Technology, Convergence, and Democracy

In the run-up to the presidential election in 2012, a major narrative in campaign speeches and political ads was articulated by GOP candidate Mitt Romney in the wake of the Nevada primary caucus “President Obama wants to fundamentally transform America. We [the GOP] want to restore to America the founding principles that made the country great.” The central conflict driving the political spin in this narrative is the pitting of change against tradition. Such a narrative also explains, in part, why the “mainstream media” often face persistent criticism from conservative political leaders and media figureheads. If the media act fundamentally as narrators of change in our society—which is a central argument in this book—then it is easy for them to be seen not only as agents of modern change but as agents of liberal causes.

The paradox of this particular narrative, however, is that even as some politicians champion reactionary politics and resistance to change, they embrace technological innovation—certainly a major agent of change in our contemporary world. Conservative politicians still set up Twitter accounts and Facebook pages. They have smartphones. They read the news online. They embrace raising money via the Internet, a centerpiece in any modern political campaign.

This political paradox is part of society’s paradoxical relationship with technology. We might criticize the way some people sit glued to their screens, losing themselves in a video game or checking their cell phones during in-person conversation. We revere words like natural, real, and authentic, while we are suspicious of words like synthetic, artificial, and manufactured. On the other hand, most of us like gadgets. We like the ease of e-mail and texting, and fast access to Internet information. We like our handy smartphones when we can’t remember that grocery store item or when we’re driving late at night and seek the comfort of a familiar voice. We like our NPR news or our audio books on those congested drives to work or school. We like watching whatever Simpsons episode we want, whenever we want; we like catching up with old friends on Facebook; we like checking our up-to-the-second
Twitter feeds. We like our satellite TVs, our printer-scanners, our digital display exercise bikes, our microwave popcorn, our Blu-ray discs, and our DVRs that can skip through commercials. We like our cars. And we like the way technology can keep us informed in terrible times, whether it’s tracking missing soldiers during wartime or relaying stories about natural disasters like Hurricane Katrina or human tragedies like the Boston Marathon bombings.

Everyday life has become so technically complex that we use one machine to blot out another. We put on headphones to block out street noise and the rumble of traffic. We call a state or federal agency to ban those exasperating telemarketers from interrupting our favorite TV show. We grab the TV remote to mute that annoying local used-car salesman. We get in our cars to escape to the country and away from the neon hustle of urban living.

This love-hate relationship with technology marks one key paradox of contemporary society. We are nostalgic for the pace of the past at the same time we drive headlong into the future, overloaded by our gadgets—most of them having indeed made our lives, if not better, at least more convenient. As mentioned in Chapter 1, Amazon.com represents this paradox as a giant digital retailer that started out selling the oldest mass medium, the book. But another paradox of contemporary life—one that speaks to the state of democratic life—is the way the Internet potentially fragments us. That is, we now live in a world where there is no longer the shared common culture of the daily news or shared stories aired on just three major networks. Whereas a large percentage of Americans once relied heavily on such similar cultural touchstones, today our media use—except in those times of national tragedies or cultural ritual (108 million of us in the United States tuned in to the Super Bowl in 2013—among the largest TV audiences in U.S. history)—is marked mostly by our individual interests. Has a shared sense of community or nationhood been undermined by the ways our cultural pursuits are now driven by personal choice, whether it is the specialty magazine about golf or a particular chef on a satellite-delivered channel or the narrow politics of a news blog or cable news talking head? In a nation as diverse, stratified, and politically divided as ours, technology has made it possible to pursue only those things that interest us as individuals, which may obscure the daily common cultural ground we require to talk about the kind of society and democracy we want.

In this chapter, we address the ways new technologies have enhanced or harmed our lives both as consumers and as citizens. First, we trace the history of our transformation from a production-oriented to a consumption-driven society, relying on the concept of media convergence and the stages through which new media technology develop. Next, we examine closely the impact and influence of our newest media—particularly the Internet—inspecting issues ranging from technical convergence to economic consolidation. Finally, we return to questions surrounding the complicated and paradoxical relationship between technology and democracy.
FROM AN INDUSTRIAL AGE TO THE INFORMATION ERA

In Europe and America in the late nineteenth century, the rise of modern industries and new machines revolutionized social life as factories replaced farms as the main centers of work and production. During the 1880s, roughly 80 percent of Americans lived on farms and in small towns; by the 1920s and 1930s, much of this population had shifted to urban areas, where new industries and economic opportunities beckoned. The city had overtaken the country as the focus of national life. The gradual arrival of the modern Industrial Age usually refers to the period spanning the development of the steam engine in the 1760s to mass assembly-line production of the early to mid 1900s, an era that transformed and was transformed by manufacturing and consumer culture.

In America, this major shift from an industrial, print-based society to an Information Era began with the development of the telegraph in the 1840s. Telegraph technology made four key contributions to communication. First, “it permitted for the first time the effective separation of communication from transportation,” making media messages instantaneous—unencumbered by stagecoaches, ships, or the pony express. Second, the telegraph, in combination with the rise of mass-marketed newspapers, transformed “information into a commodity, a ‘thing’ that could be bought or sold irrespective of its uses or meaning.” By the Civil War, news had become a valuable product, foreshadowing its contemporary role as a communication form that is both enormously profitable and overwhelmingly ubiquitous. Third, the telegraph made it easier for military, business, and political leaders to coordinate commercial and military operations, especially after the installation of the transatlantic cable in the late 1860s. Finally, the telegraph prefigured future technological developments, such as the fax machine and the cellular phone. The dot-and-dash symbols of Morse code telegraphy foreshadowed the one-and-zero binary code combinations of digital communication in our own time.

The rise of film at the turn of the twentieth century and the development of radio in the 1920s were early signposts, but the electronic phase of the Information Age really developed in the 1950s and 1960s. The dramatic impact of television on daily life marked the arrival of a new visual and electronic era. With the coming of the latest communication gadgetry—cable television, DBSs (direct-broadcast satellites or services), fax machines, ever smaller personal computers, cell phones, electronic mail, DVDs, DVRs—the modern Information Era entered its digital phase.

