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RECONFIGURING THE JOURNAL ECOLOGICAL CHAIN IN VIETNAM: AN OPEN SCIENCE–DRIVEN GOVERNANCE PERSPECTIVE

RECONFIGURANDO A CADEIA ECOLÓGICA DE JORNAIS NO VIETNÃ: UMA PERSPECTIVA DE GOVERNANÇA ORIENTADA PELA CIÊNCIA ABERTA

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Abstract
Vietnam's scholarly journals sit at the intersection of national research evaluation, institutional capacity constraints, and a rapidly changing global publishing environment. While "open science" is often discussed through the lenses of open access or open data, its practical consequences in Vietnam are better understood by examining how it reshapes the journal ecological chain—the interconnected actors, infrastructures, and value flows that move research outputs from production to dissemination and reuse. Building on ecological-chain thinking that conceptualizes journals as part of an end-to-end knowledge system spanning producers, consumers, and "decomposers" (e.g., indexing, archiving, and publishing platforms), this paper offers a Vietnam-focused governance analysis that goes beyond descriptive mapping. We develop a conceptual framework to (i) map the Vietnamese journal ecological chain and its value exchanges, (ii) diagnose governance bottlenecks exposed by open science practices, and (iii) propose a staged, open science–driven reconfiguration strategy compatible with Vietnam's legal, infrastructural, and academic culture conditions. The analysis highlights four governance frictions: incentive misalignment driven by index-based evaluation, fragmented platform interoperability, uneven quality and integrity assurance, and financially fragile publishing operations. We argue that sustainable transformation requires governance by design: interoperable infrastructure (DOI/ORCID/metadata), integrity-by-default standards, incentive reform aligned with responsible metrics, and shared service models that reduce duplicated costs across journals. The proposed roadmap provides actionable pathways for journals, universities, funders, and regulators to coordinate reforms while protecting local-language scholarship and strengthening Vietnam's international publishing visibility.

Resumo
Os periódicos acadêmicos do Vietnã situam-se na interseção entre a avaliação da pesquisa nacional, as limitações de capacidade institucional e um ambiente editorial global em rápida transformação. Embora a "ciência aberta" seja frequentemente discutida sob a ótica do acesso aberto ou dos dados abertos, suas consequências práticas no Vietnã são melhor compreendidas ao examinarmos como ela remodela a cadeia ecológica dos periódicos — os atores interconectados, as infraestruturas e os fluxos de valor que movem os resultados da pesquisa da produção à disseminação e reutilização. Com base no pensamento da cadeia ecológica, que conceitua os periódicos como parte de um sistema de conhecimento de ponta a ponta que abrange produtores, consumidores e "decompositores" (por exemplo, plataformas de indexação, arquivamento e publicação), este artigo oferece uma análise de governança com foco no Vietnã que vai além do mapeamento descritivo. Desenvolvemos uma estrutura conceitual para (i) mapear a cadeia ecológica dos periódicos vietnamitas e suas trocas de valor, (ii) diagnosticar os gargalos de governança expostos pelas práticas de ciência aberta e (iii) propor uma estratégia de reconfiguração gradual, orientada pela ciência aberta, compatível com as condições legais, infraestruturais e da cultura acadêmica do Vietnã. A análise destaca quatro atritos de governança: desalinhamento de incentivos impulsionado pela avaliação baseada em índices, interoperabilidade fragmentada da plataforma, garantia de qualidade e integridade desigual e operações editoriais financeiramente frágeis. Argumentamos que a transformação sustentável requer governança desde a concepção: infraestrutura interoperável (DOI/ORCID/metadados), padrões de integridade por padrão, reforma de incentivos

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Keywords: Journal Ecosystem. Scholarly Publishing. Open Science. Governance. Vietnam. Research Evaluation. Publication Ethics.

alinhada a métricas responsáveis e modelos de serviços compartilhados que reduzam custos duplicados entre periódicos. O roteiro proposto fornece caminhos acionáveis para que periódicos, universidades, financiadores e órgãos reguladores coordenem reformas, protegendo a produção acadêmica em língua local e fortalecendo a visibilidade internacional das publicações vietnamitas.

