Radio: From Invention to Innovation

The invention of the radio marked a monumental leap in the evolution of communication. Before the age of digital technology and social media, radio brought the world together, delivering news, music, and entertainment directly into homes.

The discovery of radio began with the idea of the existence of electromagnetic waves. These waves travel throughout the universe and include radio waves, X-Rays, microwaves and even light. James Clerk Maxwell, a Scottish physicist, formulated the theory in the mid-1860s when he predicted the existence of radio waves.[i] Later, in 1886, Heinrich Rudolf Hertz, a German physicist, proved Maxwell's theory by successfully creating and detecting electromagnetic radiation in the radio frequency range.[ii]

However, it was the Italian inventor Guglielmo Marconi who is often credited as the father of radio. In the late 1890s, building upon Hertz's experiments, Marconi made significant strides in wireless communication. He showed the feasibility of sending dots and dashes in Morse code over the airwaves. His first significant achievement came in 1895 when he transmitted a signal over two and a half kilometres.[iii] A few years later, he made a revolutionary breakthrough by successfully transmitting radio signals across the Atlantic Ocean, proving that radio waves were not blocked by the curvature of the Earth.

Warships were quick to adopt this latest form of communication, with the first radio programming featuring speech and music being broadcast from a British warship in 1907.This was considered such a breakthrough that it was kept secret for many years after. The 20th century saw rapid developments in radio technology. The first commercial radio broadcasts began in the early 1920s, leading to the establishment of radio stations and networks. For the first time, people from different parts of the world could experience events as they unfolded, helping to bring communities together.

Radio Comes to Australia

Australia, like the rest of the world, was captivated by the potential of radio in the early 20th century. Radio promised not just entertainment, but also a means of communication that could bridge the vast distances across the Australian continent.

The initial stages of radio in Australia were marked by amateur enthusiasts and innovators. These pioneers, using homemade instruments, laid the groundwork for what would become a nationwide network of broadcasting.

The first official broadcast in Australia was made by Charles Maclurcan in Sydney in 1923.[iv] This success quickly led to the establishment of other stations in major cities, including 2LO in Melbourne and 5CL in Adelaide.[v] The Federal government, recognising the potential of this new medium, started to regulate and issue broadcasting licenses.

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Western Australia, given its vast landscapes and isolated communities, stood to benefit immensely from radio technology. The state's first station, 6WF in Perth, began broadcasting in June 1924.[vi] This station was initially set up by Westralian Farmers Ltd, a large cooperative company known today as Wesfarmers, primarily as a service to the farming community. Its success was a testament to the vital role radio could play in connecting remote communities, offering news, market prices, and entertainment.

6WF's success in Perth prompted the establishment of more stations in Western Australia. Over the years, regional stations sprang up, ensuring that even the most isolated communities could receive broadcasts. The first station capable of being received in Mandurah was established in Fremantle in 1937.[vii]

A notable aspect of radio's evolution in Western Australia was its focus on local content. Stations recognised the importance of catering to the unique tastes and interests of their audience. This meant broadcasts that captured a wide range of content including popular music, local news, events and stories that were of interest to Western Australians

Early Valve Radios

A valve radio is a type of radio that uses glass valves (or tubes) to amplify and process radio signals. These radios were popular before the invention of transistors in the mid-20th century. But how do these now mysterious machines work?

Step 1: Receiving the radio signal. Every radio needs an antenna. The antenna captures radio waves from the air and converts them into tiny electrical currents. These currents are very weak, too weak to be used to produce sound.[viii]

Step 2: Amplifying the signal. The heart of a valve is a vacuum-sealed glass tube, like an old light bulb. When the valve is powered on, the negatively charged cathode in the tube heats up and releases electrons. These electrons are attracted to the positively charged anode, and they flow towards it. The grid, placed between the cathode and anode, acts as a gatekeeper. By applying the weak radio signal to the grid, the flow of electrons between the cathode and anode can be controlled. This process amplifies the original weak radio signal into a much stronger one.[ix]

Step 3: Tuning. Valve radios have a tuning circuit which selects a specific radio frequency from all the signals the antenna captures. This is how you can tune in to different stations. When you turn the tuning knob, you're adjusting this circuit to pick up the station you want to listen to.[x]

Step 4: Producing sound. The amplified signal is then sent to the radio's speaker. The signal causes the speaker's diaphragm to vibrate, producing sound waves that we can hear. This transforms the original radio waves into audible sound waves, including music and speech.[xi]

Radio Before World War Two

Before the dominance of television and the internet, radio was the epicentre of home entertainment. From the 1920s to the 1950s, the "Golden Age of Radio" reigned supreme, offering an unprecedented array of programs that captivated the imaginations of listeners.[xii]

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Music was one of the earliest forms of radio entertainment. Jazz, big band, swing, and classical music. found their way into households, making stars out of musicians like Duke Ellington, Benny Goodman, and Glenn Miller. Radio allowed for music to be more accessible to average people, and that played a crucial role in making new genres of music popular.