In digital communication, images, texts, and sounds are converted (encoded) into electronic signals (represented as varied combinations of binary numbers—ones and zeroes), which are then reassembled (decoded) as a precise reproduction of, say, a TV picture, a magazine article, a song, or a telephone voice. Electronic
innovations, for instance, included hand-cranked and later rotary-dial telephones, whereas digital innovations handed us Touch-Tone technology. On the Internet’s multitudinous Web pages, image, text, and sound are all digitally reproduced and transmitted globally.

New electronic and digital technologies, particularly cable television and the Internet, have developed so quickly that traditional business and political leaders in communication have faced challenges to their control over information. For example, in the 1992 and 1996 presidential campaigns the news networks first began to lose their influence and audience to cable’s CNN, Comedy Central, and MTV as well as to radio talk shows and Internet communities. Moreover, the technology of e-mail, which has assumed much of the functions of “snail-mail” postal services, has outraced attempts to control it within national borders. A professor sitting at her desk in Tulsa, Oklahoma, can instantly send a message to a research scientist in Zagreb, Croatia, who can now respond without fear—most of the time—of government agents opening the mail. As recently as the early 1990s, written letters between the two might have taken months to reach their destinations.

Converging and Evolving New Media

As the millennium turned, the merging of the electronic and digital eras fostered a whole new direction in mass media—the age of media convergence. Media convergence refers to the appearance of older media forms on the newest media channels—for example, magazine articles or TV programs now accessible on the Internet. But this convergence is not particularly new. Back in the late 1920s, the Radio Corporation of America (RCA) purchased the Victor Talking Machine Company and ushered in machines that could play both radio and recorded music. Then in the 1950s, the radio and recording industries again teamed up, with radio using records to replace the content—quiz shows, sitcoms, dramas, national sponsors—that it had lost to television. Meanwhile, the new magazine TV Guide made television its content and reached multimillion print circulation figures rivaled at the time only by Reader’s Digest.

Media convergence is also much broader than the simple merging of older and newer forms along an information highway. In fact, the various eras of communication are themselves reinvented in the Age of the Internet. An older era of oral communication, for example, finds itself reconfigured, in part, as e-mail, instant messaging, and Twitter. Print communication finds itself re-formed in the thousands of newspapers now available worldwide in digital formats for our tablets and computers. Meanwhile, electronic communication forms such as television and radio are being reimagined in the form of YouTube clips and video blogs and podcasts, as well as excerpts from traditional TV or cable programs recirculated with streaming online video.
Although convergence offers the promise to citizens of wide choice and flexible control over how we use and access media, another definition of media convergence describes a particular business model that is favored by corporate interests. In this model, convergence is about consolidating various media holdings—say, cable connections, phone services, television transmissions, and Internet access—under one corporate umbrella. Here the goal is not necessarily to offer consumers more choice but to better manage resources, cut staffs, and maximize profits. For example, a company that owns TV stations, radio outlets, and newspapers in multiple markets—as well as in the same cities—can deploy a reporter or producer to create three or four versions of the same story for various media outlets. So rather than each radio station, TV station, newspaper, and online news site all generating diverse and independent stories about an issue vital to a community or city, a converged media company can now use fewer employees to generate multiple versions of the same story. This means a company employing a convergence model needs fewer reporters, producers, and editors—not more. So fewer stories generated under this business arrangement means less citizen choice in terms of news coverage. This model offers more profits to those companies that figure out how to downsize—or converge—their workforce, and at the same time they increase their media holdings in many markets.

Marked then by both the technical and economic convergences, our so-called Information Era has barely begun. Most mass media do evolve through various stages, which are initiated not only by the diligence of smart inventors, such as Thomas Edison, but by social, cultural, political, and economic circumstances. For instance, both telegraph and radio developed as newly industrialized nations sought to expand military and economic control over colonies and to transmit information more rapidly and conveniently. The phonograph too emerged in part because of the social and economic conditions of a growing middle class with more money and leisure time. Today, the Internet is a contemporary response to similar sets of concerns: transporting messages more rapidly and conveniently while appealing to middle- and upper-middle-class consumers.

NEW MEDIA: INNOVATION, IMPACT, AND INFLUENCE

Typically, media innovations emerge roughly in four phases. First is a development stage in which inventors and technicians try to solve a particular problem, such as making pictures move, transmitting voices across space without wires, or sending mail electronically. Second is the entrepreneurial phase in which inventors and investors determine a practical and marketable use for the new technology. The Internet, for instance, was originally developed by the military as a widely distributed
communication system—that could survive natural disasters or, more importantly, nuclear attacks on a central command post like the Pentagon.

The third phase in a new medium’s development involves a breakthrough to the **mass medium stage**. At this point, entrepreneurial managers figure out how to market the new technology as an appealing product for the home or office. In the case of the Internet, Pentagon and government researchers developed the prototype, but commercial interests extended its reach nationally and globally. With the release of the World Wide Web in 1991, and the introduction of user-friendly graphic browsers like Mosaic in 1993 and Netscape in 1994, the Internet entered its mass medium stage.

Finally, the fourth and latest phase in a medium’s evolution is the **convergence stage**. In this stage older media like magazines are reconfigured in various forms like digital tablets. But this does not mean that these older forms disappear. For example, we can still get the *USA Today* in print, but it is also now accessible on laptops and smartphones via the Internet. During this stage, we see the merging of many different media forms onto online platforms, but we also see the *mass* in mass media dissipate as the large so-called mass audience fragments into smaller targeted market segments. For example, at the height of TV’s Network Era in the 1960s and 1970s,
the bulk of the mass audience watched one of the three major networks. But as cable
and satellite TV programmers developed hundreds of new channels and services,
and as millions of new Web sites exploded on the Internet, the audience—now with
thousands of choices beyond the three original TV networks—spread out in many
different directions.

For media in society, the central questions raised by the evolution of contempo-
rary media and technology have to do with their impact on democratic life: whether
we are more or less involved in the political decisions of our nation, especially in
times of national crises; whether we all have fairly equal access to this technology;
and whether that technology has so fragmented us that, while we seem intercon-
ected, we are also isolated from one another in totally new ways. In this section we
take up these questions, focusing primarily on our newest medium, the Internet, as a
case study for what the digital world has wrought and how it has impacted not only
our other mass media but the very nature of democratic life.

