# Assessment of Emerging Technologies Influence on the Nigerian Scholarly Publications

**By**

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## Abstract

*This study examines the multifaceted influence of emerging technologies, specifically Artificial Intelligence (AI) and Blockchain, on the Nigerian scholarly publication landscape. Employing a qualitative thematic review methodology, the research synthesizes twenty-seven peer-reviewed publications from 2020 to 2025, utilizing a systematic synthesis matrix to analyze core technologies, associated ethical risks, and proposed mitigation strategies. Findings indicate that while these technologies significantly enhances operational efficiency and global information accessibility to meet high-frequency publish or perish pressures, they equally introduce critical threats to academic integrity, including automated deception, machine-generated hallucinations, and linguistic indistinguishability. A persistent digital divide characterized by high connectivity costs and erratic power infrastructure further complicates local adoption and the utilization of advanced verification platforms. Moreover, the prevalence of Western-centric AI training datasets poses a significant risk of diluting unique indigenous research perspectives. To mitigate these risks, the study highlights Blockchain as a viable "trustless" verification bridge for immutable audit trails, advocating for the implementation of energy-efficient "lightweight" protocols adapted to local constraints. Finally, the research concludes that Library and Information Science (LIS) professionals and Research Ethics Committees (RECs) must evolve from passive observers into proactive "knowledge guardians" and "algorithmic auditors". Recommendations include institutional investment in adaptive efficiency tools, mandatory AI usage disclosure policies, and continuous information literacy training to ensure emerging technologies enhance rather than replace human oversight in scholarly communication.*

**Keyword:** Emerging Technologies, Artificial Intelligence, Blockchain, Scholarly Publishing & Research Ethics.

## Introduction

Considering the relevance of emerging technologies to humans in areas like Artificial Intelligence (AI) and Blockchain, their extensive application in the publishing industry is not surprising (Andriushchenko & Berezhna, 2024). AI can be define as Generative AI that uses Large Language Models (LLM) to produce research that closely mimics human critical thoughts, which can significantly impact societal areas such as Science Technology Engineering & Mathematics (STEM) (Stahl & Eke, 2024). While Blockchain technology is defined as vital tool for science and ethics, enabling trustless verification of the research process. By providing immutable digital audit trails and decentralized ledgers for peer-review audits. Blockchain offers a technical solution to eliminate fraudulent reviewer scandals and data manipulation in the scholarly ecosystem (Bajac & Fisher, 2024). These technologies bring along new risks and threats to validity and authenticity of

scholarly communication because of their autonomus operational models, tools that enable rapid content creation and ethical concerns (Ejjami, 2024; Knight, Viberg, Mavrikis, Kovanović, Khosravi, & Ferguson, 2024). Leading among the ethical concerns is securing the integrity of the scholarly record against automated deception (Lund, Wang, Mannuru, Nie, Shimray, & Wang, 2023). Others among these ethical dilemmas are the emerging technologies privacy issues, algorithmic bias, hallucinations and the transparency of knowledge sharing that significantly need to be considered in scholarly article publications in Nigeria.

This threats are tenacious in educational and research settings due to the impact of modern technology on social research methods (Aljounid, 2025). Some people can go the extent of compromising the integrity and confidentiality of research data, which may give birth to new types of problems not limited to academic misconduct, poor decision-making, misleading information which slowdown economic and social development. These problems can be worse and more critical when large language models with massive generative capacity are utilized to produce fabricated research that mimics human critical thoughts that may have direct impact to society in areas such as STEM (Stahl & Eke, 2024).

Bearing in mind the impact of emerging technologies on research and publications, their extensive appeal for academic career development is not surprising (Aithal & Aithal, 2024; Onyema, Esther, Okpala, Umoke, Obioma, Okoronkwo, & Edmond, 2024). More so, this new approach does raise noteworthy regulatory and integrity concerns. Notable among them is the new academic reality where Generative Artificial Intelligence-written publications challenge the foundational trust of scholarly publishing (Lund *et al.,* 2023). In their studies Stahl and Eke (2024) identified authorship ethical concern that uncovers a broader, more balanced range of ethical issues worthy of attention; while also noting their benefits by applying established ethics of technology can produce a rigorous, comprehensive foundation to guide discourse and action around impactful emerging technologies.

