

**Mustafa Kamal , Dr. Arshad Ali , Dr. Anjum Zia**

## **Emergence of Web Radio in Pakistan : A historical perspective**

### **Abstract**

This study aims at representing the generations of radio in different eras, i.e., since its inception till date. The prime objective of this research was to present the shapes and trends radio has had at different times and how radio has evolved to the present day. From wireless to satellite communication, radio not only has changed its modes of transmission but also styles of broadcasting.

**Keywords:** Radio, propaganda, FM, Digital Radio, Web Radio

### **Introduction:**

Radio transformed the society when it was introduced in the 19<sup>th</sup> century in the world (Gugliotta, 2007). Radio is undeniably acknowledged as the chief means of communication and the most effective medium across the world because it covers larger area as well as population in comparison of any other medium to provide a mode of an effective communication. This study is intended to analyse the emerging trend of web radio in Pakistan tracing a short history of radio from analogue to digital. The communication process is instigated by an intensive range of techniques, with more than hundred years of development specialized for different communication purposes. Communications through radio system cast a significant impact on the history in the world of communication. There are some of the main types of Radio Communication (RC) systems that were arranged depending on technology, its criteria, rules and allocation of radio spectrum, demands by the users, source allocation and investment. With the passage of time complexity of the radio systems has exceeded with more diversity, however, the basic structural units remain same. The consumed power in a station used for transmitting signals is fluctuated, which is totally dependent upon the gap in communication mode and the conditions for its transmission. The signals reached at receiving station are generally only a minute segment of the output of the transmitter, because the communication was evidently depending upon how the information is being received and not on transmission of the energy. Modern RCs are simply an artistic piece and have the capacity of supplying the immediate broadcast of sound waves (voices) and data in the whole world is now just a button away. Because of this reason, RC systems are continuing to play a vital role in this advanced world. In the last twenty years the telephones have also introduced the two-way radio.

It's been 100 years since the RC systems have been introduced and which had played a dynamic role to develop communications. Progression in the field of radio is a continuous process and there is no possibility of coming to an end. In each era Radio has played some specific roles and with the passage of time the modifications have evolved the process. This paper is set to provide a summary of the research literature regarding radio generations and its role in different eras. This 'literature review', which is a part of the researcher's PhD thesis, will present an overview of the findings along with the theoretical and methodological approaches employed to explore the role radio played in different eras and representing the dynamic journey of radio - from analogue to the modern advancements, i.e., Web Radio.

### **First generation of radio, the modifications, its role in war and propaganda: 1900's to 1940's**

Within historical record, radio was established to gain the recognition it was worthy for. The term "Radio" refers to the radio used in past years, the "golden age" of transmission in 1910's, 1920s, 1930s, and 1940s. The most importantly no other medium of communication has changed the lives of people this much, specially the Americans, and as quickly and irrevocably as radio did. All the credit was given to Guglielmo Marconi for the invention of radio, however, in fact, at the time of his youth. Marconi went through a biography of Hienrich Hertz, in which he had studied his practices and his experiments with initial methods used for wireless communications (transmission). Marconi replicated the experiments done by Hertz at first place and luckily he succeeded in his experiments in which transmissions were travelled from one side to the other at his house. He sensed the potential implications of the technology and tried to access the Italian government to help him in practically implementations of his ideas. When the government did not take his ideas seriously, Marconi travelled towards England and wrote his ideas in an

official document. Instead of developing radio from scratch, Marconi basically combined his approaches with the investigation done by other people to formulate a helpful tool to communicate. When Marconi promoted wireless mode of transmission, colleagues and critics initially took it as a medium which allows the technique of a telegraph to perform its function in those areas where cables were hard to connect. Primarily, the radio broadcast worked as an instrument for communication between marine and submarines and with the stations in land and this was aimed to promote in person communication (coe, 1996). To build a radio required parts are a transmitter and a receiver which was comparatively simple technology, and the guidelines, method and complete information about building these devices were going to be accessible to the public soon. In 1912, the government regulated the actions that were needed for the certification and limitations for the ranges of broadcasting to operate radio. His directives also facilitated the president with the power to turn off all stations and this right was particularly applied in 1917 in the United States while it entered into the era of the First World War (WWI) and allowing the trainee radio operators from meddling the usage of radio waves during the war times by authorities of military (white, 2003).

