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Editorial AI Integration in Developing Newsrooms Evidence from Nigerian Newspapers

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Abstract. Artificial Intelligence (AI) is increasingly transforming journalism practices globally, yet empirical evidence regarding its integration in developing-country newsrooms remains limited. This study examines the integration of AI in editorial operations within Nigerian newspaper organizations, focusing on its contributions to editorial efficiency, patterns of adoption, and barriers to implementation. Guided by Rogers' Diffusion of Innovation (DOI) theory, the study employed a mixed-methods research design involving quantitative surveys and qualitative interviews. Data were collected from journalists working in three major Nigerian newspapers namely Leadership, Daily Trust, and Daily Sun with 141 valid questionnaire responses analyzed alongside in-depth interviews with editorial personnel. The findings reveal that AI integration significantly enhances editorial efficiency and accuracy, particularly in fact-checking (Mean = 3.37), reduction of human errors (Mean = 3.26), and improved news production efficiency (Mean = 3.15). However, AI adoption remains selective and limited primarily to supportive editorial functions, while advanced applications such as real-time automated news generation remain minimally utilized (Mean = 1.58). The study further identifies significant barriers to AI integration, including concerns about reduced journalistic creativity (Mean = 3.05), inadequate funding and infrastructure (Mean = 3.04), fears of job displacement (Mean = 2.99), ethical concerns regarding misinformation and editorial integrity (Mean = 2.92), and insufficient technical expertise (Mean = 2.90). The findings suggest that AI currently functions as an augmentative technology that supports rather than replaces journalists. The study concludes that successful AI integration in developing newsrooms requires strategic investment, continuous professional training, institutional support, and robust ethical governance frameworks to facilitate responsible and sustainable digital transformation in journalism.

Keywords: Editorial AI Integration; Newsroom Transformation; Artificial Intelligence; Innovation Diffusion; Organizational Communication; Nigerian Newspapers.

1. Introduction

The rapid advancement of artificial intelligence (AI) is fundamentally reshaping communication ecosystems and redefining the ways media organizations produce, manage, and distribute information (Amichai-Hamburger et al., 2025; Assad et al., 2025;

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Luo & Zhu, 2025). Within contemporary journalism, Assad et al. (2025), Luo & Zhu (2025) found that AI has evolved beyond a technological innovation into a strategic communication resource that supports editorial decision-making, newsroom coordination, audience engagement, and content personalization. The integration of AI-powered applications including automated transcription, fact-checking systems, content recommendation algorithms, natural language processing, and generative AI tools has transformed conventional newsroom routines by improving efficiency, accelerating editorial workflows, and expanding journalists' analytical capabilities (Assad et al., 2025; Luo & Zhu, 2025). Consequently, discussions surrounding AI in journalism have shifted from whether news organizations should adopt AI technologies to how these technologies are integrated into editorial practices while preserving journalistic values such as credibility, transparency, and editorial independence.

The growing integration of AI into newsroom operations has generated a broader discourse on editorial AI integration, referring to the systematic incorporation of AI-assisted technologies into editorial processes without replacing human editorial authority (Amigo & Porlezza, 2025; Morosoli et al., 2025; Santos, 2023). Unlike technological adoption, which primarily concerns the acceptance or use of innovation, editorial AI integration emphasizes the interaction between technology, professional norms, organizational structures, and communication practices that collectively shape newsroom transformation. This perspective recognizes that AI functions not as an autonomous decision-maker but as a collaborative editorial partner supporting journalists in verification, editing, content organization, audience analytics, and routine production tasks. Consequently, newsroom transformation should be understood as an organizational communication process in which technological innovation is continuously negotiated through editorial culture, institutional policies, and professional ethics.

Thäsler-Kordonouri & Koliska (2025) found that AI integration has accelerated across global news organizations, although the nature and maturity of implementation vary considerably across media systems. International media organizations have increasingly incorporated AI into data journalism, automated reporting, multilingual translation, recommendation systems, and audience analytics to improve productivity and responsiveness in highly competitive digital environments. However, studies also indicate that AI implementation extends beyond technological capability, depending heavily on organizational readiness, leadership commitment, digital competencies, regulatory environments, and journalists' perceptions of AI-assisted work. These findings suggest that newsroom transformation represents a multidimensional communication phenomenon shaped by technological, organizational, and socio-cultural factors rather than a simple process of technology adoption (Amponsah & Atianashie, 2024; Gutiérrez-Caneda et al., 2024; Heim & Chan-Olmsted, 2023; Somorin & Ademola, 2024; Thäsler-Kordonouri & Koliska, 2025).

