

High Article Processing Charges and the Expansion of Predatory Publishing in the Generative AI Era: Implications for Research Integrity and Global Scholarly Inclusion

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Abstract

The transition to open access publishing was intended to democratize knowledge, yet the dominance of article processing charge models has created new financial stratifications that disproportionately affect researchers in low- and middle-income countries. Concurrently, generative artificial intelligence has lowered barriers to manuscript production while amplifying editorial overload and predatory publishing vulnerabilities. This critical review examines the interconnected dynamics among article processing charge inflation, generative artificial intelligence-driven publication pressures, predatory publishing expansion, and global scholarly inequality, with alignment to Sustainable Development Goals 4, 9, 10, 16, and 17. The review is based on a purposive selection of interdisciplinary literature in scholarly communication, higher education, information science, research ethics, and science policy. Literature was selected through reference snowballing and thematic relevance to the five research objectives rather than systematic database searching. Findings indicate that global spending on article processing charges has escalated significantly, with average charges for high-impact journals exceeding several thousand United States dollars, creating conditions that increase susceptibility to predatory journals. The rise of generative artificial intelligence further complicates scholarly communication through accelerated manuscript production, paper mills, and concerns regarding epistemic reliability. Predatory publishing should be understood not merely as a problem of unethical journals but as a structural consequence of inequitable academic publishing systems intensified by artificial intelligence-era publication pressures. Policy reforms centered on diamond open access models, ethical artificial intelligence governance, research integrity education, and strengthened international collaboration are proposed.

1.0 Introduction

1.1 Background to the Study

The global scholarly communication ecosystem has experienced substantial transformation over the past two decades due to digitalization, open access publishing, intensified research competition, and the expansion of artificial intelligence (AI)-supported academic writing tools (Borrego, 2023). Open access publishing emerged primarily as a corrective mechanism against subscription-based publishing systems that restricted access to scientific knowledge through expensive paywalls. The movement was grounded in the principle that publicly funded research should remain publicly accessible to researchers, institutions, policymakers, and citizens regardless of geographic or economic status (Frank et al., 2022). The development of open access infrastructures significantly increased global visibility of scientific outputs and accelerated knowledge dissemination across disciplinary and geographical boundaries. However, while open access publishing improved accessibility for readers, it gradually transferred publication costs from subscribers to authors through article processing charges (APCs), thereby creating new inequalities within global knowledge production systems (Borrego, 2023).

The increasing commercialization of academic publishing has generated growing concern among scholars, librarians, policymakers, and research institutions. APCs charged by reputable journals have

risen considerably in recent years, with many journals charging publication fees ranging from several hundred to several thousand United States dollars per manuscript (Madegowda, 2025). Haustein et al. (2024) estimated that global APC spending across six major publishers exceeded \$8.349 billion between 2019 and 2023, with annual spending almost tripling from \$910.3 million in 2019 to \$2.538 billion in 2023. These costs are unevenly distributed across institutions and countries, with researchers from wealthy universities often benefiting from institutional agreements and publication funds while those from underfunded institutions face insurmountable barriers. The commercialization of scholarly communication has also intensified publication metrics culture within higher education systems. Universities increasingly evaluate academic performance based on publication quantity, citation metrics, and journal rankings, creating environments where researchers face growing pressure to publish in high-impact journals regardless of financial costs (Lubowitz et al., 2024).

The issue of APC inequality is especially significant for researchers from the Global South where research funding systems remain weak and institutional support for publication expenses is often inadequate. Fontúrbel and Vizentin-Bugoni (2020) argue that the open access movement unintentionally replaced one barrier with another by removing subscription paywalls while erecting publication paywalls for authors. Consequently, many researchers from developing countries encounter significant difficulties publishing in reputable journals indexed in Scopus or Web of Science. Terlizzi et al. (2025) further emphasize that APC-driven exclusion contributes to structural inequalities within global research systems by privileging institutions with greater economic resources and stronger publication infrastructures. The UNESCO Recommendation on Open Science (2021) explicitly calls for reducing "digital, technological and knowledge gaps" between and within countries, yet the APC model, as currently implemented, exacerbates precisely these gaps by creating financial barriers that systematically disadvantage researchers from low- and middle-income countries.

The increasing dependence on APCs has coincided with the expansion of predatory publishing ecosystems. Predatory journals are generally characterized by deceptive editorial practices, weak or nonexistent peer review, aggressive manuscript solicitation, false indexing claims, and prioritization of financial gain over scientific integrity (Shen & Björk, 2015; Grudniewicz et al., 2019). These journals exploit the author-pays publishing model by presenting themselves as legitimate scholarly outlets while failing to maintain recognized editorial standards. According to Bhasker and Solomon (2024), exploitative journals frequently manipulate APC structures by charging authors publication fees without providing credible editorial services or transparent peer review mechanisms. The emergence of predatory publishing has become one of the most serious threats to contemporary scholarly communication because it undermines trust in scientific publishing systems and weakens research quality assurance mechanisms.

Another major transformation within academic publishing involves the rapid emergence of generative artificial intelligence technologies. AI-powered tools such as ChatGPT, Gemini, Claude, DeepSeek, and other large language models are increasingly being used for literature reviews, manuscript drafting, grammar correction, data interpretation, coding, and research ideation (Dwivedi et al., 2024). Generative

AI technologies have transformed academic writing by increasing productivity and reducing technical barriers associated with scholarly communication. Bozkurt (2024) argues that generative AI is redefining authorship, ownership, and knowledge production within higher education systems. The STM publishing market was valued at approximately \$32.1 billion in 2024 and is projected to grow to \$42.83 billion by 2033, underscoring the immense economic stakes involved in knowledge dissemination (Business Research Insights, 2024). Within this lucrative marketplace, predatory publishers have exploited the author-pays model to generate substantial profits while providing minimal editorial services.

Despite the potential benefits of AI-assisted scholarship, concerns regarding research integrity, misinformation, fabricated citations, and epistemic reliability continue to intensify. Arzilli et al. (2025) observed a rapid surge in AI-driven academic publications, particularly within health sciences, thereby raising concerns regarding editorial overload and quality assurance. A comprehensive study conducted at Delft University of Technology revealed that of 53 articles with the fewest in-text citations in a single predatory journal, 48 appeared to have been generated by AI, with many articles falsely attributed to researchers affiliated with prestigious institutions, including deceased individuals (Spinellis, 2025). Generative AI can produce grammatically coherent yet scientifically unreliable manuscripts, making it increasingly difficult for editors and reviewers to distinguish authentic scholarship from fabricated or low-quality submissions. Heen and Vogt (2024) describe this phenomenon as a form of "scientific rot" that threatens trust within scholarly publishing ecosystems.

