

Introduction

Mass media that use electronic or electromechanical energy for transmission of messages are called electronic media. Major electronic media are radio, television, video and audio records etc. Of these, radio and television messages are transmitted via air waves or radio signals. The process of transmitting messages via radio waves or signals is called broadcasting. The literary meaning of broadcasting is to scatter seed over a broad area rather than in particular place. Possibly because of the ability to spread messages to diverse audiences through radio waves, the technique is called broadcasting.

Major broadcasting media are:

- Telephone broadcasting, existed between 1881 and 1932 is considered the earliest form of electronic broadcasting.
- Radio broadcasting was started experimentally in 1906 and commercially in 1920. It is the mechanism of transmitting audio through the air as radio waves from a transmitter to an antenna and, thus, to a receiving device. Stations can be linked in radio networks to broadcast common programming, either in syndication or simulcast or both.
- Television broadcasting (telecast), started experimentally in 1925, commercially in the 1930s. This technology of airing video revolutionized the modern communication system.
- Cable Media: Cable radio started in 1928) and cable television (began in 1932): are the components of cable media. In both, messages are transmitted via coaxial cable, serving principally as transmission mediums for programming produced at either radio or television stations, with limited production of cable-dedicated programming.
- Satellite television (from 1974) and satellite radio (from circa 1990): meant for direct-to-home broadcast programming (as opposed to studio network uplinks and downlinks), provides a mix of traditional radio or television broadcast programming, or both, with satellite-dedicated programming.
- Webcasting of video/television (from circa 1993) and audio/radio (from circa 1994) streams: offers a mix of traditional radio and television station broadcast programming with internet-dedicated webcast programming.

The original method of transmitting television or radio signals using radio waves, is increasingly being replaced by higher quality digital broadcasting (television and radio), transmitted in a digital data stream.

By definition, digital broadcasting is an advanced system of broadcasting radio (DAB or DRB) or television (DTV) in digital pulses rather than waves and which gives improved quality and/or more channels of content. There are currently two quality levels in television, standard definition (SDTV) and high definition (HDTV). Transmitted in binary format, digital television produces good picture quality and digital radio offers high sound quality. Let us have a glance on the technology behind major electronic media: radio and television.

Origin and growth of Radio

Samuel Morse's invention of telegraph in 1842 prompted scientists to find out ways to transmit messages over air. In 1895, Italian inventor Guglielmo Marconi succeeded in the effort. For further development of the mechanism, he started the Marconi Company in England and started commercial production of radio transmitters for military purpose. Marconi's device was sophisticated by Reginald Fessenden and started transmission of sound over radio transmitters, instead of textual signals. It was US inventor Lee De Forest who made radio transmission much clearer with his Audion vacuum tube. He also envisaged stations sending continuous music, news and other programmes over radio waves. The idea came to be known as Broadcasting. The first radio stations were set up in Pittsburg, New York and Chicago in the 1920s. Following the USA, European countries also started radio stations for broadcasting news and entertainment content. The colonial powers like Britain and France set radio stations in Asian and African countries in the early years of 20th century.

What is radio?

Radio is a technology that allows the transmission of signals by modulation of electromagnetic waves with frequencies below those of light.

Radio Broadcasting

Radio is everywhere as the signals reach every nook and corner. It is wonder to hear that there are 6.6 radio receivers on average in American homes. John Vivian, describing the ubiquity of

radio, says: “ People wake up with clock radios, jog with headset radios, party with boom boxes and commute with car radios. People listen to sports events on the radio even if they are in the stadium.” According to Arbitron, a company that surveys radio listenership, more people receive their morning news from radio than from any other medium.

Historical usage of radio

Prior to the 1920s, the radio was primarily used to contact ships that were out at sea. This was of great benefit to vessels in the water, particularly during emergency situations. With World War I, the importance of the radio became apparent and its usefulness increased significantly. During the war, the military used it almost exclusively and it became an invaluable tool in sending and receiving messages to the armed forces in real time, without the need for a physical messenger.

