

The Impact of Technology in the Radio Broadcasting Industry

CHID Thesis

By

Teisha Derenick

The impact of the never-ending progress of technology in the radio industry has made the transmission of communication quicker, but less people orientated. My thesis will examine the implications of technology used within radio broadcasting in America. Understanding this impact requires examining the interconnections between the history of radio and the people working in the field. I have used the book, *Transmitting the Past* by Winn and Brinson and Susan Douglas's book *Listening In: Radio and the Imagination* to describe the rise of the technologies in the radio industry. I will also use my own experience at MIX 92.5 KLSY Radio Station along with the expertise of KLSY: Bill West, a programming director and Mitch Elliot a personality on the MIX Morning Show.

1899-1920

The 21-year period from 1899-1920 still defines the industry today. It began with an Italian born inventor named Guglielmo Marconi, who traveled to the United States in search of creating a replacement for the wired telegraph. Wire telegraphing was an invention that allowed electromagnetic induction, which is the action of induced electrical current in a wire crossing lines of magnetic force. This was the current technology used for communication around the world. While experimenting with antennas and crystal detectors Macroni created a type of wireless transmission. His goal in this experiment was to invent some type of ensured safety for all U.S. ships.

When he was able to send out the famous S (dit dit dit) in Morse code from England to Canada on a higher and quicker frequency he created point to point communication which rapidly spread across the world. With the introduction of this

signal of wireless technology he was seen as a great inventor. In the same realm as Alexander Graham Bell and Thomas Edison, he opened up his own wireless business called *American Marconi*. Since Marconi was able to find a substitute for wireless telegraphs, engineers like Lee de Forest and Reginald Fessenden wanted to find a way for the wired telephone to become wireless as well.

They were able to experiment with increasing wireless signals and voice transmissions over longer distances. With the rapid advancement of this wireless growth brought a large public and corporate interest in the technology. This corporate involvement created huge increases in Marconi's business and he became the first supplier of receivers and transmitters, until the General Electric Company starting taking gradual steps in manufacturing wireless technology for the government's naval ships. Since the government access on any technology is always considered private, they wanted to make it impossible for public interference on the air waves.

Forest was a very avid opponent of these restrictions and so he was determined to somehow please both sides. He kept equipping the ships with the wireless telephones, arc transmitters, but he started playing phonograph records over the air waves for the Navy fleet as they come into port. Then he began broadcasting on more and more occasions and brought in opera singers and reports of the news; he was determined to bring culture into the homes.

Across the nation a wealthy engineer by the name of Charles Herrold opens up a college called The Herrold College of Wireless and Engineering, where he starts letting his students talk on a regular schedule and play music to an audience of 1,000 listeners.

When WWI started in April, 1917 all wireless stations were ordered to shut down, so that the government could use the radio for defense purposes. When the wartime ban on wireless occurred in 1918, a corporate engineer for Westinghouse named Frank Conrad was actually allowed by the government to be on air during the war to develop clearer transmitting. He would play records on his phonograph to see if there was any difference in the audio quality. He started receiving calls from other experimenters, who were not allowed to even be listening to his transmissions. They seemed to be very pleased and eager to have him keep playing more records. With the huge impact of people calling him, he started up the first commercially licensed broadcasting station KDKA in Pittsburgh. When World War I ended the government wanted complete control over the air waves for the safety of the people.

1920 - 1940

In 1920, the federal administration authority took over radio broadcasting and replaced it with four corporations that would have control over the air waves for the public. The only way to transmit to the public was to have a broadcasting license. Conrad applies for the commercial radio license and in November of 1920, KDKA had its first broadcasting during the Harding-Cox presidential contest. Westinghouse began taking out ads in the newspaper advertising radios for sale to the public. The radio industry starts becoming consumer oriented.

Now within a few years technology became a huge part in everyone's life, the war was over and prosperity was starting. The average Americans bought radios in vast numbers and integrated programming in their daily lives. The corporations creating these

transmitters were growing and producing so many radios that it made more jobs for people, which in turn kept the growth of this technology alive. Then the Department of Commerce created the Radio Corporation Association (RCA) that started patenting the technology of the receiver and transmitter giving government standing control over the radio waves.

As the technology grew and expanded each year with new inventions of these transmitters they progressed to large battery-operated sets with dozen of dials and a horn speaker to electronic console radios designed as fine furniture. Since so many other people starting getting broadcasting licenses and others not, the radio industry was just not under enough regulation enough and that was when the Federal Radio Commission created the Radio Act of 1927 and reassigned all stations to clearer frequencies. This made the public enter the roaring 20s with a major social change, mass media communication. People all over the nation wanted to listen and be part of one the biggest entertainment factors of the era.

As this started the Federal Communications Commission (FCC) was formed in 1934 because at the start of the decade the government wanted to clean up the content of broadcast ads and claims, even take a few self-described radio doctors off the air. By the end of the decade they complained that radio is not local enough, that the un-licensed national networks controlled the programming but the stations are licensed to serve local communities. There were press and radio wars happening, the newspapers did not want people to listen to the radio for their news. The musicians union tried to refuse radios to let their music be played on the radio without pay. At the end of this era the radio industry was booming with buzz and entertainment of all listeners.

1940-1960

It wasn't till World War II hits that the public grasping on to any type of happy entertainment they could find turned towards television. Television broadcasting was growing in popularity because viewers were given a visual form of entertainment. Therefore the radio industry started declining. That was when funny radio bits or bantering between a few radio announcers began. Radio stations started hiring disc jockeys and using different formats. Certain announcers would joke around and start discussing their own views on the topic. The radio industry was creating a "theatre of the mind", which was making the listener picture what they were describing over the air waves as if they are watching them. Radio needed to start localizing each program and play more music.