The integration of AI into academic publishing has also intensified the existing "publish or perish" culture within higher education institutions. Academic promotion systems, institutional rankings, and funding mechanisms increasingly rely on publication quantity, citation metrics, and journal indexing status as indicators of academic productivity (Lubowitz et al., 2024). Consequently, researchers often face enormous pressure to publish rapidly and continuously, regardless of publication costs or ethical considerations. Nielsen and Davison (2020) argue that predatory publishing flourishes within unhealthy academic environments where publication quantity is prioritized over research quality. Generative AI technologies may further accelerate these pressures by enabling rapid manuscript generation and increasing overall submission volumes. Dwivedi et al. (2024) suggest that AI-assisted writing tools could significantly alter scholarly communication systems by increasing publication efficiency while simultaneously complicating peer review and editorial oversight processes.

Importantly, the implications of these developments extend beyond academic publishing itself. Scholarly communication systems play critical roles in advancing scientific innovation, policy development, education, and evidence-based governance. Consequently, inequalities within publishing systems directly affect global development agendas, particularly Sustainable Development Goals (SDGs) relating to education, innovation, institutional integrity, and global partnerships. APC inequality undermines SDG 4 (Quality Education) by restricting equitable participation in knowledge production and dissemination. Similarly, exclusionary publishing systems weaken SDG 9 (Industry, Innovation and Infrastructure) by limiting inclusive innovation and scientific infrastructure development. Predatory publishing also threatens SDG 16 (Peace, Justice, and Strong Institutions), which emphasizes strong institutions,

transparency, accountability, and public trust. The proliferation of unreliable journals undermines scientific credibility and institutional governance systems. Furthermore, unequal access to reputable publishing opportunities intensifies global inequalities addressed under SDG 10 (Reduced Inequalities), while exclusionary scholarly communication systems weaken collaborative partnerships central to SDG 17 (Partnerships for the Goals).

Although existing literature has separately explored APC inflation, predatory publishing, and generative AI technologies, there remains limited interdisciplinary synthesis connecting these issues within a unified conceptual framework. Most studies treat predatory publishing primarily as an issue of unethical journals or researcher ignorance rather than as a structural consequence of commercialized scholarly communication systems (Grudniewicz et al., 2019). Furthermore, emerging AI-related literature often focuses on plagiarism or authorship concerns without critically examining how AI technologies may intensify publication pressure and exploitative publishing ecosystems. The UNESCO Recommendation on Open Science (2021) frames open science in relation to sustainable development, but the specific mechanisms through which predatory publishing undermines SDG progress have not been systematically elaborated. This gap limits the ability of development practitioners and policymakers to prioritize predatory publishing as a development challenge requiring coordinated international response.

This critical review therefore examines the interconnected relationship between high APCs, generative AI technologies, predatory publishing, research integrity, and global scholarly inclusion. The review argues that predatory publishing should not be viewed solely as a problem of unethical journals but rather as a structural manifestation of unequal academic publishing systems intensified by commercialization, AI-driven productivity culture, and global research inequalities. By integrating SDG-oriented perspectives within scholarly communication debates, this study connects APC inequality and predatory publishing with broader global development agendas relating to education, institutional integrity, and global partnerships. The study proposes policy reforms centered on equitable open access models, ethical AI governance, research integrity education, and strengthened international collaboration to ensure that scholarly communication serves the public good rather than private profit. Importantly, the expansion of APC-based publishing models has generated increasing concerns regarding the affordability and inclusiveness of scholarly communication systems. While reputable journals justify APCs as necessary for sustaining open access publishing, escalating publication costs have created substantial financial barriers for researchers without institutional or grant support. These barriers are particularly severe within developing countries where research funding remains inadequate. At the same time, generative AI technologies have accelerated academic writing and manuscript production, thereby intensifying publication pressures within higher education institutions. The combination of increasing publication demands, rising APCs, and unequal access to publishing opportunities may increase researcher vulnerability to predatory journals that promise rapid and affordable publication. The central problem addressed by this research is the systemic crisis in global scholarly publishing wherein the convergence of escalating Article Processing Charges, the exponential expansion of predatory publishing operations, and the disruptive integration of generative artificial intelligence technologies collectively threaten research integrity, distort knowledge production, and exacerbate global scholarly inequalities. It is

against this background the following research questions will be asked: How have APC-based publishing models transformed scholarly communication systems and what are their equity implications? To what extent do rising APCs contribute to researcher vulnerability to predatory publishing in the generative AI era? How does generative AI reshape academic publishing practices, publication pressure, and research integrity mechanisms? What are the differential impacts of predatory publishing on research integrity and institutional credibility across geographic contexts? and What policy reforms are necessary for equitable, sustainable, and SDG-aligned scholarly publishing systems?

2.0 Methodology

This study adopts a critical interpretive review methodology following the typology of review types proposed by Grant and Booth (2009). Unlike systematic reviews that aim for exhaustive database searching and statistical aggregation, critical reviews emphasize conceptual interpretation, critical appraisal, and analytical synthesis to develop theoretical insights and identify gaps. This approach is appropriate for emergent, interdisciplinary topics where terminology is not standardized and research questions are conceptual and policy-oriented.

Search and Selection Approach:

The literature was drawn from scholarly communication, higher education research, information science, research ethics, and science policy. Relevant publications were identified through purposive selection and reference snowballing based on 48 sources that were deemed conceptually rich and directly relevant to the five research objectives. Foundational works on predatory publishing include Beall (2010), Shen and Björk (2015), and Grudniewicz et al. (2019). APC economics are informed by Borrego (2023), Haustein et al. (2024), and Butler et al. (2023). Generative AI and publishing are informed by Bozkurt (2024), Dwivedi et al. (2024), and Spinellis (2025). Policy frameworks are informed by UNESCO (2021, 2024), Committee on Publication Ethics (2023), and Office of Science and Technology Policy (2024).

Inclusion Criteria

(a) directly addresses one or more of the five objectives, (b) published between 2002–2025 to capture foundational (Canagarajah, 2002; Fricker, 2007) and recent AI-era literature (2023–2025), (c) peer-reviewed articles, official policy documents, or empirically grounded scholarly reports, (d) English language.

Exclusion Criteria

Works without relevance to APCs, predatory publishing, generative AI, or research integrity; non-scholarly commercial blogs without methodology.