In 1916, during WWI, the dark period of ages, the company of Marconi had developed an extraordinarily sophisticated system of RF-energy generation by spark. Although the details of this system are somehow clouded by the mists of that time and the inherent security associated with those years of WWI, but there are possibilities to have some ideas or estimations of what was developed. This last and greatest expression of the art of spark radio was done at Caernarvon and was acknowledged as the 'timed spark' system. However, this first 'timed spark' system had some problems while operating it. Specifically, the spark gap dimension was critical and striking of the spark was very sensitive to atmospheric pressure differentials coupled with humidity variations, due to which, a second-stage 'timed spark' system was developed which was a successful experiment that it enables to send a signal halfway round the world. In 1918, a signal was sent from Caernarvon to Sydney, Australia. Within only 4 years till the end of WWI, in 1918, the valve had been developed in this way which was more reliable and successfully able to completely replace spark and electromechanical systems in the long-wave trans-oceanic stations such as Caernarvon (neff, 2007). In the field of war conveying the codes to different formations within some fractions of time became possible only because the codes were developed codes and lodged in a specific frequency. Communication with the help of codes was the most common usage during the times of war and one strong point was to decode messages that played an important role in the Second World War. During the start of 1940s, more tasks were achieved by radio than any other medium of communication at that time. It also provided coverage to national and international news. During WWII it made the Americans and the public well informed that they had never been before. It also facilitated the transmissions of special interest groups, for both national and international level, foreign-language broadcasts for immigrants of different countries in different languages, programs held by local minority groups and prediction of weather as an addition to it promotion. Broadcasting related to games also gained popularity in that era. (horton, 2002)

In WWII, historians' neglect of radio broadcasting was substantially realized and during wartime radio has received serious scholarly attention. Though there is considerable stuff with regard to involvement of Hollywood in the efforts during war and political involvements of media in the corresponding era, but there is limited research on broad-based study of the role of that has been played by radio during the days of war. Peculiarly, during WWII International Transmission in American (ITA) had gathered grave attention than local alternatives. During the times of "Great Depression" in November 1939, Fortune had designed a survey to ask the locals lived in America that if they needed to choose one between watching movies or stick around their radios, which one they prefer. Almost 80% participants were ready to give up the movies over listening to radio. In 1945, twenty-five hundred people living in America were investigated in University of Denver about the role of radio in the days of war in comparison with other means of communication. Participants' responses showed that 17% thought that Newspapers served the locals during war, 4% movies, 3% magazines and 67% of the participants gave radio a top position in the list. For Americans during WWII radio was the chief source of communication because 90% of native families surely had one radio and paid attention to radio broadcast three to four hours per day on an average. Radio worked as a companion to the people on daily basis, which kept them aware of the external world giving to them information of almost every sort. In 1930s and 1940s the natives of the America could not even think of a life without radio but the generations in this era could envisage their lives without a television because of the diversity of activities (horton, 2002). Radio has always exhibited a high degree of resilience, often going secretive or online and continuing to work as an opportunity for political expression for a huge population. Remarkably, in 1909, 1600 lives were protected for the first time by a competent radio operator. With the origination of radio in early 1920's the spectrum of the information was broadened tremendously. It commenced to perform the function as newspapers and also started to transform the world into global village quickly (Burchell, 2009).

