An Analysis of Leveraging the Benefits of the Fourth Industrial Revolution at Bangladesh Betar: Insights from Key Stakeholders

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Abstract

Bangladesh Betar, the largest state-run broadcaster in Bangladesh, plays a crucial role in the country's mass media landscape. As the largest state-run broadcaster, it provides information, education, and entertainment to the public. The radio has evolved to meet evolving communication technologies and listener preferences, implementing modern initiatives like mobile applications, social media, and websites. A study evaluating the quality of Bangladesh Betar's programs revealed that a significant portion of listeners tune in regularly, with 92.84% believing radio plays a vital role in enhancing public participation in government services. The study also outlines strategies for Bangladesh Betar to navigate global competition in the context of the fourth industrial revolution.

Keywords: Bangladesh Betar, Fourth Industrial Revolution (4IR), Listener, Policy Makers, and Artists

1 Introduction

The Fourth Industrial Revolution (4IR) is transforming industries worldwide through the integration of advanced technologies such as artificial intelligence, the Internet of Things, and digital automation (Schwab, 2016). As a vital state-owned broadcasting organization, Bangladesh Betar stands at a critical juncture to harness these technological advancements to enhance its operations, content delivery, and audience engagement. This article aims to analyze how Bangladesh Betar can leverage the benefits of the Fourth Industrial Revolution by gathering insights from key stakeholders within the organization. Understanding their perspectives will provide valuable guidance for adopting innovative strategies, ensuring that Bangladesh Betar remains relevant and competitive in the rapidly evolving media landscape.

1.1 Background of Bangladesh Radio

Bangladesh Betar, formerly known as Radio Pakistan, was established on December 16, 1939, during the British colonial era. Since its inception, it has served as a principal platform for broadcasting information, education, and entertainment to the masses across the region. The station played a monumental role in shaping the media

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landscape in East Bengal, and later in independent Bangladesh. One of the most historically significant contributions of Bangladesh Betar was during the Liberation War of 1971, when the Swadhin Bangla Betar Kendra emerged as a powerful instrument of resistance and national identity. Through the transmission of motivational songs, wartime news, and declarations of independence, it became a symbol of patriotism and a voice of the people (Islam, 2012). This legacy continues to underpin the institution's identity as the nation's public broadcaster.

Over the following decades, Bangladesh Betar expanded its network and diversified its content, offering a wide range of programs that addressed cultural, educational, agricultural, and developmental themes. However, the media landscape in Bangladesh has undergone significant transformations, especially in the post-1990s era with the liberalization of private television channels and the exponential growth of digital media. The increasing availability of smartphones, internet access, social media, and global streaming platforms has dramatically shifted audience behaviors and expectations. Linear radio broadcasting, once the dominant mode of public communication, is now facing declining listenership, particularly among younger and urban populations (UNESCO, 2019).

In response to these changes, Bangladesh Betar has initiated several modernization efforts. These include digitization of archives, upgrading of studio and transmission equipment, and limited experimentation with online streaming and mobile applications. However, the pace and scale of these initiatives remain insufficient to counter the broader challenges posed by the Fourth Industrial Revolution. The organization continues to rely heavily on conventional modes of content delivery, often lacking real-time interactivity, personalization, and cross-platform engagement that modern audiences increasingly expect.

Despite these challenges, Bangladesh Betar retains a critical role in national life. As a government-funded and state-operated broadcaster, it carries the responsibility of disseminating official information, promoting national development agendas, and addressing social issues such as public health, education, gender equity, disaster preparedness, and rural empowerment. Its wide network of 14 regional broadcasting centers—located in strategic cities—ensures that its signal reaches remote and underserved areas, making it a vital communication tool during emergencies and national events (Bangladesh Betar, 2021). Additionally, Bangladesh Betar broadcasts in multiple languages and dialects, contributing to the preservation of Bangladesh's diverse cultural heritage and linguistic pluralism.

However, the emergence of digital-first platforms and fragmented media consumption habits has increased competition for audience attention. Audiences now expect on-demand, multi-format, and multi-device access to content—features that traditional radio has yet to fully adopt. In this context, the ability of Bangladesh

Betar to maintain its relevance and impact depends on its willingness to embrace innovation, invest in digital technologies, and understand the evolving needs and preferences of its listeners.

Rodham (2006) underscores that audience research is indispensable for public broadcasters aiming to remain effective in the modern media environment. Listener research not only helps assess the popularity and impact of existing programs but also offers insights into changing audience expectations, regional and demographic variations, and the potential for new formats. Without such research, broadcasters risk remaining disconnected from their constituencies, even when they possess expansive infrastructure.

Accordingly, this study has been undertaken to address these knowledge gaps by conducting an in-depth assessment of Bangladesh Betar's listener base. It explores demographic characteristics, content preferences, listening behaviors, and feedback mechanisms. It also seeks to understand how 4IR technologies can be incorporated into Bangladesh Betar's strategic framework to modernize its operations, enhance listener engagement, and prepare the institution for the digital future. The findings of this study will contribute to a roadmap for innovation and institutional resilience, ensuring that Bangladesh Betar continues to play a meaningful role in the country's public communication ecosystem.

1.2   Objectives

1.2.1 Objectives of the main study

This research primarily aims to examine the extent of listener engagement with radio and to explore potential methods for evolving radio into an interactive digital medium, drawing on the extensive history of traditional radio in Bangladesh. The investigation seeks to refine the understanding of the preferences, trends, and demographic profiles of the listener of Bangladesh Radio. The goal is to uncover the distinct perceptions of listeners regarding various programs offered by Bangladesh Betar, as well as to identify the subjects that captivate their interest, thereby prioritizing the needs of the listener. The specific objectives of the study include —

- To identify the demographic characteristics of Bangladesh Betar's listeners and examine how different demographic groups engage with various radio programs.
- To identify popular radio programs and to explore the key factors influencing listener preferences and reasons for choosing particular programs.
- To assess listeners' overall satisfaction with the program's content, quality, and delivery, explore the influence of digital platforms on these factors, and identify ways to enhance the program's impact using listener feedback.
- To develop, manage, and deliver information-based programs with engaging,

participatory content that meets the needs of listeners and governments using modern communication technologies.

