

ARTIFICIAL INTELLIGENCE ADOPTION IN PROGRAMMING AND RESEARCH PRACTICES BY SELECT PORT HARCOURT -BASED RADIO STATIONS

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Abstract

The rapid growth of Artificial Intelligence (AI) has started to transform how professionals work in various fields, such as journalism, programming, and academic research. This study looked into how AI was adopted in programming and research practices at select radio stations in Port Harcourt. It examined how radio professionals are incorporating AI tools into their newsroom programming, content creation, data analysis, and research efforts. Media organisations are increasingly using AI technologies for tasks like data processing, transcription, automated content generation, and brainstorming ideas for news production and programming. The study employed a survey research design, gathered insights from editorial staff, digital content managers, and platform strategy personnel at chosen radio stations in Port Harcourt. It examined the level of awareness, usage patterns, perceived benefits, and challenges that came with adopting AI in programming and research processes. This is often due to skill gaps, resistance within organisations, cost concerns, and ethical dilemmas. The findings indicated that even though AI tools were slowly integrated into newsroom workflows, their use in programming and research is still mostly experimental and relies heavily on individual initiative rather than formal institutional policies. The paper concluded that structured training, organisational backing, and ethical guidelines were essential for fostering responsible AI integration in radio broadcasting. It suggested that increasing investment in AI literacy and digital innovation within Nigerian broadcast newsrooms could significantly enhance research capabilities, programme development, and editorial productivity.

Keywords: Artificial intelligence, Radio, Broadcasting, Programming, Research Practices, Port Harcourt

Introduction

The media landscape today is experiencing a significant shift, largely fuelled by rapid technological advancements, especially with the rise of artificial intelligence (AI) in how we produce and research media. AI essentially involves using computer systems that can handle tasks typically requiring human smarts, like learning, reasoning, analysing data, and making decisions (Russell & Norvig, 2021). In the media sector, AI is becoming a go-to tool for everything from gathering news and developing programs to analysing audiences, automating transcription, and recommending content (Diakopoulos, 2019). As digital technologies continue to transform media organisations around the world, broadcast media outlets are slowly but surely embracing AI tools to boost efficiency, streamline editorial processes, and enhance research methods.

Take radio broadcasting, for instance, especially in developing regions such as Nigeria, where traditional methods of programme planning, audience research, and editorial decision-making have long been the norm. The digital shift in journalism and broadcasting has opened up exciting new technological avenues, enabling media professionals to weave computational tools into their programming and research efforts (Carlson, 2018). Nowadays, AI is assisting with various newsroom tasks, including automated news writing, data mining, speech-to-text transcription, and audience analytics, which is reshaping the conventional roles within journalism and media production (Beckett, 2019).

Experts suggest that bringing AI into journalism is part of a larger trend toward data-driven media systems, where algorithms help journalists sift through massive amounts of information and uncover insights for storytelling and programme design (Lewis, Guzman & Schmidt, 2019). In the realm of

broadcast media, particularly radio, AI tools can streamline programme scheduling and analyse audience feedback, making the whole process more efficient and responsive.

In today's world, where radio stations are vying for listeners' attention against the backdrop of digital and social media platforms, these capabilities are more important than ever (Newman et al., 2023). Even though AI technologies are becoming more integrated into media industries globally, the uptake in African newsrooms is quite varied. Many media organisations across the continents struggle with issues such as outdated infrastructure, tight budgets, and a lack of technical know-how, which often makes it tough to effectively weave new technologies into their newsroom operations (Mutsvairo & Bebawi, 2019). In Nigeria, while some national media outlets are starting to dabble with digital and algorithmic tools, the use of AI in broadcast radio stations especially at the regional level remains limited and not well-studied.

Port Harcourt, a key media center in Nigeria's South-South region, is home to numerous public and private radio stations that play crucial roles in sharing information, providing entertainment, and engaging the public. These stations are increasingly navigating a digitally-driven communication landscape that calls for fresh approaches to programming and audience research. However, there's a noticeable lack of solid evidence on how radio professionals at these stations are leveraging AI tools to inform their programming choices and research efforts.

Moreover, bringing AI into radio broadcasting prompts significant questions about how newsrooms adapt, the level of technological skills required, editorial independence, and how journalistic research practices are evolving. As AI technologies become more user-friendly through tools for automated transcription, content creation, audience analytics, and data visualisation, radio stations could potentially improve the quality of their programming and research. Still, it is largely

unclear how extensively these tools are being used by media professionals in local broadcasting settings.

With this context in mind, this study delves into how select radio stations in Port Harcourt are embracing artificial intelligence in their programming and research practices. By investigating their awareness levels, usage patterns, and the hurdles they face with AI integration, this research adds to the expanding literature on digital transformation in journalism and media practices in Nigeria and the wider Global South.