Palavras-chave: *Ecossistema de Periódicos. Publicação Acadêmica. Ciência Aberta. Governança. Vietnã. Avaliação de Pesquisa. Ética em Publicação.*

1 INTRODUCTION

Over the past two decades, Vietnam's research system has expanded in scale, international visibility, and publication output. Bibliometric studies drawing on international databases show sustained growth in Vietnam's indexed publications, alongside strong international collaboration patterns and uneven disciplinary development (Manh, 2015; Pham-Duc et al., 2022). At the same time, Vietnamese academic governance increasingly treats publication as both a signal and a policy instrument—used to reward institutions, evaluate researchers, and justify resource allocation (Nguyen et al., 2021; Vuong, 2019). This "publication-centric" trajectory has brought benefits, including stronger integration into global scholarship and improved methodological standards in some fields. Yet it has also produced structural tensions for domestic journals, which are expected to deliver credibility, discoverability, and integrity with limited editorial capacity and fragile financial support.

Open science intensifies these tensions because it alters not just *where* research is accessed, but *how* it is produced, reviewed, disseminated, and reused. The international literature frames open science as an umbrella for practices that increase transparency, accessibility, reproducibility, and participation—spanning open access publishing, open data, open peer review, and machine-readable research objects (Munafò et al., 2017; Nosek et al., 2015; Wilkinson et al., 2016). Empirical work has linked open access expansion to large-scale growth trends and shifting citation and visibility dynamics (Laakso et al., 2011; Piwowar et al., 2018). Open data studies similarly suggest measurable citation advantages and broader reuse, reinforcing the idea that openness can

function as a reputational and dissemination multiplier (Piwowar & Vision, 2013). However, open science also introduces governance risks: predatory publishing opportunism, inconsistent policy enforcement, quality variation, and new burdens on editorial workflows (Cukier et al., 2020; Shen & Björk, 2015; Shamseer et al., 2017). In contexts where journal infrastructures are still consolidating—particularly in developing countries—these risks may be amplified rather than mitigated.

A key limitation in Vietnam-focused publishing discussions is that open science is often treated as a standalone "adoption decision" (e.g., whether journals should become open access), rather than a systemic governance challenge. This paper adopts an alternative lens: the *journal ecological chain*. Ecological-chain thinking emphasizes that journals are embedded in a full lifecycle of research achievements, from generation to dissemination, with distinct functional roles across actors and infrastructures. A recent open science–oriented ecological-chain study frames the chain as including producers (researchers, authors, reviewers, editors), consumers (researchers, readers, the public, enterprises), and "decomposers" (databases, archiving services, publishing platforms, indexing services) that store, reorganize, and enable secondary use of knowledge outputs (Chang et al., 2024). This framing is particularly useful for Vietnam because governance bottlenecks are rarely located in a single institution. Instead, they emerge in the *interfaces* between actors—such as how evaluation systems interact with journal incentives, how platforms exchange metadata, or how integrity standards are translated into editorial routines.

The relevance of governance becomes even more pronounced when considering publication ethics and integrity. Internationally, the push toward openness has increased attention to process transparency, data availability, and accountability across the editorial chain (Ross-Hellauer, 2017; Tennant et al., 2017). Yet openness without safeguards can increase exposure to questionable research practices, unreliable outputs, and reputational spillovers. Integrity governance is therefore increasingly approached as a standards-and-systems problem rather than a set of isolated rules. For example, a recent standards-construction study in China proposed a comprehensive publication ethics system organized into modules and thematic elements for authors, editors, and reviewers—illustrating how integrity governance can be formalized into implementable components (Xie et al., 2024). Vietnam's journal system, which includes a mix of university-based

journals, professional society outlets, and institutionally hosted platforms, has strong reasons to pursue similarly systematic approaches, while adapting to local constraints.

This paper contributes to the literature on scholarly publishing governance in three ways. First, it contextualizes the journal ecological chain concept for Vietnam, translating a global open science discourse into an actor-and-value-flow view tailored to national conditions. Second, it identifies governance bottlenecks that remain underexplored in Vietnam-oriented publication policy debates—especially interoperability gaps, incentive misalignment, and integrity infrastructure deficits. Third, it proposes an open science–driven reconfiguration roadmap that is explicitly *governance-oriented*: it specifies what changes should occur at policy, infrastructure, and practice levels, and how responsibilities can be distributed across journals, universities, funders, and regulators. Rather than advocating a single model (e.g., universal APC-funded open access), the paper argues for staged reforms that prioritize interoperability, integrity, and sustainability.