- To determine listeners' expectations of Bangladesh Betar regarding government service delivery, public participation, and broadcasting new knowledge.
- To explore how Bangladesh Betar's broadcast network can be used to increase public awareness and access to digitized public service platforms, thereby supporting inclusive and balanced development by connecting people to government services, and
- To propose strategies that enhance listener engagement with Bangladesh Betar by adopting innovative approaches from diverse media.

1.2.2 Objectives of the Article

This article, grounded in comprehensive research carried out by Bangladesh Betar, centers on three key purpose. These include:

a) To understand the demographic characteristics and radio listening habits of Bangladesh Betars' listeners;

b) To explore listeners' perceptions regarding the impact of Bangladesh Betar on contemporary social life; and

c) To gather stakeholder insights on how Bangladesh Betar can leverage opportunities presented by the Fourth Industrial Revolution.

1.3   Justification for the Study

The onset of the Fourth Industrial Revolution (4IR), marked by breakthroughs in artificial intelligence (AI), the Internet of Things (IoT), machine learning, robotics, cloud computing, and big data analytics, has significantly altered how societies communicate, work, and consume information (Schwab, 2016; Xu, David, & Kim, 2018). Unlike previous industrial revolutions, 4IR is unfolding at an exponential pace and disrupting nearly every sector, including media and communications. In this context, traditional broadcasting organizations like Bangladesh Betar are facing intense pressure to modernize, adapt, and innovate.

As Bangladesh's state-owned public radio broadcaster, Bangladesh Betar has long been a key channel for disseminating government information, delivering educational and development-oriented programming, and preserving cultural identity. However, the widespread adoption of digital platforms such as social media, mobile applications, podcasts, and online streaming services has rapidly changed media consumption habits. Today's audiences-especially younger demographics-demand immediacy, interactivity, and on-demand access, making linear, one-way broadcasting increasingly inadequate.

In this new paradigm, the integration of 4IR technologies is no longer optional for public broadcasters—it is essential. The use of AI can enable content personalization, automate program scheduling, and provide speech-to-text or multilingual translation features. Big data analytics can help broadcasters understand listener behavior in real-time, tailoring content to audience interests. Meanwhile, digital platforms can extend the reach of Bangladesh Betar beyond its traditional geographical boundaries and attract newer, tech-savvy listeners. Without such technological integration, the organization risks falling behind private broadcasters and digital-native platforms that already offer these features.

Yet, despite its national importance and long history, Bangladesh Betar has been relatively slow to integrate 4IR technologies into its operational and content delivery models. This gap is not simply technological; it also reflects organizational inertia, limited infrastructure, lack of targeted investment in digital transformation, and a need for greater internal capacity building. Moreover, there is insufficient empirical research exploring how the institution's internal stakeholders—such as management, producers, engineers, and policymakers—perceive the relevance, feasibility, and urgency of digital transformation.

This research is therefore both necessary and timely. It aims to identify and analyze the internal perspectives of those working within Bangladesh Betar—individuals who are directly involved in the planning, production, and dissemination of radio content. Understanding their insights on technological readiness, operational barriers, and audience engagement strategies is critical for creating a roadmap for future innovation. By documenting these perspectives, the study provides a foundation for strategic interventions that can improve efficiency, responsiveness, and programming relevance.

Additionally, the study is expected to generate practical, data-driven recommendations to strengthen Bangladesh Betar's role in the public information ecosystem. In particular, it emphasizes the need for listener-focused, technologically enhanced programming that aligns with contemporary content consumption patterns. It also examines how Bangladesh Betar can maintain its public service ethos while embracing modern communication tools.

Importantly, this research also explores how Bangladesh Betar can leverage its existing assets-its nationwide infrastructure, multilingual programming, experienced staff, and loyal rural audiences-within a modernized framework. The objective is not to replace traditional radio formats but to augment them with digital tools that increase accessibility, efficiency, and engagement.

In conclusion, this study addresses a critical gap in the discourse on public broadcasting and technological innovation in Bangladesh. By investigating how

Bangladesh Betar can adapt to the challenges and opportunities of the Fourth Industrial Revolution, it contributes not only to the sustainability of a key national institution but also to the broader evolution of public media in the digital age.

2   Methodology

2.1   Study Area and Population

The present research was conducted across 17 districts of Bangladesh that host regional centers of Bangladesh Betar. These districts span 8 administrative divisions and encompass diverse socio-geographic contexts. In addition to districts hosting regional radio centers, two adjacent districts—Narayanganj and Gazipur—were included due to their significant exposure to broadcasts transmitted from the Dhaka center of Bangladesh Radio. Similarly, to enhance representation of coastal listeners, Satkhira was incorporated alongside Khulna district, served by Bangladesh Betar Khulna. Within each selected district, one municipality or city corporation area and one general upazila were purposively chosen. In total, the study covered 17 upazilas, 7 municipalities, and 10 city corporations.

2.2   Sample Size

A total of **2,800 radio listeners** were identified as respondents, with an average of approximately 200 informants per regional center across 14 radio centers. The allocation of respondents was determined according to each radio center's establishment date, geographic coverage, programming diversity, and listener engagement level. Given the absence of a comprehensive sampling frame for radio listeners, a non-probability sampling strategy was adopted.

2.3   Sampling Methods

2.3.1 Quantitative Data Collection

The **Snowball Sampling** technique was employed for selecting survey respondents. Initial radio listener contacts were established through personal networks and then expanded as each participant referred further listeners. This ensured a broad reach across different socio-economic and geographic profiles of radio listeners.

2.3.2 Qualitative Data Collection

A **Maximum Variation Sampling** strategy was followed to ensure a diverse representation of participant experiences and viewpoints. Respondents included radio listeners, program producers, program staff, and policymakers at Bangladesh Betar. Qualitative data were gathered through:

- **Key Informant Interviews (KIIs)** with senior officials, program creators, and policy planners.
- **Focus Group Discussions (FGDs)** with groups of radio listeners and program staff.