Despite the rapid expansion of AI journalism research, existing studies remain concentrated in technologically advanced media environments, particularly North America, Europe, and selected Asian countries. Comparatively fewer studies have examined how AI is integrated within developing media systems characterized by financial constraints, limited digital infrastructure, evolving regulatory frameworks, and diverse professional cultures. In many developing countries, newsroom innovation follows a gradual and selective trajectory in which AI technologies are adopted primarily for low-risk editorial activities while human journalists continue to exercise authority over complex editorial judgments. Consequently, current international literature provides

only a limited understanding of how editorial AI integration unfolds under the structural conditions of emerging media ecosystems, particularly in Sub-Saharan Africa.

Nigeria offers an important empirical context for examining this issue because it possesses one of Africa's largest and most dynamic media industries while simultaneously confronting significant technological and organizational challenges (Ciboh et al., 2024; Izuogu et al., 2025; Talabi & Ogundeji, 2012). Nigerian newspapers continue to operate within an increasingly competitive digital communication environment where declining print circulation, expanding online platforms, audience fragmentation, and financial pressures encourage media organizations to modernize editorial operations. AI technologies therefore represent both an opportunity for improving newsroom efficiency and a challenge requiring organizational adaptation, professional reskilling, ethical governance, and institutional investment. Rather than pursuing complete newsroom automation, many Nigerian newspapers appear to be integrating AI selectively into existing editorial routines while maintaining human oversight over news judgment and editorial accountability. This evolving pattern provides an opportunity to understand newsroom transformation from the perspective of communication organizations operating in resource-constrained environments.

Although previous studies have investigated AI adoption in journalism, most have focused on technological applications, journalists' perceptions, or the opportunities and challenges associated with AI implementation. Comparatively little attention has been devoted to explaining how editorial AI integration transforms newsroom communication processes, how organizational conditions shape integration decisions, and why AI implementation remains selective rather than comprehensive in developing media environments. Furthermore, previous studies frequently employ a single theoretical perspective, limiting their ability to capture the complex interaction among technological attributes, organizational readiness, and communication practices. Addressing these conceptual limitations requires an integrated analytical framework capable of explaining AI integration as a multidimensional organizational communication process rather than merely a technological innovation.

Against this background, this study investigates editorial AI integration in selected Nigerian newspapers by examining how AI technologies are incorporated into newsroom practices and identifying the organizational, technological, and institutional factors influencing newsroom transformation. Drawing upon the Diffusion of Innovations (DOI) theory as the principal analytical framework and integrating insights from the Technology Acceptance Model (TAM) and the Technology–Organization–Environment (TOE) framework, the study proposes a multi-level explanation of editorial AI integration within developing media systems. Conceptually, the study advances communication scholarship by repositioning AI from a technological adoption issue toward a process of editorial AI integration, emphasizing the dynamic interaction between technological innovation, organizational communication, and professional journalistic practice. Empirically, it contributes evidence from the Global South, enriching international debates on newsroom transformation and the evolving role of AI in contemporary journalism.

2. Method

This study employed a convergent mixed-methods research design to examine editorial AI integration within Nigerian newspaper newsrooms (Headley & Plano Clark, 2020; Mulili et al., 2025; Schoonenboom & Johnson, 2017; Sharma et al., 2023). The mixed-methods approach was selected because editorial AI integration is a

multidimensional phenomenon involving measurable organizational practices as well as contextual experiences that cannot be adequately explained through a single methodological approach. The quantitative component measured the extent of AI integration across newsroom functions, while the qualitative component explored journalists' experiences, organizational readiness, and institutional factors influencing AI implementation. Both datasets were collected during the same research period, analyzed independently, and integrated during interpretation to provide a comprehensive understanding of newsroom transformation. This design enabled methodological triangulation, thereby enhancing the validity and richness of the findings.

The study was conducted in three leading Nigerian newspaper organizations that have incorporated digital technologies into their editorial operations. The quantitative phase involved 141 editorial personnel, including editors, reporters, sub-editors, digital content producers, and newsroom managers selected through purposive sampling based on their direct involvement in editorial processes. Structured questionnaires employing a five-point Likert scale were used to assess respondents' perceptions of AI integration, organizational readiness, perceived benefits, and implementation challenges. To complement the survey findings, semi-structured interviews were conducted with selected senior editorial staff possessing practical experience in newsroom AI implementation. The interviews generated qualitative insights into organizational decision-making, editorial workflows, ethical considerations, and communication practices surrounding AI integration.

Quantitative data were analyzed using descriptive statistics, including frequencies, percentages, mean scores, and standard deviations, to identify patterns of editorial AI integration across newsroom functions. Qualitative data were analyzed using thematic analysis involving data familiarization, open coding, category development, and theme interpretation. The integration of quantitative and qualitative findings followed the convergent mixed-methods procedure by comparing, corroborating, and interpreting results from both datasets. This analytical strategy allowed statistical patterns to be contextualized through participants' narratives, producing a more comprehensive explanation of newsroom transformation than either dataset could provide independently.

