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Assessing the Adoption Rate of AI in Television Content Production. A Case Study of Zambia National Broadcasting Corporation (ZNBC) in Lusaka

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ABSTRACT

This study assessed the adoption rate of artificial intelligence (Ai) in television content production at the Zambia National Broadcasting Corporation (ZNBC). The research aimed to examine the extent to which Ai tools are being used, explore their effectiveness in improving content production, and identify the challenges hindering wider adoption. A mixed-methods approach was employed, utilizing questionnaires administered to 40 respondents across different departments of ZNBC and interviews with selected staff to gain in-depth perspectives. The findings revealed that AI tools are currently being used in selected areas such as video editing, transcription, and graphics, with notable effects on speed, efficiency, and accuracy. However, their use in more advanced functions such as content personalization and audience engagement remains limited. The study also found that lack of training, poor infrastructure, high barriers to AI adoption. While staff acknowledged improvements in efficiency, they emphasized the need for stronger management commitment, better policies, and adequate investment in infrastructure and training. The study concludes that AI adoption at ZNBC is still at a formative stage, delivering benefits in operational efficiency but not yet fully integrated into the organizations broader broadcasting strategy. It recommends comprehensive training infrastructure upgrades, clear AI policies, and participatory approaches to strengthen adoption. The research further suggests that future studies focus on comparative analysis with other media houses in Zambia and Sub-Saharan Africa to provide broader insights into AI adoption trends in broadcasting.

1. Introduction

Artificial Intelligence (AI) is rapidly transforming, global media, with major broadcasters like BBC and CNN using it for automation, content personalization, and improved audience engagement. Experts warn that media institutions that fail to adopt AI risk losing competitiveness. In Africa, AI adoption is slower but gradually increasing, with examples from South Africa and Kenya showing growing interest in newsroom automation and audience analytics. However, progress is limited by weak infrastructure, lack of skills, and financial challenges. Across the region, many media houses still rely on traditional, manual production methods, and limited awareness of AI tools slows down adoption. Nonetheless, African governments are pushing for digital transformation, creating opportunities for broadcasters to modernize. In our country, AI use in media remains minimal, especially within the Zambia National Broadcasting Corporation (ZNBC). As the main public broadcaster, ZNBC plays an important national role, yet there is little documented evidence of AI use in its production processes. Most operations including scripting, editing, and scheduling remain manual, which poses challenges in a competitive media environment. Understanding ZNBC's level of AI adoption and the challenges it faces is therefore essential. Although national initiatives like Smart Zambia promote digital transformation, practical AI integration in public broadcasting remains limited. This gap between policy and implementation requires investigation, especially since AI could enhance ZNBC's ability to produce timely, accurate content and improve news verification and editorial decision-making. A lack of awareness among media workers, fear of job losses, and limited training further hinder AI adoption. Financial constraints and the absence of a clear AI policy for the media sector also create barriers. This study therefore aims to examine ZNBC's current AI practices, identify challenges, and provide insights that can guide institutional and policy decisions. In conclusion, while global media rapidly advances with AI, the local industry is still at an early stage. ZNBC has an opportunity to lead national AI adoption in broadcasting, and this study seeks to support that process by highlighting gaps and proposing ways to modernize media production.

1.1 Statement of the Problem

The adoption of Artificial Intelligence (AI) in television content production has the potential to transform broadcasting by improving efficiency, enhancing content quality, and enabling greater audience engagement. Despite these global and regional

advancements, the integration of AI within media institutions in Zambia, particularly at the Zambia National Broadcasting Corporation (ZNBC), had remained limited and underexplored. While other countries and African broadcasters had begun incorporating AI into their production processes (Mokoena, 2021), ZNBC continued to rely heavily on traditional, manual methods that were time- consuming and less efficient. At the time the research was conducted, there was a noticeable gap in understanding how AI could be applied to improve ZNBC's television content production. The institution faced multiple challenges, including financial constraints, lack of technical expertise, and resistance to change among staff, all of which hindered the adoption of innovative technologies like AI (Mwansa, 2023). This challenge was further compounded by the absence of comprehensive studies or reports on AI adoption within ZNBC, limiting the organization's ability to make informed decisions regarding technological advancement. Without a clear understanding of the current adoption rate, the types of AI technologies in use, and the barriers to implementation, ZNBC risked falling behind in the competitive media landscape. This research, titled "Assessing the Effectiveness of Artificial Intelligence (AI) in Television Content Production: A Case Study of Zambia National Broadcasting Corporation (ZNBC)," was conducted to fill this knowledge gap by evaluating the effectiveness, challenges, and opportunities associated with AI adoption at ZNBC, providing insights to enhance television content production.

