CHAPTER 1

Introduction to E-commerce

LEARNING OBJECTIVES

After reading this chapter, you will be able to:

1.1 Understand why it is important to study e-commerce.
1.2 Define e-commerce, understand how e-commerce differs from e-business, identify the primary technological building blocks underlying e-commerce, and recognize major current themes in e-commerce.
1.3 Identify and describe the unique features of e-commerce technology and discuss their business significance.
1.4 Describe the major types of e-commerce.
1.5 Understand the evolution of e-commerce from its early years to today.
1.6 Describe the major themes underlying the study of e-commerce.

NEW VIDEOS

The following videos for this chapter are available in the Pearson eTextbook:

1.1 Shopify and the Future of E-commerce

1.2 YouTube and the Creator Economy

TikTok:

Creators and the Creator Economy

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During its first decade or so, the Web was a very different place than it is today. It was much more static and used primarily to gather information. That all started to change around the mid-to-late 2000s, with the development of Web 2.0, a set of applications and technologies that enabled the creation of user-generated content. Coupled with the development of the smartphone and smartphone apps, this laid the groundwork for social networks and the sharing of all sorts of content that allowed people to express themselves online. People who develop and distribute such content are now typically referred to as "creators," a label originated by YouTube in 2011 for a growing class of users that were attracting large audiences to their channels. From there, the label spread. Influencers, who use social media to grow a following and exert influence over the purchasing decisions of those followers, typically for some form of compensation or monetization, can be considered a subset of creators, although some use the terms synonymously. A recent report estimates the number of creators at 200 million worldwide, and an entire supporting ecosystem, referred to as the creator economy, has spread up around them. TikTok is one of the preeminent content platforms in the creator economy.

TikTok, the third-most-popular social network in the United States behind Facebook and Instagram, is also one of the fastest growing, with 95 million U.S. users and more than 750 million worldwide. (TikTok says it has more than 1 billion users.) Launched in 2017, TikTok is a short-form video-sharing app owned by Chinese company Bytedance. TikTok videos were initially limited to 15 seconds but can now be up to 10 minutes long. Many TikTok videos feature music, with users lip-syncing, singing, and dancing; others focus on comedy and creativity. Users can "remix" posts from other users and put their own spin on them, using the app's array of editing tools, filters, and other effects. Algorithms analyze the viewing habits of each user, and its "For You" page provides content that is customized based on the user's activity. The algorithm makes it possible for TikTokers to amass millions of followers within a matter of weeks, creating stars faster than any other platform.

TikTok skews much younger than other social networks and is the most popular network in the United States among children, teens, and young adults. Almost 70 percent of its U.S. users are under the age of 35. In 2022, TikTok became the leading social network platform among U.S. adult users (ages 18 and over) in terms of time spent per day (more than 45 minutes), surpassing YouTube. A survey of 7,000 TikTok users revealed that almost 70% follow specific creators. Gen Z is leading the charge, with 50% saying that they follow specific TikTok creators.

There are a number of ways that creators can earn money. They can be supported by advertising, for instance, receiving payment directly from a brand for creating or sharing sponsored content or for featuring a product placement, or they may be paid a share of the advertising revenue earned by the platform on which their content appears. They can also sell digital content, either on a per-piece basis or on a subscription basis, as well as physical products. Non-fungible tokens (NFTs), which can be used to create unique digital assets such as collectibles, artwork, badges, and stickers, are a newer form of digital content that creators are beginning to use as rewards for their fans. Creators can also get "tips" from their fans (often characterized as "buying the creator a coffee"), money from a fan club or a donation platform, or for other types of fan engagement. Most creators use a variety of these income-generating methods rather than relying on just one.

Of the estimated 200 million creators, a much smaller subset characterizes themselves as "professionals." For these people, being a creator has evolved into a business. The leading creators on TikTok can earn millions of dollars. For example, Charli D'Amelio, who is probably the most well-known, with around 145 million followers, earned $17.5 million in 2021 according to *Forbes*, putting her at the top of the list of professional creators. Trained as a competitive dancer, Charli started posting dance and lip-synch videos on TikTok in May 2019 when she was just 15, and she quickly amassed a large following. Her older sister, Dixie D'Amelio, a singer with 57 million followers, was second on the list, with $10 million in earnings. The two sisters have capitalized on their TikTok fame by branching out into a clothing line as well as a Hulu docuseries, among other initiatives. In the third spot is Addison Rae, also a competitive dancer, with around 88 million followers and about $8.5 million in earnings. As with the D'Amelio sisters, Rae has leveraged her TikTok fame, releasing a music single in 2021 as well as inking a deal with Netflix.

But not everything is rosy in the creator economy. Although superstar creators can make an incredible amount of money, it is extremely difficult for the average creator to earn enough to replace a full-time income, and most creators make only a very limited amount of income, if any. Almost half of full-time creators make less than $1,000 and only 12% make more than $50,000 underscoring how difficult it can be to be a creator. The majority of creators do not have any sponsorship or branding deals, and even among those who do, most make less than $100 per paid post.

Being a content creator is also much more time consuming and stressful than many might assume. Jack Innanen, a 22-year-old TikTok star from Toronto, Canada, has 2.8 million followers. Innanen spends hours shooting video, editing, storyboarding, engaging with fans, and trying to obtain brand deals. Chrissy Chlapecka, a 21-year-old former Starbucks barista, is another example. Chlapecka started posting videos on TikTok as a way to deal with boredom during the Covid-19 pandemic and has since amassed 4.8 million followers. She spends at least an hour a day selecting her clothing and having her hair and makeup professionally done, in preparation for filming at least one video per day. Chlapecka notes that most people underestimate the amount of work that creators have to do and that it takes skill and perseverance to come up with fresh ideas day after day, establish a relationship with online followers, and try to obtain sponsorships. The grind wears many content creators down, leading to potential mental and physical health problems. TikTok's algorithm adds to the stress, as it is constantly serving up new content, making it hard for

SOURCES: "What Is the 'Creator Economy,'" by Werner Geyser, Influencermarketinghub.com, June 10, 2022; "In a First, TikTok Will Beat YouTube in User Time Spent," by Sara Lebow, Insider Intelligence/eMarketer, May 26, 2022; "The State of the Creator Economy: Definition, Growth, & Market Size," by Werner Geyser, Influencermarketinghub.com, May 20, 2022; "TikTok Is Giving Top Creators a Cut of Ad Revenues," by Daniel Konstantinovic, Insider Intelligence/eMarketer, May 5, 2022; "2022 Creator Report," Linktr.ee, April 20, 2022; "200 Million People Are Earning Money from Content Creation," by Sam Gutelle, Tubefilter.com, April 20, 2022; "TikTok Faces a Wave of Creator Frustration and Content Moderation Issues," by Daniel Konstantinovic, Insider Intelligence/eMarketer, March 25, 2022; "With a Voice Like Ariana Grande and a Message of Self-Love, Chicago TikTok Sensation

creators to maintain their viewership. Creators note that this volatility can be rattling: As quickly as their views rise, they can also fall, with fans moving on to the next new thing. And there is also an even darker side to being a content creator. Creators report being the subject of bullying, harassment, and threats. Internet trolls, especially, can be brutally vicious.

TikTok has established a $200 million Creator Fund, which it says is aimed at supporting creators seeking to make their livelihood through innovative content. To be eligible for the Creator Fund, creators must be at least 18 years old, must have at least 10,000 followers, and must have accumulated at least 10,000 video views in the previous 30 days before they apply. Some creators feel that this shuts out beginning and niche creators, who need the most support. In addition, the amount paid to creators by the Fund has been less than many expected when it was first announced, with an opaque payment structure. Unlike YouTube, which gives creators a cut of the ad revenues generated on the platform, TikTok did not. However, in May 2022, TikTok announced that it would expand its creator monetization options via a new program called TikTok Pulse, which will run ads alongside the top 4% of all videos and give creators a 50% cut of those ad revenues. However, many feel that this does not go far enough and once again shuts out smaller and niche creators. These critics point out that TikTok's ad revenues, which reached almost $10 billion worldwide in 2022 (surpassing the combined ad revenues of Twitter and Snapchat), have been growing rapidly and that it would be more equitable if TikTok shared that revenue more broadly with the people responsible for attracting users to the platform.

Aims to Be a Virtual Big Sister," by Ashley Capoot, *Chicago Tribune*, February 2, 2022; "TikTok, Instagram Influencers Criticize Creator Payment Programs," by Rachel Wolff, Insider Intelligence/eMarketer, January 29, 2022; "Making Money Online, the Hard Way," by Shira Ovide, *New York Times*, January 27, 2022; "Payday for TikTok's Biggest Stars," by Katharina Buchholz, Statista.com, January 11, 2022; "Top-Earning TikTok-ers 2022: Charli and Dixie D'Amelio and Addison Rae Expand Fame—and Paydays," by Abram Brown and Abigail Freeman, Forbes.com, January 7, 2022; "TikTok Shares New Insights into Usage Trends, and Its Impacts on Audience Behaviors," by Andrew Hutchinson, Socialmediatoday.com, August 30, 2021; "Young Creators Are Burning Out and Breaking Down," by Taylor Lorenz, *New York Times*, June 8, 2021; "TikTok Is Paying Creators. Not All of Them Are Happy," by Louise Matsakis, Wired.com, September 10, 2020.

In 1994, e-commerce as we now know it did not exist. In 2022, about 2.8 billion consumers worldwide spent about $5.4 trillion, and businesses more than five times that amount, purchasing products and services via a desktop/laptop computer, mobile device, or smart speaker. There have been significant changes in the e-commerce environment during this time period.

The early years of e-commerce, during the late 1990s, were a period of business vision, inspiration, and experimentation. It soon became apparent, however, that establishing a successful business model based on those visions would not be easy. There followed a period of retrenchment and reevaluation, which led to the stock market crash of 2000–2001, with the value of e-commerce, telecommunications, and other technology stocks plummeting. After the bubble burst, many people were quick to write off e-commerce. But they were wrong. The surviving firms refined and honed their business models, and the technology became more powerful and less expensive, ultimately leading to business firms that actually produced profits. Between 2002 and 2007, retail e-commerce grew at more than 25% per year.

Then, in 2007, Apple introduced the first iPhone, a transformative event that marked the beginning of yet another new era in e-commerce. Today, mobile devices, such as smartphones and tablet computers, and mobile apps have supplanted the traditional desktop/laptop platform and web browser as the most common method for consumers to access the Internet. Facilitated by technologies such as cellular networks, Wi-Fi, and cloud computing, mobile devices have become advertising, shopping, reading, and media-viewing machines, and in the process they have transformed consumer behavior yet again. During the same time period, social networks such as Facebook, Twitter, YouTube, Pinterest, Instagram, Snapchat, and TikTok, which enable users to distribute their own content (such as videos, music, photos, personal information, commentary, blogs, and more), rocketed to prominence. As discussed in the opening case, many such users, now referred to as creators and/or influencers, have taken additional steps to monetize their content. The mobile platform infrastructure also gave birth to another e-commerce innovation: on-demand services that are local and personal. From hailing a taxi to finding travel accommodations, to food delivery, on-demand services have created a marketspace that enables owners of resources such as cars, spare bedrooms, and spare time to find a market of eager consumers looking for such services. Today, mobile, social, and local are the driving forces in e-commerce. But e-commerce is always evolving. On the horizon are further changes, driven by technologies such as artificial intelligence, virtual and augmented reality, and blockchain, among others.

While the evolution of e-commerce technology and business has been a powerful and mostly positive force in our society, it is becoming increasingly apparent that it also has had, and continues to have, a serious societal impact, from promoting the invasion of personal privacy to aiding the dissemination of false information, enabling widespread security threats, and facilitating the growth of business titans, such as Amazon, Google, and Facebook (which has rebranded as Meta), that dominate their fields, leading to a decimation of effective competition. As a result, the Internet and e-commerce are entering a period of closer regulatory oversight that may have a significant impact on the conduct of e-commerce in the future.

1.1 THE FIRST FIVE MINUTES: WHY YOU SHOULD STUDY E-COMMERCE

The rapid growth and change that have occurred in the first quarter-century or so since e-commerce began in 1995 represents just the beginning—what could be called the first five minutes of the e-commerce revolution. Technology continues to evolve at exponential rates. This underlying evolution presents entrepreneurs with opportunities to create new business models and businesses in traditional industries and in the process disrupt—and in some instances destroy—existing business models and firms. The rapid growth of e-commerce is also providing extraordinary growth in career and employment opportunities, which we describe throughout the book.

Improvements in underlying information technologies and continuing entrepreneurial innovation in business and marketing promise as much change in the next decade as was seen in the previous two and a half decades. The twenty-first century will be an age of a digitally enabled social and commercial life, the outlines of which we can still only barely perceive at this time. It appears likely that e-commerce will eventually impact nearly all commerce and that most commerce will be e-commerce by the year 2050, if not sooner.

Business fortunes are made—and lost—in periods of extraordinary change such as this. The next five to 10 years hold exciting opportunities—as well as significant risks—for new and traditional businesses to exploit digital technology for market advantage, particularly in the wake of the Covid-19 pandemic, which continues to have a broad and lasting impact on many aspects of life, ranging from how businesses operate, to how consumers act, and to how social and cultural life evolves.

It is important to study e-commerce in order to be able to perceive and understand the opportunities and risks that lie ahead. By the time you finish this book, you will be able to identify the technological, business, and social forces that have shaped—and continue to shape—the growth of e-commerce and be ready to participate in, and ultimately guide, discussions of e-commerce in the firms where you work. More specifically, you will be able to analyze an existing or new idea for an e-commerce business, identify the most effective business model to use, and understand the technological underpinnings of an e-commerce presence, including the security and ethical issues raised as well as how to optimally market and advertise the business, using both traditional digital marketing tools and social, mobile, and local marketing.

1.2 INTRODUCTION TO E-COMMERCE

In this section, we'll first define e-commerce and then discuss the difference between e-commerce and e-business. We will also introduce you to the major technological building blocks underlying e-commerce: the Internet, the Web, and the mobile platform. The section concludes with a look at some major current trends in e-commerce.

WHAT IS E-COMMERCE?

e-commerce
the use of the Internet, the Web, and mobile apps and browsers running on mobile devices to transact business. More formally, digitally enabled commercial transactions between and among organizations and individuals

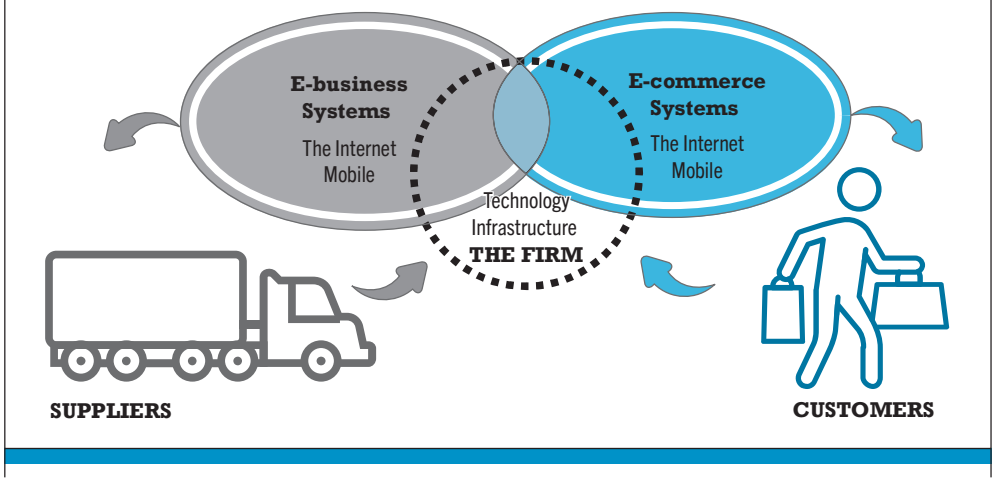
E-commerce involves the use of the Internet, the World Wide Web (Web), and mobile apps and browsers running on mobile devices to transact business. Although the terms Internet and Web are often used interchangeably, they are actually two very different things. The *Internet* is a worldwide network of computer networks, and the *Web* is one of the Internet's most popular services, providing access to trillions of web pages. An *app* (shorthand for "application") is a software application. The term is typically used when referring to mobile applications, although it is also sometimes used to refer to desktop computer applications as well. A *mobile browser* is a version of web browser software accessed via a mobile device. (We describe the Internet, Web, and mobile platform more fully later in this chapter and in Chapters 3 and 4.) More formally, e-commerce can be defined as digitally enabled commercial transactions between and among organizations and individuals. Each of these components of our working definition of e-commerce is important. *Digitally enabled transactions* include all transactions mediated by digital technology. For the most part, this means transactions that occur over the Internet, the Web, and/or via mobile devices. *Commercial transactions* involve the exchange of value (e.g., money) across organizational or individual boundaries in return for products and services. Exchange of value is important for understanding the limits of e-commerce. Without an exchange of value, no commerce occurs. The professional literature sometimes refers to e-commerce as digital commerce. For our purposes, we consider e-commerce and digital commerce to be synonymous.