The analytical framework was guided primarily by the Diffusion of Innovations (DOI) theory, which explains how technological innovations spread within organizations. To capture the complexity of editorial AI integration, DOI was complemented by the Technology Acceptance Model (TAM) and the Technology–Organization–Environment (TOE) framework. The integration of these theoretical perspectives enabled the study to examine AI implementation from technological, organizational, and communication perspectives simultaneously. Ethical approval was obtained prior to data collection, and all participants provided informed consent. Respondents' identities were anonymized, participation remained voluntary, and all collected information was treated confidentially in accordance with internationally accepted research ethics.

3. Results and Discussion

The findings of this study reveal important insights into the current state of Artificial Intelligence (AI) integration within newspaper editorial operations in Nigeria as a representative context of developing-country newsrooms. Drawing from quantitative survey data and qualitative interview responses, the study demonstrates that AI technologies are increasingly influencing editorial practices, although their adoption

remains uneven and constrained by several institutional and structural factors. The findings provide empirical evidence on how journalists and media organizations perceive the opportunities and challenges associated with AI integration in contemporary news production processes.

The analysis further suggests that the integration of AI in Nigerian newspaper organizations reflects a transitional phase in the digital transformation of journalism. While AI technologies are being adopted to support routine editorial tasks such as fact-checking, editing, transcription, and content management, their deployment remains largely assistive rather than fully autonomous. This pattern of adoption aligns with broader trends observed in developing-country media systems, where technological innovation often occurs within contexts characterized by resource constraints, infrastructural limitations, and evolving professional norms.

Based on the quantitative and qualitative analyses, three major findings emerged from the study. First, AI integration significantly enhances editorial efficiency and improves the accuracy of news production processes. Second, the adoption of AI in Nigerian newsrooms remains selective and limited to supportive editorial functions rather than advanced automation. Third, institutional, technical, economic, and ethical barriers continue to constrain the full integration of AI technologies within newspaper organizations. These findings collectively provide evidence of both the transformative potential and the practical limitations of AI integration in developing newsrooms.

3.1. AI Integration Primarily Enhances Editorial Efficiency and Accuracy

The findings indicate that the integration of Artificial Intelligence (AI) technologies has substantially enhanced editorial efficiency and accuracy within Nigerian newspaper organizations. The quantitative data reveal that journalists perceive AI as an important technological enabler that supports the execution of routine editorial tasks while improving the overall quality of news production processes. The highest-rated benefit of AI integration was observed in fact-checking activities (Mean = 3.37), followed by the reduction of human errors (Mean = 3.26), improved news production turnaround (Mean = 3.15), multitasking capabilities (Mean = 3.04), content editing (Mean = 3.02), and automation of editorial functions (Mean = 3.02). The overall sectional mean score of 2.93 suggests a moderate to high level of confidence among journalists regarding the contribution of AI to newsroom operations. These findings demonstrate that AI technologies are increasingly perceived as essential tools for improving the speed, accuracy, and reliability of editorial workflows in developing-country newsrooms.

The study further reveals that AI-assisted fact-checking represents the most significant contribution of AI integration within Nigerian newspapers. The high mean score recorded for fact-checking activities (M = 3.37) indicates that journalists regard AI tools as valuable instruments for verifying information accuracy, cross-checking sources, and reducing the dissemination of inaccurate or misleading information. This finding reflects the growing importance of verification journalism in the contemporary digital media environment characterized by misinformation and information disorder. The ability of AI-powered systems to rapidly process large datasets and identify inconsistencies provides editorial teams with greater confidence in news verification processes. Consequently, AI technologies strengthen traditional gatekeeping functions by supporting journalists in maintaining professional standards of accuracy, credibility, and accountability in news production.

In addition to fact-checking, the findings indicate that AI integration has contributed significantly to reducing human errors and improving editorial workflow efficiency. Respondents acknowledged that AI applications facilitate proofreading, grammar correction, style consistency, content editing, and production scheduling, thereby reducing the burden associated with repetitive editorial tasks. The relatively high mean scores for reduced human errors (M = 3.26) and improved work turnover (M = 3.15) suggest that journalists perceive AI as a productivity-enhancing technology rather than a disruptive innovation. This finding aligns with the principles of the Diffusion of Innovation theory, which posits that technologies with clear relative advantages are more likely to be adopted by organizations. In this context, AI technologies provide observable benefits by reducing operational inefficiencies, minimizing editorial mistakes, and improving the timeliness of news production.

The qualitative interview findings further reinforce the quantitative evidence by illustrating how AI tools are currently being utilized in everyday newsroom operations. Interviewee 1 explained that *"AI tools have greatly affected editorial work efficiency. Functions like proofreading and formatting are timely performed than before."* Similarly, Interviewee 2 stated that *"AI has significantly impacted our editorial activities which are evident in news headline generation, interview voice transcription and fact checking. AI helps our editorial team meet deadlines quickly."* Furthermore, Interviewee 3 observed that "AI is helping journalists handle routine tasks and allows them to concentrate more on investigative journalism and creativity." These responses demonstrate that AI technologies are primarily being adopted as supportive and augmentative tools that automate repetitive tasks while enabling journalists to devote more attention to higher-order editorial responsibilities requiring critical thinking, professional judgment, and investigative skills. The interview findings therefore confirm that AI complements rather than substitutes human journalistic expertise.

