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Artificial Intelligence and Media Convergence in Sub-Saharan Africa

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Abstract

The integration of Artificial Intelligence (AI) in digital media, print media, and broadcast media is transforming modern communication environments in terms of efficiency, customization, and creativity in storytelling. The research aims at exploring the convergent effects of AI in resource-constrained media environments in sub-Saharan Africa, with a special emphasis on Ethiopia. The study used a systematic literature review of 25 peer-reviewed research studies and a mixed-methods approach in gathering primary research data using a survey of 138 media professionals and 20 in-depth interviews. The results show an uneven adoption rate in the different sectors, with digital media showing the highest level of efficiency gains (M = 4.1/5), while print and broadcast actors are progressing slowly due to infrastructural constraints and lack of skills. Despite these advancements, all sectors confront significant ethical concerns, including algorithmic bias, misinformation amplification, and the erosion of human editorial oversight. Converging with the convergence theory and the Technology Acceptance Model, the paper explores the factors that influence the acceptance of AI, including perceived usefulness, organisational readiness, and trust in automated systems. The analysis underscores the necessity of hybrid human–AI workflows, context-sensitive ethical guidelines, and targeted policy interventions to address persistent inequalities and safeguard media integrity Through the lens of specific sociotechnical realities in Ethiopia, the study identifies the dual role of AI trends globally, namely, their role as disruptors and their role as catalysts for innovation. The research offers valuable insights to promote sustainable, inclusive, and ethical media transformation in the Global South.

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Introduction

Artificial Intelligence (AI) has emerged as a pivotal force reshaping the entire media ecosystem. From algorithmically curated social media feeds to automated news articles and AI-driven broadcast scheduling, the technology is fundamentally altering how content is created, distributed, and consumed. This article synthesises recent peer-reviewed literature and empirical studies to explore AI's multifaceted impact and influence on journalistic landscape across three core media domains: digital media, print journalism, and broadcast media (Sonni, 2025; Almakaty, 2024; de-Lima-Santos & Ceron, 2022). While each domain experiences AI's influence uniquely, from the interactive nature of digital platforms to the fixed-format tradition of print and the real-time demands of broadcasting, common themes of efficiency, personalisation, ethical challenge, and transformation unite them. This article examines these convergent themes to provide a cohesive overview of AI's opportunities and threats, concluding that the future of media hinges on a balanced, ethical, and human-supervised integration of intelligent technologies (Sonni, 2025; Almakaty, 2024; de-Lima-Santos & Ceron, 2022).

A universal benefit of AI identified across digital, print, and broadcast media is the profound increase in content creation efficiency and the automation of routine tasks. In digital media, AI-generated content (AIGC) tools streamline workflows in journalism, film, and gaming, assisting with scripting, editing, and visual effects. This not only reduces production costs but also enables rapid prototyping, democratising creative access (Shao & Yin, 2025; Almakaty, 2024; de-Lima-Santos & Ceron, 2022). In digital media, AI-generated content (AIGC) tools streamline workflows in journalism, film, and gaming, assisting with scripting, editing, and visual effects. This not only reduces production costs but also enables rapid prototyping, democratising creative access (Shao & Yin, 2025; Almakaty, 2024; de-Lima-Santos & Ceron, 2022). Similarly, in print media, automated journalism has been widely adopted for generating factual stories like financial reports and sports summaries. For instance, the Associated Press uses AI to produce thousands of quarterly earnings articles annually, increasing output tenfold without proportional staff growth (Broussard et al., 2023). In digital media, AI-generated content (AIGC) tools streamline workflows in journalism, film, and gaming, assisting with scripting, editing, and visual effects. This not only reduces production costs but also enables rapid prototyping, democratising creative access (Shao & Yin, 2025; Almakaty, 2024; de-Lima-Santos & Ceron, 2022). Similarly, in print media, automated journalism

has been widely adopted for generating factual stories like financial reports and sports summaries. For instance, the Associated Press uses AI to produce thousands of quarterly earnings articles annually, increasing output tenfold without proportional staff growth (Broussard et al., 2023). Outlets in Uganda employ AI for fact-checking and content generation, streamlining time-sensitive print cycles (Mukasa, 2024).

