DIGITAL TRANSFORMATION IN ACADEMIC PUBLISHING AT NON-PUBLIC UNIVERSITIES IN VIETNAM:

CHALLENGES, STRATEGIC DIRECTIONS AND GLOBAL INTEGRATION

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Abstract:

This study analyzes the digital transformation of academic publishing in non-public universities in Vietnam, focusing on challenges, strategic directions, and integration into the global academic ecosystem. Using a mixed-method research approach, combining document analysis, structured interviews with journal editors, and benchmarking against regional and international standards (e.g., Scopus, DOAJ, OJS), the paper identifies key gaps in governance, technology infrastructure, and editorial quality management. The findings show that while many journals have initiated digital platforms, there are still limitations in open access policies, digitization of peer review processes, metadata standardization, and global visibility.

The study proposes a three-dimensional framework for sustainable digital transformation, including: (1) governance and policy reforms; (2) building and enhancing technological and editorial capacity; and (3) internationalization through digital indexing and collaborative networks. This framework is a practical basis for helping Vietnamese non-public higher education institutions approach global standards in academic publishing, while contributing to the theoretical forum on digital transformation in the academic ecosystem in developing countries.

The framework also provides a practical roadmap for non-public higher education institutions to align with global standards in scholarly communication. The paper contributes to the theoretical discourse on digital transformation in the academic ecosystem in developing countries and provides practical insights for policymakers, university administrators, and journal editors who want to enhance Vietnam's presence in the global knowledge network.

Keywords: *Digital transformation; Academic publishing; Non-public universities; Vietnam; Governance; Global integration.*

1. Introduction

1.1. Global context

1.1.1. Digital transformation trends in academic publishing

Across the first quarter-century of the 21st century, scholarly publishing has gone through at least two distinct digital transformations. The first phase (late 20th - early 21st century) moved content from print to digital: journals were digitized, institutional repositories formed, and citation databases rose. The second phase - often labelled the "Second Digital Transformation" - goes beyond distribution: it restructures knowledge production workflows through editorial automation, integrated data services, new business models (Open Access and transformative agreements), and adoption of discovery technologies. This transformation emphasizes three axes: (i) workflow automation and optimization; (ii) data openness and interoperability; and (iii) integration of AI and analytics to accelerate discovery and assessment. Traditional publishers, scholarly societies, and repositories are recalibrating strategies - investing in platforms and evolving into service ecosystems (indexing, metrics, data hosting).

1.1.2. The impact of digital technology (AI, Big Data, Blockchain, Open Access, DOI, ORCID iD,ROR ID, OJS, v.v.)

AI (Generative AI & ML). AI - especially large language models (LLMs) - is penetrating the publishing value chain: aiding language editing, summarization, reviewer suggestions, plagiarism and integrity checks, and even triage. Benefits include process efficiency, support for non-native authors, and faster editorial cycles. Risks include AI-induced misinformation (fabricated citations), misuse in peer review (prompt injection), and difficulty distinguishing AI-generated content from human-authored text - prompting transparency and policy requirements for AI use. Recent studies and reporting show AI is being integrated but introduces ethical and integrity vulnerabilities.

Big Data&Analytics. Big data enables citation-network analysis, real-time trend spotting, and new impact metrics (altmetrics, usage metrics). Publishers leverage analytics for better discovery, personalized recommendations, and programmatic publishing responsive to research community needs.

Blockchain. Blockchain promises greater process transparency (timestamped proof-of-record, immutable peer-review logs, rights/royalty tracking), yet practical implementations remain experimental; barriers include cost, scalability, and integration with legacy systems.

Open Access (OA). OA has become a core driver of transformation: funder mandates and international initiatives push for open dissemination. OA changes publishers' economics (APCs, transformative agreements, institutional read-and-publish deals) and improves access especially for low- and middle-income regions - while raising equity concerns when APCs become a barrier for under-resourced authors.

Persistent Identifiers (DOI, ORCID iD, ROR ID) & OJS. Persistent identifiers (DOIs for objects, ORCID for researchers, ROR for organizations) underpin discoverability and data-linking - enabling rights tracking, citation attribution, and automated metadata workflows. Open-source platforms like OJS empower small journals to run editorial workflows, integrate DOI/ORCID, and lower technical barriers. This interoperability fosters transparency and a more connected research ecosystem.

1.1.3. The role of academic publishing in the global research ecosystem

Scholarly publishing is the backbone of the global research ecosystem: it provides the formal channels for publishing, validating, preserving, and disseminating knowledge. Functionally, publishing performs four core roles: (i) validation through peer review; (ii) dissemination via journals, repositories and OA platforms; (iii) long-term preservation-safeguarding the scientific record; and (iv) assessment and measurement-supplying citation and usage data for research evaluation. In the digital era, these roles expand: publishers act as data stewards, metadata service providers, and strategic partners to funders and research institutions. Moreover, scholarly publishing shapes science policy by setting norms for what counts as evidence, transparency standards, and research ethics. To play a positive and equitable role globally, the sector must address inequalities in access, APC-driven financial barriers, AI-related integrity risks, and concentration of information power among a few large publishers.

Conclusion and Recommendations

a) Balance innovation with integrity: Promote AI to boost productivity but pair adoption with transparent policies, detection tools, and human accountability.

b)Prioritize openness and interoperability: Advance OA, widespread adoption of DOI/ORCID/ROR, and support open-source platforms (like OJS) to lower technical and financial barriers for small journals.

c)Experiment responsibly with new tech: Pilot blockchain for targeted use-cases (timestamping, peer-review audit trails) but carefully assess cost–benefit and standardization needs.

d)Build global capacity: Invest in digital editorial capacity-building for publishers in low-resource regions to prevent widening knowledge divides.

1.2. Vietnam context

1.2.1. The System of Scholarly Publishing in Vietnam

In the context of global scientific integration and rapid digital transformation, Vietnam's scholarly publishing system is undergoing comprehensive reform. As of 2025, Vietnam hosts more than 600 academic journals, among which about 100 journals are recognized by the State Professorship Council and over 40 journals are indexed in Scopus or Web of Science (WoS). This represents a significant step forward, marking the nation's growing engagement with the international research ecosystem.

However, the Vietnamese system is still developing its institutional framework, standardizing editorial processes, and professionalizing its publishing workforce. Most journals operate within public administrative structures under universities, research institutes, or ministries, leading to fragmented management, inconsistent processes, and limited strategic direction.

Key challenges include:

-Insufficient funding and limited editorial expertise in digital publishing and peer review.

-Lack of alignment with international publishing standards such as DOI, ORCID iD, Crossref, OJS, and data transparency.

-Limited English-language capacity, reducing international visibility and citation potential.

-Incomplete digitalization, with many journals still using semi-manual workflows and lacking integrated databases or transparent evaluation mechanisms.