THE DIFFERENCE BETWEEN E-COMMERCE AND E-BUSINESS

There is a debate about the meaning and limitations of both *e-commerce* and *e-business*. Some argue that e-commerce encompasses the entire world of digitally based organizational activities that support a firm's market exchanges—including a firm's entire information system infrastructure. Others argue, on the other hand, that e-business encompasses the entire world of internal and external digitally based activities, including e-commerce. We think it is important to make a working distinction between *e-commerce* and *e-business* because we believe they refer to different phenomena. E-commerce is not "anything digital" that a firm does. For purposes of this text, we will use the term **e-business** to refer primarily to the digital enabling of transactions and processes *within* a firm, involving information systems under the control of the firm. For the most part, in our view, e-business does not include commercial transactions involving an exchange of value across organizational boundaries. For example, a company's online inventory control mechanisms are a component of e-business, but such internal processes do not directly generate revenue for the firm from outside businesses or consumers, whereas e-commerce, by definition, does. It is true, however, that a firm's e-business infrastructure provides support for online e-commerce exchanges: The same infrastructure and skill sets are involved in both e-business and e-commerce. E-commerce and e-business systems blur together at the business firm boundary, at the point where internal business systems link up with suppliers or customers (see **Figure 1.1**). E-business applications turn into e-commerce precisely when an exchange of value occurs. We will examine this intersection further in Chapter 12.

e-business
the digital enabling of transactions and processes within a firm, involving information systems under the control of the firm

FIGURE 1.1 THE DIFFERENCE BETWEEN E-COMMERCE AND E-BUSINESS



E-commerce primarily involves transactions that cross firm boundaries. E-business primarily involves the application of digital technologies to business processes within the firm.

TECHNOLOGICAL BUILDING BLOCKS UNDERLYING E-COMMERCE: THE INTERNET, THE WEB, AND THE MOBILE PLATFORM

The technology juggernauts behind e-commerce are the Internet, the Web, and the mobile platform. We describe the Internet, the Web, and the mobile platform in some detail in Chapter 3. The **Internet** is a worldwide network of computer networks built on common standards. Created in the late 1960s to connect a small number of mainframe computers and their users, the Internet has since grown into the world's largest network. It is impossible to say with certainty exactly how many computers and other mobile devices (such as smartphones and tablets) as well as other Internet-connected consumer devices (such as smartwatches, connected TVs, and smart speakers like Amazon's Echo) are connected to the Internet worldwide at any one time. However, some experts estimate that as of 2022, there were about 15 billion connected devices (not including smartphones, tablets, or desktop/laptop computers) already installed (Watters, 2022). The Internet links businesses, educational institutions, government agencies, and individuals together and provides users with services such as e-mail, document transfer, shopping, research, instant messaging, music, videos, and news.

Internet
worldwide network of computer networks built on common standards

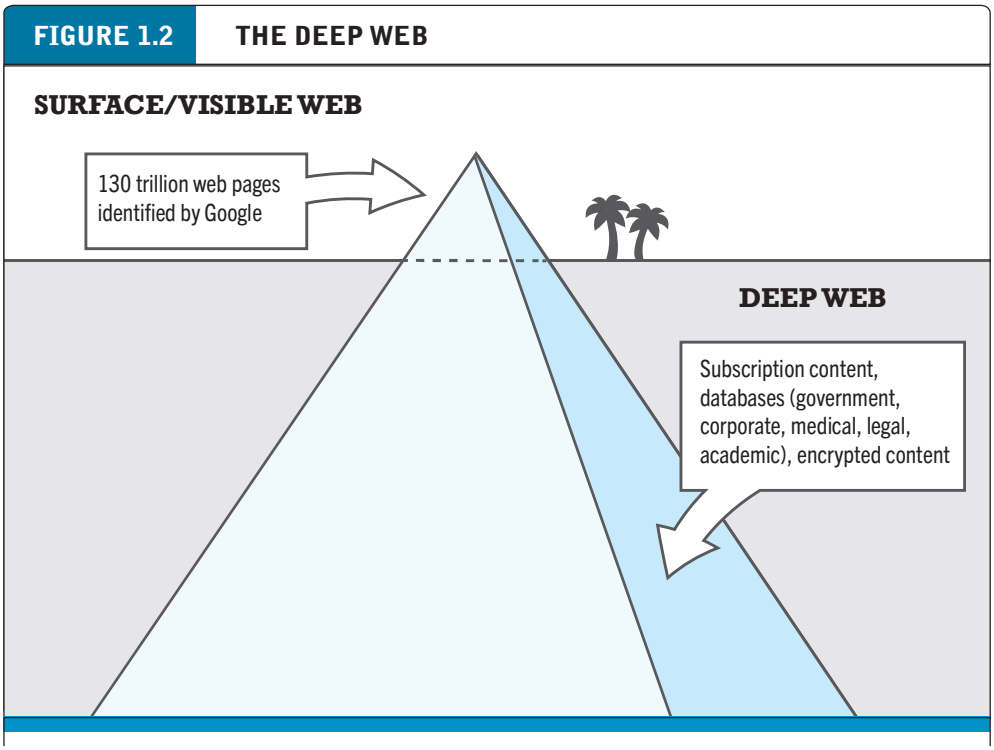
The Internet has shown extraordinary growth patterns when compared to other electronic technologies of the past. It took radio 38 years to achieve a 30% share of U.S. households. It took television 17 years to achieve a 30% share. In contrast, it took only 10 years for the Internet/Web to achieve a 53% share of U.S. households once a graphical user interface was invented for the Web in 1993. In the United States, more than 300 million people of all ages (almost 90% of the U.S. population) use the Internet at least once a month (Insider Intelligence/eMarketer, 2022a).

World Wide Web (the Web)
an information system running on the Internet infrastructure and that provides access to trillions of web pages

The **World Wide Web (the Web)** is an information system that runs on the Internet infrastructure. The Web was the original "killer app" that made the Internet commercially interesting and extraordinarily popular. The Web was developed in the early 1990s and hence is of much more recent vintage than the Internet. We describe the Web in some detail in Chapter 3. The Web provides access to trillions of web pages indexed by Google and other search engines. These pages are created in a language called *HTML* (*HyperText Markup Language*). HTML pages can contain text, graphics, animations, and other objects. Prior to the Web, the Internet was primarily used for text communications, file transfers, and remote computing. The Web introduced far more powerful capabilities of direct relevance to commerce. In essence, the Web added color, voice, and video to the Internet, creating a communications infrastructure and information storage system that rivals television, radio, magazines, and libraries.

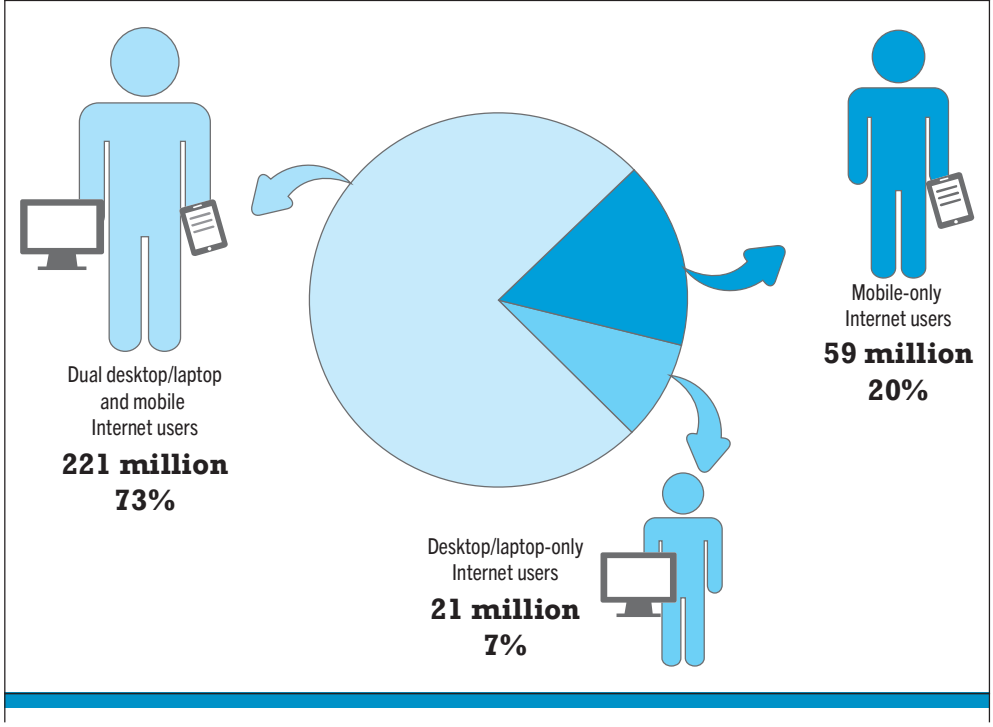
There is no precise measurement of the number of web pages in existence, in part because today's search engines index only a portion of the known universe of web pages. By 2013, Google had indexed 30 trillion individual web pages, and by 2016, the last year that Google released data on the size of its index, that number had jumped to more than 130 trillion, although many of these pages did not necessarily contain unique content. Since then, it is likely that the number has continued to skyrocket (Wodinsky, 2021). In addition to this "surface" or "visible" Web, there is the so-called deep Web, which is reportedly 500 to 1,000 times greater than the surface Web. The deep Web contains databases and other content that is not routinely identified by search engines such as Google (see **Figure 1.2**). Although the total size of the Web is not known, what is indisputable is that web content has grown exponentially over the years.

FIGURE 1.2 THE DEEP WEB



The surface Web is only a small part of online content.

FIGURE 1.3 INTERNET ACCESS IN THE UNITED STATES, 2022



More than 73% of Internet users in the United States (about 220 million people) use both desktop/laptop computers and mobile devices to access the Internet. About 20% (about 60 million people) go online only by using a mobile device. Just 7% (about 20 million people) use only a desktop or laptop computer to access the Internet.

SOURCES: Based on data from Insider Intelligence/eMarketer, 2022a, 2022c, 2022d.

The mobile platform has become a significant part of Internet infrastructure. The **mobile platform** provides the ability to access the Internet from a variety of mobile devices such as smartphones, tablets, and ultra-lightweight laptop computers such as Google's Chromebook via wireless networks or cellphone service. **Figure 1.3** illustrates the variety of devices that people in the United States use to access the Internet. Mobile devices play an increasingly prominent role in Internet access. In 2022, about 93% of U.S. Internet users used a mobile device to access the Internet at least some of the time (Insider Intelligence/eMarketer, 2022b).

mobile platform provides the ability to access the Internet from a variety of mobile devices such as smartphones, tablets, and ultra-lightweight laptop computers

The mobile platform is not just a hardware phenomenon. The introduction of the Apple iPhone in 2007, followed by the Apple iPad in 2010, has also ushered in a sea-change in the way people interact with the Internet from a software perspective. In the early years of e-commerce, the Web and web browsers were the only game in town. Today, in contrast, more people in the United States access the Internet via a mobile app on a mobile device than by using a desktop/laptop computer and web browser. *Insight on Technology: Will Apps Make the Web Irrelevant?* examines in more depth the challenge that apps and the mobile platform pose to the Web's dominance of the Internet ecosphere.

INSIGHT ON TECHNOLOGY

WILL APPS MAKE THE WEB IRRELEVANT?

Nowadays, it's hard to recall a time before the Web. How did we get along without the ability to go online to search for an item, learn about a topic, play a game, or watch a video? Although the Web has come a remarkably long way from its humble beginnings, some experts think that the Web's best days are behind it. Opinions vary about the future role of the Web in a world where apps have become a dominant force in the Internet ecosystem. In 10 years, will the Web be a forgotten relic? Or will the Web and apps coexist peacefully as vital cogs in the Internet ecosystem? Will the app craze eventually die down as users gravitate back toward the Web as the primary way to perform online tasks?

Apps have grown into a disruptive force ever since Apple launched its App Store in 2008. The list of industries that apps have disrupted is wide-ranging: communications, media and entertainment, logistics, education, health care, dating, travel, and financial services. Despite not even existing prior to 2008, in 2021, sales of apps accounted for more than $170 billion in revenues worldwide, and the app economy is continuing to show robust growth.

Although the usage of apps tends to be highly concentrated, consumers are trying new apps all the time and typically use more than 45 different apps per month, leaving room for new app developers to innovate and create successful apps. Users are downloading an increasing number of apps, with the number of downloads reaching 230 billion worldwide in 2021, according to research firm Data.ai.

In 2014, for the first time ever, people in the United States used mobile devices more than desktop computers to access the Internet. The time U.S. adults are spending using mobile devices has exploded and now accounts for four and a half hours a day. Of the time spent using mobile devices, people spend almost four times the amount of time using apps (three hours and 22 minutes) compared to the time spent using mobile browsers (about 52 minutes).

Consumers have gravitated to apps for several reasons. First, smartphones and tablet computers enable users to use apps anywhere, instead of being tethered to a desktop or having to lug a heavy laptop around. Of course, smartphones and tablets enable users to use the Web too, but apps are often more convenient and boast more streamlined, elegant interfaces than mobile web browsers.

Apps are not only more appealing to consumers in certain ways but are also much more appealing to content creators and media companies. Apps are easier to control and monetize than websites, not to mention they can't be crawled by Google or other services. On the Web, the average price of ads per thousand impressions has fallen, and many content providers are still mostly struggling to turn the Internet into a profitable content delivery platform. Much of software and media companies' focus has shifted to developing mobile apps for this reason.

In the future, some analysts believe that the Internet will be used to transport data but that individual app interfaces will replace the web browser as the most common way to access and display content. Even the creator of the Web, Tim Berners-Lee, feels that the Web as we know it is being threatened.

But there is no predictive consensus about the role of the Web in our lives in the

next decade and beyond. Although apps may be more convenient than the Web in many respects, the depth of the web browsing experience trumps that of apps. The Web is a vibrant, diverse array of sites, and browsers have an openness and flexibility that apps lack. The connections among websites enhance their usefulness and value to users, and apps that instead seek to lock in users cannot offer the same experience. In addition, the size of the mobile web audience still exceeds that of the mobile app audience. And when it comes to making purchases online, using a web browser on a desktop computer still handily beats using mobile devices. Retail purchases made on desktops/laptops still account for almost 60% of all online retail purchases.

Analysts who are more optimistic about the Web's chances to remain relevant in an increasingly app-driven Internet ecosystem feel this way because of the emergence of HTML5 and progressive web apps (PWAs). HTML5 is a markup language that enables more dynamic web content and allows for browser-accessible web apps that are as appealing as device-specific apps. A PWA, which combines the best elements of mobile websites and native mobile apps, functions and feels like a native app but does not need to be downloaded from an app store and thus does not take up any of the mobile device's memory. Instead, it runs directly in a mobile web browser and is able to load instantly, even in areas of low connectivity. Some people think that a good PWA can ultimately function as a total replacement for a company's mobile website, its native app, and even possibly its desktop website.

The shift toward apps and away from the Web is likely to have a significant impact on the fortunes of e-commerce firms. As the pioneer of apps and the market leader in apps, smartphones, and tablet computers, Apple stands to gain from a shift toward apps, and although it also faces increasing competition from other companies, including Google, the established success of the App Store will make it next to impossible to dethrone Apple. For instance, while the number of downloads from Google's Google Play store was almost four times as many as the number of downloads from Apple's App Store in 2021, the App Store still made nearly twice the amount of revenue ($85 billion) than Google Play did $48 billion. Google hopes that PWAs are at least a partial answer to the problem presented by native apps, because the more activity that occurs on native apps, which Google cannot crawl, the less data Google has access to, which impacts its web-based advertising platform.

Ultimately, most marketers see the future as one in which the Web and mobile apps work together, with each having an important role in serving different needs.

SOURCES: "US Time Spent with Connected Devices: A Return to Pre-Pandemic Growth," by Jessica Lins, Insider Intelligence/eMarketer, June 9, 2022; "US Desktop/Laptop Retail Ecommerce Sales," by Insider Intelligence/eMarketer, June 2022; "Average Number of Apps Used per Month, US Mobile Devices, 2019–2021," by Insider Intelligence/eMarketer, January 27, 2022; "The State of Mobile 2022," Data.ai.com, January 2022; "Global Consumer Spending in Mobile Apps Reached $133 Billion in 2021, Up Nearly 20% from 2020," Sensortower.com, December 2021;"Why Progressive Web Apps Are the Future of the Mobile Web: 2020 Research," by Jason Rzutkiewicz and Jeremy Lockhorn, Ymedialabs.com, September 19, 2020; "Publishers Straddle the Apple-Google, App-Web Divide," by Katie Benner and Conor Dougherty, *New York Times*, October 18, 2015; "How Apps Won the Mobile Web," by Thomas Claburn, Informationweek.com, April 3, 2014; "Mobile Apps Overtake PC Internet Usage in U.S.," by James O'Toole, Money.cnn.com, February 28, 2014; "Is The Web Dead in the Face of Native Apps? Not Likely, but Some Think So," by Gabe Knuth, Brianmadden.com, March 28, 2012; "The Web Is Dead? A Debate," by Chris Anderson, Wired.com, August 17, 2010; "The Web Is Dead. Long Live the Internet," by Chris Anderson and Michael Wolff, Wired.com, August 17, 2010.

MAJOR TRENDS IN E-COMMERCE

Table 1.1 describes the major trends in e-commerce in 2022–2023 from a business, technological, and societal perspective, the three major organizing themes that we use in this book to understand e-commerce (see Section 1.6).

From a business perspective, one of the most important trends to note is that all forms of e-commerce continue to show very strong growth. Retail e-commerce worldwide grew by more than 25% in 2020, in part as a result of the Covid-19 pandemic, and in 2022 reached $5.4 trillion. By 2026, it is estimated that retail e-commerce will account for more than $7.6 trillion in revenue. Retail m-commerce also grew astronomically (by almost 30%) in 2020 and increased to more than $3.6 trillion in 2022, constituting about 67% of all retail e-commerce sales. By 2026, retail m-commerce is expected to account for almost $5.3 trillion worldwide. Social networks such as Facebook, Instagram, TikTok, Twitter, and Pinterest are enabling social e-commerce by providing advertising, searches, and the ability to purchase products without leaving the site. Local e-commerce is being fueled by the explosion of interest in on-demand services. B2B e-commerce, which dwarfs all other forms, also is continuing to strengthen and grow. The Covid-19 pandemic has resulted in an increased—and what is expected to be a lasting—shift to e-commerce.

