

JOURNALISM IN THE AGE OF ARTIFICIAL INTELLIGENCE: USAGE AND CHALLENGES IN BAYELSA STATE, NIGERIA

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Abstract

The emergence of Artificial Intelligence (AI) has significantly transformed the landscape of journalism across the world. Media organisations increasingly rely on AI-powered tools for writing news, data analysis, automated content production, fact-checking, and audience engagement. These technological developments present opportunities for improving newsroom efficiency, enhancing investigative reporting, and strengthening audience interaction. However, they also introduce ethical, professional, and operational challenges, particularly within developing media environments. In Nigeria, where journalism operates within complex political, economic, and technological contexts, the adoption of AI remains an emerging phenomenon that requires systematic scholarly investigation. This study examined the usage and challenges of Artificial Intelligence in journalism practice in Yenagoa, Bayelsa State, Nigeria. The research determined the level of AI usage among media organisations operating within Yenagoa, assessed whether the application of AI enhances data mining and investigative reporting, and identified the major challenges associated with its adoption in journalistic practice. The study was anchored on the Technological Determinism Theory, and adopted a quantitative research design. Data were collected from journalists working in selected media organisations in Yenagoa, and analysed to determine patterns of AI adoption, areas of application in newsroom operations, and the professional concerns surrounding its use. Findings revealed that although awareness of Artificial Intelligence tools is gradually increasing among journalists, the level of institutional adoption in media organisations in Yenagoa remains relatively low. Nevertheless, respondents acknowledge the potential of AI to strengthen data-driven journalism through improved data mining, trend analysis, and investigative reporting. Key challenges identified include inadequate technological infrastructure, limited professional training, ethical concerns, financial constraints, and fears regarding the possible displacement of human journalists.

Keywords: *Artificial Intelligence; Data-driven Journalism; Investigative Reporting; Journalism Practice; Media Technology*

Introduction

The rapid advancement of Artificial Intelligence (AI) has introduced significant transformations across many sectors of society, including communication and media practice. In recent years, news organisations across the world have increasingly integrated AI-driven technologies into newsroom operations in order to enhance efficiency, improve data analysis, and support the production and dissemination of news content. These technologies enable journalists to process large volumes of information, detect patterns in data, and automate routine news writing tasks that were previously performed manually. As a result, AI is gradually reshaping the structure and practice of journalism in the digital age (Diakopoulos, 2019).

Artificial Intelligence has become particularly relevant in contemporary journalism because of the increasing volume of data available to journalists. The growth of digital communication platforms, online archives, and social media networks has produced an information environment where vast quantities of data are generated daily. Journalists now rely on technological tools that can analyse and interpret this data quickly and accurately. AI-powered algorithms assist in sorting information, identifying newsworthy patterns, and generating insights that may support investigative journalism and data-driven reporting. These capabilities have strengthened the role of computational methods in modern news production (Carlson, 2015).

Another significant dimension of AI integration in journalism is the emergence of automated journalism, sometimes referred to as algorithmic journalism. Automated journalism involves the use of software programmes that convert structured data into narrative news reports with minimal human intervention. This technology has been widely adopted by international news organisations to produce financial reports, sports summaries, and election updates. Through automation, media organisations are able to publish news stories rapidly while maintaining a consistent level of accuracy and efficiency. Studies have shown that such systems can support journalists by reducing routine workload and allowing reporters to focus on more analytical and investigative tasks (Guanah, Agbanu, & Obi, 2020; Thurman, Dörr & Kunert, 2017).

Beyond automated content production, Artificial Intelligence is also increasingly used to support fact-checking, audience analysis, and information verification. Machine learning systems can analyse large datasets and detect misinformation circulating on digital platforms. These tools help journalists identify false narratives, verify sources, and maintain the credibility of news content in an era where misinformation spreads rapidly through social media networks. The ability of AI systems to analyse audience behaviour

and engagement patterns has also enabled media organisations to tailor their content to the interests and preferences of their audiences (Lewis, Guzman, & Schmidt, 2019).

Despite these benefits, the integration of Artificial Intelligence into journalism practice has generated several concerns among scholars and media professionals. Critics argue that algorithmic systems may introduce biases into news production processes, particularly when the datasets used to train these systems reflect existing social or political inequalities. There are also concerns regarding transparency and accountability in automated news production, as audiences may not always be aware of the role algorithms play in generating news content. Furthermore, the increasing automation of newsroom tasks raises fears about potential job displacement among journalists and other media professionals (Pavlik, 2013).

In developing countries such as Nigeria, the adoption of Artificial Intelligence in journalism remains relatively limited compared with technologically advanced media environments. Many news organisations in Nigeria continue to operate within financial and infrastructural constraints that hinder the adoption of advanced digital technologies. Limited access to technological infrastructure, inadequate training opportunities for journalists, and insufficient investment in digital newsroom development have slowed the integration of AI tools within many Nigerian media organisations. Nevertheless, the growing influence of digital communication technologies suggests that AI adoption in journalism will continue to expand in the coming years (Mutsvairo, 2019).