Radio in 1920s

In the 1920s, following the war, civilians began to purchase radios for private use. Across the U.S. and Europe, broadcasting stations such as KDKA in Pittsburgh, Pennsylvania and England's British Broadcasting Company (BBC) began to surface. In 1920, the Westinghouse Company applied for and received a commercial radio license which allowed for the creation of KDKA. KDKA would then become the first radio station officially licensed by the government. It was also Westinghouse which first began advertising the sale of radios to the public. While manufactured radios were finding their way into the mainstream, home-built radio receivers were a solution for some households.

In Britain, radio broadcasts began in 1922 with the British Broadcasting Company, or BBC, in London. The broadcasts quickly spread across the UK but failed to usurp newspapers until 1926 when the newspapers went on strike. At this point the radio and the BBC became the leading source of information for the public. In both the U.S. and the U.K. it also became a source of entertainment in which gathering in front of the radio as a family became a common occurrence in many households.

World War II and Changes Following the War: During World War II, the radio once again fulfilled an important role for both the U.S. and the U.K. With the help of journalists, radio relayed news of the war to the public. It was also a rallying source and was used by the

government to gain public support for the war. In the U.K. it became the primary source of information after the shut-down of television stations. The way in which radio was used also changed the world after World War II. While radio had previously been a source of entertainment in the form of serial programs, after the war it began to focus more on playing the music of the time. The "Top-40" in music became popular during this period and the target audience went from families to pre-teens up to adults in their mid-thirties. Music and radio continued to rise in popularity until they became synonymous with one another. FM radio stations began to overtake the original AM stations, and new forms of music, such as rock and roll, began to emerge.

Characteristics of Radio as a Mass Medium

The radio is a powerful mass medium. Unlike other mass media, radio has a lot of advantages, both technical and message wise, to reach maximum number of people.

- **Radio is a cost effective medium.**

Radio sets are not at all a luxury now unlike olden days when radio sets were not affordable for common people. Advancement of technology made radio production and transmission less expensive. Unlike other media, production format is sound which can be produced at a minimum rate.

- **Radio is a Public Medium**

Radio can be accessed by any number of people simultaneously without much technical paraphernalia. Anybody can listen to radio as it functions as a background medium.

- **Radio is accessible for the Illiterates**

Literacy is not a prerequisite for listening radio. In developing and under developing countries it becomes a popular medium because of these characteristics. Majority of the population in those countries is illiterate. They show a special affinity towards radio as they can overcome the deficiency of illiteracy through radio programmes.

- **Radio is a mobile medium**

We can listen to radio while we are moving. As Vivian explained earlier, we can listen to radio while driving car, jogging, walking or doing any job.

- **Radio is a background medium**

Specialty of a background medium is that it can be used while doing other jobs. Housewives listen to radio while preparing food in the kitchen. Given this feature, radio has been now available with home appliances like refrigerator, washing machine etc. as an inbuilt gadget.

- **Radio is an Audio Medium**

Being an audio medium, radio is accessible to the visually challenged also.

- **Radio needs less energy**

Radio consumes very less energy. In that sense it is an environment friendly medium. Since there is no need for power supply for operation radio sets, it gains popularity in remote villages without electricity.

- **Radio is a speedy Medium**

Radio is the fastest medium as it requires no much time for preparation and transmission of news. Instant live broadcasting with less equipment is possible in radio section. These characteristics extend the scope of radio as a mass medium.