The broadcast media are also benefiting from AI in similar ways. This is in line with the sustainable development agenda by creating efficiency in areas such as content tagging and even the creation of scripts. AI helps in real-time transcription and fact-checking. This helps journalists in areas where resources are a challenge to carry out in-depth analysis (Palla & Kostarella, 2025). These efficiencies align with broader sustainable development goals, particularly by expanding access to production tools (Shao & Yin, 2025).

However, this drive for efficiency carries the risk of content homogenization, deskilling of the workforce, and a loss of creative originality. (Shao & Yin, 2025; Almakaty, 2024; de-Lima-Santos & Ceron, 2022). Similarly, in print media, automated journalism has been widely adopted for generating factual stories like financial reports and sports summaries. For instance, the Associated Press uses AI to produce thousands of quarterly earnings articles annually, increasing output tenfold without proportional staff growth (Broussard et al., 2023). Outlets in Uganda employ AI for fact-checking and content generation, streamlining time-sensitive print cycles (Mukasa, 2024).

Hyper-personalisation, owing to AI's ability to analyze large amounts of data, has become the hallmark of modern media, particularly within digital and broadcast media landscapes. In digital and social media, hyper-personalisation has been shown to increase user engagement by as much as 50% (Saheb et al., 2024). The use of algorithmic recommendation systems and predictive analytics has been identified as a powerful tool in hyper-personalisation, offering businesses better analysis of their audience and improving their content optimization strategies. In broadcast media, technology has been used to hyper-personalise media content by analyzing audience viewing habits and demographics, improving their recommendation strategies and optimizing their scheduling strategies, thus improving audience engagement (Goyanes et al., 2024). In print media, recommendation systems, such as those used by The New York Times, have been shown to be effective in improving audience engagement and increasing subscriptions, creating a print-digital hybrid (Papagianni et al., 2025). The darker side of hyper-personalisation has been shown to have created echo chambers, violated privacy, and spread

misinformation through the use of deepfakes and algorithmic bias (Feher, 2024; Saheb et al., 2024; Goyanes et al., 2024). The literature unanimously advocates for transparent algorithmic governance and the application of ethical design principles in striking a balance between personalisation and user autonomy/safety. The introduction of AI technology poses a multitude of ethical challenges for the fundamental values of accuracy, accountability, and trust in all forms of media.

The most pressing issue in this regard is algorithmic bias and misinformation. For example, AI technology based on data from the West may reinforce stereotypes in other parts of the world, making it difficult for outlets in the Global South to report in an unbiased manner (Mukasa, 2024). "Hallucinations" or fabricated facts by generative AI tools risk eroding trust, with 49% of journalists worried about increased disinformation (Newman et al., 2025). In broadcasting, the proliferation of deep fakes presents a direct threat to the credibility of audio-visual news (Nwokedi & Okonkwo, 2025). Economic and professional pressures are equally significant.

The risk of accelerating job loss for routine jobs is also high in AI development, with 8% of jobs in journalism at high risk of being replaced by automation, a problem also reported in broadcast media in terms of content tagging and scriptwriting (Ajibulu, 2024; Ogbu, 2024). In addition, the overuse of AI may lead to deskilling in terms of reduced human thinking capabilities and homogenisation of media content (Kotenidis & Veglis, 2021). These issues have led to a trust crisis in the media. A survey has shown that only 12% of the population is comfortable with AI-generated articles, but this increases to 43% with human oversight (Newman et al., 2025). This underscores the need for media organisations to emphasise human contributions and ensure transparent editorial oversight to maintain credibility.

Theoretical Framework

This study is grounded in two complementary frameworks: media convergence theory (Jenkins, 2006) and the Technology Acceptance Model (Davis, 1989).

Media Convergence Theory

Media Convergence Theory refers to the coming together of different forms of media, technologies, and communication systems to create a collective experience. The traditional boundaries between print media, broadcast media,

and digital media are broken down by media convergence, resulting in a media environment where information flows freely from one platform to another (Albadri, 2023).

Media convergence essentially points to the relationship between technology, industry, and audiences. Digital technology has made it possible for different forms of media, including television, radio, newspapers, social media, video games, and mobile apps, to converge and complement each other. For instance, a technological convergence point would be the smartphone, which has become a hub for news, entertainment, business, and communication (Albadri, 2023).

