Chapter 4

The Internet and Social Media

This chapter will prepare students to:

• describe how computers were invented
• explain how the Internet and the World Wide Web were developed
• understand the advantages of broadband Internet access
• realize the potential impact of social media
• recognize the economic impact of the Internet
• discuss the social concerns raised by the Internet

Chapter main points:

1. The computer's ancestors were machines that performed mathematical calculations.

2. By the 1970s personal computers using packaged software were on the market.

3. The Internet is a network of computer networks. It was started by the U.S. Department of Defense and in its early years was used primarily by scientists. The current Internet started in the 1980s thanks to the efforts of the National Science Foundation.

4. The main features of the Internet are e-mail, newsgroups, and the World Wide Web.

5. The introduction of broadband Internet connections will encourage the growth of streaming video and microcasting.

6. The Internet has had a beneficial impact on the national economy, and e-commerce continues to grow.

7. Social media have become important sources for news and entertainment.

8. Social media can mobilize political movements.

9. The Internet has created social concerns about lack of gatekeepers, information overload, lack of privacy, and isolation.

10. The Evernet may be the successor to the Internet.
The earliest computers were basically adding machines designed to free people from routine mathematical calculations. Early attempts date back to Pascal’s calculator and von Leibniz’s exploration of binary arithmetic.

In 1880, Herman Hollerith invented a punch card reading system to do calculations. His machine a success, he started IBM. In 1940, Howard Aiken developed the first computer using the binary system. A few years later, researchers at the University of Pennsylvania built ENIAC, the world’s first all-electronic computer. It was two stories high and weighed 2 tons.

In the 1950s, the invention of transistors, integrated circuits, and silicon chips led to the development of computers that were smaller, cheaper, and easier to maintain. Personal computers (PCs) were first seen in the 1970s and used pre-packaged software.

The development of the modem (from modulate and demodulate) in the 1980s enabled connected computers to “talk” with one another, over phone lines. By the 90s, an explosion in computer communication began, and continues today. Local area networks (LANs) allowed computers to be linked together, setting the stage for the Internet. By the 1990s, miniaturization continued, laptops and wireless modems became popular. By the turn of the century, most homes had personal computers connected to the Internet. The creation of netbooks, tablet computers, and social networks caused a further explosion of computer communication.

Cloud computing, refers to applications and services offered over the Internet (the “cloud”). Rather than storing a program on one’s computer, the program resides on a network server connected to the Internet.

The Internet is nothing more than a network of computer networks. When you log on, your PC becomes part of – temporarily at least – a worldwide network that you can operate from your own computer. These computers are run by government agencies, businesses, universities, etc. You can connect to the Internet directly via phone line, cable TV, and optical fiber, or wirelessly via satellites. Just as there is no one "Phone Company," there is no one "Internet Company.”

From ARPANET to Internet

The Internet was a Cold War idea designed to keep vital computer networks linked with one another even if a nuclear attack cut one or more of the connections to those networks. A decentralized system of multiple interconnections between computer systems solved the problem so that every computer could talk to every other computer. Computers themselves figured out how to best send the packet. The Pentagon named this early networking system the Advanced Research Projects Agency Network, or ARPANET.
The new network was used mostly by researchers to send e-mail and access remote databases. In the 1980s, the National Science Foundation decided to form a more widespread network to link its five expensive supercomputers (scattered all over the country) with other university and research facility computers. The NSF linked several regional networks together and essentially launched a civilian super network that became known as the Internet.

The Internet remained an arcane and hard-to-use resource until the 1990s when three developments gave it almost overnight and universal appeal:

- the 1990 birth of World Wide Web (WWW, or Web) and the hypertext navigation system, which allowed one electronic document to be linked with another
- the 1993 development of web browsers, which made Web navigation simple for PC users. Browsers retrieved data, determined what the data were, and configured the data for display; Internet Explorer is an example of a browser
- the development of the search engine, a utility that scans the Internet for terms selected by the user and displays the results; Google and Yahoo are examples of search engines

By the mid 2000s, blogs, social networking sites, and video sharing sites made the Internet more popular than ever. As of 2010, about 80 percent of U.S. adults were Internet users. The average American was online more than 32 hours in a month and viewed more than 1,600 Web pages.