Drama series, often referred to as "radio plays" or "audio dramas," became immensely popular. These programs, like "The Shadow," "The Lone Ranger," and "War of the Worlds" by Orson Welles, showcased gripping stories complete with sound effects, dramatic pauses, and powerful performances. These dramas transported listeners to different worlds, allowing their imaginations to complete the visuals. "War of the Worlds" was so convincing that many people believed an invasion from outer space was really happening![xiii]

Comedy also thrived during this era, providing much-needed humour during the challenging times of the Great Depression and World War II. The skits, witty dialogue and local Australian accents of shows like "Dad and Dave" became an integral part of Australia's culture.[xiv]

Radio quiz shows and talent contests were other favourite pastimes. These shows offered interactivity and unpredictability, elements that audiences loved.

Moreover, the radio was a vital source for news and information. The radio era before 1950 was characterised by creativity, innovation, and a deep connection with its audience. It fostered a sense of community, as families and friends would gather around the radio set, eagerly awaiting their favourite shows. This shared experience made radio not just a technological marvel but a cornerstone of 20th century popular culture and a widening international perspective.[xv]

Radio Gets Portable!

One of the greatest breakthroughs in radio and computer technology occurred at the end of World War II, the invention of the transistor. [xvi] These small, solid-state devices replaced the vapour-state valves that were used in pre-war radios. The advantages of the transistor are many. Firstly, they are considerably smaller than valves, enabling producers to create much smaller versions of electronic devices. Secondly, transistors consume far less power, which results in a longer battery life for portable electronics. They also generate less heat, eliminating the need for bulky and energy-consuming cooling systems. Just as important is the transistor's durability and longer lifespan, since they lack the fragile filaments found in valves.[xvii]

In the mid to late 20th century in Australia, new miniaturised portable transistor radios significantly influenced popular culture, leaving a lasting mark on music trends and society. The 1950s and 1960s saw the rise of rock 'n' roll globally, and Australia was no exception. Radio stations across the nation played songs from The Beatles, Elvis Presley, and local stars like Johnny O'Keefe. The transistor radio, portable and affordable, allowed Australian youth to discover this new wave of music, often without their parent's approval. The transistor radio helped catapult local Australian bands to national fame. Bands like The Easybeats, AC/DC, and INXS first made waves on Australian radio before achieving international fame. Radio became a crucial platform for Aussie musicians to connect with wider audiences.

With the rise of rock 'n' roll and other genres, distinct youth subcultures emerged. The surf culture, for instance, with its unique music and lifestyle, was popularised through radio. Radios became symbols of youth freedom and cultural shifts, as younger generations began to challenge tradition.

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DJs and radio hosts became household names, wielding significant influence over music trends and public opinion.[xviii]

Radio Comes to Mandurah

Surprisingly, it was not until 1988 that Mandurah gained its own local radio station and broadcast facilities when West Coast Radio established a station with the call sign 6MM. The path to this inaugural broadcast was paved with strategic decisions and local collaborations. Ian Bassett-Scarfe, the chairman of West Coast Radio, highlighted the station's commitment to its community roots by awarding the construction contract for the new broadcast studios to Bill Watkins, a well-known local builder. "Our resolve was to have a radio station that was not just based in Mandurah but was also birthed from its very soil," Mr. Bassett-Scarfe remarked during the planning phases.[xix]

The project gained rapid momentum, with the state-of-the-art studio complex taking shape on Mandurah Terrace. One notable hurdle was the controversy surrounding the station's call sign, 6MM, chosen to signify 'Mandurah Murray'. The Australian Broadcasting Tribunal had received an objection from the ABC, citing a similarity to their existing call sign, 6MN which was an ABC station in Mount Newman. However, Mr. Bassett-Scarfe's confidence in the local relevance of 6MM paid off, with the station finally getting the approval for its original call sign.[xx]

In late 1987, under the guidance of station manager John Ventris, a team of local staff underwent extensive training which immersed them in the world of radio production. The successful launch on 18 March 1988 was a cultural milestone for the Mandurah community. The first broadcast marked a successful conclusion to a project which was ten years in the making.[xxi]

A Future for Radio?

In today's era dominated by streaming services, podcasts, and on-demand content, many question broadcast radio's ongoing relevance. When the World Wide Web was developed, it revolutionised how data was consumed, but initially, users were tethered to fixed connections. The introduction of Wi-Fi, based on the principles of radio broadcasting, freed internet users from these physical constraints, allowing the wireless connectivity we enjoy today. Just as radio waves pass through the air, Wi-Fi uses radio waves set at high frequencies to transmit information between devices.[xxii]

But how can radio remain relevant in today's on-demand word? Radio's strength has always been its local touch. Stations provide news, weather updates, traffic alerts, and feature local artists, events, and voices that larger, global platforms overlook. This local content fosters a sense of community that's irreplaceable and remains appealing to many listeners. Radio requires minimal infrastructure and is often accessible in places where the internet isn't available. Especially in emergencies, radio frequencies can be more reliable than internet connections, making radio an important medium for communication during crises.[xxiii]

The explosive popularity of podcasts demonstrates that audio content remains in high demand. Many radio stations have embraced this by creating podcast versions of their popular shows or developing exclusive podcast content, blurring the lines between traditional broadcasting and on-demand listening. While the mediums and methods of delivery might evolve, the essence of radio – storytelling, news dissemination, and music sharing – remains. In adapting to modern tastes and technologies, radio can not only survive but thrive in today's digital age.

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