

PART 1

Digital Media and Convergence



Think about the main media technologies in your life ten or fifteen years ago. How did you watch TV shows, listen to music, or read books? How did you communicate with friends?

Now consider this: Apple began selling music through iTunes in 2003; Facebook was born in 2004, but was only opened to everyone in 2006; smartphones debuted in 2007; Hulu and Netflix launched their streaming video services in 2008; the iPad was introduced in 2010; and Apple's Siri first spoke to us in 2011. In just a little over ten years, we have moved from a world where each type of media was consumed separately and in its own distinct format to a world where we can experience every form of mass media content—books, music, newspapers, television, video games—on almost any Internet-connected device.

It used to be that things didn't move so quickly in the world of mass communication. After the world got wired with the invention of the telegraph in the 1840s and the telephone in the 1880s, the two next great electronic mass media were radio, popularized in the 1920s, and television, popularized in the 1950s. And until recently, print media like books, newspapers, and magazines remained much as they were when they were first invented.

The history of mass media has moved from the *emergence* of media to the *convergence* of media. While electronic media have been around for a long time, it is the development of the Web and the emergence of the Internet as a mass medium in the early 1990s that allowed an array of media—text, photos, audio, and video—to converge in one space and be easily shared. But while media have been converging since the early 1990s, in the past ten years we have experienced a great **digital turn**. Ever-growing download speeds and the development of more portable devices, from laptops to smartphones to tablets, have fundamentally changed the ways in which we access and consume media.

The digital turn has made us more fragmented than ever before, but ironically also more connected. We might not be able to count on our friends all having watched the same television show the night before, but Facebook and Twitter have made it easier for us to connect with friends—and strangers—and tell them what we watched, read, and listened to.

How are smartphones being used?



92%
TEXT
MESSAGE



92%
TAKE
PICTURES



84%
ACCESS
INTERNET



80%
SEND
PHOTOS/VIDEOS



76%
E-MAIL



69%
DOWNLOAD
APPS



64%
PLAY
GAMES



64%
PLAY
MUSIC



59%
RECORD
VIDEOS



59%
SOCIAL
NETWORK



54%
WATCH
A VIDEO



45%
POST
PHOTOS/VIDEOS



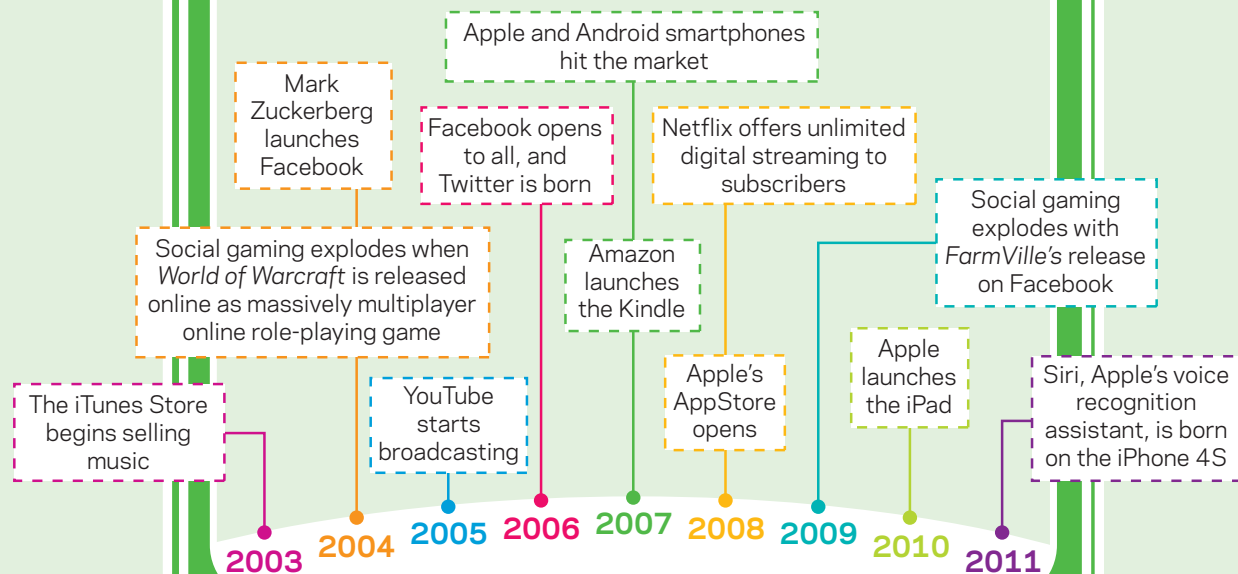
37%
ONLINE
BANKING



15%
ACCESS
TWITTER



13%
VIDEO
CALL/CHAT



1 Do you own a smartphone or tablet? If so, consider how much time you spend using it, and what you use it for.

2 Smartphones and tablets allow us to consume almost all forms of media in one place, anywhere there's an Internet or data connection. What are some possible drawbacks to this?

See Notes for list of sources.

From Emergence to Convergence

While convergence is not a new concept, the digital turn has irrevocably changed the media industries, and our relationship with media.



- The cathode-ray tube, an early innovation in TV technology (Chapter 6, page 197), also played a part in the start of the Internet, as well as electronic gaming (Chapter 3, page 82).
- The development of the Internet went from wired to wireless (Chapter 2, page 58), much like the shift from the telegraph to radio (Chapter 5, pages 158–160).
- The PC and wireless Internet may have started media convergence, but the smartphone and tablet are responsible for the digital turn—where all media can be consumed on one device anywhere and anytime (Chapter 2, page 58).
- Today's video game console is no longer just for playing games—it can be a connection to the Internet, a digital video recorder, and a music and video player (Chapter 3, page 87).
- New times equal new formats. For example, a newspaper is still a medium for news, except it's increasingly less likely to be read on paper (Chapter 8, pages 304–305).

The New Media Conglomerates?

The digital turn has put corporations like Amazon, Apple, Facebook, and Google at the forefront of our media.



- These digital corporations might not produce media content, but they are involved in distributing *all* media (Chapter 13, pages 468–469).
- Apple, Google, Amazon, and Facebook are becoming major players in electronic gaming too (Chapter 3, page 110).
- But it's not all about the conglomerates. The digital turn also allows other, more nimble companies to rise depending on how well they connect with the social culture of digital users (Chapter 13, page 469).

Digital Media and Privacy Concerns

The massive amount of personal information flowing around the Internet puts our privacy at risk.

- Media companies have long used personal information in our Internet searches, e-mail, and social networking profiles to provide us with targeted ads (Chapter 2, page 66).
- But now with smartphones, it's easier than ever for media corporations to find out more about our private lives—even where we are at this precise moment (Chapter 2, pages 66–68).
- Who decides what information is legal for companies to use, and what isn't (Chapter 16, pages 570–573)?



The Digital Turn and Democracy

The old world of media was mostly a one-way street. As mass media users today, we have more power than ever.

- If we don't like what we see or read, we can easily provide immediate feedback—or better yet, create our own content (Chapter 2, page 52).
- But are Internet users, particularly in the closed world of apps, only seeking out those with similar interests and viewpoints (Chapter 2, pages 66–68)?
- Independent video game creators are now able to create games outside the über-popular first-person-shooter games (Chapter 3, page 110).
- And in journalism, blogging and citizen journalism are prime examples of how convergence and the Internet have allowed for more voices (Chapter 14, pages 507–510).



For more on Internet users creating their own content, watch the “User-Generated Content” video on *VideoCentral: Mass Communication* at bedfordstmartins.com/mediaculture.



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In the mountains of North Carolina, four springtime hikers reported missing in the evening were back to safety by midnight. In a rugged park near the San Francisco Bay, two other hikers, lost after dark, were promptly found by a California Highway Patrol helicopter. In both cases, the hikers could have suffered from hypothermia, lack of food and water, and the scare of their lives. The key to their speedy rescue was a device from their more urban lives—their mobile phones, which had Global Positioning System (GPS) technology. The lost hikers simply had to call an emergency number, and rescuers found the lost callers using the latitude and longitude coordinates transmitted from the phone's built-in GPS signal.

Around the world, hikers with mobile phones are no longer lost—at least as long as their batteries last, and if they can find a signal. In the wilderness of Albuquerque, New Mexico, the rate of search and rescue missions in the area has dropped

by more than half over the past decade as people use GPS to find their own way out. In Tasmania, Australia, local authorities retired their team of trained search and rescue dogs after mobile phones with GPS reduced the need for search missions for missing bushwalkers. “Everybody carries a mobile phone now, and the service is pretty good in most areas—if you are lost you can often climb to the top of a hill and get service,” said the founder of Search and Rescue Dogs of Tasmania.¹

Back in the cities and suburbs, mobile phones with GPS are less like survival tools and more like life trackers. On services like Facebook, Twitter, and Instagram, you can share, with precise coordinates, where you are, where you’ve been, and where your photos were taken. In fact, some of these services automatically geo-tag the location of photos and posts. As it turns out, sharing your every move on social media becomes much more valuable when you have GPS—to you, to your friends, and to advertisers. Several companies, such as Four-square, Yelp, and Poynt, encourage users to check in at local business locations, earn points and savings, and share their reviews, recommendations, and locations with friends. Poynt combines GPS location data with users’ search terms to more precisely target

consumers with location-based advertising. “We know where your customer is and what they are looking for so that you can tailor your advertising message accordingly,” Poynt notes. But what is a boon for advertisers and customers—more specific, and therefore more useful, ads—needs to be balanced against concerns of too much consumer surveillance. Even though consumers are volunteering their location by allowing their social media posts to be geo-tagged or by using location-based services, some are balking at the idea of advertisers and their mobile phone companies collecting and even saving this information.

Wireless mobile technologies change our relationship with the Internet. It used to be that we would sit down, log on, and go “on” the Internet. Now, the Internet goes with us, and knows, at every moment, where we are.



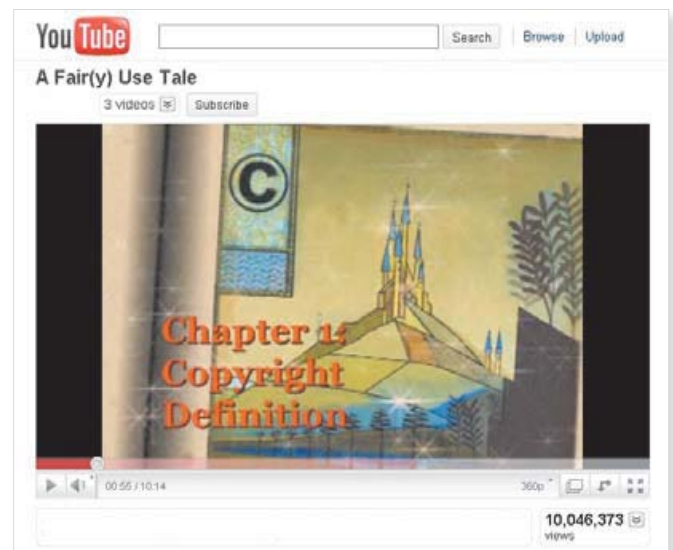
“We may be on the go, but now we aren’t disconnected from the mass media—we take it with us.”

▲ **THE INTERNET**, the vast network of telephone and cable lines, wireless connections, and satellite systems designed to link and carry digital information worldwide, was initially described as an *information superhighway*. This description implied that the goal of the Internet was to build a new media network, a new superhighway, to replace traditional media (e.g., books, newspapers, television, and radio), the old highway system. In many ways, the original description of the Internet has turned out to be true. The Internet has expanded dramatically from its initial establishment in the 1960s to an enormous media powerhouse that encompasses—but has not replaced—all other media today.

In this chapter, we examine the many dimensions of the Internet, digital media, and convergence. We will:

- Review the birth of the Internet and the development of the Web
- Provide an overview of the key features of the Internet, including instant messaging, search engines, and social media
- Discuss the convergence of the Internet with mobile media, such as smartphones and tablets, and how the Internet has changed our relationship with media
- Examine the economics of the Internet, including the structure of the “open web” vs. the “closed web,” ownership issues, and the four leading Internet companies
- Investigate the critical issues of the Internet such as targeted advertising, free speech, security, net neutrality, and access

As you read through this chapter, think back to your first experiences with the Internet. What was your first encounter like? What were some of the things you remember using the Internet for then? How did it compare with your first encounters with other mass media? How has the Internet changed since your first experiences with it? For more questions to help you think through the role of the Internet in our lives, see “Questioning the Media” in the Chapter Review.



▲
YOUTUBE is the most popular Web site for watching videos online. Full of amateur and home videos, the site now partners with mainstream television and movie companies to provide professional content as well (a change that occurred after Google bought the site in 2006).

Past-Present-Future: The Internet

From its inception, the Internet’s main purpose has been for sharing information. In the 1960s, U.S. Defense Department researchers developed the forerunner of today’s Internet as a way for military and academic researchers at various locations to share access to computers (which were bulky and expensive at the time). Soon, the researchers invented e-mail to share ideas and documents, and with the development of personal computers in the 1970s, the network grew to include more users at universities and research labs.

Today, sharing on the Internet is made easy with mobile devices and the ever-present social media “share” buttons. But perhaps we share a little *too* easily. The Internet economy is based on us sharing unprecedented amounts of information—our search interests, our e-mail content, our messages to friends, our photos, our birthdays, our musical tastes, our shopping habits—that companies like Google, Facebook, Apple, and Amazon track to better advertise and

sell more products to us. Of course, Internet companies often give us free services—e-mail, social networks, search engines, apps—in exchange, but often we have no idea just how much of ourselves we are sharing. Conversely, when we share intellectual property, such as copyrighted music, movies, books, and images, we are monitored and tracked as well, and notified quickly of the inappropriate use.

The future debates about the Internet will continue to be about the nature of sharing on it. For example, should there be limits on the types and amount of personal data companies can compile on us through the Internet? In a digital world, should we be able to share small amounts of copyrighted music and images on the Internet as easily as we can currently quote and share text? Should all of us—individuals, small organizations, and large corporations—all be able to share equal access to the Internet at the same, reasonable cost? Should we be able to share anything on the Internet, even if it might offend some people? The answers to all of these questions about our rights to share (or not to share) on the Internet are essential to its function not only as an economic environment, but also as a democratic medium.