2. Literature Review

A. To identify the types of AI technologies being

The literature shows that globally, AI has transformed television production through automated editing, transcription, subtit ling, data analytics, and content personalization. Countries such as the United States, the United Kingdom, Japan, South Korea, and China have advanced AI integration supported by strong infrastructures, innovation policies, and investment. These technologies have improved production speed, content quality, newsroom efficiency, and audience engagement. Across Africa, adoption is growing but remains uneven. South Africa leads with AI-driven analytics and scheduling systems. Nigeria, Kenya, Ghana, Egypt, Rwanda, Uganda, and Morocco are adopting AI tools for transcription, subtitling, archiving, misinformation detection, and audience analysis. However, financial limitations, skill gaps, and infrastructure weaknesses slow progress in most countries. In Zambia, the review found that AI use in television is still at an early stage. ZNBC and a few private stations like Diamond TV and Prime TV have experimented with basic AI tools, particularly automated transcription, social media analytics, and subtitling. However, high costs, inadequate training, and lack of local AI development, weak digital infrastructure, and low policy suppo rt limit adoption. Concerns about job displacement and cultural mismatch also contribute to resistance among media personnel. Additionally, limited local research and absence of AI-specific policies further constrain progress. Overall, the literature indicates that while AI holds great potential to improve efficiency, creativity, and audience engagement in Zambia is broadcasting sector, substantial gaps in skills, investment, infrastructure, and policy need to be addressed. These gaps justify the study's focus on understanding ZNBC's readiness, current usage, and challenges in adopting AI tools for television content production.

B. To what extent has the adoption of AI technologies improved the efficiency and quality of television content production at ZNBC.

The adoption of Artificial Intelligence (AI) in Zambian media, particularly at Zambia National Broadcasting Corporation (ZNBC), is gradually increasing, focusing on areas like content scheduling, archive management, transcription, and subtitling. AI too ls help reduce repetitive tasks, improve workflow efficiency, and enable journalists to focus more on storytelling. Privately owned stations such as Diamond TV also use AI to track audience engagement and tailor content to viewer preferences. Challenges to adoption include limited technical knowledge among media professionals, high costs of AI systems, and low access to infrastructure, especially in rural-based stations. Imported AI tools in editing software like Adobe Premiere Pro and DaVinci Resolve are being used to enhance production speed and quality. Language translation tools are helping ZNBC improve inclusivity, while academic institutions like Evelyn Hone College and UNZA are introducing AI education to prepare future media professionals. Experts suggest AI can support creativity in scriptwriting, graphics generation, and audience behavior analysis. Applications extend to sports broadcasting, digital platforms, and live production, enhancing speed, accuracy, and viewer experience. Government policies, such as the 2023 Digital Transformation Strategy, are promoting AI adoption through innovation hubs, while collaboration with local tech startups aims to develop affordable AI solutions. Across Africa, countries including South Africa, Kenya, Nigeria, Ethiopia, Ghana, Tunisia, Uganda, Morocco, Algeria, Rwanda, Côte d'Ivoire, Tanzania, Malawi, Namibia, and Senegal are increasingly using AI to improve efficiency, content quality, multilingual accessibility, audience engagement, and overall broadcasting professionalism. Globally, AI adoption in television is widespread. In the United States, UK, Canada, South Korea, Japan, Germany, Australia, Spain, the Netherlands, France, China, Italy, and New Zealand, AI tools support video editing, transcription, translation, audience analysis, personalization, content recommendation, creative enhancement, live broadcasting, sustainability, and cloud-based collaboration. Studies show AI reduces production time, minimizes errors, enhances storytelling, improves quality, and promotes inclusivity, demonstrating its effectiveness in modern television content production both locally and internationally.

C. What challenges does ZNBC face in adopting and implementing AI technologies in its Television content production processe

The adoption of Artificial Intelligence (AI) in television content production at ZNBC faces multiple challenges. Key barriers include insufficient technical infrastructure, high costs of AI tools, and lack of trained personnel, which limit the effective use of AI for tasks like automated editing, captioning, and data analytics Banda, (2022).