This multi-pronged qualitative sampling ensured in-depth coverage of all stakeholder perspectives and captured variations in opinions, experiences, and practical insights.

2.4   Interview Protocol

Both KIIs and FGDs were conducted using a semi-structured interview guide comprising open-ended questions tailored to the informant category. Interviews and FGDs were conducted in a conversational style to encourage participants' natural expression. Prior to data collection, consent was obtained, and confidentiality was assured to all respondents.

2.5   Data Collection and Processing

Quantitative data were directly inputted into a centralized database using the KOBO Toolbox, ensuring timely data entry and reducing transcription errors. The qualitative data-recorded with consent-were transcribed, edited, and cleaned for accuracy prior to analysis.

2.6   Analytical Approach

Quantitative data were reviewed for completeness and consistency checks using SPSS, and then analyzed using descriptive statistics aligned with the research objectives. For the qualitative data, a Thematic Analysis was performed. This process involved:

1) Familiarization with the data through repeated readings of transcripts.

2) Coding of segments relevant to listener experiences, program relevance, challenges faced, and recommendations.

3) Grouping of codes into emergent themes that captured patterns across interviews and discussions.

4) Reviewing and refining themes to ensure they accurately reflected the depth and diversity of respondents' views.

2.7   Dissemination and Validation

Preliminary findings were presented at a validation seminar held at the Bangladesh Betar headquarters, attended by senior officials and program managers. Feedback was solicited and incorporated into the final report, ensuring the results were both credible and practically applicable.

3   Results and Discussions

3.1   Demographic Characteristics and radio listening habits of Radio Listener Respondents

In social research, demographic characteristics pertain to the social, economic, political, and ideological standing of the informants. These factors have been carefully considered in the selection plan for informants in this study. Below, we present the demographic characteristics of the study participants in order. The below Figure-1 illustrates a summary of the data gathered from the listener informants in the survey, based on information from 14 radio stations.
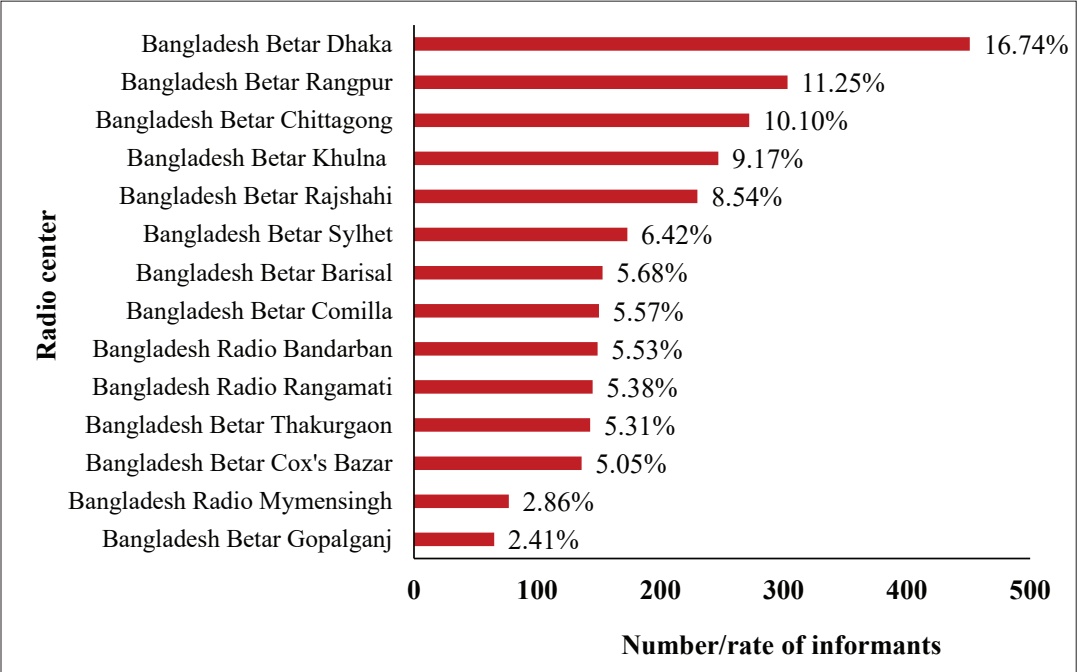

Figure-1: Rate (%) of informants based on 14 Regional Radio Center

*(**Source:** Field survey, May 2024)*

The above Figure-1 illustrates that the Dhaka Radio Center area, which encompasses the Narayanganj and Gazipur districts, recorded the highest number of informant

percentage at 16.74%. In contrast, the Gopalganj district had the fewest informant accounts for only 2.41%. The informant counts from other districts in the study are respectively: Bandarban 5.53%, Barisal 5.68%, Chittagong 10.10%, Cox's Bazar 5.05%, Comilla 5.57%, Dhaka 9.3%, Khulna 9.17%, Mymensingh 2.86%, Rajshahi 8.54%, Rangamati 5.38%, Rangpur 11.25%, Sylhet 6.42%, Thakurgaon 5.31%, Narayanganj 3.7%, and Gazipur 3.7%.