The Development of the Internet and the Web

“The dream behind the Web is of a common information space in which we communicate by sharing information. Its universality is essential: the fact that a hyper-text link can point to anything, be it personal, local, or global, be it draft or highly polished.”

TIM BERNERS-LEE,
INVENTOR OF THE
WORLD WIDE WEB,
2000

From its humble origins as a military communications network in the 1960s, the **Internet** became increasingly interactive by the 1990s, allowing immediate two-way communication and one-to-many communication. By the 2000s, the Internet was a multimedia source for both information and entertainment as it quickly became an integral part of our daily lives. For example, in 2000, about 50 percent of American adults were connected to the Internet; by 2012 about 80 percent of American adults used the Internet.²

The Birth of the Internet

The Internet originated as a military-government project, with computer time-sharing as one of its goals. In the 1960s, computers were relatively new and there were only a few of the expensive, room-sized mainframe computers across the country for researchers to use. The Defense Department’s Advanced Research Projects Agency (ARPA) developed a solution to enable researchers to share computer processing time starting in the late 1960s. This original Internet—called **ARPAnet** and nicknamed the Net—enabled military and academic researchers to communicate on a distributed network system (see Figure 2.1 on page 47). First, ARPA created a wired network system in which users from multiple locations could log into a computer whenever they needed it. Second, to prevent logjams in data communication, the network used a system called *packet switching*, which broke down messages into smaller pieces to more easily route them through the multiple paths on the network before reassembling them on the other end.

The Internet, Digital Media, and Media Convergence

Digital Technology

In the late 1940s, images, texts, and sounds are first converted into “binary code”—ones and zeros—vastly improving the rate at which information is stored and reproduced (p. 58).

Microprocessors

These miniature computer circuits, developed in 1971, enable personal computers to be born. PCs become increasingly smaller, cheaper, and more powerful (p. 48).



NSF Network

In 1982, the National Science Foundation bankrolls a high-speed communications network, connecting computers across the country (p. 48).

1940 • 1950 • 1960 • 1970 • 1980



ARPAnet

The U.S. Defense Department begins research in the late 1960s on a distributed communication network—the groundwork for the Internet (p. 46).

E-mail

The process by which electronic messages are sent from computer to computer on a network is first developed in the early 1970s, revolutionizing modes of communication (p. 48).

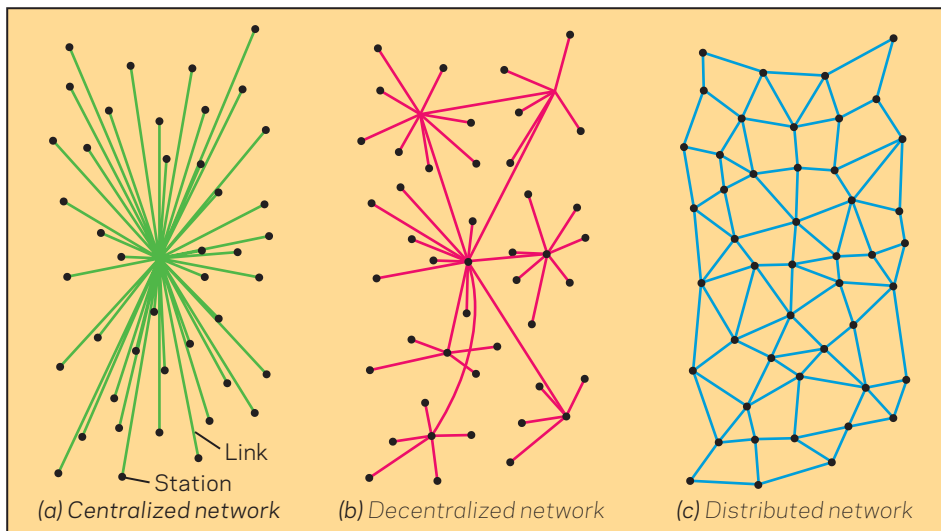
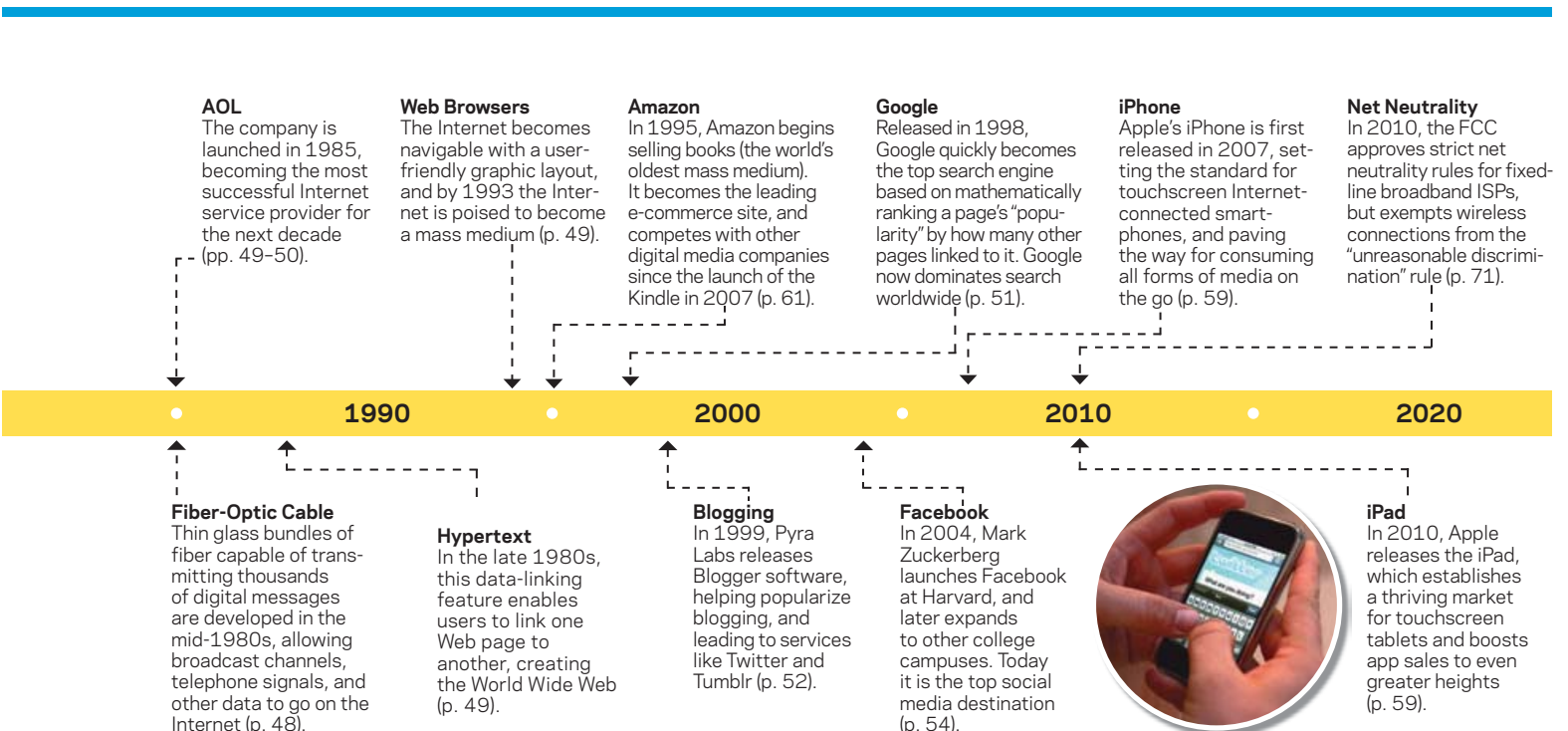


FIGURE 2.1
DISTRIBUTED NETWORKS

In a centralized network (a) all the paths lead to a single nerve center. Decentralized networks (b) contain several main nerve centers. In a distributed network (c), which resembles a net, there are no nerve centers; if any connection is severed, information can be immediately rerouted and delivered to its destination. But is there a downside to distributed networks when it comes to the circulation of network viruses?

Source: Katie Hafner and Matthew Lyon, *Where Wizards Stay Up Late* (New York: Simon & Schuster, 1996).

Ironically, one of the most hierarchically structured and centrally organized institutions in our culture—the national defense industry—created the Internet, possibly the least hierarchical and most decentralized social network ever conceived. Each computer hub in the Internet has similar status and power, so nobody can own the system outright and nobody has the power to kick others off the network. There isn't even a master power switch, so authority figures cannot shut off the Internet—although as we will discuss later, some nations and corporations have attempted to restrict access for political or commercial benefit.



To enable military personnel and researchers involved in the development of ARPAnet to better communicate with one another from separate locations, an essential innovation during the development stage of the Internet was **e-mail**. It was invented in 1971 by computer engineer Ray Tomlinson, who developed software to send electronic mail messages to any computer on ARPAnet. He decided to use the @ symbol to signify the location of the computer user, thus establishing the “login name@host computer” convention for e-mail addresses.

At this point in the development stage, the Internet was primarily a tool for universities, government research labs, and corporations involved in computer software and other high-tech products to exchange e-mail and to post information. As the use of the Internet continued to proliferate, the entrepreneurial stage quickly came about.

The Net Widens

From the early 1970s until the late 1980s, a number of factors (both technological and historical) brought the Net to the entrepreneurial stage, in which the Net became a marketable medium. The first signal of the Net’s marketability came in 1971 with the introduction of **microprocessors**, miniature circuits that process and store electronic signals. This innovation facilitated the integration of thousands of transistors and related circuitry into thin strands of silicon along which binary codes traveled. Using microprocessors, manufacturers were eventually able to introduce the first *personal computers (PCs)*, which were smaller, cheaper, and more powerful than the bulky computer systems of the 1960s. With personal computers now readily available, a second opportunity for marketing the Net came in 1986, when the National Science Foundation developed a high-speed communications network (NSFNET) designed to link university research computer centers around the country and also encourage private investment in the Net. This innovation led to a dramatic increase in Internet use and further opened the door to the widespread commercial possibilities of the Internet.

In the mid-1980s, **fiber-optic cable** became the standard for transmitting communication data speedily. Featuring thin glass bundles of fiber capable of transmitting thousands of messages simultaneously (via laser light), fiber-optic cables began replacing the older, bulkier copper

“A fiber the size of a human hair can deliver every issue ever printed of the *Wall Street Journal* in less than a second.”

NICHOLAS
NEGROPONTE, *BEING
DIGITAL*, 1995

COMMODORE 64

This advertisement for the Commodore 64, one of the first home PCs, touts the features of the computer. Although it was heralded in its time, today’s PCs far exceed its abilities.

3 printers, printer plotter, cassette unit, single disk drive, monitor, joystick, paddles, a vast range of software (business, home, educational, games) and a 64k memory.

Plus excellent sprite graphics and amazing music synthesis capabilities.

About the only thing the Commodore 64 doesn't have is any serious competition.

THE COMMODORE 64 CANNOT BE USED FOR LEGAL PURPOSES WITHOUT THE NECESSARY PERMISSION FROM THE COMMODORE CORPORATION. FOR FURTHER INFORMATION PLEASE TELEPHONE OR WRITE TO THE COMMODORE CORPORATION, 11550 E. BROADWAY, DENVER, COLORADO 80231. TEL: (303) 755-2000.

COMMODORE 64 ☐ MONITOR ☐ CASSETTE UNIT ☐ PRINTER/PRINTER PLOTTER ☐ DISK DRIVE ☐ SOFTWARE

NAME _____ ADDRESS _____

COMMODORE

wire used to transmit computer information. This development made the commercial use of computers even more viable than before. With this increased speed, few limits exist with regard to the amount of information that digital technology can transport.

With the dissolution of the Soviet Union in the late 1980s, the ARPAnet military venture officially ended. By that time, a growing community of researchers, computer programmers, amateur hackers, and commercial interests had already tapped into the Net, creating tens of thousands of points on the network and the initial audience for its emergence as a mass medium.

The Commercialization of the Internet

The introduction of the World Wide Web and the first web browsers, Mosaic and Netscape, in the 1990s helped transform the Internet into a mass medium. Soon after these developments, the Internet quickly became commercialized, leading to battles between corporations vying to attract the most users, and others who wished to preserve the original public, nonprofit nature of the Net.

The World Begins to Browse

Prior to the 1990s, most of the Internet's traffic was for e-mail, file transfers, and remote access of computer databases. The **World Wide Web** (or the Web) changed all of that. Developed in the late 1980s by software engineer Tim Berners-Lee at the CERN particle physics lab in Switzerland to help scientists better collaborate, the Web was initially a text data-linking system that allowed computer-accessed information to associate with, or link to, other information no matter where it was on the Internet. Known as *hypertext*, this data-linking feature of the Web was a breakthrough for those attempting to use the Internet. **HTML (hypertext markup language)**, the written code that creates Web pages and links, is a language that all computers can read, so computers with different operating systems, such as Windows or Macintosh, can communicate easily. The Web and HTML allow information to be organized in an easy-to-use nonlinear manner, making way for the next step in using the Internet.

The release of Web **browsers**—the software packages that help users navigate the Web—brought the Web to mass audiences. In 1993, computer programmers led by Marc Andreessen at the National Center for Supercomputing Applications (NCSA) at the University of Illinois in Urbana-Champaign released Mosaic, the first window-based browser to load text and graphics together in a magazine-like layout, with attractive fonts and easy-to-use back, forward, home, and bookmark buttons at the top. In 1994, Andreessen joined investors in California's Silicon Valley to introduce a commercial browser, Netscape. As *USA Today* wrote that year, this “new way to travel the Internet, the World Wide Web,” was “the latest rage among Net aficionados.”³ The Web soon became everyone else's rage, too, as universities and businesses, and later home users, got connected.

