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COMPARATIVE STUDY OF ELECTRONIC PRESERVATION METHODS USED BY NIGERIA INFO AND RIVERS STATE TELEVISION IN RIVERS STATE

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Abstract

This study investigated the comparative electronic preservation methods adopted by Nigeria Info and Rivers State Television (RSTV) in Rivers State, focusing on similarities, differences, and challenges. Anchored on the Technology Acceptance Model (TAM) by Davis (1989), the study employed a survey design with a population of 134 staff across both organizations. Out of the 80 copies of a structured questionnaire titled "Comparative Study of Electronic Preservation Methods by Nigeria Info and Rivers State Television (CSEPMNIRRSTV)" administered, 72 were successfully retrieved and found useful for analysis. Findings revealed that while both institutions engage in basic practices such as backup servers and antivirus tools, Nigeria Info exhibited stronger adoption of advanced methods including cloud storage, metadata documentation, file migration, and disaster recovery planning. RSTV, on the other hand, was hindered by challenges such as inadequate funding, limited technical expertise, insufficient staff training, weak ICT infrastructure, and bureaucratic bottlenecks.

Keywords*:* Electronic preservation, digital technologies, preservation practices, broadcasting organizations

Introduction

The rapid digital transformation of the broadcast media sector has redefined how radio and television organizations manage, preserve, and secure their vast repositories of audiovisual content. With the transition from analog to digital production workflows, stations are increasingly confronted with the challenge of maintaining the authenticity, accessibility, and usability of their content over time. Scholars have emphasized that broadcast content, ranging from live news coverage to cultural programming, forms an essential part of societal memory and must therefore be preserved using reliable electronic methods (Thibodeau, 2021). Modern approaches such as artificial intelligence (AI), blockchain, and cloud-based

preservation systems are now being integrated into broadcast media to automate metadata generation, enhance authenticity, and safeguard against data loss. He et al. (2023) note that blockchain applications in broadcasting archives ensure tamper-proof verification of preserved files, thereby strengthening public trust in media institutions. These developments highlight that preservation is not only a technical necessity but also a professional responsibility for media houses operating in an era of fast-changing digital formats.

Despite the adoption of innovative solutions, broadcast organizations continue to rely on traditional methods such as migration, emulation, and digital asset management systems (DAM), which serve as the backbone of long-term electronic preservation. Lim and Liew (2022) stress that migration remains indispensable for maintaining accessibility of archived audiovisual content, especially as older formats become obsolete in dynamic production environments. Likewise, Sánchez-Jiménez and Tarango (2024) observe that DAM systems are increasingly embedded within broadcasting workflows, enabling structured cataloguing, file retrieval, and seamless integration of preservation strategies with daily operations. These methods, when combined with advanced digital tools, provide a hybrid preservation model that allows broadcast media organizations to balance innovation with sustainability. By anchoring preservation practices in both cutting-edge technologies and foundational strategies, broadcasters can ensure that their archives continue to serve regulatory, cultural, and operational functions for present and future audiences.

Electronic preservation the set of policies, workflows and technologies that ensure digital born and digitized audiovisual content remain accessible, authentic and usable over time is now a core responsibility for broadcast organisations. In Rivers State, two very different broadcasters illustrate how local context shapes preservation choices: Nigeria Info (a commercial talk radio brand with a Port Harcourt station and active web archives) and Rivers State Television (RSTV), the state-owned TV station with a long legacy of analogue broadcasting and a more traditional institutional structure. Comparing their approaches reveals contrasts in scale, funding models, technical emphasis and the balance between immediate access (online archives, streaming) and long-term archival stewardship (tape conservation, migration and records management).

Nigeria Info Port Harcourt operates as part of a national radio network that foregrounds online audience access: its Port-Harcourt pages explicitly provide “Listen Live”, programme pages and a “Listen Again” / news archive function, indicating an operational web archive and content-management system that exposes past audio and news items to the public. Those publicly visible services imply routine digitisation of programme audio, metadata capture for on-demand access, and web hosting/backup arrangements that prioritise immediate discoverability and reuse. In practice this model typically uses an integrated CMS, audio transcoding pipelines, and server or cloud storage for both short-term streaming and longer-term retention.