The survey included informant composed of 75.58% males, 23.76% females, and 0.67% identifying as third gender. The gender distribution of the participants is detailed in Table 2 below.
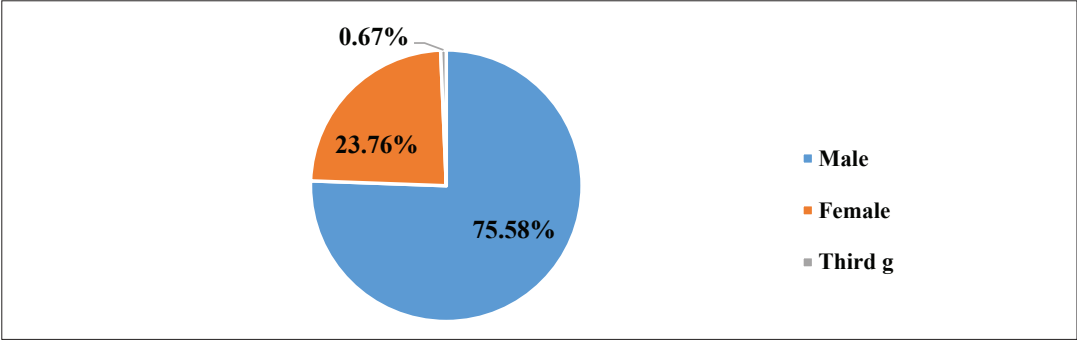

Figure-2: Gender wise distribution of surveyed informants

(Source: Field survey, May 2024)

The below Figure 3 illustrates the range of occupations among the informants participating in the study.
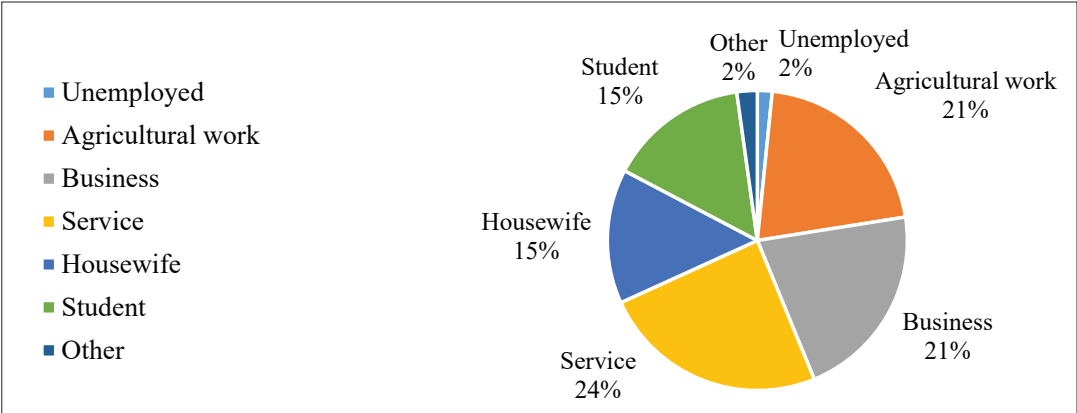

Figure-3: Occupational Distribution of Survey Informants (%)

(Source: Field survey, May 2024)

It reveals that 1.60% of the informants are unemployed, while 20.90% are involved

in agriculture and 21.30% are engaged in various business activities. It's important to clarify that the term "business" in this context encompasses all forms of small, medium, and large enterprises. Additionally, 24.40% of the informants are linked to the service sector, which includes both government and private employment, as well as other service-related roles. Furthermore, 14.50% of the respondents identified as housewives who contributed to the discussion survey. Lastly, 2.20% of the informants belong to other professions, which include activities such as begging, performing monkey shows, and cleaning services.

3.2 Listeners' Engagement with Radio Program

According to the study, 22.64% of the informant listeners listen to the radio daily. Majority of radio listeners (47%) listen to radio 2-3 days a week. Besides, 20.01% listeners listen to radio 4-5 days a week and 9.87% listeners 1 day a week. Figure-4 below shows the listening level of Bangladesh Radio among the informant listeners.
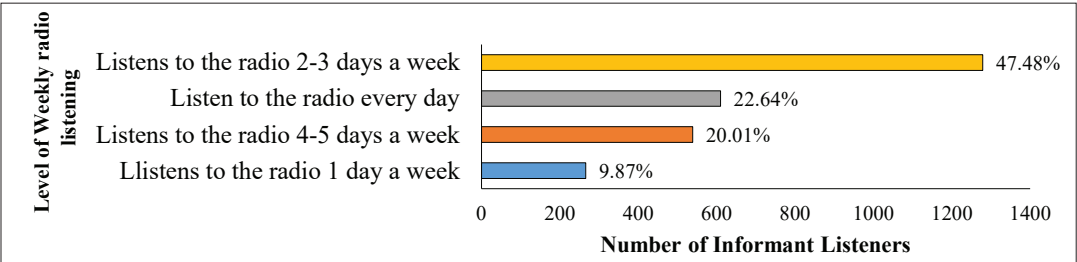

Figure-4: Level of Engagement among the surveyed Listeners with Radio

*(**Source:** Field survey, May 2024)*

This survey not only assesses how many days a week listeners tune into the radio but also measures the average daily listening hours. The findings are illustrated in Figure-5. The results indicate that the majority of listeners, accounting for 39.68%, engage with the radio for an average of 1-2 hours each day. In contrast, a mere 1.37% of listeners dedicate more than 4 hours to radio listening on a daily basis.
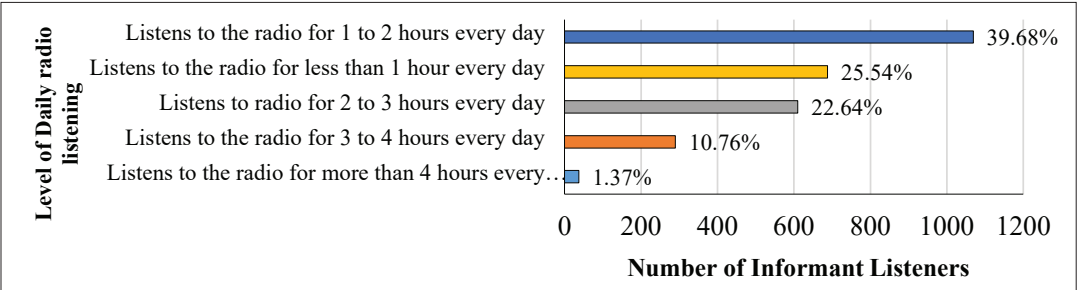

Figure-5: Level of Daily Engagement of Survey Listenrs with Radio

*(**Source:** Field survey, May 2024)*

Table 5 illustrates that the largest segment of listeners, representing 39.7% of all participants, engages with the radio for an average of 1-2 hours per day. The second largest group, at 25.5%, listens for under 1 hour daily. Additionally, 10.8% of respondent's report listening for an average of 2-3 hours, while a mere 1.4% tune in for more than 4 hours each day. Overall, the findings reveal that the majority of radio listeners typically spend 1-2 hours daily with the medium, with only a small fraction listening for over four hours.