As the Web became the most popular part of the Internet, many thought that the key to commercial success on the Net would be through a Web browser. In 1995, Microsoft released its own Web browser, Internet Explorer; and within a few years, Internet Explorer—strategically bundled with Microsoft operating system software—overtook Netscape as the most popular Web browser. Today, Firefox and Google's Chrome are the top browsers, with Internet Explorer, Apple's Safari, and Opera as the leading alternatives.

Users Link In through Telephone and Cable Wires

In the first decades of the Internet, most people connected to “cyberspace” through telephone wires. AOL (formerly America Online) began connecting

WEB BROWSERS

The GUI (graphical user interface) of the World Wide Web changed overnight with the release of Mosaic in 1993 (above). As the first popular Web browser, Mosaic unleashed the multimedia potential of the Internet. Mosaic was the inspiration for the commercial browser Netscape, which was released in 1994.



millions of home users in 1985 to its proprietary Web system through dial-up access, and quickly became the United States' top **Internet service provider (ISP)**. AOL's success was so great that by 2001, the Internet startup bought the world's largest media company, Time Warner—a deal that shocked the industry and signaled the Internet's economic significance as a vehicle for media content. As **broadband** connections, which can quickly download multimedia content, became more available (about 66 percent of all American households had such connections by 2012), users moved away from the slower telephone dial-up ISP service (AOL's main service) to high-speed service from cable, telephone, or satellite companies.⁴ By 2007, both AT&T (offering DSL and cable broadband) and Comcast (cable broadband) surpassed AOL in numbers of customers. Today, other major ISPs include Verizon, Time Warner Cable, CenturyLink, Charter, and Cox. These are accompanied by hundreds of local services, many offered by regional telephone and cable companies that compete to provide consumers with access to the Internet.

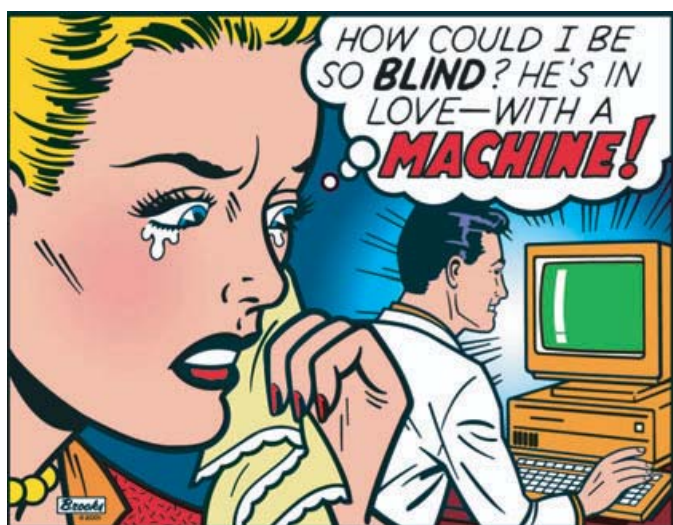


People Embrace Digital Communication

In **digital communication**, an image, text, or sound is converted into electronic signals represented as a series of binary numbers—ones and zeros—which are then reassembled as a precise reproduction of an image, text, or sound. Digital signals operate as pieces, or bits (from *B*inary *d*ig-*i*ts), of information representing two values, such as yes/no, on/off, or 0/1. For example, a typical compact disc track uses a binary code system in which zeros are microscopic pits in the surface of the disc and ones are represented on the unpitted surface. Used in various combinations, these digital codes can duplicate, store, and play back the most complex kinds of media content.

In the early days of e-mail, the news media constantly marveled at the immediacy of this new form of communication. Describing a man from Long Island e-mailing a colleague on the Galapagos Islands, the *New York Times* wrote in 1994 that his “magical new mailbox is inside his personal computer at his home, and his correspondence with the Galapagos now travels at the speed of electricity over the global computer network known as the Internet.”⁵ Other news media accounts worried about the brevity of e-mail interchanges, the loss of the art of letter writing, and the need for “netiquette,” the manners of cyberspace. An e-mail sent by President Clinton in 1994 “COMPOSED ENTIRELY OF CAPITAL LETTERS” was reported as a “cardinal breach of netiquette.”⁶

E-mail was one of the earliest services of the Internet, and people typically used the e-mail services connected to their ISPs before major Web corporations such as Google, Yahoo!, and Microsoft (Hotmail) began to offer free Web-based e-mail accounts to draw users to their sites; each now has millions of users. Today, all of the top e-mail services also include advertisements in their users' e-mail messages, one of the costs of the “free” e-mail accounts. Google's Gmail goes one step further by scanning messages to dynamically match a relevant ad to the text each time an



e-mail message is opened. Such targeted advertising has become a hallmark feature of the Internet.

As with e-mail, **instant messaging**, or IM, offered both a fascinating and troubling new part of media culture in the late 1990s. Teenagers were among the first to gravitate to IM and chat rooms, develop multitasking skills so they could IM multiple friends simultaneously, and discover that sometimes it was easier talking with friends online than face to face. In the early days of IM, there were concerns over the supposed lack of substance in IM conversations (was telephone dialogue any different?), and from teens talking to unseen strangers who might be asking them “What are you wearing?”⁷ But as businesses found ways to integrate IM into the office culture, and as IM became as integrated as e-mail into our everyday lives, these worries subsided.

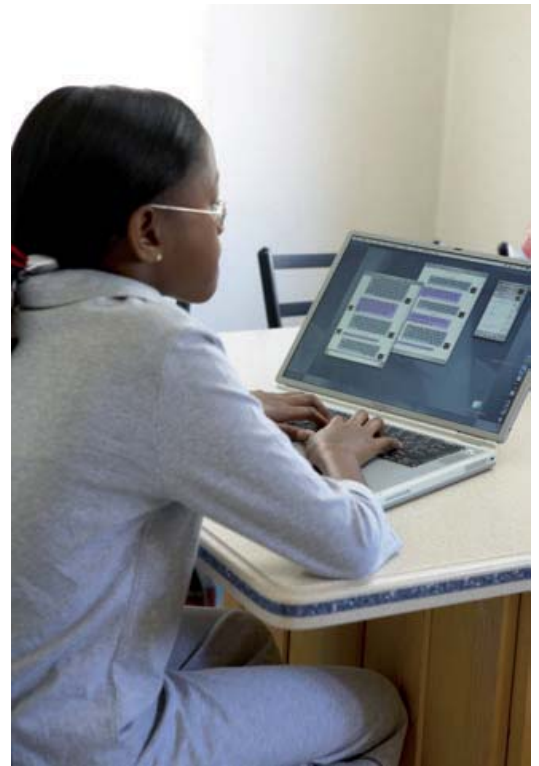
IM remains the easiest way to communicate over the Internet in real time and has become increasingly popular as a smartphone and tablet app, with free IM services supplanting costly text messages. Major IM services—many with voice and video chat capabilities—include AOL Instant Messenger (AIM), Microsoft’s Messenger, Yahoo!’s Messenger, Apple’s iChat, Skype (owned by eBay), Gmail’s Chat, and Facebook Chat. IM users fill out detailed profiles when signing up for the service, providing advertisers with multiple ways to target them as they chat with their friends.

Search Engines Organize the Web

As the number of Web sites on the Internet quickly expanded, companies seized the opportunity to provide ways to navigate this vast amount of information by providing directories and search engines. One of the more popular search engines, Yahoo!, began as a directory. In 1994, Stanford University graduate students Jerry Yang and David Filo created a Web page—“Jerry and David’s Guide to the World Wide Web”—to organize their favorite Web sites, first into categories, then into more and more subcategories as the Web grew. At that point, the entire World Wide Web was almost manageable, with only about twenty-two thousand Web sites. (By 2008, Google announced it had indexed more than one trillion Web pages, up from one billion in 2000.) The guide made a lot of sense to other people, and soon enough Yang and Filo renamed it the more memorable “Yahoo!”

Eventually, though, having employees catalog individual Web sites became impractical. **Search engines** offer a more automated route to finding content by allowing users to enter key words or queries to locate related Web pages. Search engines are built on mathematic algorithms, and the earliest ones directed them to search the entire Web and look for the number of times a key word showed up on a page. Soon search results were corrupted by Web sites that tried to trick search engines in order to get ranked higher on the results list. One common trick was to embed a popular search term in the page, often typed over and over again in the tiniest font possible and in the same color as the site’s background. Although users didn’t see the word, the search engines did, and they ranked the page higher.

Google, released in 1998, became a major success because it introduced a new algorithm that mathematically ranked a page’s “popularity” on the basis of how many other pages linked to it. Users immediately recognized Google’s algorithm as an improvement, and it became the favorite search engine almost overnight. Google also moved to maintain its search dominance with its Google Voice Search and Google Goggles apps, which allow smartphone users to conduct searches by voicing search terms or by taking a photo. By 2012, Google’s market share accounted for 66.5 percent of searches in the United States, while Microsoft’s Bing claimed about 15.4 percent and Yahoo!’s share was 13.5 percent.⁸



INSTANT MESSAGING

With early IM services like AOL Instant Messenger (http://en.wikipedia.org/wiki/AOL_Instant_Messenger [AIM]), users could bounce from chat room to chat room, sporting screen names that were often comical or ambiguous. Today, instant messaging is one of the principal modes of communication in professional settings.

“When search first started, if you searched for something and you found it, it was a miracle. Now, if you don’t get exactly what you want in the first three results, something is wrong.”

UDI MANBER, GOOGLE ENGINEER, 2007

“The rituals of social media, it seems, make status-seekers and exhibitionists of us all.”

ROSS DOUTHAT,
NEW YORK TIMES,
2011

VideoCentral 
Mass Communication
bedfordstmartins.com
/mediaculture



The Rise of Social Media

Media experts discuss how social media are changing traditional media.

Discussion: Some consider the new social media an extension of the very old oral form of communication. Do you agree or disagree with this view? Why or why not?

The Web Goes Social

Aided by faster microprocessors, high-speed broadband networks, and a proliferation of digital content, the Internet has become more than just an information source in its second decade as a mass medium. The second generation of the Internet is a much more robust and social environment, having moved toward being a fully interactive medium with user-created content like blogs, Tumblrs, YouTube videos, Flickr photostreams, Photobucket albums, social networking, and other collaborative sites. In the words of law professor and media scholar Lawrence Lessig, we have moved from a “Read/Only” culture on the Internet, in which users can only read content, to a “Read/Write” culture, in which users have power not only to read content but also to develop their own.⁹ It’s the users who ultimately rule here, sharing the words, sounds, images, and creatively edited music remixes and mash-up videos that make these Web communities worth visiting.

What Are Social Media?

While it can be difficult to apply a singular definition to **social media**, given that they are a fairly new form of media that is still growing, practitioners and researchers have offered several ways of describing the world of social media, including:

- A venue for social interaction—a place where people can share creations, tell stories, and interact with others¹⁰
- Multiplatform, participatory, and digital . . . an essential feature of truly democratic public life¹¹
- Platforms that enable the interactive Web by engaging users to participate in, comment on, and create content as a means of communicating with their social graph, other users, and the public¹²

Ironically, social media are a throwback to an older era of the Internet (the 1980s to the early 1990s) when bulletin boards and personal Web pages served as platforms for users to exchange information with other users.¹³ Now, greater Internet bandwidth, inexpensive digital tools and mobile devices, and a generation willing to develop and share their own media content online have given rise to new kinds of social media. Social media have become a new distribution system for media as well, challenging the one-to-many model of traditional mass media with the many-to-many model of social media.

Types of Social Media

In less than a decade, a number of different types of social media have evolved, with multiple platforms for the creation of user-generated content. European researchers Andreas M. Kaplan and Michael Haenlein identify six categories of social media on the Internet: blogs, collaborative projects, content communities, social networking sites, virtual game worlds, and virtual social worlds.

Blogs

Years before there were status updates or Facebook, **blogs** enabled people to easily post their ideas to a Web site. Popularized with the release of Blogger (now owned by Google) in 1999, blogs contain articles or posts in chronological, journal-like form, often with reader comments

and links to other sites. Blogs can be personal or corporate multimedia sites, sometimes with photos, graphics, podcasts, and video. By 2012, there were at least 182 million blogs, the most common topics being personal accounts, movies/TV, sports, and politics.¹⁴ Some blogs have developed into popular news and culture sites, such as the *Huffington Post*, *TechCrunch*, *Mashable!*, *Gawker*, *Engadget*, *HotAir*, *ThinkProgress*, and *TPM-Muckraker*.

Blogs have become part of the information and opinion culture of the Web, giving regular people and citizen reporters a forum for their ideas and views, and providing a place for even professional journalists to informally share ideas before a more formal news story gets published. Some of the leading platforms for blogging include Blogger, WordPress, Tumblr, Weebly, and Wix. But by 2012, the most popular form of blogging was microblogging, with about 140 million active users on Twitter, sending out 340 million tweets (a short message with a 140-character limit) per day.¹⁵ Twitter users often follow the feeds of friends, businesses, politicians, or celebrities—like Lady Gaga, the most followed Twitterer in 2012.

Collaborative Projects

Another Internet development involves collaborative projects in which users build something together, often using *wiki* (which means “quick” in Hawaiian) technology. **Wiki Web sites** enable anyone to edit and contribute to them. There are several large wikis, such as Wikitravel (a global travel guide), WikiMapia (combining Google Maps with wiki comments), and WikiLeaks (an organization publishing sensitive documents leaked by anonymous whistleblowers). WikiLeaks gained notoriety for its release of thousands of United States diplomatic cables and other sensitive documents beginning in 2010 (see p. 514 in Chapter 14). But the most notable wiki is Wikipedia, an online encyclopedia launched in 2001 that is constantly updated and revised by interested volunteers. All previous page versions of Wikipedia are stored, allowing users to see how each individual topic develops. The English version of Wikipedia is the largest, containing about four million articles, but Wikipedias are also being developed in 284 other languages.

