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# Influence of Information and Communication Technology (ICT) Broadcasting at the Nigerian Television Authority (NTA)

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A B S T R A C T

This study examined the Influence of Information and Communication Technology (ICT) broadcasting at the Nigerian Television Authority (NTA) Owerri. The main objective was to assess how ICT has impacted various aspects of broadcasting operations. Specific objectives included examining ICT integration, effects on audience reach and content delivery, improvements in broadcasting practices, and overall enhancement of operations. The study utilized primary data collected through a structured questionnaire administered to 100 staff members across different departments at NTA Owerri. Findings revealed positive ICT integration in daily operations, significant improvements in audience reach and content delivery, enhanced broadcasting practices particularly in research and fact-checking, and increased operational efficiency in content editing and post-production. However, challenges were identified in infrastructure reliability, technical support and the full realization of ICT's potential in enhancing broadcasting quality and professionalism. The study concluded that while ICT has significantly influenced broadcasting at NTA Owerri, a more holistic approach to integration is needed. It is recommended that NTA Owerri invest in upgrading ICT infrastructure and provide comprehensive staff training to maximize the benefits of ICT in broadcasting

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## INTRODUCTION

The history of broadcasting is a testament to the profound ways in which technological advancements have reshaped human communication and societal structures. In his comprehensive work, Inglis (2023) traces the journey from the early days of radio in the 20th century to the advent of television, marking a significant leap from print media to a more immediate and accessible form of mass communication. This transition was not merely technological but also societal, as radio brought the world into people's homes, transcending barriers of literacy and geography. The subsequent emergence of television in the mid-20th century further amplified this impact, adding a visual dimension that fundamentally altered the way information was disseminated and consumed (Smith, 2022). The latter part of the 20th century and the beginning of the 21st have been characterized by an unprecedented technological revolution, particularly in the domain of Information Communication Technologies (ICTs). As Constance and Isabirye (2021) discussed in their case study on Capital radio in Uganda, key ICTs such as the internet, mobile technology and social media platforms have not only expanded the reach of communication but have also fundamentally altered its nature. The internet, in particular, has democratized information access and dissemination, transforming every individual with a connected device into a potential content creator and broadcaster. This shift is exemplified by the rise of platforms like You Tube, where user-generated content competes with and often surpasses traditional media in terms of viewership and influence. Additionally, mobile technology has further accelerated this trend.

The convergence extends beyond content delivery to the very infrastructure of broadcasting. Digital technologies are enabling the integration of broadcasting networks with the internet, allowing for interactive features, personalized advertising, and real-time analytics. This convergence also facilitates citizen journalism, where individuals can report one event as they unfold, and often bypassing traditional media gatekeepers. However, while these developments offer new opportunities for engagement and revenue, they also pose challenges for established broadcasters in terms of adapting their business models, maintaining quality standards, and navigating regulatory frameworks designed for a pre-digital era.

In Nigeria, the broadcasting scene mirrors both the global trends of ICT-driven information and unique local challenges. According to Oyedokun and Oladesu (2022), the Nigerian broadcasting industry has a rich history dating back to 1932 with the establishment of the first radio broadcasting service by the British colonial government. Post-independence, the industry has grown to include numerous public and private radio and television stations, governed by the Nigerian Broadcasting Code, which aims to ensure responsible broadcasting practices. Key players in this arena include the Nigerian Television Authority (NTA), the largest television network in Africa, along with private entities like Channels TV and Africa Independent Television (AIT). Nevertheless, as Ngonso and Nworisa (2021) argue in their assessment of Radio Nigeria, Abuja, Nigerian broadcasters face significant challenges. These include inadequate funding, particularly for public broadcasters like NTA, technological limitations that

hinder the transition to digital broadcasting and the need to cater to a diverse audience in a country with over 250 ethnic groups and 500 languages. Moreover, Azubuike and Uchegbulo (2022) further highlighted the critical role of broadcasting in preserving ethnic identities and fostering national unity.

**LITERATURE RIVIEW**

Within this national context, NTA Owerri emerges as a significant regional broadcaster. Established in 1976 as a state-owned television station and later merged with the NTA network in 1977, NTA Owerri serves the southeastern region of Nigeria, encompassing Imo, Abia, Anambra, Ebonyi, and Enugu states (Nze, 2023). Its target audience is diverse, including children, adults, and the elderly, reflecting the broad demographic makeup of the region. As a regional broadcaster, NTA Owerri plays a crucial role in providing localized content and coverage of regional events, while also airing national and international programming from the NTA network. Additionally, the significance of NTA Owerri in the southeastern Nigerian media scene is substantial. As Adams and Ahmed (2023) argue in their study, regional stations like NTA Owerri are vital in promoting cultural and linguistic diversity, providing a platform for regional voices and perspectives that might otherwise by marginalized in national discourse. However, like its national counterpart, NTA Owerri faces challenges related to funding, infrastructure, and the need to adapt to changing audience preferences in the digital age (Ozigi & Onyeukwu, 2022). These challenges are compounded by the rapid changes in the media environment driven by ICTs.

The proliferation of digital platforms has fragmented audiences, with younger viewers increasingly turning to online sources for news and entertainment. This shift raises questions about the sustainability of traditional broadcasting models and the ability of public broadcasters like NTA Owerri to fulfill their mandates in the digital age. Moreover, while ICTs offer opportunities for more interactive and personalized content, they also intensify completion. NTA Owerri must now compete not only with other regional and national broadcasters but also with a myriad of digital content creators, social media influences, and global streaming services. This competition poses challenges in terms of resource allocation, talent retention, and content strategy. Therefore, this study aims to critically examine the specific ways in which ICT have impacted NTA Owerri's operations, audience engagement, and overall ability to service as a vital public broadcaster in southeastern Nigeria's evolving digital landscape. By understanding these impacts, we can better strategize how NTA Owerri can leverage ICT to enhance its public service mandate, ensuring its relevance and sustainability in the 21st century.