2 CONCEPTUAL BACKGROUND

2.1 Journal ecological chain as a socio-technical system

In publishing studies and scientometrics, journals are often studied as containers of articles, citation nodes, or prestige signals. Ecological-chain thinking broadens that view by treating scholarly communication as a multi-actor system with interdependent functions across the research lifecycle. In the ecological chain perspective, journals do not merely "publish"; they coordinate quality control, standardize knowledge objects, enable discoverability through metadata, and support the long-term stewardship and reuse of research outputs (Chang et al., 2024). Importantly, "decomposer" actors—indexing services, archiving platforms, databases—are not passive repositories. They actively shape how research is surfaced, evaluated, and recombined, thereby influencing downstream scientific and societal value.

For Vietnam, this socio-technical framing helps explain why many policy interventions underperform when applied narrowly. For instance, encouraging journals to adopt open access without strengthening metadata standards, reviewer incentives, or archiving workflows can yield superficial "openness" while leaving core quality

assurance and discoverability weak. Conversely, improving editorial practice without addressing evaluation incentives may still lead top manuscripts to "exit" toward international venues, limiting domestic journal development.

2.2 Open science as a governance shift, not only a publishing choice

Open science reforms are frequently presented as normative goals—transparency, accessibility, participation. Yet implementation depends on governance: rules, standards, incentives, and accountability mechanisms. Reproducibility agendas emphasize preregistration, data sharing, and reporting standards, but these practices require supportive infrastructures and editorial enforcement capacity (Munafò et al., 2017; Nosek et al., 2015). Open peer review promises transparency and potentially better accountability, but also changes reviewer behavior, risk perceptions, and workload distributions (Ross-Hellauer, 2017; Tennant et al., 2017). FAIR data principles promote machine-actionable stewardship, but require persistent identifiers, standardized metadata, and institutional repositories aligned with journal workflows (Wilkinson et al., 2016).

Because open science changes the "default settings" of publishing, it can also disrupt business models and quality control mechanisms. Large-scale OA growth has accelerated the diversification of publishing outlets (Laakso et al., 2011; Piwowar et al., 2018), which in turn increases the need for robust journal governance and integrity systems to resist predatory behavior and reputational degradation (Cukier et al., 2020; Shen & Björk, 2015; Shamseer et al., 2017).

2.3 Developing-country journal ecosystems and the Vietnam case

Vietnam's journal landscape includes many institution-hosted journals with limited editorial staffing, varying peer review rigor, and inconsistent international visibility. Studies examining Vietnam's journal readiness for regional and global indexing suggest that compliance with indexing criteria remains uneven, often due to governance and capacity constraints rather than a lack of scholarly demand (Tran et al., 2019). Meanwhile, Vietnam's international publishing growth—while significant—also raises questions about how domestic journals can remain relevant, trusted, and sustainable

under evaluation systems that prioritize international indexing signals (Nguyen et al., 2021; Vuong, 2019).

Recent Vietnam-specific publishing studies provide additional nuance. Work on open access adoption indicates that Vietnam's scholarly community is expanding OA publishing but faces policy and financing challenges, including limited institutional support and uneven understanding of OA pathways (Vuong et al., 2020). Evidence also suggests that OA publishing patterns can be shaped by authorship structures and collaboration networks, implying that openness is socially patterned rather than purely technical (Nguyen et al., 2021). These insights motivate a governance-based approach that recognizes heterogeneity across fields, institutions, and journal capacities.

3 RESEARCH OBJECTIVES AND QUESTIONS

3.1 Research objectives

This paper aims to:

1. Conceptualize the journal ecological chain in Vietnam as an interconnected socio-technical system.
2. Analyze how open science practices reshape actors and value flows within that chain.
3. Identify governance bottlenecks constraining Vietnam's journal ecosystem under open science pressures.
4. Propose a staged strategic reconfiguration framework compatible with Vietnam's legal, infrastructural, and academic culture conditions.

3.2 Research questions

- RQ1. How is Vietnam's journal ecological chain currently structured, and what roles do major actors play?
- RQ2. How do key value flows (knowledge, reputation/metrics, resources) operate within Vietnam's journal system?
- RQ3. How does open science affect publishing, peer review, and evaluation models in Vietnam?

- RQ4. Which open science practices are gaining acceptance in Vietnam, and which remain constrained?
- RQ5. What are the principal governance bottlenecks in Vietnam's journal ecological chain (legal, organizational, cultural)?
- RQ6. Are current mechanisms sufficient to ensure quality, transparency, and integrity under more open workflows?
- RQ7. How should Vietnamese journals reposition their roles within an open science ecosystem?
- RQ8. What policy tools and strategic interventions can foster sustainable development of Vietnam's journal ecological chain?