During the interviews at different stages of data collection, the informants mentioned that with the advancement of technology, people are listening to the radio in different ways as the radio goes beyond the shell of a specific device and reaches the hands of people through mobile phones. Figure-6 shows the radio listening rate of the surveyed listeners through different channels.
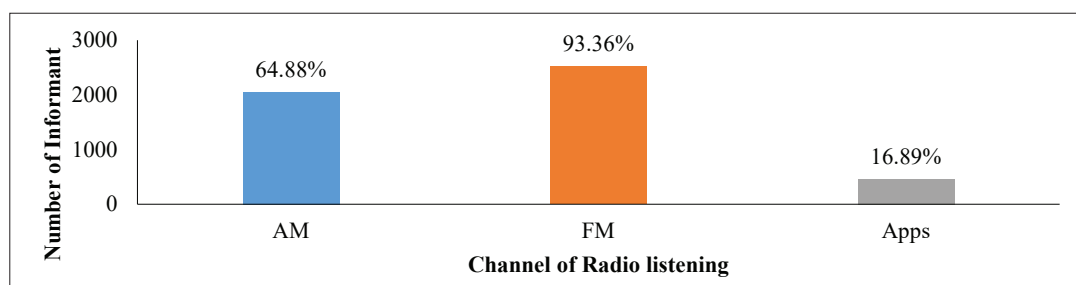

Figure-6: Rate of radio listening by different channels of surveyed listeners

(Source: Field survey, May 2024)

Bangladesh Betar broadcasts programs and news through 16 medium wave (AM) transmitters, 02 short wave transmitters and 34 FM transmitters. The same listener uses different media (eg: radio sets, mobile phones, websites and mobile apps etc.) to listen to these programmes. The survey shows that the largest number of listeners (93.36%) listen to radio through FM, (64.88%) listen to radio through AM, and the least number of users of apps are only (16.89%).

Survey results indicate that listeners typically engage with the radio during their leisure time, on special occasions to meet specific needs, and to find a moment of relaxation from routine. In rural areas, individuals often tune in to the radio for enjoyment after completing their work. In urban settings, there is a noticeable trend of listening while driving or using headphones on mobile devices during commutes. Nonetheless, both rural and urban listeners share a common interest in radio during sports events. Additionally, in regions prone to disasters, collective radio listening is observed during emergencies. The optimal time for radio listening varies based on the listener's job, daily routines, and other factors. Figure 7 below illustrates the distribution of time slots for Nishuti programs among the radio listener, segmented between 6 am to 12 pm and after 12 pm, according to the survey findings.
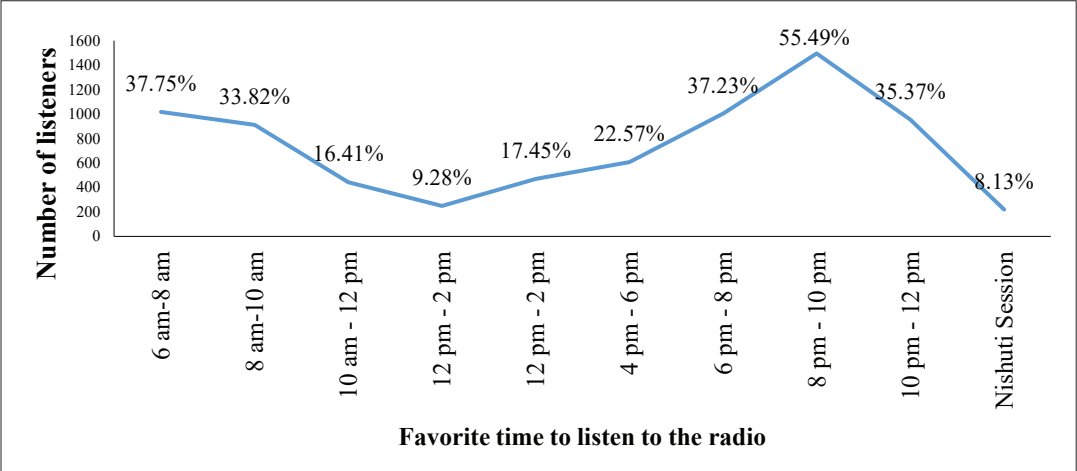
Figure-7: Listener Support Rate (%) on Good Time to Listen to Radio

*(**Source:** Field survey, May 2024)*

A total of 1495 listeners, representing 55.49%, have indicated that this time slot is the most favorable for radio listening. For many, tuning in to the radio for 1-2 hours before bedtime has become a nightly ritual after a long day. The second most popular time for radio listening is from 6:00 to 8:00 AM, with 1017 listeners (37.75%) supporting this choice. They believe that starting their day with a radio show enhances their morning routine, making the time before their busy schedules more enjoyable. During these hours, they typically tune in for news updates or motivational discussions. Additionally, 1003 listeners (37.23%) feel that beginning their evening with a radio program improves their mood, providing an opportunity for working individuals to engage with radio content.

3.3   Listeners' satisfaction towards broadcast quality of Bangladesh Betar programs

As a significant channel of mass communication, the listener has shown varied responses to the different programs offered by Bangladesh Betar. Table-8 illustrates the level of listener satisfaction regarding the broadcasts from Bangladesh Betar, based on the findings from the listener survey.