From a technology perspective, the mobile platform based on smartphones and tablet computers has finally arrived with a bang, driving astronomical growth in mobile advertising and making true mobile e-commerce a reality. The use of mobile messaging services such as Facebook Messenger, WhatsApp, and Snapchat has created an alternative communications platform that is beginning to be leveraged for commerce as well. Cloud computing is inextricably linked to the development of the mobile platform because it enables the storage of consumer content and software on cloud (Internet-based) servers and makes the content and software available to mobile devices as well as to desktops. Other major technological trends include the increasing ability of companies to track and analyze the flood of online data (typically referred to as big data) being produced. The Internet of Things (IoT), comprised of billions of Internet-connected devices, continues to grow exponentially and is driving the growth of a plethora of smart devices as well as adding to the torrent of data. Other major technological trends include increasing use of artificial intelligence technologies, increasing interest in blockchain technologies, and increasing focus on the concept of a metaverse that will create an immersive, 3D Internet experience using augmented and virtual reality technologies.

At the societal level, other trends are apparent. The Internet and mobile platform provide an environment that allows millions of people to create and share content, establish new social bonds, and strengthen existing bonds through social networks and other types of online platforms. At the same time, privacy seems to have lost some of its meaning in an age when millions create public online personal profiles, leading to increased concerns over commercial and governmental privacy invasion. The major digital copyright owners have increased their pursuit of online piracy with mixed success while reaching agreements with the big technology players such as Apple, Amazon, and Google to protect intellectual property rights. Sovereign nations have expanded their surveillance of, and control over, online communications and content as a part of their anti-terrorist activities and their traditional interest in law enforcement. Online security, or the lack thereof, remains a significant issue, as new stories about security breaches, malware, hacking, and other attacks emerge seemingly daily.

TABLE 1.1 MAJOR TRENDS IN E-COMMERCE, 2022–2023

BUSINESS

- Retail e-commerce and m-commerce both settle back to "normal" growth rates (around about 9% to 10%) after surging in 2020–2021 because of the Covid-19 pandemic.
- The mobile app ecosystem continues to grow, with almost 3.3 billion people worldwide using mobile apps.
- Social e-commerce, based on social networks and supported by advertising, continues to grow, generating an estimated $55 billion in the United States in 2022.
- Local e-commerce, the third dimension of the mobile, social, local e-commerce wave, is also growing, fueled by an explosion of interest in on-demand services.
- B2B e-commerce remains the "silent giant," generating more than five times the amount of B2C e-commerce revenue.
- Mobile advertising continues to grow, accounting for almost 75% of all digital ad spending worldwide, but may be impacted by new privacy-related app store rules that restrict the ability of advertisers to track users.
- The media business becomes more and more decentralized, with content created and distributed online by users (now typically referred to as creators) becoming more and more prevalent, giving rise to what is often termed the creator economy.

TECHNOLOGY

- A mobile platform based on smartphones, tablet computers, wearable devices, and mobile apps has become a reality, creating an alternative platform for online transactions, marketing, advertising, and media viewing.
- Cloud computing completes the transformation of the mobile platform by storing consumer content and software on "cloud" (Internet-based) servers and making it available to any consumer-connected device, from the desktop to a smartphone.
- The Internet of Things (IoT), comprised of billions of Internet-connected devices, continues to grow exponentially and drives the growth of a plethora of "smart/connected" devices such as TVs, watches, speakers, home-control systems, and cars.
- The trillions of online interactions that occur each day create a flood of data, typically referred to as big data. To make sense out of big data, firms turn to sophisticated software called business analytics (or web analytics) that can identify purchase patterns as well as consumer interests and intentions in milliseconds.
- Artificial intelligence technologies are being increasingly employed in a variety of e-commerce-related applications, such as for analyzing big data, customization and personalization, customer service, chatbots and voice assistants, and supply chain efficiency.
- Blockchain, the technology that underlies cryptocurrencies, non-fungible tokens (NFTs), and the concept of a more decentralized Internet known as Web3, attracts increasing interest, particularly from traditional financial service firms as well as firms seeking to use the technology for supply chain applications.
- Facebook rebrands as Meta, jumpstarting an increased focus on the "metaverse," which entails moving the Internet experience beyond 2D screens toward immersive, 3D experiences using augmented and virtual reality technologies.

SOCIETY

- User-generated content (UGC), published by creators online in the form of video, podcasts, newsletters, literary content, online classes, digital art, and more, continues to grow and provides a method of self-publishing that engages millions: both those who create the content and those who consume it.
- Concerns over commercial and governmental invasion of privacy increase.
- Concerns increase about the growing market dominance of Amazon, Google, and Meta (often referred to as Big Tech), leading to litigation and calls for government regulation.
- Conflicts over copyright management and control continue, although there is now substantial agreement among online distributors and copyright owners that they need one another.
- Surveillance of online communications by both repressive regimes and Western democracies grows.
- Online security continues to decline as major companies are hacked and lose control of customer information.
- On-demand services and e-commerce produce a flood of temporary, poorly paid jobs without benefits.

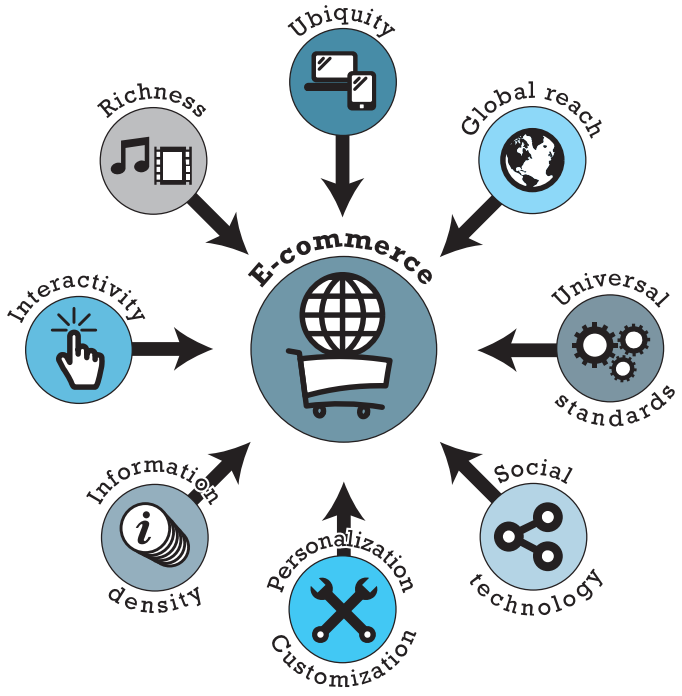
1.3 UNIQUE FEATURES OF E-COMMERCE TECHNOLOGY

Figure 1.4 illustrates eight unique features of e-commerce technology that both challenge traditional business thinking and help explain why we have so much interest in e-commerce. These unique dimensions of e-commerce technologies suggest many new possibilities for marketing and selling—a powerful set of interactive, personalized, and rich messages is available for delivery to segmented, targeted audiences.

Prior to the development of e-commerce, the marketing and sale of goods was a mass-marketing and salesforce–driven process. Marketers viewed consumers as passive targets of advertising campaigns and branding "blitzes" intended to influence their long-term product perceptions and immediate purchasing behavior. Companies sold their products via well-insulated channels. Consumers were trapped by geographical and social boundaries, unable to search widely for the best price and quality. Information about prices, costs, and fees could be hidden from the consumer, creating profitable information asymmetries for the selling firm. **Information asymmetry** refers to any disparity in relevant market information among parties in a transaction. It was so expensive to change national or regional prices in traditional retailing (what are called *menu costs*) that one national price was the norm, and dynamic pricing to the marketplace (changing prices in real time) was unheard of. In this environment,

information asymmetry
any disparity in relevant market information among parties in a transaction

FIGURE 1.4 EIGHT UNIQUE FEATURES OF E-COMMERCE TECHNOLOGY



E-commerce technologies provide a number of unique features that have impacted the conduct of business.

manufacturers prospered by relying on huge production runs of products that could not be customized or personalized.

E-commerce technologies make it possible for merchants to know much more about consumers and to be able to use this information more effectively than was ever true in the past. Online merchants can use this information to develop new information asymmetries, enhance their ability to brand products, charge premium prices for high-quality service, and segment the market into an endless number of subgroups, each receiving a different price. To complicate matters further, these same technologies also make it possible for merchants to know more about other merchants than was ever true in the past. This presents the possibility that merchants might collude rather than compete on prices and thus drive overall average prices up. This strategy works especially well when there are just a few suppliers (Varian, 2000a). We examine these different visions of e-commerce further in Section 1.4 and throughout the book.

Each of the dimensions of e-commerce technology illustrated in Figure 1.4 deserves a brief exploration as well as a comparison to both traditional commerce and other forms of technology-enabled commerce.

UBIQUITY

In traditional commerce, a **marketplace** is a physical place you visit in order to transact. For example, television and radio typically motivate the consumer to go someplace to make a purchase. E-commerce, in contrast, is characterized by its **ubiquity**: It is available just about everywhere and at all times. It liberates the market from being restricted to a physical space and makes it possible to shop from your desktop, at home, at work, or even from your car. The result is called a **marketspace**—a marketplace extended beyond traditional boundaries and removed from a temporal and geographic location.

marketplace
physical space you visit in order to transact

ubiquity
available just about everywhere and at all times

marketspace
marketplace extended beyond traditional boundaries and removed from a temporal and geographic location

From a consumer point of view, ubiquity reduces *transaction costs*—the costs of participating in a market. To transact, it is no longer necessary to spend time and money traveling to a market. At a broader level, the ubiquity of e-commerce lowers the cognitive energy required to transact in a marketspace. *Cognitive energy* refers to the mental effort required to complete a task. Humans generally seek to reduce cognitive energy outlays. When given a choice, humans will choose the path requiring the least effort—the most convenient path (Shapiro and Varian, 1999; Tversky and Kahneman, 1981).

GLOBAL REACH

E-commerce technology permits commercial transactions to cross cultural, regional, and national boundaries far more conveniently and cost-effectively than is true in traditional commerce. As a result, the potential market size for e-commerce merchants is roughly equal to the size of the world's online population (more than 4.5 billion in 2022) (Insider Intelligence/eMarketer, 2022e). More realistically, the Internet makes it much easier for startup e-commerce merchants within a single country to achieve a national audience than was ever possible in the past. The total number of users or customers that an e-commerce business can obtain is a measure of its **reach** (Evans and Wurster, 1997).

reach
the total number of users or customers that an e-commerce business can obtain

In contrast, most traditional commerce is local or regional—it involves local merchants or national merchants with local outlets. Television, radio stations, and newspapers, for instance, are primarily local and regional institutions with limited but powerful

national networks that can attract a national audience. In contrast to e-commerce technology, these older commerce technologies do not easily cross national boundaries to a global audience.

UNIVERSAL STANDARDS

universal standards
standards that are shared by all nations around the world

One strikingly unusual feature of e-commerce technologies is that the technical standards of the Internet, and therefore the technical standards for conducting e-commerce, are **universal standards**—they are shared by all nations around the world. In contrast, most traditional commerce technologies differ from one nation to the next. For instance, television and radio standards differ around the world, as does cellphone technology.

The universal technical standards of e-commerce greatly lower *market entry costs*—the cost merchants must pay just to bring their goods to market. At the same time, for consumers, universal standards reduce *search costs*—the effort required to find suitable products. And by creating a single, one-world marketspace, where prices and product descriptions can be inexpensively displayed for all to see, *price discovery* becomes simpler, faster, and more accurate (Banerjee et al., 2016; Bakos, 1997; Kambil, 1997). Users, both businesses and individuals, also experience *network externalities*—benefits that arise because everyone uses the same technology. With e-commerce technologies, it is possible for the first time in history to easily find many of the suppliers, prices, and delivery terms of a specific product anywhere in the world and to view them in a coherent, comparative environment. Although this is not necessarily realistic today for all or even most products, it is a potential that will be exploited in the future.

RICHNESS

richness
the complexity and content of a message

Information **richness** refers to the complexity and content of a message (Evans and Wurster, 1999). Traditional markets, national sales forces, and retail stores have great richness: They are able to provide personal, face-to-face service using aural and visual cues when making a sale. The richness of traditional markets makes them a powerful selling or commercial environment. Prior to the development of the Web, however, there was a trade-off between richness and reach: the larger the audience reached, the less rich the message.

E-commerce technologies have the potential for offering considerably more information richness than traditional media such as printing presses, radio, and television can because the former are interactive and can adjust the message to individual users. Chatting online with a customer service representative, for instance, can come close to the customer experience that takes place in a small retail shop. The richness enabled by e-commerce technologies allows retail and service merchants to market and sell "complex" goods and services that heretofore required a face-to-face presentation by a sales force to a much larger audience.

INTERACTIVITY

interactivity
technology that allows for two-way communication between merchant and consumer and among consumers

Unlike any of the commercial technologies of the twentieth century, with the possible exception of the telephone, e-commerce technologies allow for **interactivity**, meaning they enable two-way communication between merchant and consumer and among consumers. Traditional television or radio, for instance, cannot enter into conversations with viewers or listeners, ask them questions, or request customers to enter information into a form.

Interactivity allows an online merchant to engage a consumer in ways similar to a face-to-face experience. Comment features, community forums, and social networks with social sharing functionality such as Like and Share buttons all enable consumers to actively interact with merchants and other users. Somewhat less obvious forms of interactivity include responsive design elements such as websites that change format depending on what kind of device they are being viewed on, product images that change as a mouse hovers over them, the ability to zoom in or rotate images, forms that notify the user of a problem as they are being filled out, and search boxes that autofill as the user types.

INFORMATION DENSITY

E-commerce technologies vastly increase **information density**—the total amount and quality of information available to all market participants, consumers and merchants alike. E-commerce technologies reduce information collection, storage, processing, and communication costs. At the same time, these technologies greatly increase the currency, accuracy, and timeliness of information—making information more useful and important than ever. As a result, information becomes more plentiful, less expensive, and of higher quality.

information density
the total amount and quality of information available to all market participants

A number of business consequences result from the growth in information density. One of the shifts that e-commerce is bringing about is a reduction in information asymmetry among market participants (consumers and merchants). Prices and costs become more transparent. *Price transparency* refers to the ease with which consumers can find out the variety of prices in a market; *cost transparency* refers to the ability of consumers to discover the actual costs merchants pay for products. Preventing consumers from learning about prices and costs becomes more difficult with e-commerce, and, as a result, the entire marketplace potentially becomes more price competitive (Sinha, 2000). But there are advantages for merchants as well. Online merchants can discover much more about consumers, which allows merchants to segment the market into groups willing to pay different prices and permits merchants to engage in *price discrimination*—selling the same goods, or nearly the same goods, to different targeted groups at different prices. For instance, an online merchant can discover a consumer's avid interest in expensive exotic vacations and then pitch expensive exotic vacation plans to that consumer at a premium price, knowing this consumer is willing to pay extra for such a vacation. At the same time, the online merchant can pitch the same vacation plan at a lower price to more price-sensitive consumers. Merchants also have enhanced abilities to differentiate their products in terms of cost, brand, and quality.

PERSONALIZATION AND CUSTOMIZATION

E-commerce technologies permit **personalization**: Merchants can target their marketing messages to specific individuals by adjusting the message to a person's name, interests, and past purchases. Today this is achieved in a few milliseconds and followed by an advertisement based on the consumer's profile. The technology also permits **customization**—changing the delivered product or service based on a user's preferences or prior behavior. Given the interactive nature of e-commerce technology, much information about the consumer can be gathered in the marketplace at the moment of purchase.

personalization
the targeting of marketing messages to specific individuals by adjusting the message to a person's name, interests, and past purchases

customization
changing the delivered product or service based on a user's preferences or prior behavior

With the increase in information density, a great deal of information about the consumer's past purchases and behavior can be stored and used by online merchants. The result is a level of personalization and customization unthinkable with traditional commerce technologies. For instance, you may be able to shape what you see on television by selecting a channel, but you cannot change the contents of the channel you have chosen. In contrast, the online version of the *Financial Times* allows you to select the type of news stories you want to see first and gives you the opportunity to be alerted when certain events happen. Personalization and customization allow firms to precisely identify market segments and adjust their messages accordingly.

SOCIAL TECHNOLOGY: USER-GENERATED CONTENT (UGC), CREATORS, AND SOCIAL NETWORKS

In a way quite different from all previous technologies, e-commerce technologies have evolved to be much more social by allowing users to create and share content with a worldwide community. Using these forms of communication, users are able to create new social networks and strengthen existing ones.

All previous mass media in modern history, including the printing press, used a broadcast (one-to-many) model: Content is created in a central location by experts (professional writers, editors, directors, actors, and producers), and audiences are concentrated in huge aggregates to consume a standardized product. The telephone would appear to be an exception, but it is not a mass communication technology. Instead, the telephone is a one-to-one technology. E-commerce technologies invert this standard media model by giving users the power to create and distribute content on a large scale and permitting users to program their own content consumption. E-commerce technologies provide a unique, many-to-many model of mass communication, and over the last several years, user-generated content (UGC), in the form of video, podcasts, newsletters, literary content, online classes, digital art, and more, has come to occupy an ever-increasing role in the online content landscape. People who develop and distribute such content are now typically referred to as "creators." More than 200 million people worldwide characterize themselves as creators, and an entire ecosystem, referred to as the creator economy, has sprung up around them. The creator economy includes social network platforms, content creation tools, monetization tools, fan interaction and community management tools, ad platforms, and administrative tools that support creators and enable them to earn revenue.