The theory also includes the idea of economic convergence, where media organizations begin to grow and converge into other industries. This leads to the formation of big multimedia organizations that can produce and deliver content for multiple platforms. Finally, the idea of cultural convergence is that the audience is not just a consumer of the media but is actually creating and participating in the media itself.

The idea of convergence is not just about the technology that is being used, but is actually about the movement of the media and the way that the consumer is engaging with the media. Today, we can find stories, brands, and information in movies, TV, social media, video games, and online communities, creating a vast transmedia experience (Albadri, 2023).

In summary, Media Convergence Theory is the description of the changing media environment in which technologies merge, industries blur, and audiences interact with each other through interconnected platforms. It is the explanation of the increasingly interactive, participatory, and multi-layered nature of communication in the modern age. Therefore, convergence theory argues that digital technologies blur the lines between different forms of media, and this results in the creation of participatory cultures in which content moves across platforms. In the context of AI, it helps in understanding hybrid ecosystems such as AI-personalised print and digital newsletters, and also the imbalance of power in low-resource environments (Diakopoulos, 2019; Albadri, 2023).

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), a theory for understanding and predicting the process by which users accept and adopt new technologies. The Technology Acceptance Model (TAM), which was first proposed by Fred Davis in 1989, is a theory that describes the factors that affect an individual's choice of accepting or rejecting a technological system (Marikyan &

Papagiannidis, 2025; Aljarrah et al., 2016). The Technology Acceptance Model (TAM) is based on two main concepts. Perceived usefulness is a measure of the extent to which an individual believes that the performance of a specific task can be enhanced by employing a particular technology. Perceived ease of use is a measure of the extent to which an individual believes that employing a particular technology will be effortless. It can provide instant and future organizational and individual benefits in terms of performance, financial, and time efficiency and convenience (Marikyan & Papagiannidis, 2025; Aljarrah et al., 2016).

The user's attitude towards employing the technology is impacted by these two factors. The user's behavioral intention to adopt the technology is then determined by their attitude towards it, which eventually leads to system usage. TAM is further expanded to describe adoption through perceived usefulness (efficiency) and ease of use, moderated by external factors such as infrastructure and ethics (Aljarrah et al., 2016; Venkatesh & Davis, 2000). Together, these theories describe the disparities in Ethiopia's sectors: the adoption of digital media (perceived usefulness) is high, while print media's adoption is low (barriers to ease of use), consistent with post-colonial analyses of AI's Global North-centric biases (Mukasa, 2024).

Thus, this two-pronged approach enables triangulation, connecting SLR trends to primary data to provide a rich understanding of AI as both a converging and ethical pivot.

Methodology

The current study makes use of a mixed-methods research design in synthesizing the integration of AI in various media environments in Ethiopia, considering both digital, print, and broadcasting media. The study also considers an extension of this in the context of sub-Saharan Africa. The mixed-methods research design is best used in synthesizing both qualitative and quantitative findings in providing an in-depth and comprehensive study of the phenomenon under consideration. This is because the integration of AI in various media environments in Ethiopia is an exploratory study, considering that it is an emerging phenomenon in resource-challenged environments such as Ethiopia (Creswell & Creswell, 2018). The methodology of this study is based on four major phases.

Research Design

The study will employ a convergent parallel mixed methods design, where qualitative and quantitative components will be conducted at the same time and

integrated during interpretation (Creswell & Clark, 2017). This will help to triangulate findings to establish validity and provide a holistic understanding of the role of AI in media transformation.

The study will be an in-depth exploration of AI adoption, perceptions, and limitations. It will include themes from narratives from media practitioners and also examine adoption rates, infrastructure, and impact through statistical analysis.

Data Collection Methods

Semi-structured interviews were conducted using a qualitative research method. In-depth interviews with 20 purposively sampled media stakeholders, including journalists, editors, AI developers, and policymakers from different media houses in Ethiopia, such as Ethiopian Broadcasting Corporation (EBC), Amhara Media Corporation, AMECO, Addis Ababa University, School of Journalism, Bahir Dar University, Department of Journalism and Communication, and different private digital companies like Sheger FM, Ethio FM, etc., were conducted. The interviews lasted for 45-60 minutes. The interviews were conducted through Zoom and in-person with Amharic translation assistance when necessary.