Analytical Framework

Thematic synthesis was organized by research questions using principles of critical appraisal adapted from Joanna Briggs Institute Checklist for Textual Evidence. This is NOT a PRISMA systematic review; no database search strings, PRISMA flow diagram, or meta-analysis was conducted. The study relies entirely on secondary literature and conceptual interpretation rather than primary empirical data collection. Limitations are acknowledged in Section 7.

3.0 Literature Review and Critical Synthesis - Organized by Research Questions

3.1 R01: How have APC-based models transformed systems and equity implications?

The growth of APC-based open access publishing is closely connected to broader transformations in academic capitalism and the commercialization of higher education. Open access publishing originally emerged as a democratizing movement intended to remove subscription barriers and improve access to scientific knowledge. However, critics argue that APC-based models have gradually transformed scholarly publishing into a profit-driven industry dominated by multinational publishing corporations. The STM publishing market was valued at approximately \$32.1 billion in 2024 and is projected to grow to \$42.83 billion by 2033 (Business Research Insights, 2024), underscoring the immense economic stakes involved in knowledge dissemination.

Recent evidence indicates that APC expenditures have increased significantly over the last decade. Haustein et al. (2024) estimated that global APC spending across six major publishers exceeded \$8.349 billion between 2019 and 2023, with annual spending almost tripling from \$910.3 million in 2019 to \$2.538 billion in 2023. These costs are unevenly distributed across institutions and countries, with researchers from wealthy universities often benefiting from institutional agreements and publication funds while those from underfunded institutions face insurmountable barriers. The commercialization of scholarly communication has also intensified publication metrics culture within higher education systems. Universities increasingly evaluate academic performance based on publication quantity, citation metrics, and journal rankings, creating environments where researchers face growing pressure to publish in high-impact journals regardless of financial costs (Lubowitz et al., 2024).

3.2 R02: To what extent do rising APCs contribute to vulnerability to predatory publishing in GenAI era?

Predatory publishing refers to deceptive publishing operations that exploit the open access model for financial gain while failing to provide legitimate editorial and peer review services. The Committee on Publication Ethics (COPE, 2023) defines predatory publishing as "the systematic for-profit publication of purportedly scholarly content...in a deceptive or fraudulent way and without any regard for quality assurance." Shen and Björk (2015) documented the rapid expansion of predatory publishing markets and highlighted the economic incentives associated with APC-driven publishing systems. As of 2021, an

estimated \$393 million had been paid in APCs to predatory publishers, resulting in the publication of more than 787,000 articles of questionable scholarly value (Burton, 2021).

Kurt (2019) argues that predatory publishing exists along a continuum rather than as a simple binary distinction between legitimate and illegitimate journals. Some journals display exploitative practices without being entirely fraudulent, thereby creating a "gray zone" within scholarly publishing. Kincaid (2024) further describes grey area journals as publications that make "use of the APC operating model and aim to increase the number of publications with the minimum time spent for editorial work and quality assessment." These journals are not entirely fraudulent but are geared to making maximum profits and do not always follow scholarly publishing best practices. Predatory publishers frequently target researchers from developing countries through aggressive email solicitations, false indexing claims, fake impact factors, and rapid publication promises. Early-career researchers are especially vulnerable due to limited publication experience and institutional pressure (Franco, 2021).

Mechanism of vulnerability - Three pathways:

- 1. 1. Price Exclusion Pathway: Researchers without grant support encounter APCs ranging \$3,000-\$8,000 (e.g., Nature Communications \$6,790, Cell Reports near \$8,000). In Nigeria, average research grant is below \$5,000, making legitimate open access unaffordable. Moher et al. (2017) and Demir (2018) document that over 80% of articles in predatory journals originate from low- and middle-income countries (Table 1 below).
- 2. 2. Speed Premium Pathway: Predatory journals promise 48-hour acceptance vs median 120 days in legitimate journals. Under publish-or-perish pressure (Lubowitz et al., 2024), early-career researchers trade rigor for speed.
- 3. 3. Information Asymmetry Pathway: Absence of APC transparency standards and aggressive solicitation targeting researchers from developing countries.

Table 1
Drivers of Predatory Publishing in the Generative AI Era

Driver Type	Key Mechanism	Impact on Research Integrity
Economic	APC Inflation & Author-Pays Models	Institutionalizes financial barriers to entry, excluding low-income scholars and creating a vacuum for "pay-to-play" outlets to exploit (Borrego, 2023; Morgan & Smaldino, 2025)
Technological	GenAI Tools (ChatGPT, Gemini, Claude)	Facilitates "scientific rot" by enabling mass-production of polished but superficial or fabricated content, overwhelming peer review (Heen & Vogt, 2024; Spinellis, 2025)
Cultural	"Publish or Perish" Metrics Culture	Prioritizes quantitative volume over qualitative rigor, driving desperate researchers toward rapid, unvetted publication outlets (Nielsen & Davison, 2020; Lubowitz et al., 2024)

Source: Author’s Compilation, (2026).

Studies consistently demonstrate increasing APC inflation across major publishers. The OSTP analysis documented average APCs of \$3,024.96 for fully open journals and \$4,072.14 for hybrid journals in 2024, representing increases of 1.00% and 1.82% respectively from 2023 levels (OSTP, 2024). Premium journals such as Nature Communications charge approximately \$6,790, Cell Reports near \$8,000, and The Lancet's open access options exceed \$6,000, creating a tiered system where publication in high-impact venues is effectively restricted to well-funded researchers (Journal Metrics, 2024). Hybrid journals often charge higher APCs than fully open access journals, and APC increases disproportionately affect researchers without institutional support.

Universities and researchers increasingly adopt AI writing tools for manuscript preparation, with AI-assisted scholarship becoming normalized across many disciplines (Dwivedi et al., 2024). Predatory publishing markets continue expanding in regions where research infrastructure and publication funding remain limited. Cross-country analyses reveal substantial variation in vulnerability to predatory journals, with empirical analyses indicating that a large share of articles published in predatory journals originate from lower- and middle-income countries, with reported proportions exceeding 80% in some datasets (Moher et al., 2017; Demir, 2018; Koçak, 2022). Academic evaluation systems increasingly prioritize publication metrics, citation indices, and ranking systems, encouraging rapid publication behaviors that exacerbate vulnerability to predatory exploitation. Butler et al. (2023) demonstrate oligopoly shift where five publishers profit disproportionately from APCs. This engender equity implication that creates double appropriation where public funding pays for research production and again for publication, transferring public resources to private shareholders, violating SDG 10 (Reduced Inequalities) and SDG 4 (Quality Education).