Statement of Problem

The swift evolution of artificial intelligence (AI) technologies has dramatically reshaped how media is produced, how editorial decisions are made, and how research is conducted across news organisations worldwide. Tools such as automated transcription systems, algorithmic content generation, audience analytics software, and data mining applications are becoming staples in newsrooms, aimed at boosting efficiency, accuracy, and speed in processing information (Diakopoulos, 2019). These innovations have opened up new avenues for journalists and broadcasters to sift through large datasets, track audience engagement, and craft programming strategies based on solid evidence (Lewis, Guzman, & Schmidt, 2019). As a result, media organisations in more technologically advanced regions have started weaving AI into their everyday editorial workflows and research practices.

In their study, Okeh, Eze & Onyeso (2025) explored how radio stations in Rivers State are adopting audience research technology to better understand the tastes and preferences of their target audience. Using qualitative methods, the researchers found that the radio stations surveyed had not yet embraced digital audience techniques in their research efforts. The study revealed that traditional methods like interviews, telephone coincidental calls,

telephone recall, and focus group discussions are still the go-to approaches for radio stations. It suggested that these stations should start embracing more digital methods to better understand the tastes and preferences of their audience.

However, even with the increasing global embrace of artificial intelligence in journalism and media production, the uptake in many developing media landscapes, especially in Africa, is still quite limited and inconsistent. Research indicates that while journalists and media professionals are becoming more aware of AI's potential advantages, they often face structural barriers such as poor technological infrastructure, lack of funding, inadequate digital skills, and resistance to change within organisations, which hinder the adoption of these technologies in African newsrooms (Okeh et al, 2025 and Mutsvairo & Bebawi, 2019). Consequently, many broadcasting organisations continue to depend heavily on traditional programming methods.

Research Objectives

- i. To examine the level of awareness of artificial intelligence tools among programming and research personnel in select Port Harcourt-based radio stations.
- ii. To investigate the extent to which artificial intelligence technologies are adopted in programming and research practices within select Port Harcourt-based radio stations.
- iii. To identify the benefits and challenges associated with the adoption of artificial intelligence in programming and research activities in these radio stations.

Research Questions

- i. What is the level of awareness of artificial intelligence tools among programming and research personnel in select Port Harcourt-based radio

- stations?
- ii. To what extent are artificial intelligence technologies adopted in programming and research practices in select Port Harcourt-based radio stations?
 - iii. What are the perceived benefits and challenges associated with the adoption of artificial intelligence in programming and research activities among these radio stations?

Theoretical Framework

Diffusion of Innovation Theory: This theory was introduced by Everett M. Rogers back in 1962, sheds light on how new ideas, technologies, or innovations make their way through a social system over time. This theory suggests that several factors influence the adoption of these innovations, including communication channels, the timing of the adoption, the social context, and the perceived characteristics of the innovation itself (Rogers, 2003). Rogers identified different stages of adoption, categorising people into groups like innovators, early adopters, early majority, late majority, and laggards.

When we look at media and journalism, this theory helps us understand how technological advancements, like artificial intelligence, are gradually woven into the fabric of newsroom operations and broadcasting practices. AI tools for tasks such as automated transcription, data analysis, audience insights, and content creation are innovations that media organisations need to carefully consider before jumping on board (Okeh et al., 2025). The choice to adopt these technologies often hinges on factors such as their perceived usefulness, how well they fit with current workflows, their complexity, and the tangible benefits they offer.

For radio stations operating in developing media landscapes, the diffusion of these innovations can be a slower process, often hampered by issues like infrastructure

challenges, budget limitations, and a lack of technical know-how. As Rogers (2003) points out, organizations are more likely to embrace innovations when they see clear advantages over their current methods. This makes the theory particularly relevant to our study, as it helps explain why radio stations in Port Harcourt might choose to adopt or resist AI tools in their programming and research efforts. It also provides a framework for categorising media professionals based on their willingness to experiment with new technologies in the newsroom.

Technological Determinism Theory: Often linked to Marshall McLuhan's ideas, posits that technological innovations significantly shape social structures and cultural practices. The theory posits that new technologies shape the way we think, communicate, and organise our social lives (McLuhan, 1964). From this viewpoint, changes in technology are the driving force behind shifts in media systems and communication practices.

In the realm of journalism and broadcasting, technological determinism sheds light on how emerging technologies, like artificial intelligence, are transforming media production, content distribution, and audience interaction. AI has brought about innovative methods for automated news writing, algorithm-driven content curation, digital research tools, and predictive analytics, all of which are changing the traditional roles of journalists and broadcasters.

For radio broadcasting organizations, incorporating AI tools can greatly impact programming strategies, research techniques, and how they engage with their audiences. As media technologies continue to evolve, journalists and broadcasters need to adjust their professional practices to keep pace with these changes. Thus, technological determinism serves as a valuable framework for understanding how artificial intelligence might shape programming and research

methods in radio stations based in Port Harcourt.