Figure-8(a): Audience satisfaction with accuracy/appropriateness of content selection
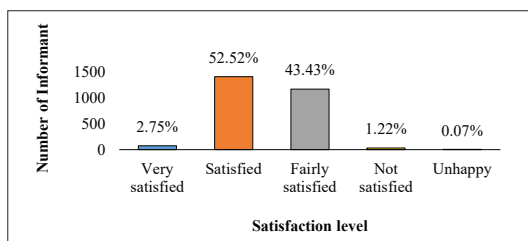

Figure-8(b): Audience satisfaction with construction plan, requirement of information served and overall quality

Figure-8(c): Audience satisfaction towardsdelivery/presentation style
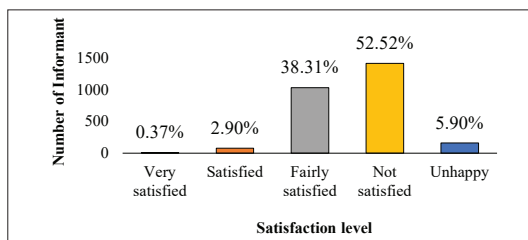

Fig-8(d): Listener satisfaction with clear hearing

(Source: Field survey, May 2024)

As illustrated in figure-8 (a, b, c & d), listener satisfaction regarding the accuracy and appropriateness of radio program content is as follows: Highly Satisfied: 2.15%, Satisfied: 52.30%, Fairly Satisfied: 44.25%, Not Satisfied: 1.22%, and Dissatisfied: 0.07%. When it comes to satisfaction with the program production plan, information needs, and overall quality, the results are: Highly Satisfied: 2.75%, Satisfied: 52.52%, Fairly Satisfied: 43.43%, Not Satisfied: 1.22%, and Dissatisfied: 0.07%. In terms of program delivery and presentation style, listener satisfaction is reported as: Highly Satisfied: 3.53%, Satisfied: 58.91%, Fairly Satisfied: 36.56%, Not Satisfied: 0.89%, and Dissatisfied: 0.11%. Lastly, listener satisfaction regarding the clarity of broadcasts and hearing events shows: Highly Satisfied: 0.37%, Satisfied: 2.90%, Fairly Satisfied: 38.31%, Not Satisfied: 52.52%, and Dissatisfied: 5.90%.

The feedback from the listener regarding the engineering management of the broadcast program has been largely unfavorable. Many radio listeners believe that the sound engineering of Bangladesh Radio requires substantial improvement. Those surveyed indicated that while they can clearly hear programs from various foreign radio stations, the broadcasts from Bangladesh Radio are frequently bothersome due to unclear and undesirable audio quality.

3.4   Listeners' perceptions regarding the impact of Bangladesh Betar

Listeners have reported that Bangladesh Betar consistently broadcasts a range of programs aimed at delivering the service activities of providers directly to the public.

By facilitating dialogue and discussions on diverse social, economic, and political topics, Bangladesh Betar motivates citizens to engage with their government and play a role in the decision-making process. Furthermore, the educational programs and informative content offered by Bangladesh Radio play a crucial role in fostering an informed society and enhancing the capacity for meaningful participation in social development. According to the data obtained, the majority of the respondents (92.8%), believe that Bangladesh Radio programs play a role in delivering government services to the public.

3.5   Generation of essential information and new knowledge

Bangladesh Betar plays a crucial role in delivering timely and vital information during emergencies, natural disasters, and other critical situations. It efficiently spreads current updates to the public via a wide-reaching network of radios throughout the nation. In addition to sharing essential information, Bangladesh Radio fosters the development of new knowledge among its listeners. Through a variety of programs, including educational initiatives, cultural showcases, and discussions on contemporary topics, it enhances the listener's understanding and awareness. Figure-9 presents the views of the surveyed listeners on the role of Bangladesh Betar in generating urgent information and new knowledge.
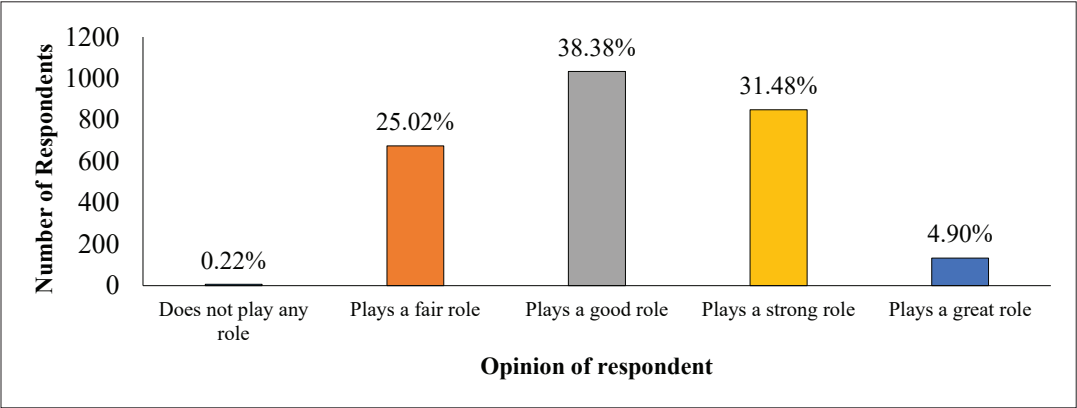

Figure-9: Respondents opinion on the role of Bangladesh Radio in generating essential information and new knowledge

*(**Source:** Field survey, May 2024)*

The data from graph 9 indicates that 38.38% of listeners believe Bangladesh Radio effectively contributes to delivering urgent information and fostering new knowledge. Meanwhile, 31.48% of listeners rate Bangladesh Betar's performance as 'very good' in this area. Additionally, 25.02% of listeners consider Bangladesh Betar's role to be 'moderate.' Only 4.90% of listeners perceive Bangladesh Radio as playing a 'great role'

in disseminating vital information and creating new knowledge. A mere 0.22% of listeners feel that Bangladesh Radio 'does not play any role' in this important function. Overall, the overwhelming majority of listeners, 99.88%, recognized the significant positive impact of Bangladesh Betar in delivering urgent information and fostering new knowledge, despite some differing opinions on its extent. This highlights the station's crucial role in the community's access to essential information.