Yenagoa, the capital city of Bayelsa State in the Niger Delta region of Nigeria, provides an important context for examining the emerging role of Artificial Intelligence in journalism practice. Media organisations operating in Yenagoa include radio stations, television stations, online media platforms, and print publications that serve both local and regional audiences. As journalism practices evolve in response to technological changes, it becomes necessary to investigate the extent to which journalists within these organisations are adopting AI-driven tools in their professional activities.

This paper therefore examined journalism in the age of Artificial Intelligence with particular focus on media organisations in Yenagoa, Bayelsa State. The study sought to determine the level of AI usage among journalists in Yenagoa; ascertain whether AI tools contribute to effective data mining and investigative reporting, and identify the challenges associated with the use of Artificial Intelligence in journalism practice. The outcome of this study can contribute to ongoing scholarly discussions on the relationship between technological innovation and journalism practice in developing media environments.

By addressing these issues, the study contributes to ongoing scholarly discussions on technological innovation, newsroom transformation, and the future of journalism in Nigeria.

Statement of the Problem

The global media landscape has experienced significant transformation as a result of technological advancements, particularly the emergence of Artificial Intelligence (AI). News organisations across many parts of the world now rely on AI-driven tools to automate routine news production, analyse large datasets, and improve investigative journalism. These technologies have made it possible for journalists to process vast amounts of information more efficiently and uncover patterns that may otherwise remain hidden. Consequently, Artificial Intelligence has become an important component of contemporary journalism practice, influencing how news is gathered, processed, and disseminated (Diakopoulos, 2019).

Despite these global developments, the adoption of Artificial Intelligence within many developing media environments remains uneven and relatively slow. In Nigeria, several media organisations still operate within traditional newsroom structures that rely heavily on manual processes for news production and information verification. Limited access to advanced technological infrastructure, inadequate digital training for journalists, and financial constraints continue to hinder the effective integration of AI-driven tools within many Nigerian newsrooms. As a result, the benefits associated with Artificial Intelligence in journalism, such as automated reporting, data mining, and enhanced investigative journalism, are yet to be fully realised within the country's media sector (Mutsvairo, 2019).

Another major concern relates to the uncertainty surrounding the practical application of Artificial Intelligence within local journalism contexts. While global media organisations have demonstrated the potential of AI in supporting investigative reporting and data-driven journalism, it is not clear whether media organisations in smaller Nigerian cities possess the resources, knowledge, or institutional support required to utilise such technologies effectively. In many cases, journalists may be aware of the existence of AI technologies, but lack the technical training necessary to integrate them into newsroom operations. This situation creates a gap between technological innovation and actual newsroom practice in many parts of the country.

Furthermore, the introduction of Artificial Intelligence into journalism raises several ethical and professional concerns. Scholars have argued that the increasing reliance on algorithmic systems may affect editorial independence, transparency, and accountability in news production. There are also fears that automation may gradually replace certain journalistic functions traditionally performed by human reporters, thereby creating

anxiety among journalists regarding job security and professional relevance. In addition, the use of AI systems in information processing may introduce algorithmic bias or errors that could influence the accuracy and fairness of news reporting (Lewis, Guzman, & Schmidt, 2019).

Within the specific context of Yenagoa, Bayelsa State, little empirical research has been conducted to determine the extent to which Artificial Intelligence is being used in journalism practice. Media organisations operating within the city continue to function within a dynamic communication environment shaped by digital technologies and increasing access to online information. However, there is limited scholarly evidence documenting whether journalists in Yenagoa are actively utilising AI-driven tools to support newsroom activities such as data mining, investigative reporting, and content production.

The absence of sufficient empirical data on this issue creates an important research gap in communication studies. Without a clear understanding of the level of AI adoption among journalists in Yenagoa, it becomes difficult to assess how technological innovations are influencing journalism practice within the region. It is also difficult to identify the specific challenges that may be preventing media organisations from fully embracing these technologies. Addressing this gap is therefore essential for understanding the role of Artificial Intelligence in the evolving Nigerian media environment. This study therefore sought to examine journalism in the age of Artificial Intelligence with particular emphasis on media organisations operating in Yenagoa, Bayelsa State.

Objectives of the Study

1. To determine the level of AI usage among journalists in the area,
2. To ascertain whether AI tools assist journalists in data mining and investigative reporting, and
3. To identify the challenges associated with the adoption of Artificial Intelligence in journalism practice.

Literature Review

Theoretical Standpoint

This study relied on the Technological Determinism Theory that provides an important framework for understanding the relationship between technological innovation and societal transformation. The theory suggests that technological developments play a decisive role in shaping social structures, cultural practices, and institutional operations. Within the field of communication and media studies, technological determinism

explains how advancements in communication technologies influence the production, distribution, and consumption of information.

One of the earliest proponents of this perspective was Marshall McLuhan, who argued that the nature of communication technologies significantly influences how societies organise and interpret information (McLuhan, 1964). According to McLuhan, media technologies do not merely transmit messages; they actively shape the way individuals perceive and interact with the world.