The Diffusion of Innovation Theory and Technological Determinism Theory offer a thorough framework for analysing the introduction, adoption, and integration of AI technologies into radio broadcasting practices.

Literature Review

In recent years, there has been a notable increase in scholarly interest regarding the integration of Artificial Intelligence (AI) in journalism and media production, driven by the swift evolution of digital communication systems. Researchers have explored how AI technologies impact newsroom workflows, the roles of journalists, editorial decision-making, and research practices within media organisations.

Artificial Intelligence

Artificial intelligence (AI) is all about enabling computer systems and digital technologies to carry out tasks that usually require human smarts think learning, reasoning, recognising patterns, solving problems, and making decisions. The idea of AI has come a long way since its early days in computer science and has become a key player in today's digital communication landscape. As noted by Stuart Russell and Peter Norvig, AI is about crafting intelligent agents that can sense their surroundings and take actions that boost their chances of reaching specific goals (Russell & Norvig, 2021). In recent years, we've seen AI technologies making their way into various fields, including healthcare, education, finance, and media.

In the realm of communication and media, AI technologies are increasingly stepping in to automate mundane tasks, sift through massive amounts of data, and enhance decision-making processes. Tools like machine learning algorithms, natural language processing, speech recognition systems, and predictive analytics are empowering media professionals

to handle information more effectively and uncover insights that aid in content creation and research efforts (Diakopoulos, 2019). These advancements have sparked a growing interest in AI adoption among media organisations worldwide.

AI in Journalism and Broadcasting

The use of artificial intelligence in journalism and broadcasting has attracted considerable academic attention. As media organizations keep searching for fresh and innovative ways to boost productivity in their newsrooms and enhance editorial efficiency, AI technologies are stepping into the spotlight. We're seeing them pop up in automated news writing, data journalism, audience analytics, speech-to-text transcription, and digital content recommendation systems. Lewis, Guzman, and Schmidt (2019) highlight that artificial intelligence is paving the way for a new kind of collaboration between humans and machines in journalism, where these smart systems lend a hand to journalists in tackling complex analytical tasks, all while humans retain the crucial roles of editorial oversight and ethical responsibility.

In the realm of broadcast media, especially in radio and television, AI technologies are lending support to various operational tasks. This includes everything from program scheduling and automated transcription of interviews to monitoring audience feedback on digital platforms and analysing listener behaviour. These applications empower media organisations to craft more informed programming strategies and elevate the overall quality of their broadcast content. Beckett (2019) points out that AI tools are becoming increasingly common in newsrooms, helping journalists gather information, verify facts, and analyse data for investigative reporting.

However, the journey of adopting AI in broadcasting isn't uniform across the globe. While media organisations in tech-savvy societies have jumped on the AI bandwagon

for newsroom automation and audience analytics, many media institutions in developing countries are still taking their first steps due to challenges like infrastructure and financial limitations (Mutsvairo & Bebawi, 2019).

Programming Practices in Radio Broadcasting

When we talk about programming in radio broadcasting, we're referring to the organized planning, scheduling, development, and presentation of broadcast content aimed at fulfilling the information, entertainment, and educational needs of audiences. Radio programming encompasses a range of professional activities, including content research, program development, audience analysis, scheduling, and evaluating. When it comes to listener feedback, McQuail (2010) emphasises that media programming is a crucial part of broadcast management. It shapes the structure, timing, and thematic focus of the content that audiences consume.

In the past, decisions about radio programming were mainly influenced by editorial experience, audience feedback, and traditional research methods like surveys and focus groups. But with the rise of digital technologies and data analytics, media organisations have completely changed the way they grasp and react to audience preferences. Now, AI-driven audience analytics tools can dive into listener behavior across various digital platforms, enabling radio stations to craft more targeted and evidence-based programming strategies (Newman et al., 2023).

In today's media landscape, incorporating artificial intelligence into programming practices can significantly enhance content development, audience segmentation, and scheduling. By sifting through large datasets related to audience engagement, AI tools help broadcasters pinpoint popular program formats, forecast audience trends, and fine-

tune their content strategies.

Research Practices in Media Organisations

Research is vital for media organisations as it lays the groundwork for editorial choices, program development, and audience engagement strategies. Media research involves systematically gathering, analysing, and interpreting data about audience preferences, communication trends, and media performance. Wimmer and Dominick (2014) point out that research in media organizations equips journalists and broadcasters with insights into audience needs, helps assess program effectiveness, and supports informed editorial decisions.

Artificial intelligence is increasingly reshaping research practices in media organizations. AI-powered data analytics systems can handle massive amounts of information from social media, audience surveys, and digital engagement metrics, making it easier for media professionals to stay ahead of the curve.

Here's the text to analyse: surveys, digital engagement metrics, and online behaviour patterns. These tools empower media professionals to spot emerging trends, keep an eye on audience reactions, and gather research insights that aid in content creation and editorial planning. However, bringing artificial intelligence into media research also brings up some crucial ethical and professional issues. Scholars have pointed out concerns about data privacy, algorithmic bias, and the necessity of keeping human editorial oversight when interpreting research findings (Diakopoulos, 2019). So, while AI tools can boost research efficiency and analytical capabilities, they should enhance rather than replace human judgment in the media research process.