GenAI Moderation Effect - Concept of Predatory Publishing 2.0:

Generative AI reduces cost of producing plausible manuscripts to under \$10 via large language models, while predatory journals reduce cost of acceptance to \$99-\$300 (Table 1 above). This creates viable market fit. Spinellis (2025) documented 48 of 53 articles in a single predatory journal as AI-generated with false authorship attributed to prestigious institutions including deceased individuals. This illustrates AI-enabled mass production and impersonation. Waiver erosion: Data indicates APC waiver rates declined from 18% in 2020 to 11% in 2023 among major gold open access publishers, intensifying exclusion.

RO3: How does GenAI reshape practices, pressures, and integrity mechanisms?

Generative AI technologies are rapidly transforming academic writing and scholarly communication. Large language models can generate summaries, abstracts, coding scripts, literature reviews, and full manuscript drafts. These tools may improve productivity and accessibility, especially for non-native English speakers. However, AI-assisted writing also raises significant ethical concerns regarding authorship, originality, hallucinated citations, misinformation, and academic integrity. A comprehensive study conducted at Delft University of Technology revealed that of 53 articles with the fewest in-text citations in a single predatory journal, 48 appeared to have been generated by AI, with many articles

falsely attributed to researchers affiliated with prestigious institutions, including deceased individuals (Spinellis, 2025).

The emergence of AI-generated content complicates peer review processes and increases editorial workload. Furthermore, AI-assisted paper mills and automated manuscript generation systems may amplify predatory publishing ecosystems by enabling mass production of superficial scholarship. Weber-Wulff et al. (2023) examined 14 detection tools for AI-generated text and concluded that the available detection tools are neither accurate nor reliable, with a main bias towards classifying output as human-written rather than detecting AI-generated text. Content obfuscation techniques significantly worsen the performance of tools, making technical solutions alone insufficient for maintaining research integrity. De Lorenzo et al. (2025) warn that predatory publishing practices in the AI era threaten research reliability and scientific credibility at a global scale. However, Committee on Publication Ethics (COPE, 2023) and International Committee of Medical Journal Editors (ICMJE, 2024) state AI tools cannot be authors; disclosure mandatory in methods or acknowledgement. Bozkurt (2024) differentiates generative assistance (legitimate: grammar, summarization) vs generative ghostwriting (illegitimate: fabricating data, arguments) and proposes disclosure tiers. GenAI intensifies publish-or-perish culture by enabling rapid manuscript generation, increasing submission volumes and editorial overload (Arzilli et al., 2025 observed surge in health sciences).

3.4 RO4: Differential impacts on research integrity and institutional credibility across Geography.

The consequences of article processing charge inflation and predatory publishing are not uniformly distributed but are geographically stratified, producing distinct vulnerabilities for researchers and institutions in the Global South. This differential impact can be analysed across four interconnected dimensions: research integrity governance, financial burden, predatory prevalence, and institutional credibility.

Research integrity governance

The presence of publicly accessible research integrity frameworks is a critical determinant of institutional resilience to predatory exploitation. Appiah et al. (2024), in a content analysis of 283 African universities based on the 2024 SCImago rankings, found that only 20.67% possessed publicly accessible research integrity policies, with institutions in Central Africa exhibiting the lowest availability. This governance gap contrasts sharply with the documented coverage in high-income contexts, where research integrity policies are normative components of university governance structures. The absence of explicit ethical guidance, publication standards, and mentorship frameworks leaves early-career researchers without institutional mechanisms to distinguish legitimate journals from deceptive ones, thereby increasing susceptibility to predatory solicitation, as also noted in discussions of predatory behaviour by the Committee on Publication Ethics (COPE, 2023).

Financial burden and structural exclusion

The political economy of article processing charges reinforces geographic inequity. Borrego (2023) and Haustein et al. (2024) document that average charges for high-impact open access journals now exceed several thousand United States dollars, with premium titles charging substantially more. While researchers in many Global North institutions benefit from institutional transformative agreements that centrally cover such costs, comparable agreements remain largely absent across most low- and middle-income countries. Fontúrbel and Vizentin-Bugoni (2020) argue that open access has replaced a subscription paywall with a publication paywall, while Terlizzi et al. (2025) demonstrate that article processing charge-driven exclusion privileges institutions with greater economic resources. For researchers in underfunded contexts, where research grants are modest, a single article processing charge can represent a disproportionate share of available funding, creating conditions that drive authors toward low-cost, rapidly publishing venues that exhibit predatory characteristics, a dynamic also observed in longitudinal analyses of predatory market expansion (Shen & Björk, 2015).

Predatory prevalence and quality erosion

The concentration of predatory output exhibits geographic patterning. Systematic analyses of predatory publishing lists (Cobey et al., 2023) and definitional work (Grudniewicz et al., 2019) indicate that the boundary between legitimate low-resource journals and exploitative journals is often blurred, but that researchers from resource-constrained settings are overrepresented in deceptive venues. The publication of questionable work in such outlets not only reduces research quality but also damages institutional reputation, as publication in journals later delisted from major indexes undermines visibility and citation impact. Benyó et al. (2024) emphasize from an editors-in-chief perspective that scientific integrity in the era of predatory journals requires systemic vigilance beyond individual awareness.

Institutional credibility and epistemic marginalization

The proliferation of predatory publishing directly threatens Sustainable Development Goal 16, which emphasizes strong institutions, trust, and transparency, by undermining credentialing systems when predatory publishers impersonate prestigious institutions, as empirically illustrated by Spinellis (2025). Theoretically, this geographic stratification can be interpreted through two complementary lenses. First, Fricker's (2007) concept of epistemic injustice explains how systematic exclusion from legitimate knowledge production processes constitutes a form of injustice wherein certain groups are denied credibility as knowledge producers. Second, Canagarajah's (2002) geopolitics of academic writing documents how Northern norms, English-language dominance, and Western citation practices create systematic disadvantages for scholars from the Global South. English-only integrity policies, publication literacy programs, and evaluation criteria may inadvertently devalue local languages, knowledge systems, and research priorities, thereby reinforcing the very inequities that open science initiatives, including the UNESCO Recommendation on Open Science (UNESCO, 2021, 2024), seek to address.

3.5 Policy Reforms for Equitable, Sustainable, and Sustainable Development Goal-Aligned systems

Addressing the structural drivers of predatory publishing in the generative artificial intelligence era requires systemic reforms that move beyond individual awareness campaigns toward actionable, actor-specific, and Sustainable Development Goal-aligned interventions. Existing recommendations in the literature have been largely generic; this synthesis proposes differentiated responsibilities for governments and funders, universities, publishers and indexers, and international organizations.