Table 1.2 provides a summary of each of the unique features of e-commerce technology and each feature's business significance.

1.4 TYPES OF E-COMMERCE

There are a number of different types of e-commerce and many different ways to characterize them. For the most part, we distinguish different types of e-commerce by the nature of the market relationship—who is selling to whom. Mobile, social, and local e-commerce can be looked at as subsets of these types of e-commerce.

TABLE 1.2 BUSINESS SIGNIFICANCE OF THE EIGHT UNIQUE FEATURES OF E-COMMERCE TECHNOLOGY

E-COMMERCE TECHNOLOGY DIMENSION	BUSINESS SIGNIFICANCE
Ubiquity—E-commerce technology is available anytime and everywhere: at work, at home, and elsewhere via mobile devices.	The marketplace is extended beyond traditional boundaries and is removed from a temporal and geographic location. "Marketspace" is created; shopping can take place anywhere. Customer convenience is enhanced, and shopping costs are reduced.
Global reach—The technology reaches across national boundaries and around the earth.	Commerce is enabled across cultural and national boundaries seamlessly and without modification. "Marketspace" includes potentially billions of consumers and millions of businesses worldwide.
Universal standards—There is one set of technology standards.	There is a common, inexpensive, global technology foundation for businesses to use.
Richness—Video, audio, and text messages are possible.	Video, audio, and text marketing messages are integrated into a single marketing message and consuming experience.
Interactivity—The technology enables interaction with the user.	Consumers are engaged in a dialog that dynamically adjusts the experience to the individual consumer and makes the consumer a co-participant in the process of delivering goods to the market.
Information density—The technology reduces information costs and raises quality.	Information processing, storage, and communication costs drop dramatically, while currency, accuracy, and timeliness improve greatly. Information becomes plentiful, cheap, and accurate.
Personalization/Customization—The technology permits personalization and customization.	Marketing messages can be personalized and products and services customized, based on individual characteristics.
Social technology—The technology supports user-generated content (UCG), creators, and social networks.	Enables user content creation and distribution and supports development of social networks.

BUSINESS-TO-CONSUMER (B2C) E-COMMERCE

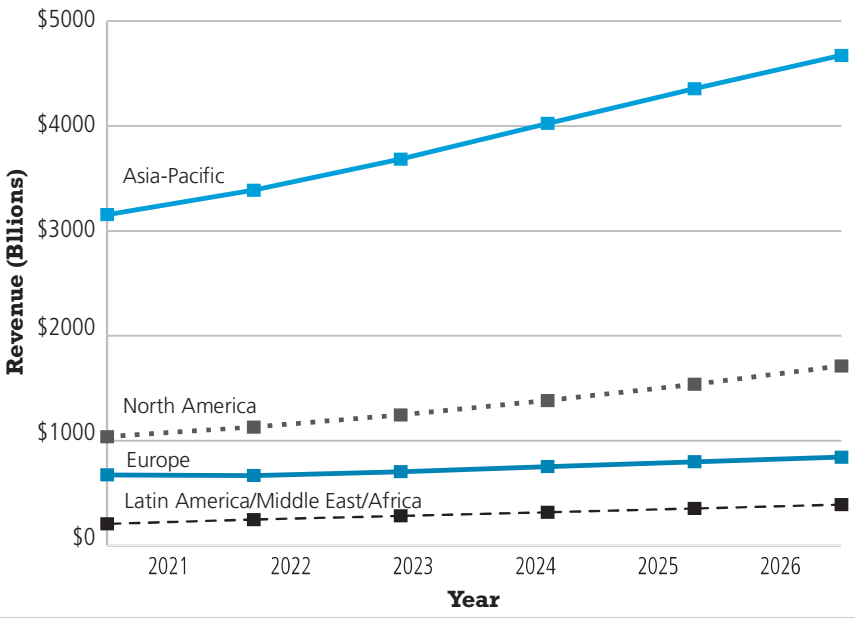
business-to-consumer (B2C) e-commerce online businesses selling to individual consumers

The most commonly discussed type of e-commerce is **business-to-consumer (B2C) e-commerce**, in which online businesses attempt to reach individual consumers. B2C e-commerce includes purchases of retail goods; travel, financial, real estate, and other types of services; and online content. B2C has grown exponentially since 1995 and is the type of e-commerce that most consumers are likely to encounter (see **Figure 1.5**).

Within the B2C category, there are many different types of business models. Chapter 2 has a detailed discussion of seven different B2C business models: online retailers, service providers, transaction brokers, content providers, community providers/social networks, market creators, and portals. Then, in Part 4, we look at each of these business models in action. In Chapter 9, we examine online retailers, service providers (including on-demand services), and transaction brokers. In Chapter 10, we focus on content providers. In Chapter 11, we look at community providers (social networks), market creators (auctions), and portals.

The data suggests that, over the next several years, B2C e-commerce worldwide will continue to grow around 9% annually. There remains significant upside potential. Today, for instance, retail e-commerce (which currently comprises the majority

FIGURE 1.5 THE GROWTH OF B2C E-COMMERCE WORLDWIDE



B2C e-commerce revenues in all regions continued to grow throughout 2022 and is anticipated to continue to grow at about 8% to 9% a year through 2026. The Asia-Pacific region generates the highest amount of B2C e-commerce revenue, followed by North America.

SOURCES: Based on data from Insider Intelligence/eMarketer, 2023a

of B2C e-commerce revenues) is still only 28% of the overall $28 trillion global retail market. There is obviously still much room to grow (see **Figure 1.6**). However, it's not likely that B2C e-commerce revenues will continue to expand forever at current rates. As online sales become a larger percentage of all sales, online sales growth will likely eventually decline. However, this point still appears to be a long way off. Online content sales, everything from music to video, games, and entertainment, have an even longer period to grow before they hit any ceiling effects.

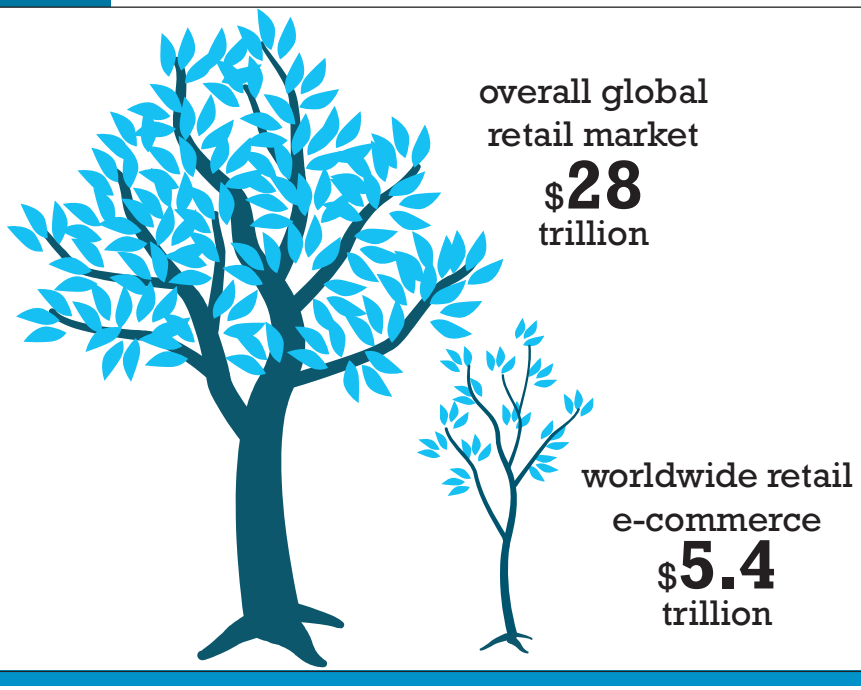
BUSINESS-TO-BUSINESS (B2B) E-COMMERCE

business-to-business (B2B) e-commerce online businesses selling to other businesses

Business-to-business (B2B) e-commerce, in which businesses focus on selling to other businesses, is the largest form of e-commerce, with about $8.5 trillion in transactions in the United States in 2022 (see **Figure 1.7**). This is still a small portion of total B2B commerce (which remains largely non-automated), suggesting that B2B e-commerce still has significant growth potential.

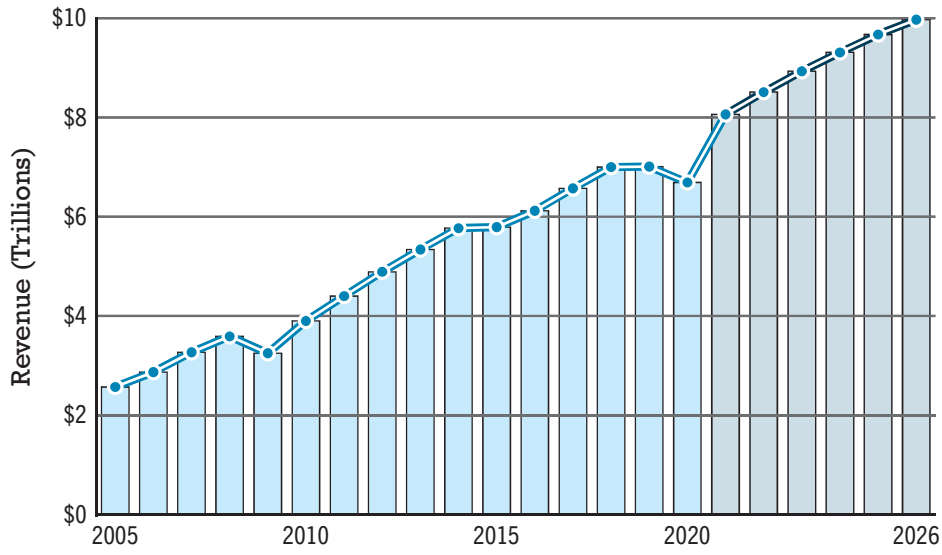
There are two primary business models used within the B2B arena: B2B e-commerce marketplaces, which include e-distributors, e-procurement companies, exchanges, and industry consortia, and private B2B networks. We review various B2B e-commerce business models in Chapter 2 and examine them in further depth in Chapter 12.

FIGURE 1.6 ROOM TO GROW



The retail e-commerce market is still just a small part of the overall retail market but has much more room to grow in the future.

FIGURE 1.7 THE GROWTH OF B2B E-COMMERCE IN THE UNITED STATES



B2B e-commerce in the United States is almost seven times the size of B2C e-commerce. In 2026, U.S. B2B e-commerce is projected to reach almost $10 trillion.

SOURCES: Based on data from Insider Intelligence/eMarketer, 2022f; U.S. Census Bureau, 2021; authors' estimates.

CONSUMER-TO-CONSUMER (C2C) E-COMMERCE

consumer-to-consumer (C2C) e-commerce
consumers selling to other consumers with the help of an online market maker

Consumer-to-consumer (C2C) e-commerce provides a way for consumers to sell to each other with the help of an online market maker (also called a platform provider). In C2C e-commerce, the consumer prepares the product for market, lists the product for auction or sale, and relies on the market maker to provide catalog, search engine, and transaction-clearing capabilities so that products can be easily displayed, discovered, and paid for. eBay, Craigslist, and Etsy were the original C2C platform provider pioneers in the United States, but today they face significant competition. For instance, third-party sales on Amazon have skyrocketed. In China, Alibaba operates a similar global C2C marketplace, Taobao, that is now one of the world's largest. Facebook has also entered the arena with Facebook Marketplace. There are also a number of newer entrants, such as Gumtree, Depop, and Vinted, that are focused on the C2C market. On-demand service companies such as Uber and Airbnb can also be considered C2C platform providers.

Although there are no officially reported statistics on the size of the U.S. C2C market, it is probably safe to estimate its current size as more than $200 billion (not including on-demand services), based on estimates of gross merchandise volume/sales on platforms such as eBay, Etsy, Amazon's third-party sellers, Facebook Marketplace, and Craigslist.

MOBILE E-COMMERCE (M-COMMERCE)

mobile e-commerce (m-commerce)
use of mobile devices to enable online transactions

Mobile e-commerce (m-commerce) refers to the use of mobile devices to enable online transactions. M-commerce involves the use of cellular and wireless networks to connect smartphones and tablet computers to the Internet. Once connected, mobile consumers can purchase products and services, make travel reservations, use an expanding variety of financial services, access online content, and much more.

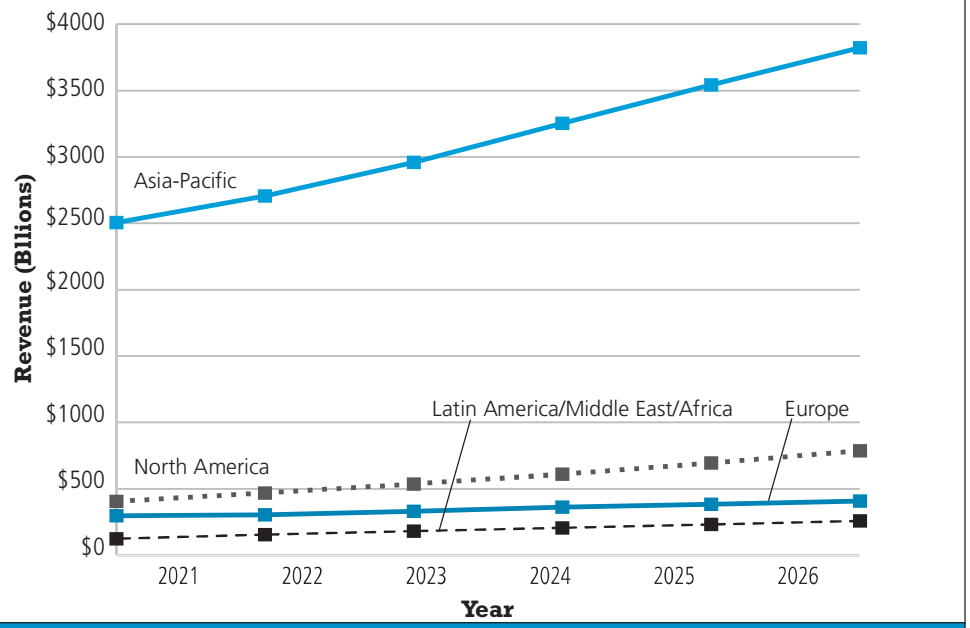
Retail m-commerce revenues reached about $3.6 trillion worldwide in 2022 and are expected to grow to more than $5.2 trillion by 2026, as consumers become more and more accustomed to using mobile devices to purchase products and services (see **Figure 1.8**). Mobile digital travel revenues experienced a significant decline in 2020 because of the Covid-19 pandemic but rebounded in 2022 and are expected to continue to grow though 2026. Factors that are driving the growth of m-commerce include the increasing amount of time consumers are spending using mobile devices, larger smartphone screen sizes, greater use of responsive design enabling websites to be better optimized for mobile use and mobile checkout and payment, and enhanced mobile search functionality (Insider Intelligence/eMarketer, 2023b, 2022g, 2022h).

SOCIAL E-COMMERCE

social e-commerce
e-commerce enabled by social networks and online social relationships

Social e-commerce is e-commerce that is enabled by social networks and online social relationships. Social e-commerce is often intertwined with m-commerce, particularly as more and more social network users access those networks via mobile devices. The growth of social e-commerce is being driven by a number of factors, including the increasing popularity of social sign-on (signing onto websites using your Facebook or other social network ID), network notification (the sharing of approval or disapproval of products, services, and content), online collaborative shopping tools, social search

FIGURE 1.8 THE GROWTH OF RETAIL M-COMMERCE WORLDWIDE



The Asia-Pacific region accounted for almost 75% of all retail m-commerce revenues in 2022.
SOURCES: Based on data from Insider Intelligence/eMarketer, 2023b.

(recommendations from online trusted friends), and the increasing prevalence of integrated social commerce tools such as Buy buttons, Shopping tabs, marketplace groups, and virtual shops on Facebook, Instagram, Pinterest, TikTok, YouTube, and other social networks.

Social e-commerce is still in its relative infancy, but with social media and networks playing an increasingly important role in influencing purchase decisions and driving sales, it is continuing to grow. Total U.S. social retail e-commerce revenues were estimated to be around $55 billion in 2022 (Insider Intelligence/eMarketer, 2022i).