The findings also reveal that despite the substantial gains in editorial efficiency and accuracy, AI integration remains concentrated within supportive editorial functions rather than fully autonomous news production systems. Although AI technologies have significantly improved content editing, verification, and workflow management, respondents reported very limited utilization of AI for real-time automated news generation (Mean = 1.58). This suggests that Nigerian newspapers remain cautious in adopting fully automated journalism practices and continue to prioritize human editorial oversight. Consequently, the findings indicate that AI integration within developing-country newsrooms follows an augmentation model of technological adoption, where human creativity, editorial judgment, and ethical decision-making remain central to the news production process. Therefore, AI should be understood not as a replacement for journalists but as a complementary technology that strengthens editorial productivity, enhances accuracy, and supports the digital transformation of journalism in developing media environments.

Table 1 Perceived Contributions of AI to Editorial Efficiency and Accuracy in Nigerian Newspapers

Editorial Functions Enhanced by AI	Mean Score	Interpretation
AI-assisted fact-checking	3.37	Very High
Reduction of human errors	3.26	High
Improved news production efficiency	3.15	High
Editorial multitasking	3.04	Moderate-High

News content editing	3.02	Moderate-High
Editorial task automation	3.02	Moderate-High
Reduction in production costs	2.94	Moderate
Timely news reporting	2.97	Moderate
Real-time automated news generation	1.58	Low

Source: Field Survey Data, 2025.

The data presented in Table 1 demonstrate that the greatest contribution of AI integration in Nigerian newspapers lies in enhancing editorial accuracy and operational efficiency rather than replacing journalists through full automation. AI-assisted fact-checking emerged as the most highly rated function, followed by error reduction and improved news production efficiency, suggesting that newsroom professionals value AI primarily for its supportive role in strengthening journalistic standards and productivity. Conversely, the very low rating for real-time automated news generation indicates that AI adoption in Nigerian newspapers remains largely assistive and human-centered. These findings collectively support the argument that AI integration in developing-country newsrooms is characterized by gradual technological augmentation, where human expertise and machine intelligence coexist to improve the quality, efficiency, and credibility of editorial processes.

3.2. AI Adoption in Nigerian Newsrooms Remains Selective and Limited

The findings reveal that the integration of Artificial Intelligence (AI) technologies within Nigerian newspaper organizations remains selective, gradual, and unevenly distributed across editorial functions. Although respondents acknowledged the significant benefits of AI in improving editorial efficiency and accuracy, the data suggest that AI adoption is largely confined to supportive and low-risk newsroom activities rather than sophisticated automated journalism practices. The overall pattern of adoption indicates that Nigerian newspapers are currently utilizing AI primarily as an assistive technology to complement traditional journalistic practices rather than as a transformative system capable of fundamentally restructuring editorial operations. This finding reflects the broader technological realities of developing-country newsrooms, where digital transformation often progresses incrementally due to institutional, financial, and infrastructural limitations.

The quantitative findings demonstrate that AI applications with direct and observable editorial benefits have experienced greater acceptance among journalists. Functions such as fact-checking (Mean = 3.37), reduction of human errors (Mean = 3.26), news production efficiency (Mean = 3.15), and content editing (Mean = 3.02) recorded relatively high levels of utilization and acceptance. However, the use of AI for advanced journalistic functions remains considerably limited. Most notably, real-time automated news generation recorded the lowest mean score (Mean = 1.58), indicating that Nigerian newspapers have not substantially embraced autonomous AI-driven content production systems. This substantial disparity between supportive and autonomous applications suggests that editorial organizations are adopting AI cautiously, prioritizing technologies that preserve human oversight while minimizing professional and ethical risks associated with full automation.

The findings further indicate that the selective adoption of AI technologies is influenced by organizational preferences for technologies that complement rather than replace journalists' professional roles. According to the Diffusion of Innovation theory,

organizations are more likely to adopt innovations perceived as compatible with existing values, norms, and operational practices. In the Nigerian newsroom context, AI tools such as Grammarly, ChatGPT, transcription software, and automated proofreading systems are considered compatible because they enhance productivity without undermining editorial authority or journalistic autonomy. Conversely, advanced AI applications capable of independently generating news stories, making editorial decisions, or performing autonomous reporting remain largely absent because they are perceived as complex, uncertain, and potentially disruptive to established journalistic routines. This finding suggests that the diffusion of AI within Nigerian newspapers remains at an early adoption stage characterized by experimentation and cautious implementation.