Developing countries are by far regulating areas and how these emerging technologies should be used through tons of policies and regulatory agencies to minimize their consequential effects. Areas such as regulatory tools and interdisciplinary knowledge combinations are the most important part to be considered in reducing uncertainties during the evaluation of emerging technological topics (Anklam*,* Bahl, Ball, Beger, Cohen, Fitzpatrick, 2022; Kwon, Youtie, & Porter, 2021). Generative AI presents fresh risks to the framework of quality education because of its ability to produce misinformation, hallucinations and the difficulty linguists face in distinguishing machine-written content (Flores-Viva & García-Peñalvo, 2023; Casal & Kessler, 2023). These threats may be persistent across various scientific fields due to a lack of real-world experimentation with responsible technology (Mollen, 2024).

On the other hands, security related intelligence and research that are of significant can be compromised nullifying the ethical gatekeeping roles of research committees, giving birth to new types of systemic bias and intellectual property theft (Masso, Gerassimenko, Kasapoglu, & Beilmann, 2025). The problem can be worse and more critical when emerging technological networks are exploited without adequate ethical oversight and strategic reviews of their scientific impact (Borge, Wustmans, & Broring, 2022; Tawfik, 2024).

Previous studies have investigated ethics in research, focusing primarily on ethical considerations in relation to traditional methodologies such as interviews and surveys (Masso, Gerassimenko, Kasapoglu, & Beilmann, 2025; Stahl & Eko, 2024; Lund *et al.,* 2024). However, these studies

often considered specific Generative AI rather than holistic transformative impact of emerging technology such as Blockchain & big data on research practices. In addition, while existing literature has explored perspectives on research ethics in the world (Brown, 2023; Lund *et al.,* 2024; Tiwari, 2024; Onyema *et al.*, 2024), it remains unclear how researchers from different disciplines navigate the ethical dilemmas posed by emerging technologies especially in developing countries that have little or no policies covering these technologies.

To fill these gaps, this study uses a multilayered approach. First, it holistically appraises literatures to identify existing frameworks and gaps in understanding research ethics in the context of emerging technologies. Through this holistic approach, this study aims to examine the needs, viewpoints, and approaches of research ethics and ethical review in the area of emerging technologies bearing in mind the significant methodological challenges these technologies pose especially in developing countries like Nigeria.

## Research Questions
The following research questions were raised to guide the study:
1. How do emerging technologies currently influence the efficiency and accessibility of scholarly publication within Nigeria?
2. What are the primary ethical risks associated with the use of AI in manuscript generation?
3. How can Blockchain and regulatory tools be leveraged to mitigate ethical risks related to research fraud and data manipulation?

What role should LIS professionals and research ethics committees play as "knowledge gatekeepers" in the age of AI-driven research?


## Theoretical Framework and Literature Review
Emerging technologies makes publication work easier and faster, it is not surprising that how popular Generative AI is embraced by several scholars (Andriushchenko & Berezhna, 2024). These new technologies help scholars share their findings quickly and supports their career growth (Onyema *et al.,* 2024). However, this development raises ethical concerns if the research conducted with these tools is still deep and meaningful. These tools present new risks because they aid scholars on producing many papers quickly rather than doing thorough research. They might make scholars care more about "how much" they publish rather than "how good" the work is. The problem can be worse and more critical when the rush to publish stops people from doing the careful checks needed to keep research standards high (Tawfik, 2024). In their studies Knight *et al.,* (2024) indicates gaps in policy across a wide range of journals where significant number of them have no statement regarding reporting of research ethics while another significant quota of papers reviewed did not refer to ethics considerations. Lund *et al.*, (2024) shows that ethical concerns regarding ownership and compliance with copyright as well as the rules of engagement are also need to be looked into.

Looking at recent reports, the way AI speeds up research is seen as a way to fix the slow manual research process in Nigerian libraries (Tawfik, 2024). Emerging technologies lets researchers summarize global information much faster than before (Ejjami, 2024). However, this quick adoption raises concerns about whether our system is ready. The problem can be worse and more critical when the pressure to publish frequently leads to a total breakdown of the peer-review standards especially in local based publications. Another concern is whether scholars are truly sharing knowledge or just copying data. Without adequate policies and standards, these

technologies present new ways of working that can make researchers lazy. Also, using different areas of study together is a great way to solve local Nigerian problems using global tech (Kwon *et al.,* 2021). This helps us look at new networks and patents that can improve Nigeria's tech standing (Borge *et al.,* 2022). However, this raises questions about whether people are actually sharing real knowledge or just moving data around (Tiwari, 2022). AI systems provide new ways of working that can make people lazy if they are not watched carefully.