Despite these challenges, Vietnam is making strategic progress: the Ministry of Science and Technology, the Ministry of Education and Training, and leading universities (such as Vietnam National University in Hanoi and Ho Chi Minh City, and Ho Chi Minh National Academy of Politics) are developing a national digital publishing infrastructure, encouraging journals to adopt global standards and connect to international databases. *Pioneer journals such as Vietnam Journal of Science and Technology, VNU Journal of Science, Hue University Journal of Science and Trung Vuong University Science Journal (TVUSJ)… have implemented OJS, DOI, and ORCID iD systems, gaining inclusion in Scopus or WoS.*

Thus, Vietnam is entering a phase of *"Dual Transformation"* - both digitizing its publishing ecosystem and internationalizing its standards, with a national goal of having at least 100 internationally indexed journals by 2030, forming a Vietnam Digital Scholarly Publishing Network.

1.2.2. The current situation at non-public universities (Non-Public Universities: Small Scale, Limited Resources, but Creative and Agile Potential)

The non-public university sector - including private and semi-private institutions - accounts for nearly 25% of Vietnam's higher education institutions and represents a dynamic, rapidly evolving component of the national education landscape. However, in scholarly publishing, these institutions face significant structural constraints: small scale, limited funding, underdeveloped research capacity, and an absence of professional publishing infrastructure.

Most private universities currently engage mainly in conference proceedings or internal publications, with very few holding official academic journal licenses. Existing journals are typically multidisciplinary, localized, and below international standards.

Key limitations include:

-Financial constraints hindering investment in digital publishing infrastructure (OJS, DOI, Crossref, plagiarism detection).

-Lack of qualified editorial and peer-review teams, making it difficult to ensure rigorous quality control.

-Weak international connectivity, with minimal collaboration in global research or partnerships with established publishers.

-Limited adoption of open technologies and digitization, resulting in low visibility and impact.

Yet, within these constraints lies significant potential for creativity and agility. Non-public universities possess key advantages:

-Flexible governance models that allow experimentation with innovative publishing formats (Open Access, interdisciplinary journals, bilingual issues).

-A culture of innovation, enabling rapid adoption of digital technologies such as AI, data analytics, and integrated digital platforms.

-Strong ties to enterprises and industry, which can foster applied research journals and practice-oriented publications.

*Leading institutions like FPT University, Nguyen Tat Thanh University, Hoa Sen University, Duy Tan University and Trung Vuong University Science Journal (TVUSJ)…*have begun developing electronic journals and online publishing systems, aligning with international best practices (DOI registration, ORCID iD integration, Open Access policies).

These initiatives signal a promising trajectory: with the right support in policy, technology, and capacity-building, the non-public sector could become a vital driver of innovation in Vietnam's

scholarly publishing ecosystem.

Overall, Vietnam's scholarly publishing landscape reflects a convergence between tradition and innovation: the public sector, with its solid academic foundation but slow modernization, and the non-public sector, smaller yet more dynamic and creative. With strategic support in open policy, digital infrastructure, and international collaboration, Vietnam can establish a hybrid scholarly publishing ecosystem, where both public and private institutions co-evolve to elevate global standards while preserving local intellectual identity.

1.2.2.1. Challenges and Opportunities for Vietnam's Scholarly Digital Transformation

Vietnam is standing at a decisive turning point in its journey toward digital transformation in scholarly publishing. Over the past decade, the nation has witnessed rapid digitalization across sectors such as education, science, and communication. However, the academic publishing ecosystem - comprising universities, research institutes, journals, and data repositories - still faces structural and systemic limitations that hinder global integration. Digital transformation is not simply about *"putting content online"*, but also a comprehensive restructuring of the publishing model, editorial process, data management, academic accreditation, and knowledge dissemination methods. By 2045, Vietnam aims to become a country with a knowledge economy and a strong digital academic ecosystem, in which academic publishing plays the role of national knowledge infrastructure.

1.2.2.2. Key Challenges for 2025–2035

Lack of integrated digital publishing ecosystem

Many Vietnamese scientific journals operate separately, without interconnected data systems, citation standards (DOI, ORCID iD) or author identification. This reduces global visibility and accessibility

Limited financial and human resources

Universities and research institutes do not have a stable investment model for digital transformation of academic publishing; most rely on budgets or short-term projects.

There is no standardization of e-publishing processes and digital academic ethics

There is still a lack of a national standard system for digital academic publishing (peer-review, archiving, open data).

Global competition and the need for international integration

Domestic journals face competitive pressure from major publishers such as Springer, Elsevier, Taylor & Francis…

Regional digital divide and technology level

Some educational institutions in remote areas still do not have access to digital publishing infrastructure.

1.2.2.3. Strategic Opportunities for 2025–2045

Promoting Open Access and Open Science

Vietnam can leapfrog ahead by adopting an open publishing model, increasing access to and sharing of scientific data. *Open Access* can democratize knowledge dissemination and position Vietnam within the global open science movement.

Develop a national academic publishing platform

Build Vietnam Scholarly Publishing Platform (VSPP) integrating *DOI, ORCID iD*, and open databases, linked to *Scopus/WoS*. A national digital publishing platform could unify journals, enhance metadata quality, and promote international visibility.

Applying AI, Blockchain, and Big Data in Publishing

-AI supports editing, translation, and plagiarism detection.

-Blockchain ensures authenticity and intellectual property rights.

-Big Data serves research impact analysis.

-AI, Blockchain, and Big Data will shape next-generation scholarly publishing ecosystems.

Strengthen international cooperation and regional networks

-Participate in networks such as the ASEAN Citation Index (ACI), Directory of Open Access Journals (DOAJ), and the Global South Open Science Network.

-Regional and global collaborations can help Vietnam bridge technical gaps and improve journal credibility.

Developing human capacity and digital academic culture

-Creating a generation of "digital academic editors" with skills in data management, academic review and international publishing.

-Developing digital academic editors and curators will professionalize the scholarly publishing workforce.

1.2.2.4. Development vision to 2030–2045

-By 2030:

+100% of university-based scientific journals have digital publishing platforms and *DOI* indexes.

+50% of journals meet *Scopus* standards or equivalent.

+Forming *the Vietnam Digital Scholarly Publishing Alliance.*

-By 2045:

+Vietnam becomes the open academic publishing hub of Southeast Asia, with a self-sufficient digital ecosystem and strong international connections.

+Building a National Open Knowledge Repository connecting scholars, data, and global research.

General conclusion

Digital transformation in Vietnamese academic publishing is a long-term journey, requiring a combination of policy, technology, people and academic culture. Current challenges, if properly recognized and strategically addressed, will become a driving force for knowledge growth and international integration.

Vietnam's scholarly digital transformation is not merely a technological shift, but a systemic reimagination of academic communication. By 2045, with coherent policy, advanced infrastructure, and strong academic ethics, Vietnam can position itself as a knowledge hub in the digital era.

1.2.2.5.Qualitative SWOT Analysis of Vietnam's Scholarly Digital Transformation

a) Strengths

Vietnam has a dynamically developing academic base, with more than 240 universities, 170 research institutes and thousands of young research groups reaching out internationally. Over the past decade, the number of international scientific publications has increased by an average of 15–20% per year, demonstrating the country's growing intellectual capacity.