The qualitative interview findings provide additional evidence supporting the selective nature of AI integration in Nigerian newsrooms. Interviewee 2 explained that "AI has significantly impacted our editorial activities which are evident in news headline generation and interview voice transcription and fact checking, to name just a few." Similarly, Interviewee 1 observed that "AI tools have greatly affected editorial work efficiency. Functions like proofreading and formatting are timely performed than before." These responses indicate that current AI utilization is concentrated primarily on routine editorial support functions rather than strategic or autonomous journalistic tasks. Furthermore, Interviewee 3 emphasized that "AI is helping journalists handle routine tasks and allows them to concentrate more on investigative journalism and creativity." This observation reinforces the finding that Nigerian newspapers currently perceive AI as a productivity-enhancing instrument that supports human journalists rather than replacing their professional expertise and editorial judgment.

The findings therefore suggest that AI diffusion within Nigerian newspaper organizations remains at an early and experimental stage of technological transformation. While editorial managers and journalists recognize the potential benefits of AI technologies, their actual implementation remains fragmented and cautious. This pattern reflects the realities of many developing-country media systems, where technological innovations are introduced incrementally due to concerns regarding institutional readiness, technical capacity, financial sustainability, and ethical implications. Consequently, the evidence demonstrates that Nigerian newsrooms are currently pursuing a hybrid model of AI integration in which traditional journalistic practices coexist with selected AI-enabled editorial functions. Such an approach allows organizations to gradually adapt to technological changes while preserving core journalistic values, professional accountability, and human editorial oversight.

Table 2 Patterns of AI Adoption in Nigerian Newsrooms

AI Editorial Functions	Mean Score	Level of Adoption	Nature of Application
AI-assisted fact-checking	3.37	High	Supportive
Reduction of human errors	3.26	High	Supportive
News production efficiency	3.15	High	Supportive
Editorial multitasking	3.04	Moderate-High	Supportive
Content editing	3.02	Moderate-High	Supportive
Editorial task automation	3.02	Moderate-High	Semi-automated
Timely reporting	2.97	Moderate	Semi-automated
Production cost reduction	2.94	Moderate	Supportive
Real-time automated news	1.58	Low	Fully automated

generation

Source: Field Survey Data, 2025.

The data presented in Table 2 illustrate the uneven pattern of AI adoption within Nigerian newspaper organizations. Editorial functions categorized as supportive applications, such as fact-checking, editing, and error reduction, demonstrate relatively high levels of acceptance and utilization. In contrast, advanced and fully automated applications, particularly real-time news generation, exhibit very low adoption rates. This distribution confirms that AI implementation in Nigerian newsrooms remains selective and human-centered, with organizations prioritizing low-risk technologies that complement existing editorial practices. The findings therefore suggest that AI integration in developing-country newsrooms is currently characterized by cautious experimentation and gradual technological diffusion rather than rapid or comprehensive digital transformation.

3.3. Institutional, Technical, and Ethical Barriers Constrain AI Integration

The findings of this study reveal that despite the recognized benefits of Artificial Intelligence (AI) for newsroom efficiency and productivity, several institutional, technical, and ethical barriers continue to impede its effective integration within Nigerian newspaper organizations. The quantitative data demonstrate that these challenges are perceived as substantial by journalists and editorial managers, as reflected in the relatively high sectional mean score of 2.97. The findings suggest that the process of AI diffusion in Nigerian newsrooms is constrained not only by technological limitations but also by organizational culture, financial capacity, professional concerns, and ethical uncertainties. This observation is consistent with the broader experiences of developing-country media systems, where technological innovation often occurs within environments characterized by infrastructural deficits, limited institutional preparedness, and concerns regarding the implications of automation for professional journalism practice.

Among the identified barriers, inadequate funding and resource limitations emerged as one of the most critical constraints affecting AI integration, recording a mean score of 3.04. The findings indicate that many Nigerian newspaper organizations lack sufficient financial resources to acquire, deploy, maintain, and continuously upgrade AI-enabled technologies. Effective AI implementation requires substantial investment in digital infrastructure, software acquisition, hardware systems, cloud computing services, cybersecurity, and staff development programs. However, the financial challenges confronting newspaper organizations in developing economies significantly restrict such investments. The findings suggest that limited financial capacity contributes directly to the selective and cautious adoption of AI technologies observed in Nigerian newsrooms. Consequently, many organizations rely primarily on inexpensive and publicly available AI applications rather than investing in sophisticated newsroom automation systems. This financial constraint therefore slows the pace of digital transformation and limits the potential benefits that AI technologies could deliver to editorial operations.