**Media, Military, and Technical Solutions**

Just as radio developed in part as a solution to get messages to military ships at sea
(which, of course, could not be reached by telegraph poles), the Internet too had
military origins. The “information highway,” like the physical interstate highway
system, originated with military-government planning and with national security as
one of its goals. Begun in the late 1960s by the Defense Department’s Advanced
Research Projects Agency (ARPA), the original Internet—called ARPA net (and
nicknamed the Net)—enabled military and academic researchers to communicate
on a decentralized network system. The design of what would become the Internet
differed from the centralized style of telephone communication at the time, whereby
calls were routed through a central switcher. A more decentralized and broadly
distributed network system offered two advantages to the researchers and military
units developing the Internet. First, because multiple paths linked one computer
site to another, communications traffic would be less likely to get clogged at a
single point. This helped convince computer researchers in the 1960s to sign on
to the network project—they could share research and data on the new network
without their computers becoming overrun by the traffic of others’ messages.
Second, because this network was like an interconnected web, the Internet offered
a communication system that seemed more impervious to technical errors, natural
disasters, or military attacks. If a bridge was out on one road of the highway, Internet
traffic could be rerouted.

Ironically, one of the most hierarchically structured and centrally organized insti-
tutions in our culture, the national defense industry, created the Internet, probably
the least hierarchical and most decentralized social and technical network ever con-
ceived. Each computer hub in the Internet has similar status and power, so nobody can
own the system outright and nobody has the power to run all others off the network. There’s no master power switch, no Internet police force that can shut down the Internet (although some authoritarian nations do control computer hubs and servers).

During its developmental stage, the military computer network permitted different people in separate locations to communicate with one another. By simply leasing existing telephone lines, they used the system to send e-mail and to post information on computer bulletin boards, sites that list information about particular topics such as health issues, computer programs, or employment services. At this stage, the Internet was primarily used by universities and government research labs, and later by corporations—especially companies involved in computer software and other high-tech products—to transmit and receive text information.

By 1982, the Internet hit its entrepreneurial stage: The National Science Foundation invested in a high-speed communications network designed to link computer centers around the country. This innovation led to a dramatic increase in Internet use. Then, after the dissolution of the Soviet Union in the late 1980s, the ARPANET military venture officially ended. By that time, however, a growing network of researchers, computer programmers, commercial interests, and amateur hackers had tapped into the Internet, creating tens of thousands of decentralized side roads and intersections. As the military had predicted, the absence of a central authority meant that the Internet could not be knocked out. By 1993, the Internet had developed its convergence capabilities, enabling users to transmit pictures, sound, and video. This technology slowed down computer performance at first, but with the emergence of high-speed cable broadband and rapid DSL lines offered by telephone and electric companies, we have come to expect our Internet access today to be instantaneous. And we are annoyed when it is not.

Just as most radio pioneers did not foresee the medium’s potential, many innovators of the Internet did not predict how rapidly its mass appeal would spread beyond military and research interests. They also did not foresee that the convergence stage of this medium had the potential to both connect us and insulate us from one another. During the 1990s, the number of Internet users started doubling and then tripling each year, and this growth drew the attention of commercial interests who did see the potential of creating all these new smaller niche markets that could be isolated and targeted. Companies searching for ways to profit from the increased traffic on the Internet hoped to turn each user into a consumer by hawking products, providing services, and selling ad space. Governments also established Internet sites, providing information online, posting important documents, and distributing such items as tax forms.

In the United States, the Internet has also been heralded for embracing the public’s right to know, with thousands of government documents posted for easy public access. However, after 9/11, that effort was severely curtailed, as the U.S. government moved to restrict seemingly benign public information, such as Clean
Air Act reports on industrial sites, for fear that such information would be used for terrorist purposes. Elsewhere, in nations such as China, the world’s millions of online users have generally circumvented attempts to block some information. In fact, many users take advantage of the Internet’s ability to cross borders, circulating banned or controversial writing or art that may have been suppressed by authoritarian governments. This ability to subvert centralized authority is one of the early democratic promises that Internet technology has actually delivered on.

**A New Media Model**

Preceding the development of the Internet, cable television had begun altering the media landscape by redefining the concept of narrowcasting—moving away from the mass audience by providing specialized programming for diverse and fragmented groups. This development slowly cut into traditional TV “broad”-casting’s coveted and large prime-time audience. For the advertising industry too cable TV programs provide access to specific target audiences that could not be guaranteed by the big broadcasting giants. For example, golf-equipment manufacturers can buy ads on the Golf Channel and reach only golf enthusiasts. Or Fox News executives can market their own brand of “fair and balanced” news and opinion that appeals to more politically conservative viewers. Because the audiences are now smaller and specialized, ads are sold at a fraction of the cost of a 1980s network ad; they reach only the targeted viewers and not the larger general public. As cable channels have become more and more like specialized magazines or radio formats, they have siphoned off viewers from ABC, CBS, and NBC, undermining the networks’ former role as programmers-in-chief, providing shared stories in our common culture (particularly during the period from the mid-1950s to the early 1980s).

So when cable emerged to challenge traditional broadcasting in the 1970s, expectations were high, not unlike today’s expectations for the Internet. Offering more than new competition, cable’s increased channel capacity provided the promise of access. With more government, educational, and public-access channels, cable at first seemed to promise the possibility of vibrant debate, allowing ordinary citizens a voice via television. Local nonprofit access channels have, in fact, provided some opportunities for citizens to participate in democracy and even create their own programs. But by the late 1990s, political leaders in major metropolitan areas like Kansas City decided that access channels were no longer required for cable franchises. For the most part, cable and now direct broadcast satellite, or DBS, services (like DirecTV or Dish TV) have come to follow the one-way broadcast model: Their operators choose programming from hundreds of for-profit service providers like CNN and ESPN, with little input from citizens and consumers. This means most of us purchase monthly subscriptions to expensive packages or tiers of programming (most of which we never watch) rather than just paying for those services and channels we actually watch.
The Internet improves enormously on the cable subscription model, offering mostly free services and delivering on the early interactive potential of cable. Considering the information highway metaphor allows us to imagine our more traditional media—books, newspapers, television, and radio—as an older interstate highway system now outdated and overrun by sprawling growth and under-construction new developments. In addition, many side roads along the highway are virtually unregulated, open to all kinds of opportunities, mischief, crime, and pornography.