Technological determinism further posits that major technological innovations often lead to structural changes within social institutions. Communication scholars have observed that each major transformation in media technology from print to broadcasting and later to digital communication has altered the professional practices of journalism. Chandler (1995) explains that technological determinism highlights the extent to which technological tools influence the way organisations operate and how individuals perform their roles within those organisations. In the context of journalism, the emergence of digital technologies has reshaped newsroom workflows, news production processes, and audience engagement strategies.

The rise of Artificial Intelligence represents a significant stage in the ongoing technological evolution of journalism. AI technologies have introduced new capabilities such as automated content generation, data-driven reporting, algorithmic news curation, and computational fact-checking. These developments illustrate how technological innovation can reshape professional practices within the media industry. Diakopoulos (2019) observes that algorithmic systems are increasingly integrated into newsroom operations, enabling journalists to analyse large datasets, automate routine news reports, and monitor digital information environments more efficiently. From a technological determinist perspective, these developments demonstrate how technological tools influence the structure and functioning of contemporary journalism.

The relevance of Technological Determinism Theory to this study lies in its ability to explain how Artificial Intelligence may influence journalism practice in Bayelsa State, Nigeria. As media organisations in Yenagoa operate within an increasingly digital communication environment, the introduction of AI technologies has the potential to reshape newsroom activities such as data analysis, investigative reporting, and information verification. AI-powered tools enable journalists to process complex datasets and identify patterns that support investigative journalism, thereby transforming the methods through which journalists gather and interpret information. Pavlik (2013) argues that technological innovations within the media sector often led to the redefinition of journalistic roles and professional routines.

At the same time, technological determinism also helps explain the challenges associated with the integration of new technologies into existing professional environments. While AI offers opportunities for improving efficiency and expanding investigative capacity, its adoption may also introduce ethical concerns, skill gaps, and infrastructural challenges within news organisations. In developing media environments such as Nigeria, where technological resources may be limited, the adoption of AI technologies may occur gradually and unevenly across different media organisations. Understanding this dynamic is essential for evaluating how technological innovation interacts with local institutional conditions within the journalism profession.

Within the context of this study, Technological Determinism Theory provides a useful analytical lens for examining how Artificial Intelligence influences journalism practice in Yenagoa, Bayelsa State. The theory supports the investigation of how technological tools shape newsroom operations, assist journalists in data mining and investigative reporting, and create new professional challenges within the media industry. By applying this theoretical framework, the study is able to explore the broader relationship between technological innovation and journalistic practice while also identifying the specific opportunities and constraints associated with the use of Artificial Intelligence in Nigerian journalism.

Artificial Intelligence and Digital Transformation in Journalism

The rapid expansion of digital technologies has fundamentally reshaped the structure and operations of journalism worldwide. Among these technological developments, Artificial Intelligence (AI) has emerged as one of the most influential innovations transforming contemporary newsroom practices. AI refers to computer systems designed to perform tasks that typically require human intelligence, including pattern recognition, language processing, and data analysis. In the context of journalism, AI technologies are increasingly integrated into newsroom workflows to support news gathering, content production, audience analysis, and information verification. As media organisations seek to remain competitive in a fast-paced digital environment, AI has become an important tool for enhancing newsroom efficiency and productivity (Diakopoulos, 2019).

The digital transformation of journalism began with the shift from traditional print and broadcast media to online platforms, which significantly altered the speed and scale at which information is produced and disseminated. The emergence of digital newsrooms introduced new technologies such as content management systems, data analytics platforms, and social media monitoring tools. Artificial Intelligence represents the next stage of this transformation, enabling news organisations to process vast amounts of information in real time. Through machine learning algorithms, journalists are now able to analyse large datasets, detect emerging trends, and generate insights that may inform

news coverage. These capabilities have strengthened the role of computational tools in contemporary journalism practice (Pavlik, 2013).

One of the most visible applications of Artificial Intelligence in journalism is automated news production, commonly referred to as automated or algorithmic journalism. Automated journalism involves the use of natural language generation systems that convert structured data into written news stories with minimal human intervention. News organisations such as the Associated Press and Reuters have adopted this technology to produce financial reports, sports summaries, and election updates. The automation of routine news writing allows journalists to focus more on investigative reporting and analytical storytelling while maintaining a steady flow of information to audiences. Research has shown that automated journalism can improve efficiency in news production while maintaining acceptable levels of accuracy and readability (Carlson, 2015).

Artificial Intelligence also plays a significant role in audience engagement and news distribution. Modern media organisations increasingly rely on algorithmic recommendation systems to personalise news content for readers. These systems analyse user behaviour, including browsing history, reading patterns, and engagement levels, in order to recommend stories that align with audience interests. As a result, AI-driven recommendation algorithms have become central to the operations of many digital media platforms. While such systems enhance user engagement and content visibility, they also raise concerns about the creation of “filter bubbles,” where audiences are repeatedly exposed to information that reinforces their existing views (Pariser, 2011).

Another important aspect of digital transformation in journalism is the use of Artificial Intelligence in fact-checking and misinformation detection. The rise of social media has created an information environment where false or misleading content can spread rapidly across digital platforms. AI-powered verification tools assist journalists in identifying manipulated images, detecting bot-generated social media activity, and analysing the credibility of online information sources. These technologies help media organisations respond more effectively to misinformation and maintain the integrity of news reporting in an increasingly complex digital communication environment (Graves, 2018).