Another major challenge identified by the study concerns the impact of AI technologies on professional journalism practices, particularly fears relating to job displacement and the perceived erosion of journalistic creativity. The findings reveal that concerns about reduced creativity recorded the highest barrier score (Mean = 3.05), while fears of job loss resulting from AI adoption also recorded a relatively high mean score (Mean = 2.99). These findings suggest that journalists remain apprehensive about the

implications of automation for professional identity, editorial autonomy, and employment security. The fear that AI systems may gradually replace human journalists contributes to skepticism and resistance toward technological adoption within newsroom environments. Furthermore, respondents expressed concerns that overreliance on algorithmic systems could weaken the creative, interpretative, and investigative dimensions of journalism that require human judgment and contextual understanding. These findings highlight the importance of positioning AI as a complementary technology designed to augment rather than substitute professional journalistic expertise.

The findings further reveal that technical and organizational capacity deficits significantly hinder AI integration in Nigerian newspapers. Lack of technical expertise among journalists recorded a mean score of 2.90, indicating that many newsroom professionals lack the necessary competencies required to effectively utilize AI technologies. This challenge is compounded by inadequate professional training opportunities, limited digital literacy programs, and insufficient institutional support for technological innovation. The qualitative interview findings strongly reinforce this observation. Interviewee 1 explained that *"One of the main challenges is fund. Most newspapers have low budgetary provision for acquisition, installation and maintenance of AI-enabled technologies. Training and skill gaps equally hinder effective deployment of AI tools as many journalists lack the necessary technical expertise in AI-driven tools."* Similarly, Interviewee 2 stated that *"AI adoption is not fully deployed in most newspapers because of reluctance by media owners to commit fund into it and journalists' skeptical view of AI's impact on their job security."* These responses demonstrate that financial limitations, organizational resistance, and insufficient technical capacity collectively create substantial barriers to the effective adoption of AI technologies within developing-country newsrooms.

In addition to institutional and technical constraints, the study identified ethical concerns as another major barrier affecting AI integration in Nigerian newspapers. Concerns regarding misinformation, editorial integrity, and algorithmic bias recorded a mean score of 2.92, indicating widespread apprehension among journalists about the ethical implications of AI-generated content. The qualitative findings further support this observation. Interviewee 3 noted that *"Ethical concerns about AI in terms of integrity of news sources, redundancy of journalist and lack of human objectivity in news gathering and production process. This is a serious concern for a newspaper organisation."* These findings suggest that journalists remain concerned about the reliability, transparency, accountability, and credibility of AI-assisted journalism. The possibility of algorithmic bias, misinformation dissemination, and diminished human oversight raises important questions regarding professional ethics and public trust in journalism. Therefore, the findings indicate that successful AI integration within developing-country newsrooms requires not only technological investment and professional capacity building but also the development of robust ethical governance frameworks capable of ensuring responsible and accountable AI implementation.

Table 3 Institutional, Technical, and Ethical Barriers to AI Integration in Nigerian Newsrooms

Barriers to AI Integration	Mean Score	Level of Constraint	Dimension
AI limits journalists' creativity	3.05	High	Professional/Ethical
Lack of funding and resources	3.04	High	Institutional

Fear of job displacement	2.99	High	Professional
Resistance by media owners	2.93	Moderate-High	Institutional
Misinformation and editorial integrity concerns	2.92	Moderate-High	Ethical
Lack of technical expertise	2.90	Moderate-High	Technical
Resistance to organizational change	2.77	Moderate	Organizational
Journalists' bias toward AI	2.52	Moderate	Professional
Journalists' poor knowledge of AI tools	2.43	Moderate	Technical
Journalists' apathy toward AI adoption	2.39	Moderate	Organizational

Source: Field Survey Data, 2025.

The findings presented in Table 3 demonstrate that the barriers to AI integration in Nigerian newspapers extend beyond technological limitations and encompass institutional, professional, and ethical dimensions. Concerns relating to creativity, financial capacity, employment security, technical competence, and editorial integrity emerged as the most significant impediments to AI adoption. The relatively high scores recorded across these variables indicate that AI implementation in developing-country newsrooms is influenced by a complex interaction of organizational readiness, professional culture, technological capability, and ethical accountability. These findings suggest that successful AI integration requires a holistic approach involving strategic investment in infrastructure, continuous professional training, institutional commitment to innovation, and the establishment of comprehensive ethical and regulatory frameworks capable of balancing technological advancement with the preservation of core journalistic values.

3.4. Discussion: AI Integration in Developing Newsrooms—Between Technological Opportunities and Structural Constraints

The findings of this study demonstrate that the integration of Artificial Intelligence (AI) in Nigerian newspaper organizations represents a complex process characterized by significant opportunities for editorial enhancement alongside persistent institutional, technical, and ethical constraints. The first major finding revealed that AI technologies substantially improve editorial efficiency and accuracy through fact-checking, error reduction, content editing, and workflow automation. The second finding indicated that AI adoption remains selective and largely restricted to supportive editorial functions, while the third finding identified institutional, technical, and ethical barriers as major impediments to broader AI integration. Collectively, these findings suggest that AI diffusion within developing-country newsrooms remains a gradual and negotiated process rather than a rapid technological transformation. This observation supports Diffusion of Innovation (DOI) theory (Al-Zoubi & Ahmad, 2024; Rosli & Ahmad, 2024), which posits that the adoption of innovations depends largely on perceived relative advantage, compatibility, complexity, trialability, and observability.