Unlike highways built by federal and state governments, however, the information highway has been taken over and expanded by private enterprise, although it was initially established and subsidized by the government. What difference does this make? If we look to the history of another medium, we know that, when private commercial managers took over radio broadcasting in the 1920s and 1930s (through the creation of RCA), they helped build the United States into the world’s foremost producer of communication technology and content. At the same time, though, they dramatically thwarted the growth of nonprofit (labor, religion, civic groups, etc.) and educational broadcasting. They did this, in part, by linking their commercial interests to “America’s interests” and by portraying nonprofit radio operators as “special interests.” In other words, they conflated capitalism with democracy and persuaded the newly created FCC that market agendas had priority over noncommercial concerns and the “special interests” of labor, religious, and educational institutions.\(^5\)

Certainly the Internet, like cable, demonstrated early democratic promise, primarily because it was so decentralized and so interactive. With the opportunity for anyone to send an e-mail, blog, or enter a chat room, the Internet offers a voice to the voiceless—an early ideal that drove cable’s development of government, education, and local public-access channels. But the full impact of the Internet and the expanding information highway, like that of radio and other mass media, has not yet played out. Cable TV, for example, which operated in only 13 percent of American households in 1975, took nearly twenty years to reach 60 percent of U.S. homes. The Web has had a much more rapid ascent to mass-medium status: More than 60 percent of U.S. households were connected to the Internet by 2002, just ten years after the introduction of the first Web browsers. By 2012, more than 90 percent of U.S. households had Internet access.

Though it has echoes of cable and other earlier mass media, the Internet is unique in that few limits exist on how much content it can support. For example, the last print edition of the *Encyclopædia Britannica* had 65,000 articles that came from 4,000 expert sources; *Wikipedia* in 2012 had over 3.8 million articles—and 750,000 contributors.\(^6\) Although it’s difficult to fully assess how the Internet is changing the world, it became very clear after the 9/11 terrorist attacks how ingrained online communication had become in global economies, politics, and cultures. Millions around the world turned to the Internet that day to find
information on the attacks and communicate with others. Later, it became clear that while it has worked to help relief agencies in aiding victims of terror, the Internet has also served as a covert message conduit and recruiting tool for global terrorism. Then, when Katrina hit in 2005, the Internet served as a message board to help reunite scattered evacuees from New Orleans and other small and large communities ravaged by the hurricane and flooding.

The Internet remains a major medium for the global economy. But the slowing of the dot-com business world in 2000 and the 9/11 attacks a year later led to new cautionary tales about the Internet. In October 2001, the United States enacted the Patriot Act, an antiterrorism law that granted sweeping new powers to law enforcement agencies for tracking Internet banking and transfers of money and for intercepting computer communications, including e-mail messages and Web browsing activity. Although there was widespread public criticism that the Patriot Act was a response to fear and made us less free, Congress renewed the Act in 2006. Other nations followed the United States’ lead on increasing Internet surveillance. Today, the debate over security measures versus civil liberties continues and will shape communication on the Internet and in the entire world for years to come.

As governments, corporations, and public and private interests vie to control the evolution of this relatively new medium, answers to many questions remain ambiguous. Who will have access to the Internet, who or what will attempt to manage it, and what are the implications for democracy? The task for critical media consumers is to sort through competing predictions about the Internet and new technology, analyzing and determining how the “new and improved” Information Age can best serve the majority of citizens and communities.

These rapid technological advances pose a major challenge to cable TV and other more traditional media. With its ability to support both personal conversation and mass communication, Internet convergence with other mass media has broken down conventional and historical distinctions among media and between private and public modes of communication.

Internet Innovations and the Web

The Internet embodies convergence, and three innovations in particular make the Internet a distinct medium. First, it is interactive, enabling receivers to respond almost immediately to senders’ messages. Second, its various sites enable many traditional media, such as books, magazines, and films, to appear on computer or smartphone screens. Third, it allows individuals inexpensively to create and distribute their own messages, authorizing users to become significant producers rather than just passive consumers of media content.

The Internet has blurred the boundary between point-to-point communication (like the telephone) and mass communication (like television). It has linked home,
school, and business computers, TV sets, radios, iPods, CD and DVD recorders and players, DVRs, digital cameras, e-mail, video games, scanners, newspapers, fax machines, magazines, communications satellites, smartphones, and tablets. This capability makes it theoretically possible for anyone to become a player—from cable TV companies and regional telephone providers to computer-software firms and individual entrepreneurs. But the new convergences have had the greatest impact on two more personal communications media—the telephone and the personal computer—that both developed primarily as forms of point-to-point or personal communication, not as mass communication. Both, however, have become central players in the digital media revolution.

The key innovation in taking the Internet from its developmental and entrepreneurial phases to the mass media and convergence stages was the introduction of the World Wide Web. Developed in the 1980s by software engineer Tim Berners-Lee, the Web was initially a text-only 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. Hypertext is a nonlinear way of organizing information, enabling a user to click on a highlighted word, phrase, picture, or icon and skip directly to other files related to that subject in other computer systems.

The millions of pages, or sites, on the Web can be designed on an ordinary word-processing program that has a feature for writing hypertext commands and can communicate everything from a point of view to a job résumé to consumer product information. To navigate the Web, directory services like Yahoo! or search engines like Google help us find our way around; they rely on people to review and catalogue Web sites, creating categories with hierarchical topic structures that can be browsed. Search engines and directories maintain staffs of paid editors to review the sites, whereas open directory projects like Wikipedia depend on armies of volunteers from around the world to stay credible and up-to-date. Search engines offer a different route to finding content by allowing users to enter key words or queries to locate related Web pages. Google has emerged as the key search engine to the Web. Developed by two Stanford University students in the mid-1990s, Google is today among the most valuable brand names in the world. The company’s motto—“Don’t be evil”—worked well in the early days when Google was a small search engine taking on the near monopoly power of Microsoft. But things are different today as Google has grown into a multibillion-dollar corporation, facing its own charges of monopoly, as well as concerns about its ability to guard privacy rights. Critics worry that as the company expands globally it has been more willing to make compromises that have co-opted its motto. For example, Google’s cooperation with the Chinese government’s attempts to censor its critics has drawn worldwide attention. When it first began doing business there, Google made a controversial agreement with China’s political leaders to censor search results. But after several years of feuding with the government over these issues,
in 2010 Google set up a link on its censored and China-approved “.cn” domain, Google.cn, to an uncensored Web site located in Hong Kong—Google.com.hk.