4 RESEARCH FRAMEWORK AND APPROACH

4.1 Conceptual framework

We operationalize the Vietnam journal ecological chain through four analytic components:

(A) Actors (who participates?)

Authors/research teams; editors and reviewers; journals/publishers; regulators and funders; platform providers and aggregators; indexers; users (academia, industry, public).

(B) Value flows (what moves?)

Manuscripts, data, code, peer-review reports; reputational signals (indexing status, citations, metrics); resources (funding, staff time, platform services); legitimacy and trust.

(C) Governance mechanisms (what stabilizes behavior?)

Legal and policy instruments; journal guidelines; peer review protocols; ethics and integrity standards; financial and operational models; technical standards for metadata and preservation.

(D) Open science levers (what changes defaults?)

Open access, open data, open peer review, transparency of editorial processes, and interoperability of research objects (e.g., DOI/ORCID, data availability statements).

4.2 Analytical approach

The paper adopts an integrative synthesis approach combining:

- Conceptual synthesis from scholarly publishing and open science literature (e.g., reproducibility, FAIR data, peer review transparency, responsible metrics).
- Comparative reasoning using published ecological-chain and ethics-standards studies as structured analogies for governance design (Chang et al., 2024; Xie et al., 2024).
- Vietnam-focused evidence drawn from scientometric and publishing studies on Vietnam's research output, indexing readiness, and OA adoption (Manh, 2015; Tran et al., 2019; Vuong et al., 2018; Vuong et al., 2020).

This approach is suitable for identifying governance bottlenecks that arise from cross-actor coordination problems and for proposing system-level interventions, even where primary fieldwork is not yet available.

5 RE-MAPPING THE JOURNAL ECOLOGICAL CHAIN IN VIETNAM

5.1 A lifecycle view: from research outputs to reuse

In an ecological-chain framing, journals are positioned within a continuous lifecycle: research production → submission and review → publication and dissemination → indexing and archiving → uptake and reuse. Chang et al. (2024) emphasize that the chain covers the full process from knowledge generation to dissemination and includes producers, consumers, and decomposer roles that enable storage, retrieval, and secondary development. In Vietnam, this lifecycle is visible but unevenly integrated. Many journals continue to operate with limited digital workflow standardization, while discovery and reputational value are increasingly mediated by indexers and platforms external to the journal's own technical capacity.

A notable implication is that "journal strength" in Vietnam is not only about editorial quality. It also depends on whether journals can connect to decomposer infrastructures—persistent identifiers, searchable metadata, archiving, and indexing pipelines—that translate local scholarship into globally legible signals (Larivière et al., 2015). Without those connections, even high-quality content can remain "invisible,"

leading authors to prefer internationally indexed venues and reinforcing a cycle of domestic underdevelopment.

5.2 Actors and roles

Vietnam's journal ecological chain can be summarized into seven role clusters (Table 1). While the clusters exist in most countries, Vietnam's system exhibits three features:

1. Institutional dispersion: journals are often hosted by universities or institutes with differing capacities and inconsistent platform standards.
2. Evaluation externalization: reputational value is strongly tied to international indexing signals, which can pull manuscripts outward.
3. Service fragmentation: editorial, production, and archiving services are frequently duplicated across institutions rather than shared, raising costs and reducing professionalization.