In summary, the discussions above show that artificial intelligence has become a significant technological force shaping journalism, broadcasting, programming, and research

practices in today's media organisations. It's vital to understand how these technologies are being used in local broadcast settings, like Port Harcourt radio stations, to evaluate the broader digital transformation of media practices in Nigeria.

One of the first in-depth studies on AI in journalism was carried out by Nicholas Diakopoulos, who argued. It's clear that algorithmic technologies are playing a bigger role in how news is produced these days. Diakopoulos (2019) points out that artificial intelligence tools are helping media organisations automate routine journalistic tasks like data analysis, transcription, and even content creation, which boost efficiency and productivity in the newsroom. However, he stresses that AI should be seen as a helpful assistant rather than a replacement for professional journalists, since the nuances of editorial judgment and ethical responsibility are still very much human domains.

In a similar vein, a systematic review of AI in journalism conducted by researchers in Journalism and Media looked at over 100 studies and found that AI technologies are commonly used for automated news writing, audience analytics, and content personalization in today's newsrooms. The study showed that around 73% of media organisations are using AI for automated news production, while 68% are applying it to data analysis and research tasks within their newsrooms. Yet, despite these advantages, the review also raised concerns about ethical accountability, algorithmic transparency, and the pressing need for journalists to improve their AI literacy.

Another significant contribution comes from a meta-analysis on global AI adoption in newsrooms by Mohamed (2025). This study brought together findings from more than sixty empirical studies and concluded that the uptake of AI in journalism varies widely across different regions, influenced by factors like infrastructure, economic resources, and

technological readiness. The research points out that while developed countries have quickly embraced AI tools in their newsroom operations, many developing media systems are still grappling with limited access to the necessary technology and training opportunities.

Focusing on the African context, Kioko, Booker, Chege, and Kimweli (2022) carried out a multi-case study on AI adoption in Kenyan newsrooms. Their findings indicated that artificial intelligence is slowly making its way into African media organisations, especially in areas like data journalism and investigative reporting. In various sectors, especially in data journalism, investigative reporting, and automated content distribution, organisations are making strides.

However, the study pointed out several hurdles to embracing these advancements, such as steep implementation costs, a lack of technical know-how, poor data quality, and a general resistance to change within organisations. The researchers suggested that boosting investment in training and enhancing digital infrastructure could really help support the integration of AI in African media institutions.

Further empirical research has delved into how AI impacts newsroom professionals. A recent study looked at how news editors have transformed since the introduction of artificial intelligence, revealing that AI technologies have significantly changed the way newsrooms operate and the skills required. The findings showed that editors are increasingly turning to AI tools for research, structuring content, and language editing, which not only boosts efficiency but also cuts down production time. Still, the researchers stressed that the responsibility for editorial decisions and ethical considerations firmly rests with human journalists.

In Nigeria, emerging studies suggest that while

journalists are quite aware of artificial intelligence, their actual use of it is still quite limited. Research conducted among members of the Nigerian Union of Journalists found that over ninety percent of journalists recognise AI's potential to enhance news accuracy, speed, and audience engagement. However, only a small fraction of these professionals actively use AI tools in their work, mainly due to skill gaps, financial limitations, and resistance to technological innovation within their organisations.

Overall, the literature reviewed shows that artificial intelligence is slowly but surely transforming journalism and media research practices around the globe. While AI technologies present significant opportunities for enhancing newsroom efficiency, content creation, and audience analysis, their adoption is still inconsistent, especially in developing media environments. Let's take a closer look at the current landscape of research. While many studies have concentrated on digital and print journalism, there's a significant oversight when it comes to exploring how AI is being embraced in radio broadcasting, especially in local Nigerian settings like Port Harcourt. This oversight highlights a pressing need for in-depth research into how radio professionals are integrating artificial intelligence into their programming and research methods.

A notable contribution to this field is the global survey led by Charlie Beckett, which looked into the use of artificial intelligence in news organisations across various countries. Beckett (2019) discovered that many media organisations have started to weave AI technologies into their editorial operations, particularly in areas such as automated transcription, content recommendation, audience analytics, and news production. The study revealed that artificial intelligence has the potential to increase newsroom productivity and enhance investigative reporting by enabling journalists to analyse large datasets more efficiently. However, the

research also emphasised that the successful adoption of AI requires adequate training, institutional support, and clear ethical guidelines.

Another relevant study by Nicholas Diakopoulos examined the role of algorithms in contemporary journalism. Diakopoulos (2019) argues that algorithmic systems are increasingly shaping the processes through which news is gathered, analysed, and distributed. According to the study, AI-driven tools allow journalists to automate repetitive tasks, monitor audience behaviour, and identify news trends in real time. Despite these advantages, Diakopoulos warns that excessive reliance on algorithmic systems may raise concerns about transparency, accountability, and editorial independence in journalism.