Google is so ubiquitous today (5 billion searches per day in 2012) that it is beginning the transition from well-loved innovator to corporate icon. On this trajectory, the pioneering search engine has achieved a status that has surpassed McDonald’s, Walmart, and, of course, Microsoft. Google is accomplishing this by using the Web browser as the central application on the computer, instead of Microsoft’s dominant operating system, Windows, and accompanying application Office. Office came out in 1990 and by 2013 held a monopolistic 95 percent market share for desktop office software.\(^7\)

In keeping up with the newest technology breakthroughs in software, Microsoft has struggled. Despite efforts to develop smartphone software with its Windows Mobile products, Microsoft has gained little traction in a mobile operating systems market dominated by Google’s Android and Apple’s iOS. In efforts to also play in the search engine game, Microsoft has tried to acquire Yahoo! several times. Microsoft’s main interest in acquiring Yahoo!, of course, was to challenge search engine leader Google. The company did overhaul its own struggling search engine Bing in 2009. Shortly thereafter, Yahoo! and Microsoft reached a ten-year agreement in which Microsoft took over the search engine responsibilities on Yahoo!, which received 88 percent of all search-related ad revenue for the deal’s first five years.\(^8\)

### Comparing Microsoft and Google*

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- One Year Sales Growth: 5.4%
- One Year Sales Growth: 32.4%

Corporate dominance aside, today’s Internet search engines, led by Google, can do more than offer instant access to millions of Web pages related to cruising for certain information. These engines will be able to search TV programs and movie archives by image, personalize searches by remembering our specific interests, and retrieve data from searches of both local information held on our home computers and broader databases available on the Internet. We often use search engines to find answers—for example, how many copies the last Harry Potter book sold, what movies Spike Lee directed, and how much advertisers pay for a TV ad in prime time. Initially, our queries came back mostly as a giant list of Web pages that might lead us to the answers. However, as search engines get better and more refined, the Internet now delivers not merely a list of popular Web sites but actual focused answers to specific questions.

But corporate concerns could short-circuit the enormous retrieval power of the Internet. Because search engines are popular entry points, or portals, to the Web, the home pages of search engines now offer not only a search button but also several “channels” that provide shortcuts to the day’s news stories, up-to-the-minute sports scores, and links to advertisers’ Web sites. The idea behind these channels is to keep users connected to the search site for as long as possible and thus offer an attentive audience to Web advertisers. The channel locations on the search engines’ Web pages are also typically paid for by the content providers, creating another revenue stream for search engine sites. In the pursuit of greater revenue, many search engines have compromised their usefulness as locators of Web content. By accepting payment for listing certain Web sites at the top of a result list—and not always notifying users of this practice—search engines are increasingly ensuring that the best-financed sites on the Web get the most visitors, whereas nonprofit Web sites that can’t afford priority placement become increasingly marginalized. Although this practice generates funds for commercial search engines, it does not bode well for search engines as research tools for the Web.

**TECHNOLOGY AND DEMOCRACY**

Back in 1993, media critic Marc Gunther offered an analogy for access to virtual and real highways: “If the information highway becomes a vital communications link in the 21st Century, who will be able to ride? . . . The interstates of the 1950s helped relocate jobs to the suburbs and beyond, leaving city folks stranded unless they owned cars.” Whereas traditional broadcast media served the public interest statute of the Federal Communication Act of 1934 and made the same information available to everyone who owned a radio or a TV set, the Internet creates economic ranges and disparities in service. This is similar to the development of cable in the 1970s when that industry began offering different tiers of service—from stripped-down basic cable to deluxe offerings that included a number of premium channels like HBO and Showtime.
Like deluxe cable packages, parts of the Internet have become toll roads rather than freeways, with wealthy users buying different levels of privacy, specialty access, and Internet capabilities. The Wall Street Journal, for example, has a paid service that successful business costumers subscribe to, and the New York Times, after several experiments with pay systems, has settled on a system where readers can see a limited number of articles for free, but must subscribe (digitally or to the print version) for regular full access. Policy groups, media critics, and concerned citizens are debating the implications of limiting media access for democratic societies, which have traditionally valued the equal opportunity and open access to the knowledge and information required to make decisions in any robust democracy.

**Who Owns the Internet?**

With the increasing convergence of owners and players in mass media industries, large media firms continue to expand. Corporations such as Disney, Comcast, Sony, Time Warner, News Corp., Viacom, CBS, Microsoft, and Google have been buying up or investing in smaller companies and spreading their economic interests among books, magazines, music, movies, radio, television, cable, Internet channels, and digital technology. Time Warner and News Corp., however, have been divesting themselves of their less profitable print media.

As with the automobile or film industries of an earlier era, many players and companies are jockeying for positions of prominence. With the passage of the sweeping overhaul of the nation’s communication regulations in the 1996 Telecommunications Act, many regional and long-distance phone companies now participate in both cable and Internet-access businesses, and as cable and phone companies gradually converted older wiring into high-speed fiber-optic lines, they wrestled for Internet supremacy—sometimes without clearly foreseeing the coming of Wi-Fi. Phone and cable companies spent billions upgrading wires but by 2012 wireless connections were the present and not the future.

Given the paucity of regulations governing the Internet and the industry’s rapid growth, it is not surprising to see an explosion of mergers, joint ventures, consolidations, and power grabs. Although these mergers have attempted to find a dominant position in the Information Era, some companies have loomed larger than others. Microsoft, for example, built monopoly dominance of its Windows operating systems and Internet Explorer browser software throughout the 1990s. Then the U.S. Department of Justice brought an antitrust lawsuit against Microsoft in 1997, arguing that it used its computer operating system dominance to sabotage its competitors. But Microsoft prevailed in 2001, when the Department of Justice dropped its efforts to break Microsoft into two independent companies.