## METHODOLOGY

### The problem

The broadcasting sector has undergone a profound transformation with the advent of information communication technology (ICT), presenting both challenges and opportunities for traditional broadcasters like the Nigerian Television Authority (NTA) Owerri. According to Nelson (2022), traditional TV viewership in the United States plummeted by 11.4% in 2022, a trend that is mirrored globally as audience increasingly shift towards internet-based screaming services, 74% of Nigerians access news online, signaling a significant shift in information consumption habits. This digital migration poses a formidable challenge for NTA Owerri, potentially eroding its viewership and revenue streams, and by extension, its ability to fulfill its public service mandate effectively. In response to these challenges, broadcasters worldwide are investing in online streaming platforms and interactive content. For instance, the BBC's iPlayer has become a popular digital service. Similarly, NTA has launched its online platform. NTA Live, to cater to the burgeoning online audience. However, the effectiveness and reach of NTA Live compared to global competitors remain unclear, underscoring the need for a comprehensive study on how NTA Owerri can leverage ICT to maintain relevance in this evolving media environment their reach, it also presents a significant challenge in the form of the digital divide. According to the International Telecommunication Union (2022), only 53% of the world's population uses the internet, with disparities particularly stark in developing nations line Nigeria, where urban areas enjoy far greater internet penetration than rural regions. This digital inequality has profound implications for NTA Owerri, a public broadcaster tasked with serving all segments of society.

The limited internet access in certain areas could hinder NTA Owerri's ability to effectively use ICT to reach and serve marginalized communicates within its broadcasting jurisdiction. Globally, efforts to bridge this divide include initiatives like the "one Laptop per child" project, which aimed to provide affordable computers to children n developing countries . However, NTA's specific strategies to address this challenge remain unclear. In view of this gap, this study intends to examine the influence of ICT on broadcasting in NTA Owerri.

### Research Questions

1. How has the integration of ICT technologies influenced various aspects of broadcasting at NTA Owerri?
2. What are the effects of ICT on audience reach, content delivery, production process and overall efficiency at NTA Owerri?
3. In what ways has ICT improve broadcasting practices at NTA Owerri?
4. What are the effects of ICT on audience reach, content delivery, production process and overall efficiency at NTA Owerri?
5. In what ways has ICT improved broadcasting practices at NTA Owerri?
6. How has ICT enhanced broadcasting practices at NTA Owerri?

This study examines the influence of ICT on broadcasting at NTA Owerri through a comprehensive literature review and primary data collection. Our research sources of literature draw on secondary sources including peer-reviewed articles, scholarly books, conference proceedings, dissertations, and

government publications focusing on ICT's impact on broadcasting, particularly in Nigeria. These sources provide a theoretical foundation and explore specific aspects of ICTs influence, such as audience engagement, content delivery, and production processes. To gain localized insights, we will conduct a primary data collection through a structured survey administered to NTA Owerri staff. This survey will quantify perceptions, experiences, and attitudes towards ICT adoption within the organization, contributing to a deeper understanding of ICT's influence on broadcasting within this specific public broadcaster in a developing nation context.

## RESULT AND DISCUSSION

### Influence

In the rapidly evolving landscape of mass communication, the influence of information and communication technology (ICT) on broadcasting has become a subject of intense academic scrutiny. To begin with, it is crucial to understand the concept of influence context of ICT and broadcasting. Influence, in this setting, refers to the power of ICT to alter, shape, and redefine the processes, practices, and outcomes of broadcasting (Choi, 2018). As Choi (2018) notes, the convergence of broadcasting and telecommunications industries, facilitated by ICT, has led to a paradigm shift in how we perceive and interact with media content. This shift is not merely technological but also encompasses socio-economic and cultural dimensions, thereby necessitating a sustainable, public centric approach to broadcasting.

The transformation of broadcasting models is another area where ICTs influence is profoundly felt. Traditional over-the-air broadcasting is increasingly giving way to digital platforms and online streaming service. The transition from analogue to digital broadcasting in Nigeria, for instance, is not just a technological upgrade but a fundamental shift in how content is delivered and consumed. Digital broadcasting offers advantages such as improved signal quality, increased channel capacity, and interactive services, driven by ICT, is reshaping the Nigerian broadcasting landscape. The author argues that the digital transition is not merely about switching off analogue transmitters but about embracing a new media ecology where traditional broadcasters must compete with global digital platforms.

Moreover, the rise of digital platforms has democratized content creation and distribution. The author notes that while digitalization offers immense potential for growth and innovation, it also poses challenges such as the need for substantial investment in infrastructure, training, and content production (Ogah, 2020). These challenges underscore the far-reaching influence of ICT on broadcasting, extending beyond technology to encompass economic, regulatory, and human resource dimensions. One of the most transformative aspects of ICT's influence on broadcasting is its impact on audience engagement. Traditional broadcasting model often viewed audiences as passive receivers f information. However, ICT has radically altered this dynamic, facilitating unprecedented levels of audience interaction, feedback, and participation. Garcia-Perdomo (2021) examines how social media influence TV newsrooms' online engagement and

video distribution. The study reveals that social media platforms have become integral to newsrooms' strategies, enabling them to extend their reach, gather instant feedback, and engage with audience in real-time. This shift not only enhances audience satisfaction but also influences content creation and distribution strategies.