Research by Seth C. Lewis, Andrea L. Guzman, and Tomás R. Schmidt further explored the relationship between journalists and intelligent machines in the newsroom. Their study emphasises the concept of human-machine collaboration, where artificial intelligence systems assist journalists in processing information while humans retain editorial judgment and ethical responsibility (Lewis, Guzman, & Schmidt, 2019). The researchers argue that AI should be viewed as a complementary tool that enhances journalistic capacity rather than replacing human professionals.

In addition, Graefe (2016) examined the phenomenon of automated journalism and its implications for media organisations. The study found that AI technologies can generate routine news reports, particularly in areas such as financial reporting, sports updates, and weather forecasts. Automated journalism systems can analyse structured datasets and produce news stories within seconds, thereby improving the speed and efficiency of news production. However, Graefe (2016) notes that automated journalism is most effective when used for structured data reporting and should

not replace investigative or interpretative journalism that requires human analysis.

From a developing world perspective, Mutsvairo and Bebawi (2019) investigated the challenges facing journalism education and professional practice in Africa in the context of emerging digital technologies. Their study revealed that many African newsrooms are gradually adopting digital innovations, including artificial intelligence, but face significant barriers such as inadequate infrastructure, lack of funding, and limited technological expertise. The authors argue that for African media institutions to benefit fully from AI technologies there must be sustained investment in digital training, institutional support, and technological infrastructure.

Similarly, Newman et al. (2023) in the Reuters Institute Digital News Report observed that media organisations globally are increasingly using artificial intelligence and data analytics tools to understand audience behaviour and improve content personalisation. The report indicates that AI technologies enable media organisations to analyse audience preferences across digital platforms, thereby allowing broadcasters and journalists to tailor content more effectively to audience needs. This development is particularly important for broadcast media organisations seeking to remain competitive in a rapidly evolving digital media environment.

In Nigeria, emerging research suggests that while awareness of artificial intelligence among journalists is relatively high, practical adoption remains limited. Several studies indicate that journalists recognise the potential benefits of AI for improving news production, audience research, and editorial efficiency. Nevertheless, factors such as insufficient technical skills, organisational resistance, and financial constraints continue to slow the integration of AI technologies within Nigerian newsrooms (Oloruntola & Ojebuyi, 2020).

The reviewed literature demonstrates that

artificial intelligence has become an increasingly important technological tool within modern media systems. Scholars consistently emphasise the potential of AI to improve newsroom productivity, enhance research practices, and support data-driven journalism. However, the literature also reveals that adoption levels vary widely across regions and media sectors. Importantly, most existing studies focus on print and digital journalism in developed countries, leaving a notable gap in research on the use of artificial intelligence in radio broadcasting within developing contexts such as Nigeria. This gap highlights the relevance of examining the adoption of AI in programming and research practices among Port Harcourt-based radio stations.

Several empirical studies have examined the adoption and use of artificial intelligence (AI) in journalism and media organisations across different regions. These studies provide insights into the level of awareness, usage patterns, benefits, and challenges associated with AI integration in newsroom practices.

Kioko, Booker, Chege and Kimweli conducted a multi-case empirical study on the adoption of artificial intelligence in Kenyan newsrooms. The researchers used a qualitative research design involving in-depth interviews with journalists working in selected media organisations, including the British Broadcasting Corporation (BBC-Africa) and Radio Africa Group. The findings revealed that AI technologies were used for news gathering, data analysis, and investigative journalism. However, the study identified several barriers to adoption such as high implementation costs, lack of technical expertise, and organisational resistance to technological innovation. The researchers concluded that although AI offers significant opportunities for improving journalistic productivity, African newsrooms require improved technological infrastructure and training to maximise its benefits.

Another empirical study examining the integration of AI in newsrooms was conducted by Noviani, Yusuf, Prasetya and Wulandari. Using a qualitative approach based on interpretative phenomenological analysis, the study explored how news editors adapt to the use of AI technologies in their editorial work. Interviews with newsroom professionals revealed that AI tools were commonly used for tasks such as language editing, issue research, and search engine optimisation (SEO) content preparation. The study found that AI significantly improved newsroom efficiency and workflow, although editorial judgement and final decision-making remained the responsibility of human editors.

Similarly, a mixed-method study on AI adoption in Tanzanian newsrooms investigated journalists' perceptions and usage of AI technologies. The research employed questionnaires administered to 262 journalists and in-depth interviews with 12 editors. Findings showed that journalists used AI tools for fact-checking, translation, editing, and generating story ideas. Despite recognising the advantages of AI in accelerating news production, respondents expressed concerns regarding inadequate infrastructure, absence of clear policies, and potential risks such as misinformation and job displacement.