In view of how much AI can do, it is not surprising that many people use it to write their papers (Stahl & Eke, 2024). However, this raises ethical concern about who really did the work. Problems related to algorithm bias and paper mills institutions (groups that sell fake research). These tools are also a dangerous to good education since they might stop students from learning how to think for themselves (Flores-Viva & García-Peñalvo, 2023). Recent studies on AI like ChatGPT show that machine-written papers are a huge challenge for editors (Lund *et al.,* 2023; Stahl & Eke, 2024). This new situation requires publication bodies to use expensive detection software, which many cannot afford in order to ensure credibility. However, this lack of affordable verification tools does alarms the value of the scholarly write-ups all over the world including the potential loss of trust from the international research community in work coming out of Nigeria (Flores-Viva & García-Peñalvo, 2023). While many scholars (Stahl & Eke, 2024; Dhirani, Mukhtiar, Chowdhry, & Newe, 2023) identify ethical risks, there is a distinct lack of research into the perspective, where the ethical imposition of emerging technologies could potentially lead to a new form of substandard scholarly publication that may negatively impact society.

Several strategies emerged in an effort to solve the aforementioned ethical concerns in research and publication. One of them is using Blockchain technology to stop fake peer reviews publication and improve tamper-proof record-keeping (Anklam *et al.*, 2022). However, this technology also brought along with it another set of concerns related to authenticity and authorship. It helps to track developments of research publication from inception to final report (full audit trails) as that research ethics committee can use such trail to confirm authenticity or otherwise. Bajac & Fiser, (2024) lamented that, Blockchain presents new opportunities for transparency because it enables "trustless" verification of research steps. These controls may be persistent in preventing data manipulation if standardized within global publishing frameworks. But the issue is when applied, there is another problem of user right to be forgotten (privacy) because in blockchain, no current process warrants such kind of user preferences which is contrary to data protection laws.

Considering how important ethics committee are and their role in scholarly publication especially in this age of AI, the way new tech raises worries that our current rules are too old. Onyema *et al.*, (2024) highlights the need for librarians and information professional's involvement in establishing robust framework ensuring that emerging technologies enhances research ethics rather than replaces human oversight. Because these professionals present defenses against ethical breaches because of their expertise in information literacy and ethical governance. Their roles may be persistent in policy contexts as they guide the future of generative AI. Recent reports on editorial policies show the need for human experts to guide the process even with the emergence of the technologies (Knight *et al.,* 2024). This makes sure the rules for new tech are based on what society actually need.

## Methodology

The study adopts a qualitative thematic review design. This approach was chosen because it allows for some structured synthesis research findings into a coherent narrative. The data for this review consists of 27 peer-reviewed publications between 2020 and 2025. These articles were strategically selected from global and local databases IEEE, ScienceDirect, MDPI, and the Babcock University Journal of Education. The inclusion criteria are, a paper must be open sources and discuss either Generative AI (LLMs), Blockchain, or regulatory tools within the context of scholarly publishing. Only studies providing evidence of technological impact on research integrity or editorial policy were included.

To ensure accuracy, a Synthesis Matrix was used to extract data from each paper. This matrix organized the literature into columns "Core Technology," "Ethical Risk," and "Proposed Solution." This process ensured that the review remained objective. The data undergoes analysis, one paper after another was fully reviewed to ensure its contents is categorized in the three classes i.e. core tech, ethical risk and proposed solution. Themes were observed based on research questions and presented in result section.

## Result

This section presents the core of the thematic review. The Synthesis Matrix below organizes the selected literature by technology, specific risks and solutions proposed.