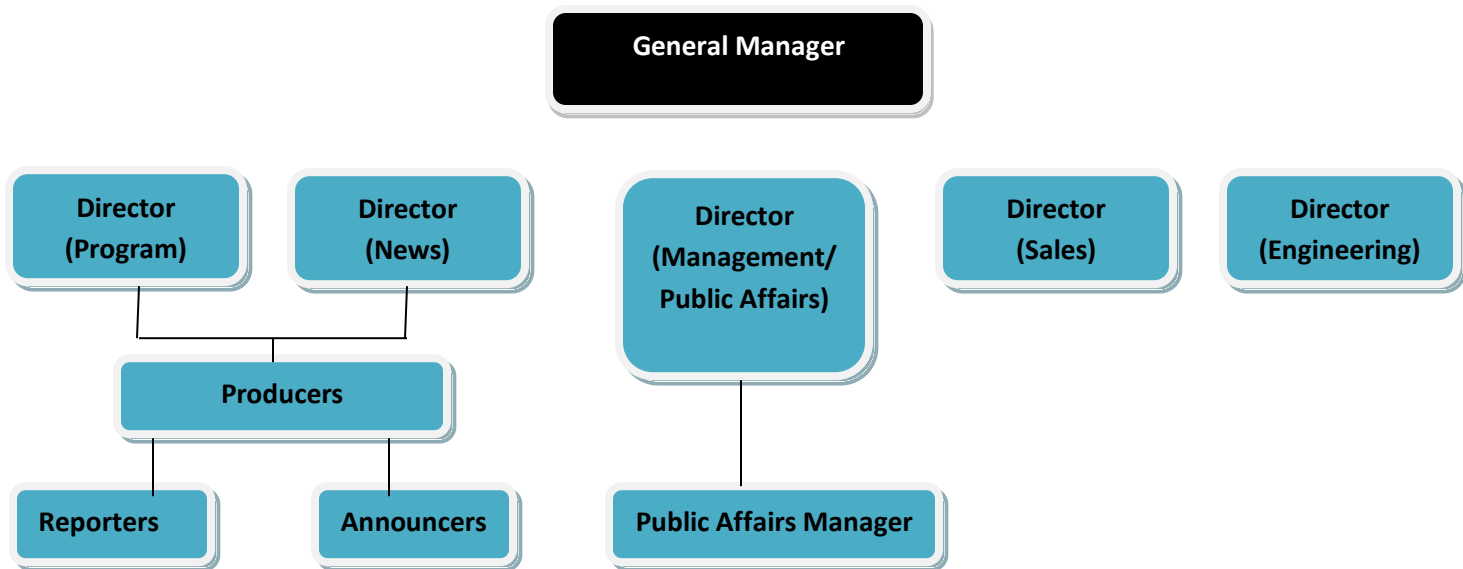
Types of Radio Stations

Commercial Stations: Stations under this category support themselves financially by selling time on their airwaves to advertisers. In America, vast majority of stations come under this category.

Non-Commercial Stations: Non-Commercial Stations do not receive financial support from advertisers in the sense of airing commercials. They are normally funded by the governments. In some countries like America, donations from private foundations and organization are the major sources of income of non-commercial stations.

AM and FM Stations: This categorization is purely based on the type of waves used for transmitting radio messages. Both AM and FM radio stations transmit a carrier wave that is some changed or modulated to carry audio signal such as music or voice. With AM (Amplitude Modulation) radio, the amplitude or strength of the carrier wave's vibration fluctuates with the sound. With FM (Frequency Modulation) radio, the strength of the carrier wave remains constant, and instead it is the frequency or number of vibration within the wave that changes based on sound.

Structure of a Radio Station



A radio station has five distinct divisions under a general manager. The sections are:

Management Department: takes care of the overall administration of the station. It has internal and external administration responsibilities. The department is further divided under Business manager, Accounting Manager, Human Resource Manager, Public Relations Manager, Promotion Manager etc.

Programming Department : This is an important component that specially deals with the media related responsibilities of the station. This can be again segmented as News Programmes and Non-news programmes or as news and operations

Programme Director: He/she is the in charge of all works related to programme planning, research, production and permitting for transmission. There are two types of staff under

Programme Director, The first category include On air talent, DJs, Reporters who are normally not on the regular payroll of the station. They are invited for specific purpose. Some radio stations which focus on news programmes appoint reporters on permanent basis. The other category includes Production Director, Music Director, Sports Director, Programme Executives who are directly responsibility for the production and supervision of the segment allotted to them.

Engineering Department: The technical aspects of the station are handled by this department under the supervision of Chief Engineer and Asst Engineers

Sales Department: It is another important section which monitor and ensure financial flow to the station. The Sales Department is organized on the basis of the business model followed by the station. Normally, commercial broadcasting stations may have Account Executive, Advertisement Managers, and Retail Sales Representatives in the Sales Department.

Radio Programs

Radio programs can be categorized into two: News and Non-News (Entertainment) Programmes. Policy of the country or the individual organizations determines the nature of their programme mix. In the United States of America, radio is more an entertainment medium than a news channel

News

News is important because it keeps us informed as to what is happening in our own community and what is happening in other communities which impinge upon our own. It satisfies our curiosity and concern and it provides us with basic facts which enable us to make up our minds and so join in the general discussion which leads to community action.