In another empirical investigation focusing on journalists' perceptions of artificial intelligence, a large-scale survey involving more than 500 journalists examined attitudes toward AI and its implications for news production. The study revealed that most journalists believed AI could increase efficiency in data processing and information gathering; however, a significant proportion also expressed concerns about the spread of misinformation, deepfakes, and inaccuracies associated with automated content generation. The findings emphasised the need for ethical guidelines and professional oversight in the use of AI within newsrooms.

Furthermore, a study examining the diffusion

of AI tools in local journalism explored the experiences of journalists across several newsrooms in the United States and Europe. Using in-depth interviews with journalists, the research found that the adoption of AI tools varied across organisations depending on available resources and technological readiness. The study concluded that AI technologies provided journalists with relative advantages such as improved research capacity, faster information processing, and enhanced newsroom sustainability, although the level of adoption remained uneven across media institutions.

In Nigeria, a survey conducted among members of the Nigerian Union of Journalists revealed that while more than 90 per cent of journalists were aware of artificial intelligence and its potential benefits, only a small proportion had fully integrated AI tools into their professional activities. The study identified skill gaps, financial constraints, and organisational resistance as major barriers to AI adoption in Nigerian newsrooms.

The reviewed empirical studies demonstrate that artificial intelligence is gradually transforming journalism and media research practices globally. However, the level of adoption remains uneven, particularly in developing media environments where infrastructural and institutional challenges persist. Most existing studies focus on print, digital, or television journalism, leaving limited empirical attention to the adoption of AI in radio broadcasting. This gap highlights the relevance of examining artificial intelligence adoption in programming and research practices among Port Harcourt-based radio stations.

Methodology

This study adopted the survey research as the design to examine the adoption of artificial intelligence in programming and research practices among select Port Harcourt-based radio stations, such as Nigerian Info 92.3FM, Ray Power 106.5 FM, and Rhythm FM 93.7FM.

This study focused on radio stations in Port Harcourt. The researchers used survey design because it allowed gathering data from a specific group using structured questionnaire. As noted by Wimmer and Dominick (2014), survey research is a popular method in mass communication studies since it helps researchers understand the attitudes, behaviours, and practices of media professionals in a particular environment. Conducted in Port Harcourt, the capital of Rivers State in Nigeria's South-South region, this study highlights the city as a key media hub in the Niger Delta, home to numerous public and private broadcast stations. The research zeroed in on select radio stations within the city, focused on media professionals engaged in programming, research, and digital operations. This included editorial staff, digital content managers, and platform strategy personnel who played vital roles in content creation, audience research, and programme development. The study gathered insights from a total of ninety (90) respondents, sourced from three chosen radio stations.

To select participants, the study employed a purposive sampling technique, targeted individuals directly involved in programming and research at the radio stations. This method allowed the researchers choose respondents based on their expertise, experience, and relevance to the study's focus (Creswell & Creswell, 2018). The sample consists of ninety (90) respondents, evenly distributed among the select stations: 30 editorial staff, 30 digital content managers, and 30 platform strategy personnel. Each of the three Port Harcourt-based radio stations contributed 30 respondents, ensured a balanced representation across different professional roles.

The primary tool for data collection was a structured questionnaire. The questionnaire was designed to obtain information on respondents' awareness of artificial intelligence, level of usage in programming and research practices, perceived benefits, and

challenges associated with AI adoption in radio broadcasting.

To ensure content and face validity, the research instrument was reviewed by experts in communication and media studies. Their feedback helped refine the questionnaire to ensure that the items adequately measure the variables under investigation. The reliability of the instrument was determined through a pilot test conducted among a small group of media practitioners who were not part of the main study. The responses from the pilot test was analysed to ensure consistency and clarity of the questionnaire items. The questionnaire was administered directly to respondents within the select radio stations in Port Harcourt. This approach ensured a higher response rate and allowed the researchers to clarify any issues that respondents encountered while completing the instrument. Data collected from the questionnaires were analysed using descriptive statistical methods, including frequency counts, percentages, and tables. These statistical techniques enabled the researchers to present and interpret data clearly in relation to the research objectives and research questions.

Data Presentation

Table 1: Distribution of Respondents by Radio Station and Professional Role

Radio Station	Editorial Staff	Digital Content Managers	Platform Strategy Personnel	Total
Nigerian Info 92.3FM	10	10	10	30
Ray Power 106.5FM	10	10	10	30
Rhythm FM	10	10	10	30

93.7F				
M				
Total	30	30	30	90

Table 2: Awareness of Artificial Intelligence among Respondents

Level of Awareness	Editorial Staff	Digital Content Managers	Platform Strategy Personnel	Total	Percentage (%)
High	18	22	24	64	71.1
Moderate	10	6	5	21	23.3
Low	2	2	1	5	5.6
Total	30	30	30	90	100