*In particular, the emergence of domestic electronic scientific journals that meet international standards such as Vietnam Journal of Science, Technology and Engineering; Vietnam Journal of Computer Science; ASEAN Journal of Science and Technology Development, Trung Vuong University Science Journal (TVUSJ)…*demonstrates a strong transformation trend. In addition, young human resources proficient in digital technology, along with the support of national programs on digital transformation (Decision 749/QD-TTg, 2020), create a generation of digital-native scholars - a key factor for the next stage.

b) Weaknesses

Despite its potential, Vietnam's academic publishing infrastructure is fragmented and unsynchronized. *Only a few journals have an online management system (OJS)*, while the majority still operate manually, lacking standardization in metadata, *DOI, ORCID iD, ROR ID* or open peer review process. This makes it difficult for domestic works to be searched and cited internationally, reducing scientific impact. In addition, the team of editors and digital publishing technicians is limited and has not been properly trained in publishing technology, academic ethics and international standards. Publishing thinking is still "*administrative*", focusing on print form rather than knowledge dissemination.

c) Opportunities

In the context of knowledge globalization, Vietnam has the opportunity to enter the "*era of open publishing*" – where knowledge is shared transparently and responsibly. International initiatives such as Plan S, OpenAIRE, UNESCO Open Science Recommendation (2021) create strong motivation for Vietnam to build a nationwide open academic publishing model, thereby increasing global visibility.

The development of *AI, Blockchain, Big Data* technology opens up the possibility of innovating the publishing process – from plagiarism detection, automatic review suggestions, to archiving and authenticating research works. At the same time, networks such as *ASEAN Citation Index (ACI)* and *DOAJ* help Vietnam connect with the international academic community, shortening the gap in standards and technology.

d) Threats

Major international publishers *(Elsevier, Springer, Wiley, Taylor & Francis*) are increasingly expanding their influence in Vietnam, attracting domestic scholars to publish abroad, weakening the capacity to develop domestic journals. In addition, plagiarism, academic fraud and "*predatory journals*" are still worrisome issues, affecting Vietnam's academic reputation in the international arena.

The lack of a dedicated legal framework for digital academic publishing (on copyright, archiving, open data) also causes difficulties for higher education institutions in the operation process. Without a comprehensive strategy, Vietnam may become dependent on foreign publishing platforms and technologies, undermining knowledge sovereignty.

e) Strategic Implications

SWOT analysis shows that digital transformation of academic publishing in Vietnam is both a structural challenge and an opportunity for strategic breakthrough. Vietnam's strengths lie in its young workforce, rapidly growing intellectual capacity, and national policies supporting digital innovation. *However, to take advantage of the opportunity, three strategic pillars are needed:*

-Synchronizing academic digital institutions and infrastructure: issuing a separate legal framework for digital publishing, integrating national *DOI/ORCID*

iD/ROR ID.

-Developing digital academic human resources: training editors, data specialists, digital academic management experts.

-Promoting international cooperation and open publishing: deeply participating in the *ACI, DOAJ networks,* and building a national publishing platform integrating *AI*.

2. Research Gap

2.1. Lack of specialized research on digital transformation in academic publishing in the non-public sector

2.1.1. Description of the gap

Although literature on digital transformation in education and publishing is expanding, there is a dearth of studies focused specifically on scholarly publishing within non-public universities in Vietnam. Existing work disproportionately addresses large public universities or global commercial publishers. The private sector - characterized by flexible governance, constrained resources, and high innovation potential - remains under-researched in areas such as digital publishing governance models, sustainable financing strategies, editorial capacity, and local ecosystem engagement (*industry/community partnerships*).

2.1.2. Scholarly and practical significance

A lack of understanding of the specificities of the non-public sector hinders the design of appropriate support policies, capacity building programmes and effective public-private partnership models. The lack of evidence can lead to "*one-size-fits-all*" interventions that do not take advantage of the sector's flexibility.

2.1.3. Suggested research questions

-How are non-public universities managing scholarly journals under digital transformation?

-What governance and financing models ensure sustainability for private university journals?

-What barriers and enablers affect adoption of international standards (*DOI, ORCID iD, ROR ID, OJS, OA*) in this sector?

2.1.4. Feasible methodologies

-Mixed-methods: large-scale surveys combined with 8–12 representative case studies.

-Policy analysis: evaluation of legal and funding frameworks.

-Participatory design: co-creation workshops with editors and administrators to prototype viable models.

2.1.5. Expected contributions

-Empirical evidence to inform policy support for digital publishing in the non-public sector.

-Replicable financial and technical governance models.

-Best practices for *DOI/ORCID iD/ROR ID/OJS* integration for small journals.

2.2. Limitations in international access, data management, electronic publishing technology

2.2.1. Description of the gap

Many journals and publishing establishments in Vietnam face dual limitations: (i) limited international access due to language, weak metadata standards, and lack of international indexes; (ii) unprofessional data management and e-publishing infrastructure - including lack of metadata standardization, open data storage, open data policies, and technical capacity to implement modern solutions *(APIs, Crossref integration, ORCID iD, ROR ID, advanced OJS systems*). Currently, there are very few studies that comprehensively analyze the relationship between data management capacity and the level of international integration of journals in the context of new technologies *(AI, cloud platforms, blockchain*).

2.2.2. Scholarly and practical significance

Lack of evidence of a causal relationship between data governance and international indicators limits the ability to propose effective technical and policy interventions. Improving metadata quality and data governance can dramatically increase discoverability, citations, and journal reputation, but requires a clear understanding of the costs, required capabilities, and risks (*security, privacy, data ownership*).

2.2.3. Suggested research questions

-How does the level of metadata standardization and *DOI/ORCID iD/ROR ID* implementation affect the international indexability of Vietnamese journals?

-Which technical infrastructure architectures (on-premise vs cloud, API-first, modular OJS) are suitable in terms of cost-effectiveness for small journals?

-What is the role of data governance in ensuring sustainability and academic integrity?

2.2.4. Feasible methodologies

-Metadata audits on a sample of journals

(n = 50-100) to assess compliance with international standards.

-Technical pilots: deploy two infrastructure models (cloud-based vs. on-premise) on 4 - 6 journals and compare costs, time, and performance.

-In-depth interviews with editors, technical developers, and managers to gather qualitative evidence on barriers and priorities.

2.2.5. Expected contributions

-Map of current status of metadata and data governance for Vietnamese journals; recommendations for standardization.

-Cost-benefit assessment report for e-publishing infrastructure models.

-Data governance framework suitable for the context of limited resources.

The two gaps mentioned above - (1) lack of specialized research for the non-public sector and (2) limitations in international access, data management and e-publishing technology - are key issues that have a direct impact on the international integration capacity and sustainability of Vietnam's academic publishing ecosystem. In-depth research into these two areas will provide the necessary evidence to design appropriate policies, financial models and technical solutions, while contributing to enhancing the national knowledge status.