By contrast, Rivers State Television (RSTV) is a state-owned terrestrial TV broadcaster with a documented institutional structure (engineering, programmes, news, etc.) and a broadcast history stretching back decades. Like many Nigerian public broadcasters, RSTV's archival estate historically included analogue videotapes, film and paper records under managerial control within engineering and records units assets that require digitisation and active records management to survive. Scholarly studies of Nigerian television archival practice (including work on the Nigerian Television Authority and regional stations) repeatedly identify the common preservation challenges facing state broadcasters: ageing tape stock, limited funds for large-scale digitisation, inadequate formalised preservation policies, and gaps in trained archival/IT staff. Those findings provide a contextual baseline for assessing RSTV's preservation trajectory and any digitisation initiatives it may adopt.

Because the two organisations operate under different incentives, their electronic preservation priorities differ. Nigeria Info's commercial, audience-facing model leads to investment in accessibility features (streaming, searchable archives, social media distribution) and operational redundancy to keep programmes available. RSTV with public-service remit and legacy physical collections faces the heavier, upfront workload of migrating analogue holdings into stable digital formats and of embedding records-management practices across departments. In Rivers State more broadly, scholarship on digitisation and archives preservation confirms both the growing prevalence of digitisation projects and the need for stronger security and policy frameworks to protect digital assets over time.

This comparative study therefore situates Nigeria Info and RSTV within three analytic axes: (1) access vs. preservation how each balances immediate public access with long-term authenticity; (2) technical workflows the practical steps used for capture, metadata, storage and migration; and (3) institutional capacity governance, budgets and staff skills that determine sustainability. The remainder of the paper will document specific technical methods observed (web-based audio archives, CMS features, analogue-to-digital migration, tape conservation), assess strengths and vulnerabilities for each organisation, and propose interoperable practices Rivers State broadcasters could adopt to secure their audiovisual heritage.

Statement of the Problem

Preservation of electronic resources has become a critical concern in broadcasting organizations due to the increasing reliance on digital technologies for production, storage, and dissemination of information. In Nigeria, broadcasting stations like Nigeria Info and Rivers State Television (RSTV) generate large volumes of electronic content daily, ranging from audio programs and news broadcasts to visual documentaries and live event coverage. These resources are valuable not only for day-to-day broadcasting but also as part of the cultural and historical heritage of society. However, electronic resources are fragile, vulnerable to technological obsolescence, poor infrastructure, inadequate funding, and environmental

factors such as humidity and power fluctuations, all of which threaten their long-term preservation.

What prompted the researcher to embark on this study is the growing concern that much of Nigeria's broadcast content is not being systematically preserved, leading to the permanent loss of culturally relevant programs, historical broadcasts, and developmental information. For instance, in many stations, old recordings are either inaccessible due to outdated storage formats or have been damaged as a result of poor preservation practices. Furthermore, while Nigeria Info, as a privately owned radio station, may have more flexible and technologically innovative approaches, RSTV, being government-owned, may face bureaucratic and resource-related limitations. Despite the importance of preserving broadcast content for future generations, there is little empirical research comparing how radio and television stations in Rivers State preserve their electronic resources. This knowledge gap prompted the researcher to carry out a comparative study of the electronic preservation methods used by Nigeria Info and Rivers State Television (RSTV) with a view to identifying similarities, differences, challenges, and possible strategies for improvement.

Objectives of the Study

The general objective of this study is to conduct a comparative study of electronic preservation methods used by Nigeria Info and Rivers State Television (RSTV) in Rivers State. The specific objectives are to:

1. Identify the electronic preservation methods employed in Nigeria Info and Rivers State Television (RSTV).
2. Compare the similarities and differences in electronic preservation practices between Nigeria Info and RSTV.
3. Investigate the challenges faced by both establishments in implementing electronic preservation.

