Chapter 8

Radio

This chapter will prepare students to:

- explain how radio broadcasting developed in the 1920s
- recognize how television affected radio
- discuss the defining features of radio
- understand that radio gets programming from local stations, networks, and syndication companies
- explain how the digital age is affecting radio
- appreciate the potential of HD radio
- understand how the Internet and tablet computers have affected the radio industry

Chapter main points:

1. Radio started out as point-to-point communication, much like the telephone and telegraph. The notion of broadcasting did not come about until the 1920s.

2. The decade of the 1920s was an important one in radio. Big business took control of the industry, receivers improved, commercials were started, networks were formed, and the FRC was set up to regulate radio.

3. The coming of TV forced local stations to adopt formats, such as Top 40 or country.

4. FM became the dominant form of radio in the 1970s and 1980s. Sparked by a loosening of ownership rules, a wave of consolidation took place in the industry during the 1990s.

5. Radio is moving slowly into the digital age. Satellite radio and Internet radio are two digital services that will compete with traditional radio. Radio stations are introducing HD radio and promoting themselves via social media.

6. Radio programming is provided by local stations, networks, and syndication companies.

7. Stations have refined their formats to reach an identifiable audience segment.

8. Most radio revenue comes from local advertising. Big companies now dominate large-market radio.

9. Radio advertising revenue has recently declined.

Radio audiences are measured by Arbitron using a diary method or the new personal people meter. The demographic characteristics of the radio listener vary greatly by station format.

**HISTORY**

Important people in radio history include:

- **Heinrich Hertz**, of Germany, sent and detected radio waves
- **Guglielmo Marconi** built a wireless device to send Morse Code (letters encoded as dots and dashes) from a transmitter to a receiver; started wireless telegraph company
- **Reginald Fessenden**, with the help of G.E., made first high-speed continuous-wave generator that can broadcast the human voice and music; makes first "broadcast" of music to ships in New York Harbor on Christmas Eve
- **Lee de Forest** invented the vacuum tube, which made it much easier to receive audio waves

Patent wars between inventors hampered early radio’s development; but when the US Navy assumed responsibility for relevant patents at the outbreak of World War I, radio made great technical strides.

**The Birth of Commercial Radio**

**Big Business:** After WWI, corporate America recognized radio's potential. The Radio Corporation of America (RCA) was formed and acquired the U. S. division of the Marconi company. Almost everyone conceived of radio as wireless telegraphy; few saw the possibility that radio could broadcast news and entertainment to a wide audience. David Sarnoff, an RCA mid-manager but soon-to-be president of RCA was one of those few, and conceptualized a “radio music box.”

**A Mass Audience:** Shortly before 1920, Frank Conrad, a Westinghouse engineer, began broadcasting sports scores and music from his garage. A local department store promoted the broadcasts by selling radio sets that broadcast his programs. Westinghouse built the first radio station, KDKA of Pittsburgh, in 1920. RCA, GE, and AT&T started radio stations. Radio listening became a national craze. By discovering that an audience existed for broadcast programs intended for the general public, radio had found its niche.

**Better Receivers:** Early radios were bulky, filled with tubes and batteries, and difficult to tune. By 1926, the design improved and radios ran on household current, could be tuned with two knobs, had better antennas, and looked like fashionable furniture. Between 1925-1930, 17 million sets were sold and radio was becoming a mass medium.

**The Commercialization of Radio**

Early radio broadcasting was done by stores, newspapers, schools, insurance companies – not by broadcasting companies. It was very inexpensive at first. But station operating and equipment costs rose steadily along with personnel expenses. Radio needed a steady revenue source to meet expenses. AT&T's radio station begins charging a "toll" to anyone who wished to broadcast a message, and the most logical customers for that service were businesses with services or products to sell. Almost overnight, advertising became the answer to how stations would make money.
Networks: Radio stations saw they could cut production costs by sharing program content; this inter-station agreement came to be known as a network. If enough stations were networked, an advertiser could reach a larger audience. The first network was the National Broadcasting Company NBC started as two separate networks, one made up of stations originally owned by RCA, and another made up of stations originally owned by AT&T. The CBS network went on air the next year.