One of the chief examples in history is the use of radio by Franklin D Roosevelt, the president of the USA, who taking the advantage of this new magical medium for the very first time used it for the sake of development. The same era attracted the attention of businessmen because of its massive popularity. Though it was a fact that the route was adopted for a short period by the business community of USA, the new thing was the extent to which the President and his management had achieved the goal of selling their policies to the inhabitants of USA. Additionally, re-election of FDR and the plan given by him was not so successful. The government had an authoritarian approach and due to the massive propaganda spread by the government it became a contributing factor for the hatred of FDR in most of the businessmen and reporters. In 1937, a well-known critic took a serious note of the situation and his concern was embodied in American Mercury. Roosevelt, Carroll claimed, "Hitlerized his constituents." Furthermore, in America, radio was said to be the "No. 1 source for State propaganda" at that time. America was experiencing the darkest era called the era of great depression in 1933 when FDR became president. Via a chain of "Fireside Chats" on radio, FDR conveyed his plans to the Americans about thought-provoking ways in the support of improving economy. Most importantly his comforting voice guaranteed the listeners in USA that they had the power, resources and the courage to survive despite all these crises. Even radio was also used by critics of Roosevelt. During middle of 1930s, over a hundred special programs run by the government based on non-commercial programs were broadcasted every year. In late 1930s, one lesson learned from WWI: they would never be involved into war by becoming the part of any propaganda, trapped by a blend of brutal stories, fake and overly described moral appeals etc. For the Republicans concerned about the usage of radio and other modes of communication by the administration of Roosevelt, WWII was at the worst juncture. All media containing radio repeated their role in WWII (horton, 2002). Other than war and state interest transmissions in 1940's another modification was done and that was it started foreign news and even in foreign language to reach wider audience since diminishing the concept of state interest transmissions only covering international crisis. During early 1940s radio broadcasting had become a significant mode of transmission that was intensely embedded in the culture related to politics. Before American entered into WWII, it had significantly affected the politics of that time, yet it had also added some of the vital accountabilities. All of these facts ensured that propaganda programs clearly sponsored by government on radio during the war were commenced in stressful political culture. But the future radio was seemed to be a less rosy platform for the government propaganda (horton, 2002).

### **Second generation of radio, policy making and introducing diverse programs: 1950's to 1980's**

From 30 years of its invention, radio was undoubtedly a main source for entertainment of the families. The most preferable allocation of radio was in the living rooms in a house, radio was one of the vital sources for news and entertainment. The famous image of a family was sitting closely to radio and listening to it. But when TV was invented that image of the family had started to change. Production of television on a relatively larger scale was started in 1948, but this production of TV was limited until the war of Korea in 1952. Because television was getting fame day after day and it was more affordable and new medium of advertisement, advertisers started building new stations for a quick adaptation to a new and a different field. The use of live in-studio performances was stopped by these stations and started to play less expensive recordings instead, which helped in reducing down the budgets used in employment, as simply one disc-jockey helped in playing the records, advertisements were read by it and even news announcements of the news was just a single key away. Another significant improvement in the field of radio was the invention of "format radio". The managers of those stations established the rules to provide the station a detailed and defined persona. The rules were mainly focused on stability, the number of songs and the types of songs. The rules also focused on how the station IDs should look like and the number of commercials to be played during the show (Radio in television age).

By 1950 radio was frequently used in industrial countries where radio gained overwhelming popularity despite the shadows of war before the invention of TV. Commercial broadcast like advertisements and promotion of products of USA had a great impact on broadcasting from other countries; amongst them some liked the ideas of US commercialization, whereas, the others opposed them. In both cases, i.e., either adopting or rejecting their ideas, many of the countries initially faced practical problems to document their radio policy and pattern of development. Many European countries decided early on that radio's educational and political potential required that it becomes a monopoly service provided by government, growing out of their experience with existing state telegraph and telephone services. In such system where public-service were at their priority they would emphasis on programs targeting the traditional and cultural broadcasts, learning and enhancing knowledge, public dealings rather playing programs for entertainment. In such countries, policy would be approved prior to the establishment of new stations by the government. In Europe paternalistic approach characterized radio until the end of the 20th

century. Hybrid radio systems and services were developed and decided to be broadcast by those countries which got support from the government for public oriented service and programs of entertainment, advertisements and for commercialization. While the administration would permit all stations, just some would be worked by the government, or via independent authorities supported by the government, whereas, the remaining stations would be run privately. (Skretvedt, 2018)