The finding that AI significantly enhances editorial efficiency and accuracy reinforces existing scholarship on the transformative role of AI in journalism. Dovbysh (2020), in his seminal work Automating the News, argues that AI technologies improve newsroom performance through algorithmic assistance in fact-checking, verification, data processing, and content management. Similarly, Marconi (2020) observed that major international

news organizations such as Reuters, Associated Press, and The Washington Post have successfully deployed AI technologies to automate repetitive editorial tasks while improving productivity and accuracy. The present study confirms these observations within the context of developing-country newsrooms, where AI-assisted fact-checking recorded the highest perceived benefit among journalists. These findings further support Thäsler-Kordonouri & Barling (2025) argument that automated journalism should primarily be viewed as a complementary system that enhances journalistic performance rather than replacing human journalists. Therefore, the evidence suggests that AI integration in Nigerian newspapers follows an augmentation model in which machine intelligence supports human editorial judgment and professional expertise.

The study's finding that AI adoption remains selective and limited also aligns strongly with the theoretical assumptions of the Diffusion of Innovation framework. Lee (2024) argues that organizations adopt innovations incrementally when perceived complexity and uncertainty outweigh expected benefits. The extremely low adoption of real-time automated news generation identified in this study illustrates the cautious nature of AI diffusion within Nigerian newspaper organizations. Similar findings have been reported in other developing-country contexts. For example, Malik & Latif (2022), in his study of Pakistani journalists, found that AI adoption remained concentrated in fact-checking, data analysis, and newsroom support systems, while fully automated journalism practices were viewed with skepticism. Likewise, Jamil & Appiah-Adjei (2023), examining AI integration in Ugandan print journalism, concluded that AI adoption in African newsrooms remains experimental and largely confined to supportive editorial activities due to limited institutional readiness. The findings of the present study therefore contribute to the growing body of evidence suggesting that developing-country media organizations tend to adopt AI technologies incrementally and strategically rather than through radical technological disruption.

The selective adoption pattern observed in this study may further be explained by the concept of technological compatibility proposed within Rogers' diffusion framework. According to Gondal (2023), innovations are more readily adopted when they align with existing organizational values and professional practices. In the Nigerian newsroom context, AI applications such as Grammarly, ChatGPT, automated transcription tools, and fact-checking software are perceived as compatible with traditional journalistic routines because they improve efficiency without challenging editorial authority. Similar observations were made by Scacco & Muddiman (2020), who argued that contemporary news organizations increasingly deploy AI as a rationalization and support mechanism rather than as a replacement for editorial decision-making. Consequently, the findings suggest that Nigerian newspapers are currently pursuing a hybrid model of journalism in which human expertise and algorithmic assistance coexist to enhance newsroom performance while preserving professional autonomy and editorial accountability.

The third major finding concerning institutional, technical, and ethical barriers further confirms previous studies on AI adoption in journalism, particularly within developing countries. The findings revealed that inadequate funding, concerns regarding creativity, fears of job displacement, limited technical expertise, and ethical concerns constitute significant obstacles to AI integration. These findings correspond closely with the Technology-Organization-Environment (TOE) framework proposed by Nguyen et al. (2022), which emphasizes that technological adoption is influenced by organizational resources, technological capabilities, and environmental conditions. In the context of Nigerian journalism, inadequate financial investment and infrastructural deficits

substantially reduce organizational readiness for AI adoption. Similar findings were reported by Gbaden et al. (2024), who identified poor funding, insufficient digital infrastructure, and lack of professional expertise as the principal barriers to AI implementation in Nigerian journalism practice. Likewise, Sawada (2016) found that editors in Lagos newspapers expressed positive attitudes toward AI technologies but emphasized inadequate funding and infrastructural deficiencies as critical obstacles to their implementation.

The ethical concerns identified in this study also resonate with contemporary debates regarding AI governance and journalistic accountability. Interview respondents expressed concerns regarding misinformation, editorial integrity, objectivity, and professional redundancy, reflecting broader anxieties surrounding algorithmic journalism. Diakopoulos (2019) argues that AI-generated journalism introduces important ethical questions relating to transparency, accountability, bias, and editorial responsibility. Similarly, Celik (2022) warns that excessive reliance on AI systems may undermine journalistic objectivity and increase the risk of algorithmic misinformation. Santos-Gonçalves (2024) further contends that AI technologies reshape newsroom practices by introducing tensions between automation, efficiency, and editorial responsibility. The present findings support these concerns by demonstrating that journalists remain skeptical about fully delegating editorial authority to AI systems. Consequently, the findings reinforce the argument that ethical governance frameworks and human oversight mechanisms remain essential prerequisites for responsible AI integration in journalism.