Despite these benefits, the integration of Artificial Intelligence into journalism has generated important debates within media scholarship. Some scholars argue that the increasing reliance on algorithmic systems may challenge traditional journalistic values such as editorial autonomy, professional judgement, and transparency. The use of automated systems in news production may also blur the boundaries between human decision-making and machine-generated content. In addition, concerns have been raised about the potential for algorithmic bias, particularly when AI systems are trained using

datasets that reflect existing social or political inequalities. These concerns highlight the need for responsible integration of AI technologies within journalistic practice (Lewis, Guzman, & Schmidt, 2019).

Nevertheless, the digital transformation of journalism continues to accelerate as media organisations seek innovative ways to respond to changing audience expectations and technological realities. Artificial Intelligence is increasingly viewed not as a replacement for journalists but as a complementary tool that can support journalistic work. By assisting with routine tasks, analysing complex datasets, and improving information verification processes, AI has the potential to strengthen investigative reporting and enhance the overall quality of journalism. As technological capabilities continue to evolve, the role of AI in shaping the future of journalism is expected to expand further across different media systems around the world.

Artificial Intelligence in Data Mining and Investigative Journalism

The increasing availability of digital data has significantly transformed the methods used in modern journalism, particularly in the areas of data mining and investigative reporting. As governments, organisations, and individuals generate vast quantities of digital information daily, journalists are increasingly required to analyse large datasets in order to uncover patterns, trends, and hidden relationships. Artificial Intelligence has emerged as a valuable tool in this process because it enables journalists to process complex datasets more efficiently than traditional manual methods. According to Gray, et al., (2012) the rise of data journalism reflects a broader shift in journalism toward computational methods that allow reporters to analyse structured and unstructured data for storytelling and investigative purposes.

Data mining refers to the process of extracting meaningful information from large datasets through analytical techniques and computational tools. In journalism practice, this process often involves analysing government records, financial transactions, election data, or social media activity in order to identify issues of public interest. Artificial Intelligence systems, particularly those based on machine learning algorithms, assist journalists in sorting through massive volumes of information and identifying patterns that may indicate corruption, financial irregularities, or other forms of wrongdoing. Diakopoulos (2019) notes that AI-driven analytical tools have become increasingly important in investigative journalism because they enable reporters to detect patterns that might otherwise remain hidden within complex datasets.

The integration of Artificial Intelligence into investigative journalism has strengthened the ability of journalists to conduct large-scale investigations that require extensive data analysis. One widely cited example is the use of computational tools during the investigation of the Panama Papers, where journalists analysed millions of leaked

documents to uncover offshore financial networks involving politicians and business leaders around the world. As explained by Obermaier and Obermayer (2016) digital analysis tools were essential in organising and interpreting the massive dataset that formed the basis of the investigation. AI-based systems are capable of scanning documents, identifying key entities such as names and financial transactions, and mapping relationships between individuals and organisations involved in complex financial networks.

Artificial Intelligence also supports investigative journalism through natural language processing and automated document analysis. These technologies allow journalists to examine large collections of text-based information, including emails, reports, and transcripts, in order to identify significant themes or connections. Natural language processing systems can detect recurring keywords, identify relationships between actors, and categorise documents based on thematic content. According to Lewis and Westlund (2015) computational journalism tools have increasingly enabled reporters to combine traditional investigative techniques with digital analysis methods, thereby expanding the scope of investigative reporting.

Another important application of Artificial Intelligence in journalism involves the analysis of social media data. Social media platforms generate enormous amounts of publicly available information that can be analysed to detect trends, public sentiment, and emerging events. Journalists use AI-powered tools to monitor online discussions, track the spread of information, and identify potential news stories. Such tools are particularly useful in situations where journalists need to detect early signals of social unrest, political developments, or public health concerns. As argued by Bradshaw (2019) data-driven journalism increasingly relies on computational tools that allow reporters to analyse digital traces generated by online communication.

Despite the advantages associated with AI-assisted data mining, the use of such technologies also presents certain challenges. One major concern involves the accuracy and reliability of the datasets used in investigative reporting. If datasets are incomplete or biased, the conclusions drawn from them may be misleading. Journalists must therefore combine computational analysis with professional judgement in order to interpret data responsibly. Furthermore, the use of advanced computational tools requires specialised technical skills that many journalists may not possess. This creates a need for training in data analysis, coding, and digital investigative techniques within journalism education and newsroom practice (Coddington, 2015).

Nevertheless, Artificial Intelligence continues to expand the possibilities of investigative journalism by enabling journalists to analyse increasingly complex information environments. By assisting with data mining, document analysis, and pattern detection,

AI technologies support journalists in uncovering issues of public importance that may otherwise remain hidden. As the volume of digital information continues to grow, the integration of Artificial Intelligence into investigative reporting is likely to become even more significant for the future of journalism practice worldwide.