With the increasing popularity of other mass media, i.e., film and television, not only the investors but the public also started preferring them. Before TV overtook radio, it was the prime source of news and the effective platform for propaganda. In 1950's the producers of radio and content makers started changing the dynamics of radio from propaganda to home based entertainment and radio produced a large variety of programs related to many walks of life. Radio in this era became key medium for advertisements for example the largest element of this component is the Radio Advertising Bureau Collection, over 2000 discs containing radio commercials for products representing the entire scope of American industry in the 1950s and 1960s. The corporate entities detected the significance of radio because to them this was the most effective medium to increase the number of customers for their items and for this reason they had started to purchase time. Not only for advertisement but also radio in this era produced informal transmissions talk shows, music shows and radio drama etc. Since the focus was shifting from information to entertainment, policy makers started regularity authorities to have control and check and balance on what was being produced. For example, almost for 3 decades, from 1950 until the Federal Communications Commission (FCC) set strategy through usage of a progression of basic principles intended to give rules to broadcasters about what was or was not satisfactory. For instance, the FCC restriction on revolting language would in general be proscriptive, telling stations what was the limit of worthy discourse. Cross possession and simulcasting rules were more instances of office rulemaking. Taken in terms of totality, the gradual addition of rules and recordkeeping drove broadcasters and policymakers both to address whether that was the ideal opportunity for administrative changes. (Barber, 2013)

Listening of radio away from the home increased exponentially through the trade of easy-to-carry transistor radios and the economical car radios. In the early years of the second half of the 20<sup>th</sup> century approximately 50% of American cars were equipped with radios, while this number increased at the level of 80% in 1965. This extensive growth of portable radios and the element of popular music caused radio to be a medium of captured by adults. With the passage of time transistor radios improved quality as well as quantity-wise and their prices also fell down. Ultimately, they got popularity world-wide, particularly in the developing countries where they took the place of relatively expensive tube-powered receivers, which suffered in tropical conditions (Skretvedt, 2018).

It was observed that during the era of 1960 to 1980 there was slow development of competition between established public-service broadcasters as well as the growing popular appeal of advertiser-supported music formats on pirate stations or developing local outlets. FM radio became popular with inhabitants of various countries, which led to the addition of radio channels that yielded more variety of programs. The mid-1960s decisions of FCC to restrict program simulcasting by co-owned AM and FM stations also contributed towards significant expansion of FM. By 1970 FM stations were witnessing their appearance in major market audience ratings and after some time over all national FM listening had surpassed AM. At this point of time the FM programs started to play almost all kinds of music simultaneously, i.e., on the one hand the listeners were being entertained by the classical notes, while on the other hand the latest songs were being played but this phenomenon was in vogue in the developed countries only like USA. (Skretvedt, 2018). In this era different sorts of transmission were being experimented which paved the way for provision of economical entertainment, especially to the people who because of their economical conditions could not go to the places like theatre or cinema where the well-to-do ones used to go for the sake of amusement through other sources of entertainment, such as, film or TV. With the help of radio people belonging to different walks of life remained aware of what was going around them, whether it was related to the street crimes, political upheavals or wars etc. Even they got informed about the availability of merchandise in different markets. Nevertheless the most important factor was entertainment, which kept the widespread popularity of radio intact among the listeners. That entertainment was not limited to music programs but it contained segments related to gossip comedy and replies to the messages and mails received from the listeners, which kept the listeners near to their radio sets. Not only in American and other European countries but radio had also played a vital role during the historical documentations and freedom campaign in the Indo-Pak Sub-continent. When radio started its broadcasting in India, especially from Mumbai and Kolkata, English language was the medium of communication, which obviously narrowed the scope of listening limited only to the European community and the Westernized Indians while ignoring the majority of native people. Due to the fast growing dislike of imperialism in the

state, the colonial government purchased these stations and changed their names as the Indian State Broadcasting Service (ISBS). Four of the princely states set up their own radio stations. At that time they started to broadcast programs to be listened in rural areas and schools (Skretvedt, 2018)

In 1947, when Pakistan came into existence, “got freedom” was the first public announcement on radio, which had been made to make people aware of it. In that era not only advertisers and producers were using radio but it was also being used by governments and armies all over the world. And in Pakistan during the war of 1975 different talk shows and songs were produced by radio Pakistan to motivate the army men because the only medium of communication within their reach at that time was radio.