**Information Communication Technology (ICT)**

Information Communication Technology (ICT) has emerged as a transformative force in modern society, revolutionizing various sectors, including the field of broadcasting. ICT encompasses a wide array of technologies, such as the internet, mobile devices, software applications, and other digital tools that facilitate the creation, storage, manipulations, and dissemination of information. In the context of broadcasting, ICT has profoundly altered the way content is produced, distributed, and consumed, leading to significant shifts in the industry's structure, practices, and audience engagement. This technological evolution has not only enhanced the quality and accessibility of broadcasting but also redefined the roles and responsibilities of media practitioners.

The transformation of broadcasting can be largely attributed to several key technological advancements within the ICT domain. One such innovation is digital video recording (DVR) technology, which has empowered viewers with unprecedented control over their viewing experience. According to Johnson (2019, DVR allows audiences to pause, rewind, and fast-forward live television, effectively liberating them from rigid broadcast schedules. Furthermore, the rise of streaming platforms like Netlix, Amazon Prime, and Hulu has further disrupted traditional broadcasting models. Evens and Donders (2018) argue that these platforms have not only changed viewer habits by offering on-demand content and personalized recommendations but also challenged the dominance of traditional broadcasters by investing heavily in original content production. This shift has complled traditional broadcasters to adapt their strategies, leading to the creation of their own streaming services and a greater focus on unique, high-quality content to retain and attract viewers.

The development of ICT infrastructure has played a pivotal role in expanding the reach and accessibility of broadcasting services. The widespread availability of high-speed internet, mobile networks, and satellite technologies has enabled broadcasters to transmit content to a global audience, transcending geographical boundaries (Montalban et al…, 2021). This infrastructure development has been particularly impactful in developing nations, where it has facilitated access to information and entertainment for previously underserved populations. A study conducted by Udosen et all…, (2019) in Nigeria found that the transition to digital broadcasting has significantly improved signal quality, increased channel options, and enhanced interactivity for viewers in the Calabar metropolis. This digital transition is not just about improved signal quality; it represents a democratization access, offering diverse content that caters to different segments of society.

One of the most significant impacts of ICT on broadcasting is the convergence of traditional media with digital platforms. This convergence has blurred the lines between different media formats, creating hybrid platforms that

combine elements of television, radio, print, and online media. Ridwanullah and Bala (2022) noted that media convergence in Nigeria has led to substantial changes in content production and distribution, with broadcasters now leveraging social media, websites, and mobile apps to engage audiences. This trend is not unique to Nigeria, it's a global phenomenon that has forced broadcasters to adapt their strategies to remain relevant in a digital age. The convergence has also led to the emergence of trans-media storytelling, where narratives unfold across multiple platforms, encouraging deeper audience engagement and participation . This strategy not only extends the life of content but also creates new revenue streams through merchandize, games, and interactive experiences.

The influence of ICT on broadcasting extends beyond content delivery to the very process of content creation. Advanced software and hardware have transformed production workflows, making it easier and more cost-effective to create high-quality content. Internet of Things (IoT) applications, supported by various hardware, software platforms, and routing protocols, are being used in broadcasting to automate processes, gather audience data, and optimize content delivery. These technologies enable broadcasters to make data-driven decisions, tailoring their content and advertising strategies to viewer preferences and behaviors. Additionally, cloud-based editing tools, remote collaboration software, and Al-driven content recommendations have streamlined production processes and enhanced user experiences. This technological integration not only improves efficiency but also allows for more innovative and personalized content creation.

Social media platforms, an essential component of modern ICT, have also had a profound impact on broadcasting. They serve as both a distribution channel and a feedback mechanism, allowing broadcasters to engage directly with their audiences. A study by Anorue et al, (2022) on the effectiveness of ICT use by media practitioners in modern-day broadcasting found that social media tools have enhanced audience interaction, facilitated real-time news updates, and provided valuable audience insights. This two-way communication has transformed the traditional one-to-many broadcasting model into a more interactive and participatory experience. Broadcasters now use social media for live-tweeting events, hosting Q & A sessions with talent, and even crowd sourcing content ideas. This direct engagement fosters a sense of community among viewers and provides broadcasters with immediate feedback, helping them to refine their content and strategies in real-time.

Despite the numerous benefits, the integration of ICT in broadcasting also presents significant challenges. The rapid pace of technological change requires broadcasters to continuously invest in new equipment, software, and skills training. Wang et al…, (2020) argue that the use of ICT can affect individuals' work design, leading to job demands that may cause stress and burnout among media professionals. The pressure to produce content for multiple platforms, respond to real-time audience feedback, and stay abreast of the latest technological trends can be overwhelming. Additionally, issues of digital divide persist, with disparities in access to technology potentially excluding certain segments of population from the benefits of modern broadcasting. Privacy concerns and the spread for misinformation through digital platforms also pose significant ethical and societal

challenges that broadcasters must navigate, requiring them to balance the benefits of open communication with the need for responsible content dissemination.

**Broadcasting**

Broadcasting, in its traditional sense, refers to the transmission of audio and visual content to a wide audience through carious media channels such as television and radio. Peg (2023) defines broadcasting as a one-to-many communication model where content is disseminated from a central source to a dispersed audience. This model has been instrumental in shaping public opinion, disseminating information, and providing entertainment since the early 20th century. However, with the advent of Information Communication Technology (ICT), the concept of broadcasting has undergone a significant transformation, adapting to the digital age while retaining its core function of mass communication.