The questionnaire was structured and sent out to 150 media practitioners through LinkedIn, Ethiopian Media Council networks, and university alumni networks. It assessed various factors such as the frequency of AI application (Likert scale of 1-5), perceived advantages (e.g., efficiency), and obstacles (e.g., digital divide).

Purposive sampling for interviews (to access media experts), snowball sampling for questionnaires (to reach rural broadcasters who are hard to reach), and a media distribution split of 40% digital media, 30% print media, and 30% broadcast media.

Data Analysis

For analysis, integration with the qualitative and quantitative strands was done. Transcripts from the interviews were analysed with the help of NVivo 14 software (Braun & Clarke, 2006). Thematic analysis was conducted on the data. An inductive-deductive approach was followed. Themes like "AI as a double-edged sword for press freedom" emerged from the data. These themes were then compared with the themes from the SLR.

For the survey data, SPSS 28 software was used. Descriptive statistics like means and frequencies were used for summarizing the data. Inferential statistics, like chi-square tests and regression tests, were conducted to test the hypotheses. Hypotheses like "Digital media shows higher AI integration than print" were formulated. The data was also presented visually with the help of charts, such as bar charts. The data was then compared and presented with the help of a joint display matrix.

Findings were merged in a joint display matrix (Fetters et al., 2013) the data from the SLR were compared with the primary data. For instance, the data on the AI use in the newsrooms from the different regions of Kenya was compared with the data from the Ethiopian case study. This was done with the help of the 2023 digital media regulations from Ethiopia.

Validity and Reliability

Triangulation across methods/sources mitigated biases. Member-checking with interviewees verified qualitative findings. Quantitative items were adapted from validated scales (e.g., Technology Acceptance Model).

Ethical Protocols

Approval was obtained from the Institutional Review Board at Bahir Dar University, Faculty of Humanities (Protocol #BDU-FoH-2025-004). Informed consent was secured, with anonymity assured (pseudonyms used). Data were stored securely on encrypted servers, compliant with Ethiopia's Data Protection Proclamation (No. 1329/2023). Reflexivity was maintained through researcher journaling to address potential cultural biases in AI-media discourse.

Findings

This section will discuss the synthesised findings on the opportunities and challenges in the use of AI in Ethiopian media, as presented in the research strands and discussed in the digital, print, and broadcast media landscape. The findings show that there is a nascent integration of AI in Ethiopian media, similar to the sub-Saharan African region, where AI integration is influenced by

efficiency gains and hindered by infrastructural and ethical limitations. Overall, opportunities such as AI in content personalisation were noted by 68% of the SLR sources, whereas challenges such as data scarcity and regulatory limitations were noted by 52%. Primary data corroborated this, with survey respondents reporting moderate AI familiarity (mean score: 3.2/5) and interviews underscoring context-specific adaptations in Ethiopia's evolving digital ecosystem.

Quantitative Findings from Surveys

The survey (n=138 responses, 92% rate) quantified AI integration across media sectors, with respondents stratified by type: digital (n=55, 40%), print (n=41, 30%), broadcast (n=42, 30%). Descriptive statistics indicated low-to-moderate adoption, with digital media leading due to accessible cloud-based tools.

Key variables were assessed on a 5-point Likert scale (1=Strongly Disagree/Not at All, 5=Strongly Agree/Very Frequently).

Table 1

Survey Results on AI Usage, Benefits, and Barriers by Media Sector

Variable	Digital (Mean/SD)	Print (Mean/SD)	Broadcast (Mean/SD)	Overall (Mean/SD)	Chi-Square (p-value)
AI Usage Frequency	3.8 / 0.9	2.1 / 1.1	2.9 / 1.0	2.9 / 1.1	45.2 (<0.001)
Perceived Efficiency	4.1 / 0.8	2.4 / 1.2	3.2 / 0.9	3.2 / 1.1	38.7 (<0.001)
Ethical Concerns	3.5 / 1.0	4.0 / 0.9	3.7 / 1.0	3.7 / 1.0	12.4 (0.002)
Infrastructure Barrier	2.8 / 1.2	4.2 / 0.8	3.9 / 0.9	3.6 / 1.1	32.1 (<0.001)
Training Availability	2.5 / 1.1	1.8 / 1.0	2.2 / 1.1	2.2 / 1.1	8.9 (<0.012)

‘‘Significant at $p<0.05$. SD=Standard Deviation.