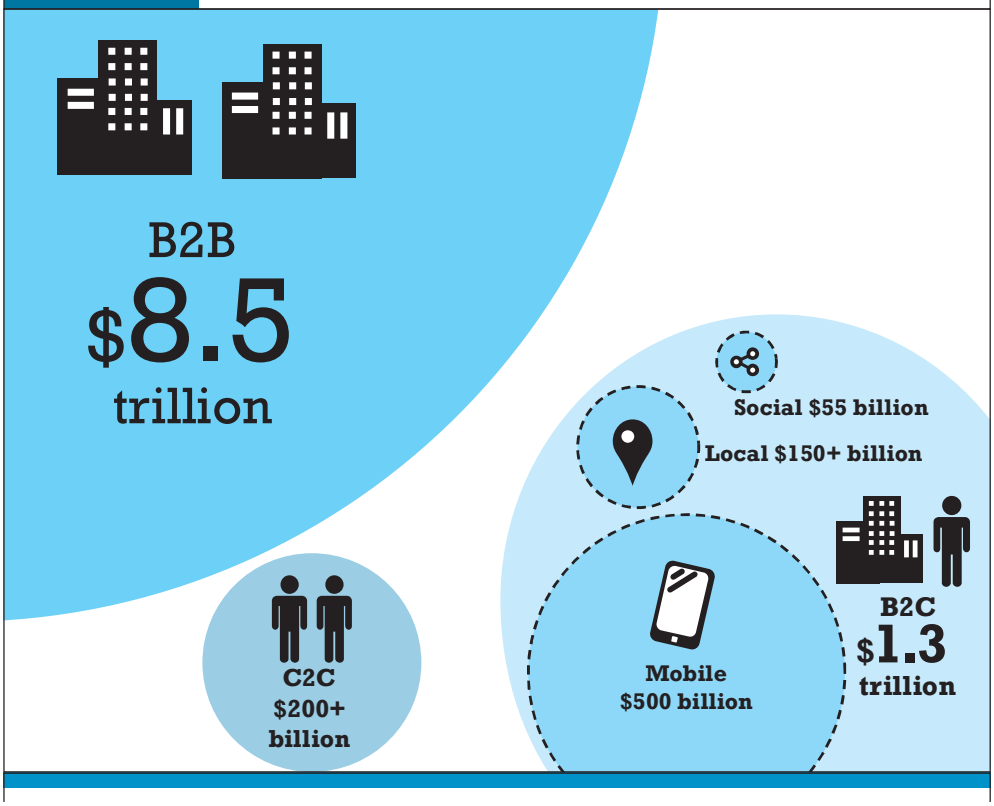
LOCAL E-COMMERCE

Local e-commerce, as its name suggests, is a form of e-commerce that is focused on engaging consumers based on their current geographic location. Local merchants use a variety of online marketing techniques to drive consumers to their stores. Local e-commerce is the third prong of the mobile, social, local e-commerce wave and, fueled by an explosion of interest in local on-demand services such as Uber and Lyft (ride services), Instacart (grocery shopping), and Grubhub and DoorDash (restaurant food delivery), grew in the United States to more than $150 billion in 2022.

local e-commerce
e-commerce that is focused on engaging consumers based on their current geographic location

Figure 1.9 illustrates the relative size of all of the various types of e-commerce while **Table 1.3** provides examples for each type.

FIGURE 1.9 **THE RELATIVE SIZE OF DIFFERENT TYPES OF E-COMMERCE IN THE UNITED STATES IN 2022**



B2B e-commerce dwarfs all other forms of e-commerce; mobile, social, and local e-commerce, although growing rapidly, are still relatively small in comparison to "traditional" e-commerce.

TABLE 1.3 **MAJOR TYPES OF E-COMMERCE**

TYPE OF E-COMMERCE	EXAMPLE
B2C—business-to-consumer	Amazon is an online retailer that sells consumer products to retail consumers.
B2B—business-to-business	Metalshub is an independent third-party marketplace that serves the metals industry.
C2C—consumer-to-consumer	Online platforms such as eBay, Etsy, Taebao, and Gumtree enable consumers to sell goods directly to other consumers. Airbnb and Uber provide similar platforms for services such as room rental and transportation.
M-commerce—mobile e-commerce	Mobile devices such as smartphones and tablet computers can be used to conduct commercial transactions.
Social e-commerce	Facebook is both the leading social network and the leading social e-commerce platform.
Local e-commerce	Groupon offers subscribers daily deals from local businesses in the form of Groupons, which are discount coupons that take effect once enough subscribers have agreed to purchase a particular item.

1.5 E-COMMERCE: A BRIEF HISTORY

It is difficult to pinpoint just when e-commerce began. There were several precursors to e-commerce. In the late 1970s, a pharmaceutical firm named Baxter Healthcare initiated a primitive form of B2B e-commerce by using a telephone-based modem that permitted hospitals to reorder supplies from Baxter. This system was later expanded during the 1980s into a PC-based remote order entry system and was widely copied throughout the United States long before the Internet became a commercial environment. The 1980s saw the development of Electronic Data Interchange (EDI) standards that permitted firms to exchange commercial documents and conduct digital commercial transactions across private networks.

In the B2C arena, the first truly large-scale digitally enabled transaction system was the Minitel, a French videotext system that combined a telephone with an eight-inch screen. The Minitel was first introduced in 1981, and by the mid-1980s, more than 3 million had been deployed, with more than 13,000 different services available, including ticket agencies, travel services, retail products, and online banking. The Minitel service continued in existence until December 31, 2006, when it was finally discontinued by its owner, France Telecom.

However, none of these precursor systems had the functionality of the Internet. Generally, when we think of e-commerce today, it is inextricably linked to the Internet. For our purposes, we will say e-commerce begins in 1995, following the appearance of the first banner advertisements placed by AT&T, Volvo, Sprint, and others on Hotwired.com, the first commercial online magazine, in late October 1994 and the first sales of banner ad space by Netscape and Infoseek in early 1995.

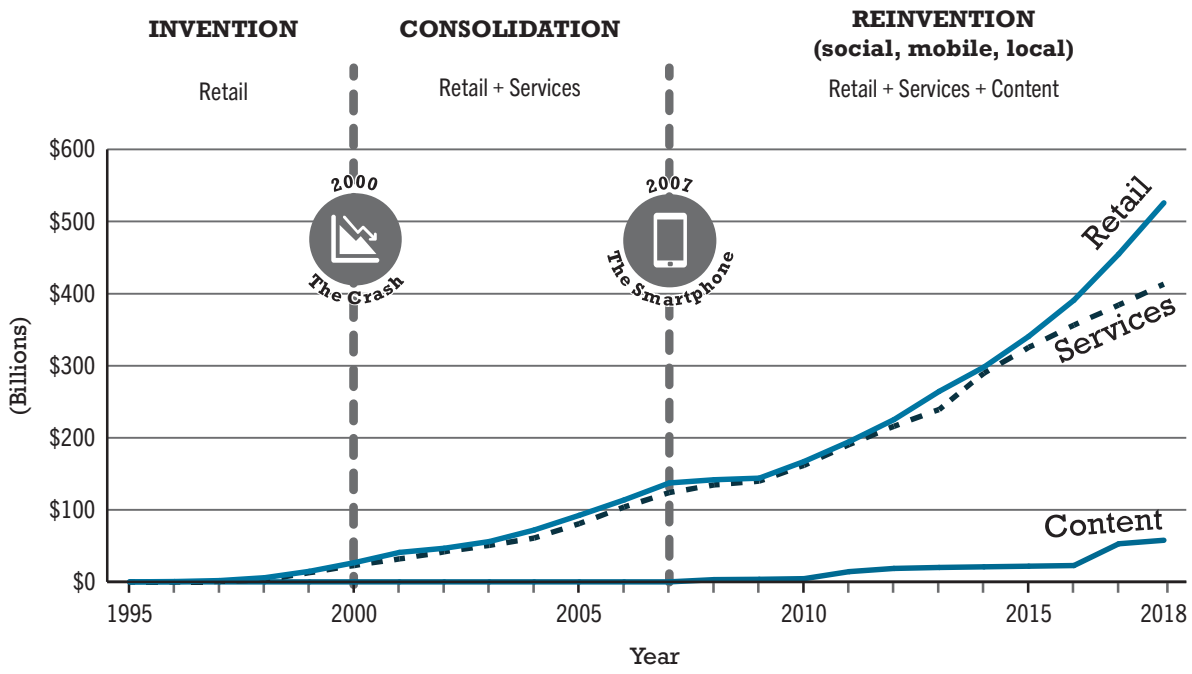
Although e-commerce is not very old, it already has had a tumultuous history, which can be usefully divided into three periods: 1995–2000, the period of invention; 2001–2006, the period of consolidation; and 2007–present, a period of reinvention with social, mobile, and local expansion. The following examines each of these periods briefly, while **Figure 1.10** places them in context along a timeline. View the Figure 1.10 video in the eTextbook for an animated and more detailed discussion of this figure.

E-COMMERCE 1995–2000: INVENTION

The early years of e-commerce were a period of explosive growth and extraordinary innovation. During this Invention period, e-commerce meant selling relatively simple retail goods via the Internet. There simply was not enough bandwidth for selling more complex products. Marketing was limited to unsophisticated, static display ads and not very powerful search engines. The web policy of most large firms, if they had one at all, was to have a basic, static website depicting their brands. The rapid growth in e-commerce during the Invention period was fueled by more than $125 billion in venture capital. This period of e-commerce came to a close in 2000 when stock market valuations plunged, with thousands of companies disappearing (the "dot-com crash").

The early years of e-commerce were also one of the most euphoric of times in U.S. commercial history. It was a time when key e-commerce concepts were developed. For computer scientists and information technologists, the early success of e-commerce was a powerful vindication of a set of information technologies that had developed over

FIGURE 1.10 PERIODS IN THE DEVELOPMENT OF E-COMMERCE



a period of 40 years—extending from the development of the early Internet, to the PC, to local area networks. The vision was of a universal communications and computing environment that everyone on Earth could access with cheap, inexpensive computers—a worldwide universe of knowledge stored on HTML pages created by hundreds of millions of individuals and thousands of libraries, governments, and scientific institutes. Technologists celebrated the fact that the Internet was not controlled by anyone or any nation but was free to all. They believed that the Internet—and the e-commerce that arose based on this infrastructure—should remain a self-governed, self-regulated environment.

For economists, the early years of e-commerce raised the realistic prospect of a nearly perfect competitive market: one in which price, cost, and quality information are equally distributed; a nearly infinite set of suppliers compete against one another; and customers have access to all relevant market information worldwide. The Internet would spawn digital markets where information would be nearly perfect—something that is rarely true in other real-world markets. Merchants in turn would have equal, direct access to hundreds of millions of customers. In this near-perfect information marketspace, transaction costs would plummet because search costs—the costs of searching for prices, product descriptions, payment settlement, and order fulfillment—would all fall drastically (Bakos, 1997). For merchants, the cost of searching for customers would also fall, reducing the need for wasteful advertising. At the same time, advertisements could be personalized to the needs of every customer.

Prices and even costs would be increasingly transparent to the consumer, who could now know exactly and instantly the worldwide best price, quality, and availability of most products. Information asymmetry would be greatly reduced. Given the instant nature of Internet communications, the availability of powerful sales information systems, and the low cost involved in changing online prices (low menu costs), producers could dynamically price their products to reflect actual demand, ending the idea of one national price, or one suggested manufacturer's list price. In turn, market middlemen—the distributors and wholesalers who are intermediaries between producers and consumers, each demanding a payment and raising costs while adding little value—would disappear (**disintermediation**). Manufacturers and content originators would develop direct market relationships with their customers. The resulting intense competition, the decline of intermediaries, and the lower transaction costs would eliminate product brands and, along with these, the possibility of *monopoly profits* based on brands, geography, or special access to factors of production. Prices for products and services would fall to the point where prices covered costs of production plus a fair, "market rate" of return on capital, plus additional, small payments for entrepreneurial effort. Unfair competitive advantages (which occur when one competitor has an advantage that others cannot purchase) would be reduced, as would extraordinary returns on invested capital. This vision was called **friction-free commerce** (Smith et al., 2000).

disintermediation
displacement of market middlemen, who traditionally are intermediaries between producers and consumers, by a new, direct relationship between producers and consumers

friction-free commerce
a vision of commerce in which information is equally distributed, transaction costs are low, prices can be dynamically adjusted to reflect actual demand, intermediaries decline, and unfair competitive advantages are eliminated

For real-world entrepreneurs, their financial backers, and marketing professionals, e-commerce represented a tremendous opportunity to earn far-above-normal returns on investment. This is the exact opposite of what economists hoped for. The e-commerce marketspace represented access to millions of consumers worldwide who used the Internet and a set of marketing communications technologies (e-mail and web pages) that was universal, inexpensive, and powerful. These new technologies would permit marketers to practice what they always had done—segmenting the market into groups with different needs and price sensitivity, targeting the segments with branding and promotional messages, and positioning the product and pricing for each group—but with even more precision. In this new marketspace, extraordinary profits would go to **first movers**—those firms who were first to market in a particular area and who moved quickly to gather market share. In a "winner-take-all" market, first movers could establish a large customer base quickly, build brand name recognition early, create an entirely new distribution channel, and then inhibit competitors (new entrants) by building in *switching costs* for their customers through proprietary interface designs and features available only on one platform. The idea for entrepreneurs was to create near monopolies online based on size, convenience, selection, and brand. Online businesses using the new technology could create informative, community-like features unavailable to traditional merchants. These "communities of consumption" also would add value and be difficult for traditional merchants to imitate. The thinking was that once customers became accustomed to using a company's unique web interface and set of features, they could not easily be switched to competitors. In the best case, the entrepreneurial firm would invent proprietary technologies and techniques that almost everyone adopted, creating a network effect. A **network effect** occurs when all participants receive value from the fact that everyone else uses the same tool or product (for example, a common operating system,

first mover
a firm that is first to market in a particular area and that moves quickly to gather market share

network effect
occurs when users receive value from the fact that everyone else uses the same tool or product

telephone system, or software application such as a proprietary instant messaging standard or an operating system such as Microsoft Windows), all of which increase in value as more people adopt them.[1]

To initiate this process, entrepreneurs argued that prices would have to be very low to attract customers and fend off potential competitors. E-commerce was, after all, a totally new way of shopping that would have to offer some immediate cost benefits to consumers. However, because doing business on the Web was supposedly so much more efficient when compared to traditional "bricks-and-mortar" businesses (even when compared to the direct mail catalog business) and because the costs of customer acquisition and retention would supposedly be so much lower, profits would inevitably materialize out of these efficiencies. Given these dynamics, during an online firm's early years, market share, the number of online visitors ("eyeballs"), and gross revenue were considered far more important than earnings or profits. Entrepreneurs and their financial backers expected that extraordinary profitability would come but only after several years of losses.

Thus, the early years of e-commerce were driven largely by visions of profiting from new technology, with the emphasis on quickly achieving very high market visibility. The source of financing was venture capital funds. The ideology of the period emphasized the ungoverned, "Wild West" character of the Web and the feeling that governments and courts could not possibly limit or regulate the Internet; there was also a general belief that traditional corporations were too slow and bureaucratic—too stuck in the old ways of doing business—to "get it" and be competitive in e-commerce. Young entrepreneurs were therefore the driving force behind e-commerce, backed by huge amounts of money invested by venture capitalists. The emphasis was on *disrupting* (destroying) traditional distribution channels and disintermediating existing channels, using new, purely online companies who aimed to achieve impregnable first-mover advantages. Overall, this period of e-commerce was characterized by experimentation, capitalization, and hypercompetition (Varian, 2000b).

E-COMMERCE 2001–2006: CONSOLIDATION

In the second period of e-commerce, from 2001 to 2006, a sobering period of reassessment of e-commerce occurred, with many critics doubting its long-term prospects. Emphasis shifted to a more "business-driven," rather than a technology-driven approach; large traditional firms learned how to use the Web to strengthen their market positions; brand extension and strengthening became more important than creating new brands; financing shrunk as capital markets shunned startup firms; and traditional bank financing based on profitability returned.

During this period of consolidation, e-commerce changed to include not just retail products but also more complex services such as travel and financial services. This period was enabled by widespread adoption of broadband networks in U.S. homes and businesses, coupled with the growing power and lower prices of personal computers that were the primary means of accessing the Internet, usually from work or home. Marketing on the Internet increasingly meant using search engine advertising targeted to user queries, rich media and video ads, and behavioral targeting of marketing

[1]The network effect is quantified by Metcalfe's Law, which argues that the value of a network grows by the square of the number of participants.

messages based on ad networks and auction markets. The web policy of both large and small firms expanded to include a broader "web presence" that included not just websites but also e-mail, display, and search engine campaigns; multiple websites for each product; and the creation of some limited community-feedback facilities. E-commerce in this period was growing again, by more than 10% a year.

E-COMMERCE 2007–PRESENT: REINVENTION

Beginning in 2007, with the introduction of the iPhone, to the present day, e-commerce has been transformed yet again by the rapid growth of **Web 2.0** (a set of applications and technologies that enable user-generated content such as that posted on online social networks, blogs, wikis, and video- and photo-sharing websites and apps); the widespread adoption of mobile devices such as smartphones and tablet computers; the expansion of e-commerce to include local goods and services; and the emergence of an on-demand service economy enabled by millions of apps on mobile devices and cloud computing. This period can be seen as both a sociological as well as a technological and business phenomenon.

Web 2.0
set of applications and technologies that enable user-generated content

The defining characteristics of this period are often characterized as the "social, mobile, local" online world. Entertainment content has developed as a major source of e-commerce revenues, and mobile devices have become entertainment centers as well as on-the-go shopping devices for retail goods and services. Marketing has been transformed by the increasing use of social networks and much more powerful data repositories and analytic tools for truly personalized and targeted marketing. Firms have greatly expanded their online presence by moving beyond static web pages to social networks such as Facebook, Instagram, TikTok, Twitter, and Pinterest in an attempt to surround the online consumer with coordinated marketing messages. These social networks share many common characteristics. They are inherently highly interactive, creating new opportunities for people to socially connect to others. They attract extremely large audiences (about 2.9 billion monthly active users worldwide as of July 2022 in the case of Facebook). These audiences present marketers with extraordinary opportunities for targeted marketing and advertising. Social networks also predominantly rely on user-generated content. "Regular" people (not just experts or professionals), now often referred to as creators, are producing, sharing, and broadcasting content to huge audiences, which has given rise to what has become known as the creator economy.

