years that globalization—the flattening of the world—would result in a widespread consolidation of automakers.

What is happening within the auto industry is indicative of globalization in general. A "flattened" world implies that the world is becoming more homogeneous. As the process continues, distinctions between national markets are fading and for some products may disappear entirely.

For instance, for decades manufacturers within the automobile industry have worked toward developing a "world car"—a basic car that with a few modifications can be sold all over the world. In the 1990s, three attempts were

made to produce and market a world car: Honda's Accord, Ford's Mondeo/Contour, and GM's Cadillac Catera/Opel Omega. None of the models sold as well as hoped in North America, Europe, and Asia for several reasons:

- Consumers in different areas of the world have different tastes in automobiles. For example, small cab size has long been accepted in Europe, but American consumers prefer larger cabs.
- Europeans prefer steel construction over plastic, as in door panels, which are largely used in car manufacturing in the United States.
- Differences in infrastructure among countries lead to varying preferences in cars. Asians, for example, prefer smaller-sized cars that can maneuver well through narrow, crowded streets, while Americans are fond of SUVs and pickups.
- The price of gasoline varies throughout the world. Europeans think first of fuel economy when buying a car, while Americans base decisions more on a car's performance and appearance.
- Variations in regulations governing cars, such as emission standards, also vary with countries and affect car buyers' choices.

The development of a "world car" may yet be accomplished but probably not until cultural and economic conditions undergo even more globalization.

In the meantime, the automobile industry continues to move beyond geographic boundaries. Auto companies traditionally based in the United States are moving plants overseas, and foreign

manufacturers are moving production facilities to the United States. Toyota, a Japanese auto company, has production plants in Alabama and West Virginia. Ford Motor Company is based in the United States but operates satellite companies in Asia and Europe. China recently bought a Brazilian auto engine manufacturing plant and transported it to China.

Another significant change in the auto industry involves sales channels. Traditionally, U.S. automakers maintain localized franchises that handle auto sales in a specific region. Now there are Internet franchises that have also created worldwide sales centers that did not previously exist.

The global marketplace has changed the automobile industry profoundly, but it has also created new opportunities. In a 2006 press interview, author David Magee of Tennessee, who has written books on the automobile industry, said of the possible GM–Renault–Nissan merger, "I couldn't have been less surprised. This is the twenty-first century."

Questions

1. How is Globalization 3.0 fueling change in the auto industry?
2. Examine how cultural differences make it difficult to create a world car.

Sources: Chuck Chandler, "Globalization: The Automobile Industry's Quest for a 'World Car' Strategy" (May 22, 2000), <http://globaledge.msu.edu/NewsAndViews/views/papers/0018.pdf>

Garry Emmons, "American Auto's Troubled Road," *Working Knowledge* (May 10, 2006), <http://hbswk.hbs.edu/item.jhtml?id=5290&t=innovation>

Sarah A. Webster, "Future of Autos Is Global," *Detroit Free Press* (July 2, 2006), <http://www.freep.com/apps/pbcs.dll/article?AID=/20060702/BUSINESS01/607020577/1014/BUSINESS>

Key Points Review

1. *Define globalization, describe how it evolved over time, and describe the key drivers of globalization.*

Globalization is the integration of economies throughout the world, fueled by technological progress and innovation. Over the past centuries, globalization has come a long way; starting with Columbus's discovery of America, Globalization 1.0 was fueled by power. Then, in 1800, Globalization 2.0 started, fueled mainly by a fall in transportation and telecommunications costs.

Globalization 3.0, starting in 2000, was enabled by the convergence of a number of "flatteners," namely, the fall of the Berlin Wall, Netscape going public, work flow software, supply chaining, open sourcing, outsourcing, offshoring, in-sourcing, informing, and "the steroids." This has led to a rise in outsourcing and has helped to shape the world as we know it today.

2. *Describe the emerging opportunities for companies operating in a digital world.* Companies

operating in a digital world see a number of opportunities, many of which are enabled by Globalization 3.0. For companies, the primary opportunities are the access to new markets for their products and services as well as the access to a talented labor pool in countries with lower wages.