Unstable electricity, poor internet connectivity, resistance to change among media professionals, and the lack of AI tools tailored to local languages further hinder adoption ZICTA, (2021). Additionally, limited government policies, slow innovation, minimal collaboration with tech innovators, unclear legal and ethical guidelines, and low public awareness constrain the integration of AI into Zambian media (Ministry of Technology and Science, 2022; Mwila, 2022; Tembo, 2022). Despite these challenges, AI adoption in African television is growing. South Africa, Nigeria, Kenya, Egypt, Ghana, Ethiopia, and other countries are using AI for editing, news verification, audience analytics, multilingual programming, and live sports broadcasting, demonstrating its potential to improve efficiency, content quality, and audience engagement (Mtimkulu, 2023; Eze, 2022; Ochieng, 2023). Globally, broadcasters in the US, Europe, Asia, and Australia are implementing AI for video editing, script generation, audience personalization, visual effects, and production optimization (Chan Olmsted, 2019; Financial Times, 2025; Multimedia Systems, 2024).

3. Methodology

The target population included ZNBC employees directly involved in content production, such as producers, editors, directors, IT staff, and senior management responsible for technology adoption. This ensured that data reflected firsthand experiences and decisions regarding AI use (Orodho, 2009). A purposive sampling design was applied to deliberately select participants with direct knowledge and experience in using AI tools, ensuring the relevance and richness of collected data (Kothari, 2004).

The sample size consisted of 40 respondents, representing a manageable yet diverse cross-section of staff. This size allowed for detailed qualitative insights while ensuring reliable quantitative analysis (Mugenda & Mugenda, 2003).

Data collection methods included questionnaires and interviews. Questionnaires were used to gather broad quantitative information on AI usage trends, attitudes, and experiences, while interviews provided qualitative insights into staff perceptions, challenges, and effectiveness of AI implementation.

The combination allowed a holistic understanding of AI adoption. Triangulation was applied by cross-verifying data from both questionnaires and interviews to ensure accuracy, reduce bias, and increase credibility (Denzin, 1978). For instance, questionnaire responses on AI tool usage were compared with interview feedback from technical staff to confirm patterns and identify inconsistencies. In practice, the methods were implemented by first distributing questionnaires to all sampled staff, followed by scheduled interviews with key personnel to explore deeper insights. Data were analyzed using SPSS, Stata, and Excel, with qualitative responses coded for recurring themes. This methodology ensured that findings were reliable, valid, and reflective of the real situation regarding AI adoption at ZNBC.

4. Findings

Background characteristics of respondents

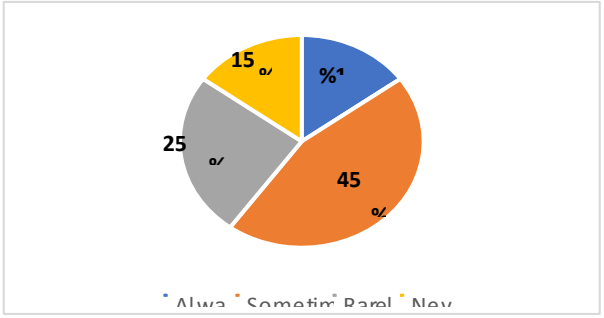
Table 1: Distribution of respondents by age group

Age group	Number	Percentage (%)
Below 25	6	15%
25-34	12	30%
35-44	10	25%
45 and Above	12	30%

Source: Research Data, 2026

The findings reveal the age distribution of respondents. It indicates that 15% of the respondents are below 25 years. Those aged 25–34 years constitute 30%, while respondents in the 35–44 age group account for 25%. The remaining respondents, aged 45 and above, also make up 30% of the total sample.

Presentation of results based on thematic area developed from types of AI technologies used in television content production

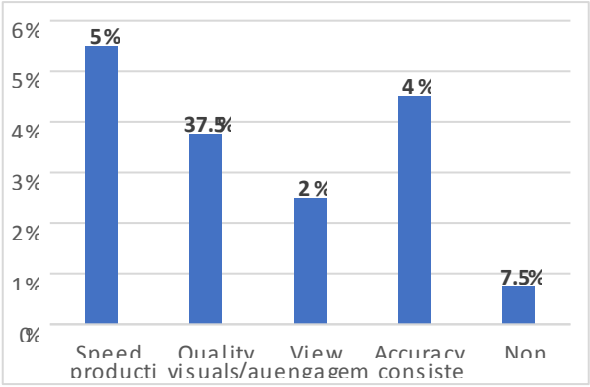


Frequency of AI use in daily work

Source: Research Data, 2026

The data on the frequency of AI use in daily work is as follows: 15% of respondents reported using AI always, 45% indicated they use it sometimes, 25% said they use it rarely, and 15% stated they never use AI. Overall, the total accounts for 100% of the respondents