Businesses and other organizations have developed social media platforms for specific collaborative projects. Tools like Basecamp and Podio provide social media interfaces for organizing project and event-planning schedules, messages, to-do lists, and workflows. Kickstarter is a popular fund-raising tool for creative projects like books, recordings, and films. InnoCentive is a crowd-sourcing community that offers award payments for people who can solve business and scientific problems. And change.org has become an effective petition project to push for social change. For example, in 2012 a high school student from Michigan began a campaign that gained more than 500,000 signatures to persuade the MPAA to change the rating of the movie *Bully* from R to PG-13 so younger people could see it.

Content Communities

Content communities are the best examples of the many-to-many ethic of social media.

Content communities exist for the sharing of all types of content from text (fanfiction.net) to photos (Flickr and Photobucket) and videos (YouTube, Vimeo). YouTube, created in 2005 and bought by Google in 2006, is the most well-known content community, with hundred of millions of users around the world uploading and watching amateur and professional videos. YouTube gave rise to the viral video—a video that becomes immediately popular by millions sharing it through social media platforms. The most popular video of all time—a fifty-six-second home



THE HUFFINGTON POST, one of the top blogs today, aggregates the latest news in a wide variety of areas ranging from politics and the environment to style and entertainment. Recently, the site launched Twitter editions, gathering the most relevant and interesting Twitter feeds in one place for each of the site's nineteen sections.



KICKSTARTER.COM has featured almost 64,000 creative projects since its launch in 2008. According to Kickstarter's raw data, 44 percent of these, or nearly 27,000 projects, were successfully funded. Some notable successes include an Oscar-nominated short documentary, a contemporary art exhibit featured in the Museum of Modern Art in 2011, and a highly anticipated smartwatch (<http://en.wikipedia.org/wiki/Smartwatch>) for iPhone and Android.

video titled “Charlie bit my finger—again!” has more than 457 million views. By 2012, YouTube reported that nearly sixty hours of video are uploaded to the site every minute, and its worldwide users generate four billion views per day.

Social Networking Sites

Perhaps the most visible examples of social media are **social networking sites** like MySpace, Facebook, LiveJournal, Hi5, Bebo, Orkut, LinkedIn, and Google+. On these sites, users can create content, share ideas, and interact with friends.

MySpace, founded in 2003, was the first big social media site. In addition to personal profiles, MySpace was known for its music listings, with millions of artists setting up profiles to promote their music, launch new albums, and allow users to buy songs. Its popularity with teens made it a major site for online advertising. That popularity attracted the attention of media conglomerate News Corp., which

bought MySpace in 2005. But with competition from Facebook, by 2009 interest in MySpace was waning, and News Corp. sold it in 2011.

Facebook is now the most popular social media site on the Internet. Started at Harvard in 2004 as an online substitute to the printed facebook the school created for incoming first-year students, Facebook was instantly a hit. The site enables users to construct personal profiles, upload photos, share music lists, play games, and post messages to connect with old friends and meet new ones. Originally, access was restricted to college students, but in 2006 the site expanded to include anyone. Soon after, Facebook grew at an astonishing rate, and by 2012 it had more than one billion active users and was available in more than seventy languages.

In 2011, Google introduced Google+, a social networking interface designed to compete with Facebook. Google+ enables users to develop distinct “circles,” by dragging and dropping friends into separate groups, rather than having one long list of friends. In response, Facebook created new settings to enable users to control who sees their posts.

Virtual Game Worlds and Virtual Social Worlds

Virtual game worlds and virtual social worlds invite users to role-play in rich 3-D environments, in real-time, with players throughout the world. In virtual game worlds (also known as massively multiplayer online role-playing games, or MMORPGs) such as *World of Warcraft* and *Star Wars: The Old Republic*, players can customize their online identity, or avatar, and work with others through the game's challenges. Community forums for members extend discussion and shared play outside of the game. Virtual social worlds, like *Second Life*, enable players to take their avatars through simulated environments and even make transactions with virtual money. (See Chapter 3 for a closer look at virtual game worlds and virtual social worlds.)

Social Media and Democracy

In just a decade, social media have changed the way we consume and relate to media and the way we communicate with others. Social media tools have put unprecedented power in our hands to produce and distribute our own media. We can share our thoughts and opinions, write or update an encyclopedic entry, start a petition or fund-raising campaign, post a video, and create and explore virtual worlds. But social media have also proven to be an effective tool for democracy, and for undermining repressive regimes that thrive on serving up propaganda and hiding their atrocities from view.

The wave of protests in more than a dozen Arab nations in North Africa and the Middle East that began in late 2010 resulted in four rulers' being forced from power by mid-2012. The Arab Spring began in Tunisia, with a twenty-six-year-old street vendor named Mohamed Bouazizi, who had his vegetable cart confiscated by police. Humiliated when he tried to get it back, he set himself on fire. While there had been protests before in Tunisia, the stories were never communicated widely. This time, protesters posted videos on Facebook, and satellite news networks spread the story with reports based on those videos. The protests spread across Tunisia, and by January 2011, Tunisia's dictator of nearly twenty-four years fled the country.

In Egypt, a similar circumstance occurred when twenty-eight-year-old Khaled Said was pulled from a café and beaten to death by police. Said's fate might have made no impact but for the fact that his brother used his mobile phone to snap a photo of Said's disfigured face and released it to the Internet. The success of protesters in Tunisia spurred Egyptians to organize their own protests, using the beating of Said as a rallying point. During the pro-democracy gatherings at Tahrir Square in Cairo, protesters used social media like Facebook, Twitter, and YouTube to stay in touch. Global news organizations tracked the protesters' feeds to stay abreast of what was happening, especially because the state news media ignored the protests and carried pro-Mubarak propaganda. Even though Egyptian leader Hosni Mubarak tried to shut down the Internet in Egypt, word of the protests spread quickly, and he was out within eighteen days after the demonstrations started. In Yemen and Libya, other dictators were ousted. And although Syria's repressive government was still in power after months of protests in 2012, citizens continued to use social media to provide the only evidence of the government's killing thousands of peaceful protestors.

Even in the United States, social media have helped call attention to issues that might not have received any media attention otherwise. In 2011 and 2012, protesters in the Occupy Wall Street movement in New York and at hundreds of sites across the country took to Twitter, Tumblr, YouTube, and Facebook to point out the inequalities of the economy and the income disparity between the wealthiest 1 percent and the rest of the population—the 99 percent.

The flexible and decentralized nature of the Internet and social media is in large part what makes them such powerful tools for subverting control. In China, the Communist Party has tightly controlled mass communication for decades. As more and more Chinese citizens take to the Internet, an estimated thirty thousand government censors monitor or even block Web pages, blogs, chat rooms, and e-mails. Social media sites like Twitter, YouTube, Bing, Flickr, WordPress, and Blogger have frequently been blocked, and Google moved its Chinese search engine (Google.cn) to Hong Kong after the Chinese government repeatedly censored it. And for those who persist in practicing "subversive" free speech, there can be severe penalties: Paris-based Reporters without Borders (www.rsf.org) reports that thirty Chinese journalists and sixty-eight netizens were in prison in 2012 for writing articles and blogs that criticized the government. Still, Chinese dissenters bravely play cat-and-mouse with Chinese censors, using free services like Hushmail, Tor, Freegate, and Ultrasurf (the latter two produced by Chinese immigrants in the United States) to break through the Chinese government's blockade. Today, for every social media site that gets blocked, a new one pops up, making it very difficult for the Chinese government to have the same kind of control over mass communication that they did just a decade ago. (For more on using the Internet for political and social statements, see "Examining Ethics: The 'Anonymous' Hackers of the Internet" on pages 56–57.)



NEW PROTEST LANGUAGE

It has become more and more commonplace to see protest signs with information about Facebook groups, Twitter hashtags, URLs, and other social media references.

EXAMINING ETHICS

The “Anonymous” Hackers of the Internet

Anonymous, the loosely organized hacktivist collective that would become known for its politically and socially motivated Internet vigilantism, first attracted major public attention in 2008.

If you haven't seen Anonymous, you have probably seen the chosen “face” of Anonymous—a Guy Fawkes mask, portraying the most renowned member of the 1605 anarchist plot to assassinate King James I of England. The mask has been a part of Guy Fawkes Day commemorations in England for centuries, but was made even more popular by the 2006 film *V for Vendetta*, based on the graphic novel series of the same name. Today, the mask has become a widespread international symbol for groups protesting financial institutions and politicians.

The issue was a video featuring a fervent Tom Cruise—meant for internal promotional use within the Church of Scientology—that had been leaked to the Web site *Gawker*. When the church tried to suppress the video footage on grounds of copyright, Anonymous went to work. They launched a DDoS, or Distributed Denial of Service, attack (flooding a server or network with external requests so that it becomes overloaded and slows down or crashes) on the church's Web sites, bombarded the church headquarters with prank phone calls and faxes, and “doxed” the church by publishing sensitive internal documents.

United by their libertarian distrust of government, their commitment

to a free and open Internet, their opposition to child pornography, and their distaste for corporate conglomerates, Anonymous has targeted organizations as diverse as the Indian government (to protest the country's plan to block Web sites like The Pirate Bay and Vimeo) and the agricultural conglomerate Monsanto (to protest the company's malicious patent lawsuits and the company's dominant control of the food industry). As Anonymous wrote in a message to Monsanto:

*You have continually introduced harmful, even deadly products into our food supply without warning, without care, all for your own profit. . . . Rest assured, we will continue to dox your employees and executives, continue to knock down your Web sites, continue to fry your mail servers, continue to be in your systems . . .*¹

While Anonymous agrees on an agenda and coordinates the campaign, the individual hackers all act independently of the group, without expecting recognition. A reporter from the *Baltimore Sun* aptly characterized Anonymous as “a group, in the sense that a flock of birds is a group. How do you know they're a group? Because they're traveling in the same direction. At any given moment, more birds could join,



leave, peel off in another direction entirely.”²

In some cases, it’s easy to find moral high ground in the activities of hacktivists. For example, Anonymous reportedly hacked the computer network of Tunisian tyrant Zine el-Abidine Ben Ali; his downfall in 2011 was the first victory of the Arab Spring movement. In 2011, Anonymous also hacked the Web site of the Westboro Baptist Church, known for spreading its extremist anti-gay rhetoric, picketing funerals of soldiers, and desecrating American flags. And in *The Girl with the Dragon Tattoo* book and film series, it is hard not to cheer on the master hacker character Lisbeth Salandar as she exacts justice on criminals and rapists. In a world of large, impersonal governments and organizations, hackers level the playing field for the ordinary people, responding quickly in ways much more powerful than

traditional forms of protest, like writing a letter or publicly demonstrating in front of headquarters or embassies. In fact, hacktivism could be seen as an update on the long tradition of peaceful protests.

Yet, hackers can run afoul of ethics. Because the members of Anonymous are indeed anonymous, there aren’t any checks or balances on those who “dox” a corporate site, revealing thousands of credit card or Social Security numbers and making regular citizens vulnerable to identity theft and fraud, as some hackers have done. Prosecutions in 2012 took down at least six international members of Anonymous when one hacker, known online as Sabu, turned out to be a government informant. One of the hackers arrested in Chicago was charged with stealing credit card data and using it to make more than \$700,000 in charges.³ Just a few “bad apples” can undermine the

self-managed integrity of groups like Anonymous.

The very existence of Anonymous is a sign that many of our battles now are in the digital domain. We fight for equal access and free speech on the Internet. We are in a perpetual struggle with corporations and other institutions over the privacy of our digital information. And, although our government prosecutes hackers for computer crimes, governments themselves are increasingly using hacking to fight each other. For example, the United States has used computer viruses to attack the nuclear program of Iran. Yet this new kind of warfare carries risks for the United States as well. As the *New York Times*, which broke the story of cyberattacks against Iran, noted, “no country’s infrastructure is more dependent on computer systems, and thus more vulnerable to attack, than that of the United States.”⁴ ▲

Convergence and Mobile Media

The innovation of digital communication—central to the development of the first computers in the 1940s—enables all media content to be created in the same basic way, which makes *media convergence*, the technological merging of content in different mass media, possible.

In recent years, the Internet has really become the hub for convergence, a place where music, television shows, radio stations, newspapers, magazines, books, games, and movies are created, distributed, and presented. Although convergence initially happened on desktop computers, it was the popularity of notebook computers, and then the introduction of smartphones and tablets, that have hastened the pace of media convergence and have made the idea of accessing any media content, anywhere, a reality.

Media Converges on Our PCs and TVs

First there was the telephone, invented in the 1870s. Then came radio in the 1920s, TV in the 1950s, and eventually the personal computer in the 1970s. Each device had its own unique and distinct function. Aside from a few exceptions, like the clock-radio (a popular hybrid device popular since the 1950s), that was how electronic devices worked.

The rise of the personal computer industry in the mid-1970s first opened the possibility for unprecedented technological convergence. A *New York Times* article on the new “home computers” in 1978 noted that “the long-predicted convergence of such consumer electronic products as television sets, videotape recorders, video games, stereo sound systems and the coming video-disk machines into a computer-based home information-entertainment center is getting closer.”¹⁶ However, PC-based convergence didn’t really materialize until a few decades later when broadband Internet connections improved the multimedia capabilities of computers.

By the early 2000s, computers connected to the Internet allowed an array of digital media to converge in one space and be easily shared. A user can now access television shows (Hulu and Xfinity), movies (Netflix), music (iTunes and Spotify), books (Amazon, Google), games, newspapers, magazines, and lots of other Web content on a computer. And with Skype, iChat, and other live voice and video software, PCs can replace telephones. Other devices, like iPods, quickly capitalized on the Internet’s ability to distribute such content, and adapted to play and exhibit multiple media content forms.

Media is also converging on our television sets, as the electronics industry manufactures Internet-ready TVs. Video game consoles like the Xbox, Wii, and PS3, and set-top boxes like Apple TV, Google TV, Roku, and Boxee also offer additional entertainment content access via their Internet connections. In the early years of the Web, it seemed that people would choose only one gateway to the Internet and media content, usually a computer or television. However, wireless networks and the recent technological developments in various media devices mean that consumers now regularly use more than one avenue to access all types of media content.