The reinvention of e-commerce has also resulted in a set of on-demand, personal service businesses such as Uber, Airbnb, and Deliveroo. These businesses have been able to tap into a large reservoir of unused assets (cars, spare rooms, and personal spare time) and to create lucrative markets based on the mobile platform infrastructure. More recently, the reimagining of the Internet experience in the form of the 3D, immersive experience that has been labeled the metaverse, as well as more decentralized blockchain-related concepts known as Web3, is attracting enormous attention and hype. The *Insight on Business* case, *Rocket Internet*, takes a look at Rocket Internet, which has invested in and mentored a number of startups.

INSIGHT ON BUSINESS

ROCKET INTERNET

Most people have heard the story of Mark Zuckerberg dropping out of college to start Facebook. Today, tech startup founders are less likely to build businesses on their own and, instead, often seek the help of an incubator. Incubators have become a vital tool in helping new tech startups grow from the kernel of a great idea into an established, vibrant business. Rocket Internet is one such incubator.

Founded in 2007 by German entrepreneurs Oliver Samwer and his brothers Alexander and Marc, Rocket Internet invests in e-commerce and other Internet startups in emerging markets. Headquartered in Berlin and with offices around the globe, Rocket Internet has launched over 200 companies in 120 countries. In 2014, Rocket went public on Germany's Frankfurt Stock Exchange. The initial pricing valued the company at around €6.5 billion. However, after the IPO, over the course of a number of years, the company's stock price fell from a high of nearly €60 to about €20 per share in September 2020, reducing the company's market capitalization to about €2.5 billion. In October 2020, Rocket delisted its shares from the Frankfurt and Luxembourg Stock Exchanges, with its investment division, Global Founders Capital, and CEO Oliver Samwer continuing to hold the majority stake. Rocket's struggles illustrate the perils of prioritizing growth over profitability.

Rocket bills itself as more than a venture capital firm or typical incubator. Rocket has a variety of teams that work closely with each of its ventures, including teams focused on engineering and product development, online marketing, CRM, business intelligence, operations, HR, and finance. Rocket also helps its startups by providing access to centralized logistics and other back-office functions to help them cut down on operational costs. Rocket also provides assistance in the acquisition of additional venture capital on behalf of its startup companies, freeing them to focus on rapidly growing the business.

Prominent companies launched via Rocket Internet in the past include Germany's Zalando, India's Jabong, Russia's Lamoda, Australia's The Iconic and Zanui, Pakistan's Daraz, and Southeast Asia's Zalora. However, critics claim that throughout Rocket Internet's history, the company has been less concerned with innovation than with launching clones of successful U.S.-based businesses in other markets. Rocket counters that it improves upon established businesses by refining their business processes and by localizing them to better fit specific areas. Through the years, investors have been concerned about the profitability of Rocket's portfolio. Many of Rocket's companies in the past have had market-leader status in their respective areas, but not many of them were profitable. Rocket's view has been that by focusing on growth in emerging markets first, profits will come in time. In the meantime, Rocket has also benefited from the successful IPOs of a number of its most prominent startups, including food delivery companies Delivery Hero and HelloFresh; home goods retailers Home24 and WestWing; African e-commerce retailer Jumia; and Global Fashion Group. However, in 2020, the Covid-19 pandemic negatively impacted both the company's revenues and stock market performance, leading to the decision to delist its shares. According to Samwer, Rocket Internet is now better positioned and able to focus on longer-term results without having to deal with the stock market's typical focus on short-term results.

Rocket has had the most success launching companies modeled after established businesses in emerging markets and then selling these ventures to those established businesses. eBay's acquisition of Germany's leading auction site, Alando, where the Samwers got their start, is an example. Rocket also sold a controlling stake in Southeast Asian Amazon clone Lazada to Alibaba for $1 billion, a price exceeding investor valuations of the company, and representing a profit of over 20 times its initial investment. Rocket also sold half of its shares of Delivery Hero for €660 million, as well as Germany-based beauty retailer Glossybox and Dubai-based fashion retailer Namshi. These sales and the IPOs have helped Rocket as it continues to support its other less-profitable businesses.

Going forward, Rocket is focusing more on sustainable companies and less on selling their companies to market leaders. Oliver Samwer believes that in the past, it may have sold some businesses, such as Alando, too early, but that it was necessary in order for Rocket to build a track record. Now that it has one, it can afford to take a longer-term view. Flash Coffee is a good example of a company in Rocket's current portfolio.

Flash Coffee is a tech-enabled coffee chain founded in Indonesia in 2019. David Brunier, Flash's founder and chief executive officer, took a position as a business development manager with food delivery service Foodara, which at the time was backed by Rocket Internet. In 2017, Brunier moved to Singapore as the chief marketing officer (APAC) for Foodpanda, another Rocket Internet–backed company. He saw an opportunity to develop a tech-enabled coffee chain that would be more efficient, save costs for consumers, and still serve a high-quality cup of coffee.

Now headquartered in Singapore, Flash Coffee has grown to 80 outlets in Indonesia, with 170 others in Singapore, Thailand, Taiwan, Hong Kong, South Korea, and Japan. Rocket believes in the power of data, and Flash Coffee provides a case in point. Maxime Chaury, Flash Coffee's managing director, notes that the first pillar of Flash's business is its consumer app, which enables customers to order and pay online, pick up their drinks or get them delivered, and use Flash's loyalty program and in-app gamification. Flash's Barista App helps baristas manage stores and improve their operational efficiency. Another pillar of Flash's business is using big data for decision-making, from personalized promotions based on the purchasing behavior of customers to the development of new menu items. Flash has said that the majority of its stores are already profitable, demonstrating the success of its business model. In 2022, Flash raised $38 million in additional venture capital, which it hopes to use to expand into additional regions.

SOURCES: "Flash Coffee's Success: No Instant Brew but Constant Grind," by Shravanth Vijayakumar, Techinasia.com, July 17, 2022; "A Chat with Maxime Chaury about the Future of Hi-tech Coffee," by Riga Ramadhan, Prestigeonline.com, May 18, 2022; "How I'm Making It: Flash Coffee's David Brunier on How He Built Asia's Tech-enabled Coffee Empire after Wanting to Drop Out," by Camilla Dass, Tatlerasia.com, April 11, 2022; "As It Delists, Rocket Internet's Ill-fated Experiment with Public Markets Is Over, " by Mike Butcher, Techcrunch.com, September 1, 2020; "Rocket Internet Sits on $3.3 Billion Cash Pile after IPOs," by Stefan Nicola, Bloomberg.com, September 19, 2019; "Rocket Internet: Organizing a Startup Factory," by Oliver Baumann et al., Link. springer.com, December 2018; "Wimdu, Rocket Internet's Airbnb Clone, to Shut Down This Year 'Facing Significant Business Challenges,'" by Ingrid Lunden, Techcrunch.com, September 27, 2018; "Cash-flush Rocket Internet Lifted by $175 Million Buyback Plan," by Emma Thomasson, Reuters.com, September 20, 2018; "Rocket Internet CEO Samwer Looks at Crafting New Strategies for Success," by Stefan Nicola, Bloomberg, August 27, 2018; "Rocket Internet–Providing Access to Up and Coming Companies in the Emerging Markets," by Kevin Carter, Seekingalpha.com, June 10, 2018; "Rocket Internet's Spectacular Display," by Leila Abboud, Bloomberg.com, September 28, 2017; "Start-ups Giant Rocket Internet Offloads Glossybox to UK Rival," by Mark Kleinman, News.sky.com, August 14, 2017; "Rocket Internet's Trajectory Shift," by Leila Abboud, Bloomberg.com, November 23, 2016; "German Tech Incubator Rocket Internet to Focus on Biggest Companies," Nasdaq.com, November 16, 2016; "Rocket Internet Leaves Us Groping in the Dark," by Leila Abboud, Bloomberg.com, October 12, 2016; "Inside Rocket Internet's Ailing Startup Factory," by Jeremy Kahn, et al., Bloomberg.com, October 7, 2016; "Rocket Internet's Deal with Alibaba Validates Its Opaque, Unproven Model," by Joon Ian Wong, Qz.com, April 13, 2016; "Rocket Internet Drops 13% in Debut," by Chase Gummer, *Wall Street Journal,* October 2, 2014; "Rocket Internet's Marc Samwar on Cloning: We Make Business Models Better Because We Localize," by Leena Rao, Techcrunch. com, October 28, 2013; "eBay Acquires Germany's Leading Onine Person-to-Person Trading Site–Alando.de AG," Prnewswire.com, June 22, 2013.

TABLE 1.4 EVOLUTION OF E-COMMERCE

1995–2000 INVENTION	2001–2006 CONSOLIDATION	2007–PRESENT REINVENTION
Technology driven	Business driven	Mobile technology enables social, local, and mobile e-commerce
Revenue growth emphasis	Earnings and profits emphasis	Audience and social network connections emphasis
Venture capital financing	Traditional financing	Return of venture capital financing; buy-outs of startups by large firms
Ungoverned	Stronger regulation and governance	Extensive government surveillance
Entrepreneurial	Large traditional firms	Entrepreneurial social, mobile, and local firms
Disintermediation	Strengthening intermediaries	Proliferation of small online intermediaries renting business processes of larger firms
Perfect markets	Imperfect markets, brands, and network effects	Continuation of online market imperfections; commodity competition in select markets
Pure online strategies	Mixed "bricks-and-clicks" strategies	Return of pure online strategies in new markets; extension of bricks-and-clicks in traditional retail markets
First-mover advantages	Strategic-follower strength; complementary assets	First-mover advantages return in new markets as traditional web players catch up
Low-complexity retail products	High-complexity retail products and services	Retail, services, and content

Table 1.4 summarizes e-commerce in each of these three periods.

ASSESSING E-COMMERCE: SUCCESSES, SURPRISES, AND FAILURES

Looking back at the evolution of e-commerce, it is apparent that e-commerce has been a stunning technological success, ramping up from a few thousand to trillions of e-commerce transactions per year, generating an estimated $5.4 trillion in retail e-commerce revenues worldwide, with around 2.7 billion online buyers worldwide, as well as many more trillions in B2B revenue. With enhancements and strengthening, described in later chapters, it is clear that e-commerce's digital infrastructure is solid enough to sustain significant growth in e-commerce during the next decade. The Internet scales well. The "e" in e-commerce has been an overwhelming success.

From a business perspective, though, the early years of e-commerce were a mixed success and offered many surprises. Only a very small percentage of the dot-coms formed in those early years have survived as independent companies. Yet online retail sales of goods and services are still growing very rapidly. Contrary to economists' hopes, however, online sales are increasingly concentrated. For instance, according to Insider Intelligence/eMarketer, the top 10 U.S. e-commerce retailers grew their market share to almost 63% in 2022,

while the top 500 retailers accounted for almost 75% of all U.S. online retail sales in 2021. No one foresaw that Google/YouTube and Facebook/Instagram would dominate the online advertising marketplace, accounting for more than 50% of U.S. digital advertising revenues, or that one firm, Amazon, would account for almost 38% of all U.S. online sales via direct sales and sales by third-party sellers using Amazon's platform (Insider Intelligence/eMarketer, 2022j, 2022k; Young, 2022). And, of course, no one anticipated that a pandemic would occur in early 2020, forcing broadscale and widespread changes in consumer shopping behavior, changes that are likely to persist even after the crisis passes, fueling increased growth of retail e-commerce, particularly from the top 1000 online retailers.

So, thousands of firms have failed, and now, a few of those that have survived dominate the market. The idea of many thousands of firms competing on price has been replaced by a market dominated by giant firms. Consumers use the Web as a powerful source of information about products they often actually purchase through other channels, such as at a physical store, a practice sometimes referred to as "webrooming," "ROBO" (research online, buy offline), or O2O (online-to-offline) (Flavian, Gurrea, and Orus, 2022). This is especially true of expensive consumer durables such as automobiles, appliances, and electronics. This offline, "Internet-influenced" commerce is very difficult to estimate but is definitely significant. For instance, Forrester Research estimates that nearly two-thirds 62% of all U.S. retail sales are now digitally influenced, up from 49% prior to the Covid-19 pandemic (Vail, 2021). The "commerce" in "e-commerce" is basically very sound, at least in the sense of attracting a growing number of customers and generating revenues and profits for large e-commerce players.

Although e-commerce has grown at an extremely rapid pace in number of customers and amount of revenues, it is clear that many of the visions, predictions, and assertions about e-commerce that developed in the early years have not been fulfilled. For instance, economists' visions of "friction-free" commerce have not been entirely realized. Prices are sometimes lower online, but the low prices are sometimes a function of entrepreneurs selling products below their costs. In some cases, online prices are higher than those of local merchants, as consumers are willing to pay a small premium for the convenience of buying online. Consumers are also less price sensitive than expected: Surprisingly, the companies with the highest revenues often have the highest prices. There remains considerable persistent and even increasing price dispersion: Online competition has lowered prices, but price dispersion remains pervasive in many markets despite lower search costs. The concept of one world, one market, one price has not occurred in reality as entrepreneurs discover new ways to differentiate their products and services. Merchants have adjusted to the competitive Internet environment by engaging in "hit-and-run pricing" (or changing prices every day or hour using "flash pricing" or "flash sales") so that competitors never know what they are charging (neither do customers) and by making their prices hard to discover and sowing confusion among consumers by "baiting and switching" customers from low-margin products to high-margin products with supposedly "higher quality." Finally, brands remain very important in e-commerce: Consumers trust some firms more than others to deliver a high-quality product on time, and they are willing to pay for this assurance (Cavallo, 2017; Zhuang et al, 2018; Soleimani, 2021).

The "perfect competition" model of extreme market efficiency has not come to pass. Merchants and marketers are continually introducing information asymmetries. Search costs have fallen overall, but the overall transaction cost of actually completing

a purchase in e-commerce remains high because users have a bewildering number of questions to consider: Will the merchant actually deliver? What is the time frame of delivery? Does the merchant really stock this item? How do I fill out this form? Many potential e-commerce purchases are terminated in the shopping cart stage because of these consumer uncertainties. Some people still find it easier to call a trusted catalog merchant on the telephone than to order online.

Finally, intermediaries have not disappeared as predicted. Although many manufacturers do sell online directly to consumers, these manufacturers typically also make use of major e-commerce marketplaces, such as Amazon, eBay, and Walmart. If anything, e-commerce has created many opportunities for middlemen to aggregate content, products, and services and thereby introduce themselves as the "new" intermediaries. Third-party travel sites such as Travelocity, Orbitz, and Expedia are examples of this kind of intermediary.

The visions of many entrepreneurs and venture capitalists for e-commerce have not materialized exactly as predicted, either. First-mover advantage appears to have succeeded only for a very small group of companies, albeit some of them extremely well-known, such as Google, Facebook, Amazon, and eBay. Getting big quickly sometimes works but often does not. Historically, first movers have been long-term losers, with the early-to-market innovators usually being displaced by established "fast-follower" firms with the right complement of financial, marketing, legal, and production assets needed to develop mature markets; this has proved true for e-commerce as well. Many e-commerce first movers, such as eToys, FogDog (sporting goods), Webvan (groceries), and Eve.com (beauty products), failed. Customer acquisition and retention costs during the early years of e-commerce were extraordinarily high, with some firms, such as E*Trade and other financial service firms, paying up to $400 to acquire a new customer. The overall costs of doing business online—including the costs of technology, website and mobile app design and maintenance, and warehouses for fulfillment—are often no lower than the costs faced by the most efficient bricks-and-mortar stores. A large warehouse costs tens of millions of dollars regardless of a firm's online presence. The knowledge of how to run the warehouse is priceless. The startup costs can be staggering. Attempting to achieve or enhance profitability by raising prices has often led to large customer defections. From the e-commerce merchant's perspective, the "e" in "e-commerce" does not stand for "easy."

On the other hand, there have been some extraordinary and unanticipated surprises in the evolution of e-commerce. Few predicted the impact of the mobile platform. Few anticipated the rapid growth of social networks or their growing success as advertising platforms based on a more detailed understanding of personal behavior than even Google has achieved. And few, if any, anticipated the emergence of on-demand e-commerce, which enables people to use their mobile devices to order everything from taxi to grocery to laundry service.

1.6 UNDERSTANDING E-COMMERCE: ORGANIZING THEMES

Understanding e-commerce in its totality is a difficult task for students and instructors because there are so many facets to the phenomenon. No single academic discipline is prepared to encompass all of e-commerce. After teaching the e-commerce course for

a number of years and writing this book, we have come to realize just how difficult it is to "understand" e-commerce. But we have found it useful to think about e-commerce as involving three broad, interrelated themes: technology, business, and society. We do not mean to imply any ordering of importance here because this book and our thinking freely range over these themes as appropriate to the problem we are trying to understand and describe. Nevertheless, as in previous technologically driven commercial revolutions, there is a historic progression: Technologies develop first, and then those developments are exploited commercially. Once commercial exploitation of the technology becomes widespread, a host of social, cultural, and political issues arise, and society is forced to respond to them.

TECHNOLOGY: INFRASTRUCTURE

Digital computing and communications technologies are at the heart of the global digital economy we call e-commerce. To understand the likely future of e-commerce, you need a basic understanding of the information technologies upon which it is built. E-commerce is above all else a technologically driven phenomenon that relies on a host of information technologies as well as fundamental concepts from computer science developed over a 60-year period. At the core of e-commerce are the Internet and the Web, which we describe in detail in Chapter 3. Underlying these technologies are a host of complementary technologies: cloud computing, desktop computers, smartphones, tablet computers, local area networks, relational and non-relational databases, client/server computing, data mining, and fiber-optic cables, to name just a few. These technologies lie at the heart of sophisticated business computing applications such as enterprise-wide information systems, supply chain management systems, manufacturing resource planning systems, and customer relationship management systems. E-commerce relies on all these basic technologies—not just the Internet. The Internet, while representing a sharp break from prior corporate computing and communications technologies, is nevertheless just the latest development in the evolution of corporate computing and a part of the continuing chain of computer-based innovations in business.