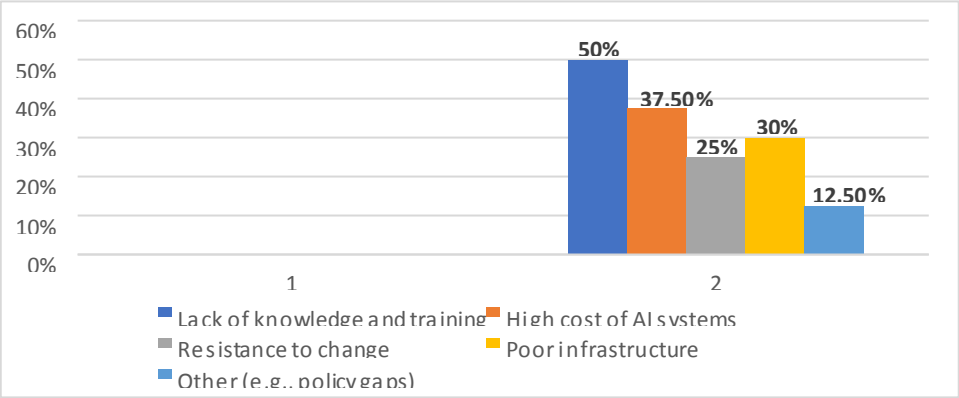
Presentation of results based on thematic area developed the extent of AI adoption in ZNBC content production



Source: Research Data, 2026

The data shows that 55% of respondents identified speed of production as the main improvement brought about by AI, making it the most frequently mentioned enhancement. This is followed by 45% who pointed to improved accuracy and consistency in content output. Additionally, 37.5% of the respondents noted improvements in the quality of visuals and audio. A smaller proportion, 25%, reported better viewer engagement as a result of AI usage. Meanwhile, 7.5% indicated that AI had not contributed to any noticeable improvements in content production. Overall, these proportions reflect varying experiences with AI across different aspects of production.

Presentation of results based on thematic area developed from main challenges to AI adoption at ZNBC



Source: Research Data, 2026

5. Conclusion and Recommendations

5.1 Conclusion

This study set out to assess the adoption rate of artificial intelligence (AI) in television content production, using the Zambia National Broadcasting Corporation (ZNBC) as a case study. The investigation was guided by four objectives: to establish the types of AI tools currently being used, to examine the extent and frequency of their application, to evaluate their effectiveness in improving content production, and to identify the challenges that hinder wider adoption. A mixed-methods approach combining questionnaires and interviews was used to gather perspectives from 40 respondents across different departments, supplemented by in-depth qualitative insights from staff members with varying roles and experiences.

The findings reveal that AI adoption at ZNBC is underway but remains limited in scope and depth. Automated video editing tools and voice-to-text transcription software emerged as the most commonly used applications, particularly within news and current affairs. These tools were widely appreciated for their ability to reduce production time and improve transcription accuracy, which in turn has made newsroom operations more efficient. AI-generated graphics and animations are also being explored, though they are not yet extensively embedded into production routines. Content recommendation engines, which represent a more advanced form of AI associated with audience personalization, were reported to be rarely used, suggesting that ZNBC has not yet moved toward the more strategic applications of AI that characterize global broadcasting trends.

In terms of frequency of use, the study found that AI is applied inconsistently across the organization. Only a small proportion of respondents reported using AI tools on a daily basis, while most indicated that usage occurs "sometimes," depending on task demands and tool availability. This pattern indicates that AI has not yet become an integral part of daily workflows at ZNBC. The

interviews highlighted that staff often revert to manual methods, especially in cases where they lack confidence or training in AI tools. The sporadic nature of use underscores the transitional stage at which the organization finds itself, where AI is present but not yet institutionalized.

The effects of AI on production processes were nonetheless evident. Respondents consistently acknowledged that AI has improved efficiency, speed, and accuracy. Automated transcription was seen as particularly transformative, as it significantly reduced the time required to process interviews and speeches. Editing tools were credited with enabling faster turnaround times for news bulletins and other time-sensitive programming. However, when it came to creativity and audience engagement, respondents were less enthusiastic, suggesting that AI has not yet enhanced originality or interactive content production. These results show that while AI has a positive effect on operational efficiency, its contribution to innovation and strategic content development remains limited.