Mobile Devices Propel Convergence

Mobile telephones have been around for decades (like the giant “brick” mobile phones of the 1970s and 1980s), but the mobile phones of the twenty-first century are substantially different creatures—*smartphones* that go beyond voice calls. They can be used for texting, listening to music, watching movies, connecting to the Internet, playing games, and using hundreds of thousands of applications, or “apps” as they became quickly known.

The Blackberry was the first popular Internet-capable smartphone in the United States, introduced in 2002. Users' ability to check their e-mail messages at any time created addictive e-mail behavior and earned the phones their "Crackberry" nickname. Convergence on mobile phones took another big leap in 2007 with Apple's introduction of the iPhone, which combined qualities of its iPod digital music player and telephone and Internet service, all accessed through a sleek touchscreen. The next year, Apple opened its App Store, featuring free and low-cost software applications for the iPhone (and the iPod Touch and, later, the iPad) created by third-party developers, vastly increasing the utility of the iPhone. By 2012 there were more than 750,000 apps available to do thousands of things on Apple devices—from playing interactive games to finding locations with a GPS or using the iPhone like a carpenter's level.

In 2008, the first smartphone to run on Google's competing Android platform was released. By 2012, Android phones (sold by companies such as Samsung, HTC, LG, and Motorola, and supported by the Google Play app market and the Amazon Appstore) held more than 51 percent of the smartphone market share in the United States, while Apple's iPhone had a 31 percent share; Blackberry and Microsoft smartphones constituted the remainder of the market.¹⁷ The precipitous drop of the Blackberry's market standing in just ten years (the company was late to add touchscreens and apps to its phones) illustrates the tumultuous competition in mobile devices. It also illustrates how apps and the ability to consume all types of media content on the go have surpassed voice call quality to become the most important feature to consumers purchasing a phone today.

In 2010, Apple introduced the iPad, a tablet computer that functions like a larger iPod Touch, making it more suitable for reading magazines, newspapers, and books; watching video; and using visual applications. The tablets became Apple's fastest-growing product line, selling at a rate of twenty-five million a year. Apple added cameras, faster graphics, and a thinner design to subsequent generations of the iPad, as other companies like Samsung rolled out competing tablets. Interestingly, two of the biggest rivals to the iPad are the Kindle Fire and the Nook Tablet, low-cost tablets developed by Amazon and Barnes & Noble, respectively. Both companies found success with their e-readers, but as more users expect their digital devices to perform multiple functions, they recognized that they would need to add a touchscreen, apps, and access to other content like music and movies to their devices in order to stay relevant in users' increasingly interconnected and converged lives.

The Impact of Media Convergence and Mobile Media

Convergence of media content and technology has forever changed our relationship with media. Today, media consumption is mobile and flexible; we don't have to miss out on media content just because we weren't home in time to catch a show, didn't find the book at the bookstore, or forgot to buy the newspaper yesterday. Increasingly, we demand access to our media when we want it, where we want it, and in multiple formats. In order to satisfy those demands and to stay relevant in today's converged world, traditional media companies have had to dramatically change their approach to media content and their business models.

Our Changing Relationship with the Media

The merging of all media onto one device such as a tablet or smartphone blurs the distinctions of what used to be separate media. For example, *USA Today* (a newspaper) and CBS News (network television news) used to deliver the news in completely different formats, but today look quite similar in their web forms, with listings of headlines, rankings of most popular stories, local weather forecasts, photo galleries, and video. On an Amazon Kindle, on which



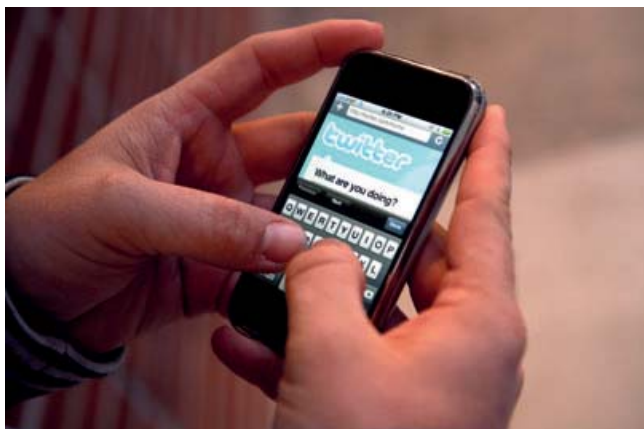
GOOGLE'S ANDROID PHONES are proving to be stiff competition for Apple's ubiquitous iPhone. Americans are now buying more Android phones than iPhones, which could diminish the iPhone's dominance in the smartphone market.



SOCIAL VIEWING

Superbowl XLVI broke two Twitter records for the number of tweets per second (TPS) when Madonna's halftime performance generated 10,245 TPS and the game-ending play, seen here, generated 12,233 TPS.

APPS, like the one developed for Twitter, offer smartphone users direct, instant access to their preferred Web sites.



one can read books, newspapers, and magazines, new forms like the Kindle Single challenge old categories. Are the fictional Kindle Singles novellas, or more like the stories found in literary magazines? And what about the investigative reports released as Kindle Singles: Should they be considered long-form journalism, or are they closer to a nonfiction book? Is listening to an hourlong archived episode of Public Radio International's *This American Life* on an iPod more like experiencing a radio program, or an audio book? (It turns out you can listen to that show on the radio, as a downloadable podcast, as a Web stream, on mobile apps, or on a CD.)

Not only are the formats morphing, but we can now experience the media in more than one manner, simultaneously. Fans of television shows like *The Voice*, *Glee*, and *Top Chef* and viewers of live events like a presidential State of the Union ad-

dress often multitask, reading live blogs during broadcasts or sharing their own commentary with friends on Facebook. Twitter encourages the same kind of multitasking with their search widget: "Displays search results in real time! Ideal for live events, broadcastings, conferences, TV shows, or even just keeping up with the news."¹⁸ For those who miss the initial broadcasts, converged media offer a second life for media content through deep archive access and repurposed content on other platforms. For example, cable shows like *Game of Thrones* and *Mad Men* have found audiences beyond their initial broadcasts through their DVD collections and online video services like Amazon Instant Video and Apple's iTunes. In fact, some fans even prefer to watch these more complex shows this way, enjoying the ability to rewind an episode in order to catch a missed detail, as well as the ability to watch several episodes back-to-back. Similarly, *Arrested Development*, critically acclaimed but canceled by Fox in 2006, garnered new fans through the streaming episodes on Hulu and Netflix. As a result of this renewed interest, it was revived with new episodes produced for Netflix in 2013.

Our Changing Relationship with the Internet

Mobile devices and social media have altered our relationship with the Internet. Two trends are noteworthy: (1) Apple now makes more than five times as much money selling iPhones, iPads, and iPods and accessories as they do selling computers, and (2) the number of Facebook's users (one billion in 2012) keeps increasing. The significance of these two trends is that through our Apple devices and Facebook, we now inhabit a different kind of Internet—what some call a closed Internet, or a walled garden.¹⁹

In the world in which the small screens of smartphones are becoming the preferred medium for linking to the Internet, we typically don't get the full, open Internet, one represented by the vast searches brought to us by Google. Instead we get a more managed Internet, brought to us by apps or platforms that carry out specific functions via the Internet. Are you looking for a nearby restaurant? Don't search on the Internet—use this app especially designed for that purpose. And the distributors of these apps act as gatekeepers. Apple has more than 750,000 apps in its App Store, and Apple approves every one of them. The competing Android Appstores on Google Play and Amazon have a similar number of apps, but Google and Amazon exercise less control over approval of apps than Apple does.

Facebook offers a similar walled garden experience. Facebook began as a highly managed environment, only allowing those with .edu e-mail addresses. Although all are now invited to join Facebook, the interface and the user experience on the site is still highly managed by Facebook CEO Mark Zuckerberg and his staff. For example, if you click on a link to a news article that your friend has shared using a social reader app on Facebook, you will be prompted to add the same app—giving it permission to post your activity to your Wall—before you can access the article. In addition, Facebook has severely restricted what content can be accessed through the open Internet. Facebook has installed measures to stop search engines from indexing users’ photos, Wall posts, videos, and other data. The effect of both Apple’s devices and the Facebook interface is a clean, orderly, easy-to-use environment, but one in which we are “tethered” to the Apple App Store, or to Facebook.²⁰

The open Internet—best represented by Google (but not its Google+ social networking service, which is more confining like Facebook) and a Web browser—promised to put the entire World Wide Web at your fingertips. On the one hand, the appeal of the Internet is its openness, its free-for-all nature. But of course, the trade-off is that the open Internet can be chaotic and unruly, and apps and other walled garden services have streamlined the cacophony of the Internet considerably for us.

The Changing Economics of Media and the Internet

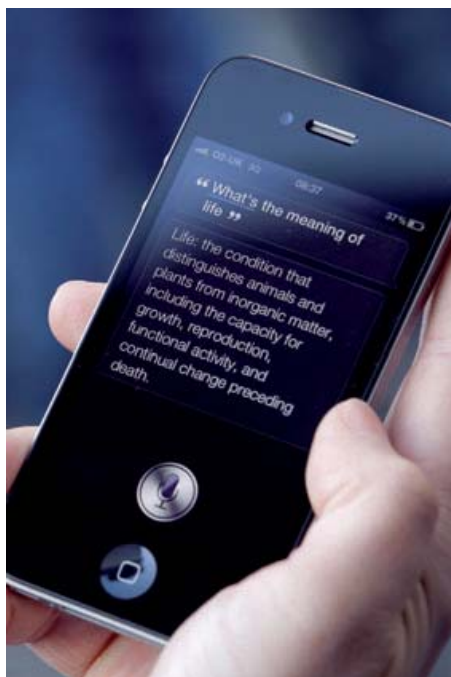
The digital turn in the mass media has profoundly changed the economics of the Internet. Since the advent of Napster in 1999, which brought (illegal) file sharing to the music industry, each media industry has struggled to rethink how to distribute its content for the digital age. The content itself is still important—people still want quality news, television, movies, music, and games—but they want it in digital formats, and for mobile devices.

Apple’s response to Napster established the new media economics. The late Apple CEO Steve Jobs struck a deal with the music industry. Apple would provide a new market for music on the iTunes store, selling digital music that customers could play on their iPods (and later on their iPhones and iPads). In return, Apple got a 30 percent cut of the revenue for all music sales on iTunes, simply for being the “pipes” that delivered the music. As music stores went out of business all across America, Apple sold billions of songs and hundreds of millions of iPods, all without requiring a large chain of retail stores.

Amazon.com started as a more traditional online retailer, taking orders online and delivering merchandise from its warehouses. As books took the turn into the digital era, Amazon created its own device, the Kindle, and followed Apple’s model. Amazon started selling e-books, taking its cut for delivering the content. Along the way, Amazon and Apple (and Google through its Android apps) have become leading media companies. They don’t make the content (although Amazon is now publishing books, too), but they are among the top digital distributors of books, newspapers, magazines, music, television, movies, and games.

The Next Era: The Semantic Web

Many Internet visionaries talk about the next generation of the Internet as the *Semantic Web*, a term that gained prominence after hypertext inventor Tim Berners-Lee and two coauthors published an influential article in a 2001 issue of *Scientific American*.²¹ If “semantics” is the study of meanings, then the Semantic Web is about creating a more meaningful—or more organized—Web. To do that, the future promises a layered, connected database of information that software agents will sift through and process automatically for us. Whereas the search engines of today generate relevant Web pages for us to read, the software of the Semantic Web will make our lives even easier as it places the basic information of the Web into meaningful



SIRI

In March 2012, a class-action lawsuit was filed against Apple alleging that the iPhone 4S commercials misrepresented the extent of Siri's functionalities, citing long wait times and botched requests as proof of the advertisements' deceit. While Apple maintains that Siri is in "beta" and the service will continue to improve, the lawsuit raises important questions about the limitations of a meaning-based Web and the challenges facing those who develop it.

"One of the more remarkable features of the computer network on which much of the world has come to rely is that nobody owns it. That does not mean, however, that no one controls it."

AMY HARMON,
NEW YORK TIMES, 1998

categories—family, friends, calendars, mutual interests, location—and makes significant connections for us. In the words of Tim Berners-Lee and his colleagues, "The Semantic Web is not a separate Web but an extension of the current one, in which information is given well-defined meaning, better enabling computers and people to work in cooperation."²²

The best example of the Semantic Web is Apple's voice recognition assistant Siri, first shipped with its iPhone 4S in 2011. Siri uses conversational voice recognition to answer questions, find locations, and interact with various iPhone functionalities such as the calendar, reminders, the weather app, the music player, the Web browser, and the maps function. Some of its searches get directed to Wolfram Alpha, a computational search engine that provides direct answers to questions, rather than the traditional list of links for search results. Other Siri searches draw upon the databases of external services, such as Yelp! for restaurant locations and reviews and StubHub for ticket information. Another popular feature of Siri is the ability of the female voice to answer seemingly random queries, a clever demonstration of the Semantic Web understanding of context. In a 2012 iPhone commercial, actor John Malkovich asks his iPhone, "Joke?" Siri responds, "Two iPhones walk into a bar. I forget the rest." The travel utility of Microsoft's Bing search engine, which searches a number of airlines and then estimates when prices will rise or fall, also hints at the possibilities of the Semantic Web.

The Economics and Issues of the Internet

One of the unique things about the Internet is that no one owns it. But that hasn't stopped some corporations from trying to control it. Since the **Telecommunications Act of 1996**, which overhauled the nation's communications regulations, most regional and long-distance phone companies and cable operators have competed against one another to provide connections to the Internet. However, there is more to controlling the Internet than being the service provider for it. Companies have realized the potential of dominating the Internet business through search engines, software, social networking, and providing access to content, all in order to sell the essential devices that display the content, and/or to amass users who become an audience for advertising.

Ownership and control of the Internet is connected to three Internet issues that command much public attention: the security of personal and private information, the appropriateness of online materials, and the accessibility and the openness of the Internet. Important questions have been raised: Should personal or sensitive government information be private, or should the Internet be an enormous public record? Should the Internet be a completely open forum, or should certain types of communications be limited or prohibited? Should all people have equal access to the Internet, or should it be available only to those who can afford it? With each of these issues there have been heated debates, but no easy resolutions.