**STRUCTURE, FEATURES OF THE INTERNET**

People gain access to the Internet through an Internet service provider (ISP), a company that connects a subscriber to the Net for a fee. Once connected to the Internet, a user can make use of a variety of tools for information, entertainment and communication. Three of the more popular are e-mail, the World Wide Web, and specialized applications called “apps.”

**E-mail**

Electronic mail, or e-mail, is sent between people connected to the Internet. It is fast, cheap, and reliable. Messages can contain text, graphics, pictures, sounds or attached computer files. E-mail works on the client/server arrangement: users (clients) access another computer (the server), where their mailbox resides. In 2010, over 107 trillion e-mail messages moved through the Net.

Drawbacks of e-mail include:

- it can be used inappropriately to communicate messages better suited for traditional or more formal communication formats
- it is not as private as a letter in an envelope
- it can include junk e-mail, or spam, an annoying nuisance that clogs mailboxes and takes time to delete
• it can lead to information overload; there has been a sharp increase in the number of daily messages people must now routinely sift through, respond to, or delete, which taking up considerable time

World Wide Web

The World Wide Web (WWW) is a network of information sources incorporating hypertext which allows the user to link one piece of information to another.

• the Web is part of the Internet; the two terms are not synonymous
• a Web site is a complete set of hypertext pages linked to each other that contain information about a common topic
• a Web page is a hypertext page that is contained within that Web site
• the home page is the entry or doorway to the site and might contain links to other pages or parts of the site

Web addresses are called Uniform Resource Locators (or URLs); the URL for this book is:

In this URL:

http:// means the page is in the hypertext transfer protocol
www refers to the server being linked to the World Wide Web
mhhe is the subdomain name
com is the top-level domain
dominick12e is the directory name

Popular types of Web sites include:

• commercial sites, maintained by businesses to promote or sell their products; these sites typically end in .com
• organizational sites, created by non-profit groups to provide information to members and the public; these sites typically end in .org
• education sites, belonging to colleges and universities; these sites end in .edu
• government sites, restricted to government entities; most end in .gov
• e-commerce sites, designed to sell products or services from a Web site
• personal sites, which include information about a person, family, or group
• news and information sites, which can be specific or general
• entertainment sites, which provide amusement
• social networking sites, where people link up with friends and share information
• search engine sites, which display lists of sites related to a user’s search term
• additional sites, which don’t fit neatly into one of the above categories

Some sites function as portals, the first pages a Web site visitor sees (usually filled with dozens of Web page links), which serve as entryways to other Web sites. By 2009, Google (a Web search engine) estimated there were more than a trillion unique Web pages. Finally, although the words “world wide” are part of the WWW, about 85 percent of the pages on the Web are in English, German, French, and Japanese.

Apps

Apps are special computer programs designed for mobile devices such as smart phones and tablet computers. Often they take people to a different version of the site that is viewed using a browser. The app version is designed specifically for viewing with a mobile device.

THE EVOLVING INTERNET

The Internet changes so fast that it is hard to predict its future. Following are some of the trends experts agree will alter the Web in the coming years.

Broadband

Broadband refers to any of the several Internet transmission channels that are fast enough to make large information transfers (such as voluminous text, music, graphics, and video) practical, quick, and easy. Broadband Internet access is available via satellite modem, cable modem, and Digital Subscriber Line (DSL).

By 2011, about 70 percent of U.S. homes had broadband, but the U.S. is still behind other countries in terms of broadband penetration.

Going Mobile: The Wireless Web

Wireless technology will become increasingly common during the next decade. Easier-to-use interfaces and faster networks will increase the number of people accessing the Internet with wireless devices, and soon, wireless Internet will be available everywhere.

Wireless access is made possible by wireless fidelity, or WiFi. WiFi uses low power radio signals to connect devices to one another and to the Internet. WiFi "hotspots" are springing up all over. The next step will be WiMax, a technology that will bring wireless Internet access to entire metropolitan areas. It works a lot like WiFi, but instead of a short 200 feet or so range, it will permit access across a range of about 120 miles.

Monetizing the Web
Web site popularity does not guarantee financial success, but investors and Web site operators want to convert all their visitors into some form of monetary reward. “Monetizing” means converting something to money, and various sites approach the process of monetizing their sites differently. Shutterfly offers subscribers a place to upload, edit, and share their photos, and charges a small fee for prints. Facebook sells display advertising. Google sells sponsored links. Hulu runs ads with its programs. Whatever the technique, commercialization will continue to increase on the Internet. Marketing and advertising are even entering the blog world.

