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Adaptation of Digital Technology in Radio Stations in Indonesia)

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ABSTRACT

Digital technology has had a significant impact on radio stations in Indonesia. This makes radio more accessible and allows community involvement to listen to radio broadcasts online. In addition, digital technology speeds up the broadcast process and allows the use of simulcast. This research was conducted qualitatively, using observation and literature study to collect and process data from reliable sources. Research has found that radio stations use digital technology to promote their programs and communicate with their listeners. They also use social networks to learn about public issues and increase public engagement.

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INTRODUCTION

Concepts such as digitalization and radio program management are very important in the increasingly advanced digital era. Academics need to reconsider related theories used before the digital era because ongoing and widespread digital transformation makes radio station management difficult and requires radio managers to rethink their management strategies and operations. (Plekhanov et al., 2023) states that the adoption of digital technology affects almost all areas of modern companies, including production, organizational hierarchies, and relationships with partners, suppliers, etc. Customer. The need for digital management to optimize business performance and design a digitalization concept for quality management for the radio industry. Nowadays radio managers have increasingly pursued digitalization, using digital technology to better produce broadcast product content and services to listeners and advertisers. (Chen et al., 2021) Even though they still carry out old processes, radio managers still have to develop new ideas for program management with a focus on digital platforms. (Hauke-Lopes et al., 2023) Managing digital activities and resources is known as digital management, which is used to optimize business performance. (Conti et al., 2023) Converting analog data to digital data is a process known as digitalization, which involves the use of digital data technologies and systems along with automated operations and management systems. (Hu et al., 2012) To help the radio broadcasting industry , the conceptual design of quality management digitalization is used. (Bennich, 2024) In the digital era, strategic management and leadership are also important concepts. This requires a deep understanding of technology and how to manage virtually connected teams.(Bhoi et al., 2024)

The broadcasting industry is experiencing a significant transformation due to the digitalization of broadcasting and broadcast media competition in the digital era. (Przemysław Falkowski-Gilski, 2021) Digital technology can be used to convert analog signals into binary code for broadcasting. This allows more effective frequency regulation. This enables the regulation of the radio frequency spectrum, which can increase network transmission capacity and improve the efficiency of broadcast infrastructure management. Due to the increasing number of competitors, broadcast media competition in the digital era is increasingly competitive. Broadcasting organizations face stiffer competition and must adapt to various changes that occur, such as social changes in radio listening habits, changing program content, and industry-related technologies. (Conti et al., 2023) To encourage the development of digital radio broadcasting in Indonesia, the government must also make good regulations to support this technology. When information and communication technology developed, conventional or analog media did not just die.

Instead, they "appear" again in a new form or as a development of a previous one, due to a number of factors and needs. Digital audio broadcasting consists of various technologies that enable users to receive digital radio

programs. Digital Radio Mondiale (DRM) is the most popular technology, which uses amplitude (AM) and frequency (FM) modulation systems to transmit digital audio bitstreams. DAB enables audio delivery that is better quality, more efficient, and more resistant to side-by-side interference. Digital Audio Broadcasting (DAB) also uses the COFDM (Coded Orthogonal Frequency Division Multiplexing) system to transmit digital audio bitstreams. (Guerra et al., 2006; Johnson, 2020; Matías et al., 2007) DAB has been selected by the European Broadcasting Union (EBU) as the right technology to bring radio into the 21st century. DAB can meet all public and commercial needs such as audio quality, scalability, interoperability, operating costs, and extensibility for the past.(Gilski & Stefański, 2016; O'Neill, 2009)

Radio media convergence is the process of adapting radio stations to the digital era by increasing broadcast efficiency, quality and consistency by combining three new media elements into one information tool; this includes communications networks, information technology, and media content.(Bateman, nd, 2021) DAB+, DAB-T, or DAB-T2 (Digital Audio Broadcasting Terrestrial) technology is used to digitize radio, which provides clearer and more stable sound quality as well as more choices for the audience.(Hu et al., 2012) Radio convergence strategies have been used by radio stations that carry out media convergence to increase their audience and advertising markets.(Conti et al., 2023) The purpose of radio media convergence is to adapt into the digital era, improving broadcast quality and efficiency, and expanding audience and advertising markets. This research uses a descriptive approach to analyze the application of radio media convergence and explains the challenges and obstacles faced by radio stations when implementing it in the digital era. (Oyedokun & Ajayi, 2022)