To truly understand e-commerce, you will need to know something about packet-switched communications, protocols such as TCP/IP, client/server and cloud computing, mobile platforms, web servers, HTML5, CSS, and software programming tools such as JavaScript on the client side and Java, PHP, Ruby on Rails, and ColdFusion on the server side. All of these topics are described fully in Part 2 of the book (Chapters 3–5).

BUSINESS: BASIC CONCEPTS

While technology provides the infrastructure, it is the business applications—the potential for extraordinary returns on investment—that create the interest and excitement in e-commerce. New technologies present businesses and entrepreneurs with new ways of organizing production and transacting business. New technologies change the strategies and plans of existing firms: Old strategies are made obsolete, and new ones need to be invented. New technologies are the birthing grounds where thousands of new companies spring up with new products and services. New technologies are also the graveyard

of many traditional businesses. To truly understand e-commerce, you will need to be familiar with some key business concepts, such as the nature of digital markets, digital goods, business models, firm and industry value chains, value webs, industry structure, digital disruption, and consumer behavior in digital markets, as well as basic concepts of financial analysis. We'll examine these concepts further in Chapters 2, 6, 7, and 9 through 12.

SOCIETY: TAMING THE JUGGERNAUT

With more than 4.5 billion people worldwide now using the Internet (many for e-commerce purposes), the impacts of the Internet and e-commerce on society are significant and global. Increasingly, e-commerce is subject to the laws of nations and global entities. You will need to understand the pressures that global e-commerce places on contemporary society in order to conduct a successful e-commerce business or understand the e-commerce phenomenon. The primary societal issues we discuss in this book are individual privacy, intellectual property, and public policy.

Issues surrounding the preservation of privacy—the abilities of individuals to place limits on the type and amount of information collected about them and to control the uses of their personal information—have become one of the leading societal issues related to e-commerce. Read the *Insight on Society* case, *Facebook and the Age of Privacy*, to get a view of some of the ways online businesses use personal information.

Because the cost of distributing digital copies of copyrighted intellectual property, such as music, books, and videos, is nearly zero on the Internet, e-commerce poses special challenges to the various methods societies have used in the past to protect intellectual property rights.

The global nature of e-commerce also poses public policy issues regarding equity, equal access, content regulation, and taxation. For instance, in the United States, public telephone utilities are required under public utility and public accommodation laws to make basic service available at affordable rates so that everyone can have telephone service. Should these laws be extended to the Internet and the Web? If goods are purchased by a New York State resident from a website in California, shipped from a center in Illinois, and delivered to New York State, what state has the right to collect a sales tax? Should some heavy Internet users who consume extraordinary amounts of bandwidth by streaming endless movies be charged extra for service, or should the Internet be neutral with respect to usage? What rights do nation-states and their citizens have with respect to the Internet, the Web, and e-commerce? We address issues such as these in Chapter 8, and also throughout the text.

1.7 CAREERS IN E-COMMERCE

At the beginning of this chapter, in Section 1.1, we explained why studying e-commerce can help you take advantage of future opportunities. Because the digital Internet/e-commerce economy is growing rapidly and is expected to continue to do so, prospects for employment in this area are promising. Employers in this sector are looking for a

INSIGHT ON SOCIETY

FACEBOOK AND THE AGE OF PRIVACY

In a 2010 interview, Mark Zuckerberg, the founder of Facebook, proclaimed that the age of privacy had to come to an end. According to Zuckerberg, people were no longer worried about sharing their personal information online. However, many did not agree with Zuckerberg's vision. Privacy—limitations on what personal information government and private institutions can collect and use—is a founding principle of democracies. A decade's worth of privacy surveys in the United States shows that well over 80% of the public fears that the Internet and social networks such as Facebook are threats to their privacy.

Why, then, do so many people remain Facebook users and continue to share details of their lives on Facebook? Often it's because users do not realize all the data that is being collected about them and the purposes for which that data may be used. Many of Facebook's features and services are enabled by default, and a study by Siegel+Gale found that Facebook's privacy policy is more difficult to comprehend than are government notices or typical bank credit card agreements, which are notoriously dense.

Facebook's business model is based on building a database of billions of users who are encouraged, or perhaps even deceived, into relinquishing control over personal information, which is then sold to advertisers and other third-party developers. The less privacy Facebook's users want or have, the more Facebook profits. Eliminating personal information privacy is built into Facebook's DNA and business model.

Zuckerberg's remarks have haunted Facebook over the past decade as the company has faced continual crises related to privacy. Third-party developers, advertisers, and Facebook employees and executives have known for years about Facebook's practice of sharing users' personal information with whomever would pay, but little of this was known by the public until the so-called Cambridge Analytica scandal that first came to light in 2018. Aleksandr Kogan, a psychology professor at Cambridge University, had obtained permission from Facebook to use the personal information of Facebook users as part of a research project on psychological profiles. Kogan used a personality quiz app that was downloaded by around 300,000 participants to collect the data, which ultimately included information about not only the participants but also about their friends as well as their friends' friends. The result was a database of profiles of more than 87 million Facebook users! Cambridge Analytica, a political and data analytics firm, obtained access to these profiles from Kogan and then used them to target political ads. These revelations led to congressional hearings in which Zuckerberg and other executives apologized for Facebook's failure to enforce its own privacy policies, its failure to recognize the massive drain of personal information on 87 million users, and its failure to protect the privacy of its users.

Public confidence in Facebook was further shaken when it was revealed that Facebook had data-sharing agreements with at least 60 phone and device makers (including Apple, Amazon, Microsoft, and Samsung) that allowed these firms access to virtually all the personal information Facebook collected on its on users. In addition, the personal data of users' friends was also shared, even when these friends had used Facebook's privacy controls to explicitly choose not to have their data shared. For instance, a *New York Times*

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reporter investigated an app called The Hub that let users view all their messages and social media accounts in one location. The investigation revealed that the Hub app could access detailed data about the reporter and 556 of her friends, as well as on 294,000 friends of the reporter's friends, without their consent and without regard to their Facebook privacy settings! Spokespersons for the device makers either declined to comment or claimed they used the information solely to provide an effective user experience.

Not long thereafter, a *Wall Street Journal* exposé revealed that a number of popular smartphone apps shared personal information with Facebook even when the user wasn't a Facebook user and without specifically disclosing that they had done so. For instance, the most popular heart-rate iOS app shared data about a user's heart rate with Facebook immediately after it was recorded. A Realtor.com app sent Facebook the location and price of listings that a user viewed, also noting the user's favorites. Facebook then used the data to personalize ads and content on Facebook. It was also revealed that Facebook had suspended about 10,000 different apps for potentially misusing Facebook users' personal data, raising further questions about Facebook's failures to protect its users' privacy.

In 2020, Facebook was finally forced to pay a price for its failures. A federal court approved a $5 billion fine imposed by the Federal Trade Commission to settle charges that Facebook had violated a previous FTC order requiring Facebook to obtain user consent before overriding user privacy preferences, to stop making false statements about how much information was shared with third-party developers, to stop falsely claiming that users could restrict sharing of data to limited audiences, and to stop falsely claiming that it did not share deep personal information with advertisers. Facebook also had to agree to new restrictions on its business operations and to restructure its approach to privacy, establishing mechanisms that would supposedly ensure that Facebook and its executives would be held accountable for the decisions made about privacy. Critics charged that although the fine was the largest ever imposed on a company for violating consumer privacy, it was largely meaningless, given Facebook's overall revenues and also given Facebook's failure to comply with similar orders in the past.

However, Facebook's future may rely on how it responds to its ethical challenges such as these going forward. Over the last several years, there has been an increasing focus on ethical business practices and a growing awareness that good ethics is good business. The ESG (environmental, social, and governance) movement, which focuses on a company's performance beyond just profit and loss, is gaining increased traction and becoming a strategic business imperative. Facebook says it is taking a number of steps to respond to these challenges. However, given that Facebook's business model relies almost entirely on the largely unfettered use of users' personal information and given its past history and business practices, it is unclear whether Facebook can be trusted.

SOURCES: "Meta Investor Relations: Environmental Social Governance Resources," Investor.fb.com, accessed September 29, 2022; "Meta Platforms Inc. Form 10-K for the fiscal year ended December 31, 2021, Sec.gov, February 3, 2022; "A Timeline of Trouble: Facebook's Privacy Record and Regulatory Fines," Guild.co, August 4, 2021; "Facebook's $5 Billion Privacy Settlement Wins Court Approval," by Ryan Tracy, *Wall Street Journal*, April 24, 2020; "Facebook's Suspension of 'Tens of Thousands' of Apps Reveals Wider Privacy Issues," by Kate Conger, Gabriel Dance, and Mike Isaac, *New York Times*, September 20, 2019; "A $5 Billion Fine for Facebook Won't Fix Privacy," *New York Times*, July 25, 2019; "You Give Apps Sensitive Personal Information. Then They Tell Facebook," by Sam Schechner and Mark Secada, *Wall Street Journal*, February 22, 2019; "Facebook's Latest Problem: It Can't Track Where Much of the Data Went," by Deepa Seetharaman, *Wall Street Journal*, June 27, 2018; "Facebook Gave Device Makers Deep Access to Data on Users and Friends," by Gabriel Dance, Nicholas Confessore, and Michael LaForgian, *New York Times*, June 3, 2018; "Facebook Says Cambridge Analytica Harvested Data of Up to 87 Million Users," by Cecilia Kang and Sheera Frenkel, *New York Times*, April 24, 2018.

wide variety of skills, and having a familiarity with the vocabulary—as well as with the concepts—underlying e-commerce can help you as you interview and also on the job.

To illustrate, we will conclude each chapter with a section that examines an example job posting by an e-commerce company for an entry-level position. We will give you a brief overview of the company, some details about the position, and a list of the qualifications and skills that are typically required and then follow up with some tips about how to prepare for an interview as well as show you how concepts you've learned in the chapter can help you answer some possible interview questions. In this chapter, we look at a job posting from one of the most familiar types of e-commerce companies: an online retailer.

THE COMPANY

The company is a large global retailer that is rapidly expanding its online and mobile operations. The company is seeking to develop omnichannel e-commerce capabilities based on world-class pricing technology, automated warehouses, and an advanced fulfillment program that combines its retail stores with its online and mobile sales. The company has hundreds of different product categories and operates multiple branded websites.

POSITION: CATEGORY SPECIALIST IN THE E-COMMERCE RETAIL PROGRAM

You will manage the performance of your category of products across the firm's websites and apps. More specifically, you will:

- Manage and monitor the introduction of new products and establish processes to ensure they are available at stores and online.
- Improve the online user experiences of browsing and searching for products.
- Manage item and category pages including graphics, customer reviews, and content. Find new ways in which our customers can discover products online.
- Optimize the pricing of our products, and benchmark competitors' prices.
- Analyze product performance, identify key trends, and suggest how the firm can improve its revenues, customer service, and margins.
- Work with cross-functional teams in marketing, customer relationship management, and supply chain management to execute initiatives to optimize category performance.

QUALIFICATIONS/SKILLS

- Bachelor's degree with a strong academic background
- An entrepreneurial attitude
- Strong attention to detail
- Strong communication and teamwork skills
- Strong analytical and critical-thinking skills
- Ability to work in a fast-paced environment, face challenges, and solve problems

- Negotiation and persuasion skills
- Fast learner, with the abilities to absorb information and experiences and then apply them

PREPARING FOR THE INTERVIEW

The first step in preparing for an interview is to do some research about the company you will be interviewing with as well as about the industry in general. Visit the company's websites, apps, and social media presence. It would also be helpful to review Sections 1.2 and 1.3 so that you can demonstrate an understanding of the basic concepts underlying e-commerce, show that you are aware of some of the major trends that will be impacting e-commerce in the coming year, and demonstrate that you are familiar with the basic features underlying e-commerce technology. Being able to talk about the different types of e-commerce (covered in Section 1.4), especially the growing importance of m-commerce, should also be helpful. Before the interview, you should consider where your background, such as courses taken, outside activities, and personal interests, can be useful to the company's business objectives. Reread the position description and identify where you may have unique skills.

POSSIBLE FIRST INTERVIEW QUESTIONS

1. We hope to build an omnichannel presence where consumers can buy our products online or in our physical stores, which will also have in-store kiosks where customers can explore and order products. What challenges do you think you will face when introducing products to an omnichannel store?

You can prepare for this type of question by visiting national retail stores that already have an omnichannel presence and being prepared to report on your experience as a consumer. Some of the key challenges include providing a consistent customer experience across channels, coordinating pricing, and integrating physical store sales teams with efforts from online marketing teams.

2. Based on what you already know about our online presence, how do you think we should expand our online activities?

You could reference the explosive growth in smartphones and m-commerce, as well as the growth in social networks, and suggest that the firm expand its mobile and social network presence.

3. We're finding that quite a few of our customers come to our website to see our offerings and then buy them on Amazon. How do you think our firm can respond to this situation?

You could approach this question by explaining why so many people use Amazon: a great product search engine, an interface that's easy to use, a convenient payment process, Prime shipping, and low prices. This suggests that the firm should develop websites and a mobile app that match Amazon's features.

4. How can our company use social networks such as Facebook, Instagram, TikTok, Twitter, and Pinterest to expand our business?

You could respond to this by noting that social networks are excellent branding and product introduction tools but that purchases are more likely to be made on the company's website.

5. We gather a tremendous amount of personal information about our online customers. What kinds of issues do you think this poses for our company?

You could address this question by referencing the concerns that people have about their private communications, online transactions, and postings being kept private unless they grant permission for the release of this personal information. You may have had some personal experiences online where you felt your privacy was being invaded. Talk about these experiences.

6. Our online sales have grown at about 20% a year for several years. Yet many of our customers also buy from our retail stores, sometimes based on what they see online. Do you think our e-commerce channel will continue expanding at this rate in the future?

You can address this question by pointing out that e-commerce currently is still a relatively small part of total retail commerce and that you therefore believe there is plenty of room for e-commerce to keep growing rapidly in the future. The firm's online presence will likely drive in-store purchases.

7. Have you ever worked on the development of a website or app for a business or started an online business yourself? How did it work out?

Here, you will have to draw on your personal experiences, or those of friends, in using the Web to promote a business. If you've had some experience you can share, be prepared to identify what made these efforts successful as well as what the challenges were and what mistakes you made. Failure is a valuable experience to share with interviewers because it shows you tried. If you have no experience, you can talk about an idea for an e-commerce company that you have thought about and how you would turn it into a successful business.

1.8 CASE STUDY

Uber:

Everything on Demand

If you were asked to pick iconic examples of e-commerce through the years since it began, it is likely that companies such as Amazon, Google, Apple, Facebook, and Netflix would be high on your list. But during the last decade or so, a different breed of e-commerce company, focused on the provision of on-demand services, has muscled its way into the mix.

Uber is perhaps the most well-known company that uses the on-demand service model. Uber's business model differs from traditional retail e-commerce business models. Uber doesn't sell goods. Instead, it created a smartphone app/Internet cloud-based platform that enables people who want taxi services—like hailing a taxi—to find a provider with the resources, such as a personal automobile and a driver with available time, to fill the demand. It's important to understand that although Uber and similar firms are often called "sharing economy" companies, this is a misnomer. Uber drivers are selling their services as drivers and the temporary use of their cars. Uber itself is not in the sharing business, either: It charges a 20% commission on every transaction on its platform. Uber is also not an example of true "peer-to-peer" e-commerce because Uber transactions involve an online intermediary: a third party that provides a platform for, and takes a cut of, all transactions.

Uber offers a compelling value proposition for both customers and drivers. Customers can download the Uber app for free. There is also a specialized app for drivers. To find a ride, the customer opens the app and enters a destination. The app shows an estimated, upfront price for the ride as well as options for vehicle size and estimated drop-off time. The customer then chooses the desired options and confirms the trip. Nearby drivers get an in-app notification on their Driver app and can choose whether to accept the ride request. The customer is automatically notified when the driver's vehicle is about a minute away, thus eliminating the need to stand on a street corner frantically waving, competing with others, or waiting endlessly for an available cab to drive by without knowing when that might happen. Uber provides a variety of payment options, including a stored credit or debit card, Uber Cash (a stored payment method), Apple Pay, Google Pay, PayPal, Venmo, and, in some areas, even cash. At the end of each ride, drivers and riders review the ride based on a five-star rating system. Drivers that fall below a certain rating (4.6/4.5) are warned that they may be dropped if they don't improve. Customers that have high ratings are likely to be prioritized by drivers, who can also refuse to pick up customers with low ratings. Uber's value proposition for drivers is that it allows them to set their own hours, work when they like, and put their own cars to use generating revenue. Today Uber operates in around 10,000 cities in 72 countries around the world, with an estimated 4 million drivers and around 115 million riders per month.