**Blogs**

With blogs (short for Web logs), people produce their own journals about whatever they want: news, sports, politics, movies, music, etc. Blogging shows how almost anyone can become a mass communicator. Blogging began in the late 1990s but didn’t really take off until it became easy to create and post blogs. In 2009, some 130 million blogs were online, although in recent years, the popularity of blogging has decreased. *The Daily Kos* is an example of a successful political blog.

Three-fourths of U.S. bloggers are college graduates and 2/3 are male; about 1/2 are younger than 30. Most bloggers say they don’t blog to make money, but to express themselves.

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**INTERNET ECONOMICS, NEW ONLINE MEGA COMPANIES**

**The Internet and the National Economy**

The Internet has had a significant impact on the national economy, creating an estimated 1.2 million jobs. Economists value the direct economic value of the Internet at around $185 billion including about $26 million in advertising, $90 billion in retail sales and $70 billion paid to ISPs.

**New Mega Companies**

The Internet has become dominated by big companies that didn’t exist a few years ago, such as Google, Yahoo, Apple, and Facebook. These companies are primarily in the content distribution business, rather than in the business of producing original content. Thus, there has been a shift from traditional media content creators in New York and Hollywood to content distributors in Silicon Valley and Seattle.

**Web site Economics**

Profit motives vary from site to site. While some sites (e.g., government sites, personal sites) are not designed to make a profit, there are three main ways to make money over the Internet:
- **Site subscription**: Web content so attractive or useful that people are willing to pay for it
- **Product/service sales**: books, information, music, auction items, education, reservations
- **Advertising**: Online advertising appears in three categories: paid search ads (e.g. sponsored links on Google searches), display ads (banner, pop-ups, etc.), and classified ads

**FEEDBACK FOR THE INTERNET**

Like other media industries, the Internet uses independent companies to provide accurate audience data to attract would-be advertisers. Two companies dominate: ComScore and Nielsen/NetRatings, which uses a panel of consumers to generate their data.

**Audiences**

Internet audience demographics have changed and evolved rapidly. Two-thirds of adults in the U.S. use the Internet. On any given day, more than 100 million adults use the Internet, generally to send e-mail, get a specific piece of information, or for fun. The audience is split nearly equally between males and females, and generally mirrors the demographics of the U.S. population.

**SOCIAL MEDIA**

Although there are many definitions of social media, it is generally accepted that they allow users to:

- *participate* (such as voting for a favorite article)
- *converse* (such as posting a comment on a blog)
- *share* (such as posting to YouTube)
- *collaborate* (such as creating content with others on Wikipedia)
- *link up* (such as forming social networks on Linkedin)

Social media are extremely popular and the average user is getting older – the average age has increased from 33 in 2008 to 38 in 2010. Women are more likely to belong to a social network than men. More than 50 percent of people in the United States are members of Facebook and 75 percent of all teens are on a social media network. Social media can be accessed on a variety of platforms. In fact, the average smart phone user spends about 20 percent of his/her usage time visiting social network sites.

**Effects of Social Media**

Effects of social media include:
• *traditional media incorporate social media into their efforts to gain audiences*
  Social media does not seem to have much impact on the time people spend with traditional media, probably because many social media users are multitasking – posting of Facebook or Twitter while watching TV or listening to music.

• *social media have changed the way we think about entertainment, in that many people think of social media as entertainment*
  Digital cameras and editing software make it easy for people to produce their own videos for the Web, allowing individuals (rather than corporations) to supply a significant amount of entertainment.

• *social media have become an important part of the newsgathering process*
  The mainstream media often rely on citizen posts on Twitter and Facebook during the early stages of a news event.

• *social media has become commercialized*
  Big marketing campaigns usually have some kind of social media component.

**Monetizing Social Media**

Advertising on social media is big business, generating about $2 billion in 2010 and projected to rise to $8 billion in 2016, with Facebook dominating the social media advertising business.

**Social Media as Mobilizers**

Social media can mobilize people into showing up at a certain place at a certain time, as seen in *flash mobs*, groups of people called together to appear suddenly in a public place, perform an activity, then disperse.