By 1937, NBC had 111 affiliates and CBS had 105. Advertisers spent more than $27 million annually on network advertising. Networks could afford to hire big name vaudeville entertainers. The most successful radio program was Amos 'n' Andy, criticized today for its racism.

Government Regulation: As more radio stations came on the air in the 1920s, interference became a major problem. In response, Congress passed the Radio Act of 1927, creating the Federal Radio Commission to curtail practices that were causing massive interference problems by using unauthorized frequencies and power levels. The FRC defined the AM band, standardized channel designations, and abolished portable stations. Thus by the end of the 1920s the framework for modern broadcasting was in place. It would be a commercially supported medium dominated by networks and regulated by an agency of the federal government.

The Depression Years and World War II

Unlike other industries, radio fared well in the Depression years, and revenues tripled. The most significant legal development for radio was the creation of the FCC.

The FCC: The Federal Communications Commission (FCC) formed under the Communications Act of 1934. President Roosevelt created a new agency in charge of regulating all types of electronic communications; this seven-member commission retained the fundamental philosophy underlying the original Radio Act of 1927.

The Birth of FM: In the mid-1930s Edwin Howard Armstrong, a noted inventor, demonstrated frequency modulated radio, or FM, to RCA. Despite FM's obvious superior quality over AM radio, RCA was not interested, opting instead to concentrate on developing TV as an emerging technology. Armstrong tried to develop FM on his own, with some success. WWII curtailed FM's development.

Radio Programs: The gloom of the Depression years meant more people turned to radio for free entertainment, thus popular radio programs of this era reflected a need for diversion and escape. Action-adventure programs such as The Lone Ranger flourished, as did soap operas.

Network radio news grew during the 1930s and live coverage of special events drew many listeners, as did coverage of WWII. CBS news commentator Edward R. Murrow quickly gained fame.

World War II: Radio thrived during WWII era. Ad revenues doubled from 1940-1945, outpacing newspapers as the top national advertising vehicle in 1943. In that same year, the Supreme Court forced NBC to divest itself of one of its two networks. The new network that emerged, ABC, ended the war years with 195 affiliates, making it a full-fledged competitor with NBC and CBS.

Innovation and Change: 1945-1954
In the nine years following WWII, both the radio and the recording industry saw great changes. The development of television delayed FM radio's growth, changed network radio, and led radio to rely on recorded music.

The Growth of FM: Although FM sounded better than AM, was static free, and could reproduce a wider range of sound frequencies, it struggled at first. It was trying to develop simultaneously with television. Also, FM and TV shared nearly the same electromagnetic wave area; in 1945 the FCC gave TV FM’s former bandwidths, moving FM into the 88-108-MHz band where it remains today. Unfortunately for listeners at that time, when FM "moved upstairs" about half a million of their radio receivers became obsolete.

The Emergence of TV: The emergence of TV meant changes in the content, economics, and functions of radio. Although TV did not have a negative effect on individual radio station revenues, it did drastically affect network radio. Network affiliations dropped by nearly half, and network revenue dropped by nearly 60 percent. Radio stations responded, turning less to network-based advertising and more to local advertisers for support. Local stations created new formats (music, talk and news) to help them compete with television.

Specialized Formats: Local radio adapted to these changes by adopting specialized formats, sounds that had distinctive appeal to a certain segment of the audience. One highly successful format was Top 40. The clock hour, a program scheduling tool that specified every element of a station’s programming within a given time frame, soon emerged.

Growth and Stabilization: 1955-1990

The number of radio stations more than doubled during this period, and the Top 40 format became popular enough to tempt record promoters to bribe DJs to play selected music (an illegal practice known as payola). The idea that prompted payola was that the more a record was played on air, the more that record would sell.

The most significant development during the 1970s and 1980s was the successful emergence of FM. FM licenses were easier to get than AM. The FCC passed the nonduplication rule, which prevented AM-FM combination stations from duplicating more than 50 percent of the AM content on the FM station. FM could capitalize on its better sound quality, and FM stations became an attractive commodity. By 1990, FM accounted for over 90 percent of total listening time.