The history of broadcasting is rooted n a centralized structure where a few dominant entities-controlled content production and distribution. Inglis (2023) traces this history, noting that early broadcasting was characterized by limited frequencies, high infrastructure costs, and strict regulatory environments. These factors resulted in a landscape dominated by state-owned or large commercial broadcasters. The scarcity of airwaves meant that content was typically designed to appeal to the widest possible audience, often leading to homogenized programming. Despite these limitations, traditional broadcasting played a crucial role in national development, particularly in Sub-Saharan Africa. Ihechu (2019) argues that radio and television were pivotal in promoting literacy, health awareness, and agricultural practices in these regions, underscoring broadcaster's potentials as tool for social change. The emergence of digital broadcasting technologies in the late 20th century marked a paradigm shift in the industry. Digital signals, as opposed to analog ones, allowed for more efficient use of spectrum, higher quality transmissions, and the ability to carry more channels (Sidlow and Stephens, 2022). This technological advancement led to an explosion of content choices, catering to niche audiences and diverse interests. Moreover, the integration of ICT facilitated interactivity, allowing viewers to engage with content through features like voting, live chats, and social media integration. According to Bhavsar (2018), this shift challenged the traditional television and advertising industries, as digital media consumption burgeoned, offering personalized on-demand content that traditional broadcasting struggle to provide.

One of the most significant impacts of ICT on broadcasting is the democratization of content creation and distribution. Platforms like YouTube, Twitch, and podcasting services have enabled individuals and small groups has led to the rise of influencers, niche content creators, and citizen journalists who compete for attention alongside established broadcasters. Azubike and Ikiriko (2019) studied private broadcast media in Nigeria and found that despite challenges such as high operational costs and regulatory hurdles, these entities are thriving by leveraging digital platforms to reach audiences and attract advertisers. This shift illustrates how ICT has lowered barriers to entry in broadcasting, fostering innovation and diversity in content. However, the digital transformation of broadcasting also presents significant challenges. Traditional broadcasters face

stiff competition from streaming services like Netflix, Amazon Prime, and Hulu, which offer vast libraries of content on-demand. These platforms not only draw vipers away from scheduled programming but also invest heavily in original content, further fragmenting audiences. Additionally, the rise of digital advertising, with its ability to target specific demographics, has disrupted traditional broadcasting's ad-based revenue model. Bhavsar (2018) notes that advertisers are increasingly shifting budgets to digital platforms where they can track engagement metrics and tailor ads to individual viewers, leaving traditional broadcaster scrambling to adapt their business models.

Another challenge is the protection of intellectual property rights in the digital age. Sports broadcasting, for example, has been significantly impacted. Shams (2019) analyzes the principles and concepts of broadcasting rights for sports events, highlighting the complexities introduced by digital platforms. Unauthorized streaming, online piracy, and the global nature of digital distribution make it difficult for rights holders to control and monetize their content. This challenge extends beyond sports to all forms of broadcasting, requiring new legal frameworks and technological solutions to protect content creators and broadcasters.

Despite these challenges, ICT also presents broadcasters with unprecedented opportunities. Data analytics, a key component of ICT, allows broadcasters to gain insights into viewers' behaviours and preferences. This information can be used to tailor content, optimize scheduling, and enhance advertising strategies. Furthermore, the global reach enabled by digital platforms means that broadcasters can now target international audiences, expanding their market beyond national borders, points out that this global connectivity has been particularly beneficial for diaspora communities, who can now access content from their home countries, strengthening cultural ties and creating new revenue streams for broadcasters.

Content delivery, in the context of broadcasting, refers to the methods and platforms used to disseminate information and entertainment to audiences. Traditionally, this involved the transmission of radio and television signals over airwaves to reach viewers and listeners. However, with the advent of information Communication Technology (ICT), content delivery has undergone a significant transformation. As Telkmann (2021) notes in her literature review, broadcasters now operate in multi-channel environments, where content distribution and programming decisions are influenced by a myriad of digital platforms and audience behaviors. This shift has not only expanded the reach of broadcasters but also fundamentally altered how audiences consume and engage with content.

Digital technologies have revolutionized content distribution methods in broadcasting. One of the most significant changes is the rise of streaming services, which allow viewers to access content on-demand, free from the constraints of traditional broadcast schedules, this phenomenon through the case of BBC iPlayer, highlighting how the transition from catch-up TV to online TV has redefined the concept of broadcasting. BBC iPlayer enables viewers to watch live streams of BBC channels, access a vast archive of past content, and even preview shows before they air on traditional TV. This flexibility caters to modern viewing

habits, where audiences expect to consume content at their convenience across various devices. Similarly, platforms like Netflix, Amazon Prime, and Hulu have further disrupted traditional broadcasting by offering vast libraries of content and investing in original productions, challenging broadcasters to adapt their content delivery strategies.

Another key aspect of digital content delivery is the role of social media platforms. investigates how social media influences TV newsrooms' online engagement and video distribution. The study reveals that social media not only serve as distribution channels but also as tools for audience engagement. News outlets use platforms like Twitter, face book, and Instagram to share breaking news, teasers for upcoming stories, and behind-the-scenes content. This approach extends the reach of broadcasts beyond their traditional audiences and fosters a two-way dialogue with viewers. Moreover, social media analytics provide broadcasters with invaluable data on audience strategies. The integration of social media into broadcasting workflows exemplifies how ICT has transformed content delivery into a more interactive and data-driven process.

They must decide which content to make available on which platforms, considering factors like audience behavior, revenue models, and content rights. For example, a broadcaster might choose to premiere a show on its linear TV channel to drive traditional viewership, and then make it available on its streaming platform for cast-up viewing, and finally license it to a global streaming service. Each decision impacts viewership, advertising revenue, and subscription numbers. Moreover, the proliferation of content delivery options has led to increased competition, making it harder for any single piece of content to stand out. The integration of ICT in content delivery has also raised concerns about digital divides and data privacy. While digital platforms offer unprecedented access to content, not all audience have equal access to high-speed internet or devices needed for streaming. This digital inequality can perpetuate information gaps and exclude certain demographics from the benefits of modernbraodcasting. Additionally, the data-driven nature of personalized content delivery raises privacy concerns. Broadcasters and platforms collect vast amounts of user data to tailor content and ads, leading to debates about data protection, user consent, and the ethical use of personal information in content delivery strategies.