Table 1: Synthesis Matrix of literatures

| Authors | Core Technology | Ethical Risk | Proposed Solution |
|---------|-----------------|--------------|-------------------|
| Andriushchenko (2024) | Digital Publishing Tools | Emerging technology skill gaps in the publication review personnel and automation errors. | Retraining of editorial staff on emerging technologies workflows. |
| Onyema *et al.* (2024) | AI & Career Platforms | Digital divide and infrastructure barriers among researchers was observed. | Institutional investment in tech-driven career support systems. |
| Stahl & Eke (2024) | ChatGPT / LLMs | Lack of transparency, hallucination and Algorithms bias in AI-generated research outputs. | AI literacy and mandatory disclosure of AI usage from Research Ethics Committee. |
| Lund *et al.* (2023) | Generative AI | Threat to authorship, paper mills producing fake research, Algorithms bias and hallucination. | Utilization of human-in-the-loop review and improved AI detection tools. |
| Dhirani *et al.* (2023) | Emerging Technologies | Privacy breaches; lack of data ownership and lack of right to be forgotten user preferences. | Implementation of privacy-by-design and robust cybersecurity frameworks. |

| Anklam *et al.* (2022) | Regulatory tools | Slow regulatory response to rapid tech advancements. | Agile regulatory frameworks to monitor emerging tech in real-time. |
|---|---|---|---|
| Bajac & Fiser (2024) | Blockchain | Manipulation of peer-review data and lack of trust in research trends. | Immutable and decentralized ledgers for peer-review audits. |
| Masso *et al.* (2025) | Ethics Committees | Institutional sluggishness and inadequate tech expertise by Research Ethics Committee (REC). | Continuous training for Research Ethics Committees (RECs). |
| Knight *et al.* (2024) | Editorial Systems | Lack of specific formal policy regarding AI-assisted manuscripts and general policy in regulating it usage. | Development of evidence-based guidelines for AI usage in publication and national level policies. |
| Tawfik (2024) | Strategic Review Tech | Information overload and weakening of scientific research quality. | Strategic vetting of sources and data verification models. |
| Casal & Kessler (2023) | LLMs / Linguistics | Inability to distinguish machine-text from human-text. | Advanced linguistic auditing of academic submissions. |
| Mollen (2024) | Experimental Tech | Unintended consequences of emerging tech in real-world settings. | Real-world experimentation before full-scale adoption. |
| Kwon *et al.* (2021) | Knowledge Networks | Complexity in interdisciplinary knowledge combinations. | Utilizing mapping tools to reduce emerging technological uncertainty. |
| Ejjami (2024) | AI (Review 5.0) | Hallucinations in automated literature development using generative AI. | Emphasis on the need for human cross-verification. |

Table 1 above reveals a complex interplay between the benefits of emerging technologies and the ethical challenges they introduce within scholarly ecosystem. By synthesizing the findings from the studied research, the discussion explores how these global viewpoints differs from local realities.

**Research Question 1: How do emerging technologies currently influence the efficiency and accessibility of scholarly publication within Nigeria?**

In the Nigerian academic environment, where the publish or perish culture dictates career advancement, emerging technologies like Generative AIs are increasingly viewed as essential for meeting the high-frequency publication requirements set by institutional promotion boards. The primary impact of emerging technologies in the publishing industry is a dramatic increase in operational efficiency and information accessibility (Andriushchenko & Berezhna, 2024; Onyema et al., 2024).

My argument is that for the Nigerian scholar, emerging technology is a double-edged sword; we must prioritize the adoption of adaptive efficiency, low-data or offline-capable tools to guarantee

that infrastructural shortages do not lead to professional exclusion in global level research community. However, the drive for efficiency is primarily challenged by a persistent digital divide from limited research fund sources to high cost of connectivity and software subscription. While global viewpoints assume smooth connectivity, the reality is characterized by high data costs, poor services in some areas and inconsistent power supply. Notwithstanding, Tawfik (2024) is also of the opinion that these problems limits the ability of local Research Ethics Committees to utilize advanced, subscription-based AI verification platforms in ensuring credible scholarly publications. Consequently, there is a risk that the gap between well-funded private universities and struggling state institutions will widen (Tiwari, 2022).

**Research Question 2: What are the primary ethical risks associated with the use of Large Language Models and automated systems in manuscript generation?**

The literature also identifies the use of Generative AI deception by researcher where production of machine-generated manuscripts presumed to be original human thought. Casal and Kessler (2023) lamented the fact that even expert linguists and editors struggle to distinguish between human generated text and sophisticated Large Language Model (LLM) outputs.