3.6   Impact on personal life, family and society

Listeners expressed diverse opinions regarding the extent of Bangladesh Betar's positive impact through its delivery of urgent information and the promotion of new knowledge. Nevertheless, an impressive 99.88% acknowledged the advantageous role of its broadcasting services. The informative programming of Bangladesh Betar serves as a crucial link between service providers and the public. Government service providers actively engage in various programs, responding to inquiries on a wide range of topics through phone-in segments. Bangladesh Radio plays a vital role in educating, enlightening, and empowering citizens by connecting with listeners nationwide, thereby contributing to the nation's overall development. The listener's recognition of Bangladesh Betar's essential function in sharing critical information and fostering new insights is depicted in Figure-10.
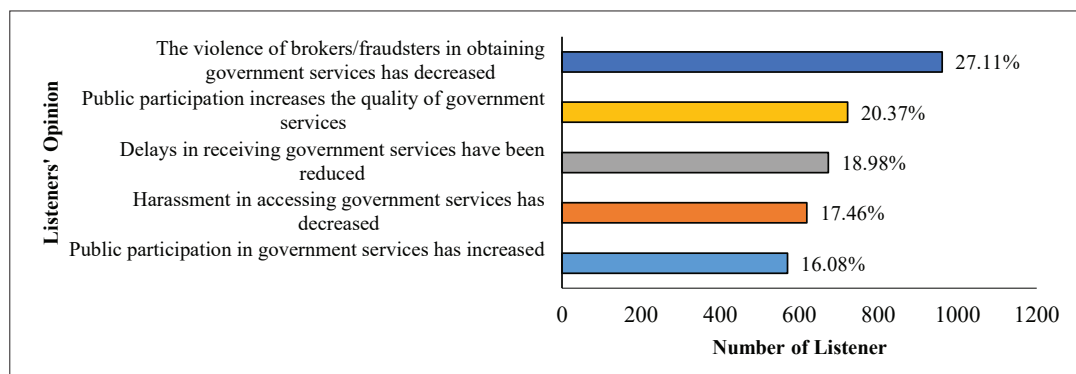

Figure-10: Opinions of listeners about the impact of different programs broadcast on Bangladesh Betar on personal life, family and society

(Source: Field survey, May 2024)

A total of 961 (27.11%) listeners tells that Bangladesh Betar programs significantly empower individuals by enhancing their engagement with government services. Among them, 673 (18.94%) listeners reported a decrease in delays for government services, attributing this improvement to their understanding of service access rules through radio broadcasts. The programs have effectively acted as a guide, clarifying the processes involved in service delivery. Consequently, the public has adjusted their

expectations and is now able to obtain necessary services promptly, considering the capabilities of service providers. Additionally, 722 (20.37%) listeners acknowledged that radio programs play a crucial role in combating corruption in government service access. These broadcasts illuminate issues of corruption and promote transparency, contributing to the establishment of accountability mechanisms. This has not only aided service-seekers but has also nurtured a culture of integrity within governmental bodies. Furthermore, 570 (16.08%) respondents observed a decline in the influence of middlemen when accessing services. The program's informative nature has empowered individuals to navigate the system on their own, minimizing reliance on intermediaries. This shift has led to reduced costs and a more equitable distribution of services. Lastly, 619 (17.46%) listeners noted an enhancement in the quality of government services. The communication facilitated by wireless programs has enabled service personnel to identify and address citizen issues effectively, making services more accessible. This collaborative effort has improved the efficiency of service providers, ultimately benefiting the community at large.

Enhancing public engagement in government services has significantly transformed the lives of individuals, families, and communities. By providing informative and empowering resources, it has played a crucial role in diminishing corruption and the role of intermediaries, while elevating the overall quality of services. As more individuals participate in the program, the expectations for both the quality and quantity of government services continue to rise.

3.7   Meticulous way of information and knowledge dissemination to the local communities

Bangladesh Betar functions as an advanced medium for sharing essential information and knowledge with local communities throughout the nation. As a mass communication resource, it links individuals with one another and connects them to various organizations. Bangladesh Radio significantly influences the perspectives of its listeners, enhancing their lives through a variety of programs and informative content. The knowledge transmitted from the wireless center reaches a wide listener, impacting many individuals and the broader community. Table-1 illustrates the listener's opinions regarding the dissemination of wireless educational information and knowledge from individual listeners to the community.

Table-1: Process of disseminating information and knowledge on Bangladesh Radio to local communities

Information and knowledge dissemination process in local community	Number of informants' expressed same think	Rate (%) of informant	Rank based on highest informant
Messages reach from a listener to his family members	1963	72.87	1
Messages reach friends from an individual listener	1887	70.04	2
Online sharing results in massive publicity through social media	1296	48.11	3
Listeners are widely circulated in the area through club members	1227	45.55	4

(Source: Field survey, May 2024)

Research informants indicate that the topics broadcasted by Bangladesh Betar hold significant national importance and extend beyond individual listeners. Data from 1,963 listeners in Table 1 reveals that important messages shared via radio often reach family members. Furthermore, 1,887 listeners noted that these vital radio messages are also communicated to friends. Bangladesh Betar enhances its reach by utilizing various social media platforms for online broadcasts. A total of 1,296 listeners believe that the extensive sharing of content is made possible through the prevalent use of social media, where users actively disseminate information. Additionally, 1,227 listeners mentioned that listener club members play a crucial role in circulating information widely. The number of indirect listeners surpasses that of direct listeners for programs aired on Bangladesh Radio. While wireless messages may initially target one individual, their impact is far-reaching and can be shared broadly.