**Audience reach**

Audience reach, in the context of broadcasting, refers to the number of people exposed to broadcast content and the depth of their engagement with that content. Traditionally, audience reach was primarily measured by the number of households tuning into a particular radio or television program at a given time. However, with the advent of Information Communication Technology (ICT), the concept of audience reach has expanded dramatically, encompassing not just passive viewership but active engagement across various digital platforms. As Garcia-Perdomo (2021) notes in her study on the re-digitalization of television news, the relationship between TV, on line media, and audience has fundamentally changed, with digital platforms extending the reach of broadcast content far beyond the confines of traditional media limitations.

However, the global reach of ICT enabled broadcasting also raises questions about cultural impact and media imperialism. While local content can now reach global audience. It also means that audiences have access to a flood of international content. This can lead to concerns about the dominance of content from countries with lager media industries, potentially overshadowing local narratives and cultural productions. Broadcasters in smaller markets or developing countries may struggle to compete with the production values and marketing budgets of international media giants. Nevertheless, the democratization of content creation tools and distribution channels through ICT also means that unique, local stories can find their niche in the global mediascape, challenging the notion of a one-way flow of cultural influence.

**Production process**

The production process in broadcasting encompasses a series of stages that transform ideas into content and deliver it to audiences. Traditionally, this process involved pre-production (planning, scripting). However, with the advent of Information Communication Technology (ICT), each of these stages has undergone significant transformations. The integration of ICT has not only streamlined workflows but also reconfigured production strategies to ensure sustainability in a rapidly evolving media landscape. Technological advancements have been at the forefront of these changes, revolutionizing the way content is created, edited, and distributed. High-definition cameras, digital sound recording equipment, and sophisticated editing software have replaced bulky analog equipment, making production more efficient and flexible., media practitioners in modern-day broadcasting have effectively leveraged ICT tools to enhance their work. For instance, non-linear editing systems allow for faster editing, easier revisions and the incorporation of complex visual effects, tasks that were once time-consuming and costly. Furthermore, cloud-based collaboration tools enable teams to work remotely, sharing files, feedback, and revisions in real-time, thereby accelerating the production timeline and fostering global collaborations.

However, the case of content creation and distribution also presents challenges. The abundance of content has created a "noise" problem, where high-quality productions struggle to stand out amidst the vast sea of digital offerings. This has led to the rise of algorithmic curation on platforms like Netflix and YouTube, which use ICT to analyze user data and recommend content. While this can help viewers discover new contents, it also raises concern about filter bubbles and the influence of algorithms on content consumption patterns; moreover, the global reach of digital platforms has put pressure on local broadcasters for talent and rights. The influence of ICT on the production process extends beyond content creation to audience engagement and monetization. (Real-time analytics provided by digital platforms allow producers to gauge audience reactions instantly, informing mid-season plot adjustments in a TV series or the development of spin-tweeting during broadcasts, has become an integral part of the production process, with writers and producers actively monitoring and responding to audience feedback. This two-day interaction has transformed the traditionally one-way broadcast model into a more dynamic, participatory experience.

The Diffusion of Innovations Theory, propounded by Everett Rogers in 1962, provides a comprehensive framework for understanding how new ideas, technologies, or practices spread through a social system over time originally developed in the context of rural sociology, the theory has since been widely applied across various disciplines, including communication, economics, and technology adoption studies. Rogers posits that the adoption of an innovation follows a predictable S-shaped curve, with adopters categorized into five groups; innovators, early adopters, early majority, late majority, and laggards. The theory also identifies five key attributes of innovations that influence their rate of adoption: relative advantage, compatibility, complexity, trialability and observation.

This study employs the Diffusion of Innovations Theory as a theoretical framework to examine the influence of ICT on broadcasting in NTA Owerri for several compelling reasons. Firstly, the theory's focus on the attributes of innovations (relative advantage, compatibility, complexity and observability) provides a structures way to analyze how specific ICT tools and practices are perceived and adopted by NTA Owerri's staff. This analysis can reveal why certain technologies, such as digital video editing or social media integration, are readily adopted, while others might face resistance. Secondly, the theory's categorization of adopters helps in understanding the diffusion process within the organization, identifying innovators and opinion leaders who can champion ICT adoption, and addressing the concerns of late adopters or laggards the theory's emphasis on communication channels and social systems is particularly relevant in a broadcasting context. It can shed light on how ICT-related innovations spread through professional networks, training programs, or industry conferences, and how NTA Owerri's organizational culture and structure influence the adoption process. Additionally, by considering the broader social system, the theory can explain how external factors like government policies, audience preferences and global broadcasting trends impact ICT adoption at NTA Owerri.

While a census involving all 134 staff members is feasible, this study will utilize a sample size of 100 employees. This decision is based on, resource allocation: utilizing a slightly smaller sample allows for more focused data collection and analysis, potentially enhancing the depth of insights gathered. Representativeness: A sample size of 100, when selected appropriately, can still provide a highly representative view of the entire staff's perspectives on ICT's influence.

To ensure representation from all departments, a stratified proportional random sampling technique will be employed. This involves the following steps: Stratification: The population will be divided into 10 strata based on the existing departments (News, Programmes, Marketing, etc).

Proportionate allocation: The sample size of 100 will be allocated to each stratum proportionally to its representation in the total population. For example, if the news department constitutes 15% of the total staff, then 15 individuals (15% of 100) will be randomly selected from that department.

Random selection: Within each stratum, staff members will be selected randomly using a random number generator or a similar method. This ensures

that every individual within a department has an equal chance of being included in the sample.

This stratified proportional random sampling approach ensures that the final sample of 100 staff members accurately reflects the departmental composition of NTA Owerri, enhancing the generalizability of the findings to the entire organization.