3. **Explain the factors companies have to consider when operating in a digital world.** In addition to the opportunities, operating in a digital world also poses a number of challenges to companies. The first broad set of challenges is of governmental nature and includes challenges related to the political system (such as market vs. planned economy or political instability), regulatory challenges, data-sharing challenges, and challenges related to Internet access and individual freedom. The next class of challenges is of geoeconomic nature. Such challenges arise due to differences in world time zones, communication reliability, and workforce quality. Further, differences in economic welfare potentially lead to challenges, both for companies and for countries. The final set of challenges relate to national cultural differences, including differences in power distance, uncertainty avoidance, individualism/collectivism, masculinity/femininity, concept of time, and life focus as well as differences in language, education, and religion. Finally, companies face various challenges when offering products or services in many countries, depending on what is considered a socially acceptable product or advertisement.
4. **Describe international business and information system strategies used by companies operating in a digital world.** Companies operating in

a digital world can use three different business strategies. As it can quickly respond to changing local conditions, the multidomestic business strategy is best suited for heterogeneous markets and includes having a decentralized federation of loosely associated business units in different countries. The global business strategy includes having a centralized organization to offer standardized products in different markets. This helps to achieve economies of scale and is best suited for homogeneous markets. The transnational business strategy is very well suited for operating in a digital world, as it combines the benefits of the multidomestic and the global business strategies by enabling economies of scale while being responsive to local market conditions. In a transnational business strategy, some aspects of the company are centralized, while others are decentralized. When operating in a digital world, multidomestic companies often pursue a multinational information systems strategy. A multinational IS strategy is characterized by decentralized systems and very limited data sharing. In contrast, global organizations pursuing a global business strategy often utilize a global IS strategy, with very centralized systems, and much data flows from the subsidiaries to the headquarters. Finally, transnational companies use a transnational IS strategy, which depends on distributed systems, increased communication between the headquarters and the subsidiaries as well as between the subsidiaries, and common access to critical data. Transnational information systems are primarily enabled by intranets, extranets, and the Internet.

Key Terms

concept of time	66	Globalization 3.0	44	offshoring	51
culture	64	individualism/collectivism	66	power distance	66
domestic company	68	in-forming	53	quotas	61
embargoes	60	in-sourcing	51	tariffs	60
export regulations	60	international business strategy	68	transborder data flows	61
geoeconomic	62	life focus	67	transnational business strategy	71
global business strategy	71	maquiladoras	56	transnational information systems strategy	75
global information systems strategy	75	masculinity/femininity	66	uncertainty avoidance	66
globalization	43	multidomestic business strategy	70	wiki	50
Globalization 1.0	43	multinational information systems strategy	75	work flow software	48
Globalization 2.0	44				

Review Questions

- List the 10 factors that led to Globalization 3.0.
- How did the fall of the Berlin Wall flatten the world according to Friedman?
- Describe work flow software. How did this technology drive the flattening of the world?
- What is the process of setting up entire factories in China in order to produce goods at a fraction of the cost? How does this drive the flattening of the world?
- Describe in-sourcing and provide examples of how organizations use in-sourcing.
- List and describe several reasons why companies are choosing to outsource business activities.
- List and contrast several challenges of operating in the digital world.
- Explain the concept of geoeconomic challenges and how organizations can overcome these challenges.
- What is meant by transborder data flows, and why is this a concern?
- Define culture and describe how it affects globalization.
- List and describe several ways in which cultures differ.
- Describe the multidomestic business strategy and how it affects the flow of control information.
- Describe and contrast the multidomestic, global, and transnational information systems strategies.

Self-Study Questions

Visit the Interactive Study Guide on the text Web site for additional Self-Study Questions: www.prenhall.com/Jessup.