The findings of this study support the central proposition of the Diffusion of Innovation theory that technological adoption within organizations is neither automatic nor linear but rather shaped by perceptions of usefulness, compatibility, complexity, and institutional readiness. Nigerian newspapers recognize the substantial benefits of AI technologies for improving editorial efficiency, accuracy, and productivity; however, organizational, technical, and ethical barriers continue to slow the pace of adoption. The findings therefore suggest that AI integration in developing-country newsrooms should be conceptualized not as a process of technological replacement but as a gradual transformation characterized by human-machine collaboration. Successful AI integration in journalism will consequently require strategic investment in infrastructure, continuous professional capacity development, organizational support, and comprehensive ethical governance frameworks capable of balancing technological innovation with the preservation of fundamental journalistic values.

Figure 1 Artificial Intelligence (AI) integration in Nigerian newsrooms

The conceptual framework presented in Figure 1 illustrates the complex and interconnected nature of Artificial Intelligence (AI) integration in Nigerian newsrooms within the context of developing media systems. Anchored by the Diffusion of Innovation (DOI) Theory, the framework demonstrates that the adoption of AI technologies is shaped by the interaction between opportunities and constraints experienced by newspaper organizations. On the one hand, AI integration contributes positively to editorial efficiency, improving fact-checking, content editing, workflow automation, and newsroom productivity. However, the adoption process remains selective and gradual, as news organizations primarily utilize AI for supportive rather than fully autonomous journalistic functions. Simultaneously, the diffusion of AI is constrained by significant institutional barriers, including inadequate funding, infrastructural limitations, and organizational resistance; technical barriers, such as limited AI expertise and insufficient professional training; and ethical concerns, including fears of misinformation, algorithmic bias, loss of editorial integrity, and job displacement. The interconnected relationships illustrated in the model suggest that AI integration in Nigerian newsrooms is not a linear technological process but rather a dynamic interaction between innovation opportunities, organizational readiness, and professional values, thereby supporting the central assumptions of Rogers' (2003) Diffusion of Innovation theory regarding the adoption of technological innovations in developing contexts.

4. Conclusion

The findings of this study demonstrate that Artificial Intelligence (AI) integration in Nigerian newspaper organizations presents significant opportunities for enhancing editorial performance while simultaneously exposing substantial implementation challenges. Quantitative findings revealed that AI-assisted fact-checking constituted the most significant benefit of AI adoption (Mean = 3.37), followed by reduction of human errors (Mean = 3.26), improved news production efficiency (Mean = 3.15), and enhanced editorial multitasking (Mean = 3.04). However, the findings also indicated that AI utilization remains largely limited to supportive editorial functions, with real-time automated news generation recording the lowest adoption score (Mean = 1.58). Furthermore, the study identified major barriers to AI integration, including concerns regarding reduced journalistic creativity (Mean = 3.05), inadequate funding and infrastructure (Mean = 3.04), fears of job displacement (Mean = 2.99), ethical concerns about misinformation and editorial integrity (Mean = 2.92), and insufficient technical expertise (Mean = 2.90). These findings suggest that AI technologies currently function primarily as augmentative tools designed to improve newsroom efficiency and editorial accuracy rather than replace human journalists.

The discussion of the findings further demonstrates that AI adoption in Nigerian newspapers follows the assumptions of Rogers' (2003) Diffusion of Innovation theory, whereby the diffusion of technological innovations depends on perceived advantages, compatibility with existing professional practices, and organizational readiness. The evidence indicates that Nigerian newsrooms are currently experiencing a transitional phase of technological transformation characterized by selective and cautious adoption of AI tools. While journalists acknowledge the significant benefits of AI for improving productivity, accuracy, and workflow automation, institutional limitations, infrastructural deficiencies, technical skill gaps, and ethical uncertainties continue to constrain broader

implementation. The study therefore concludes that successful AI integration in developing-country newsrooms requires a collaborative human-machine approach that preserves editorial judgment, professional ethics, and journalistic accountability while leveraging the efficiency gains offered by AI technologies.

Despite its contributions, this study has certain limitations. First, the study focused exclusively on three Nigerian newspaper organizations namely Leadership, Daily Trust, and Daily Sun thus limiting the generalizability of the findings across the broader African media landscape. Second, the study employed a cross-sectional research design, which may not adequately capture the evolving nature of AI adoption over time. Future research should therefore employ longitudinal and comparative approaches involving multiple media sectors, including broadcast, online, and digital-native news organizations across developing countries. Future studies should also investigate audience perceptions of AI-generated journalism, newsroom governance mechanisms, and the long-term implications of AI adoption for journalistic professionalism, media sustainability, and democratic communication systems in emerging digital societies.

Conflict of Interest

The authors declare no conflict of interests.

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