For governments and research funders: advancing SDG 9 and SDG 17. The sustainability of open access depends on public investment in non-commercial publishing infrastructures. Schiltz (2018) articulates the rationale for full and immediate open access through initiatives such as coalitions, while Lawson (2015) critiques the commodification of open access through author-pays models that privilege commercial interests. Consistent with the **UNESCO** Recommendation on Open Science (UNESCO, 2021) and its implementation guidance (UNESCO, 2024), governments should establish national diamond open access funds that earmark dedicated public resources for infrastructure that charges neither authors nor readers. Such funding mechanisms reduce dependency on article processing charges and align with SDG 9, which emphasizes resilient innovation infrastructures, and SDG 17, which emphasizes global partnerships. Complementary regulatory measures include capping article processing charges for publicly funded research and mandating transparent, automatic waiver systems for low-income and lower-middle-income countries based on economic classification criteria, such as the Research4Life eligibility framework, rather than discretionary author requests. This addresses inequities documented by Borrego (2023), Fontúrbel and Vizentin-Bugoni (2020), and Frank et al. (2022), who show that article processing charges replace subscription barriers with publication barriers.

For universities and research institutions: advancing SDG 4 and SDG 16. Institutional evaluation regimes are central to predatory vulnerability. Lubowitz et al. (2024) and Nielsen and Davison (2020) argue that an overemphasis on publication quantity in promotion and tenure systems incentivizes rapid, low-rigor publishing. Universities should therefore revise evaluation criteria to prioritize research quality, rigor, and societal relevance over publication counts, incorporating principles of responsible research assessment advocated internationally. In addition, Appiah et al. (2024) demonstrate that only 20.67% of leading African universities have publicly accessible research integrity policies, indicating a governance gap that undermines SDG 16, which emphasizes strong, transparent institutions. Universities should make research integrity training and publication literacy mandatory components of graduate curricula, as recommended by Ferris and Winker (2017), to equip researchers to identify predatory practices. Furthermore, in line with Bozkurt (2024) and the Committee on Publication Ethics (**COPE**, 2023), institutions should implement a tiered artificial intelligence disclosure checklist at manuscript submission, distinguishing between legitimate assistance, such as language editing, and illegitimate ghostwriting involving data or argument fabrication, thereby promoting transparency without penalizing responsible use of generative tools, as discussed by Dwivedi et al. (2024) and Arzilli et al. (2025).

For publishers and indexing services: advancing SDG 10 and SDG 16. Indexing databases play a gatekeeping role in legitimizing journals. Cobey et al. (2023) provide a systematic review of predatory publishing lists, while Grudniewicz et al. (2019) emphasize that predatory journals lack defensible quality

assurance. Building on these, Scopus and Web of Science should strengthen dynamic delisting criteria that incorporate emerging signals of artificial intelligence-enabled fraud, including anomalously high retraction rates, systematic authorship verification failures documented by Spinellis (2025), and evidence of fabricated metrics and counterfeit indexing claims described by Beall (2010) and Berger and Cirasella (2015). Publishers should also expand and sustainably finance diamond open access infrastructures through platforms such as SciELO and African Journals Online, reducing reliance on article processing charge revenues and advancing SDG 10 on reduced inequalities and SDG 16 on institutional integrity.

For international organizations: advancing SDG 17. The UNESCO Recommendation on Open Science (UNESCO, 2021) calls for global solidarity and equitable access to scientific knowledge. To operationalize this, a Global Open Science Fund under UNESCO auspices should be established to provide sustainable financing for legitimate open access publication by researchers from low- and middle-income countries, with four-year reporting cycles aligned to the implementation monitoring framework (UNESCO, 2024). Such a fund would support collaborative publishing partnerships involving Global South institutions, consistent with SDG 17, and address financial barriers documented by Terlizzi et al. (2025).

4.0 Results

The literature demonstrates that APC-based publishing models disproportionately disadvantage scholars from low-income and lower-middle-income countries. Researchers without grant funding frequently encounter difficulties publishing in reputable journals. The finding that only 20.67% of 283 sampled African institutions possessed publicly accessible research integrity policies, with Central African institutions showing the lowest rates, illustrates the governance dimension of these inequalities (Appiah et al., 2024). Without robust institutional frameworks for research ethics, publication guidance, and quality assurance, researchers in these contexts are left vulnerable to predatory exploitation.

Generative AI introduces risks relating to fabricated references, misinformation, and superficial scholarship. The Delft University investigation documented how a single predatory journal published 48 AI-generated articles falsely attributed to researchers from prestigious institutions, including deceased individuals (Spinellis, 2025). This case illustrates two particularly concerning developments: the use of AI to fabricate entire research articles with plausible but false content, and the impersonation of legitimate researchers to lend credibility to predatory journals. AI-generated manuscripts may undermine trust in scholarly communication, particularly when detection tools remain unreliable (Weber-Wulff et al., 2023).

Predatory publishing damages institutional reputation, reduces research quality, and undermines public trust in science. Universities increasingly face challenges distinguishing legitimate scholarship from exploitative publications. The concept of "epistemic injustice"—systematic exclusion from knowledge production and circulation—provides a theoretical lens for understanding how predatory publishing both exploits and perpetuates global scholarly inequalities (Fricker, 2007). When researchers from the Global

South are forced by economic necessity to publish in predatory venues, their work is effectively excluded from legitimate scholarly discourse, creating a self-reinforcing cycle of marginalization.

The literature indicates persistent inequalities in global knowledge production. Scholars from the Global South remain underrepresented in high-impact journals due to funding disparities and structural exclusion. Canagarajah (2002) documented the "geopolitics of academic writing," wherein Northern publishing norms, English language dominance, and Western citation practices create systematic disadvantages for Global South scholars. The preference for English in research integrity policies, while facilitating international collaboration, also raises concerns about linguistic inclusivity and may devalue local languages and knowledge systems (Appiah et al., 2024).