### **Radio in Digital age: 1980's and onwards**

During the last twenty years of the 20th century radio had become a thriving industry witnessing the establishment of more stations although with narrower program formats. Numerous new stations were planned for broadcasting on FM (or VHF), which developed to dominate radio broadcasting in several parts of the world. In Europe, FM kept on expanding due to relatively less expensive receivers and transmitters encouraged the growth of small stations that could serve discrete communities or regions without causing interference to other stations or the nearby states.

In Britain and some other countries the growing popularity of FM affected significantly the transmitters of AM (or medium-wave) quantitatively. But as FM was confined to line-of-sight range even when higher-powered transmitters were used, the newer service required more stations and frequencies to cover what market areas could be reached by a relative handful of stations in AM. In USA, too, FM listening asserted dominance over the other module, taking its share of national audience up to 75%, which enhanced its revenue through advertisements substantially and by the late 1990s accounting for approximately sixty per cent of all stations. Quickly AM was dominated by the Talk and News patterns, while music of every sort by and large shifted to FM. All stations planned more and more all the time their programs with an intention of keeping even the small number of listeners attached to them. (Skretvedt, 2018).

FM broadcasting produced a superior sound, free from much of the static experienced with AM radio, but it was slow in gaining popularity (and advertising money) because most people only had AM radio receivers. To reduce the differences that existed between FM and AM the FCC recommended that stations should “simulcast” or play” the same item on their AM and FM stations. FM radio fascinated the people of the developed countries, e.g., the United States of America, more in 1960s and 19970s but it became popular with the dwellers of Asia (including the ones living in Pakistan and India) in the last decade of the 20<sup>th</sup> century and onwards when the manufacturers of cell phones and automobiles made addition of FM radio transmitters to their devices and vehicles. (Radio Transmission: You Try It, 1998).

Even with national network affiliations, radio has often been intensely local especially in the last decade of the 20<sup>th</sup> and the first decade of the 21<sup>st</sup> century. Many of the earliest AM stations were started by Junior Chambers of Commerce as an additional place to advertise the town's businesses and involve local youth and other than community radios. Educational institutes also started campus radio stations to not only teach students the dynamics of radio but to also engage youth listening to it. On the whole, the broadcasting scenario underwent several changes but the most important of them was due to the introduction of Digital Radio (DR). During 1990s European countries initiated Digital Audio Broadcasting (DAB), which was distributed both by ground transmitters and by means of orbiting communication satellites. But the pace of growth of DR was quite slow mainly due to the high cost of the receivers and there was little original programming to grab the listening community. Furthermore, the government of US did not stipulate a deadline (as it had for television) for the conversion of digital transmission in stations and that all stations would retain their existing AM or FM channels even after going digital. This slow switchover provided some critics room for criticism who argued that radio broadcasters were, perhaps, missing an important opportunity to play an important role in an increasingly digital media landscape. (Skretvedt, 2018).

DAB, which is a remarkable innovation in radio, is at its most developed stage in Europe. This mode of broadcasting had the capability of audio reception of high-quality and it could also considerably enhance the radio spectrum's capacity with the possibility of an expansion of both the range and diversity of radio programming. Digital radio had had the leading edge in the broadcasting technologies because of its certain unprecedented benefits that attracted many listeners towards it. However, in order to make this version of broadcasting technology successful there was a dire need of some new kinds of uses and mobile

data communications could be the most suited area in this regard (Lax, 2010) Radio has experienced a dominating impact of internet and digital media so far as the radio's reorganization is concerned as both the said technologies introduced new formats and patterns of radio listening. Nowadays online platforms are used to get connected with their listeners by traditional radio actors. Digital technology advancement lead to the development of a next generation radio that provides the listeners with an opportunity to create automatic, customized playlists by artist, genre, decade or theme. Even if growth of online radio continues, the sector still faces some considerable monetary challenges as allowing the listeners to make a playlist of their own choice would be rather expensive. (jeff, 2012)