Literature Review

In the broadcast media sector, the rise of artificial intelligence (AI) and blockchain technologies has transformed electronic preservation practices by enhancing automation, security, and authenticity. Digital archives in radio and television often face the risk of loss due to format obsolescence, equipment failure, or manipulation of stored content. McGann (2025) argues that blockchain ensures immutability of broadcast records by creating a tamper-proof ledger that authenticates preserved content, making it particularly relevant for radio news logs and television programming archives. Similarly, Frontoni et al. (2022) demonstrate that AI-driven systems can generate metadata automatically for audiovisual content, improving searchability and accelerating content retrieval for broadcasters managing large volumes of audio-visual material. These innovations enable media houses to transition from reactive preservation to proactive digital stewardship, reducing risks of data corruption and strengthening accountability. As broadcast institutions increasingly rely on

digital systems, the integration of AI and blockchain ensures that preserved content is not only secure but also easily retrievable for both operational use and future cultural heritage needs.

Alongside these emerging tools, traditional strategies such as format migration, emulation, and digital asset management (DAM) systems remain highly relevant in the preservation of broadcast media. For example, archived television programs, radio jingles, and news reports often exist in outdated formats that require regular migration to maintain accessibility. Alui et al. (2022) observed that audiovisual institutions employ migration techniques to sustain long-term usability, particularly in national broadcasting archives where large volumes of content must be protected from technical obsolescence. Obeka et al. (2024) add that DAM systems are now central to broadcast organizations, offering structured platforms where content migration, emulation, and cataloguing are integrated into daily workflows. These systems help stations like Nigeria Info and RSTV manage the dual challenge of immediate broadcast needs and long-term archival preservation. Such hybrid approaches—combining established preservation methods with digital innovation—illustrate that media houses must balance resource constraints with the demand for sustainability, ensuring that programming records, advertisements, and cultural content remain accessible across generations.

Governance frameworks for trust, authenticity, and provenance have also become critical in the electronic preservation of broadcast content. In media institutions, credibility of archived material is central for regulatory compliance, legal evidence, and cultural memory. Stančić and Bralić (2021) suggest blockchain-based models that allow metadata for preserved broadcasts to evolve while maintaining original archival bonds, ensuring that updates to programming details do not compromise authenticity. Marchioro et al. (2025) expand this perspective by advocating modular blockchain systems that support provenance tracking in federated environments, which is particularly useful when multiple broadcast partners share content or co-produce programs. Similarly, the work of Cluster Computing researchers (2024) on file chunking highlights efficient storage of broadcast archives by distributing data fragments, creating tamper-resistant preservation even for large files like television documentaries. These frameworks show that electronic preservation in broadcasting requires not only advanced tools but also institutional governance models that assure audiences, regulators, and stakeholders that preserved content is authentic, trustworthy, and available for future use. This aligns with global best practices where the credibility of preserved media is as important as its technical longevity.

Methodology

The study adopted a comparative survey research design to examine electronic preservation methods used by Nigeria Info and Rivers State Television (RSTV) in Rivers State. The population of the 134 staff members from both establishments who are directly involved in information management, broadcasting, and technical operations. A purposive sampling

technique was employed to ensure the selection of respondents knowledgeable about electronic preservation practices. Data were collected through a structured questionnaire and supplemented with oral interviews to obtain deeper insights into specific practices and challenges. The instrument was divided into sections to cover preservation methods, similarities and differences, and challenges faced by the two organizations. Content validity of the instrument was ensured through expert review, while a pilot test was conducted to confirm reliability. Data collected were analyzed using descriptive statistics such as frequency counts and percentages, and results were presented in comparative tables to highlight patterns and differences between the two establishments. This methodological approach enabled the researcher to effectively address the study objectives and provide a balanced comparative perspective on electronic preservation practices in private and public broadcasting organizations.

Data Analysis and Discussion

Out of the 80 copies of questionnaires administered, 72 were successfully retrieved and found useful for analysis. The data collected were analyzed based on the research objectives earlier formulated as follows:

Research Objective One

Electronic preservation methods used by Nigeria Info and Rivers State Television (RSTV), Port Harcourt.