Social media applications, which are digital platforms, are very important and are used in various aspects of life such as communicating, interacting, sharing information and promoting products. According to (Özkent, 2022) social media has been present in every aspect of human life, and in the current era of digital technology, they have become very important for communication. However, social media use also has good and bad consequences, including time restrictions, addiction, and the use of unwanted advertising. Digital literacy and the use of information technology are essential to using social media effectively. (Mailizar et al., 2022)

The history of the Indonesian radio industry is long, starting in the United States (US) in 1906 by Dr. Lee De Forest, who is called "The Father of radio". This industry has gradually developed from the conventional era to the digital era. Since 1923, the number of radio stations in Indonesia has increased, currently around 1900 radio stations have received permits from the Indonesian Government. To make radio more accessible and have a wider reach, the Indonesian radio industry has experienced innovation by switching from analog

to digital. (Garrido-Moreno et al., 2024) The radio industry in Indonesia has faced challenges due to digital technology, but they have to changed to remain relevant to the current era. They have to change technology and create new features that make operation easier. (García et al., 2024) People in Indonesia can listen to radio from anywhere and at any time via smartphone devices, which is one of the innovations in the radio industry. (Grybauskas et al. ., 2022)

The Indonesian radio industry also has to face other problems, such as the decreasing popularity of radio as a conventional medium. However, the Indonesian radio industry can still survive and develop as a medium that can convey information, news and entertainment to the public by adapting to the digital era by integrating with the internet and one of which is utilizing digital technology to gain market share or listeners in this internet era. . Therefore, researchers want to examine how radio stations adapt to social, technological and cultural changes and influence digital technology which has an impact on society and radio listeners in Indonesia.

LITERATURE REVIEW

The theoretical framework of this research was built using various theories and concepts related to communication, technology and media. The following are several theories used as a theoretical framework: Mass Communication Theory (Fiske, 2010) This theory analyzes how mass communication affects individuals and society. In this case, we can use this theory to understand how digital technology affects radio communications and how it affects society. Media Dependency Theory (Ghosh, 2019; Jung, 2017) This theory says that people will play media that they consider to get the information they need. In this case, this theory can be used to understand how digital technology influences people's choices about the radio media they choose. User Theory (Parry D; le Roux D, 2020) This theory considers media users as the main actors in the communication process. Therefore, we can use this theory to understand how digital technology influences the use of radio and online media. Usage Level Theory (Bybee J; Beckner C, 2012) This theory says that media users will play media that they consider relevant to their level of use. In this case, this theory can be used to understand how digital technology influences the level of use of radio and online media. Interactive Communication Theory (Bangerter & Mayor, 2013) According to this theory, interactive communication is more effective than non-interactive communication. Therefore, we can use this theory to understand how digital technology influences interactions between radio broadcasters and listeners. Multimedia Use Theory (Mayer, 2024) This theory argues that media use is more efficient than traditional media. Therefore, we can use this theory to understand how digital technology affects radio and online media.

RESEARCH METHODS

This research uses qualitative research methods with a literature study approach. Namely collecting and analyzing data in the form of documentation from sources relevant to the problem being faced, namely the impact of digital technology on radio stations in Indonesia. This literature study approach refers to the process of collecting and processing data from journal sources and other documentation. This approach aims to solve the problem by tracing existing written sources and conducting direct observations on a number of radio stations that have carried out digital transformation in their radio management. Qualitative research with a literature study approach will have advantages such as launching new insights, expanding and sharpening knowledge, and helping interpret findings.