- What stage of globalization started with expansion of trade to India, where the horse and wind and in later stages steam were the primary drivers?
 - Globalization 0.5
 - Globalization 1.0
 - Globalization 2.0
 - Globalization 3.0
- The release of the Netscape Web browser had the following effects on the flattening of the world *except*:
 - setting the standard for Web browsing
 - providing easy access to the Internet
 - providing integrated e-mail
 - launching the World Wide Web
- Which of the following is *not* considered a world flattener by Friedman?
 - open sourcing
 - supply chaining
 - in-forming
 - customer service software
- Which of the following is *not* consisted open-source software:
 - Microsoft Office
 - Apache
 - Firefox
 - Linux
- The assembly plants on the Mexican side of the U.S.–Mexican border that mass-produce goods for the U.S. market are called _____.
 - Mexicanizations
 - maquiladoras
 - Mexcaias
 - gringoiias
- Embargoes are considered which part of the following challenges operating in the digital world?
 - regulatory
 - data sharing
 - political system
 - governmental changes
- One of the geoeconomic challenges that videoconferencing *cannot* resolve is _____.
 - time zone challenges
 - infrastructure challenges
 - data-sharing challenges
 - cultural challenges
- Which of the cultural dimensions is described as “the extent to which a culture focuses on quantity versus quality of life”?
 - concept of time
 - uncertainty avoidance
 - life focus
 - work culture
- _____ reflects the extent to which a society values the position of an individual versus the position of a group.
 - masculinity/femininity
 - uncertainty avoidance
 - individualism/collectivism
 - life focus
- What emerging strategy do companies use when deciding which aspect should be under central control and which should be decentralized?
 - global business strategy
 - transnational business strategy
 - multidomestic business strategy
 - operational business strategy

Answers are on page 79.

Problems and Exercises

1. Match the following terms to the appropriate definitions:
 - i. transnational business strategy
 - ii. multidomestic business strategy
 - iii. in-forming
 - iv. Globalization 3.0
 - v. quotas
 - vi. Maquiladoras
 - vii. geoeconomic
 - viii. uncertainty avoidance
 - ix. culture
 - x. embargoes
 - a. Collective programming of the mind that distinguishes the members of one group or category of people from another
 - b. Assembly plants located on the Mexican side of the U.S.-Mexican border; utilized mainly to take advantage of lower wages and less stringent regulations
 - c. Began with individuals and small groups from virtually every nation to shrink the world from “size small to size tiny”
 - d. An international business strategy employed to be flexible and responsive to needs and demands of heterogenous local markets
 - e. The combination of economic and political factors that influence a region
 - f. Using the Internet to access information to enable people to get a more complete picture of what is happening in the world
 - g. Are typically limiting (or prohibiting) trade with one particular country
 - h. The cultural characteristic that helps in understanding the risk-taking nature of a culture
 - i. The act of foreign governments to limit certain product’s imports
 - j. Allows companies to leverage the flexibility offered by a decentralized organization while at the same time reaping economies of scale enjoyed by centralization
2. Visit the Go4Customers Web site (www.go4customer.com). What does this company do? Where are they located? Who are Go4Customers customers? Give an example of how a U.S. company would use go4customer.
3. Visit Wal-Mart China (www.wal-martchina/english/). Compare and contrast your local Wal-Mart with Wal-Mart China. Are the items sold in China the same as your local Wal-Mart? How does Wal-Mart China differ from your Wal-Mart? Explain your answer.
4. Interview an IS professional and document their views on outsourcing. Specifically, find out if his or her company is using outsourcing; if so, what do they outsource and why? If not, why not? If they utilize outsourcing, have them critique its quality, cost, and so on.
5. What search engine do you use? Compare and contrast your search engine preference with one of the other big search engines available (Google.com, msn.com, yahoo.com). How would these search engines be used to create your “own personal supply chain”?
6. What digital news media do you use to get your news? According to this textbook’s definitions, are you in-forming? If you are in-forming, describe how. What other ways could you in-form?
7. What are some examples of key technologies that utilize “steroids”? Using the technology definition provided by this textbook, how do you use technological steroids in your everyday life?
8. Should the U.S. government allow companies to use outsourcing if qualified U.S. citizens are willing and able to do a job? Should the government regulate the amount that can be outsourced by any company? Why or why not?
9. Work flow software allows an organization to move documents and/or tasks through a work process. Using your own experiences and observations, either professionally or personally, describe how the work flow software worked.
10. As outlined in the chapter, UPS provides in-sourcing services for many businesses. Visit www.ups.com and identify some examples of UPS providing in-sourcing services and include a listing of some of UPS’s in-sourcing customers.
11. Interview an IS professional regarding some possible uses for open-source software. Is open-source software being used in the IS professional’s organization? If so, document what software they use and how it is working; if not, document why they are not using open source software.
12. List 10 reasons why you would (or would not) be a good global manager.
13. Global outsourcing appears to be here to stay. Use the Web to identify a company who is providing low-cost labor from some less developed part of the world. Provide a short report that explains who they are, where they are located, who their customers are, what services and capabilities they provide, how long they have been in business, and any other interesting information you can find in your research.
14. Examine Table 2-7 and rate yourself for each of the critical cultural dimensions. Do your ratings match those of your country in every instance? If so, why do you think this occurred? If not, why?
15. Download and use the open source Firefox Web browser (www.mozilla.com/firefox/) and compare and rank its features against those of Microsoft Internet Explorer or Netscape Navigator. Which do you prefer and why?