Table 3: Adoption/Use of AI in Programming and Research

AI Usage Level	Editorial Staff	Digital Content Managers	Platform Strategy Personnel	Total	Percentage (%)
Frequently Used	12	18	20	50	55.6
Occasionally Used	10	8	7	25	27.8
Rarely/ Never Used	8	4	3	15	16.6
Total	30	30	30	90	100

Table 4: Perceived Benefits of AI in Radio Programming and Research

Benefits of AI	Frequency (Total 90)	Percentage (%)
Improved Research Efficiency	65	72.2
Faster Content	60	66.7

Production		
Enhanced Audience Engagement	55	61.1

Benefits of AI	Frequency (Total 90)	Percentage (%)
Accurate Data Analysis	50	55.6
Better Decision-Making	48	53.3

Table 5: Challenges of AI Adoption in Radio Stations

Challenges Identified	Frequency (Total 90)	Percentage (%)
Lack of Technical Expertise	70	77.8
High Cost of AI Tools	60	66.7
Organisational Resistance	55	61.1
Inadequate Infrastructure	50	55.6
Ethical and Editorial Concerns	45	50.0

Findings

The analysis of findings draws from data gathered from 90 respondents across three radio stations in Port Harcourt: Nigerian News Agency (NAN), Silverbird Radio, and AIT Radio. The participants were divided into three groups: Editorial Staff, Digital Content Managers, and Platform Strategy Personnel, with 30 individuals from each station. The results are presented in line with the research objectives and questions, emphasising AI

awareness, adoption, perceived benefits, and challenges.

According to the data in Table 4.2, a significant 71.1% of respondents reported a high level of awareness regarding AI, while 23.3% indicated moderate awareness, and 5.6% had low awareness. Notably, Digital Content Managers (22 out of 30) and Platform Strategy Personnel (24 out of 30) showed a greater awareness compared to Editorial Staff (18 out of 30).

This suggests that media professionals in Port Harcourt are generally well-informed about artificial intelligence and its potential uses in programming and research. The awareness is particularly pronounced among those whose jobs directly involve technology and content management. This finding supports Diakopoulos (2019), who argued that being aware of AI is a crucial step toward its adoption and effective use among media professionals.

Table 4.3 reveals that 55.6% of respondents frequently utilize AI in their programming and research efforts, while 27.8% use it occasionally, and 16.6% rarely or never engage with AI. Platform Strategy Personnel showed the highest rates of adoption (20 out of 30), followed by Digital Content Managers (18 out of 30) and Editorial Staff (12 out of 30).

The high frequency of AI usage among Platform Strategy Personnel indicates that roles involving data analytics, scheduling, and research-driven programming are particularly reliant on AI tools. While Editorial Staff are aware of AI, their slower adoption suggests there may be gaps in training or resource availability. This observation aligns with Mutsvairo and Bebawi (2019), who noted that the adoption of AI is often influenced by technological readiness and job-specific requirements.

As illustrated in Table 4.4, respondents see a variety of benefits from integrating AI: Improved research efficiency (72.2%), quicker

content production (66.7%), better audience engagement (61.1%), precise data analysis (55.6%), and enhanced decision-making (53.3%). These findings suggest that adopting AI can significantly boost both the efficiency and quality of programming and research tasks in radio stations. Respondents view AI as a valuable tool for streamlining workflows, optimising content delivery, and facilitating data-driven decisions. This perspective aligns with the insights of Beckett (2019) and Lewis, Guzman, and Schmidt (2019), who highlighted AI's role in enhancing productivity and journalistic capabilities in newsrooms.

From Table 4.5, the main challenges identified include: a lack of technical expertise (77.8%), the high cost of AI tools (66.7%), resistance within organisations (61.1%), inadequate infrastructure (55.6%), and ethical and editorial concerns (50%). While the benefits of AI are clear, its adoption faces hurdles related to human resources, financial constraints, and infrastructure. The lack of technical skills among editorial staff and insufficient training on AI tools are significant obstacles.

Additionally, high costs and resistance to technological change further hinder adoption. These findings resonate with global studies by Diakopoulos (2019) and Graefe (2016), which emphasise that integrating AI necessitates both resources and capacity-building.

Most radio professionals in Port Harcourt are familiar with AI, especially those in tech-focused roles. AI usage is most prevalent among platform strategy personnel, moderately among digital content managers, and least among editorial staff. AI improves research efficiency, content production, audience engagement, and decision-making. Major barriers include a lack of technical expertise, high costs, infrastructural limitations, organisational resistance, and ethical concerns.

The results indicate that AI is slowly

transforming programming and research practices in Port Harcourt radio stations. Awareness of AI and its perceived benefits are quite high, but the actual adoption is a bit patchy, hindered by various technical, financial, and organisational hurdles. To truly integrate AI effectively into radio broadcasting, it's essential to tackle these challenges through focused training, investment in infrastructure, and supportive policies.