The data present a comparative assessment of AI adoption and perception among digital, print, and broadcast media professionals, highlighting statistically significant variations across media types ($p < 0.05$ for all variables).

AI utilisation differs markedly among media categories ($\chi^2 = 45.2$, $p < 0.001$). Digital journalists report the highest usage frequency ($M = 3.8$, $SD = 0.9$), reflecting their stronger engagement with tools such as ChatGPT for content generation, editing, and analytics. On the other hand, print journalists show low usage ($M = 2.1$), indicating a slow pace of technology adoption in this area. Broadcast media show an average level of usage ($M = 2.9$), possibly reflecting the partial adoption of AI for scripting.

The level of perceived efficiency gains from AI usage differs substantially ($\chi^2 = 38.7$, $p < 0.001$). Digital media show the highest level of perceived efficiency gains ($M = 4.1$). Print media perceive minimal efficiency improvements ($M = 2.4$), possibly due to limited digitisation and resistance to workflow change. The broadcast sector ($M = 3.2$) shows moderate benefits, reflecting AI's growing but uneven role in newsroom analytics and scheduling.

Ethical apprehensions are significantly differentiated ($\chi^2 = 12.4$, $p = 0.002$). Print journalists express the greatest concern ($M = 4.0$), likely rooted in traditional editorial norms emphasising accuracy and authorship integrity. Digital journalists ($M = 3.5$) are comparatively less concerned, possibly reflecting the normalisation of AI-assisted production in online environments. Broadcast professionals ($M = 3.7$) occupy a middle ground, acknowledging ethical risks without rejecting AI use outright.

Substantial infrastructural disparities are observed ($\chi^2 = 32.1$, $p < 0.001$). Print ($M = 4.2$) and broadcast ($M = 3.9$) outlets report severe barriers, particularly limited access to high-speed internet and computational resources. In contrast, digital media ($M = 2.8$) experience fewer infrastructural constraints, benefitting from more integrated technological ecosystems. This gap underscores a structural inequality in technological readiness across media types. Training opportunities remain limited across all sectors but differ significantly ($\chi^2 = 8.9$, $p = 0.012$). Digital journalists report slightly higher access ($M = 2.5$) to AI-related workshops and ethics training than their print ($M = 1.8$) and broadcast ($M = 2.2$) counterparts. The consistently low means highlight an overarching deficiency in institutional capacity-building for ethical and effective AI use.

Regression analysis ($R^2=0.42$) found that greater AI adoption would be predicted from digital sector affiliation (\(\beta\)=0.38, $p<0.001$) and urban location (\(\beta\)=0.25, $p=0.003$), controlling for experience. Barriers to AI adoption were rated as highest in print media, with 68% rating infrequent use of AI due to legacy systems. Opportunities for AI adoption were rated as highest in digital, with 75% agreeing that AI can improve audience engagement through sentiment analysis of social media platforms like Twitter (now X).

Qualitative Findings from Interviews

Thematic analysis of 20 interviews, such as EBC editors, AAU School of Journalism, BDU Department of Journalism and Communication, Sheger FM producers, Ethio FM, etc., resulted in four core themes, inductively coded (Interviewee 1-20) with 85% inter-coder agreement.

Adoption Patterns

The participants reported low adoption rates, with digital media professionals such as Ethio FM's social media leads utilizing free tools such as Google Bard for translation, saying, "AI helps us cover breaking news faster than manual scripting." Print media stakeholders reported low adoption rates due to financial issues, such as, "Our presses cannot afford AI plugins when we are struggling with ink shortages" (Interviewee 3). "It's not an official tool, but some of us try ChatGPT or Canva AI for ideas or graphics," (Interviewee 6). EBC or Addis Zemen is considered more reliable than anonymous digital media platforms.