Application Exercises



The existing data files referenced in these exercises are available on the Student Companion Web site: www.prenhall.com/Jessup.



Spreadsheet Application: Building a Business Case for Online Ticketing

On graduation, you were hired by Campus Travel to assist in creating an infrastructure to sell travel services over the Internet. One aspect of this online system is a module to handle travel-related requests so that the customers can see whether a particular product of service is available. In order to do this, you will have to be able to manipulate data to allow for management to see what is really going on. To do so, your manager has asked for the following:

1. Sort the data by date, then by sales.
 - a. Open the file sortdata.csv.
 - b. Highlight all data.
 - c. Select sort from the “Data” menu.
 - d. Sort by “Date Sold,” then by “Salesperson.” Print out a copy of each for your instructor.
2. Count the number of Tickets sold in the provided table.
 - a. In cell H3, enter the countif formula to count the number of tickets each salesperson has sold. Hint: Use “=countif(\$b\$2:\$b\$36,g3).”
 - b. Copy cell h3 down to the other salespeople.
 - c. Sum the total number of tickets sold in the appropriate field.



Database Application: Locating Campus Travel Agencies

Campus Travel is now trying to market toward specific customers in their frequent flier database. This includes targeting customers from certain airlines that reside in certain areas. You have been asked to import the frequent flier database and then to filter records accordingly. To do so, you must complete the following:

1. Open the file frequentflier.mdb.
2. Use “filter by selection” to filter records from customers in Pullman.
3. Filter customers by “Delta Airlines.”

Team Work Exercise: Becoming a Global Leader



Many universities believe, rightfully so, that they have a duty to help internationalize students through a variety of events, courses, and experiences in order to help prepare students for managing in the digital world. Work in teams

of four or five students and compile a list of all the different things you feel your school is doing to help students develop into better global leaders.

Answers to the Self-Study Questions

1. B, p. 43 2. D, p. 45 3. D, p. 46 4. A, p. 50 5. B, p. 56 6. A, p. 60 7. A, p. 000
 8. C, p. 67 9. C, p. 66 10. B, p. 71

case 1

Global Picture Sharing with Flickr

Has there been a wedding, birth, confirmation, graduation, one-hundredth birthday celebration, or other commemorative event in your family lately? Would you like to see the photos your sister, Uncle Walt, and Grandma Mary took at the event? Invite everyone who attended

to post their photos on Flickr.com—one of the easiest and most popular means of sharing photos online.

Flickr.com was developed by Ludicorp, a Vancouver, Canada-based company founded in 2002 and launched online in 2004. Yahoo! purchased Flickr

in 2005. In just over a year after Flickr’s launch, the site had over 350,000 members, who had collectively uploaded 31 million images.

Flickr didn’t invent online photo sharing, but the tools members can use to navigate the photos on the site are

unique. “Tags” let photo owners and viewers label photos to prescribe a category that makes them easier to find. For example, popular tags include summer, winter, cute, Europe, dog, cat, and so on. Flickr takes the tag concept further with clustering, a better way to explore photos through tags. Key in “summer beach vacations,” for instance, and you can view a page of clustered photos with just those tags. Clustering has resulted in such far-out photo categories as confusing street signs, dogs’ noses, Halloween costumes, margaritas, and mannequins.