News bulletin

News bulletins have assumed increasing importance in radio broadcasting in recent years. In the early days of radio there was seldom more than one bulletin a day and it was broadcast after the evening newspapers reached the streets and had been sold. As radio stations built up their own

news staffs the number of bulletins increased. Many stations today have several long bulletins interspersed with hourly or even half-hourly news summaries.

Newsreel

It is more usual to separate comment from the news by including it in news talks and newsreels. The daily newsreel of fifteen or more minute's duration is a popular form of news broadcasting. It contains eye-witness accounts, extracts of speeches and reports of other events, commentaries, short talks and interviews in much the same way as a newspaper includes pictures and feature articles.

Documentaries

The documentary programme is a story of something. It is generally between 15 and 60 minutes in length-the actual length is usually related to the size of the subject and the way in which it is treated. An industrial or agricultural development may warrant up to 30 minutes, while a historical re-enactment or archive programme (that is one using previously recorded historical material) may require 45 or 60 minutes.

Magazine Programme

The regular radio magazine programme, derived from the newsreel, is a useful outlet for a great deal of informational and soft news material which cannot be programmed elsewhere. Magazine programmes vary in length; usually either 15 or 30 minutes. They consist of short talks, interviews, on-the-spot reports and eye-witness accounts of events, commentaries, music and sometimes poetry and short stories.

Talk Programmes

Talks were the earliest form of spoken word broadcasting. They are the simplest form and can still be the most effective. A good radio talk, well constructed and well delivered, can sparkle like a gem against the back ground of other programmes which make up the broadcast day. It can have all the authority of the printed word coupled with the warmth which comes from person to person contact.

Talk

The radio talk is neither a lecture nor a public address. The audience does not have to stay and listen nor can it see the speaker and be attracted by the way he uses his hands and his eyes. Everything in a radio talk has to be carried in the words: the familiar words we all use. The best of radio talks is a friendly chat built around one subject. It is a spoken composition and like any composition it needs a unified structure: it has a clearly defined beginning, middle and an end. The words it uses are the action-words of everyday speech. It introduces the subject in an ear-catching way, explains it simply, develops its argument and then summarizes what it has said

Interview

The radio interview is a lively variation of the talk. It considerably expands the potential pool of talks' contributors by bringing to the microphone people who have something to say but who cannot write talks or are too busy to do so. It is a popular form of talks broadcasting as most of us like to hear-or overhear-other people talking, and it is a very useful form particularly in countries where there are many language There are several kinds of radio interview but essentially they can all be classified under two headings:

- The personality interview which seeks to bring out the personality of the interviewee and tells us something about his life and ideas.
- The information interview which seeks out facts.

Discussion

The discussion programme provides a platform for the exchange of ideas. The ideas may be important ones which concern us as individuals, as members of a community or as nationals of a country; or they may be ideas intended simply to entertain us. The discussion may be serious or light-hearted, but its purpose is always to set us thinking.

Entertainments

Light entertainment is a rather loose term used by many stations to cover a wide field of programming: book and short story readings; serialized drama, particularly light and humorous drama; variety programmes featuring light musical entertainment, comics, community singing; some types of listeners' letter programmes; quizzes and panel games.

Music

Music fills by far the greater part of the broadcast day. The general tone and character of a station's music does more to establish the image of a station than any of its other activities. It is in the nature of all of us to enjoy music. We enjoy it for its rhythms, its melodies and its harmonies. Some music is predominantly melodic-it has memorable tunes-while other music is dominated by its harmonic structure-the way in which notes and groups of notes make pleasant sounds when heard together. European music gives a great deal of emphasis to melody while Indian and Arabic music regards harmony as being more important.

Radio Drama

There are three methods of presenting radio plays: (a) as completely self-contained plays of 30, 45 or 60 minutes in length; (b) as serial dramas of 15 or 30 minutes in length in which the action goes forward from one episode to another; (c) as series drama, each broadcast generally lasting for 30 minutes and completing one whole episode of a continued story; the principal characters reappear in new situations in each new drama in the series.

Radio Advertising

A station which carries advertising obtains it either directly from an advertiser or indirectly through an agency representing an advertiser. Where an account is obtained through an agency the agency prepares the advertisements- called copy or commercials-and listens to the station to make sure they are properly broadcast and at the times contracted for. Where a station obtains an account direct from the advertiser the station generally writes the copy.