### **Radio World in the premises of Web**

The last contender to arrive at the radio scene uses an entirely different delivery system, one that is already widely available across technologically advanced nations and is being spread with great speed and purpose into less prosperous nations. Presently, wherever a personal computer or a smart phone is connected to the internet, web radio is readily accessible. The more you consider the internet purely as a distribution system, the more potential advantages get attached to it as compared to other digital routes. Firstly, the spread and improvement of the infrastructure of the internet is driven by far more powerful economic forces than merely the radio industry. Secondly, the radio bit of the technology is one that's evolving can take time to do so, whereas, the other alternatives have to roll out as fully formed, self-contained systems in order to persuade the public to adopt them instead of analogue. Thirdly, Web Radio has no need to replace analogue radio as it can live quite happily alongside any other system of broadcasting. The flexibility of the internet means that web radio can play any one of a number of different roles; its reach can be both international and extremely local; its appeal can be anywhere on the spectrum between broad to highly specific. And fourthly, its appearance coincides with the powerful social drift towards niche markets and smaller audience in a multichannel media environment, towards individual consumerism and away from minimum scale of audience broadcasters need to be viable. (Priestman, 2001)

By the dawn of the new millennium, radio was with such recognition at the global level that its presence at the cultural background was a permanent feature, albeit notice thereof could not be taken on all occasions. No doubt, in different countries the languages at radio were different, however, the popular music in different parts of the world seemed to be sounded alike. When radio progressed towards globalization, some states showed stern resistance and strove to retain their local culture on air. For instance, the Canadian government enacted Broadcasting Acts in 1991, according to which production of, at least, a particular number of Canadian programs was mandatory and the said laws also reduced the quota of the foreign programs (Skretvedt, 2018) The number of listeners of the satellite radio, which was mainly used in vehicles, continued to grow, although slowly, and it seemed that satellite radio would, probably, remain a niche service. Both terrestrial and satellite radio were hit by the tide of competition from new ways to transmit audio programming—the Internet and mobile services. Most radio broadcasters had a presence online by the commencement of the present current, almost all of them simply streaming their over-the-air signal. Owing to the technique of streaming it became feasible to reach new listeners as the stations got enabled to extend their appeal beyond local markets and into other countries Spilling ma Of course, the stations that were once “local” could now be heard anywhere. Internet distribution also promoted further splintering of radio formats—and their audiences—into even more specialized mini categories. Some “broadcasters” made their appearance only on the Internet and in this way they obviously saved themselves from the inconvenience they used to undergo, *inter alia*, because of the operation of a station and it proved to be a cost-cutting phenomenon as well and even they avoided the need of a license, which was indeed a hectic and cumbersome exercise. Generally too economical for users, and sometimes devoid of commercial interruptions, countless web audio services began to fascinate many onetime broadcast listeners to “tune in” by means of their computers. Furthermore, Web-only services such as Pandora, the emergence whereof was noticed in the scenario of broadcasting in 2000, allowed users to “program their own station” by selecting only the music they wanted to hear and that too without any sort of interruption. Moreover, mobile media players, such as, Apple Inc.'s iPod, launched in 2001, established a growing market for carrying recorded music, and perhaps radio-type services, wherever the device-carrier went. Numerous people simply downloaded music (legally or otherwise) for use on their mobile devices, causing further threats to the broadcasters. Since the invention of television, the most serious competitive threat that was felt by radio broadcasting was due to the many Internet music (and some other) services. (Skretvedt, 2018)

Web radio and podcasting are “bypass” technologies, which permit individuals to bypass the entire established radio industry (Dearman and Galloway, 2005). According to the evolutionary process advancement in any field is a necessary part for its betterment because it is the need of time that changes the shapes of different things due to the external environment and same is the case with radio, therefore, Web Radio has been preferred by listeners everywhere, *inter alia*, for the reason that one can stream it wherever and whenever he wants to. (Bonini, 2 June 2014)

### Conclusion:

In the end I feel myself compelled to conclude my research article in the terms that Radio being the most effective medium has been witnessing the phases of its development and advancement in every era, that is why, it has undergone the process of evolution commencing from analogue to Web Radio and with the invention of internet Web Radio has not only enhanced the range of Radio distance-wise but also the number of its listeners significantly and one feels oneself bound to acknowledge the undeniable fact that Web Radio is indeed the emerging trend which is likely to capture the attention and response of the future world in the days to come.

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