Flickr sees photo sharing and the use of tags as a social process users call “folksonomy.” That is, since viewers can add comments to photos, there is level of involvement similar to a social gathering. For a person who is browsing through a set of photos, the notes on the photos tell little stories, as if that person were sitting

by the photographer, who is explaining the photo.

Flickr photo viewers can also rate a photo according to “interestingness.” Each calendar day, a few highly valued “interestingness” photos are posted to a common page for viewer exploration.

Flickr also allows for basic photo manipulation such as rotation, ordering prints, sending to a group of people, adding to a blog, deleting, and so on. Photos can be open for everyone everywhere to view, or viewing can be restricted to one’s friends and family.

User space on Flickr is unlimited; however, there is a restriction based on the bandwidth used per month. (For only a few dollars per month, there are no bandwidth restrictions.)

Since Flickr’s basic photo-sharing service is free, revenue for the company is based on Yahoo!-placed ads on Flickr

Web pages. Photographers who post images on the Flickr site, however, are free to sell their photos. The legal aspects of copyright are handled by a license called the “creative commons.” This license has many different levels and copyright protection but is primarily for not-for-profit use of a user’s photographs. Flickr offers a simple interface that allows photographers to choose a license for protecting copyright.

For programming enthusiasts, Flickr has released all application program interfaces (APIs) for public use. For example, programmers have used the APIs to develop uploading applications for the Mac, Windows, camera phones, and other devices.

The worldwide popularity of Flickr is another way in which information systems are fueling a flatter world.

Questions

1. Why do you think Flickr has been so popular throughout the world?
2. What lessons could a Web site for a local business learn from Flickr?
3. How do Web sites like Flickr act to increase globalization?

Sources: Brad Stone, “Photos for the Masses,” *MSNBC-Newsweek* (March 18, 2004), <http://www.msnbc.msn.com/id/7160855/site/newsweek/>

Anonymous, “The New New Things,” *Flickr Blog* (August 1, 2005), http://blog.flickr.com/flickrblog/2005/08/the_new_new_thi.html

Daniel Terdiman, “New Flickr Tools Rein in Photo Chaos” (August 2, 2005), http://news.com.com/Shedding+light+on+Flickr/2100-1025_3-5997943.html

http://news.com.com/Tagging+gives+Web+a+human+meaning/2009-1025_3-5944502.html

Case 2

e-Enabling the Air Transport Industry: Globalization of the Airline Industry

In its early years, airlines were primarily carriers of airmail, and their primary customers were governments, and it was only after World War II that passenger airlines really took off. As many pioneering airlines were state owned, the air transport industry grew to be heavily regulated, for example, in terms of the route network, pricing structures, or other operational requirements. Most of these regulations stayed in place until the late 1970s, when the U.S. government, as well as other countries, started deregulating the air transport industry, shifting airline ownership patterns from government funded to primarily privately owned.

This opened up the market for a large number of new entrants, especially for carriers in the low-cost niche.

Suddenly, both new entrants and established airlines faced a new competitive environment and had to reduce operating costs in order to survive. However, it was not only established airlines such as Pan Am or TWA that struggled for survival; a large number of new entrants to the air transport industry also had to file for bankruptcy shortly after beginning service. Contributing to this is the highly cyclical nature of the air transport industry; historically, four or five poor years were followed by five or six good years

for the industry, and many new entrants could not survive periods of stagnation or decline. The most recent downturn following the terrorist attacks of September 11, 2001, has imposed extreme hardships for many airlines. As a result, many airlines went out of business or were consolidated within stronger competition; likewise, aircraft manufacturers such as Boeing and Airbus faced a slump in new aircraft orders. In fact, many new aircraft scheduled to be delivered in the months after 9/11 were flown directly to aircraft “boneyards” in the southwestern United States to be stored indefinitely, never having transported a single passenger.