More so, there is technical risks of hallucinations where AI formulates citations or legal data which develops profound concern regarding knowledge input by researchers. There is also issue of training data because most LLMs are trained on western system and level advancement datasets. It can be contended that an over-reliance on these tools by Nigerian scholars may lead to a weakening the unique Nigerian research voice replacing original knowledge with western biased viewpoint and ideology. Stahl and Eke (2024) asserted that there is Algorithms bias which is considered primary ethical risk in AI generated output, which is directly related to training datasets used for Large Language Models (LLMs), predominantly based on Western systems and level of advancement. This necessitates intellectual vigilance where AI can be treated as a research assistant rather than an authority source in scholarly publications.

**Research Question 3: How can Blockchain and regulatory tools be leveraged to mitigate ethical risks related to research fraud and data manipulation?**

In view of the continuous loss of trust, it was highlighted that Blockchain can be a viable verification system for the scholarly publications through immutable digital audit trail. Bajac & Fiser, (2024) attest that Blockchain can effectively eliminate fake reviewer scandals and greedy publishing practices that currently plague out system. Though, emerging technologies in research ethics further supports this by providing frameworks to reduce uncertainty when assessing these new technological topics (Kwon *et al.,* 2021).

In Nigeria, Blockchain could serve as a bridge allowing publication to regain their prestige through verifiable transparency. However, considering our local factors such as inadequate power supply, unstable internet access, limited access to international databases etc. The best approach is the implementation of lightweight blockchain protocols rather than adopting energy-intensive global systems.

**Research Question 4: What role should LIS professionals and research ethics committees play as gatekeepers in the age of AI-driven research?**

This theme highlights the shifting role of Library and Information Science (LIS) professionals and Research Ethics Committees (RECs)/Editorial Boards. These individuals must transition from being passive observers to active knowledge guardians. While AI offers the tools for summary and synthesis, the final ethical and quality judgments must remain decisively by human hands.

This evolution is particularly urgent due to the recent brain drain of experienced academic scholars to more lucrative countries across the globe. As experienced scholars continue to migrate, the burden of maintaining standards falls increasingly on librarians. This finding is in line with Ogunode (2023) asserted that the mass exodus of senior Nigerian academics (often referred to as the "Japa syndrome") has created a critical void in mentorship within the university system. This depletion of intellectual capital directly impacts the quality of research and education because there are fewer experienced mentors to oversee the training of junior researchers. With that, the modern librarianship must be empowered to be certified in emerging technologies to act as auditors and educator on how to spot AI misconduct.

## Conclusion

This study concludes that emerging technologies, particularly Artificial Intelligence and Blockchain, represent a double-edged sword in Nigerian scholarly ecosystem. While these tools offer exceptional opportunities to enhance research efficiency, accelerate career development, and restructure the publication process, they equally introduce significant threats to the integrity and authenticity of the scholarly publications. The publish or perish culture in Nigeria has been accelerating the adoption of Generative AI, yet this risky drive is often linked by a persistent digital divide usually by high connectivity costs and unreliable infrastructure.

The findings also highlight a critical crisis of authenticity, where machine-generated content risks displacing original human critical thought and indigenous perspectives due to the Western-centric bias in Large Language Model (LLM) training datasets. Furthermore, the study emphasizes that while Blockchain and regulatory tools offer feasible solutions for ensuring transparency and preventing research fraud, these must be adapted to the local context through lightweight and energy-efficient ways. Finally, the integrity of the Nigerian academic community depends on the evolution of Library and Information Science (LIS) professionals and Research Ethics Committees (RECs) from passive observers into proactive knowledge guardians and algorithmic auditors. In view of the aforementioned facts, the following recommendation were made:

1. Librarians and Research Ethics Committees (RECs) should implement compulsory disclosure policies at editorial board and call for publication for AI usage in manuscripts.
2. There is also need for librarians to ensure continuous AI literacy training to scholars to treat AI as a research assistant rather than an authoritative source.
3. To regain trust and ensure transparent review processes, blockchain can be adapted to designed as lightweight protocols for audit trails.
4. Librarians must be formally empowered and certified to act as ethical auditors and educators that should lead the implementation of advanced auditing and strategic vetting of research data to maintain global credibility.
5. Regulatory bodies and editorial systems must develop and maintain evidence-based guidelines that are agile enough to keep pace with the rapid evolution of emerging technologies.

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