National Public Radio (NPR) went on the air in the early 1970s as the country’s first non-commercial network; by 1980 it had over 160 affiliates and was reaching five million people weekly. Its two most successful offerings are its daily news programs, Morning Edition and All Things Considered.

Contemporary Radio

The key event for radio in the 1990s was the Telecommunications Act of 1996. The act allowed companies to own as many stations as they wished, and upped the number of stations owned by a company within a single market to eight. This law caused an avalanche of buying and selling radio stations, and increased consolidation. A few group owners now dominated the industry.
Talk became the hottest format on the AM dial. Format specialization increased on FM, and stations found that attracting as little as 2-3 percent of the audience was enough to keep them profitable.

Several important developments occurred during the early 2000s:

- Two satellite radio companies (XM and Sirius) began operation. They merged in 2008.
- Clear Channel, owner of over 1200 stations sold off more than 400.
- Radio advertising revenue decreased.
- HD radio was introduced, but many consumers were unaware it existed.
- Thousands of Internet only radio stations were in operation, but their future is tied to the copyright fees they must pay to play music.
- Radio stations faced increasing competition from iPods, iPhones, etc.
- Internet radio stations (such as Pandora) created apps for mobile devices.

**RADIO IN THE DIGITAL AGE**

**Transition**

Terrestrial radio stations slowly entered the digital age, but they appear to be catching up.

Early radio station Web sites simply streamed their broadcast audio content, but increased competition from online radio and declining ad revenues prompted them to come up with new Web strategies. Traditional radio moved online in a big way.

**Terrestrial Stations on the Web**

Convergence is common between terrestrial and web radio. For example, CBS Radio became a major online player by acquiring Web broadcaster Last FM, (where listeners can create and share playlists) and making a cooperative deal with AOL Music and Yahoo’s Music Launchcast Radio, so listeners can select programming from a variety of sources. Clear Channel Radio expanded the online version of eight of its large market stations, as did other group owners.

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Clear Channel Radio expanded the online version of eight of its large market stations and added eRockster, a site giving listeners options to a nationwide service, Clear Channel’s local stations or music-on-demand.

In 2008, traffic at terrestrial radio Web sites increase 20 percent from the previous year, while traffic to Internet-only stations decreased by about 10 percent.

**Internet Radio**
There are thousands of Internet-only radio stations, called pure-play Internet stations, on the Web. Some are specialized, for example, one plays only accordion music, another only broadcasts air traffic control transmissions. Others, like Pandora, allow users to create their own radio stations by creating playlists based on their favorite artists.

The biggest problem facing online radio is a financial one. Web stations must pay royalty fees to music performers, songwriters, composers and record labels. (As of mid-2011, terrestrial radio does not pay fees to performers or labels, although the recording companies were lobbying to change this.) In 2008, Internet stations paid $0.0011 cents per song per listener, resulting in what would be a $1 million a month payment from AOL Music. This fee made it difficult for smaller Web stations to stay in business. As of 2009, negotiations were still going on with some stations preferring to pay a listener fee and others preferring to pay a flat percentage of revenues.

High Definition (HD) Radio

HD radio is a digital service that improves the signal qualities of terrestrial radio stations and compresses signals so a single station can broadcast several programs at once, using subchannels. Consumers buy an HD receiving set to receive signals, and some new cars offer HD as an option.

HD is struggling to break new ground; the problem may be that it only offers more of the same, albeit with better sound.

Satellite Radio

Sirius and XM satellite radio merged in 2008 to form Sirius XM, which has about 21 million subscribers. For about $13 a month, subscribers can listen to more than 70 music channels along with more than 30 talk channels, or tune in over the Internet. Commuters, with satellite radio in their cars, are the primary market for satellite radio, although there are portable receivers for the home. Sirius XM is struggling to reach profitability, hurt by the downturn in new car sales, as much of its growth was due to factory-installed satellite radio in autos.