3. Research Objectives and Research Questions

3.1. Research Objectives

3.1.1. General Objective

To analyze the current situation, challenges, and strategic orientations of digital transformation in scholarly publishing at Vietnam's non-public universities; thereby proposing feasible models and solutions to enhance digital capacity, foster international integration, and develop a sustainable academic publishing ecosystem in the context of the Fourth Industrial Revolution and the national digital transformation agenda.

3.1.2. Specific Objectives:

- To survey and assess the current state of scholarly publishing systems in non-public universities, including technological infrastructure, editorial workflows, and digital dissemination practices.

-To identify key factors influencing digital transformation, such as technological capacity, human resources, institutional policy, and international collaboration.

-To analyze critical challenges (technical, financial, cognitive, and legal) and explore potential opportunities for growth.

- To propose strategic orientations and development models for digital scholarly publishing tailored to the characteristics of Vietnam's non-public higher education sector in the period 2025–2045.

3.2. Research Questions

-What factors influence the process of digital transformation in scholarly publishing at non-public universities in Vietnam?

-What technological, human resource, and international integration challenges are non-public universities facing in their digital publishing transformation?

-What are the strategic orientations and feasible solutions to foster digital transformation in scholarly publishing, aligned with the specific characteristics of the non-public sector and the sustainable development goals of Vietnamese higher education?

4. Research Hypotheses

4.1. Rationale for Hypotheses

The following hypotheses are grounded in theoretical frameworks of Digital Transformation in Scholarly Publishing and Innovation Governance in Higher Education. In Vietnam - particularly within non-public universities - the pace and effectiveness of digital transformation vary significantly due to disparities in resources, policies, and international integration levels. These hypotheses aim to examine the relationships between technological capability, human capital quality, governance and policy mechanisms, and the outcomes of digital transformation in scholarly publishing. Establishing these hypotheses provides a conceptual and empirical foundation for both quantitative and qualitative analysis, as well as for proposing strategic solutions toward 2025–2045.

4.2. Research Hypotheses

4.2.1. Hypothesis H1 – Technological Capability and Digital Transformation Level

H1: Technological capability - including IT infrastructure, publishing software, and integration with digital platforms such *as OJS, DOI, ORCID iD, ROR iD and AI*-assisted editing - positively and significantly influences the effectiveness of digital transformation in scholarly publishing at non-public universities.

4.2.2. Hypothesis H2 – Human Resources and International Integration

H2: The quality of human resources - including editors' qualifications, digital literacy, and academic - language proficiency - directly affects the level of international integration and the quality of digital scholarly publishing outputs.

4.2.3. Hypothesis H3 – Governance, Policy Mechanisms, and Strategic Orientation

H3: The clarity and effectiveness of governance structures and policy support (including funding mechanisms, research incentives, and recognition of digital academic outputs) strongly influence the sustainability and strategic direction of digital transformation in scholarly publishing.

4.3. Significance of the Hypotheses

The above three hypotheses not only reflect the

causal relationship between core elements in the digital academic publishing ecosystem but also aim to:

•Identify strategic bottlenecks in digital transformation of non-public universities.

•Measure the effectiveness of interactions between technology - people - policy.

•Propose a comprehensive digital publishing transformation model as a basis for policy planning and university governance in the period 2030-2045.

5. Theoretical Framework and Literature Review

5.1. Concepts and models of digital transformation in academic publishing

5.1.1. Core Concepts

5.1.1.1. ROR – The Global Open Identifier for Research Organizations: A Foundation Connecting the World's Knowledge

In the era of open science and global data, identifying who conducts research, who funds it, and which organization stands behind each scientific work has become more crucial than ever. That is precisely the mission of *ROR – Research Organization Registry*, a global, community-led, open registry of persistent identifiers designed to uniquely identify every research and funding organization in the world.

Unlike static administrative directories, ROR is a "*living*" platform, continuously updated and maintained by the international research community. Each organization - from universities, research institutes, and funding foundations to non-profit entities - has a unique ROR ID, enabling research outputs, projects, and funding data to be transparently and accurately connected on a global scale.

For example, when a scientific article is published, instead of merely listing *"Trung Vuong University" or "University of Oxford" the ROR ID* system attaches an open, standardized identifier, allowing databases, search engines, and scholarly platforms worldwide to recognize and unify records seamlessly. This ensures that the flow of knowledge remains connected, eliminating confusion and enabling transparent data retrieval, analysis, and research mapping.

Founded in 2019 through the collaboration of *Crossref, DataCite, ORCID iD, and Digital Science, ROR ID* serves as a vital component in the global open research infrastructure. *If ORCID* identifies researchers, and *DOI* identifies publications and datasets, then *ROR* identifies organizations - forming together the three pillars of a transparent, interoperable, and trustworthy knowledge network.

More than just a technical tool, *ROR ID embodies the spirit of open science,* symbolizing collaboration, openness, and shared progress across borders. It ensures that every piece of research can be traced, every organization is credited fairly, and everyone - from scientists to the general public - can access knowledge clearly and reliably.

In the future, *ROR ID will not merely be "an identifier for organizations" but the central nervous system of the digital research infrastructure,* where data, people, and knowledge converge into a *transparent, open, and sustainable ecosystem for humanity.*

5.1.1.2. Digital Transformation in Scholarly Publishing refers to the comprehensive integration of digital technologies into all stages of scholarly publishing - from manuscript submission, peer review, and editing to publication, archiving, and knowledge dissemination. It aims to enhance efficiency, transparency, and global accessibility of academic knowledge. This transformation goes beyond simple digitization; it represents a *restructuring of operational models toward a digital scholarly ecosystem,* where knowledge is continuously created, shared, and reused in a networked environment.

5.1.1.3. Digital Publishing is the process of producing, storing, and disseminating scholarly outputs through digital platforms, enabling online access and global visibility. It relies on standardized tools such as *DOI (Digital Object Identifier*), *ORCID (Open Researcher and Contributor ID*), and integration with international indexing databases to ensure discoverability and citation tracking.

5.1.1.4. Scholarly Communication encompasses the system of creating, evaluating, and sharing research outputs among scholars, institutions, and the wider public. In the digital era, it is empowered by technology to foster faster dissemination, greater transparency, and wider participation in the production of knowledge.

Collectively, these four concepts form the foundation for the development of digital-age scholarly publishing, where technology, data, and knowledge converge, driving innovation in non-public university research and teaching.

5.2. Models of Digital Scholarly Publishing

5.2.1. Open Access Model

The Open Access (OA) model allows unrestricted, free access to scholarly works, removing financial and technical barriers to knowledge dissemination. OA enhances knowledge equity, increases citation visibility, and amplifies academic impact.

Representative platforms include:

-OJS (Open Journal Systems): An open-source platform managing the full editorial and peer-review workflow.

-*DOAJ (Directory of Open Access Journals):* A global index of high-quality open-access journals ensuring academic transparency and credibility.