AI Adoption and Ethical Challenges in African and Nigerian Journalism

The adoption of Artificial Intelligence in journalism has expanded rapidly in technologically advanced media systems, but its integration within African newsrooms has been comparatively slower. Many African media organisations continue to operate within structural and technological constraints that limit the deployment of advanced digital tools. While the global media industry increasingly relies on algorithmic systems for content production, data analysis, and audience engagement, the adoption of such technologies in Africa remains uneven. As Mutsvairo (2019) observes, African journalism is undergoing gradual digital transformation, yet the pace of technological integration varies significantly across countries due to infrastructural limitations, economic constraints, and varying levels of technological expertise.

In Nigeria, the media sector has experienced considerable technological change over the past two decades, particularly with the growth of online journalism and digital communication platforms. News organisations have increasingly adopted digital tools for news gathering, editing, and distribution. However, the integration of Artificial Intelligence into newsroom operations is still at an emerging stage. According to Ufuophu-Biri and Ojobor (2017) the Nigerian media environment is gradually adapting to digital journalism practices, but many media organisations still face challenges related to inadequate digital infrastructure, limited technical training, and insufficient investment in advanced newsroom technologies. These factors often hinder the widespread adoption of AI tools within Nigerian journalism practice.

Another significant factor affecting AI adoption in African journalism is the issue of technological capacity. Many media organisations lack the financial resources required to implement sophisticated computational systems such as machine learning platforms, automated content generation tools, and large-scale data analytics systems. In addition, journalists in many African countries often receive limited training in computational journalism, coding, or data science, which are essential skills for effectively utilising AI technologies. As a result, although journalists may be aware of the potential benefits of Artificial Intelligence, they may not possess the technical knowledge required to integrate such tools into their professional activities. Banda (2010) notes that technological capacity remains a critical factor shaping the development of journalism practice across the African continent.

Beyond issues of technological adoption, the increasing use of Artificial Intelligence in journalism has generated important ethical concerns. One of the major ethical debates surrounding AI in journalism relates to the issue of algorithmic transparency. When news content is generated or curated by algorithms, audiences may not fully understand how editorial decisions are made. This lack of transparency raises questions about accountability and the potential manipulation of information. Diakopoulos (2019) argues that algorithmic systems used in news production must be designed with transparency and accountability mechanisms in order to maintain public trust in journalism.

Another ethical concern relates to the possibility of algorithmic bias in AI-driven news production. Machine learning systems are trained using large datasets, and if these datasets reflect existing social or political biases, the resulting algorithms may reproduce or amplify those biases. In the context of journalism, such biases could influence the framing of news stories, the selection of information sources, or the visibility of certain issues within digital news platforms. Lewis, Guzman, and Schmidt (2019) explain that the growing interaction between journalists and intelligent machines requires careful consideration of ethical standards to ensure that automation does not undermine the principles of fairness and accuracy that guide professional journalism.

The potential impact of Artificial Intelligence on employment within the media industry has also generated considerable debate. Some scholars have expressed concerns that the automation of routine journalistic tasks may reduce the demand for human labour in newsrooms. Tasks such as financial reporting, sports summaries, and data-driven news updates can now be produced automatically using algorithmic systems. While automation may improve efficiency, it may also create uncertainty among journalists who fear that technological systems could eventually replace certain professional roles. However, other scholars argue that AI is more likely to complement journalistic work rather than replace it entirely. Pavlik (2013) maintains that technological innovation in journalism often reshapes professional roles rather than eliminating them completely.

Despite these concerns, Artificial Intelligence continues to present important opportunities for strengthening journalism practice in Africa and Nigeria. AI technologies can support investigative reporting, improve data analysis, and enhance fact-checking processes within newsrooms. For these benefits to be realised, however, media organisations must invest in technological infrastructure, training, and ethical guidelines that regulate the responsible use of AI in journalism. As African media systems continue to evolve in response to global technological changes, the effective integration of Artificial Intelligence will depend largely on the ability of journalists, policymakers, and media institutions to address both the practical and ethical challenges associated with its use.

Empirical Review

Empirical studies on the integration of Artificial Intelligence in journalism have expanded in recent years as scholars seek to understand how emerging technologies influence newsroom practices and professional routines. Across different media systems, researchers have examined the extent to which AI tools are being adopted in news organisations, the areas of journalism where these technologies are most frequently applied, and the implications of AI for journalistic work.

One of the earliest empirical investigations into automated journalism was conducted by Carlson (2015) who examined how algorithmic systems were used by major news organisations to produce routine news reports. The study found that automated journalism was increasingly used to generate financial reports and sports stories, allowing journalists to devote more time to analytical and investigative reporting tasks.

Further empirical research has explored journalists' perceptions of Artificial Intelligence and automation within newsroom environments. Thurman, Dörr, and Kunert (2017) conducted a study involving professional journalists to examine their attitudes toward automated journalism technologies. Their findings revealed that while many journalists recognised the efficiency benefits associated with automation, they also expressed concerns about issues such as editorial control, professional identity, and the potential displacement of human labour. The study highlighted the need for clear guidelines and training programmes to help journalists adapt to the increasing presence of algorithmic tools in news production processes.