3.8 Insights of important stakeholder on how Bangladesh Betar can leverage opportunities presented by the Fourth Industrial Revolution

The research discussion highlights three primary stakeholders: the listener of Bangladesh Betar, policymakers within the organization, and those involved in the production and broadcasting of programs. This segment of the article focuses on the viewpoints of these three groups. Bangladesh Betar serves as a vital source for the public to learn about various government initiatives aimed at addressing societal issues. According to Informant (82.68%), officials indicated that issues of public significance are prioritized in the creation, production, and broadcasting of programs at Bangladesh Betar. As a state-run media outlet, it is essential for Bangladesh Betar to showcase the government's achievements. In fulfilling this role, the organization considers public opinion and emphasizes the concerns of the populace. Informant

(71.74%) noted that Bangladesh Radio goes beyond merely informing the public; it actively seeks listener feedback through live broadcasts to enhance program quality and engagement. Additionally, listener clubs have been established to involve listeners. Members of these clubs contribute voluntarily to discussions on the nation's history, culture, education, health, nutrition, agriculture, and other local matters. Consequently, (17.39%) officials involved in the Key Informant Interviews expressed that increasing the number of listener clubs and implementing club-based programs would be beneficial in effectively promoting Bangladesh Betar's initiatives to improve the quality of life and address local social challenges.

A total of 25 informant officials, representing 54.35%, believe that Bangladesh Betar plays a crucial role in fostering a technology-savvy citizenry by consistently providing information on information and communication technology, modern technology usage techniques, safety measures for technology use, and ensuring free access to a wealth of information. Additionally, 73.91%, informant officers assert that Bangladesh Betar serves as the voice of the Bangladeshi government, enhancing the quality of government services by educating the public about these services. The organization broadcasts regular programs aimed at promoting social equality, ethical standards, shared values, and combating issues such as secularism, religious intolerance, cultural misrepresentation, superstition, and corruption. Furthermore, informant officers, accounting for 82.61%, believe that they are raising awareness through various initiatives designed to foster an inclusive society free from discrimination.

Seventeen informant officers, representing 36.96%, discussed the opportunities presented by the fourth industrial revolution (4IR), how these opportunities can be leveraged, and the challenges that arise. They emphasized the need for a concrete plan to address these challenges. The role of artificial intelligence (AI) is crucial, particularly in the context of contemporary information technology. AI enables tasks to be completed more efficiently, requiring less time and fewer human resources. Machine learning and AI can be employed to assess customer demand, identify trending programs, enhance job transparency, evaluate listener preferences, gauge public opinion, ascertain favored program formats, and develop programs that reduce complications. Officials at Bangladesh Betar are confident that the organization can cultivate the next generation of leaders for the fourth industrial revolution by producing technology-driven programs.

Among policy makers of Bangladesh Betar, 26.09% of respondents believe that the quality of Bangladesh Betar's programs falls short of international standards. This is largely due to the fact that, while technology and engineering are evolving rapidly, the skills of Bangladesh Betar's workforce are not being effectively aligned with these advancements. The limited availability of modern training opportunities, both domestically and internationally, exacerbates this issue. Establishing a training institute that meets international standards for Bangladesh Betar and facilitating

personnel exchanges with other countries could significantly enhance the quality of its programs to meet global benchmarks. 19.06% of the informant officials believe that issues such as inconsistent power supply, inadequate networking facilities, slow internet speeds, limited search options, and lack of customization hinder the attainment of the desired quality in Bangladesh Betar programs.

A significant 82.61% of respondents highlighted the importance of leveraging experiences from the developed world in creating wireless programs with the help of AI. Additionally, 6.52% of officials suggested that listener surveys and radio coverage assessments could be effectively conducted using AI technology. Furthermore, 10.87% of informants indicated that utilizing machine learning would simplify and reduce costs associated with gauging listener demand, identifying popular programs, enhancing job transparency, evaluating listener-oriented content types, assessing public opinion, and determining the most favored program formats. Modern technology transmitters and FM systems are capable of delivering high-quality broadcasts while expanding their reach. They can also generate thematic content and archive it, allowing listeners to access and enjoy their preferred programs through a search feature.

The informants suggested creating a detailed outline, developing a strategic plan, establishing appropriate policies for executing the plan, and assembling a dedicated team to propel Bangladesh Betar into the global landscape of the fourth industrial revolution. Additionally, it is crucial to set up an international quality training institute to enhance the professional skills of Bangladesh Betar's officers. Furthermore, training opportunities should be provided for policy makers and program producers at Bangladesh Betar in leading international audio media organizations like BBC, CNN, NHK, and Deutsche Welle.

Participants in focus group discussions expressed that they often eagerly anticipated a scheduled entertainment program, only to find it interrupted by a national broadcast. This disruption led to a loss of interest, which is challenging to recover. To address this, future radio should establish distinct channels for national programming, news, and entertainment, ensuring that listener preferences are prioritized and programs are tailored to meet those needs.

4   Conclusion

Bangladesh Betar stands as the pioneering electronic media outlet in Bangladesh (Islam & Hossain, 2020). Since its establishment, it has significantly contributed to the nation's development by enhancing the quality of life, combating poverty, boosting literacy rates, promoting education, empowering women, and lowering infant and maternal mortality rates. Additionally, it has played a vital role in showcasing the country's rich history and heritage to a global listener. In today's technology-driven world, Bangladesh Betar continues to enjoy widespread

popularity and acceptance. With the advent of internet live streaming and platforms like Facebook and YouTube, Bangladesh Betar now caters to a diverse listener (Ahmed, 2021). This study serves as a valuable resource for government policymakers while also shedding light on listener perceptions of Bangladesh Radio's programming. The findings are expected to benefit other media outlets, such as community and private FM radio stations. It is anticipated that the insights gained from the listener will lead to enhancements in program quality, broadcast timing, and technical management.

Bangladesh Betar has the potential to evolve into a three-dimensional media platform by leveraging research findings to appeal to a broader listener (Chowdhury & Kabir, 2022). As a representative voice for marginalized communities, it must embrace modern technology and uphold principles of inclusivity. Additionally, there should be a strong focus on ongoing research, the integration of artificial intelligence and machine learning, and the development of programs that cater to diverse listeners. The youth represent the vibrant core of the nation, and it is essential to create and promote initiatives that engage this demographic. By doing so, Bangladesh Betar can tap into the vast potential of the younger generation, transforming the radio into a dynamic medium that resonates with a significant portion of the population.

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