Uber has disrupted the traditional taxi business model because it offers a superior, fast, convenient taxi-hailing service when compared to what traditional taxi companies provide. With a traditional taxi service, there is no guarantee that you will find a cab. Uber significantly reduces that uncertainty, although consumers can still sometimes be impacted by availability issues: During a rainstorm, a convention, or a sports event, when demand peaks, not enough drivers may be available at any price. Uber also charges prices that vary dynamically with demand: the higher the demand, the greater the price of a ride. Therefore, it is impossible using public information to know if Uber's prices are lower than traditional taxi prices. Clearly, in high-demand situations Uber's prices are higher, sometimes 10 times higher, than a regulated taxi's prices. However, there is no regulatory taxi commission setting uniform, per-mile fares.

Uber's business model is also much more efficient than a traditional taxi firm's. Uber has shifted the costs of running a taxi service entirely to the drivers. Uber does not own taxis and does not provide fuel, insurance, or maintenance for its drivers' cars, something that became increasingly problematic in 2022 as fuel prices dramatically escalated. Although Uber began adding a fuel surcharge in March 2022 of between 35 to 55 cents per ride or delivery, drivers said that it was far from adequate. Drivers must also use their own smartphones and cell service. Uber classifies its drivers as independent contractors (often referred to as "gig workers"), not as employees; and rather than paying them a salary, Uber gives drivers a cut of each fare. Doing so enables Uber to avoid costs for social security, workers' compensation, minimum wage requirements, driver training, health insurance, and commercial licensing.

If Uber is the poster child for the on-demand service economy, it's also an iconic example of the social costs and conflicts associated with this kind of e-commerce. The classification of its drivers as independent contractors, which significantly reduces Uber's costs, is currently being challenged in courts, by legislators, and by government agencies in the United States and around the world. Uber is apparently so desperate to

maintain this classification of its drivers that it is backing bills that would classify its drivers as independent contractors in exchange for agreeing not to try to block their efforts to unionize. Uber has also been the target of numerous lawsuits filed on behalf of its drivers, accusing the company of mistreatment, lack of due process, underpayment, and violation of state employment laws.

Even governments find Uber to be a disruptive threat. Governments do not want to give up regulatory control over passenger safety, driver training, or the healthy revenue stream generated by charging taxi firms for a taxi license and sales taxes. Uber has been accused of violating public transportation laws and regulations throughout the world; abusing the personal information it has collected on users of the service; seeking to use personal information to intimidate journalists; failing to protect public safety by refusing to do adequate criminal, medical, and financial background checks on its drivers; taking clandestine actions against its chief U.S.-based competitor, Lyft, in order to disrupt its business; and being tone-deaf to the complaints of its own drivers against the firm's efforts to reduce driver fees. Uber has been banned in several European cities. For instance, in London, Transport for London, the regulatory body that governs taxi services in London, has repeatedly tried to revoke Uber's license to operate, based on concerns about user safety. Currently, Uber is operating under a 30-month license, after adding a number of safety features, such as an in-app panic button. More significantly, the Court of Justice of the European Union, the European Union's most powerful court, has ruled that Uber should be treated as a transportation service—and be subject to all of the existing laws and regulations that apply to such services in the EU member countries in which it operates—rather than as a digital platform not subject to such laws and regulations, as Uber had been attempting to assert.

Critics also fear the long-term impact of on-demand service firms because of their potential for creating a society of part-time, low-paid, temp work displacing traditionally full-time, secure jobs—the so-called "uberization" of work. As one critic put it, Uber is not the Uber for rides as much as it is the Uber for low-paid jobs. A study by the MIT Center for Energy and Environmental Policy Research found that after taking into account costs such as fuel, insurance, maintenance, and repairs, Uber drivers earn less than the minimum wage. Uber contends that it is lowering the cost of transportation, making better use of spare human and financial resources, expanding the demand for ride services, and expanding opportunities for car drivers, whose pay it claims is about the same as that of other taxi drivers. Uber has also taken some remediating steps. It enhanced its app to make it easier for drivers to take breaks while they are on the job. Drivers can now also be paid instantly for each ride they complete rather than weekly and see on the app's dashboard how much they have earned. In addition, Uber added an option to its app that allows passengers to tip its U.S. drivers.

Over the last several years, Uber has been hit by a series of continuing controversies and scandals, creating a public relations nightmare for the company and culminating in the resignation of a number of board members, senior executives, and finally its co-founder and CEO, Travis Kalanick. It was charged with corporate mismanagement and misconduct (including using a secret program known as Greyball to track and evade regulators and other law enforcement officials), workplace discrimination and sexual harassment, and violation of the privacy of its customers by using its mobile app to track the location of those customers at all times, even when the app was not in use.

In December 2021, its former chief security officer was charged with wire fraud in addition to a previous obstruction of justice charge related to his role in an alleged cover-up of a data breach at Uber that exposed approximately 57 million user and driver records. In July 2022, the *Washington Post* announced its participation in an international journalistic investigation into Uber's alleged use of stealth technology to thwart regulators and law enforcement in order to assist its expansion throughout the world. The project is based on more than 124,000 e-mails, text messages, memos, and other records. In a statement in response to the investigation, Uber admitted to "mistakes and missteps," but said it had been transformed under the leadership of its current chief executive, Dara Khosrowshahi.

Despite the controversy surrounding it, Uber continues to attract drivers, customers, and additional investors. In 2019, Uber went public, raising more than $8 billion at a valuation of about $82 billion, which although a staggering amount, was well below the $120 billion value initially floated by its investment bankers. During 2019, Uber's stock price declined significantly, losing almost half its value since the IPO. Then came the Covid-19 pandemic, which had an adverse impact on Uber's business, drastically reducing the demand for ride services. In 2021, it recorded an operating loss of $3.8 billion, and its accumulated deficit rose to an astounding $23.6 billion. It also experienced a shortage of drivers as a result of the pandemic.

Although Uber began business solely as an alternative to traditional taxis, it has expanded its horizons to envisioning itself as a platform for a variety of different services associated with the movement of people and things from one point to another. While its flagship offering is still what it refers to as mobility services that provide rides for consumers in a variety of vehicles, it now also is almost as equally focused on restaurant food delivery services (Uber Eats) and freight services (Uber Freight). It sees itself as the "Amazon" of transportation, with the potential to become the dominant force in all forms of transportation. But Uber faces significant challenges in each of these areas.

In the wake of the pandemic, Uber turned to Uber Eats, its online food-ordering and delivery service, which became much more in demand. In December 2020, after an attempt to acquire food delivery service Grubhub failed to come to fruition, Uber instead acquired competitor Postmates for $2.65 billion. It had previously acquired Careem, a rival in the Middle East, for $31 billion. Uber faces stiff competition in the delivery business, including from DoorDash, Deliveroo, Instacart, Grubhub, and many others. In a sign that Uber may be finding it hard to let go of its dreams of dominating all sorts of transportation-related services, it has announced a variety of new features for Uber Eats that expand its core value proposition. For instance, it has partnered with a direct-to-consumer telehealth company to deliver health and wellness products in 12 markets across the United States via the Uber Eats app. It has also teamed up with digital pharmacy startups to deliver prescription medications. In May 2022, it announced an expansion of its partnerships with Albertsons to include grocery delivery for more than 2,000 Albertsons stores.

One of Uber's newer lines of business is its Uber Freight segment, which it launched in 2017. Uber is aiming to revolutionize the logistics industry in much the same way it revolutionized the ride-hailing business: by providing an on-demand platform to automate logistics transactions. The platform connects shippers with carriers and gives shippers

SOURCES: "Form 10-K for the Fiscal Year Ended December 31, 2021, Uber Technologies, Inc., Sec.gov, February 21, 2023; "About the Uber Files Investigation," by *Washington Post* Staff, Washingtonpost.com, July 11, 2022; "'We Will Not Make Excuses': Uber Responds to Uber Files Leak," Theguardian.com, July 10, 2022; "Uber Granted 30-Month License to Continue Operating in London," by Emma Roth, Theverge.com, March 26, 2022; "Uber Drivers Are Slamming the Company's Fuel Surcharge as 'Woefully Inadequate,'" by Gabrielle Bienasz, Businessinsider.com, March 16, 2022; "Gig Worker-focused Business Models Face a Host of Challenges," by Zak Stambor, Insider Intelligence/eMarketer, March 9, 2022; "Form 10-K for the Fiscal Year Ended December 31, 2021," Uber Technologies, Inc., Sec.gov, February 24, 2022; "Former Uber Security Officer to Face Wire Fraud Charges," by Rhea Patel, Justice.gov, December 22, 2021; "Uber Acquires Food Delivery Service Postmates for $2.65B" by Stephanie Mlot, Pcmag.com, July 6, 2020; "Uber Unveils New Safety Features amid Scathing Report," Cbsnews.com, September 26, 2019; "Culture Crossover: Uber Impact: The Cost and Disruption and Monopoly," by Somrata Sarkar, Techworld.com, May 17, 2019; "How the Promise of a $120 Billion Uber IPO Evaporated," by Mike Isaac, Michael J. de la Merced, and Andrew Ross Sorkin, *New York Times*, May 15, 2019; Eliot Brown, "Uber Wants to Be the Uber of Everything—But Can It Make a Profit?" *Wall Street Journal*, May 4, 2019; "MIT Study Shows How Much Driving for Uber or Lyft Sucks," by Natasha Lomas, Yahoo.com, March 2, 2018; "Uber Dealt Setback after European Court Rules It Is a Taxi Service," by Liz Alderman, *New York Times*, December 20, 2017; "Here's All the Shady Stuff Uber's Been Accused of So Far," by Joe McGauley, Thrillist.com, March 7, 2017; "An Uber Shakedown," *Wall Street Journal*, April 24, 2016;

"Uber Settlement Takes Customers for a Ride," by Rob Berger, *Forbes*, April 22, 2016; "Twisting Words to Make 'Sharing' Apps Seem Selfless," by Natasha Singer, *New York Times*, August 9, 2015; "How Everyone Misjudges the Sharing Economy," by Christopher Mims, *Wall Street Journal*, May 25, 2015; "The On-Demand Economy Is Reshaping Companies and Careers," *The Economist*, January 4, 2015; "The On-Demand Economy: Workers on Tap," *The Economist*, January 3, 2015.

upfront, transparent pricing; the ability to book a shipment with just a few clicks; and the ability to track shipments in real time from pickup to delivery. To date, Uber has invested heavily in its Uber Freight segment, and in 2021, it acquired Transplace, a managed transportation and logistics network, for $2.25 billion. Like Uber's other lines of business, Uber Freight's revenue is growing, particularly as a result of its acquisition of Transplace, but it is still operating at a loss. Uber Freight also faces significant competition from a number of already-entrenched global and North American freight brokers.

In February 2023, Uber released its financial results for 2022. It was in many senses a promising report, as revenue for all of its segments grew by more than 80% compared to 2021, to $31.8 billion. But it once again recorded a loss from operations. Will Uber ever be able to consistently turn a profit?

Case Study Questions

1. How does an on-demand services business model such as Uber's differ from a retail e-commerce business model?
2. What ethical and social issues are raised by Uber and its business model?
3. What unique features of e-commerce technology does Uber's business model rely on?

1.9 REVIEW

KEY CONCEPTS

■ **Understand why it is important to study e-commerce.**

- The next five years hold out exciting opportunities—as well as risks—for new and traditional businesses to exploit digital technology for market advantage. It is important to study e-commerce in order to be able to perceive and understand these opportunities and the risks that lie ahead.

■ **Define e-commerce, understand how e-commerce differs from e-business, identify the primary technological building blocks underlying e-commerce, and recognize major current themes in e-commerce.**

- E-commerce involves digitally enabled commercial transactions between and among organizations and individuals.
- E-business refers primarily to the digital enabling of transactions and processes within a firm, involving information systems under the control of the firm. For the most part, unlike e-commerce, e-business does not involve commercial transactions across organizational boundaries where value is exchanged.
- The technology juggernauts behind e-commerce are the Internet, the Web, and the mobile platform.
- From a business perspective, one of the most important trends to note is that all forms of e-commerce continue to show very strong growth. From a technology perspective, the mobile platform has finally arrived with a bang, driving growth in mobile advertising and making true mobile e-commerce a reality. At a societal level, major issues include privacy and government surveillance, protection of intellectual property, online security, and governance of the Internet.

■ Identify and describe the unique features of e-commerce technology and discuss their business significance.

There are eight features of e-commerce technology that are unique to this medium:

- *Ubiquity*—available just about everywhere and at all times, making it possible to shop from your desktop, at home, at work, or even in your car.
- *Global reach*—permits commercial transactions to cross cultural and national boundaries far more conveniently and cost-effectively than is true in traditional commerce.
- *Universal standards*—shared by all nations around the world, in contrast to most traditional commerce technologies, which differ from one nation to the next.
- *Richness*—enables an online merchant to deliver marketing messages in a way not possible with traditional commerce technologies.
- *Interactivity*—allows for two-way communication between merchant and consumer and enables the merchant to engage a consumer in ways similar to a face-to-face experience but on a much more massive, global scale.
- *Information density*—the total amount and quality of information available to all market participants. The Internet reduces information collection, storage, processing, and communication costs while increasing the currency, accuracy, and timeliness of information.
- *Personalization and customization*—the increase in information density enables a level of personalization and customization unthinkable with previously existing commerce technologies.
- *Social technology*—provides a many-to-many model of mass communications. Millions of users are able to generate content consumed by millions of other users. The result is the formation of social networks on a wide scale and the aggregation of large audiences on social network platforms.

■ Describe the major types of e-commerce.

There are six major types of e-commerce:

- *B2C e-commerce* involves online businesses selling to consumers and is the type of e-commerce that most consumers are likely to encounter.
- *B2B e-commerce* involves online businesses selling to other businesses and is the largest form of e-commerce.
- *C2C e-commerce* is a means for consumers to sell to each other with the help of an online market maker.
- *M-commerce* involves the use of mobile devices to enable online transactions.
- *Social e-commerce* is e-commerce that is enabled by social networks and online social relationships.
- *Local e-commerce* is a form of e-commerce that is focused on engaging consumers based on their current geographic location.

■ Understand the evolution of e-commerce from its early years to today.

E-commerce has gone through three stages: invention, consolidation, and reinvention.

- The early years of e-commerce were a technological success, with the digital infrastructure created during the period solid enough to sustain significant growth in e-commerce during the next decade, and mixed business success, with significant revenue growth and customer usage but low profit margins.
- E-commerce entered a period of consolidation beginning in 2001 and extending into 2006.
- E-commerce entered a period of reinvention in 2007 with the emergence of the mobile platform, social networks, and Web 2.0 applications that attracted huge audiences in a very short time span.

■ Describe the major themes underlying the study of e-commerce.

E-commerce involves three broad, interrelated themes:

- *Technology*—To understand e-commerce, you need a basic understanding of the information technologies upon which e-commerce is built, including the Internet, the Web, the mobile platform, and a host of complementary technologies—cloud computing, desktop computers, smartphones, tablet computers, local area networks, client/server computing, packet-switched communications, protocols such as TCP/IP, web servers, HTML, and relational and non-relational databases, among others.
- *Business*—While technology provides the infrastructure, it is the business applications—the potential for extraordinary returns on investment—that create the interest and excitement in e-commerce. Therefore, you

also need to understand some key business concepts such as digital markets, information goods, business models, firm and industry value chains, industry structure, and consumer behavior in digital markets.

- *Society*—Understanding the pressures that global e-commerce places on contemporary society is critical to being successful in the e-commerce marketplace. The primary societal issues are intellectual property, individual privacy, and public policy.

QUESTIONS

1. What does omnichannel mean in terms of e-commerce presence?
2. What is the deep Web?
3. What are some of the unique features of e-commerce technology?
4. What are some of the factors driving the growth of social e-commerce?
5. Why is it likely that the Internet and e-commerce are entering a period of closer regulatory oversight?
6. How does the ubiquity of e-commerce impact consumers?
7. What impact does the increased interactivity provided by e-commerce technologies have on business?
8. What difficulties are presented in trying to measure the number of web pages in existence?
9. Why is the mobile platform not just a hardware phenomenon?
10. What is conversational commerce and how does it relate to m-commerce?
11. Describe the three different stages in the evolution of e-commerce.
12. Define disintermediation and explain the benefits to Internet users of such a phenomenon. How does disintermediation impact friction-free commerce?
13. What is the difference between a PWA and a regular app?
14. What is driving the growth of social e-commerce?
15. Discuss the ways in which the early years of e-commerce can be considered both a success and a failure.
16. What are five of the major differences between the early years of e-commerce and today's e-commerce?
17. How do the Internet and the Web fit into the development of corporate computing?
18. Why is the term "sharing economy" a misnomer?
19. What have been some of the surprises that have occurred in the evolution of e-commerce?
20. What is the metaverse?

PROJECTS

1. Choose an e-commerce company, and assess it in terms of the eight unique features of e-commerce technology described in Table 1.2. Which of the features does the company implement well, and which features does it implement poorly, in your opinion? Prepare a short memo to the president of the company you have chosen, detailing your findings and any suggestions for improvement you may have.

2. Search online for an example of each of the major types of e-commerce described in Section 1.4 and listed in Table 1.3. Create a presentation or written report describing each company (take a screenshot of each home page, if possible), and explain why it fits into the category of e-commerce to which you have assigned it.

3. Given the development and history of e-commerce in the years 1995–2022, what do you predict we will see during the next five to seven years of e-commerce? Describe some of the technological, business, and societal shifts that may occur as the Internet continues to grow and expand. Prepare a brief presentation or written report to explain your vision of what e-commerce will look like in 2030.

4. Prepare a brief report or presentation on how businesses are using Instagram or another social network of your choosing as a social e-commerce platform.

5. Follow up on events at Uber since February 2023 (when the end-of-chapter case study was prepared). Prepare a short report on your findings.

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