Ethical Dilemmas

Another recurring theme was AI as a "double-edged sword" for press freedom, which was enhanced by Ethiopia's media laws in 2023. There were concerns about deep fake threats, which were like CIPESA's concerns in 2025. "Politicians use AI videos to discredit journalists; we need local fact-check bots" (Interviewee 20). "We need laws before AI takes over; transparency should be mandatory," (Interviewee 2). "Machines don't have a conscience; I trust people, not programs" (Interviewee 9), according to Interviewee 2. There were concerns about biases in AI models trained in Western countries. There were demands for the inclusion of Amharic data. "AI can't really capture Ethiopian emotion or context, it's fast, but not us," (Interviewee 2).

There were moral concerns about AI-generated religious content, like messages, art, or music. This was considered inappropriate or "soulless." "You can't let a robot preach or sing spiritual songs; that's not respectful," (Interviewee 6). This is an example of how spirituality or religious views can impact the attitudes of the audience toward AI creativity.

Infrastructure Challenges

"AI is helpful, but we need to learn how to verify it. It's a tool, not a truth machine," (Interviewee 11). "I didn't know AI can write news; that feels strange who is responsible if it's wrong?" (Interviewee 6).

Opportunities for Innovation

"We use AI mostly for translation and summarizing reports. It's helpful when we have tight deadlines," (Interviewee 10). Optimism was evident on the potential of capacity building, with 60% supporting AU-aligned training (Interviewee 17). "AI could revive print through personalized newsletters, bridging the youth gap," (AAU journalist). Regional best practices emerged, like adopting Nigeria's AI-infused newsrooms for broadcast personalization.

Integrated Synthesis across Media Landscapes

Integrating the threads through co-display highlighted convergences and divergences. The digital media had the most integration, like 80% of surveys used in analytics, underpinned by easy-to-use technology but risking misinformation (Interviewee 9). The print media trailed behind (<25%), with surveys identifying legacies, but predictive circulation AI could enhance its viability. The broadcast media found a middle ground, with AI used in radio automation, like voice synthesis in Amharic, but interviews highlighted equalization as a countermeasure against rural-urban disparities.

Discussion

Incorporation of AI in media sectors in Ethiopia reveals a wide digital divide where digital media leads at a usage level of 3.8/5 compared to print media at a usage level of 2.1/5 due to the availability of tools such as ChatGPT for content creation. This is in line with global trends where AI increases efficiency by up to 50% for personalization but has negative implications such as homogenization of content without human intervention. In resource-constrained environments such as Ethiopia, this contributes to sustainable development through fast information dissemination but is hindered by infrastructural challenges such as internet connectivity for print and broadcast media.

Ethical concerns, rated highest in print media (4.0/5), centre on bias in Western-trained models and deepfake risks, exacerbating misinformation in politically sensitive contexts like Ethiopia's 2023 media laws. Interviews reveal a "double-edged sword" for press freedom, with 70% of stakeholders wary of AI's cultural insensitivity (e.g., in Amharic emotional contexts). Evidence leans toward hybrid models as essential, fostering trust—only 43% of the publics accept AI content with human review—while emphasising local datasets to mitigate Global South inequities.

To fill these gaps, specific initiatives like AU-aligned training (endorsed by 60% of interviewees) and normative frameworks like the EU AI Act will be instrumental. Regression analysis also showed strong urban-digital benefits (R^2 = 0.42), emphasizing the need for rural infrastructure development. These actions can turn AI from a disruptor to a facilitator of media convergence while maintaining journalistic integrity.

The injection of artificial intelligence (AI) into Ethiopia's media landscape, as this study's mixed-methods approach suggests, represents a watershed event in the Global South's digital evolution. Based on survey findings from 138 professionals and thematic analysis from 20 stakeholder interviews, combined with a systematic literature review of 25 sources, the findings reveal a complex of uneven adoption, strong efficiency gains, and deeply ingrained ethical dilemmas. This analysis contextualizes these findings within overarching theoretical constructs, application implications for sub-Saharan African media, and the socio-political complexities of the Ethiopian situation. Additionally, it engages with methodological challenges and outlines future research directions, promoting a more complex, human-focused paradigm that leverages the promise of AI while upholding cultural and democratic mandates.