This mobilizing power of social media can also be put to serious use, as in gathering people for political protests. Social media has strengths and weaknesses when used for political purposes:

• social media may be a catalyst for a revolution, there is no guarantee that the revolutionary mobilization will be successful

• authoritarian governments are becoming more sophisticated in dealing with protests organized via social media

• social media may empower young people to assemble and throw off the reins of an oppressive regime, but that doesn’t guarantee that the new government will be more responsive

**Negative Impact**

Negative impacts of social media are that it:

• may interfere with productivity in the workplace
• (as a form of digital media) is easily duplicated, archived and shared (and may come back to haunt the creators)
• offers the potential for cyberbullying (experienced by 1/3 of teenagers), which may lead to depression, missing school, and even more serious consequences
• is not face-to-face communication, so may not help develop a person’s interpersonal communication skills

SOCIAL IMPLICATIONS OF THE INTERNET

The social implications for the Internet and social media, as well as the implications for traditional mass media, are continually changing. But some consequences are apparent.

A New Model for News

The Internet supplements the surveillance function of the mass media. Because anyone can report on an event via Twitter or post video to YouTube, the traditional top-down model of journalism (editor to reporter) has shifted. Now news can start at the source and go “sideways” to anyone who is interested. To some, news used to be a lecture but is now a conversation. Blogs have questioned the accuracy of news stories in the traditional media; thus the Internet provides additional checks and balances to the traditional media. The Internet also expands the interpretation function of the media. Social media allow anyone to chime in with her or his opinion on news topics and controversial issues.

Lack of Gatekeepers

Traditional media have gatekeepers. On the Internet, there are none. Three implications are:

• without gatekeepers, the risk of the Internet being overwhelmed with unwanted, irrelevant, trivial, unrequested, worthless, or inconsequential messages has increased tremendously
• gatekeepers serve as evaluators of information; without them, we must judge the credibility or accuracy of the information we obtain online for ourselves
• having no gatekeepers means having no censorship

A potential positive benefit is that the lack of gatekeepers allows bloggers to publicize topics too controversial for mainstream media. Input on social media can be partisan and individualistic.

Information Overload

The Internet provides an information retrieval source that is unparalleled in its scope, providing you know how to use and evaluate the data you get from it properly. There is the danger that the large amount of data you retrieve on a subject might be more volume than substance.
Privacy Concerns

Because of the variety and easy accessibility of Internet databases, it’s relatively easy to obtain facts about anyone. One specific concern, for example, is the crime of “identity theft,” in which someone uses the Net to steal facts about your personal identity for criminal gain. Though many laws and regulations to safeguard personal privacy have been discussed, the issues are complicated. Some say voluntary guidelines would be better than laws.

Escapism and Isolation

Does the Internet detach people from others? Some psychologists have identified a condition they call Internet Addiction, and some early studies found that Internet users who spend many hours online show signs of isolation and depression. However, subsequent studies have not found the link. Many individuals spend much of their time online engaging with others, via e-mail, instant messaging, texting, game playing and updating their Facebook and Twitter pages.

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**THE FUTURE: THE EVERNET**

Before long, tiny computers connected to the Internet will be part of our household appliances and maybe even our clothes, helping us avoid repetitive or predictable tasks, such as making grocery lists by hand.

As technology evolves and shrinks in size, the Evernet – the successor to the Internet – will mark the convergence of wireless, broadband, and other devices. Also called the Supranet or Internet II, the Evernet will result in being connected continuously to the Internet anywhere using any information device. The implications of the Evernet are staggering.

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**THE INTERNET AND SOCIAL MEDIA**

As the Internet and social media are still evolving, it is difficult to describe specific career paths. It is likely there will be opportunities for employees skilled in online advertising and PR, and employees who can design and manage Web and social media sites. There will be jobs that don’t yet exist and may be hard for us to imagine right now.

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**THE INTERNET AND SOCIAL MEDIA: CAREER OUTLOOK**

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It is difficult to describe specific career paths as the Internet and social media are still evolving, in fact, there may be jobs that don’t yet exist. There are opportunities for students skilled in online advertising and online public relations techniques. People who can design and manage web sites will be in demand, and some companies are hiring directors to oversee the company’s use of social media.

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