Apps and Mobile Radio

Mobility and portability have been defining qualities of radio. What is different today is that terrestrial, Internet and satellite radio are available on multiple platforms such as smart phones and tablet computers. Also, traditional over-the-air radio companies have embraced apps such as the AOL radio app, run by CBS radio, that features more than 350 stations.

User-Generated Content

The most obvious example of user-generated content is podcasting, or recording an audio program and making it available for downloading from a Web site. Both traditional broadcasters and individuals produce podcasts; Podcast.net lists thousands of available programs.

Social Media

Both terrestrial and online radio stations use social media, such as Facebook and Twitter, to attract and keep audiences. Some traditional stations are stressing social media in their mobile apps. Experts predict social media will become more of a significant part of the strategy used by terrestrial, online and satellite stations.
DEFINING FEATURES OF RADIO

Four qualities of radio:

- **portable** – it’s small and convenient enough to go anywhere, anytime
- **supplemental** – most listening occurs while doing something else: driving, working, studying
- **universal** – the average household has six radios with one in almost every car; 75 percent of us listen daily
- **selective** – radio is a niche medium, with specialized formats attracting narrowly defined audiences; 2-3 percent of the available audience is sufficient to generate a profit

ORGANIZATION OF THE TERRESTRIAL RADIO INDUSTRY

There are more than half a billion working radio sets in the United States (equaling about two radios per person) and about 14,420 radio stations. Three perspectives for looking at radio are: programming (local stations, networks, syndication), technology (AM/FM) and format.

**Local Stations, Nets and Syndicators**

Local radio stations operate in cities and towns across the country. Bigger cities have more stations. Local radio stations air programming provided by network and syndication companies, and locally produced music and talk.

Popular network and syndicators include the Premiere networks, operated by Clear Channel, Dial Global networks, and Westwood One Networks. Popular syndicated shows include those by Rush Limbaugh, Sean Hannity and Tom Joyner.

**AM and FM Stations**

Broadcast radio stations are either AM or FM. Everything being equal, **AM (amplitude modulation)** signals travel further than **FM (frequency modulation)** signals, especially at night. However, FM produces better sound qualities than AM, and is less likely to be affected by outside interference such as thunderstorms.

With AM listenership on decline, FM radio commands about 80 percent of the total audience. However, some AM stations, especially in large markets, are doing well.

Much of a radio station’s operation is automated. A computer sequences when songs play, when commercials run and when the DJ talks.

AM radio has three channel classifications:
• *clear:* a single dominant station is assigned to a channel; it provide services over a wide area, typically with a strong 50,000-watt signal

• *regional:* a channel shared by many stations, each serving a fairly large area

• *local:* a channel designed to be shared by a large number of stations that broadcast only to a smaller, local community

Like AM, FM stations are also organized by classes in a descending order of output power; an FM class “C” station (100,000 watts), for example, has more power than a class “B” or “A” station.

When radio stations broadcast a digital signal, it transmits a series of zeros and ones that represent sound frequencies. Digital receivers translate these numbers back into sound waves. The AM-FM distinction does not apply to digital radio signals.

**Station Formats**

One way to categorize a station is by its *format*, a type of consistent programming designed to appeal to a certain segment of the listening audience. This gives the station a distinctive type of personality that attracts a certain audience, which in turn attracts advertisers seeking to connect with that type of audience. Three basic categories are music, ethnic and news/talk.

**The Music Format.** The largest category with many subdivisions and variations; the two most listened to music formats in 2010 were Adult Contemporary and Contemporary Hit Radio (CHR or Top 40). Other popular formats include Urban and Country.

**Black and Ethnic Formats.** Aimed at audiences primarily defined by race and nationality, with about 175 stations aimed at black audiences and 260 stations serving Hispanics. Some 60 stations target other ethnic groups such as Polish, German, Italian, Irish, and Greek.

**Format Homogenization.** Many radio stations across the country sound the same, due in large part to consolidation. Many group-owned stations assume that what works well in one city should work well in another city. Programming decisions are often based on consultants' recommendations, which tend to be the same across markets.