When the Rock and Roll era emerges was one of the most important times in radio because it wasn't just someone talking into a transmitter anymore, there was a need for editing and creating a show that would entertain the listener. Thus, the need for more people to work within this transmitting studio happened. Most stations needed a two to talk on the radio, one to make sure the microphones worked well, and about three others to tell the disc jockeys what to do. Radio broadcasting started using music jingles in their program to promote music. Listeners wanted to hear the same song over and over again, so radio stations wanted to make the radio program just like that, a play list of certain formats: music, jingle, and then commercial.

With the increase making of more complex shows, engineers had to invent new things to make the transition easier and quicker. Bill West, a program director for MIX 92.5 who is a veteran in the radio broadcasting field, explained to me in an interview that,

“ During the late 50’s the most popular technology was the reel to reel recordings. These reels were able to hold up to 18 commercials and even a few short jingles. The jockeys could play a commercial, press stop to play the music reel, and then hit the jingle reel. There was no need to have anything live anymore, everything was pre-recorded.” He explained to me that this help cut down cost of people in the studio because jockeys were able to load and press the play button. It also allowed the jockey to do any type of format they wanted as long as it followed the FCC rules on public broadcasting.” (Interview 5-20-05) Furthermore, as this era was ending more complex technologies came to this industry that shaped them for the next decades to come.

1960-1980

Even though reel to reel was used for awhile, the industry was still at a decline. Engineers started looking around at what consumers wanted. Arbitron readings were created by all of the nationwide stations as a way to understand what listeners would want to hear or what attracted them to radio. With the feedback of these surveys it turned out that more and more listeners wanted and more compactable and quicker to access. More women were on the go either working full-time or wanted something that would go with their hectic lives.

Engineers took right to that and created a more advanced reel called a cart, which looks just like an 8-track. These carts replaced the typical record, reel and even live broadcasting because it could contain days worth of information on one cart. Bill explained to me that, “On these carts there were these new tape recognitions called sec- tones or tertiary tones, which were these little warning tones that only the machines could

hear. It allowed the cart to fire off any program right after the next. For example, you could play the cart that had the jingles and commercials on it, just seconds before the bit was to end the cart would make a tone and fire off the music cart.” (Interview 5-20-05)

This made it possible to have a whole days radio broadcast pre-recorded, which led to less and less need for jockeys to be in the studio at that one time. But it also caused a lot of problems with the trust of technology on these analog boards to be used instead of human interaction.

Since the cuts of many jockeys occurred, they needed to find four jockeys to handle the whole day. Their personality had to fit the type of music and demographic of people listening to the radio. When more and more rock and roll music went over the airwaves, the older generation complained that there were not as many talk radio stations anymore, just music. To please both generations, programmers started tuning to FM stations for music and entertainment, while AM was pushed to talk radio and news. With the inexpensive satellite technology available at every station allowing a bigger audio distance feed made so many stations to be formatted down to certain genres, like soft hits, old rock, young soul, etc.

Mitch Elliott a Morning Show personality at MIX 92.5 explained to me, “That at the beginning of the 80’s, compact discs came out instead of using cart to help in the increase of distances. These CD’s would play a clearer sound and the introduction of the digital platform began, computers began to be used in the radio industry. Computers were supposed to be the biggest and important invention of the American society.”

(Interview 5-15-05)

Now more and more things were becoming quicker and more centralized around the access of communication. At the beginning the modems of the computers were very slow and because the memory size was pretty small, they would constantly shut-down or fail. Mitch described that radio stations used these computers only as dial-up bulletin boards, they were able to share ideas and thoughts with other stations. The connection speed depended on activity, so the quality was always bad.

As more and more of this communication became accessed more FM stations started emerging and the Federal regulation started gaining more control over the marketplace. There was less money coming in because TV created MTV, which gave viewers a picture and song to go with the music they were listening on the radio. This meant cutbacks were coming to the history of radio programming and they did. But with the creation of a public World Wide Web, certain internet providers like AOL in 1993, began to skyrocket the radio industry. Personalities started using the internet to gain more information on a global scale. Mitch said that, "When we want stuff, we get it instantly, from anywhere!!"

But since more and more radio stations were using this new technology they had to pay. Mitch remembers that he had to play so many advertisements on the air that within an hour there was only 2-3 songs played, the rest commercials or jockey bantering. The younger generation was getting sick of all of the consumerism on the air that most people would listen to CD's or tapes in the car and on their walk-mans instead of the radio.

After 1993 came surprisingly more and more listeners started turning back to radio because the FCC was allowing a little more pull on the formats of shows. You

could have raunchier show topics, like the kind radio personality Howard Stern has done. Personalities were bringing in their personal life into the show so that listeners would see them as celebrities. Instant Replay machines were used, which would allow the personalities to have funny sounds or montages of acts from around the world.

The future of the technologies in the radio industry really depends on being able to keep up with the constant motion of the entertainment industry. Listeners want to be more involved in the lives of the entertainment industry as it grows. Personalities need to stay on top of what is hip and beneficial to their listeners. The internet allows listeners to be more interactive on their website with what they want to hear. Allowing listeners to web-stream, which is accessing the radio station on a wireless platform instead of a digital one, allows them to listen on their computer. Mitch said that, "Now people have another option to listen when they are unable to receive a radio transmission, like in an office building or other states." (Interview 5-15-05)

The constant rise of technology in the radio industry was bound to happen in such a competitive industry because every station is trying to sound better than one another. The only way that the radio industry would have been able to continue to exist today is keep up with the new technology. Machines over the years have been at a rise of taking the human hand. Yes, the radio industry has cut out so many people in the process of broadcasting because of new machines that they only way to keep the next generation is to keep progressing.

Bibliography

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