Table 1

Actor roles and value flows in Vietnam's journal ecological chain

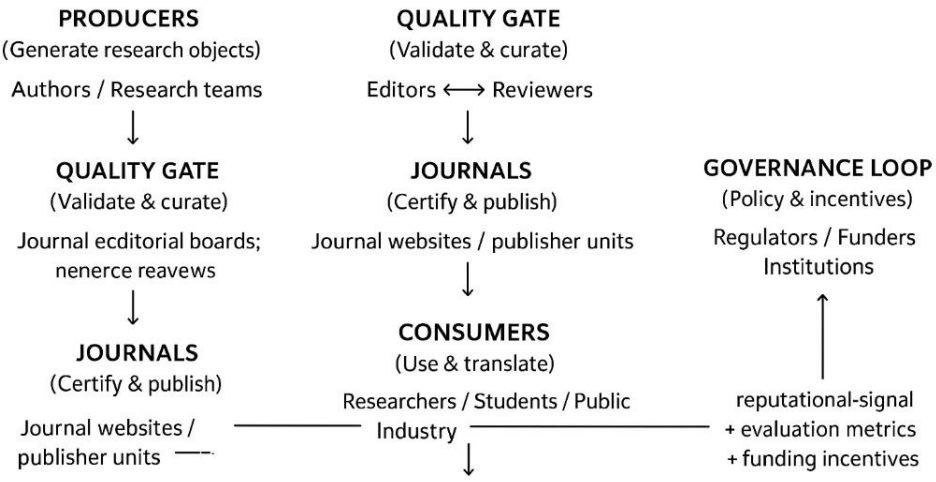
Actor cluster	Typical Vietnam examples	Core roles	Value contributed	Open science leverage points
Authors & research teams	Universities; institutes; research groups	Produce manuscripts, data, code; respond to review	New knowledge objects; scholarly labor	Preprints; data/code sharing; ORCID; reproducibility reporting
Editors & reviewers	Journal editorial boards; invited peer reviewers	Quality control; gatekeeping; curation	Trust signals; methodological scrutiny	Open peer review options; reviewer recognition; conflict-of-interest disclosures
Journals & publishers	University/institute journals; societies	Content selection; copyediting; publication schedule	Formal record; editorial legitimacy	OA licensing; transparency statements; data availability requirements
Platforms & repositories	Journal websites; OJS-based systems; repositories	Workflow management; hosting; preservation access	Discoverability and stewardship	Persistent identifiers; metadata standards; machine-readable policies
Indexers & aggregators	Regional and international indexes	Standardized discovery; metrics production	Reputational signals and rankings	Metadata quality assurance; open citation practices

Actor cluster	Typical Vietnam examples	Core roles	Value contributed	Open science leverage points
Funders & regulators	National and institutional bodies	Funding rules; evaluation criteria; compliance controls	Incentives and accountability	Open science mandates; responsible metrics; infrastructure funding
Users (academic, public, industry)	Students; researchers; practitioners	Consume and apply research outputs	Societal and scientific impact	Open access uptake; reuse of data and methods

5.3 Figure 1: conceptual map of Vietnam's journal ecological chain

Figure 1

Vietnam journal ecological chain with open science leverage points



Open science leverage points:

- OA licensing at the journal layer;
- DOI/ORCID and metadata at decomposer layer;
- Open data/code requirements at producer + journal layers;
- Transparency (open review / editorial process) at quality gate.

6 OPEN SCIENCE PRESSURES AND GOVERNANCE BOTTLENECKS

6.1 Incentive misalignment and "manuscript outflow"

A recurring governance issue in Vietnam is that research evaluation and reward systems may inadvertently encourage authors to prioritize externally indexed journals

over domestic journals, even when local journals are improving. Responsible metrics scholarship warns that narrow metric-driven evaluation can distort incentives and undermine research quality (Hicks et al., 2015). In Vietnam, where institutional rewards for international-indexed outputs have been documented and discussed in the literature (Nguyen et al., 2021; Vuong, 2019), the incentive gradient can produce a "manuscript outflow" effect: the strongest submissions leave the domestic ecosystem, weakening local journals' ability to build reputation and improve.

Open science can either exacerbate or reduce this effect. If Vietnamese journals implement credible OA, robust metadata, and integrity standards, they may increase visibility and reduce barriers for domestic and regional scholarship. But if journals adopt OA without quality assurance, they risk being perceived as low-trust outlets, which may strengthen the outflow dynamic.

6.2 Interoperability and discovery gaps

Open science is increasingly machine-mediated: indexing, search, and reuse depend on persistent identifiers and standardized metadata (Wilkinson et al., 2016). Vietnam's journal ecosystem faces uneven interoperability—some journals have strong metadata and DOI integration, while others do not. This creates a two-tier system in which journals with technical integration are discoverable and legible to global infrastructures, while others remain siloed.

The global concentration of publishing infrastructure and market power further complicates this challenge. Scholarly publishing is characterized by oligopolistic dynamics and gatekeeping through platform ecosystems, which shape discoverability, pricing, and evaluation pathways (Larivière et al., 2015). Without coordinated national infrastructure investments, Vietnam's journals can remain dependent on fragmented platforms and inconsistent archiving routines.

6.3 Integrity governance under openness

Open science encourages transparency but also increases exposure to integrity risks if editorial safeguards are weak. Predatory publishing research shows that OA growth can be accompanied by exploitative outlets that mimic legitimacy while

undermining peer review (Shen & Björk, 2015; Shamseer et al., 2017). Vietnam's scholars, like those in many emerging systems, may be vulnerable to predatory solicitations when publication incentives are strong and journal literacy is uneven.