EFFECTS OF RADIO ON SOCIETY

Radio proved far more effective in mass communication as compared to the print media. The property of radio which did not require transportation of the message drew immense attention of common people and investors in the field of mass media. Once the radio technology was recognized as an effective mean of communication, there was a race among companies and individuals to have their own radio facility.

Peace time

Entertainment: As already mentioned, radio brought a unique entertainment opportunities to people, especially for those who could not afford the luxury of visiting places where entertainment was available only to the rich. With a radio set by their side, common people could also enjoy music and stayed informed about events as ordinary as a street robbery to change of governments and tug of war among political rivals to availability of commodities in the market. But it was the entertainment which made the radio popular on first instance. Very soon the entertainment started moving in other areas than music. Comedy shows, gossip chat and answering letters from listeners made people crazy about radio enjoyments. Information Radio served hugely the human instinct to know about events taking place around him and at distant lands. No fairy tales, but the radio brought news from across the oceans and from inland without distinction. A regular listener of radio news would get an impression as the whole world has shrunk – a feeling which print media would never had thought in around 400 years before the invention of the radio. The news aired regularly from different stations were followed by views and a much spicy discussion among experts to generate more interest in events from social and political life. The announcements about weather, and trains/flights schedule has been an added advantage to radio listeners.

Education As radio continued to have its impression on the cultural outlook of the societies by pouring in more opinions of experts in different fields of social life, it started special services to educate people on scores of issues foremost among those have been the healthcare matters. No other source would have been proved handier than radio programs to educate mothers in particular on providing primary health points for babies and school going children.

Jobs

Radio opened gates of jobs never known before. To become a broadcaster with a radio station was considered to have a prestigious job in the early days of radio. It still is. The news-readers, copy writers, playwright for radio dramas, anchors for different discussion shows, musicians, recording engineers and a range of technical jobs came about so quickly that colleges and universities had to run degree programs to meet the requirement of radio stations to employee staff in its various sections.

Advertising helped

The corporate sector sensed the importance of radio as one strong medium to reach very high number of consumers of their products and services and started buying time for this purpose. Within a decade of radio broadcast, an advertising sector – far more organized than the world would know during the rapid growth of print media, was visible. Since the popularity of the commercial programs was dependent hugely on the entertaining side, the glamour was but to appear broad and loud. New trends were invented in music jingles, script writing and presentation.

Promotion of other industries like film industry

The film industry which was also in its nascent stages was one noticeable area which benefited tremendously from radio technology. Mainly, the film songs would resound the air all day instigating ordinary people to visit theaters for watching movies the songs belong to. At one stage in 30s and 40s it appeared as the radio and film world are only two names of one same product. Not only the songs, the hot talks about stars scandals and rise and fall of film stars would generate lot of interest for common listeners. Still a number of radio and TV stations are heavily depended on matters related to film industry.

Wartimes

People glued to radio

Wars among nations – particularly the great wars in the 20th century, have brought massive destruction of societies. A nation at war has only one goal of fighting against the enemy. In this context the role of radio becomes all the more important. Radio news, commentary, announcements and war music are commodities in high demand by a society at war. Radio services have been fully exploited by countries at war. The quickest source of telling people what to do, where to move and what instruction they must follow have always come from radio. All important addresses by head of government to people are done on radio.

Special band used by armies to communicate

It is not the common people who benefit from radio services but the armies have been gaining much advantage due to radio technology. Sending codes to different formations in the battlefield within no time have been possible by developing a code and occupying a particular frequency for

this purpose. Communicating through codes is the common most practice during wartimes. – decoding of messages if believed to be one strong point which led to German defeat in the WWII.

Ships, planes are connected through radio frequencies

It is not the activities of armies on the land which are linked with radio messages, ships in the deep sea and the war planes in the air are also connected with radio frequencies.

Satellite using radio waves to detect enemies' movement

After the dispatch of satellite in the space in early 60s, the movement of armies of the enemy is now detected from the skies with the help of radio waves.

Propaganda – to morale boosting and demoralizing enemy

The worst in wars occur in the form of propaganda at a wide scale to demoralize the enemy. And at the same time boosting morale of your own people and army.