The desire of corporations to tap into the untamed and unpredictable Internet economy is clear. Increasing commercial interests are affecting the way in which
the Internet—once an unassuming nonprofit, government-subsidized medium known for freely accessible information—is evolving. Indeed, the 2000 phenomenon of the fifteen-year-old Internet dial-up service provider AOL merging with Time Warner, then the world’s largest media conglomerate, certainly spoke to the power of the Internet in the twenty-first century. But then high-speed cable service developed as great competition for AOL, and investors grew increasingly disappointed with AOL Time Warner’s subsequent poor financial performance in the following years. Eventually, by 2002, AOL’s inability to keep expanding saddled the company with more debt and the AOL tag was quietly dropped from the giant corporation’s name.

Discussing the economic implications of the “information highway” back in the mid-1990s, critics Daniel Burstein and David Kline associated the Internet with a series of personality traits: “Free. Egalitarian. Decentralized. Ad hoc. Open and peer-to-peer. Experimental. Autonomous. Anarchic.” They contrasted these traits with the personality of modern business organizations: “For profit. Hierarchical. Systematized. Planned. Proprietary. Pragmatic. Accountable. Organized and reliable.” Given this clash of values, the development of the Internet remains in many ways unstable and dynamic, despite attempts to control and commercialize it. Unlike other media and communication businesses, where ownership has become increasingly consolidated in the hands of a few powerful firms, many parts of the Internet have eluded centralization. Moreover, it still remains fairly easy for individuals or groups to start up everything from a for-profit company to a political organization through their own Web sites. In fact, the Internet is less likely to suffer from the same economic limitations of other mass media because it was not designed to be an efficiently managed, hierarchically controlled, or tightly monitored system. Unlike a Hollywood movie and or prime-time TV program, its starting production costs are also very inexpensive.

The current Web 2.0 and 3.0 movements have been trying to keep alive the initial promises of the Internet with second and third generations of Web-based services that include blogging, social networking (e.g., Facebook and Twitter), and “wikis”—Web sites, like Wikipedia, that encourage collaborative writing and joint authorship by allowing individual users to add, remove, edit, and change existing content, usually anonymously and without registering.

Although the open, interactive, and democratic process of Wikipedia has wide appeal, there are downsides, including postings that are plagiarized—blocks of material lifted from other sources and pasted into Wikipedia—or simply wrong. For example, in 2006 Maclean’s magazine provided this example:

On Wednesday, July 5, Ken Lay, the former chairman and CEO of Enron Corp. died in Colorado. The news first hit the wires around 10 a.m., and at 10:06 Wikipedia, the online encyclopedia that allows users to update and modify entries,
proclaimed that Lay had died “of an apparent suicide.” Two minutes later, somebody changed the entry to say Lay had died “of an apparent heart attack or suicide.” Less than a minute later, some cooler head intervened and corrected the entry to say the cause of death was “yet to be determined.” At 10:11 the entry was changed again, this time asserting that “The guilt of ruining so many lives finally led him to suicide.” A minute after that, someone cited a news report that “according to Lay’s pastor the cause was a ‘massive coronary heart attack.’” Then, at 10:39, one of the Internet’s anonymous, self-taught cardiologists wrote: “speculation as to the cause of the heart attack lead [sic] many people to believe it was due to the amount of stress put on him by the Enron trial.” Finally, a few hours later, the entry was set straight, noting simply that Lay had died of a heart attack in Aspen.\textsuperscript{12}

Open sites like Wikipedia lack the journalistic filters and often enough seasoned editors to oversee a more thoughtful and careful process for reporting breaking news. As Maclean’s noted at the time, “The real problem is that, with the spreading influence of the Internet, we are trading in authoritative and accurate for cheap and convenient. Wikipedia is only one example.”\textsuperscript{13}

The Web 2.0 movement also featured social networking and swapping sites for storing, sharing, and classifying media content from words to images to music, much of it user-generated. For example, in 2006 Yahoo!, once trying to keep up with Google, bought Flickr, a service for photo-sharing; del.icio.us, a service for storing and sharing Internet bookmarks; Jumpcut.com, a site for uploading and editing photos and video; and Bix, an entertainment polling and contest site. While debate remains over the meaning of the next Web generation, one critic made this distinction back in 2006:

In Web 1.0, we went to the Web to see pages someone else created. We went to Amazon to buy books and music. We went to Google to find things.

In Web 2.0, surfers go to MySpace and create a page that contributes to a social network. Without the users, there would be no content.

Generation Web 2.0 goes to Blogspot to share deep thoughts or vent spleens and to link to others with similar thoughts and venting. They go to Wikipedia and help build a grass-roots encyclopedia.\textsuperscript{14}

All of these services and technologies have shared the desire to make information free and to make the Web more socially aware, creating communities based on tagging—labeling pieces of the Web so that other users with similar interests can better connect with them. This movement has a distinctly open-source flavor to it and, again, tries to reclaim the original egalitarian and participatory spirit of the Internet. Open-source software referred originally to the early days of computer
code writing, when amateur hackers collectively developed software by freely sharing the program source code and ideas to upgrade and improve programs. Beginning in the 1970s, Microsoft ended much of this activity by making software development a business in which programs began with private business financing and users were required to pay for them—and all the necessary upgrades.

Part of this open spirit includes an anti-authoritarian strain—from the easily downloadable shareware and freeware to the work of self-described “hacktivists,” who use their hacker skills to bring political protest to the Internet. Even though studies have found that more than 80 percent of the Internet serves commercial purposes, not all efforts to commercialize the Internet have been effective, and to a large extent the Internet ethos of free information is alive and well. The terrorism attacks of September 11, 2001, changed this to some extent, as subsequent antiterrorism laws and the Patriot Act increased government surveillance of the Internet. Nevertheless, the free trade and circulation of information continues.

The Internet and the Digital Divide

Even as that information trade continues, though, a key economic issue for our times is whether the cost of getting on the Internet or buying cable and DBS packages will undermine equal access to information. Mimicking the economic disparity between rich and poor that grew more pronounced starting in the 1980s and continues today, the term digital divide refers to the growing contrast between information “haves,” or digital highway users who can afford to acquire multiple media services, and information “have-nots,” or users who may not be able to afford cable, a computer, and the monthly bills for service connections, much less the many options now available to more affluent citizens. For example, examine the ongoing annual studies commissioned by Pew Internet and its Internet & American Life Project, which have traced the U.S. audience for Internet use by several demographic categories, including gender, age, race, ethnicity, household income, and formal education levels.