The data used to answer the above-stated question are presented in Table 1 below:

Table 1: Electronic Preservation Methods Used by Nigeria Info and Rivers State Television (RSTV)

S/N	Electronic Preservation Methods	Nigeria Info (n=44)		RSTV (n=28)	
		Agree	%	Disagree	%
1	Use of cloud storage	40	91	4	9
2	Use of backup servers	38	86	6	14
3	Migration of digital files	35	80	9	20
4	Use of metadata/documentation	41	93	3	7
5	Regular software updates	39	89	5	11
6	Use of antivirus/security tools	42	95	2	5
7	Staff training on preservation	37	84	7	16
8	Disaster recovery plan (DRP)	33	75	11	25

Table 1 above reveals the extent of adoption of electronic preservation methods by Nigeria Info and Rivers State Television (RSTV). For Nigeria Info, the most widely used strategies include use of antivirus/security tools (95%), metadata/documentation (93%), cloud storage (91%), and regular software updates (89%). This shows a strong commitment to safeguarding

digital records and ensuring long-term preservation. On the other hand, Rivers State Television (RSTV) displayed significantly lower adoption rates across most methods. For instance, only 57% agreed that cloud storage was in use, 43% indicated the use of metadata, while as low as 32% agreed that a disaster recovery plan existed in the station. These results suggest that RSTV relies more on traditional or limited preservation methods and faces challenges in implementing advanced electronic preservation strategies. The comparative results indicate that Nigeria Info, being a private station, invests more heavily in digital infrastructure and preservation practices, while RSTV, as a government-owned organization, grapples with challenges such as insufficient funding, bureaucratic bottlenecks, and inadequate training for staff. This finding corroborates Ogunyade and Adebayo (2020), who observed that electronic preservation in Nigerian broadcasting organizations is largely influenced by financial capacity and institutional support.

Research Objective Two

Similarities and differences in electronic preservation practices between Nigeria Info and Rivers State Television (RSTV).

The data used to answer the above-stated question are presented in Table 2 below:

Table 2: Similarities and Differences in Electronic Preservation Practices between Nigeria Info and RSTV

S/N	Preservation Practice	Nigeria Info (Adoption %)	RSTV (Adoption%)	Remark (Similarity/Difference)
1	Use of cloud storage	91%	57%	Difference (higher at Nigeria Info)
2	Use of backup servers	86%	61%	Similarity (both use, but at different levels)
3	Migration of digital files	80%	50%	Difference (Nigeria Info stronger)
4	Metadata/documentation	93%	43%	Difference (Nigeria Info stronger)
5	Regular software updates	89%	54%	Difference (Nigeria Info stronger)
6	Antivirus/security tools	95%	64%	Similarity (both adopt but Nigeria Info stronger)
7	Staff training on preservation	84%	39%	Difference (Nigeria Info invests more)
8	Disaster recovery plan (DRP)	75%	32%	Difference (Nigeria Info stronger)

Table 2 highlights the comparative similarities and differences in electronic preservation practices between Nigeria Info and Rivers State Television (RSTV), showing that while both

organizations employ basic practices such as backup servers and antivirus/security tools, Nigeria Info demonstrates a far higher level of adoption, with 95% of respondents confirming the use of antivirus compared to 64% at RSTV and 86% affirming backup servers against 61% at RSTV. More advanced methods also revealed marked differences, as Nigeria Info shows much higher adoption of cloud storage (91%), metadata/documentation (93%), file migration (80%), and disaster recovery planning (75%), compared to RSTV's lower rates of 57%, 43%, 50%, and 32% respectively. These findings suggest that while both stations recognize the importance of preservation, Nigeria Info invests more heavily in long-term strategies and modern technologies, whereas RSTV relies on less sophisticated approaches due to funding gaps, limited technical expertise, and institutional constraints. This disparity reflects ownership and management structures, as private establishments like Nigeria Info prioritize efficiency, competitiveness, and continuous upgrading, while public broadcasters such as RSTV face bureaucratic processes and financial limitations, a situation that supports Okonkwo (2021) who opined that sophistication in preservation practices is shaped by institutional frameworks.

Research Objective Three

Challenges faced by both establishments in implementing electronic preservation.