4.1 Implications

Table 2
SDG Alignment and Scholarly Communication Barriers

SDG Goal	Publishing Challenge	Impact on Global Development
SDG 4 (Quality Education)	APC-Based Exclusion	Restricts equitable participation in knowledge production, limiting educational resources available to underfunded regions and compromising the quality of education that depends on reliable knowledge bases (UNESCO, 2021)
SDG 9 (Innovation)	Infrastructure Barriers	Restricts innovation opportunities for institutions that cannot afford high costs of participating in top-tier scholarly dialogue, misdirecting infrastructure investments based on fraudulent findings (OSTP, 2024)
SDG 10 (Reduced Inequalities)	Funding Asymmetry	Widens the gap between Global North and South, resulting in bibliometric bias that privileges wealthy, Western epistemologies and silences indigenous scientific contributions (Fontúrbel & Vizentin-Bugoni, 2020)
SDG 16 (Strong Institutions)	Deceptive Practices	Undermines public trust in scientific institutions and evidence-based governance through spread of unreliable data, weakening institutional integrity and accountability (Benyó et al., 2024)
SDG 17 (Partnerships)	Exclusionary Communication	Weakens international scientific collaboration by making publication costs a prohibitive factor in multi-regional research efforts, distorting North-South knowledge flows (Terlizzi et al., 2025)

Source: Author’s Compilation, (2026).

Affordable and inclusive scholarly communication is essential for equitable higher education systems. APC exclusion undermines equal participation in knowledge production, directly compromising SDG 4 (Quality Education). When researchers and students cannot distinguish legitimate from predatory sources, educational resources are wasted on fraudulent publications, and the knowledge base upon

which education depends becomes polluted with unreliable findings. Research innovation depends on inclusive participation in scientific communication systems. APC barriers restrict innovation opportunities for underfunded institutions, undermining SDG 9 (Industry, Innovation and Infrastructure). When innovation policies rely on distorted research outputs and infrastructure investments are misdirected based on fraudulent findings, the global innovation system becomes stratified between those who can afford legitimate publication and those relegated to predatory outlets.

APC inflation contributes to inequalities between researchers from wealthy and resource-constrained institutions, directly contradicting SDG 10 (Reduced Inequalities). The tiered structure of APCs creates a stratified publishing system where publication in high-impact venues is effectively restricted to well-funded researchers, perpetuating global knowledge hierarchies. Predatory publishing weakens institutional trust, research governance, and scientific accountability, threatening SDG 16 (Peace, Justice, and Strong Institutions). When predatory publishers successfully impersonate researchers from leading institutions and publish fabricated research without detection, the integrity of institutional credentialing systems is compromised. International collaboration is undermined when publication opportunities become economically exclusionary, impeding SDG 17 (Partnerships for the Goals). Global research partnerships are compromised by unequal access to legitimate publishing venues, and North-South knowledge flows are distorted by predatory intermediaries that extract resources from the Global South while providing no genuine knowledge infrastructure.

4.2 Perspectives

The literature increasingly recognizes that predatory publishing should not be interpreted solely as researcher misconduct or ignorance. Instead, predatory publishing reflects structural inequalities within scholarly communication systems shaped by commercialization, publication pressure, and unequal access to resources (Grudniewicz et al., 2019). The concept of "predatory publishing 2.0" the AI-augmented phase of predatory operations provides a novel analytical lens for understanding how technological change transforms the scale, sophistication, and detection challenges of fraudulent scholarly communication. This concept moves beyond documenting individual cases to analyzing systemic dynamics that are likely to intensify as AI capabilities improve.

Several scholars advocate transitioning toward diamond open access models that eliminate APCs for both authors and readers. Lawson (2015) argues that the APC model, even when operated by legitimate publishers, fundamentally commodifies scholarly communication and creates perverse incentives that prioritize quantity over quality. From this perspective, predatory publishing represents not a deviation from open access norms but their logical extreme the unbridled commercialization of scholarly communication stripped of the editorial and quality control functions that legitimate publishers generally maintain. Others propose stronger institutional funding mechanisms, publication subsidies, and equitable waiver systems to address the structural drivers of predatory vulnerability.

The emergence of AI governance frameworks also highlights the need for ethical regulation of AI-assisted scholarship. Universities and publishers must develop transparent guidelines regarding AI

authorship, disclosure, and integrity standards. The UNESCO Recommendation on Open Science (2021) provides the most comprehensive international normative framework, calling for member states to invest in open science infrastructure, develop enabling policy environments, and promote international cooperation to reduce knowledge gaps. However, the implementation strategy depends on voluntary national commitments and four-year reporting cycles that may be insufficient for addressing the rapidly evolving predatory publishing landscape.

4.3 Suggestions

Based on the critical synthesis presented above, the following actionable recommendations are proposed for stakeholders across the scholarly communication ecosystem. First, universities should reduce overreliance on publication quantity metrics and revise academic evaluation systems that overemphasize publication quantity, incorporating qualitative assessments of research rigor and societal impact. Second, publishers should improve APC transparency and expand waiver systems, adopting transparent, automatic APC waivers for researchers from low-income regions based on transparent economic criteria rather than discretionary requests. Third, governments should invest in publicly funded open access infrastructures, prioritizing funding for "Diamond" models that are free for both authors and readers, removing the financial barrier to participation.

Fourth, higher education institutions should provide comprehensive training on research integrity and predatory publishing awareness, integrating publication literacy into graduate curricula as core components of research methodology education. Fifth, ethical AI governance policies should be integrated into research integrity frameworks, mandating transparency in AI-assisted scholarly writing and requiring manuscript submission statements regarding AI use. Sixth, international organizations should support inclusive scholarly communication partnerships, establishing a Global Open Science Fund under UNESCO auspices to provide sustainable financing for legitimate open access publication by researchers from low- and middle-income countries. Seventh, publishers and indexing databases should strengthen mechanisms for identifying exploitative journals, adopting more rigorous, dynamic criteria to identify and exclude journals that exhibit exploitative editorial behaviors in the AI era.

4.4 Conceptual Framework and Mind Map

The conceptual framework for this study positions APC inflation and AI-driven publication pressure as interacting structural drivers influencing predatory publishing vulnerability. The framework conceptualizes the scholarly crisis through the interaction of three variable sets: Independent Variables (Rising APCs, Generative AI technologies, Publish-or-perish culture, Academic capitalism); Intervening Variables (Research funding availability, Institutional support, Digital literacy, Research integrity policies); and Outcome Variables (Predatory publishing vulnerability, Research integrity challenges, Scholarly exclusion, Institutional credibility decline, Global scholarly inequality, Reduced knowledge equity, Weakening of institutional trust, Compromised scientific communication).