The study also revealed several challenges that constrain AI adoption. Lack of structured training was the most prominent, with most staff indicating they had not received formal instruction on how to use AI tools. This knowledge gap has resulted in uneven skill levels and contributed to inconsistent usage. Infrastructure limitations, including unreliable internet connectivity and outdated hardware, were also highlighted as barriers. Financial constraints were another recurring theme, with staff emphasizing the high costs associated with acquiring and maintaining AI systems. Finally, cultural resistance was evident, as some employees feared that AI might threaten their jobs, leading to reluctance in embracing the technology.

The role of management emerged as a critical factor in shaping adoption. While some managers were described as supportive and encouraging, others were perceived as indifferent or resistant to technological change. This inconsistency has contributed to uneven adoption across departments. Staff also noted the absence of clear organizational policies or strategies on AI, which has led to a fragmented approach where individual departments adopt tools without a cohesive institutional framework. This lack of direction has further slowed the process of integration.

In reflecting on the research objectives, it is clear that each was adequately addressed. The study identified the most commonly used AI tools, demonstrated that adoption is inconsistent and concentrated in certain functions, showed that AI has improved efficiency but not creativity or engagement, and outlined the key barriers to adoption. These findings not only provide localized insights into ZNBC but also contribute to the broader understanding of AI adoption in Sub-Saharan African broadcasting contexts. They confirm global patterns of early adoption focused on efficiency while also highlighting the unique institutional and cultural constraints faced by a national broadcaster in Zambia.

Theoretically, the study contributes to literature on media innovation and technological adoption by emphasizing the importance of organizational culture and leadership in shaping adoption rates. Practically, it provides ZNBC with evidence-based insights into the current state of AI usage and the specific areas requiring attention. The study also acknowledges its limitations, including the relatively small sample size restricted to one broadcaster and the reliance on self-reported data. Nonetheless, the triangulation of questionnaires and interviews enhanced the credibility and richness of the findings.

In conclusion, AI adoption at ZNBC is at an early but promising stage. While the technology has already improved efficiency and accuracy in core production tasks, significant challenges must be addressed for it to achieve its full potential. Without systematic investment in training, infrastructure, and policy direction, AI adoption is likely to remain uneven and limited to operational rather than strategic functions. ZNBC therefore stands at a pivotal moment where deliberate organizational action will determine whether AI becomes a transformative force in content production or remains a set of isolated tools used occasionally by a few staff.

5.2 Recommendations

Based on the findings of this study, several recommendations are proposed to enhance AI adoption at ZNBC and ensure that it becomes a sustainable and transformative part of the organization's content production processes.

The first recommendation is to prioritize comprehensive and continuous training for all staff. Training programs should be designed to meet the needs of different job categories, including technical staff, creative personnel, managers, and support staff. Such training would not only improve technical competence but also build confidence and reduce resistance to change. Structured workshops and hands-on sessions should be complemented by refresher courses to keep staff updated as AI tools evolve. By institutionalizing training as a regular activity, ZNBC can ensure that all employees have equal access to AI knowledge and skills.

The second recommendation is to invest in modern infrastructure and reliable AI tools. Many respondents pointed to challenges related to outdated equipment and unreliable internet connectivity, which hinder effective use of AI. ZNBC should therefore allocate resources toward upgrading hardware, strengthening internet connections, and acquiring licensed AI software that is compatible with existing systems. Infrastructure upgrades would not only support current AI applications but also open opportunities for more advanced uses, such as content personalization and predictive analytics.

Thirdly, management should develop clear policies and strategies for AI adoption. A formal AI policy would provide guidance on how tools are to be used, outline ethical considerations, and establish benchmarks for evaluating effectiveness. Policies should also clarify the role of AI in relation to human creativity, addressing concerns about job displacement and emphasizing AI as a tool to enhance rather than replace human work. A coherent strategy would ensure that adoption is consistent across departments and aligned with the organization's broader broadcasting goals.

Another recommendation is to adopt a participatory approach to AI adoption. Staff at all levels should be involved in discussions about how AI is integrated into workflows. This inclusivity would reduce resistance, build trust, and generate innovative ideas from those who use the tools daily. Creating platforms for feedback, such as focus groups or departmental consultations, would ensure that the adoption process is collaborative and responsive to employee needs.

Furthermore, financial planning is essential. Given that high costs were identified as a barrier,

ZNBC should explore partnerships with technology providers, government agencies, or international development organizations to secure funding and technical support for AI initiatives. Collaborative arrangements could ease the financial burden while accelerating access to advanced technologies.

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