**News/Talk Format.** Most popular on AM, news/talk accounts for 17% of all radio listening time and attracts primarily a 25-54-year-old male audience.

**Noncommercial Radio**

In 1945 the FCC set aside several FM frequencies for educational broadcasting. By 2009 there were about 2,400 noncommercial radio stations on the air. These are operated and supported mostly by universities and private foundations and receive additional funding from gifts, grants, listener donations, and underwriting. Programming for these stations is largely supplied by two networks, NPR and PRI. A station can be affiliated with either or both.

National Public Radio (NPR), founded in 1970, serves about 850 affiliates. Stations pay NPR a programming fee based on audience reach and annual budget. The public radio stations that help support NPR receive some financial support from the Corporation for Public Broadcasting (CPB), a private non-profit organization funded by Congress, but not enough
to cover all of their expenses. Many raise money through underwriting. NPR has been able to generate significant revenue from the digital revolution: the network is one of the biggest podcasters in the world. NPR sells sponsorship of these podcasts. However, local NPR affiliates fear that people will download the podcasts and not listen to the local station, thus hurting the local station’s chances to raise money during on-air fund drives.

Public Radio International (PRI), formerly American Public Radio, is a network that acquires and distributes programming from station-based, independent, and international producers. Unlike NPR, PRI does not produce any of its programming but does finance program production at member stations.

**ORGANIZATION OF ONLINE RADIO**

Online radio is streamed directly to a computer, smart phone or other portable device. Anyone who has access to content and the appropriate hardware and software can start an Internet radio station. The major types of stations are:

- online stations – affiliated with a terrestrial station, many of which simulcast part or all of the terrestrial station’s programming
- choice-based stations – lets listeners choose their favorite artists and types of music in order to create playlists
- format-specific Internet-only stations – stations that play narrowly focused genres of music

**OWNERSHIP IN THE RADIO INDUSTRY**

The Telecommunications Act of 1996 spawned a flurry of major multi-billion dollar station mergers and acquisitions, thus giving big media companies control of most of terrestrial radio. As of 2009, however, the trend toward terrestrial radio consolidation stopped, although the industry is still dominated by three big companies: Clear Channel, Cumulus and Citadel. On the other hand, the two satellite radio companies, Sirius and XM, merged.

**PRODUCING RADIO PROGRAMS**

**Departments and Staff**

Though departmental radio organization varies by station size, most terrestrial radio organizations feature the same two top positions. The general manager plans and implements station policies, maintains contact with the community, and monitors program content, ratings and sales information. The program director is responsible for the station’s sound, including music and/or other content and on-air personalities. Most stations also have sales, news and engineering departments, and staff members who maintain the online operations.
Putting Together a Program

Music Format. When the staff of a station puts together a program, the first step is generally to lay out a format wheel (a.k.a. format clock), a pie chart of an hour divided into segments representing different program elements and the times they’re scheduled to be aired. Various dayparts have different format wheels.

Talk Format. Produced by the local staff, talk show topics are geared to the interests of the local audience listening in at a particular time. Producing a talk show requires more equipment and technical expertise than a DJ program, such as a delay time (used to censor anything unseemly from a caller) and a call screener (someone who ranks waiting calls for importance and probable interest).

All-News Format. An all-news format uses a programming wheel to schedule content such as news, weather, sports, business reports, and commercials. The wheel also illustrates the cycle (the time that elapses before the program order is repeated). All-news is the most difficult and costly program format because it requires a large staff and many technical facilities.

THE ECONOMICS OF RADIO

The economic recession at the end of the decade affected radio negatively, with revenue down about 11 percent from 2008 to 2010. Yet, terrestrial radio still reaches about 235 million people a week, and its drive time is growing, due to longer commute times. An additional 13.5 million people a week listen online. Radio attracts targeted audiences, and music programming is cheap since much of it is free.