Integrity governance should therefore be treated as a system-building agenda. A useful reference point is the modular approach to publication ethics standards, which organizes ethical responsibilities across author, editor, and reviewer roles (Xie et al., 2024). Such modularization matters because it clarifies accountability boundaries and reduces ambiguity when conflicts arise (e.g., plagiarism handling, data fabrication investigations, conflict-of-interest disclosure). Retraction studies also indicate that correction mechanisms can be incomplete or inconsistently informative, implying that post-publication governance deserves explicit design rather than ad hoc responses (Fang et al., 2012; Vuong, 2020).

6.4 Financial fragility and uneven service capacity

Open access expansion reshapes journal financial models. Internationally, OA has grown through multiple pathways, including APC-based models and institutional subsidies (Laakso et al., 2011; Piwowar et al., 2018). For Vietnam, a key constraint is that many journals operate with limited budgets and rely on institutional support, making it difficult to scale professional copyediting, digital preservation, and editorial training.

Vietnam-specific research suggests the OA trajectory is real but constrained by policy and financial support conditions (Vuong et al., 2020). If journals shift toward APC-based OA without safeguards, inequities may deepen: authors with limited funding—especially in social sciences and humanities—could be excluded, undermining local knowledge diversity.

7 STRATEGIC RECONFIGURATION: AN OPEN SCIENCE–DRIVEN GOVERNANCE FRAMEWORK

7.1 Design principles

We propose four governance design principles for reconfiguring Vietnam's journal ecological chain:

7.1.1 Principle 1: interoperability by default

Adopt persistent identifiers (DOI for articles and datasets; ORCID for authors), standardized metadata, and long-term archiving requirements. ORCID studies highlight the benefits of disambiguation and cross-system integration (Haak et al., 2012). Interoperability is not cosmetic; it directly affects discoverability and evaluation legitimacy.

7.1.2 Principle 2: integrity-by-default standards

Develop nationally aligned publication ethics standards with modular responsibilities for authors, editors, and reviewers, building on international best practices and systematized standards approaches (Xie et al., 2024). Include explicit policies for conflicts of interest, data availability, image integrity, and AI-assisted writing disclosure where relevant. Ensure that correction and retraction processes are transparent and informative (Vuong, 2020).

7.1.3 Principle 3: incentive alignment with responsible metrics

Shift evaluation signals to reduce overreliance on narrow indexing proxies. The Leiden Manifesto provides a practical reference for responsible metrics governance and encourages plural evaluation aligned with research missions (Hicks et al., 2015). Complement citation metrics with transparency and reuse indicators (e.g., data sharing, preregistration, open review participation), recognizing the broader impact potential of open practices (Bornmann, 2014).

7.1.4 Principle 4: shared services for sustainability

Reduce duplicated costs across journals via shared editorial services, platform hosting, metadata management, and training programs. Shared services are especially important for small journals and can improve quality consistency while lowering per-journal operating burdens.

Table 2

Governance bottlenecks in Vietnam's journal ecological chain

Bottleneck	**Key symptoms**	**Open science visibility driver**	**Priority interventions**
Incentive misalignment	High-quality submissions migrate abroad; weak domestic attraction	OA heightens expectations of visibility and editorial rigor	Reform evaluation criteria; reward transparency and local relevance; apply responsible metrics
Interoperability gaps	Inconsistent metadata; limited discoverability and archiving	Open science depends on persistent identifiers and machine-readable metadata	Invest in shared infrastructure; mandate DOI/ORCID; establish metadata QA
Integrity and ethics capacity	Uneven peer review; opaque corrections and retractions	Openness amplifies scrutiny and exposes governance weaknesses	Standardize ethics modules; capacity building; audit and post-publication policies
Financial fragility	Under-resourced editorial operations; unstable publication schedules	OA shifts cost structures and increases reputational risk	Shared services; mixed funding models; targeted subsidies; cost transparency

Figure 2

Governance stack for Vietnam's open science–ready journal ecosystem.