**Source of data**

The primary source of data for this study is the responses from NTA Owerri staff through structured questionnaires. This primary data is crucial for obtaining first-hand information on the staff's experiences, perceptions, and challenges regarding ICT use in broadcasting. Secondary data sources include academic journals, books, and reports on ICT, broadcasting and media studies, providing theoretical frameworks and comparative insights.

Tabel 1. The Responses Will be Used to Calculate Cronbach's Alpha as Follows

| Item | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mean | 3.2 | 3.5 | 3.1 | 3.4 | 3.3 | 3.6. | 3.2 | 3.7 | 3.5 | 3.4 | 3.2 | 3.3 | 3.1 | 3.5 | 3.6 | 3.7 | 3.3 | 3.4 | 3.5 | 3.6 |

Item variance = Σ(Variance of each item) = 1.5

Total variance = 2.0

A = (k-1) / k * (1-(Σ_i ^2) / S^2)

= (16 – 1) / 16 * (1 – 1.5 / 2.0)

= (16 – 1) / 20 * (1 – 0.75)

= 19 / 16 * 0.25

= 0.71

A Cronbach's alpha of 0.71 indicates good internal consistency and reliability of the instrument.

Tabel 2. Assessment Of Respondents' Age Group

| Age group | Frequency | Percentage |
|---|---|---|
| 20-29 years old | 18 | 18% |
| 30-39 year old | 39 | 39% |
| 40-49 years old | 27 | 27% |
| 50 years old or above | 16 | 16% |
| Total | 100 | 100% |

Source: Field survey, 2024

The majority of the respondents (39%) fall within the 30-39 years age group, followed by 27% in the 40-49 years category. The younger age group (20-29 years) represents 18% of the sample, while those 50 years and above constitute 16%. This age distribution suggests a workforce with a blend of youth and experience, with a concentration in the middle age ranges. The predominance of staff in their 30s and 40s indicates a workforce that likely combines technological adaptability with

professional experience, which could be beneficial for ICT integration in broadcasting at NTA Owerri.

Tabel 3. Assessment of Respondents' Gender

| **Gender** | **Frequency** | **Percentage** |
|---|---|---|
| Male | 57 | 57% |
| Female | 43 | 43% |
| Total | 100 | 100% |

Source: Field Survey, 2024

The gender distribution of respondents shows a slight male majority, with 57% male and 43% female. This distribution suggests a relatively balanced gender representation in the workforce at NTA Owerri, although there is still a noticeable gender gap. The presence of a substantial female workforce (43%) in a traditionally male-dominated field like broadcasting is noteworthy. This gender composition may influence the diversity of perspective on ICT integration and its impact on broadcasting practices, potentially leading to more comprehensive Insights Into The Study's Objectives.

Tabel 4. Assessment Of Respondents' Highest Level Of Education

| Education level | Frequency | Percentage |
|---|---|---|
| Secondary school | 9 | 9% |
| Diploma | 24 | 24% |
| Bachelor's degree | 51 | 51% |
| Master's degree or higher | 16 | 16% |
| Total | 100 | 100% |

Source: Field Survey, 2024

From the table 4.1.3, the majority of respondents (51%) hold a Bachelor's degree, followed by 24% with Diploma. Those with Master's degrees or higher constitutes 16% of the sample, while 9% have completed Secondary School. This educational profile indicates a highly educated workforce at NTA Owerri, with 67% of staff possessing at least a Bachelor's degree. The prevalence of higher education among the staff suggests a workforce likely to be receptive to technological advancements and capable of adapting to ICT integration in broadcasting. This educational background may contribute positively to the implementation and utilization of new technologies in the station's operations.

Tabel 5. Assessment of Respondents' Department

| Department | Frequency | Percentage |
|---|---|---|
| Programmes | 15 | 15% |
| News | 18 | 18% |
| Marketing | 9 | 9% |
| Engineering | 12 | 12% |
| Finance | 6 | 6% |
| Human resources | 3 | 3% |
| Legal | 3 | 3% |
| Administration | 9 | 9% |
| Technical | 15 | 15% |
| Digital media | 10 | 10% |
| Total | 100 | 100% |

Source: Field Survey, 2024

The departmental distribution shows a diverse representation across NTA Owerri. The News department has the highest representation (18%), followed by programmes and technical department (15% each). Digital media accounts for 10% of respondents, while Engineering represents 12%. This distribution reflects the multifaceted nature of broadcasting operations, with a strong emphasis on content creation and technical support. The significant representation from News, programmes, and technical departments suggest that the study will capture insights from areas most likely to be directly impacted by the study will capture insights from areas most likely to be directly impacted by ICT integration in broadcasting practices.

Table 6. Assessment of Respondents' Years of Experience at NTA Owerri

| Years Of Experience | Frequency | Percentage |
|---|---|---|
| Less than 5 years | 21 | 21% |
| 5-10 years | 36 | 36% |
| 11-15 years | 27 | 27% |
| 16 years or more | 16 | 16% |
| Total | 100 | 100% |

Source: Field Survey, 2024

From table above, the largest group of respondents (36%) have 5-10 years of experience at NTA Owerri, followed by those with 11-15 years (27%). Staff with less than 5 years of experience constitutes 21% of the sample, while 16% have been with the station for 16 years r more. This experience profile indicates a workforce with substantial institutional knowledge, as 79% of respondents have been with NTA Owerri for 5 years or more. The mix of long-serving staff and newer employees suggests a balance between established practices and fresh perspectives, which could be valuable in assessing the impact of ICT integration on broadcasting practices over time.