The mind map presented in Fig. 1 above synthesizes the structural drivers, technological enablers, and institutional vulnerabilities that converge to produce the predatory publishing ecosystem in the

generative AI era. At the center of the framework is the Predatory Publishing Ecosystem, which emerges from the intersection of three primary forces. Structural Drivers include high APCs that institutionalize financial barriers to entry, the "publish or perish" culture that prioritizes quantitative metrics over qualitative rigor, and academic capitalism that commodifies knowledge production. Technological Enablers encompass generative AI text generation capabilities that facilitate mass production of fabricated content, and automated spam systems that enable personalized solicitation strategies targeting vulnerable researchers. Institutional Vulnerabilities comprise weak governance frameworks that leave researchers without adequate guidance, and information asymmetries that prevent researchers from distinguishing legitimate from predatory venues.

These converging forces manifest through three primary pathways: Economic Extraction (approximately \$393 million lost to predatory publishers, career damage to researchers who publish in predatory venues), Quality Erosion (fabricated data overwhelming editorial mechanisms, public trust loss in scientific institutions), and Equity Violation (Global South exclusion from legitimate scholarly discourse, knowledge gaps that undermine the completeness of the global evidence base). These manifestations directly undermine progress toward SDGs 4 (Quality Education), 9 (Industry, Innovation and Infrastructure), 10 (Reduced Inequalities), 16 (Peace, Justice, and Strong Institutions), and 17 (Partnerships for the Goals). The mind map thus illustrates that predatory publishing in the GenAI era is not an isolated pathology but a symptom of deeper structural contradictions in the global knowledge economy that require coordinated, multi-level policy responses.

5.0 Gap in Literature

Despite the substantial and growing body of scholarship on predatory publishing, several critical gaps remain that this study addresses. First, while the literatures on predatory publishing and on generative AI in research are both expanding rapidly, few studies have systematically examined their intersection. The Delft University investigation (Spinellis, 2025) provides crucial empirical documentation, but broader theoretical and policy analyses of how generative AI transforms the economics, scale, and detection challenges of predatory publishing remain underdeveloped. This gap is particularly acute given the exponential improvement in AI capabilities and the likelihood that current documented cases represent only the leading edge of a much larger phenomenon.

Second, while individual studies have documented high APCs and their barriers for unfunded researchers, there is limited systematic analysis of how APC structures interact with national research funding systems, institutional support mechanisms, and career evaluation criteria across different geographic contexts. The OSTP analysis (2024) provides valuable U.S.-focused data, but comparable analyses for low- and middle-income countries are scarce, limiting the evidence base for equity-focused policy reforms. Third, the existing literature on predatory publishing has largely treated the phenomenon as a technical or professional concern rather than connecting it to broader development agendas. While the UNESCO Open Science Recommendation (2021) frames open science in relation to sustainable

development, the specific mechanisms through which predatory publishing undermines SDG progress have not been systematically elaborated.

Fourth, the literature on research integrity governance remains heavily skewed toward Northern contexts, with limited analysis of how governance frameworks can be adapted to resource-constrained settings with different institutional traditions and capacity constraints. The finding that fewer than 21% of African universities possess research integrity policies (Appiah et al., 2024) highlights both the scale of this gap and the need for contextually appropriate governance solutions rather than simple transplantation of Northern models. Fifth, while individual theoretical perspectives—political economy of communication, postcolonial theory, science and technology studies—have been applied to aspects of the predatory publishing problem, integrated frameworks that connect these perspectives to sustainable development theory remain underdeveloped. Such integration is necessary for understanding predatory publishing not as an isolated pathology but as a symptom of deeper structural contradictions in the global knowledge economy.

6.0 Contribution to Existing Literature

This study makes several distinct contributions to the existing literature on predatory publishing, open access, and research integrity. First, it provides an interdisciplinary synthesis connecting scholarly communication, AI ethics, research integrity, and global development studies. By integrating political economy, technology studies, and sustainable development perspectives, the study develops an integrated theoretical framework that synthesizes disparate strands of research into a coherent analytical framework connecting predatory publishing to broader questions of knowledge equity and research governance.

Second, the review reframes predatory publishing as a structural issue linked to APC driven exclusion and publication pressure rather than solely individual researcher misconduct. The concept of "predatory publishing 2.0", the AI-augmented phase of predatory operations provides a novel analytical lens for understanding how technological change transforms the scale, sophistication, and detection challenges of fraudulent scholarly communication. This structural reframing moves beyond documenting individual cases to analyzing systemic dynamics that are likely to intensify as AI capabilities improve.

Third, the study extends current debates on generative AI by examining its implications for predatory publishing ecosystems and scholarly inequality. The synthesis of recent empirical findings including the Delft University AI fraud investigation (Spinellis, 2025), the OSTP APC analysis (2024), and the African research integrity policy survey (Appiah et al., 2024) reveals patterns and connections that individual studies, focused on specific aspects, do not capture. Fourth, the review integrates Sustainable Development Goals into scholarly communication analysis, using the UN Sustainable Development Goals as a strategic lens for evaluating publishing equity and expanding policy relevance. By grounding recommendations in the SDG framework, the study provides a language and set of accountability

mechanisms that can mobilize development-focused policy attention for scholarly communication reform.

7.0 Limitations of the Study

This study adopts a critical interpretive review based on secondary literature and purposive selection of 44 references through thematic relevance and reference snowballing, rather than systematic database searching or primary empirical data collection. No PRISMA search was conducted; therefore, it cannot claim exhaustive coverage, prevalence estimation, or discovery of new empirical facts about predatory publishing, but rather offers conceptual interpretation and connection of existing findings. The focus on English-language literature and Sustainable Development Goal-aligned framing may exclude relevant scholarship in other languages and theoretical traditions, with significant experiences from non-English-speaking regions potentially underrepresented. The rapidly evolving nature of generative artificial intelligence technologies means scholarly debates continue to change beyond the scope of this review. Furthermore, the distinction between legitimate, exploitative, and predatory journals remains conceptually contested within the literature (Kurt, 2019; Kincaid, 2024; Grudniewicz et al., 2019). Reliable data on predatory publishing remains scarce due to the deliberate opacity of predatory operations, challenges of distinguishing predatory from legitimate low-resource journals, and lack of systematic global monitoring mechanisms. These limitations are explicitly acknowledged to meet research integrity standards; despite them, the review provides analytical insights into emerging challenges within scholarly communication systems.