RESULTS AND DISCUSSION

Adaptation of radio stations to changes in digital technology

To maintain listener interest and adapt to technological, social, and cultural developments, radio stations must accommodate these changes. Radio is an auditive medium that conveys messages through sound. (Oxenham, 2018) With current technological developments, radio no longer has to be accessed via a physical radio device; Currently, radio can be accessed via internet-based streaming. Many people still use radio because of its auditory nature, which allows people to listen to it while they do other things. In connection with sound, the theory of localization and time (Boring, 1926) explains that the theory of time being a special case of the previous theory of sound intensity, within appropriate time limits, is more effective than the later one. The degree of cortical excitability is greater for him, and all statements about intensity differences therefore apply to time differences, which translate into intensity differences in the auditory centers. People no longer need to buy radio devices to listen to broadcasts. The existence of electronic media connected to the internet today can be an alternative to listening to radio broadcasts. The presence of electronic media connected to the internet has many benefits compared to conventional radio. It appeals to radio listeners because of wider access, a wider selection of content, interactive features, better audio quality, and lower costs. Considering the increasing number of radio stations and increasingly advanced developments, radio station management must be able to adapt to technological developments to continue to exist. The radio industry faces both challenges and opportunities due to the development of the internet and digital media. To continue to exist and attract listeners in the digital era, radio stations are starting to change and take several strategic steps in using digital technology. In relation to digital platforms, it is also explained by (Rohn et al., 2021) that the latest digital transformation initiatives make it possible to enter platform-based business models on the demand side and build relationships with potential customers on the supply side. Value and economic growth can be created in an interactive ecosystem of

digital platforms thanks to networks that connect individuals, organizations, resources and entire industries. The research results show that radio stations in Indonesia have begun to adapt by using several strategic steps as in Figure 1 below.

Figure 1: Strategic Steps to Adapt to Digital Technology

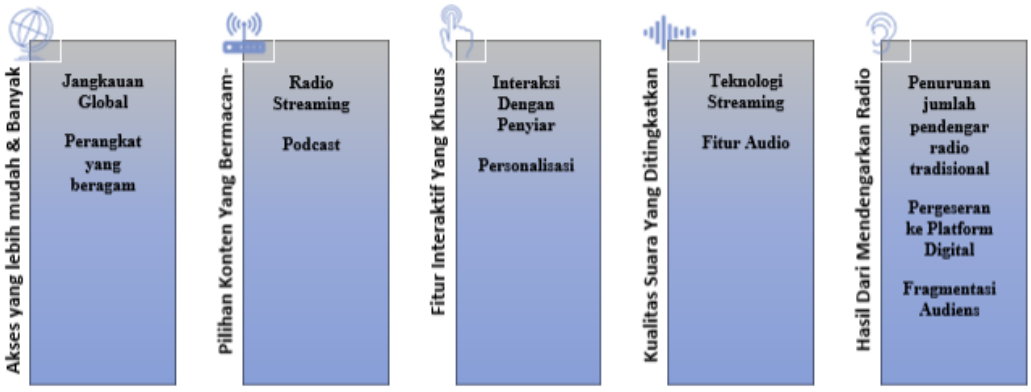
The radio industry faces both challenges and opportunities due to the development of the internet and digital media. To continue to exist and attract listeners in the digital era, radio stations are starting to change and take several strategic steps in using digital technology. Figure 1 above is in line with the findings in the current condition that the radio industry in Indonesia has started to use the internet to complement its analog broadcasts, both AM and FM, with online streaming. Programs can be broadcast online via websites, phone applications, and streaming platforms such as Spotify, Noice, and JOOX. Even though live streaming and e-commerce are booming. However, it remains unclear how live streaming influences consumers' purchase intentions in online marketplaces. (Benjiang Lu & more, 2021) Apart from that, podcasts are also created by radio stations to attract new audiences in an interesting and informative way. Today's radio stations are also making the best use of social media to promote programs, connect with listeners and form communities. Apart from that, we have now started to present unique and interesting content, namely focusing on programs that are difficult to find on other platforms, such as interactive talk shows, exclusive podcasts and original local content. Complemented by the statement (Kuo, 2001) that current approaches to segmentation and classification of audiovisual data focus mostly on visual cues, audio signals may actually play a more important role in content scanning for many applications. In addition, radio stations are starting to improve sound quality through their digital programs. with clear and interference-free sound, and quite a few radio stations are starting to invest in better sound technology to increase the production of visual program appeal by combining audio with video or images.