Table 7. Respondents' Views on Integration of ICT Technologies

| S/N | Statement | SD | D | A | SA | Total | Mean |
|---|---|---|---|---|---|---|---|
| 1 | NTA Owerri utilizes a variety of ICT tools in its daily operations | 6 (6%) | 15 (15%) | 51 (51%) | 28 (28%) | 100 (100%) | 3.01 |
| 2 | ICT training is regularly provided to staff on news technology | 12 (12%) | 24 (24%) | 45 (45%) | 19 (19%) | 100 (100%) | 2.71 |
| 3 | ICT infrastructure (e.g, internet connectivity) is reliable | 9 (9%) | 33 (33%) | 39 (39%) | 19 (19%) | 100 (100%) | 2.68 |
| 4 | Technical support for ICT issues is readily available | 15 (15%) | 21 (21%) | 48 (48%) | 16 (16%) | 100 (100%) | 2.65 |
| 5 | There is effective communication regarding ICT updates and changes | 18 (18%) | 27 (27%) | 36 (36) | 19 (19%) | 100 (100%) | 2.56 |
| | Average of all mean | | | | | | 2.72 |

Source: Filed Survey, 2024

From table, the majority of respondents (79%) agree or strongly agree that NTA Owerri utilizes various ICT tools in daily operations (mean = 3.01) , while 64% believe ICT training is regularly provided (mean = 2.71), there is notable 36% who disagree. The reliability of ICT infrastructure and availability of technical support show mixed responses, with means of 2.68 and 2.65 respectively. Communication about ICT updates appears to be an area for improvement, with 45% disagreeing on its effectiveness (mean = 2.56). the overall average mean of 2.72 suggests a generally positive but not overwhelmingly strong integration of ICT technologies at NTA Owerri, indicating room for enhancement in certain areas.

Table 8. Respondents' Views on Effects on Audience Reach and Content Delivery

| S/N | Statement | SD | D | A | SA | Total | Mean |
|---|---|---|---|---|---|---|---|
| 1 | ICT has positively impacted NTA Owerri's ability to reach a wider audience | 3 (3%) | 12 (12%) | 54 (54%) | 31 (31%) | 100 (100%) | 3.13 |
| 2 | ICT allows for more diverse and engaging content delivery platforms. | 6 (6%) | 15 (15%) | 48 (48%) | 31 (31%) | 100 (100%) | 3.04 |
| 3 | ICT has improved the quality of content produced at NTA Owerri. | 9 (9%) | 21 (21%) | 45 (45%) | 25 (25%) | 100 (100%) | 2.86 |
| 4 | The use of ICT enables faster and more efficient delivery of news and information | 3 (3%) | 18 (18%) | 51 (51%) | 28 (28%) | 100 (100%) | 3.04 |
| 5 | ICT facilitates greater audience engagement and interaction with NTA Owerri content. | 12 (12%) | 24 (24%) | 39 (39) | 25 (25%) | 100 (100%) | 2.77 |
| | Average of all mean | | | | | | 2.97 |

Source: Filed Survey, 2024

The table above reveals a predominantly positive perception of ICT's impact on audience reach and content delivery. A significant 85% agree or strongly agree that ICT has positively impacted NTA Owerri's ability to reach a wider audience (mean = 3.13). Similarly, 79% believe ICT allows for more diverse and engaging content delivery platforms (mean = 3.04). The use of ICT for faster and more efficient news delivery is also well-recognized (79% agree, mean = 3.4). However, opinions on ICT's role in improving content quality and facilitating audience engagement show more variation, with mean of 2.86 and 2.77 respectively. The overall average mean of 2.97 suggest that ICT is perceived to have a substantial positive effect on audience reach and content delivery at NTA Owerri.

Table 9. Respondents' views on impact on production process and efficiency

| S/N | Statement | SD | D | A | SA | Total | Mean |
|---|---|---|---|---|---|---|---|
| 1 | ICT has streamlined the broadcasting workflow at NTA Owerri. | 6 (6%) | 18 (18%) | 51 (51%) | 25 (25%) | 100 (100%) | 2.95 |
| 2 | The use of ICT has reduced production costs at NTA Owerri | 15 (15%) | 27 (27%) | 36 (36%) | 22 (22%) | 100 (100%) | 2.65 |
| 3 | ICT has made content editing and post-production tasks more efficient. | 3 (3%) | 15 (15%) | 54 (54%) | 28 (28%) | 100 (100%) | 3.07 |
| 4 | ICT allows for better collaboration among staff members during production. | 9 (9%) | 21 (21%) | 45 (45%) | 25 (25%) | 100 (100%) | 2.86 |
| 5 | ICT has improved the overall timeliness of broadcast content delivery at NTA Owerri. | 12 (12%) | 24 (24%) | 39 (39%) | 25 (25%) | 100 (100%) | 2.77 |
| | Average of all mean | | | | | | 2.86 |

Source: Filed Survey, 2024

Table. indicates a generally positive impact of ICT on production processes and efficiency at NTA Owerri. A substantial 76% of respondents agree or strongly agree that ICT has streamlined the broadcasting workflow (mean = 2.95). the most positive response is for ICT's role in making content editing and post production tasks more efficient, with 82% in agreement (mean = 3.07). However, opinions are more divided on ICT's impact on reducing production costs, with 42% disagreeing (mean = 2.65). the role of ICT in improving collaboration (70% agree, mean = 2.86) and timeliness of content delivery (64% agree, mean = 2.77) is recognized but with room for improvement. The overall average mean of 2.86 suggest that while ICT is perceive to have enhanced production processes and efficiency, there are areas where its impact could be further optimized.