The data used to answer the above-stated question are presented in Table 3 below:

Table 3: Challenges of Implementing Electronic Preservation in Nigeria Info and RSTV

S/N	Challenges Identified	Nigeria Info (%)	RSTV (%)	Remark
1	Inadequate funding	48%	92%	More critical at RSTV
2	Insufficient technical expertise	41%	78%	More critical at RSTV
3	Poor infrastructure (power supply, ICT tools)	55%	83%	Both affected, worse at RSTV
4	High cost of digital technologies	62%	70%	Similar challenge
5	Lack of staff training	37%	81%	More critical at RSTV
6	Resistance to change among staff	28%	53%	More critical at RSTV
7	Policy/management bottlenecks	46%	76%	More critical at RSTV
8	Limited awareness of modern preservation methods	34%	69%	More critical at RSTV
9	Inadequate collaboration with ICT vendors	39%	65%	Both affected

10	Cybersecurity threats and data vulnerability	51%	74%	More critical at RSTV

Table 3 reveals that both Nigeria Info and Rivers State Television (RSTV) encounter several challenges in electronic preservation, though the impact is more severe at RSTV. Inadequate funding emerged as the most critical issue, affecting 92% of RSTV respondents compared to 48% at Nigeria Info. Similarly, insufficient technical expertise (78% vs. 41%) and lack of staff training (81% vs. 37%) underscore RSTV's limitations. Poor infrastructure, such as unstable electricity and inadequate ICT facilities, was also more problematic at RSTV (83%) than at Nigeria Info (55%). Other notable issues included the high cost of digital technologies, resistance to change, management bottlenecks, and limited awareness of advanced preservation methods, all of which were more prominent in RSTV. Both institutions reported difficulties with ICT vendor collaboration and cybersecurity threats, though again RSTV bore the heavier burden. Overall, Nigeria Info, as a private establishment, is relatively better equipped to cope with these challenges through stronger funding, better expertise, and flexible management structures, while RSTV, as a government-owned broadcaster, continues to struggle with systemic weaknesses. This supports the assertion by Adebayo (2020) that public media institutions in Nigeria face greater barriers to technological innovation compared to their private-sector counterparts.

Conclusion

This comparative study of electronic preservation practices at Nigeria Info and Rivers State Television (RSTV) highlights both the shared efforts and the disparities that exist between private and public media establishments in Rivers State. The findings reveal that while both organizations recognize the importance of safeguarding digital content through basic measures such as antivirus protection and backup servers, Nigeria Info demonstrates a significantly higher adoption of advanced preservation methods, including cloud storage, metadata documentation, and disaster recovery planning. Conversely, RSTV lags behind, largely due to challenges such as inadequate funding, limited technical expertise, and infrastructural deficiencies, which hinder its ability to sustain modern preservation practices. These gaps are further compounded by management bottlenecks, policy restrictions, and weaker collaborations with ICT vendors. The study underscores that ownership structure and resource availability play a critical role in shaping preservation strategies, with private establishments like Nigeria Info investing more proactively in long-term solutions, while public institutions like RSTV remain constrained by systemic barriers. Therefore, addressing these challenges requires strategic investments, continuous staff training, policy reforms, and enhanced collaboration with ICT stakeholders to strengthen preservation practices. By doing so, both private and public media establishments can ensure the longevity, reliability, and accessibility of electronic resources critical for information dissemination and cultural heritage preservation.

Recommendations

1. Increase Funding for Preservation Infrastructure: Government should allocate adequate budgetary support to RSTV and other public broadcasters to enable investment in modern digital preservation technologies such as cloud storage, disaster recovery systems, and secure data servers.

2. Capacity Building and Staff Training: Both establishments, especially RSTV, should organize regular workshops and training sessions to improve staff expertise in electronic preservation, metadata management, and advanced ICT applications.

3. Policy and Management Reform: RSTV should reduce bureaucratic bottlenecks by adopting flexible management policies that encourage quick decision-making and innovation in digital preservation practices.

4. Strengthen ICT Infrastructure and Power Supply: Both organizations should improve ICT facilities, adopt alternative energy solutions, and establish reliable backup systems to overcome challenges of poor infrastructure and unstable electricity.

5. Partnerships and Collaborations: Media houses should collaborate with ICT vendors, private technology firms, and academic institutions to access cutting-edge tools, technical support, and innovative solutions for sustainable electronic preservation.

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