Ownership: Controlling the Internet

By the end of the 1990s, four companies—Yahoo!, Microsoft, AOL, and Google—had emerged as the leading forces on the Internet, each with a different business angle. AOL

attempted to dominate the Internet as the top ISP, connecting millions of home users to its proprietary Web system through dial-up access. Yahoo!’s method has been to make itself an all-purpose entry point—or **portal**—to the Internet. Computer software behemoth Microsoft’s approach began by integrating its Windows software with its Internet Explorer Web browser, drawing users to its MSN.com site and other Microsoft applications. Finally, Google made its play to seize the Internet with a more elegant, robust search engine to help users find Web sites.

Since the end of the 1990s, the Internet’s digital turn toward convergence has changed the Internet and the fortunes of its original leading companies. While AOL’s early success led to the huge AOL-Time Warner corporate merger of 2001, its technological shortcomings in broadband contributed to its devaluation and eventual spin-off from Time Warner in 2009. Yahoo! never successfully expanded its offerings beyond search, and was eclipsed by Google. Microsoft, still an enormously wealthy software and video game company, struggled to develop an Internet strategy, and finally found limited success with the Bing search engine (which also powered Yahoo!’s searches). In 2012, Microsoft also bought a stake in Barnes & Noble’s Digital Division, maker of the successful Nook tablet, which may improve the company’s prospects in the converged digital environment.

In today’s converged world in which mobile access to digital content prevails, Google still remains powerful. Along with Google, Facebook, Amazon, and Apple are the leading companies of digital media’s rapidly changing world. As the business magazine *Fast Company* explains, “Amazon, Apple, Facebook, and Google don’t recognize any borders; they feel no qualms about marching beyond the walls of tech into retailing, advertising, publishing, movies, TV, communications, and even finance. Across the economy, these four companies are increasingly setting the agenda.”²³

Google

Google, established in 1998, had instant success with its algorithmic search engine, and now controls more than 65 percent of the search market and generates billions of dollars of revenue yearly through the pay-per-click advertisements that accompany key-word searches. Google also has branched out into a number of other Internet offerings, including shopping (Froogle), mapping (Google Maps), e-mail (Gmail), blogging (Blogger), browsing (Chrome), books (Google Book Search), and video (YouTube). Google has also challenged Microsoft’s Office programs with Google Apps, a cloud-based bundle of word processing, spreadsheet, calendar, IM, and e-mail software. Google is now competing against Apple’s iTunes with Google Play, an online media store with sharing capabilities through Google’s social networking tool Google+ (Google’s challenge to Facebook).

As the Internet goes wireless, Google has acquired other companies in its aim to replicate its online success in the wireless world. Beginning in 2005, Google bought the Android operating system (now the leading mobile phone platform, and also a tablet computer platform), mobile phone ad placement company AdMob, and mobile phone software developer Motorola Mobility. (See “What Google Owns” on this page.) Phones and tablets that run on Android also have access to content on Google Play. Google continues to experiment with new devices and plans to release augmented-reality glasses in the future, which would layer virtual information over one’s real view of the world through the glasses. Google’s biggest challenge is the “closed Web”: companies like Facebook and Apple that steer users to online experiences that are walled off from search engines and threaten Google’s reign as the Internet’s biggest advertising conglomerate. The competition heated up in 2012 when Apple dropped Google Maps as the default map app for iPhones and iPads in favor of its Apple map application, cutting Google out of ad revenue and data collection of Apple device location searches.²⁴

WHAT GOOGLE OWNS

Consider how Google connects to your life; then turn the page for the bigger picture.

WEB

- Web Search
- Google Chrome
- iGoogle

SPECIALIZED SEARCH

- Google Blog Search
- Google Patent Search
- Google Finance
- Google Alerts
- Google Custom Search
- Google Product Search
- Google Scholar
- Google Trends

MEDIA

- YouTube
- Google Images
- Google Videos
- Google Play
- Google News
- Picasa

SOCIAL

- Google+
- Knol
- Reader
- Groups
- Orkut
- Blogger
- Google Talk

GEO

- Google Latitude
- Google Earth
- Google Maps
- Panoramio
- Google Offers
- SketchUp

HOME & OFFICE

- Gmail
- Google Sites
- Google Translate
- Google Drive
- Google Calendar
- Google Voice
- Google Wallet

ADVERTISING

- AdWords and AdWords Express
- AdSense
- Google Mobile Ads
- Google Analytics
- Google Display Network
- Google Video Ads
- Google TV Ads
- FeedBurner

MOBILE

- Google Mobile
- Android
- Motorola Mobility

Turn page for more ▶

WHAT DOES THIS MEAN?

Every Google product is designed to keep you on the Web. The longer you browse, the more money Google makes.

- **Cost.** It cost \$3.51 billion to run Google, Inc., during the last three months of 2011—33 percent of Google's revenues.¹
- **Revenue and Assets.** Google's annual revenues continue to rise (nearly \$37.9 billion in 2011),² allowing Google to invest heavily in technological innovations in areas such as mobile phones and renewable energy.³
- **Advertising.** Google makes \$3 billion a month on advertising, which provides 96 percent of Google's profits. Nearly every Web site has a Google ad, so every second users spend on the Web is revenue for Google.⁴
- **Biggest Advertiser.** Google's top advertiser is Lowe's, which spent \$59.1 million on Adwords in 2011 (compared to Home Depot, which spent \$50.3 million). The second top advertiser is Amazon.com, which spent \$55.2 million in 2011.⁵
- **Mobile Reach.** In 2012, Google reported that 850,000 Android phones are activated each day (compared to Apple's iPhone, which has about 210,000 activations). There were about 300 million activated Android devices by February 2012.⁶
- **Market Value.** In August 2004, Google shares were first traded at an initial price of \$85 a share.⁷ In 2012, one share of Google stock cost between \$500 and \$600.⁸
- **Employees.** Google has 33,077 employees and hired a record 8,067 in 2011. Google was named *Fortune's* "Best Company to Work For" in 2012.⁹



Apple

Apple, Inc., was founded by Steven Jobs and Steve Wozniak in 1976 as a home computer company and is today the most valuable company in the world. Apple was only moderately successful until 2001, when Jobs, having been forced out of the company for a decade, returned. Apple introduced the iPod and iTunes in 2003, two innovations that led the company to become the No. 1 music retailer in the United States. Then in 2007, Jobs introduced the iPhone, the world's first smartphone that streamlined and redefined the way users access media content. Converging entertainment, computing, and communications, the iPhone transformed the mobile phone industry, and with Apple's release of the intensely anticipated iPad in 2010, the company further redefined portable computing.

With the iPhone and iPad now at the core of Apple's business, the company now expanded to include providing content—music, television shows, movies, games, newspapers, magazines—to sell its media devices. The next wave of Apple's innovations was the iCloud, a new storage and syncing service that enables users to access media content anywhere (with a wireless connection) on its mobile devices. The iCloud also helps to ensure that customers purchase their media content through Apple's iTunes store, further tethering users to its media systems. (For more on Apple devices and how they are made, see "Global Village: Designed in California, Assembled in China" on page 65.)

Amazon

Amazon started its business in 1995 in Seattle, selling the world's oldest mass medium (books) online. Since that time, Amazon has developed into the world's largest e-commerce store, selling books, but also electronics, garden tools, clothing, appliances, and toys. To keep its lead in e-commerce, Amazon also acquired Zappos, the popular online shoe seller. Yet, by 2007, with the introduction of its Kindle e-reader, Amazon followed Apple's model of using content to sell devices. The Kindle became the first widely successful e-reader, and by 2010 e-books were outselling hardcovers and paperbacks at Amazon. In 2011, in response to Apple's iPad, Amazon released its own color touchscreen tablet, the Kindle Fire, giving Amazon a device that can play all of the media—including music, TV, movies, and games—it sells online and in its Appstore. Like Apple, Amazon has a Cloud Player for making media content portable, and offers an additional five gigabytes of free Cloud Drive space to all users, to use however they like.

Facebook

Of all the leading Internet sites, Facebook is one of the "stickiest," with Americans staying on the social networking site, on average, about 20 percent of their overall time online.²⁵ Facebook's immense, socially dynamic audience (about two-thirds of the U.S. population, and one billion total users across the globe) is its biggest resource, and Facebook, like Google, has become a data processor as much as a social media service, collecting every tidbit of information about its users—what we "like," where we live, what we read, and what we want—and selling this information to advertisers. Because Facebook users reveal so much about themselves in their profiles and the messages they share with others, Facebook can offer advertisers exceptionally tailored ads: A user who recently got engaged gets ads like "Impress Your Valentine," "Vacation in Hawaii," and "Are You Pregnant?" while a teenage girl sees ads for prom dresses, sweet-sixteen party venues, and "Chat with Other Teens" Web sites.

As a young company, Facebook has suffered growing pains as it tried to balance its corporate interests (capitalizing on its millions of users) and its users' interest in controlling the privacy of their own information at the same time. In 2012, Facebook had the third-largest public offering in U.S. history, behind General Motors and Visa, with the company valued at \$104 billion. Facebook's valuation is more of a statement of investors' hopes of what the company can do

Designed in California, Assembled in China

There is a now-famous story involving the release of the iPhone in 2007. The late Apple CEO Steve Jobs was carrying the prototype in his pocket about one month prior to its release, and discovered that his keys, also in his pocket, were scratching the plastic screen. Known as a stickler for design perfection, Jobs reportedly gathered his fellow executives in a room and told them (angrily), “I want a glass screen, and I want it perfect in six weeks.”¹ This demand would have implications for a factory complex in China, called Foxconn, where iPhones are assembled. When the order trickled down to a Foxconn foreman, he woke up 8,000 workers in the middle of the night, gave them a biscuit and a cup of tea, and then started them on twelve-hour shifts fitting glass screens into the iPhone frames. Within four days, Foxconn workers were churning out ten thousand iPhones daily.

On its sleek packaging, Apple proudly proclaims that its products are “Designed by Apple in California,” a slogan that evokes beaches, sunshine, and Silicon Valley—where the best and brightest in American engineering ingenuity reside. The products also say, usually in a less visible location, “Assembled in China,” which suggests little, except that the components of the iPhone, iPad, iPod, or Apple computer

were put together in a factory in the world’s most populous country.

It wasn’t until 2012 that most Apple customers learned that China’s Foxconn was the company where their devices are assembled. Investigative reports by the *New York Times* revealed a company with ongoing problems with labor conditions and worker safety, including fatal explosions and a spate of worker suicides.² (Foxconn responded in part by erecting nets around its buildings to prevent fatal jumps.)

Foxconn (also known as Hon Hai Precision Industry Co., Ltd., with headquarters in Taiwan) is China’s largest and most prominent private employer with 1.2 million employees—more than any American company except Walmart. Foxconn assembles an incredible 40 percent of the world’s electronics, and earns more revenue than ten of its competitors combined.³ And Foxconn is not just Apple’s favorite place to outsource production; nearly every global electronics company is connected to the manufacturing giant: Amazon (Kindle), Microsoft (Xbox), Sony (PlayStation), Dell, Hewlett-Packard, IBM, Motorola, and Toshiba all feed their products to the vast Foxconn factory network.

Behind this manufacturing might is a network of factories now legendary for its enormity. Foxconn’s largest factory compound is in Shenzhen. Dubbed “Factory City,” it employs roughly 300,000 people—all squeezed into one square mile, many of whom live in the dormitories (dorms sleep seven to a room) on the Foxconn campus.⁴ Workers, many of whom come from rural areas in China, often start a shift at 4 A.M. and work until late at night, performing monotonous, routinized work—for example, filing the aluminum shavings

from iPad casings six thousand times a day. Thousands of these full-time workers are under the age of eighteen.

Conditions at Foxconn might, in some ways, be better than the conditions in the poverty-stricken small villages from which most of its workers come. But the low pay, long hours, dangerous work conditions, and suicide nets are likely not what the young workers had hoped for when they left their families behind.

In light of the news reports about the problems at Foxconn, Apple joined the Fair Labor Association (FLA), an international nonprofit that monitors labor conditions. The FLA inspected factories and surveyed more than 35,000 Foxconn workers. Their 2012 study verified a range of serious issues. Workers regularly labored more than sixty hours per week, with some employees working more than seven days in a row. Other workers weren’t compensated for overtime. More than 43 percent of the workers reported they had witnessed or experienced an accident, and 64 percent of the employees surveyed said that the compensation does not meet their basic needs. In addition, the FLA found the labor union at Foxconn an unsatisfactory channel for addressing worker concerns, as representatives from the management dominated the union’s membership.⁵

Apple now boasts on its Web site that it is the first technology company to be admitted to the Fair Labor Association. But Apple might not have taken that step had it not been for the *New York Times* investigative reports and the intense public scrutiny that followed. What is the role of consumers in ensuring that Apple and other companies are ethical and transparent in the treatment of the workers who make our electronic devices? ■





INSTAGRAM

Facebook's acquisition of Instagram will help secure the social networking site's future in the mobile interface. Yet questions remain as to the future of the Instagram brand and whether it will continue to grow independently of its parent company. Originally conceived as a user-generated content Web site, Instagram does not claim ownership for any material posted using its services, whereas Facebook owns all material posted to its site.

with one billion users rather than evidence of the company's financial successes so far. And as evidenced by its plummeting stock price during the first few weeks of trading, Facebook's next move and future area of growth is still somewhat uncertain. As Facebook moves forward, one of its shortcomings (and what Google and Apple control) is its mobile interface. In an attempt to build its mobile business, Facebook bought Instagram, a photo sharing mobile app for iPhone and Android, in 2012 for \$1 billion.