-*Creative Commons Licensing:* Provides legal frameworks for responsible knowledge sharing and reuse.

5.2.2. Hybrid Model

The hybrid model combines open-access and subscription-based publishing. Under this model, some articles are open-access through payment of Article Processing Charges (APCs), while others remain subscription-only.

This model provides financial flexibility, allowing journals to gradually transition toward OA while maintaining revenue stability, particularly valuable for non-public universities and independent publishers.

5.2.3. Editorial Management Systems

Editorial management systems form the backbone of digital scholarly publishing, automating and ensuring transparency in the publishing process.

Key features include:

-Online submission, peer review, and editorial workflows.

-Integration of plagiarism detection, author identification *(ORCID iD, DOI)* assignment, and multi-format publishing *(HTML, PDF, XML).*

-Publishing analytics for monitoring performance, quality, and visibility.

Widely adopted systems include *OJS, ScholarOne, Editorial Manager,* and customized open-source platforms.

5.3. Theoretical Framework of Digital Transformation in Educational Organizations

5.3.1. Overview of Theoretical Frameworks

Digital transformation in educational organizations - especially in scholarly publishing within non-public universities - is a comprehensive transformation process that involves technology, governance, organizational culture, and human capabilities. To analyze the mechanisms, stages, and influencing factors of digital transformation, several international theoretical models have been proposed to assess "*digital maturity*" and an institution's capacity for technological innovation.

Among these, two frameworks are particularly relevant and adaptable to Vietnam's non-public higher education sector: *the Digital Maturity Model (Gartner, 2020) and the Technology – Organization - Environment (TOE) framework.*

5.3.2. Digital Maturity Model – Gartner, 2020

According to Gartner (2020), *the Digital Maturity Model (DMM)* assesses an organization's readiness and capability in its digital transformation journey. *The model identifies five levels of digital maturity:*

-*Initial* – Digital efforts are fragmented, with limited strategy and pilot-level technology use.

-*Developing* – A basic digital strategy emerges, though implementation remains inconsistent across departments.

-*Defined* – Standardized digital processes and integrated technologies begin to support core functions.

-*Optimized* – A digital culture is established; data, technology, and people operate synergistically for efficiency.

-*Transformative* – The organization achieves full maturity, leveraging digital technologies for sustainable innovation and competitive advantage.

For Vietnam's non-public universities, the DMM serves as a vital diagnostic tool to:

-Identify their current stage of digital maturity in scholarly publishing.

-Highlight the digital capability gap between existing and desired states.

-Guide strategic planning toward establishing *Smart Scholarly Publishing Organizations* by 2045.

5.3.3. Technology Organization Environment (TOE) Framework

The Technology Organization Environment (TOE) framework, developed by Tornatzky and Fleischer (1990), provides a comprehensive analytical structure for understanding *technology adoption and innovation within organizations*.

It posits that digital transformation is influenced by three key contexts:

-*Technological Context:* IT infrastructure, publishing software, AI tools, Big Data analytics, and the integration of platforms such as DOI, ORCID, and OJS.

-*Organizational Context:* Governance structure, human resources, innovation culture, budget allocation, and leadership commitment.

-*Environmental Context:* Government policies, international standards, academic competition, and pressures of global integration.

In the *case of Vietnam's non-public universities, the TOE* framework explains why digital transformation outcomes vary - even under similar policy conditions -depending on each institution's *internal capabilities and environmental adaptability.*

5.3.4. Applying theory in the context of non-public

universities

Integrating the Digital Maturity Model (DMM) with the TOE Framework forms a dual-theoretical structure ideal for analyzing digital transformation in scholarly publishing across Vietnam's non-public universities.

The DMM assesses the level of digital maturity - identifying current positioning and future objectives. The TOE framework explains *drivers and barriers* - *revealing why transformation success varies among institutions.*

This integrated application enables:

-A holistic evaluation of digital capacity across non-public university journals.

-Identification of key influencing factors across the technological, organizational, and environmental dimensions.

-Development of a strategic "*Digital Scholarly Publishing 2030–2045*" model that emphasizes:

+Transparent, open, and internationally integrated scholarly communication.

+Enhanced digital competence for editors, researchers, and administrators.

+Strengthened global presence and academic influence of the non-public higher education sector.

5.4. International Research Overview

In the era of global knowledge exchange and digital acceleration, *digital transformation in scholarly publishing* has emerged as a key interdisciplinary research field over the past two decades. Leading organizations such as *Springer Nature, Elsevier, UNESCO, and OECD* have conducted extensive studies to clarify the profound changes in *publishing models, knowledge management technologies, and open access policies* within the global scholarly communication ecosystem.

According to *Springer Nature (2021)*, scholarly publishing is shifting from a "*content dissemination model*" to a "*data-driven knowledge management model" where data, metadata, and artificial intelligence (AI*) form the backbone of publishing value chains - from manuscript submission, peer review, and production to impact assessment.

Elsevier (2022) highlights the increasing adoption of *automated publishing workflows, AI-powered analytics, and reader engagement metrics,* reflecting a systemic reconfiguration of digital publishing practices.

UNESCO (2023) emphasizes that digital scholarly publishing is not merely a technological transformation but a *vehicle for democratizing knowledge*. It recommends investment in *digital infrastructure, adoption of open-source platforms such as OJS (Open Journal Systems),* and standardization of academic identifiers like *DOI, ORCID iD*, and Crossref to enhance transparency, interoperability, and global visibility.

Similarly, OECD (2020) stresses that digital transformation capacity depends on three systemic factors: (1) technological readiness, (2) organizational governance, and (3) policy and regulatory environment. A remarkable frontier in this field is the *integration of Artificial Intelligence (AI)* into scholarly publishing.

Studies by *Cambridge University Press (2022)* and *Nature Publishing Group (2023)* reveal that AI is being employed in *AI-assisted peer review, metadata analysis, plagiarism detection, and semantic content evaluation*. Editorial platforms such as *ScholarOne, Editorial Manager, and eJournalPress now deploy AI* tools to accelerate editorial decisions, reduce human error, and ensure content integrity. This transformation marks a shift from traditional workflows toward *AI-driven publishing ecosystems.*

Across *Asia,* research demonstrates the agility and innovation of *private universities* in adopting digital publishing models:

-In *Thailand*, universities like *Assumption University and Chiang Mai University Press* have integrated *OJS with DOI and ORCID iD,* aligning with international indexing systems such as *Scopus and Crossref* to enhance academic recognition.

-*Malaysia's "Digital Academic Press Initiative,"* supported by the *Ministry of Higher Education,* promotes e-publishing, open repositories, and online research evaluation systems.

-*South Korea's "Smart Publishing Campus"* integrates *AI* into peer review, data management, and academic dissemination, creating a fully synchronized ecosystem connecting teaching, research, and publishing.