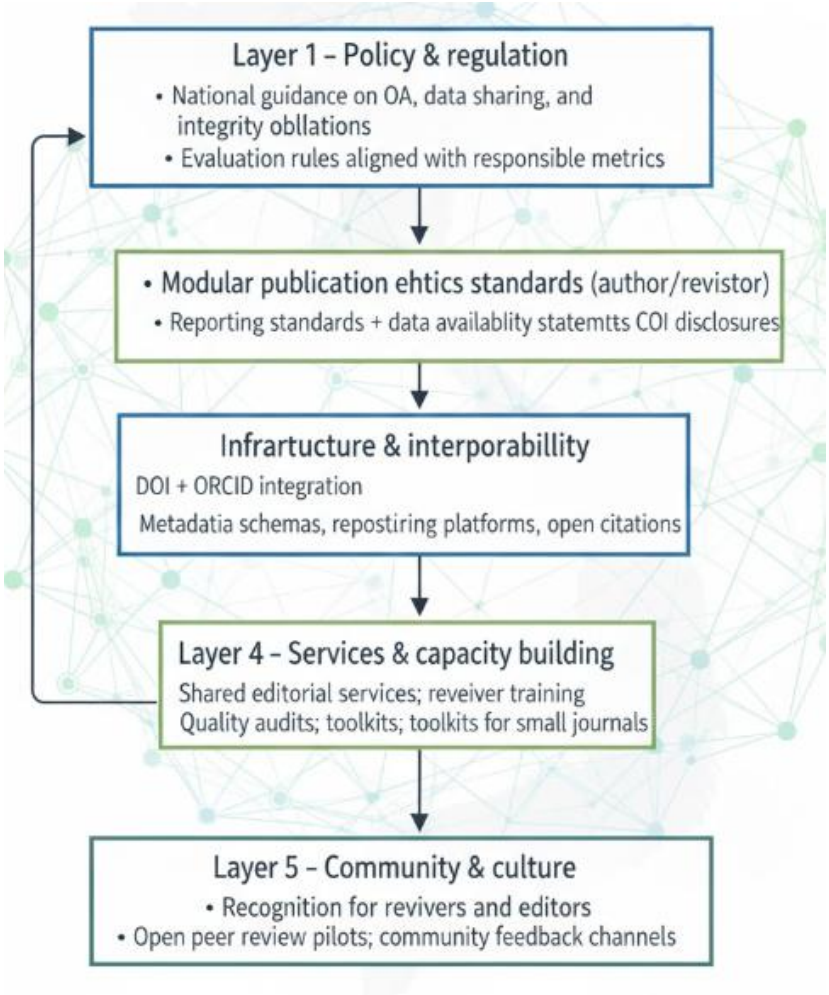


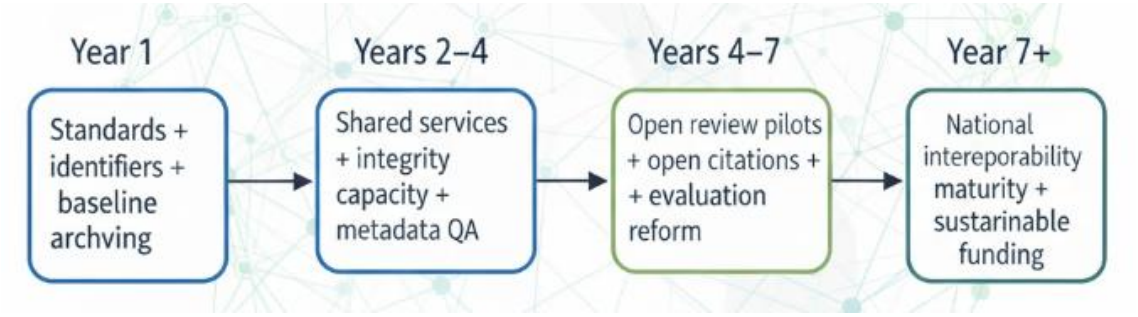
Table 3

Open science–driven reconfiguration roadmap for Vietnam

Phase	Time horizon	Key actions	Lead actors	Indicative outputs
Phase 1: Baseline alignment	0–18 months	Minimum metadata standards; DOI/ORCID adoption; ethics policy templates; basic archiving workflows	Journals; universities; platform providers	Consistent journal policies; DOI coverage; ORCID collection; baseline preservation
Phase 2: Service consolidation	18–48 months	Shared service centers; reviewer training programs; integrity audit routines; open data guidance	Journal consortia; funders; regulators	Reduced duplicated costs; improved peer review quality; standardized integrity handling
Phase 3: Ecosystem optimization	4–7 years	Open peer review pilots; open citations; evaluation reform aligned with responsible metrics	Regulators; funders; universities	Enhanced transparency; diversified evaluation signals; strengthened domestic journals
Phase 4: Sustainable maturity	7+ years	Interoperable national-level publishing and data infrastructure; global partnerships	Multi-stakeholder governance body	Sustained quality and visibility; internationally credible Vietnam journal ecosystem

Figure 3

Timeline for reconfiguring Vietnam's journal ecological chain under open science.