Many communities and organizations have addressed the access problem by installing computers equipped with Internet connections in libraries, banks, schools, and other public locations; this gives most community members some Internet access. As late as 1996, only one in four U.S. libraries offered access to computers and the Internet, but with money generated from Microsoft profits, the Bill and Melinda Gates Foundation since 1997 has been the leading advocate of funding networked computers in public libraries. Today nearly all public libraries in the United States offer Internet access, and nearly 10 percent of all Internet users gain access to computers this way (ranking fifth as an Internet access point after home, work, school, and someone else’s home). This kind of public library access has helped close the digital divide for many low-income citizens and remote rural residents. The Gates Foundation project has extended its philanthropy over the years and now
## Demographics of Internet Users—April 2012

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
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<td>Women</td>
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<tr>
<td>Men</td>
<td>83</td>
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<tr>
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<tr>
<td>18–29</td>
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<td>30–49</td>
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<tr>
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<td>53</td>
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<td>Some College</td>
<td>90</td>
</tr>
<tr>
<td>College+</td>
<td>95</td>
</tr>
</tbody>
</table>

*Source: Pew Research Center’s Internet & American Life Project, Spring Tracking Survey, conducted March 15–April 3, 2012. N = 2,254 adults ages 18 and older, including 903 interviews conducted by cell phone. See [www.pewinternet.org/Static-Pages/Trend-Data-(Adults)/Whos-Online.aspx](http://www.pewinternet.org/Static-Pages/Trend-Data-(Adults)/Whos-Online.aspx).*

offers free Microsoft software to libraries in thirty-five countries. In some cases, cities have begun offering free Internet access to their entire citizenry; for example, in 2006, Philadelphia announced plans to bring a free Wi-Fi system to its residents. That same year, Google announced it would offer free high-speed Internet access to all households in Mountain View, California, its home base in Silicon Valley. At the time, this Wi-Fi network established Mountain View as the largest U.S. city with free Internet access, surpassing St. Cloud, Florida, a suburb of Orlando.

Globally, though, the information “have-nots” face an even greater obstacle in connecting to the Internet. Although the Web claims to be worldwide, countries like the United States, Norway, Sweden, Finland, Japan, Israel, Australia, Britain, and
Though personal computers and Internet-enabled smartphones have become more common, some Internet users still get access through public libraries.

Germany account for most of its international flavor. In nations such as Jordan, Saudi Arabia, Syria, Iraq, China, and Myanmar, the governments permit only limited access to the Web. In many poorer countries—particularly in Africa and parts of Asia—inadequate telecommunications infrastructure means that many endure long waits in order to participate or still have no Internet access at all. For example, by the end of 2012, only 16.4 percent of the adult population in Africa and 28 percent in Asia were Internet users compared to 79 percent in North America and 63 percent in Europe.\(^\text{16}\)

Iran presents a particularly compelling case study for Internet use, especially in the area of blogging by both government supporters and dissenters. In 2006, the *Guardian* in London reported:

The arrival of the religious ruling class on Iran’s blogosphere is ironic in view of the harsh crackdown launched by the authorities against bloggers who have used it to voice political dissent. Scores of bloggers have been jailed in recent years while many sites have been blocked using US-made filtering technology.\(^\text{17}\)
At the outset of 2007, Iran had one of the higher per capita rates for blogging in the world, many citizens still writing anti-government blogs critical of Iran’s lack of freedoms. By the end of 2006, the Guardian estimated that Iran had “between 75,000 and 100,000 bloggers, most of them avoiding politics to concentrate on matters like social affairs, culture, and sex.” The political reform movement in Iran apparently began in 2001 “as a response to the closures of dozens of liberal newspapers and magazines on the orders of religious hardliners. It has since become a phenomenon among the computer-savvy younger generation.” In 2012 Iran had about 36.5 million Internet users—about 46 percent of their total population.

Americans, meanwhile, have often touted emerging mass media for their potential contributions to democracy and culture throughout the twentieth century. As radios 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, even those who were illiterate or cut off from printed information. But with the expansion of cable in the 1970s and 1980s, we started to see a repositioning of television as a medium that had separate levels of information and entertainment services. The more money consumers had, the more tiers of service they could buy. The Internet has extended this digital divide that separates rich and poor. Still, despite the criticisms of the Internet’s accessibility and continuing national and international discrepancies, many critics and citizens have praised the Internet for its democratic possibilities, its decentralization, and its accessibility.

Decentralized and Fragmented Culture

Unlike many media industries, the Internet has developed and flourished largely from the bottom up. Just as amateur radio operators influenced the growth of wireless communication in the early twentieth century, the development of the Internet owes a large debt to amateurs—students, engineers, and computer buffs. There are several disadvantages, however, to the decentralized and widely distributed nature of the Internet. One drawback has been the increased circulation of “spam” e-mail and spurious “news”—the Internet equivalent of unwanted junk mail (especially the pornographic variety) and backroom gossip. Unlike traditional media, which routinely employ editors and producers as information gatekeepers, many individuals and newsgroups on the Internet send out data that are not checked by anyone. Most serious news media screen material for accuracy, fairness, appropriateness, and decency, but such screening is more difficult to accomplish on the Internet.

Although the Internet is subject to misinformation, it is also a source of unique and valuable information such as Web sites that disclose financial contributions to candidates for public office. As such, the Internet offers a diverse array of communication
models. In such a decentralized system, millions of message groups send out bits of information, allowing millions of other interested users to receive and respond. Instead of the few-to-many model of traditional media, the Internet offers more opportunities for both one-to-one and many-to-many communication encounters.

The biggest threat to the Internet’s democratic potential may well be its increasing commercialization. Similar to what happened with the radio and television media, the growth of commercial outlets and Web sites 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 in advancing communication technology. Although there was a great deal of buzz about lucrative Internet start-ups in the 1990s, many large corporations such as Microsoft and Time Warner have weathered the low points of the dot-com economy and maintained a controlling hand in the new information systems.

At the outset of 2013, the United States had about 245 million Internet users—second to China (538 million users). This was about 78 percent of the population (compared to 40 percent in China). While the spread of the Internet—up in the United States from 50 percent in 2000—greatly increases its democratic possibilities, it also tempts commercial interests to gain even greater control over it, intensifying problems for agencies that are trying to regulate it. If the past is any predictor, expect that the Internet’s potential for widespread democratic use will always be partially preempted by narrower commercial interests.