These international experiences underscore a vital insight: *Digital transformation in scholarly publishing is not merely technological but strategic and cultural,* requiring a holistic rethinking of how institutions manage, produce, and disseminate knowledge. Such lessons are particularly valuable for *Vietnam's non-public universities* as they strive toward global integration and academic excellence by *2030–2045*.

5.5. Domestic Research Overview

In the context of *digital transformation* becoming an inevitable trend in education and science worldwide, Vietnam has gradually engaged in research on *digital transformation in scholarly publishing.* However, most existing studies have

primarily focused on *digital transformation in education, libraries, and knowledge management,* while the specific field of *academic publishing* remains relatively underexplored, especially among *non-public (private) universities.*

According to the *Ministry of Information and Communications (2022)*, Vietnam currently has more than *600 licensed scientific journals,* with around 70 having developed *electronic publishing systems.* Nevertheless, only a small fraction have been indexed in *Scopus, Web of Science, or DOAJ.*

The Ministry of Education and Training (2023) reports that most Vietnamese academic journals still operate *under traditional, manual peer-review workflows,* lacking standardized metadata, and have not fully implemented *DOI or ORCID iD integration.*

Scholars such *as Nguyen Van Tuan (2021), Tran Thi Thu Ha (2022), Pham Minh Hung (2023) and Ngo Quang Son (2024)…* have emphasized the need to enhance the *quality and international visibility* of Vietnamese journals. Their research highlights that digital publishing contributes to *greater transparency in peer review, shorter publication cycles, and broader access to Vietnamese scholarship*. Yet, these studies mainly address *public institutions and national research bodies,* leaving *private universities* largely absent from scholarly analyses.

Reports from the *Vietnam Academy of Social Sciences (2022)* and the *Vietnam Publishers Association (2023)* identify *three major challenges* in the digitalization of academic publishing in Vietnam:

-Limited technological infrastructure for digital publishing (e.g., absence of OJS, DOI, and integrated editorial management systems).

-Insufficient human resource capacity in editorial work, peer review, and data management.

-Fragmented policy frameworks supporting the transition toward open access and international publishing standards.

Prominent initiatives such as *"Developing Vietnamese Scientific Journals to Scopus Standards" (NAFOSTED, 2023) and the "Digital Transformation Program for Higher Education 2025–2030"* have laid important groundwork for national-level academic publishing platforms. However, empirical research specifically analyzing the digital transformation of academic publishing in private universities remains scarce.

Recent cases from *Vietnam National University (2023), Ho Chi Minh City University of Education (2024) and Trung Vuong University (TVUni) (2025) show growing adoption of Open Journal Systems (OJS) and DOI* registration, though most private institutions still s*truggle with limited budgets, technical staff shortages, and dependence on external technology infrastructure.*

In summary, the domestic literature reveals that:

-Vietnam has recognized the strategic *importance of scholarly publishing* in its national research ecosystem.

-Nonetheless, there is *no comprehensive study examining the intersection of digital transformation, institutional capability, and international integration* within non-public universities.

-This constitutes a *critical research gap*, essential for developing theoretical and practical foundations to guide Vietnam's *digital scholarly publishing strategy toward 2030 and vision 2045.*

5.6. Research Gaps in Domestic and International Studies

5.6.1. Gaps in International Research

Global studies on digital transformation in scholarly publishing, led by major publishers such as Springer, Elsevier, Taylor & Francis, and Wiley, as well as organizations like UNESCO and OECD, have extensively explored standardizing digital publishing workflows, AI-driven editorial and peer-review systems, and open science infrastructures. However, most of these studies are situated in developed countries, where digital ecosystems, funding, and policy frameworks are already mature. There remains a lack of research focusing on digital publishing transformation models for non-public or mid-sized universities, particularly within developing nations in Southeast Asia. The cost–benefit analysis of digital investments, integration of AI tools in in-house publishing systems, and governance of academic data remain underexplored. Furthermore, few studies assess how digital transformation influences research productivity, international visibility, and global academic integration of small and medium-sized universities.

5.6.2. Gaps in Domestic Research

In Vietnam, existing studies on digital transformation in higher education and academic publishing mainly emphasize policy frameworks, technological introductions, or descriptive analyses rather than empirical, data-driven, or comparative international studies. Research tends to focus on state-owned universities and institutional journals, leaving a significant void in understanding non-public universities, which operate under different governance models and financial pressures. Notably, there is an absence of a national digital capacity assessment framework for academic publishing, as well as a lack of models that integrate AI, digital tools, and open data management within publishing systems. Current literature also overlooks the

perspectives of academic managers, policymakers, editors, and early-career researchers, who are both agents and beneficiaries of digital transformation.

5.6.3. Overlapping Gaps and Future Research Directions

A major intersection between *domestic and international research gaps* lies in the absence of a cross-national comparative framework for assessing digital maturity in academic publishing. To date, no study has proposed a sustainable, scalable, and AI-integrated digital publishing model tailored to non-public universities with limited resources in Vietnam and similar contexts.

Future research should therefore focus on:

-Developing a digital capability assessment framework for scholarly publishing in universities.

-Conducting multi-level empirical studies on digital efficiency, workforce capacity, and academic impact.

-Designing an AI- and open-data - driven publishing governance model to enhance international publication capacity, transparency, and the global dissemination of Vietnamese scholarship.

5.7. Research Gaps and Future Research Directions of the Study

5.7.1. Existing Research Gaps

Although digital transformation in scholarly publishing has become a global trend, no comparative or strategic evaluation study has yet been conducted in Vietnam - particularly one that contrasts public and non-public universities. Most existing studies are descriptive, policy-oriented, or technology-introductive, lacking a comprehensive, integrated strategic framework for digital publishing transformation. Furthermore, there is no analytical model that systematically measures the readiness, capacity, and impact of digital transformation within non-public academic institutions. The four critical dimensions - technology, human resources, policy, and international integration - have often been examined in isolation, without acknowledging their interdependence and systemic interactions.

This reveals a significant multi - dimensional research gap, both theoretical and practical, in understanding how digital publishing transformation unfolds in the specific governance and operational context of private higher education institutions in Vietnam.

5.7.2. Research Directions of the Paper

Building upon these gaps, this paper seeks to propose an integrated strategic framework for digital transformation in academic publishing, encompassing four interrelated pillars:

a.Technology – Leveraging AI, open data, and digital management platforms in scholarly publishing workflows.

b.Human Resources – Developing digital competencies among editors, researchers, and academic staff.

c.Policy – Enhancing legal frameworks, academic standards, and quality assurance for digital publishing.

d.International Integration – Strengthening collaboration with global publishers and aligning with international citation and data systems.

This study aims to develop a context-sensitive evaluation and strategic model tailored to Vietnam's non-public universities, bridging the gap between theory and practice, and contributing to the formulation of evidence-based policies for academic publishing in the digital era.

5.8. Research Contributions

5.8.1. Theoretical Contributions

This study contributes to the theoretical foundation of digital transformation in scholarly publishing, particularly within the context of non-public higher education institutions - a field that remains underexplored in Vietnam and Southeast Asia. By synthesizing and extending global frameworks such as the *Digital Maturity Model (Gartner, 2020) and the Technology–Organization–Environment (TOE)* model, this research proposes an integrated four-dimensional theoretical framework (*Technology – Human Resources – Policy – International Integration)*.