Another empirical area of interest involves the use of Artificial Intelligence in data-driven journalism and investigative reporting. Studies have shown that computational tools enable journalists to analyse large datasets, identify trends, and uncover patterns that may reveal important public interest issues. Coddington (2015) in his analysis of computational journalism practices, found that digital data analysis tools have increasingly become central to investigative reporting, particularly in stories involving financial records, election data, and government transparency. The integration of AI technologies in such contexts has strengthened the ability of journalists to examine complex datasets and present evidence-based narratives to the public.

Research has also examined the role of Artificial Intelligence in combating misinformation and improving fact-checking practices. Graves (2018) studied the development of fact-checking organisations and the growing use of digital verification tools in journalism. The study revealed that many news organisations now rely on computational systems capable of analysing online information flows and detecting patterns associated with misinformation. These tools allow journalists to verify claims

more quickly and identify manipulated digital content circulating through social media platforms.

Within the African media context, empirical research on Artificial Intelligence in journalism remains relatively limited, although studies on digital journalism practices provide important insights into the evolving technological landscape. Mutsvairo (2019) examined the transformation of journalism in several African countries and observed that digital technologies are gradually reshaping newsroom practices, particularly with the rise of online media platforms and mobile communication. However, the study also noted that many African news organisations face infrastructural and financial constraints that slow the adoption of advanced technologies such as Artificial Intelligence.

In Nigeria specifically, empirical studies have explored how journalists are adapting to digital media technologies and the challenges associated with technological change in the media sector. Ufuophu-Biri and Ojobor (2017) investigated the impact of new media technologies on journalism practice in Nigeria and found that while journalists increasingly rely on digital tools for information gathering and dissemination, many media organisations still struggle with issues such as limited technological infrastructure, insufficient training, and financial constraints. These challenges often affect the ability of journalists to fully utilise advanced digital technologies within newsroom operations.

Despite the growing global interest in Artificial Intelligence and journalism, empirical studies focusing specifically on AI adoption within Nigerian newsrooms remain relatively scarce. Much of the existing research has concentrated on broader issues of digital journalism, online media development, and the impact of new media technologies on journalistic practices. As a result, there is limited empirical evidence documenting the level of AI usage among journalists in specific Nigerian contexts such as Yenagoa, Bayelsa State. This gap highlights the need for further research to examine how journalists in local media environments are engaging with emerging technologies and the challenges they encounter in integrating such tools into their professional activities.

The present study contributes to this growing body of knowledge by examining the level of Artificial Intelligence usage among journalists working in media organisations in Yenagoa, Bayelsa State. By investigating the extent to which AI tools are used for data mining and investigative reporting, as well as identifying the challenges associated with their adoption, the study provides empirical insights into the evolving relationship between technological innovation and journalism practice within the Nigerian media landscape.

Methodology

This study adopted a quantitative research design in order to examine the usage and challenges of Artificial Intelligence in journalism practice in Yenagoa, Bayelsa State, Nigeria. The quantitative approach is considered appropriate because it enables the researcher to collect measurable data from respondents and analyse patterns relating to the adoption and use of AI technologies among journalists. According to Wimmer and Dominick (2014), quantitative research methods are widely used in communication studies because they allow researchers to systematically measure attitudes, behaviours, and professional practices within media organisations.

The population of the study consists of all the registered journalists under the Nigerian Union of Journalists (NUJ), Yenagoa Chapter, working in selected media organisations operating within Yenagoa, Bayelsa State. These include journalists from radio stations, television stations, print media organisations, and online news platforms. The study focused on journalists because they are directly involved in news gathering, processing, and dissemination, and are therefore in the best position to provide information regarding the extent to which Artificial Intelligence tools are used in newsroom operations.

According to the National Union of Journalists- NUJ (2026), there are a total of 650 journalists in Yenagoa, Bayelsa State, Nigeria. The sample size of 242 was determined using the Krejcie and Morgan (1970) table. The researchers determined the required responding sample size, standard error, relative standard error, and a confidence interval (95% or 99%) for a proportion estimate, using only one of these criteria as an input. The estimated variance proportion was 0.5 (5%), the confidence interval was 0.05 (5%).

The purposive sampling technique was adopted for this study. This technique allowed the researchers to deliberately select respondents who possess relevant knowledge and professional experience in journalism practice. This was to ensure that the data collected reflected the experiences of individuals directly involved in newsroom activities where Artificial Intelligence technologies may be applied.

The sample size was made up of two hundred and forty-two (242) journalists randomly selected from television houses (60), radio houses (60), newspaper houses (62), and online news platforms (60) in Yenagoa. Newspaper houses had 62 because they have the highest numbers of registered members.

A structured questionnaire served as the primary instrument for data collection. The questionnaire contains a combination of closed-ended questions designed to obtain information about the level of awareness of Artificial Intelligence among journalists, the extent to which AI tools are used for data mining and investigative reporting, and the challenges associated with the adoption of such technologies in newsroom practice. The

use of questionnaire enabled the researchers to collect responses from a relatively large number of participants within a short period of time while maintaining consistency in the data collected. Babbie (2013) notes that the questionnaire is particularly effective for gathering standardised information that can be analysed quantitatively.