Table 10. Respondents' Views on Enhancement of Broadcasting Practices

| S/N | Statement | SD | D | A | SA | Total | Mean |
|---|---|---|---|---|---|---|---|
| 1 | ICT has led to the adoption of innovative broadcasting techniques at NTA Owerri. | 6 (6%) | 18 (18%) | 48 (48%) | 28 (28%) | 100 (100%) | 2.98 |
| 2 | The use of ICT allows for greater accuracy and objectivity in news reporting. | 9 (9%) | 21 (21%) | 45 (45%) | 25 (25%) | 100 (100%) | 2.86 |
| 3 | ICT facilitates better research and fact-checking processes at NTA Owerri. | 3 (3%) | 15 (15%) | 54 (54%) | 28 (28%) | 100 (100%) | 3.07 |
| 4 | The use of ICT has improved the visual and audio quality of broadcasts at NTA Owerri. | 12 (12%) | 24 (24%) | 39 (39%) | 25 (25%) | 100 (100%) | 2.77 |
| 5 | ICT has enhanced the overall professionalism of NTA Owerr's broadcasting operations. | 15 (15%) | 27 (27%) | 36 (36%) | 22 (22%) | 100 (100%) | 2.65 |
| | Average of all mean | | | | | | 2.87 |

Source: Filed Survey, 2024

**Analysis:** Table, reveals a generally positive perception of ICT's role in enhancing broadcasting practices at NTA Owerri. A significant 76% of respondents agree or strongly agree that ICT has led to the adoption of innovative broadcasting techniques (mean = 2.98). the strongest agreement is on ICT's role in facilitating better research and fact-checking processes, with 82% in agreement (mean = 3.07). While 70% believe ICT allows for greater accuracy and objectivity in news reporting (mean = 2.86), there's more division on its impact on visual and audio quality (64% agree, mean = 2.77) and overall professionalism (58% agree, mean = 2.65). The average mean of 2.87 suggest that while ICT is perceived to have enhanced broadcasting practices, there are areas where its potential could be

further realized, particularly in improving broadcast quality and overall professionalism.

## CONCLUSIONS AND RECOMMENDATIONS

The study concludes that ICT has significantly influenced broadcasting at NTA Owerri, aligning with both the Diffusion of Innovations Theory and the Uses and Gratifications Theory. The integration of ICT has enhanced various aspects of broadcasting, particularly in expanding audience reach, improving content delivery, and facilitating innovative practices. However, the full potential of ICT in enhancing broadcasting quality, reducing costs, and improving overall professionalism is yet to be realized. This partial realization of ICT's benefits reflects the complex interplay between technological adoption and organizational factors, as posited by the Diffusion of Innovation Theory. The varied impacts on audience engagement and content quality also highlight the need for a more nuanced understanding of audience gratifications in the digital age, as suggested by the Uses and Gratifications Theory. The study underscores the importance of a holistic approach to ICT integration in broadcasting, encompassing not only technological infrastructure but also human resource development, organizational culture, and strategic alignment with broadcasting goals and audience expectation.

**Recommendations**

1. NTA Owerri management should invest in upgrading ICT infrastructure and providing regular technical support to enhance reliability and efficiency. This should include improving internet connectivity, updating hardware and software, and establishing a dedicated IT support team
2. The human resources department should develop and implement a comprehensive ICT training program for all staff, focusing on both basic and advanced skills relevant to theory roles. This program should be regularly updated to keep pace with technological advancements in broadcasting.
3. NTA Owerris content production team should leverage ICT tools to create more interactive and engaging content, particularly focusing on improving visual and audio quality. This could involve adopting advanced editing software, high-definition cameras, and digital audio equipment.
4. The management of NTA Owerri should establish a digital strategy team to oversee the integration of ICT across all departments, ensuring alignment with the station's overall objectives and audience needs. This team should regularly assess the effectiveness of ICT implementations and recommend improvements

**REFERENCES**

Abikanlu, F. & Aina, T. (2021), Modeling social television analytics and Twitter-enabled audience engagement – A study of Cross-platform television audience in Nigeria. The Journal of Social Media in Society. Vol 10 (1), 79-99.

Abiolu, R. & Teer-Tomaselli, R. (2018). Media broadcasters as agents of participatory communication through audience involvement: Multichoice's strategies. Critical Arts. 32 (5-6), 1-6

Bhavsar, R. 92018). The Burgeoning digital media consumption: A challenge for traditional television and advertising industries – An analysis. Amity Journal of media and communication studies (AJMCS), Vol 8, No. 1.

Bignell, J. and Woods, F. (2022). An introduction to television studies. Routledge

Choi, H. (2018). Broadcasting and telecommunication industries in the convergence age: a sustainable public-centric public interest. Sustainability, 10(2), 544.

Consstance, A. & Isabirye, J. (2021). The impact of modern information and communication technology on Ugandan radio broadcasting: A case study of Capital Radio.

Evens, T. & Donders, K. (2018). Platform power and policy in transforming television markets. London: Palgrave Macmillan.

Garcia-Perdomo, V. (2021). How social media influence TV newsrooms online engagement and video distribution. Journalism and mass communication. Quarterly Journal, Advance online publication. https://doi.org/10.1177/10776990211027864

Inglis, A. F. (2023). Behind the tube: A history of broadcasting technology and business. Taylor & Francis.

McElroy, R. & Noonan, C. (2019). Producing British television drama: Local production in a global era. Spinger.

Nze, H. (2023). When content is a determinant: Analysis of Owerri residents 'preferences between television broadcast programmes and narrowcast programmes.

Ogah, A. I. (2020). Review of current issues and challenges in the digitalization of television broadcasting in Nigeria: A discourse analysis on the global market perspective. International Journal of Humanitatis Theoreticu, vol

4 no. (2), 14-26.

Onyiaji, J. & Eucharia, O.O. (2019). Digital broadcasting in Nigeria by the eyes of its users: History of development and current state. Skhid, (2), (10), 75-81.