8 DISCUSSION

8.1 Why ecological-chain governance changes the policy conversation

A major advantage of the ecological-chain lens is that it moves debate beyond binary choices (open vs closed; domestic vs international) and toward interface governance. In Vietnam, journals can improve without immediately "becoming Scopus journals" if governance reforms target the chain's weak links: metadata legibility, review capacity, integrity standards, and sustainable services. Conversely, index-seeking

strategies alone may not build long-term ecosystem resilience if they neglect systemic dependencies such as archiving, platform security, and correction governance.

8.2 Managing trade-offs: openness, equity, and trust

Open science reforms often assume that openness automatically increases equity. Yet in financially constrained ecosystems, APC-based OA can create new exclusions, and open review can deter participation if cultural and career risks are not managed. Vietnam's roadmap should therefore prioritize "low-regret" reforms first—identifiers, metadata, ethics templates, and shared services—before scaling higher-risk innovations like open peer review.

Evidence that OA growth and data sharing can increase visibility and reuse strengthens the case for openness (Piwowar et al., 2018; Piwowar & Vision, 2013), but governance must ensure that openness does not become a reputational liability. Predatory publishing research underscores that trust is fragile and can be exploited when incentives and safeguards are misaligned (Cukier et al., 2020; Shen & Björk, 2015; Shamseer et al., 2017).

8.3 Implications for stakeholders

- For journals: invest in interoperability and integrity as credibility foundations; publish transparent policies; professionalize workflows gradually.
- For universities and institutes: support shared services, provide editorial recognition, and integrate open science training into research development.
- For funders and regulators: align evaluation incentives with responsible metrics; finance infrastructure and training; treat publishing as a national knowledge service, not merely an output counter.
- For platforms and aggregators: prioritize metadata quality, long-term preservation, and open standards compatibility to prevent fragmentation.

9 LIMITATIONS AND FUTURE RESEARCH

This paper is a conceptual and governance synthesis rather than a primary empirical study. While it draws on established publishing research and Vietnam-focused scientometric evidence, future work should validate bottlenecks and intervention feasibility through stakeholder interviews, journal workflow audits, and platform interoperability diagnostics. Comparative case studies across Vietnamese disciplines (e.g., medicine vs social sciences) would also help tailor governance instruments to different risk profiles and resource constraints. Finally, evaluating phased reforms requires longitudinal indicators beyond citations, including metadata completeness, peer review timeliness, correction transparency, and openness compliance.

10 CONCLUSION

Open science is not a single policy switch for Vietnam's journals; it is a governance transformation that redefines responsibilities, infrastructures, and value flows across the entire journal ecological chain. By conceptualizing Vietnam's journal system as an interconnected chain of producers, consumers, and decomposer infrastructures, this paper shows why isolated reforms—such as adopting open access without metadata integration, or chasing indexing without integrity systems—are unlikely to yield sustainable improvement.

The analysis identifies four governance bottlenecks that become especially salient under open science pressures: incentive misalignment that accelerates manuscript outflow, interoperability gaps that limit discoverability, underdeveloped integrity governance, and financially fragile publishing operations. Drawing on international open science and publishing research and informed by structured ecological-chain and ethics-standards approaches, we propose an open science–driven reconfiguration framework anchored in interoperability-by-default, integrity-by-default standards, responsible metrics, and shared services for sustainability.

For Vietnam, the practical message is that building a credible domestic journal ecosystem does not require copying a single external model. Instead, it requires coordinated governance that connects policy rules, technical infrastructure, editorial practice, and community incentives. If journals, universities, funders, regulators, and

platforms can align on a phased roadmap—starting with identifiers, metadata, ethics templates, and shared services—Vietnam can strengthen both international visibility and local knowledge stewardship. In doing so, the journal ecological chain becomes not only a route to publications, but a national capability for trustworthy, reusable, and socially valuable science.

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Authors' Contribution

All authors contributed equally to the development of this article.

Data availability

All datasets relevant to this study's findings are fully available within the article.

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