However, while the U.S. air transport industry has seen a massive downturn, nations such as India and China have seen tremendous economic growth, making air travel accessible to vast amounts of people. For example, in the past few years, India has seen a number of low-cost carriers such as Kingfisher Airlines enter the domestic market, making air travel more affordable. As a result, the Indian air transport industry has seen unprecedented growth rates, with an increase in air travel of more than 20 percent in the 2005–2006 fiscal year. For aircraft manufacturers, this translates into formidable economic opportunities; recently, Boeing adjusted its 20-year market forecast for new commercial airplanes in India to \$35 billion, up from \$25 billion. Similarly, Boeing predicts an annual growth rate of almost 9 percent for the Chinese market, a growth rate that cannot be achieved in most Western markets because of the maturity of the air transport industry (the growth rate of the U.S. market is only about 3.5 percent). While the Chinese market is currently only one-sixth the size of the U.S. market, Boeing estimates that the Chinese domestic market will reach half the size of the U.S. market within the next 20 years.

Given the rise of these markets, it is no surprise that large international airline manufacturers such as Boeing or Airbus are competing fiercely for new aircraft orders. In markets such as India or China, these manufacturers have largely been successful; in other markets, the products offered may not meet local needs. For example, many Russian domestic carriers

rely on a fleet of legacy Russian aircraft that can cope with infrastructure issues such as snow-covered gravel runways in remote destinations or lacking ground infrastructure for handling luggage or passengers (see Figure 2.22). On the other hand, even late-model aircraft built by the traditional Russian manufacturers Ilyushin or Tupolev have not been received too well by the market (especially outside the former Soviet Union), despite being cheaper than their Western counterparts, partly because of factors such as excessive noise levels. In an attempt to remain an aviation superpower, Russia recently decided to merge the country's six largest aircraft manufacturers into a single, state-controlled holding named United Aircraft Corporation. For Boeing and Airbus, who already employ several hundred Russian engineers in their design offices in Moscow, this is good news. First, the newly formed holding has announced its intent to specialize in a smaller, regional jet, thus reducing the competition in the market for long-range passenger jets; the Russian airline Aeroflot now has to choose between Boeing and Airbus as their supplier (e.g., a recent Aeroflot order was estimated at \$3 billion for 22 to 23 aircraft). Second, both Boeing and Airbus hope to draw on the large talent pool (especially in the areas of aeronautical engineering and design) that may leave the former Russian aircraft manufacturers after the creation of the state controlled holding.

Although the opening of new markets may seem promising for airline

Airlines serving remote destinations are facing different infrastructure issues.



start-ups and aircraft manufacturers alike, there are still hurdles to overcome. For example, even though China and India's combined population is about 2.4 billion people, the number of people actually able to afford air travel remains very small. Further, for many low-cost carriers, it is impossible to directly copy the business models of successful North American or European no-frills airlines such as Southwest Airlines, Ryanair, or EasyJet. For example, low-cost carriers in the United States or Europe can reduce operating costs tremendously by bypassing the traditional distribution infrastructure; in fact, tickets for many of such airlines are not even available in traditional travel agencies, and travelers have to turn to the airlines' Web sites in order to purchase a ticket. In India or China, however, such cost cutting would mean excluding large segments of potential customers from ever purchasing a ticket because of the low levels of Internet penetration and widespread concerns regarding the security of online transactions.

Questions

1. List the different ways aircraft manufacturers can benefit from globalization. How can information systems help to reap the benefits from globalization?
2. Several emerging countries have seen tremendous growth in air travel. Do you think this growth is sustainable? Why or why not?
3. Most aircraft manufacturers produce the same product for markets across the globe. Should such companies adopt a different international business strategy? What type of international business strategy would you recommend for airplane manufacturers?

Sources: <http://www.boeing.com/commercial/cmo/regions.html>

A. E. Kramer, "Russian Aircraft Industry Seeks Revival through Merger," *New York Times*, February 22, 2006, C-1

Times of India, "Global Players Vie for Indian Sky" (July 19, 2006), <http://timesofindia.indiatimes.com/articleshow/1778998.cms>