Data collected from the questionnaire were analysed using descriptive statistical methods such as frequencies and percentages. These analytical tools enabled the researchers to summarise the responses of participants, and identify trends relating to AI awareness, usage, and challenges within the journalism profession. Out of the 242 copies of the questionnaire that were administered to respondents, only 212 (87.60%) returned were found useful for analysis. The findings are then presented and interpreted in relation to the objectives of the study.

Data Presentation and Analysis

Table 1: Level of AI usage among journalists in Yenagoa

Responses	Frequency	%
Very high level	17	8.0
High level	38	17.9
Low level	49	23.1
Very low level	108	50.9
Total	212	100

Source: Field Survey, 2026

The findings in Table 1 reveal that the majority of journalists in Yenagoa exhibit a very low level of AI usage. This indicates that AI adoption among journalists is generally poor and still at a nascent stage.

Table 2: Whether AI tools assist journalists in data mining and investigative reporting

Responses	Frequency	%
Strongly Agree	115	54.2
Agree	50	23.6
Disagree	16	7.5
Strongly Disagree	31	14.6
Total	212	100

Source: Field Survey, 2026

The data in Table 2 show that a large majority of respondents strongly agree (54.2%) and agree (23.6%) that AI tools assist journalists in data mining and investigative reporting. This indicates a strong positive perception of AI usefulness, despite its low level of actual usage.

Table 3: Challenges associated with the adoption of Artificial Intelligence in journalism practice in Yenagoa, Bayelsa State, Nigeria

Impacts	Frequency	%
Limited access to technological infrastructure	51	24.1
Inadequate training for journalists on the use of AI tools	49	23.1
Financial constraints faced by media organisations,	48	22.6
Concerns about the potential impact of AI on employment within the journalism profession.	64	30.2
Total	212	100

Source: Field Survey, 2026

The data on Table 3 reveal that the most significant challenge associated with the adoption of AI in journalism practice is concern about job displacement. This indicates that a substantial proportion of journalists are worried that AI technologies may replace human roles or reduce employment opportunities within the profession. The data also suggest that structural and capacity-related challenges are also major barriers to AI adoption.

Discussion of Findings

The first objective of the study sought to determine the level of usage of Artificial Intelligence by media organisations in Yenagoa, Bayelsa State, Nigeria. Findings from the study indicate that although many journalists are aware of the growing importance of

Artificial Intelligence in modern journalism, the level of actual usage among media organisations in Yenagoa remains relatively low. Most respondents indicated that AI tools are not yet fully integrated into newsroom operations within their organisations.

This finding suggests that while awareness of emerging technologies is gradually increasing, the practical adoption of AI tools within local media organisations is still at an early stage. This outcome aligns with the observation by Mutsvairo (2019) that many African media organisations are still in the early phases of digital transformation due to infrastructural and financial limitations.

This finding aligns with existing studies which suggest that the adoption of emerging technologies in developing countries is often slow due to structural and institutional constraints (Adeosun & Owolabi, 2021; Rogers, 2003). According to Rogers' Diffusion of Innovations Theory, the adoption of new technologies typically progresses gradually, with many individuals falling into the categories of late adopters or laggards, particularly in environments with limited resources and infrastructure (Rogers, 2003). This explains the slow uptake of AI tools among journalists in the study area.

No doubt, there is a significant digital skills gap among journalists in Yenagoa. This shows that news organisations may not be fully leveraging AI tools for efficiency and competitiveness. The low usage level may affect the quality, speed, and innovation in journalism practice. Hence, Guanah, Okowa-Nwaebi & Igwe (2024) opine that, "AI has the potential to address various development challenges in Nigeria, and there can really be no sustainable development without it. However, a major handicap to it performing its functions successfully is due to lack of use by majority of the public" (p. 156-157).

The second objective of the study was to ascertain whether the use of Artificial Intelligence aids data mining and investigative reporting among journalists in Yenagoa. The findings reveal that respondents generally acknowledge the potential of AI technologies to assist in analysing large datasets and supporting investigative journalism. Journalists noted that AI-powered tools can help in sorting large volumes of information, identifying patterns in data, and detecting trends that may lead to the discovery of important news stories. These findings support earlier arguments by Diakopoulos (2019) who explains that computational tools and algorithmic systems enable journalists to analyse complex datasets more efficiently, thereby strengthening data-driven reporting and investigative journalism practices.

This result also supports the assertion that AI has the potential to enhance journalistic functions such as data analysis, automated reporting, and fact-checking (Carlson, 2015; Diakopoulos, 2019). Similarly, studies have shown that journalists who are aware of AI capabilities are more likely to acknowledge its benefits, even if they do not actively use such technologies (Beckett, 2019).