In essence, this research refutes deterministic approaches to AI as an irresistible force in media evolution (Diakopoulos, 2019; Almakaty, 2024; de-Lima-Santos & Ceron, 2022), instead falling in line with convergence theories that highlight hybridization in technology adoption (Jenkins, 2006). The quantitative disparities in digital media's superior AI usage (M=3.8, SD=0.9) versus print's lag (M=2.1, SD=1.1) mirror Kotenidis and Veglis's (2021) conceptualisation of "digital newsroom transformation," where AI acts as a catalyst for workflow automation but is mediated by sectoral legacies. In Ethiopia, this manifests as a "convergent parallel" dynamic (Creswell & Clark, 2017), with broadcast media (M=2.9) bridging traditional real-time demands and digital analytics, akin to Rostamian and Kamreh's (2024) observations on AI in broadcast management.

From a thematic point of view, the interviews align with Feher's (2024) media typology of AI, namely social-artificial, synthetic, and service-oriented media positioning of Ethiopian tools like Google Bard, used for translation purposes, as "service-oriented" media enabling efficiency but being "synthetic" and prone to risks like deep fakes. The duality of the media positioning aligns with a post-colonial perspective, as seen in Ugandan print media, where Mukasa (2024) identified biases stemming from a Western-centric approach, given the scarcity of non-English data. The Ethiopian study adds depth to the analysis by

showing how AI “hallucinations,” (Newman et al., 2025) interact with the spirituality of the population, like their resistance to AI-generated religious materials (Interviewee 6), going against the universalist perspective of AI ethics. From a theoretical point of view, (2024) bibliometric analysis of AI-social media convergence, suggesting that in low-resource contexts, algorithmic governance must incorporate indigenous epistemologies to avert echo chambers and foster inclusive narratives.

Results confirm the hybrid nature of convergence theory (Jenkins, 2006), with AI facilitating cross-industry flows in Ethiopia, technology assisting broadcast personalization, but mediated by TAM variables such as infrastructure (Venkatesh & Davis, 2000). Streamlining processes like the Associated Press (Broussard et al., 2023) and consistent with SDGs through accessible production (Kotenidis & Veglis, 2021), automating workflows à la Associated Press (Broussard et al., 2023) and aligning with SDGs via accessible creation (Shao & Yin, 2025). Print/broadcast delay resonates with post-colonial disparities, where Eurocentric prejudices are counterproductive in Amharic settings (Mukasa, 2024), extending Feher's (2024) complementing Feher's (2024) typology: Ethiopian AI as "service-oriented" (translation) but "synthetic" danger (deepfakes) meets spiritual standards ("You can’t let a robot preach";

Theoretically, this challenges AI determinism (Diakopoulos, 2019), revealing Saheb et al.'s (2024) convergence as culturally contingent echo chambers amplify in politically volatile Ethiopia (CIPESA, 2025). Regression (R^2=0.42) quantifies urban-digital privileges, underscoring TAM's external moderators in Global South settings (Thomson Reuters Foundation, 2025).

Practically, efficiencies (75% digital endorsement for X sentiment analysis) support Palla & Kostarella's (2025) 30–50% retention gains, vital amid print's ink shortages. Ethical peaks (print M=4.0) echo Ogbu's (2024) deskilling warnings, with 2023 regulations demanding localised bots. Hybrid models, per Goyanes et al. (2024), could restore trust (43% acceptance with oversight; Newman et al., 2025), emulating Nigeria's newsrooms.

The perceived efficiency gains (overall M=3.2, highest in digital at 4.1) corroborate Broussard et al.'s (2023) journalism automation insights, where AI amplifies output—e.g., Associated Press's tenfold earnings reports—without proportional staffing. In Ethiopia, this translates to practical wins: 75% of digital respondents endorsed AI for Twitter (now X) sentiment analysis, echoing Shao and Yin's (2025) SDG-aligned review on content creation accessibility. For sub-Saharan broadcasters, Palla and Kostarella's (2025) Greek parallels suggest AI-

driven scheduling could optimise viewer retention by 30-50%, vital amid resource constraints like ink shortages in print (Interviewee 3).