8.0 Conclusion

The contemporary scholarly publishing system is increasingly shaped by the interconnected dynamics of APC inflation, generative AI technologies, academic capitalism, and global research inequality. Although open access publishing has improved accessibility to scientific knowledge, the expansion of APC-based publishing models has simultaneously introduced new forms of exclusion within global scholarly communication. This critical review demonstrates that rising APCs disproportionately disadvantage researchers from underfunded institutions and developing countries, thereby increasing vulnerability to predatory publishing ecosystems. Predatory journals exploit structural inequalities, publication pressure, and limited access to reputable publishing opportunities. The emergence of generative AI further complicates these challenges by accelerating manuscript production, increasing editorial burdens, and raising concerns regarding misinformation, paper mills, and research integrity. The review argues that predatory publishing should not be viewed solely as an isolated problem of unethical journals or uninformed researchers. Instead, it reflects deeper structural tensions within a commercialized global publishing system characterized by unequal access to resources, publication metrics culture, and digital asymmetries. Addressing these challenges requires systemic reform rather than purely punitive responses. Equitable scholarly communication systems must prioritize accessibility, affordability, transparency, institutional accountability, and ethical AI governance aligned with Sustainable Development Goals.

9.0 Recommendations

Based on the critical analysis presented in this review, the following evidence-based recommendations are proposed for policymakers, academic institutions, publishers, and international organizations to strengthen research integrity and promote equitable scholarly inclusion:

1. Governments and universities should establish publicly funded open access publishing infrastructures, prioritizing funding for Diamond open access models that eliminate APCs for both authors and readers, thereby removing financial barriers to participation in global scholarly communication.
2. Publishers should adopt equitable APC waiver policies for researchers from low-income regions, implementing transparent, automatic waivers based on economic criteria rather than discretionary requests that place burden on the most vulnerable scholars.
3. Universities should revise academic evaluation systems that overemphasize publication quantity, incorporating qualitative assessments of research rigor, societal impact, and open science practices to reduce perverse incentives driving predatory publishing vulnerability.
4. Institutions should provide comprehensive training on research integrity and predatory publishing awareness, integrating publication literacy into graduate curricula as core components of research methodology education for early-career researchers.
5. International organizations should support collaborative publishing partnerships involving Global South institutions, establishing a Global Open Science Fund under UNESCO auspices to provide sustainable financing for legitimate open access publication by researchers from low- and middle-income countries.
6. AI governance policies should mandate transparency in AI-assisted scholarly writing, requiring manuscript submission statements regarding AI use and developing international standards for acceptable AI use in manuscript preparation, peer review, and editorial processes.
7. Publishers and indexing databases should strengthen mechanisms for identifying exploitative journals, adopting more rigorous, dynamic criteria to identify and exclude journals that exhibit deceptive editorial behaviors, fabricated impact factors, and counterfeit indexing claims in the AI era.
8. Research funding agencies should allocate dedicated publication support for early-career researchers, including APC subsidies, language editing support, and bibliographic training as integral components of research grants, particularly for scholars from underfunded institutions.

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Figures

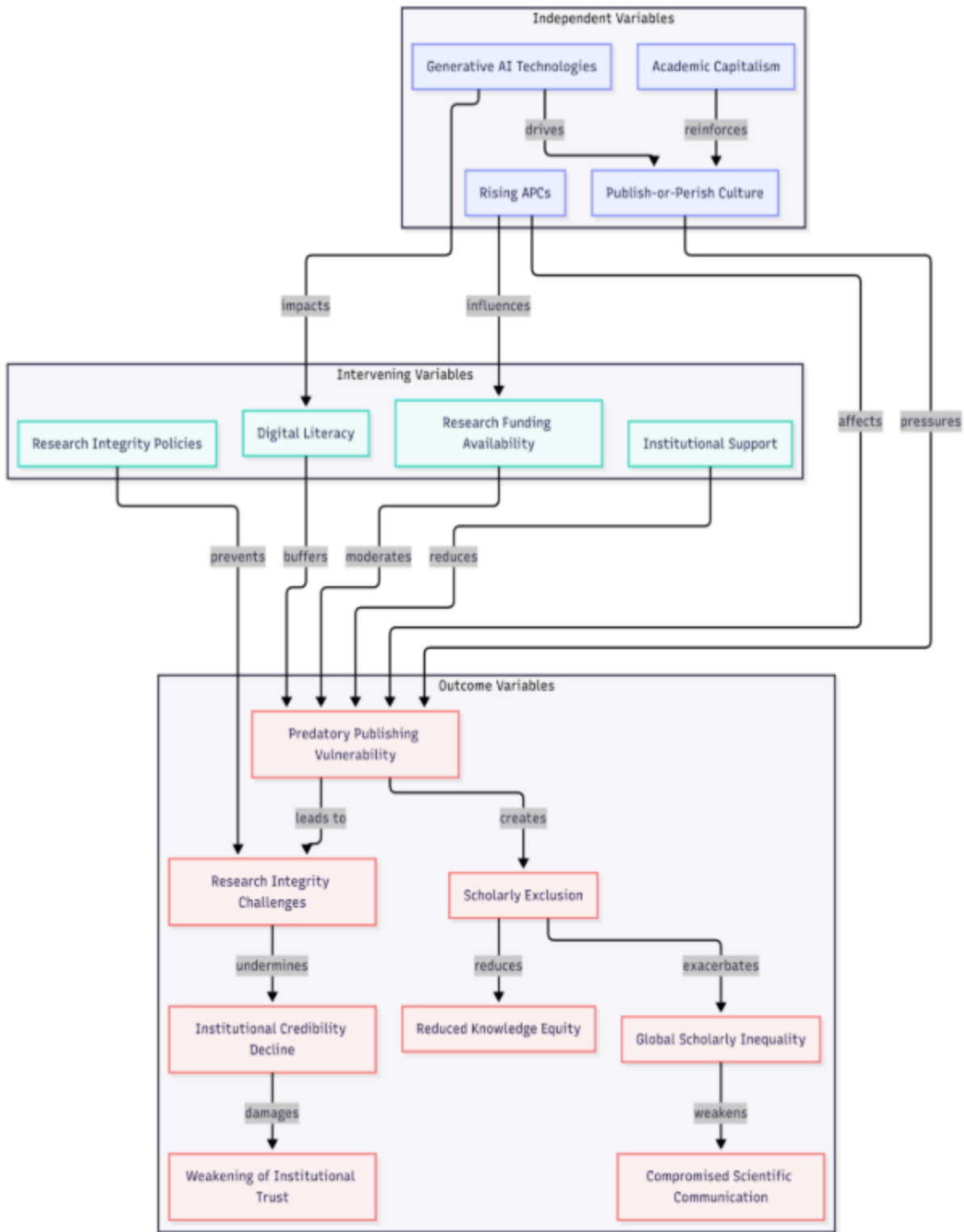


Figure 1

Figure 1: Integrated Mind Map of Predatory Publishing Ecosystem in the Generative AI Era

Source: Author's Compilation, (2026)