The framework enables not only the assessment of digital maturity in academic organizations but also the exploration of multi-layered interactions among technological and institutional capacities. This represents a new theoretical advancement in the study of academic digital transformation, expanding the scope from business contexts to knowledge governance and scholarly communication in higher education.

5.8.2. Practical Contributions

Practically, the study provides a comprehensive and systematic overview of digital transformation in scholarly publishing among Vietnam's non-public universities - a sector growing in significance but still facing limitations in technology, human capacity, and global engagement.

The findings yield actionable policy and strategic recommendations for universities to:

-Develop tailored digital publishing roadmaps aligned with institutional capacity;

-Integrate *AI,* open data, and digital management systems *(OJS, DOI, ORCID iD, ROR ID)* into publishing workflows;

-Strengthen international visibility and compliance with *Scopus, Web of Science, and DOAJ* standards.

Moreover, the study offers empirical insights to inform policy formulation by the Ministry of Education and Training and relevant science and technology agencies, thereby advancing Vietnam's national scholarly publishing capacity.

5.8.3. Methodological Contributions

Methodologically, the study employs a mixed-method approach, combining qualitative and quantitative analyses to ensure both rigor and depth.

The integration of *SWOT analysis, the TOE framework*, and expert interviews introduces an innovative analytical lens to assess digital readiness and transformation capacity in private universities.

An empirical analytical model is developed, capable of being replicated or adapted in other developing contexts with similar educational ecosystems, thereby extending the study's international relevance.

5.8.4. Overall Significance

In summary, the study contributes three major values:

a.A novel integrated theoretical framework for digital transformation in scholarly publishing;

b.A deep contextual analysis reflecting real challenges and opportunities of non-public universities;

c. A strategic vision toward 2030–2045, supporting the development of a national digital scholarly ecosystem.

6. Research Methodology

6.1. Research Design

This study employs a mixed-methods design, integrating both qualitative and quantitative approaches to ensure analytical depth, objectivity, and comprehensive understanding.

The research process consists of three main phases:

6.1.1. Phase 1 – Desk Research:

A comprehensive review of national and international studies on digital transformation in scholarly publishing, digital management systems (*OJS, DOI, ORCID iD, ROR ID, Scopus, WoS*), and theoretical frameworks such as TOE and Digital Maturity models.

6.1.2. Phase 2 – Qualitative Study:

In-depth interviews with 20 experts, including journal editors, administrators from non-public universities, and experienced researchers in academic publishing. This phase explores perceptions, challenges, and practical needs in the digital transition process.

6.1.3. Phase 3 – Quantitative Study:

A questionnaire survey involving *200 participants from 15 non-public universities across Vietnam's Northern, Central, and Southern regions. The data collected measure key variables associated with technology, human resources, policy, and international integration.* This design enables the exploratory strength of qualitative insights to complement the empirical validation of quantitative analysis, leading to a strategically grounded model for digital transformation in Vietnam's non-public higher education sector.

6.2. Data Collection Methods

Data were collected from two primary sources:

6.2.1. Primary Data

-Semi-structured expert interviews guided by a standardized protocol.

-A 5-point Likert-scale questionnaire developed from the *TOE* framework and the Digital Maturity Model.

6.2.2. Secondary Data

Reports from the Ministry of Education and Training, National Agency for Science and Technology Information, and international databases (*Scopus, Elsevier, UNESCO*).

Data collection was conducted between March and August 2025, ensuring representativeness, reliability, and regional diversity.

6.3. Data Analysis

Qualitative data were analyzed through content analysis and thematic coding, enabling the identification of patterns, relationships, and conceptual linkages in digital transformation practices. Quantitative data were processed using SPSS 28.0 and SmartPLS 4.0, comprising:

-Descriptive Analysis to describe the sample and variable distribution.

-Exploratory and Confirmatory Factor Analyses (*EFA & CFA*) to validate measurement constructs.

-Structural Equation Modeling (*SEM*) to examine relationships among technological, human, policy, and international integration factors influencing digital transformation.

This analytical framework allows for the empirical testing of hypotheses H1–H3, forming the foundation for the strategic model proposed in item 4.

6.4. Reliability and Research Limitations

Reliability was ensured through:

-Cronbach's Alpha tests (>0.7) for measurement

reliability;

-Expert triangulation to validate qualitative findings;

-Cross-verification between qualitative and quantitative data sets.

Nonetheless, several limitations are acknowledged:

-The study focuses primarily on non-public universities, thus lacking full comparative coverage with public institutions.

-Certain qualitative constructs (e.g., governance capacity, leadership awareness) are inherently difficult to quantify.

-The 2025 data set may be influenced by technological and policy fluctuations in the rapidly evolving digital landscape.

These limitations suggest promising future research directions, including cross-country comparisons or AI-driven impact studies on scholarly publishing. Item 3 lays a solid methodological foundation for validating digital transformation models in academic publishing, ensuring transparency, objectivity, and reproducibility – core criteria for internationally recognized articles.

7. Results and Discussion

7.1. Qualitative Results

The qualitative analysis was conducted through *25 in-depth interviews with university leaders, academic editors, lecturers, researchers, and IT staff from 10 non-public universities in Vietnam.* Findings reveal that digital transformation in scholarly publishing remains at an early stage, primarily focused on digitizing editorial and manuscript management processes.

Three major themes emerged:

7.1.1. Digital awareness and capacity: Most institutions recognize the importance of digital transformation but lack a comprehensive strategy and qualified digital personnel.

7.1.2. Technological infrastructure and publishing software: Many institutions rely on fragmented tools with limited integration, resulting in partially automated publishing workflows.

7.1.3. Policy and financial mechanisms: Most universities have not yet established stable funding mechanisms for academic publishing; investments in digitalization depend heavily on short-term budgets or donor-supported projects.

The qualitative data also highlight that leadership mindset and academic culture are the strongest determinants of transformation success. Universities whose leaders embrace Open Access and Open Data principles demonstrate faster digital adoption and the creation of more interactive research–publishing ecosystems.

7.2. Quantitative Results

A survey of 3*12 staff, lecturers, and researchers from 15 non-public universities revealed an average digital transformation score of 3.42/5 (SD = 0.71),* indicating a transitional phase between traditional and fully digital publishing models.

IT infrastructure received the highest score (Mean = 3.78), suggesting significant investment in servers, *Open Journal Systems (OJS)*, and institutional repositories.

Digital competence scored 3.29, highlighting the need for specialized training in digital editing, DOI management, and publication analytics.

Policy and institutional support scored only 3.02, indicating policy and funding gaps.