Another digital technology used by radio stations is to create interactive features, namely allowing listeners to interact with broadcasters and programs through interactive features such as live chat, polls, and others. As well as

building online community applications as online forums and social media to get closer to listeners. Also equipped with creating offline activities in an effort to improve relationships with listeners, holding offline events such as meet and greets, workshops and concerts. Apart from that, with digital technology radio station managers can study listener preferences to find out listener preferences, track their data and change programs to make them more relevant. This data can help develop effective marketing strategies by utilizing data to target advertising and promotions more precisely. And no less important, using digital technology can improve operational performance, namely analyzing data used to improve workflow and operational efficiency. With the current development of digital technology, many applications are being used by society and have become digital culture in society. Therefore, radio stations have started to utilize well-known influencers with a large number of followers who can be invited to collaborate. Namely influencers via social media to provide radio audiences with more information about radio programs.

Digital technology affects society and radio listeners

Society has been changed by digital technology, including the way they listen to the radio. The following are some of the effects, which can be seen in Figure 2 below:



Gambar 2 : Teknologi digital mempengaruhi masyarakat dan pendengar radio & Masyarakat telah diubah oleh teknologi digital, termasuk cara mereka mendengarkan radio

The picture above shows that radio stations via digital technology via the internet have global reach. Through the internet, people can listen to a wider variety of programs and content. And can use various devices where listeners can listen to radio via various devices, such as computers, tablets, smartphones and smart speakers, which provides flexibility and easy access anytime and anywhere. Apart from that, listeners can listen to radio stations according to their taste via streaming radio, where various choices of streaming radio with various genres, topics and languages are available on platforms such as Spotify, Noice and JOOX, so that listeners can find programs that suit their interests and needs.

Or listeners can also enjoy podcast content on various topics, from comedy, business, to education. Podcast content is a popular choice because it is more personal, in-depth and interactive. Listeners can also interact with broadcasters via streaming platforms that allow listeners to communicate directly with broadcasters via comments, chat, or even voice calls. As well as personalization where streaming platforms allow listeners to create playlists and recommendations based on their preferences, allowing them to easily find content that suits their tastes. Apart from that, through digital technology, streaming technology allows listeners to enjoy clearer and interference-free sound than conventional radio with internet-connected electronic media. In addition, radio stations are equipped with audio features where streaming platforms offer additional audio features such as equalizers and volume normalization, which allow listeners to customize their listening experience. While the number of traditional radio listeners has decreased with the emergence of digital platforms, the number of traditional radio listeners has decreased. However, the culture of listening to radio is starting to shift towards digital platforms, meaning that listeners prefer to listen to radio via digital platforms, such as online streaming and podcasts. Therefore radio listeners will become fragmented, as listeners choose programs and content that suit their interests, radio audiences become more fragmented.

CONCLUSION

Traditional radio still has some advantages, such as ease of use and wider reach in remote areas, although internet-connected electronic media offers many advantages. Individuals choose between conventional radio and internet-connected electronic media. The presence of electronic media connected to the internet has many benefits compared to conventional radio. It appeals to radio listeners because of wider access, a wider selection of content, interactive features, better audio quality, and lower costs. Adaptation and innovation are very important for radio stations to continue to exist in the digital era. By adopting digital platforms, improving content quality, building interactions with listeners, utilizing data, and collaborating with others, radio stations can reach new audiences, increase engagement, and survive in the digital era. Digital technology has had many positive influences on society and radio listeners, such as wider access, diverse content choices, and interactive features. However, digital technology also presents several challenges for the radio industry, such as a decline in traditional radio listeners and audience fragmentation. Radio stations need to adapt to developments in digital technology to continue to exist and attract listeners in the digital era.

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