Targeted Advertising and Data Mining

In the early years of the Web, advertising took the form of traditional display ads placed on pages. The display ads were no more effective than newspaper or magazine advertisements,

and because they reached small, general audiences, they weren't very profitable. But in the late 1990s, Web advertising began to shift to search engines. Paid links appeared as "sponsored links" at the top, bottom, and side of a search engine result list and even, depending on the search engine, within the "objective" result list itself. Every time a user clicks on a sponsored link, the advertiser pays the search engine for the click-through. For online shopping, having paid placement in searches can be a good thing. But search engines doubling as ad brokers may undermine the utility of search engines as neutral locators of Web sites (see "Media Literacy and the Critical Process: Search Engines and Their Commercial Bias" on page 67).

Advertising has since spread to other parts of the Internet, including social networking sites, e-mail, and IM. For advertisers—who for years struggled with how to measure people's attention to ads—these activities make advertising easy to track, effective in reaching the desired niche audience, and relatively inexpensive because ads get wasted less often on the uninterested. For example, Yahoo! gleans information from search terms, Google scans the contents of Gmail messages, and Facebook uses profile information, status updates, and "likes" to deliver individualized, real-time ads to users' screens. Similarly, a mobile social networking application for smartphones, Foursquare, encourages users to earn points and "badges" by checking in at business locations, such as museums, restaurants, and airports (or other user-added locations), and to share that information via Twitter, Facebook, and text messages. Other companies, like Poynt and Yelp, are also part of the location-based ad market that is projected to account for one-third of all mobile advertising by 2015.²⁶ But by gathering users' location and purchasing habits, these data-collecting systems also function as consumer surveillance and **data mining** operations.

The practice of data mining also raises issues of Internet security and privacy. Millions of people, despite knowing that transmitting personal information online can make them vulnerable to online fraud, have embraced the ease of **e-commerce**: the buying and selling of products and services on the Internet, which took off in 1995 with the launch of Amazon.com. What many people don't know is that their personal information may be used without their knowledge for commercial purposes, such as targeted advertising. For example, in 2011, the Federal Trade Commission charged Facebook with a list of eight violations in which Facebook told consumers their information would be private, but made it public to advertisers and third-party applications. Facebook CEO Mark Zuckerberg admitted the company had made "a bunch of mistakes," and settled with the FTC by fixing the problems and agreeing to submit to privacy audits for twenty years.²⁷

One common method that commercial interests use to track the browsing habits of computer users is **cookies**, or information profiles that are automatically collected and transferred between computer servers whenever users access Web sites. The legitimate purpose of a cookie

Media Literacy and the Critical Process

1 DESCRIPTION. Here's what we find in the first thirty results from Google: numerous sites for obesity research organizations (e.g., Obesity Society, MedicineNet, WebMD) and many government-funded sites like the CDC and NIH. Here's what we find in the top-rated results from Bing: numerous sponsored sites (e.g., the Scooter Store, Gastric Banding) and the same obesity research organizations.

2 ANALYSIS. A closer look at these results reveals a subtle but interesting pattern: All the sites listed in the top ten results (of both search engine result lists, and with the important exception of Wikipedia) offer loads of advice to help an individual lose weight (e.g., change eating habits, exercise, undergo surgery, take drugs). These "professional-looking" sites all frame obesity as a disease, a genetic disorder, or the result of personal inactivity. In other words, they put the blame squarely on the individual. But where is all the other research that links high obesity rates to social factors (e.g., constant streams of advertising for junk food, government subsidies of the giant corn syrup food sweetener industry, deceptive labeling practices)? These society-level views are not apparent in our Web searches.

Search Engines and Their Commercial Bias

How valuable are search engines for doing research?

Are they the best resources for academic information?

To test this premise, we're going to do a search for the topic "obesity," which is prevalent in the news and a highly controversial topic.

3 INTERPRETATION. What does it mean that our searches are so biased? Consider this series of connections: Obesity research organizations manufacture drugs and promote surgery treatments to "cure" obese individuals. They seem to offer legitimate information about the "obesity disease," but they are backed by big business, which is interested in selling more junk food (not taking social responsibility) and then promoting drugs to treat people's obesity problems. These wealthy sites can pay for placement through Search Engine Optimizer firms (which work relentlessly to outsmart Google's page rank algorithm) and by promoting themselves through various marketing channels to ensure their popularity (Google ranks pages by popularity). With the exception of Wikipedia, which is so interlinked it usually ranks high in search engines, search results today are skewed toward big business. Money speaks.

4 EVALUATION. Commercial search engines have evolved to be much like the commercial mass media: They tend to reflect the corporate

perspective that finances them. This does not bode well for the researcher, who is interested in many angles of a single issue. Controversy is at the heart of every important research question.

5 ENGAGEMENT. What to do? Start by including the word *controversy* next to the search term, as in "obesity and controversy." Or learn about where alternative information sources exist on the Web. A search for "obesity" on the independent media publications AlterNet, MediaChannel, Common Dreams, and Salon, for example, and nonprofit digital archives like ibiblio and INFOMINE, will offer countless other perspectives to the obesity epidemic. Let's also not dismiss Wikipedia, a collaboratively built nonprofit encyclopedia that often lays out the controversies within a given research topic and can be a helpful launching pad for scholarly research. Good research does not mean clicking on the first link on a search engine list; it involves knowing that every topic has political, economic, and ideological biases, and looking for valuable and diverse perspectives.

is to verify that a user has been cleared for access to a particular Web site, such as a library database that is open only to university faculty and students. However, cookies can also be used to create marketing profiles of Web users to target them for advertising. Many Web sites require the user to accept cookies in order to gain access to the site.

Even more unethical and intrusive is **spyware**, information-gathering software that is often secretly bundled with free downloaded software. Spyware can be used to send pop-up ads to users' computer screens, to enable unauthorized parties to collect personal or account information of users, or even to plant a malicious click-fraud program on a computer, which generates phony clicks on Web ads that force an advertiser to pay for each click.

In 1998, the FTC developed fair information practice principles for online privacy to address the unauthorized collection of personal data. These principles require Web sites to



THIS NEW YORKER CARTOON illustrates an increasingly rare phenomenon.

(1) disclose their data-collection practices, (2) give consumers the option to choose whether their data may be collected and to provide information on how that data is collected, (3) permit individuals access to their records to ensure data accuracy, and (4) secure personal data from unauthorized use. Unfortunately, the FTC has no power to enforce these principles, and most Web sites either do not self-enforce them or deceptively appear to enforce them when they in fact don't.²⁸ As a result, consumer and privacy advocates are calling for stronger regulations, such as requiring Web sites to adopt **opt-in** or **opt-out** policies. Opt-in policies, favored by consumer and privacy advocates, require Web sites to obtain explicit permission from consumers before the sites can collect browsing history data. Opt-out policies, favored by data-mining corporations, allow for the automatic collection of browsing history data unless the consumer requests to "opt out" of the practice. In 2012, the Federal Trade Commission approved a report recommending that Congress adopt "Do Not Track" legislation to limit tracking of user information on Web sites and mobile devices, and enable users to easily opt out of data collection. Some Web browsers, such as Internet Explorer 9, are offering "Do Not Track" options, while other Web tools, like Ghostery.com, detect Web tags, bugs, and other trackers, generating a list of all of the sites following your moves.

Security: The Challenge to Keep Personal Information Private

When you watch television, listen to the radio, read a book, or go to a film, you do not need to provide personal information to others. However, when you use the Internet, whether you are signing up for an e-mail account, shopping online, or even just surfing the Web, you give away personal information—voluntarily or not. As a result, government surveillance, online fraud, and unethical data-gathering methods have become common, making the Internet a potentially treacherous place.

Government Surveillance

Since the inception of the Internet, government agencies worldwide have obtained communication logs, Web browser histories, and the online records of individual users who thought their online activities were private. In the United States, for example, the USA PATRIOT Act (which became law about a month after the September 11 attacks in 2001 and was renewed in 2006) grants sweeping powers to law-enforcement agencies to intercept individuals' online communications, including e-mail messages and browsing records. The act was intended to allow the government to more easily uncover and track potential terrorists and terrorist organizations, but many now argue that it is too vaguely worded, allowing the government to unconstitutionally probe the personal records of citizens without probable cause and for reasons other than preventing terrorism. Moreover, searches of the Internet permit law-enforcement agencies to gather huge amounts of data, including the communications of people who are not the targets of an investigation. For example, a traditional telephone wiretap would intercept only communication on a single telephone line. Internet surveillance involves tracking all of the communications over an ISP, which raises concerns about the privacy of thousands of other users.

Online Fraud

In addition to being an avenue for surveillance, the Internet is increasingly a conduit for online robbery and *identity theft*, the illegal obtaining of personal credit and identity information

in order to fraudulently spend other people's money. Computer hackers have the ability to infiltrate Internet databases (from banks to hospitals to even the Pentagon) to obtain personal information and to steal credit card numbers from online retailers. Identity theft victimizes hundreds of thousands of people a year, and clearing one's name can take a very long time and cost a lot of money. About \$3.4 billion in the United States is lost to online fraud artists every year. One particularly costly form of Internet identity theft is known as **phishing**. This scam involves phony e-mail messages that appear to be from official Web sites—such as eBay, PayPal, or the user's university or bank—asking customers to update their credit card numbers, account passwords, and other personal information.

Appropriateness: What Should Be Online?

The question of what constitutes appropriate content has been part of the story of most mass media, from debates over the morality of lurid pulp fiction books in the nineteenth century to arguments over the appropriateness of racist, sexist, and homophobic content in films and music. Although it is not the only material to come under intense scrutiny, most of the debate about appropriate media content, despite the medium, has centered on sexually explicit imagery.

As has always been the case, eliminating some forms of sexual content from books, films, television, and other media remains a top priority for many politicians and public interest groups. So it should not be surprising that public objection to indecent and obscene Internet content has led to various legislative efforts to tame the Web. Although the Communications Decency Act of 1996 and the Child Online Protection Act of 1998 were both judged unconstitutional, the Children's Internet Protection Act of 2000 was passed and upheld in 2003. This act requires schools and libraries that receive federal funding for Internet access to use software that filters out any visual content deemed obscene, pornographic, or harmful to minors, unless disabled at the request of adult users. Regardless of new laws, pornography continues to flourish on commercial sites, individuals' blogs, and social networking pages. As the American Library Association notes, there is "no filtering technology that will block out all illegal content, but allow access to constitutionally protected materials."²⁹

Although the "back alleys of sex" on the Internet have caused considerable public concern, Internet sites that carry potentially dangerous information (e.g., bomb building instructions, hate speech) have also incited calls for Internet censorship, particularly after the terrorist attacks of September 11, 2001, and several tragic school shooting incidents. Nevertheless, many others—fearing that government regulation of speech would inhibit freedom of expression in a democratic society—want the Web to be completely unregulated.

Access: The Fight to Prevent a Digital Divide

A key economic issue related to the Internet is whether the cost of purchasing a personal computer and paying for Internet services will undermine equal access. Coined to echo the term *economic divide* (the disparity of wealth between the rich and poor), the term **digital divide** refers to the growing contrast between the "information haves," those who can afford to purchase computers and pay for Internet services, and the "information have-nots," those who may not be able to afford a computer or pay for Internet services.

Although about 80 percent of U.S. households are connected to the Internet, there are big gaps in access, particularly in terms of age and education. For example, a 2012 study found that only 41 percent of Americans over the age of sixty-five go online, compared with 74 percent of Americans ages fifty to sixty-four, 87 percent of Americans ages thirty to forty-nine, and 94 percent of Americans ages eighteen to twenty-nine. Education has an even more pronounced effect: Only 43 percent of those who did not graduate from high school have Internet access, compared with 71 percent of high school graduates and 94 percent of college graduates.³⁰

"Given that the Internet has become an indispensable tool for realizing a range of human rights, combating inequality, and accelerating development and human progress, ensuring universal access to the Internet should be a priority."

UNITED NATIONS
REPORT, 2011

Another digital divide has developed in the United States as Americans have switched over from slow dial-up connections to high-speed broadband service. By 2012, 68 percent of all Internet users in the United States had broadband connections, but given that prices are tiered so that the higher the speed of service the more it costs, those in lower-income households were much less likely to have high-speed service. A Pew Internet & American Life Project study found that one in five American adults does not use the Internet. Non-users were predominantly senior citizens, Spanish-language speakers, those with less than a high school education, and those living in households earning less than \$30,000 per year. The primary reason given by non-users for why they don't go online is they don't think the Internet is relevant to them.³¹

The rising use of smartphones is helping to narrow the digital divide, particularly along racial lines. In the United States, African American families generally have lagged behind whites in home access to the Internet, which requires a computer and broadband access. However, the Pew Internet & American Life Project reported that African Americans are the most active users of mobile Internet devices. Thus, the report concluded, "the digital divide between African Americans and white Americans diminishes when mobile use is taken into account."³²

Globally, though, the have-nots face an even greater obstacle crossing the digital divide. Although the Web claims to be worldwide, the most economically powerful countries like the United States, Sweden, Japan, South Korea, Australia, and the United Kingdom account for most of its international flavor. In nations such as Jordan, Saudi Arabia, Syria, and Myanmar (Burma), the governments permit limited or no access to the Web. In other countries, an inadequate telecommunications infrastructure hampers access to the Internet. And in underdeveloped countries, phone lines and computers are almost nonexistent. For example, in Sierra Leone, a nation of about six million in West Africa with poor public utilities and intermittent electrical service, only about ten thousand people—about 0.16 percent of the population—are Internet users.³³ However, as mobile phones become more popular in the developing world, they could provide one remedy to the global digital divide.

NICHOLAS NEGROPONTE,

founder of the Media Lab at MIT, began a project to provide \$100 laptops to children in developing countries (shown). These laptops, the first supply of which was funded by Negroponte, need to survive in rural environments where challenges include battling adverse weather conditions (dust and high heat) and providing reliable power, Internet access, and maintenance.



Even as the Internet matures and becomes more accessible, wealthy users are still more able to buy higher levels of privacy and faster speeds of Internet access than other users. Whereas traditional media made the same information available to everyone who owned a radio or a TV set, the Internet creates economic tiers and classes of service. Policy groups, media critics, and concerned citizens continue to debate the implications of the digital divide, valuing the equal opportunity to acquire knowledge.