Sources of Revenue

Radio stations earn money by selling advertising time. The station’s rate card lists the station's fees for advertising. There are four main sources of commercial revenue, with most coming from local advertising:

- network: Sale of spots on network programs to national advertisers who wish to reach a broad audience (6 percent of revenue)
- national spot ads: Sale of time on local stations to advertisers who wish to reach a specific region or market (14 percent of revenue)
- local: Advertising purchased by local establishments that want their commercials to be heard only in the immediate community (68 percent of revenue)
- off-air income: derived from revenue generated by advertising on the station’s Web site and merchandising (8 percent of revenue)

General Expenses

Expenses in radio are divided into five areas:

- technical: engineering staff payroll plus technical repairs and maintenance
- programming: covers talent salaries, download and CD costs, music fees
• sales: sales staff salaries and sales-related expenses
• administration: management and business staff salaries, building expenses, supplies
• news: news source fees

**GLOBAL RADIO**

Government run or supervised Internet radio stations broadcast programs deliberately aimed at other countries. These are different than foreign stations, whose programming is designed for their native country’s audience, although their signals may be available on the Internet.

Propaganda broadcasts were used during WWII for political persuasion. The end of the Cold War in the late 1980s and early 90s caused a shift in structure and philosophy of international broadcasting. Political oriented materials decreased and were replaced by public affairs, news, entertainment, and cultural programming.

Until about 20 years ago, most international stations broadcast in short wave. More recently, international stations send signals over the Internet, by satellite or by AM/FM relays.

Three top international broadcasters are the Voice of America, the British Broadcasting Corporation (BBC), and China Radio International.

**FEEDBACK FOR RADIO**

**Meters and Diaries**

Arbitron Company provides measurements of the radio audience by surveying approximately 280 radio markets. It mails out 3,000 to 4,000 diaries in each market and asks people to record what they listened to. About 40 percent of the diaries are returned; Arbitron then analyzes them and sends the data to stations, networks, syndications companies and advertisers.

In 2007, Arbitron introduced the portable people meter (PPM), similar to the devise used to compile television ratings. Users clip the PPM to their clothes, and it “hears” inaudible signals from participating radio stations that the users listen to. At the end of the day, users place the device in a docking station and the data is transmitted to a central computer.

The new method of tracking measurements indicated that more people were listening to radio, but were spending less time with individual stations. In addition, morning drive time did not draw as big an audience as previously thought, but more people listened on weekends.

Some radio stations said that Arbitron’s PPM sample underrepresented key demographic and ethnic groups. After lengthy negotiations, Arbitron agreed to change its sampling methods.

**Ratings and Shares**
Measurements of radio and television audiences gathered by the diary or PPM method are expressed in (1) ratings and (2) the share of the audience.

**rating**: ratio of listeners of a given station to all the people in that market

*Example*: 100,000 people in a market with 20,000 listening to station WXYZ

rating = 20,000/100,000, or 20 percent, or a 20 rating

**share**: ratio of listeners of a given station to all the people in the market actually listening to radio at the same time

*Example*: Of those 100,000 people, 80,000 people are listening to radio and 20,000 are tuned in to WXYZ

share = 20,000/80,000, or 25 percent, or a 25 share of audience

Ratings and shares are important because they determine how much a station can charge for on-air advertising time.

**Radio Audiences**

In January 2009, there were more than 575 million radio receivers in the U.S., about two per person.

- of those 575 million radios, 1/3 are in cars
- on a typical day, 3/4 of adults will listen to the radio
- the average person will have the radio on for about three hours a day
- most people listen to radio during the two drive times (6-10 a.m. and 4-7 p.m.)
- different formats appeal to different types of people
- as people age, they tend to evolve out of one radio format and go into another

As of 2010, listening habits broke down into these categories:

- 44 percent – traditional AM and FM terrestrial stations
- 27 percent – Internet stations
- 19 percent – satellite stations
- 10 percent – mobile devices

**THE RADIO INDUSTRY: CAREER OUTLOOK**

The career outlook in radio, at present, is pessimistic, although careers in sales have better prospects. Online radio may have a modest growth base.

-- End of Chapter 8 --

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