On the more positive side of these issues, the new technologies may be so uniquely accessible that they offer at least the potential for enriching democratic processes. Books, newspapers, magazines, radio, film, and television widened and expanded the reach of media, but they did not generate equivalent avenues for response and debate. Defenders of the Digital Age argue that newer media forms—from the MP3 music of emerging artists to online streaming of independent short films to an enormous variety of blogs and social networking sites like Facebook, Twitter, and Tumblr—allow greater participation. Individuals, through social networking or by creating their own Web sites, now lead and encourage conversations about everything from movies, dating, or politics to the best colleges, worst bands, or least favorite pizza places. In response to these new media forms, older media are using Internet technology to increase their access to and feedback from varied audiences, soliciting e-mail from users or fostering social media discussions on how to connect better with audiences and improve their services.

Despite the potential of new media forms, there are some doubts about the participatory nature of discussions on the Internet. For instance, Internet users may be seeking out only those people whose beliefs and values are similar to their own. While sites like Facebook encourage younger generations to talk to one another, they may also alienate older generations who feel cut off from the kind of technical savvy required to negotiate the Internet. Although it is important to be able to
communicate across vast distances with people who have similar viewpoints, these kinds of Internet conversations may not serve to extend the diversity and tolerance that are central to democratic ideals.

To take a critical position on the information highway and digital divide debates, we need to analyze and judge possibilities and limitations. Such a position should be grounded in the knowledge that the media are converging nationally and globally, changing the nature of mass communication. It is also no longer very useful to discuss print media and electronic or digital media as if they were completely segregated forms. We live in a world where a ten-year-old can simultaneously watch a TV episode recorded on TiVo and read *The Hunger Games*, where a twenty-year-old student can make sense of a nineteenth-century poem while wearing a twenty-first-century iPod playing downloaded music that was released that day. Moreover, it is now possible to access, say, old TV shows, horror thrillers, classic literary texts, and techno music, all through cable, home computers, smartphones, tablets, and wireless Internet connections. Media such as e-mail, audio books, DVRs, and blogging are integrating aspects of print, electronic, and digital culture in daily life.

In the broadest sense, the development of Internet technology has always posed contradictions. On the one hand, our newest mass media channels have dramatically increased the number of venues and offered previously underrepresented groups the opportunity to address their particular issues. On the other hand, they have undermined a modern era during which print culture, and later network television, worked as a kind of social adhesive, giving most of the population a common bond, a set of shared information outlets and narrative programs. This same concern remains today: Do the most recent developments of the Digital Era create a fragmented, customized culture in which individuals pursue narrow personal agendas at the expense of larger social concerns?

As more and more communities become equipped with computers, satellites, smartphones, and TV screens, such convergence may make us homebound, freeing us from traditional participation in and travel to workplaces and schools. New technologies have the capacity, of course, to simultaneously bring us together in the virtual reality of the Internet and isolate us physically from one another. Other issues democracies must face are the control of a few giant media corporations over our means of communication and how we will tie technological developments to citizens’ social needs as these new and old media forms continue to influence consumer and business priorities. The gulf between the information rich and the information poor remains wide, increasing concerns about who will have access to—and who will be able to afford—the next new wave of media technologies. As the speed of technology accelerates and those stories and forms of information that most interest us become more accessible, the key question to ask is: Can our shared interests and common ties be balanced against our individual desires and cultural differences?
| CRITICAL PROCESS 1 | Internet Innovations

This chapter argues that three key innovations of the Internet are that it is interactive, it repurposes traditional media, and it enables production rather than passive consumption. The goal of this exercise is to critically process one of these three major innovations. Choose at least one of the three and work through the steps below.

**Describe** the nature and role of one or more of these innovative aspects of the Internet in your life. Describe how the Internet (or some accompanying form of social media) helps you interact with others; repurposes traditional media forms like movies, television, or music; or allows you to produce and share original content.

**Analyze** the role the Internet has in your life. How does it structure your day? How do your daily habits and routines revolve around certain Internet activities? Is this part similar to or different from the role the Internet plays in other people’s lives?

**Interpret** what this means. Why are your interactions with and on the Internet valuable or desirable to you? What does it offer you? How has the Internet become a part of your life?

**Evaluate** the costs and benefits of your example. What would your life be like without this particular element of the Internet? Do you think your Internet habits play positive or negative roles in your life? Explain.

**Engage** with others and develop an informal survey of the positive and negative aspects of the Internet. Create a list and share this with your class. What did you discover?

| CRITICAL PROCESS 2 | Stages of Media Development

The Internet, according to this chapter, passed through four stages—developmental, entrepreneurial, breakthrough, and convergence—which can be applied to almost any new form of media culture. The goal of this exercise is to apply these four stages to another technological or cultural item. It can be something much smaller than the Internet, like a new smartphone application, genre of music, style of clothing, or a type of storytelling. Pick an aspect of media that you feel has reached the breakthrough and perhaps convergence stages in recent years, months, or even weeks. (For example, imagine you are tracking the breakthrough of reality television, starting with MTV’s *Real World*. Next track what has happened to that type of storytelling today as it has dispersed through a converged and fragmented media landscape.)
Describe your example and its present trajectory. When did it seem to first develop, how has it been entrepreneurially supported, and when did it seem to break through to a larger audience or usage? Has it reached a convergence stage yet?

Analyze that trajectory and its patterns. How did these developments occur? Why did it go in one direction and not another? What forces were behind its initial development, entrepreneurial support, breakthrough status, and possible convergence? If it hasn’t fulfilled all of these stages yet, analyze its current stage.

Interpret this process. How and why is this type of media breaking through and converging? When might convergence happen, if it hasn’t yet? Why and how do other, similar types of media or other kinds of storytelling stay at the developmental stage or fail at the entrepreneurial stage? (Consider News Corp.’s Daily failing as a tablet news venture.)

Evaluate what constitute a breakthrough. How do communication technologies get invented, popularized, and adopted? Is it driven by capitalism, by innovation, by usefulness, by our needs, by advertising? Is quality a factor? Why or why not?

Engage with classmates, friends, or family about your example. Are they aware of its development? Has it affected their lives at all? Ask them for their own examples. Make a list and share with your class.