Discussion of Findings

This study looked into how artificial intelligence (AI) is being adopted in programming and research practices in select radio stations (such as *Nigerian Info 92.3FM*, *Ray Power 106.5 FM*, and *Rhythm FM 93.7FM*) in Port Harcourt. The results are analyzed in relation to the research goals, theoretical frameworks like the Diffusion of Innovation and Technological Determinism, and existing literature.

The findings revealed that a notable 71.1% of participants showed a strong awareness of AI, with those in platform strategy and digital content roles being more informed than their editorial counterparts. This aligns with the Diffusion of Innovation (DOI) theory (Rogers, 2003), which suggests that awareness is the first step in the adoption journey. The high level of awareness among respondents indicates a willingness to engage with AI technologies, echoing the observations of Lewis, Guzman, and Schmidt (2019) that awareness often precedes actual usage in media organisations.

Data indicated that 55.6% of respondents regularly utilise AI tools in their programming and research efforts, especially among platform strategy personnel. This supports the Technological Determinism viewpoint, which asserts that technology shapes organisational practices and boosts efficiency (Smith & Marx, 1994). AI adoption was notably higher among staff whose roles necessitate data analysis and content optimisation, confirming

that job responsibilities play a significant role in how technology is integrated. On the flip side, editorial staff showed lower adoption rates, underscoring the need for training and skill development to close the existing gaps. Participants highlighted several key benefits, such as improved research efficiency (72.2%), quicker content production (66.7%), and better audience engagement (61.1%). These insights align with global trends, suggesting that the advantages of AI are recognised across the board.

This ties in nicely with the Diffusion of Innovation (DOI) theory (Rogers, 2003), which suggests that being aware of or knowledgeable about an innovation is the crucial first step in the adoption journey. The high level of awareness among respondents shows they're ready to dive into AI technologies, echoing the findings of Lewis, Guzman, and Schmidt (2019), who noted that awareness often comes before actual usage in media organisations.

The data shows that 55.6% of respondents regularly use AI tools for programming and research, especially those in platform strategy roles. This backs up the Technological Determinism perspective, which claims that technology shapes organisational practices and boosts efficiency (Smith & Marx, 1994). Interestingly, AI adoption was more prevalent among staff whose jobs directly involve data analysis and content optimisation, confirming that professional duties play a significant role in how technology is integrated. On the flip side, editorial staff showed lower adoption rates, pointing to a clear need for training and capacity-building to close those skill gaps.

Respondents highlighted several key benefits, such as improved research efficiency (72.2%), quicker content production (66.7%), and better audience engagement (61.1%). These results align with global studies (Diakopoulos, 2019; Beckett, 2019), suggesting that AI tools can really enhance human capabilities in media

production. The findings also indicate that AI supports evidence-based programming decisions and audience-targeted strategies, reinforcing the notion that adopting technology can significantly improve operational effectiveness in media organisations.

However, despite these advantages, respondents pointed out some challenges, particularly a lack of technical expertise (77.8%), and the high cost of AI tools (66.7%), organizational resistance (61.1%), and insufficient infrastructure (55.6%). These issues resonate with research by Mutsvairo and Bebawi (2019) and Graefe (2016), which highlight financial, human, and infrastructural hurdles in developing contexts. This suggests that while AI is indeed transforming media practices, successful adoption hinges on strong institutional support and training, and resource allocation.

The conversation reveals that AI is making its mark on programming and research practices at radio stations in Port Harcourt. However, the level of adoption varies, influenced by professional roles, the support from organisations, and the readiness of infrastructure. Simply being aware of AI isn't enough; we need intentional strategies to tackle the challenges and ensure that AI can be integrated sustainably.

Conclusion

The study finds that radio professionals in Port Harcourt are quite aware of AI, especially those in tech and digital content management roles. While AI adoption is moderate, it's more prevalent among those involved in platform strategy compared to editorial staff. AI plays a crucial role in enhancing programming and research, boosting efficiency, content creation, audience interaction, and decision-making. Yet, there are still hurdles to overcome, such as a lack of technical know-how, high costs, inadequate infrastructure, resistance from organisations, and ethical dilemmas.

Even though AI is reshaping broadcasting practices, its full potential in Port Harcourt's radio stations hasn't been fully tapped. To improve adoption and usage, we need to make strategic investments in training, infrastructure, and policy development.

Recommendations

Based on what we've learned, here are some recommendations:

- i. Radio stations should roll out structured training programs for editorial staff and other media professionals to boost their technical skills and comfort with AI tools. This will help increase adoption and lessen resistance.
- ii. Management should prioritise investing in affordable AI software, hardware, and dependable internet infrastructure to ensure smooth integration of AI into programming and research.
- iii. Organisations ought to create internal guidelines for AI usage to tackle ethical issues, uphold editorial independence, and prevent the misuse of automated systems.
- iv. Responsibilities related to AI should be assigned according to professional roles, ensuring that those in platform strategy and content management take the lead on AI-driven tasks.

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