AI plays a significant role in data mining and analysis, which is invaluable in investigative journalism. AI algorithms can sift through vast amounts of data, identifying patterns and connections that human reporters may miss. This data-driven approach can help journalists to carry out detailed investigative journalism, and uncover hidden stories

The third objective of the study focused on identifying the challenges associated with the use of Artificial Intelligence in journalism practice in Yenagoa. Findings show that several challenges hinder the effective adoption of AI technologies among media organisations in the area. These challenges include limited access to technological infrastructure, inadequate training for journalists on the use of AI tools, financial constraints faced by media organisations, and concerns about the ethical implications of automated journalism. Some respondents also expressed concerns about the potential impact of AI on employment within the journalism profession. This reflects widespread fears that AI technologies may replace human journalists, a concern that has been widely documented in literature (Frey & Osborne, 2017; Graefe, 2016). Such fears can create resistance to technological innovation, thereby slowing adoption rates.

These challenges reflect broader issues identified in previous studies on technological innovation in journalism, where scholars such as Pavlik (2013) argue that the adoption of new media technologies often requires significant investment in infrastructure, training, and institutional support.

These findings are consistent with previous studies that identify lack of infrastructure and technical expertise as major barriers to technology adoption in developing countries (Ojebuyi & Salawu, 2020; UNESCO, 2021). The issue of inadequate training further underscores the need for capacity building, as journalists may be unable to effectively utilize AI tools without the requisite skills and knowledge (Beckett, 2019).

Taken together, the findings reveal a gap between awareness and actual usage of AI in journalism. While journalists recognise the potential benefits of AI, structural, economic, and psychological barriers hinder its adoption. This supports the argument that technological adoption is not solely dependent on awareness but also on access, capacity, and institutional support (Rogers, 2003).

These findings have some implications: The dominance of employment-related fears implies resistance to AI adoption may persist unless stakeholders address concerns about job displacement through reskilling and role redefinition. Also, limited access to technological infrastructure suggests that many media organisations lack the necessary digital tools and systems to effectively integrate AI into their operations. Likewise, the relatively high percentage of financial constraints indicates that cost of AI tools and implementation is a critical barrier, especially for smaller media houses.

Generally, the findings suggest that while Artificial Intelligence presents important opportunities for improving journalism practice in Yenagoa, its effective integration into newsroom operations remains constrained by structural and technological limitations. The study therefore highlights the need for increased technological investment and professional training in order to enable journalists to fully benefit from the opportunities presented by Artificial Intelligence.

Conclusion

The study examined journalism in the age of Artificial Intelligence with particular focus on media organisations in Yenagoa, Bayelsa State, Nigeria. The increasing development of Artificial Intelligence technologies has introduced new possibilities for improving journalism practice through automated reporting, data analysis, and computational investigative techniques. As the global media industry continues to evolve in response to digital transformation, understanding how journalists interact with emerging technologies has become an important area of scholarly inquiry.

Findings from the study reveal that although journalists in Yenagoa are generally aware of the growing role of Artificial Intelligence in modern journalism, the level of actual usage within local media organisations remains relatively limited. Many newsrooms still rely primarily on conventional methods of news gathering, processing, and dissemination. This indicates that the integration of Artificial Intelligence into journalism practice in the study area is still at an early stage.

The study also established that Artificial Intelligence has the potential to support important aspects of journalism practice, particularly in the areas of data mining and investigative reporting. AI-powered analytical tools can assist journalists in processing large volumes of information, identifying patterns within datasets, and uncovering issues of public interest. These capabilities demonstrate the potential value of AI technologies for improving the depth and efficiency of investigative journalism.

However, the study further identified several challenges that hinder the effective adoption of Artificial Intelligence in journalism practice in Yenagoa. These challenges include limited technological infrastructure, insufficient training opportunities for journalists, financial constraints faced by media organisations, and concerns regarding the ethical implications of automated journalism. These factors collectively affect the ability of journalists and media organisations to fully utilise emerging technological tools in their professional activities.

The conclusion of this study is that Artificial Intelligence presents both opportunities and challenges for journalism practice in Yenagoa, Bayelsa State. While AI technologies have the potential to enhance investigative reporting and improve newsroom efficiency, their successful integration into journalism practice will depend on the ability of media

organisations, journalists, and policymakers to address the technological, professional, and ethical issues associated with their adoption.

Recommendations

Based on the findings of the study, several recommendations are proposed in order to improve the effective integration of Artificial Intelligence into journalism practice in Yenagoa, Bayelsa State.

First, media organisations should invest in technological infrastructure that supports the use of Artificial Intelligence in newsroom operations. Access to appropriate digital tools and data analysis platforms will enable journalists to utilise AI technologies for data mining, investigative reporting, and information verification.

Second, journalists should be provided with specialised training programmes that focus on Artificial Intelligence, data journalism, and computational reporting techniques. Such training will equip journalists with the technical skills required to effectively utilise AI tools in modern newsroom environments, especially for data mining.

Third, to address the challenges associated with the adoption of Artificial Intelligence in journalism practice educational institutions offering journalism and mass communication programmes should incorporate courses on Artificial Intelligence, data analysis, and digital journalism into their curricula, and also provide technological infrastructure for training them on the use of AI tools. This will ensure that future journalists possess the necessary technological competencies required in contemporary media practice. Also, there is need for policy and Institutional response warrants the need for government intervention, institutional investment, and strategic policy frameworks to support AI integration in journalism in Nigeria.

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