Net Neutrality: Maintaining an Open Internet

For more than a decade, the debate over net neutrality has framed the shape of the Internet's future. **Net neutrality** refers to the principle that every Web site and every user—whether a multinational corporation or you—has the right to the same Internet network speed and access. The idea of an open and neutral network has existed since the origins of the Internet, but there had never been a formal policy until 2010, when the Federal Communications Commission approved a limited set of net neutrality rules. Still, the debate forges on.

The dispute over net neutrality and the future of the Internet is dominated by some of the biggest communications corporations. These major telephone and cable companies—Verizon, Comcast, AT&T, Time Warner Cable, and CenturyLink—control 98 percent of broadband access in the United States through DSL and cable modem service. They want to offer faster connections and priority to clients willing to pay higher rates, and provide preferential service for their own content or for content providers who make special deals with them—effectively eliminating net neutrality. For example, tiered Internet access might mean that these companies would charge customers more for data-heavy services like Netflix, YouTube, Hulu, or iTunes. These companies argue that the profits they could make with tiered Internet access will allow them to build expensive new networks, benefiting everyone.

But supporters of net neutrality—mostly bloggers, video gamers, educators, religious groups, unions, and small businesses—argue that the cable and telephone giants actually have incentive to rig their services and cause net congestion in order to force customers to pay a premium for higher speed connections. They claim that an Internet without net neutrality would hurt small businesses, nonprofits, and Internet innovators, who might be stuck in the “slow lane” and not be able to afford the fastest connections that large corporations can afford. Large Internet corporations like Google, Yahoo!, Amazon, eBay, Microsoft, Skype, and Facebook also support net neutrality because their businesses depend on their millions of customers having equal access to the Web.

In late 2010, the FCC adopted rules on net neutrality, noting “the Internet’s openness promotes innovation, investment, competition, free expression, and other national broadband goals.”³⁴ On a split vote, the FCC approved firm net neutrality guidelines for fixed-line broadband ISPs (like cable and DSL connections), but required less strict net neutrality rules for wireless broadband connections (mobile phone companies). Both fixed-line and mobile providers must disclose their network management practices and are prohibited from blocking sites or applications. However, while the FCC prohibited fixed-line providers from unreasonable discrimination, mobile phone companies are exempt from this rule, and they are also allowed to offer tiered service prices for data packages. The FCC explained that these differences in rules were in part due to the fact that the mobile industry is more competitive. But neither side of the net neutrality debate is 100 percent happy with the FCC’s ruling: Net neutrality proponents have argued that these rules don’t go far enough, while opponents have tried to get the courts and Congress to overturn the FCC’s policy.

Alternative Voices

Independent programmers continue to invent new ways to use the Internet and communicate over it. While some of their innovations have remained free of corporate control, others have

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Net Neutrality

Experts discuss net neutrality and privatization of the Internet

Discussion: Do you support net neutrality? Why or why not?

“The choice for American consumers is between the open broadband they have come to expect—in which they can view any content from sources big and small—and a walled garden somewhat like cable TV, where providers can decide what we can see, and at what price.”

NEW YORK TIMES,
2011

been taken over by commercial interests. Despite commercial buyouts, however, the pioneering spirit of the Internet's independent early days endures; the Internet continues to be a participatory medium where anyone can be involved. Two of the most prominent areas in which alternative voices continue to flourish relate to open-source software and digital archiving.

Open-Source Software

Microsoft has long been the dominant software corporation of the digital age, but independent software creators persist in developing alternatives. One of the best examples of this is the continued development of **open-source software**. In the early days of computer code writing, amateur programmers developed software on the principle that it was a collective effort. Programmers openly shared program source codes and their ideas to upgrade and improve programs. Beginning in the 1970s, Microsoft put an end to much of this activity by transforming software development into a business in which programs were developed privately and users were required to pay for both the software and its periodic upgrades.

However, programmers are still developing noncommercial, open-source software, if on a more limited scale. One open-source operating system, Linux, was established in 1991 by Linus Torvalds, a twenty-one-year-old student at the University of Helsinki in Finland. Since the establishment of Linux, professional computer programmers and hobbyists alike around the world have participated in improving it, creating a sophisticated software system that even Microsoft has acknowledged is a credible alternative to expensive commercial programs. Linux can operate across disparate platforms, and companies such as IBM, Dell, and Sun Microsystems, as well as other corporations and governmental organizations, have developed applications and systems that run on it. Still, the greatest impact of Linux is not evident on the desktop screens of everyday computer users but in the operation of behind-the-scenes computer servers.

Digital Archiving

Librarians have worked tirelessly to build nonprofit digital archives that exist outside of any commercial system in order to preserve libraries' tradition of open access to information. One of the biggest and most impressive digital preservation initiatives is the Internet Archive, established in 1996. The Internet Archive aims to ensure that researchers, historians, scholars, and all citizens have universal access to human knowledge—that is, everything that's digital: text, moving images, audio, software, and more than eighty-five billion archived Web pages reaching back to the earliest days of the Internet. The archive is growing at staggering rates as the general public and partners such as the Smithsonian and the Library of Congress upload cultural artifacts. For example, the Internet Archive stores sixty-five thousand live music concerts, including performances by Jack Johnson, the Grateful Dead, and the Smashing Pumpkins.

The archive has also partnered with the Open Content Alliance to digitize every book in the public domain (generally, those published before 1922). This book-scanning effort is the nonprofit alternative to Google's "Google Book Search" program, which, beginning in 2004, has scanned books from the New York Public Library as well as the libraries of Harvard, Stanford, and the University of Michigan despite many books' copyright status. Google pays to scan each book (which can cost up to \$30 in labor) and then includes book contents in its search results, significantly adding to the usefulness and value of its search engine. Since Google forbids other commercial search engines from accessing the scanned material, the deal has the library community concerned. "Scanning the great libraries is a wonderful idea," says Brewster Kahle, head of the Internet Archive, "but if only one corporation controls access to this digital collection, we'll have handed too much control to a private entity."³⁵ Under the terms of the Open Content Alliance, all search engines, including Google, will have access to the Alliance's ever-growing repository of scanned books. Media activist David Bollier has likened open access initiatives to

an information “commons,” underscoring the idea that the public collectively owns (or should own) certain public resources, like airwaves, the Internet, and public spaces (such as parks). “Libraries are one of the few, if not the key, public institutions defending popular access and sharing of information as a right of all citizens, not just those who can afford access,” Bollier says.³⁶

The Internet and Democracy

Throughout the twentieth century, Americans closely examined emerging mass media for their potential contributions to democracy. As radio became more affordable in the 1920s and 1930s, we hailed the medium for its ability to reach and entertain even the poorest Americans caught in the Great Depression. When television developed in the 1950s and 1960s, it also held promise as a medium that could reach everyone, including those who were illiterate or cut off from printed information. Despite continuing concerns over the digital divide, many have praised the Internet for its democratic possibilities. Some advocates even tout the Internet as the most democratic social network ever conceived.

The biggest threat to the Internet’s democratic potential may well be its increasing commercialization. Similar to what happened with radio and television, the growth of commercial “channels” on the Internet has far outpaced the emergence of viable nonprofit channels, as fewer and fewer corporations have gained more and more control. The passage of the 1996 Telecommunications Act cleared the way for cable TV systems, computer firms, and telephone companies to merge their interests and become even larger commercial powers. Although there was a great deal of buzz about lucrative Internet startups in the 1990s and 2000s, it has been large corporations such as Microsoft, Apple, Amazon, and Google that have weathered the low points of the dot-com economy and maintained a controlling hand.

About three-quarters of households in the United States are now linked to the Internet, thus greatly increasing its democratic possibilities but also tempting commercial interests to gain even greater control over it and intensifying problems for agencies trying to regulate it. If the histories of other media are any predictor, it seems realistic to expect that the Internet’s potential for widespread use by all could be partially preempted by narrower commercial interests. As media economist Douglas Gomery warns, “Technology alone does not a communication revolution make. Economics trumps technology every time.”³⁷

However, defenders of the Digital Age argue that inexpensive digital production and social media distribution allow greater participation than any other traditional medium. In response to these new media forms, older media are using Internet technology to increase their access to and feedback from varied audiences. Skeptics raise doubts about the participatory nature of discussions on the Internet. For instance, they warn that Internet users may be communicating with those people whose beliefs and values are similar to their own—in other words, just their Facebook friends and Google+ circles. Although it is important to be able to communicate across vast distances with people who have similar viewpoints, these kinds of discussions may not serve to extend the diversity and tolerance that are central to democratic ideals. There is also the threat that we may not be interacting with anyone at all. In the wide world of the Web, we are in a shared environment of billions of people. In the emerging ecosystem of apps, we live in an efficient but gated community, walled off from the rest of the Internet. However, we are still in the early years of the Internet. The democratic possibilities of the Internet’s future are still endless. ►

**“You. Yes, you.
You control the
Information Age.
Welcome to your
world.”**

TIME MAGAZINE’S
“PERSON OF THE YEAR”
COVER, 2006, FEATURING
A MIRROR THAT
WAS SUPPOSED TO
MAKE EVERY READER
FEEL SPECIAL

CHAPTER REVIEW

COMMON THREADS

One of the Common Threads discussed in Chapter 1 is about the commercial nature of the mass media. The Internet is no exception, as advertisers have capitalized on its ability to be customized. How might this affect other media industries?

Most people love the simplicity of the classic Google search page. The iGoogle home page builds on that by offering the ability to “Create your own homepage in under 30 seconds.” Enter your city, and the page’s design theme will dynamically change images to reflect day and night. Enter your zip code, and you get your hometown weather information or local movie schedules. Tailor the page to bring up your favorite RSS feeds, and stay on top of the information that interests you the most.

This is just one form of mass customization—something no other mass medium has been able to provide. (When is the last time a television, radio, newspaper, or movie spoke directly to you?) This is one of the Web’s greatest strengths—it can connect us to the world in a personally meaningful way. But a casualty of the Internet may be our shared common culture. A generation ago, students and coworkers across the country gathered on Friday mornings to discuss what happened on NBC’s “must-see” TV shows like *Cosby*, *Seinfeld*, *Friends*, and *Will & Grace*. Today it’s

more likely that they watched vastly different media the night before. And if they did share something—say, a funny YouTube video—it’s likely they all laughed alone, as they watched it individually, although they may have later shared it with their friends on a social media site.

We have become a society divided by the media, often split into our basic entity, the individual. One would think that advertisers dislike this, since it is easier to reach a mass audience by showing commercials during *The Voice*. But mass customization gives advertisers the kind of personal information they once only dreamed about: your e-mail address, hometown, zip code, birthday, and a record of your interests—what Web pages you visit and what you buy online. If you have a Facebook profile or a Gmail account, they may know even more about you—what you did last night or what you are doing right now. What will advertisers want to sell to you with all this information? With the mass-customized Internet, you may have already told them.

KEY TERMS

The definitions for the terms listed below can be found in the glossary at the end of the book. The page numbers listed with the terms indicate where the term is highlighted in the chapter.

Internet, 46	broadband, 50	portal, 63
ARPAnet, 46	digital communication, 50	data mining, 66
e-mail, 48	instant messaging, 51	e-commerce, 66
microprocessors, 48	search engines, 51	cookies, 66
fiber-optic cable, 48	social media, 52	spyware, 67
World Wide Web, 49	blogs, 52	opt-in or opt-out policies, 68
HTML (hypertext markup language), 49	wiki Web sites, 53	phishing, 69
browsers, 49	content communities, 53	digital divide, 69
Internet service provider (ISP), 50	social networking sites, 54	net neutrality, 71
	Telecommunications Act of 1996, 62	open-source software, 72

For review quizzes, chapter summaries, links to media-related Web sites, and more, go to bedfordstmartins.com/mediaculture.

REVIEW QUESTIONS

The Development of the Internet and the Web

1. When did the Internet reach the novelty (development), entrepreneurial, and mass medium stages?
2. How did the Internet originate? What role did the government play?
3. How does the World Wide Web work? What is the significance of it in the development of the Internet?
4. Why did Google become such a force in Web searching?

The Web Goes Social

5. What is the difference between a “Read/Only” culture and a “Read/Write” culture of the Internet?
6. What are the six main types of social media?
7. What are the democratic possibilities of social media? How can social media aid political repression?

Convergence and Mobile Media

8. What were the conditions that enabled media convergence?
9. What are the significant milestones for mobile devices as playing a part in media convergence?

QUESTIONING THE MEDIA

1. What possibilities for the Internet’s future are you most excited about? Why? What possibilities are most troubling? Why?
2. What are the advantages of media convergence that enable all types of media content to be accessed on a single device?
3. Google’s corporate motto is “Don’t be evil.” Which of the four major digital corporations (Google, Apple,

10. How has convergence changed our relationship with media, and with the Internet?
11. What elements of today’s digital world are part of the Semantic Web?

The Economics and Issues of the Internet

12. Which of the four major digital companies are most aligned with the “open Internet,” and which are most aligned with the “closed Internet”?
13. What is the role of data mining in the digital economy? What are the ethical concerns?
14. What is the digital divide, and what is being done to close the gap?
15. Why is net neutrality such an important debate?
16. What are the major alternative voices on the Internet?

The Internet and Democracy

17. How can the Internet make democracy work better?
18. What are the key challenges to making the Internet itself more democratic?

Amazon, and Facebook) seems to have the greatest tendency for evil? Which seems to do the most good? Why?

4. As we move from a print-oriented Industrial Age to a digitally based Information Age, how do you think individuals, communities, and nations have been affected positively? How have they been affected negatively?

ADDITIONAL VIDEOS

Visit the  **VideoCentral: Mass Communication** section at bedfordstmartins.com/mediaculture for additional exclusive videos related to Chapter 2, including:

- **USER-GENERATED CONTENT**
Editors, producers, and advertisers discuss the varieties of user-generated content and how it can contribute to the democratization of media.
- **INTERNET MEDIA ENTREPRENEURS: NEWSY**
Jim Spencer, the founder of Newsy.com, describes his news service that delivers multiple sources on individual stories straight to laptops and other mobile devices.