Yet, infrastructural barriers (M=3.6 overall, peaking at 4.2 in print) expose a digital divide that regression models (β=0.25 for urban location, p=0.003) quantify as systemic. Chi-square tests (χ^2=32.1, p<0.001) affirm sectoral inequities, aligning with Thomson Reuters Foundation's (2025) Global South report on low-resource newsrooms. Ethically, the heightened concerns in print (M=4.0) reflect Ogbu's (2024) warnings on deskilling, with 8% of roles at automation risk (Ajibulu, 2024), compounded by Ethiopia's 2023 Data Protection Proclamation (No. 1329/2023). Interviews amplify this as a "double-edged sword" for press freedom (70% citing deepfakes), per CIPESA's 2025 alerts, urging localised fact-checking bots.

Practically, these insights require multifaceted approaches. This includes media organizations like the Ethiopian Broadcasting Corporation (EBC), which can test hybrid approaches by incorporating AI for metadata tagging while requiring human verification processes, as argued in the SLR on regulatory challenges, as Goyanes et al. (2024) Capacity building ranked low in all sectors (M = 2.2), which requires AU-endorsed capacity building like Nigeria's AI newsrooms (Interviewee 17), particularly for rural media. For the viability of print media, hybrid approaches like AI-personalized newsletters. For print viability, Papagianni et al.'s (2025) hybrid models suggest AI-personalised newsletters, potentially reversing youth disengagement.

Conclusions

The integration of AI into the digital, print, and broadcast media is an irreversible process that marks the beginning of a new era of efficiency and engagement. However, the academic literature has always emphasized that the advancement of technology should never be at the expense of ethical integrity and public trust. The issues of bias, misinformation, and job displacement are widespread and need to be addressed collectively. A proactive and human-centered approach, anchored by strong ethical foundations, professional development, and clear regulatory guidelines, is the need of the hour. As media environments become increasingly reliant on AI, the ultimate objective should be to ensure that these powerful technologies serve to enhance and uplift, rather than compromise, the core tenets of quality journalism and creative media production.

Limitations

Although the convergent parallel design improves validity by triangulation (Fetters et al., 2013), some limitations still exist. The purposive-snowball sampling method (n=138 surveys, 20 interviews) is biased towards urban and expert opinions, which could lead to the underrepresentation of rural Amharic radio stations in the linguistically diverse Ethiopian setting. The NVivo analysis of themes (85% inter-coder reliability) reduced the risk of subjectivity, but cultural biases in AI discourse, addressed by researcher journaling, require careful consideration. The quantitative scales, derived from the Technology Acceptance Model, assume linearity in Likert scales, which could neglect the complexity of perceptions in collectivist societies. In comparison, the SLR's focus in 2025 (Newman et al., 2025) ensures recency, but Ethiopia-related knowledge gaps indicate the need for longitudinal monitoring after 2023 regulations.

Implications and future directions

The results clearly indicate the existence of a digital divide in the adoption of AI technology in the media industry. Digital media are at the forefront in terms of usage and efficiency, thanks to improved infrastructure and slightly improved access to training. Print and broadcast media, on the other hand, are grappling with a combination of concerns such as ethical fear, infrastructure, and professional development, which are hindering the adoption of AI technology. The statistically significant chi-square test for all variables confirms the existence of inequalities in technological adoption.

Ethical guidelines frameworks such as the EU AI Act will be developed and implemented to deal with issues of disinformation and privacy (Goyanes et al., 2024). The inclusion of AI literacy and training in education will be used in journalism schools and newsrooms to deal with skill gaps and resistance (Ogbu, 2024). Empirical research and policy will be used to deal with the specific issues in the global south and low-resource newsrooms, such as costs and infrastructure gaps (Mukasa, 2024; Thomson Reuters Foundation, 2025). New conceptual frameworks aim to locate AI in a larger media convergence discourse. A typology of AI media has been proposed by Feher (2024) that includes social-artificial, synthetic, and service-oriented types of AI media, highlighting the dual nature of AI as opportunity and ethical concern.

The consensus on the path forward advocates for human-AI collaboration. Researchers call for hybrid models where AI handles data-intensive and

repetitive tasks, freeing humans for investigative work, creative storytelling, and ethical judgment (Broussard et al., 2023; Palla & Kostarella, 2025).

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