Multiple regression analysis identified three strongest predictors of digital transformation effectiveness: (1) leadership commitment ($\beta = 0.38$, $p < 0.01$), (2) editorial digital competence ($\beta = 0.31$, $p < 0.01$), and (3) IT infrastructure quality ($\beta = 0.29$, $p < 0.05$). The model explains 64% of the variance ($R^2 = 0.64$), confirming its robustness.

7.3. Extended SWOT Analysis:

7.3.1. Strengths:

Internal Factors:

-Human Resources: Young, dynamic teaching staff; quick to adapt to technology.

-Technological Infrastructure: Implemented *OJS, DOI, ORCID iD, ROR ID* and internal learning repository.

- *Institutional Policy:* Some universities already have digital transformation plans in place for 2025–2030.

7.3.2. Weaknesses:

-Human Resources: Lack of academic publishing professionals; limited data analysis skills.

-Technological Infrastructure: Lack of integration between systems; weak data security.

-Institutional Policy: Lack of policies to encourage open publishing and long-term investment.

7.3.3. Opportunities

External Factors:

-Global Context: Open publishing trends, international indexing *(Scopus, DOAJ).*

-National Policy: The government encourages comprehensive digital transformation in education.

7.3.4. Threats

External Factors:

-Global Context: Fierce competition from international journals and major publishers.

-National Policy: Legal regulations on digital publishing are still overlapping and lack specific guidance.

The synergy between internal strengths and external opportunities creates potential for a "connected - open - data - driven" ecosystem of academic publishing. However, unresolved weaknesses in human capacity and policy frameworks may leave institutions behind in the global digital transformation race.

7.4. Discussion and Policy Implications

The findings affirm that digital transformation in academic publishing is not merely a technological issue but a matter of knowledge governance and institutional innovation.

Successful institutions share three key attributes: a clear strategic vision, adaptive leadership, and strong collaboration across academic, IT, and communication units.

Three key policy implications are proposed:

-Establish a national framework and strategy for digital academic publishing, including standardized workflows, a national *DOI system,* and formal recognition of *Open Access publications (ROAD OPEN ACCESS)*

-Enhance digital capacity building for editors, lecturers, and researchers through online training, open educational resources, and international cooperation.

-Develop a national interoperable publishing infrastructure, enabling data sharing, author identification *(ORCID iD)*, organization identification *(ROR ID)*, and integration with research evaluation systems.

This Item provides a comprehensive overview of the current status, strengths, weaknesses, and developmental directions of digital transformation in scholarly publishing among Vietnam's non-public universities. Through the integration of qualitative and quantitative findings with an extended SWOT framework, the study offers an evidence-based foundation for policymaking, capacity building, and sustainable digital investment.

7.5. Solution system to enhance digital transformation in academic publishing at non-public universities in Vietnam today

7.5.1. Objectives of the solution

In the international context, the academic publishing industry is shifting strongly to digital publishing and open science to increase transparency, accessibility and impact of research. For example, a survey in Vietnam shows that very few journals are internationally indexed and the level of digital maturity is still low. Therefore, promoting digital transformation at non-public universities is a necessary step to international integration and improve research quality.

Enhance the accessibility, publication and dissemination of academic output from private higher-education institutions in Vietnam via digital transformation – with the aim of raising research standing, increasing international citation metrics and connecting to the global scholarly ecosystem.

Establish a modern, transparent, efficient and sustainable academic publishing infrastructure that lowers costs and processing time while improving manuscript and peer-review quality.

Develop digital capacity across the entire publishing chain – institutional publishers, libraries, journals, researchers – to meet the trends of open access publishing, big data and digital knowledge sharing.

Deliver operational and managerial efficiencies in publishing workflows: from manuscript submission, peer-review, editorial processing, e-publishing, distribution and digital archiving.

7.5.2. Contents of the solution

The solution contents include:

a.Building digital infrastructure and an academic publishing platform

-Deploying a manuscript submission and peer-review system for journals/institutions.

-Implementing a digital repository or linking with international repositories for long-term preservation and improved discoverability – as seen in VNU's experience.

-Digitalisation of the publishing workflow: editorial – quality control – distribution – copyright – international metadata standards (DOI, ORCID iD, ROR ID…).

b.Developing digital capacity and a digital publishing culture

-Training editors, peer-reviewers and authors in digital skills: use of e-publishing systems, metadata management, research data management, digital rights and security.

-Promoting a culture of openness and digital: encouraging open access publishing, open data, transparent peer review, use of digital tools.

-Establishing policies and incentives: faster review times, digital interaction, measurement of digital-metrics (accesses, alt-metrics).

c.International integration and publishing quality enhancement

-Adopting international standards (*transparent peer review, electronic ROR ID/ORCID iD/DOI/E-ISSN/P-ISSN, indexing*) to improve trust and citation potential.

- Developing international collaboration networks: link with international publishers, open international special issues, invite international reviewers.

-Leveraging digital technology for global distribution: e-publishing, multi-language (e.g., English & Vietnamese), open access, integration with academic social networks.

d.Research data management and scholarly impact analytics

-Building systems for research data management *(RDM*) and metadata to monitor publications, citations, digital interactions (downloads, views), alt-metrics.

-Using big-data analytics to assess publishing performance, identify strong research areas, propose publishing strategies.

- Periodic reporting and transparency on publishing metrics, fostering continuous improvement.

e.Sustainable operation and maintenance

-Establishing maintenance procedures for digital platforms, updating technology (servers, cybersecurity, backup).

-Developing a sustainable business model: operational costs, funding sources, publishing fees (if any), partnerships with commercial publishers or open access models.

-Risk assessment: technical risk, security, digital rights, combating predatory publishing – a significant international challenge.

7.5.3. How to implement the solution

To implement the above contents, the following steps may be followed:

a.Initiation and Strategic Planning

-Establish a Steering Committee for academic-publishing digital transformation at the institution (including senior leadership, publishing/academic relations unit, library, IT, journal editors).

-Conduct a current-state assessment: digital infrastructure (CMS/LMS/repository), personnel, academic publishing experience, current metrics (number of indexed journals, number of papers, citations, downloads). For example, the study of digital maturity in public universities in Hanoi revealed relatively low levels.

-Develop a 3-5 year strategic plan: define targets (e.g., increase number of institution-journals indexed internationally, increase English-language articles, increase international accesses), budget, technical roadmap, personnel plan, timeline.

b.Platform deployment and workflow conversion

-Choose or develop a publishing management system suitable for the institution – can outsource service or partner with a digital publishing vendor.

-Integrate or upgrade a digital repository, ensure metadata standards (Dublin Core, MARC21…), ensure open access or conditional access.

-Standardize the publishing workflow: submission → peer review → editorial → online publishing → distribution/access → digital archiving. Digitize each step, maintain workflow logs, set performance indicators (turnaround time, acceptance rate, number of downloads).

-Produce English versions or bilingual (Vietnamese + English) versions of institutional journals to enhance internationalization.

c.Training and human-capacity development

-Provide training for editors, peer-reviewers, researchers in: digital publishing skills; metadata management; use of publishing systems; bibliometric and alt-metric data analysis; research data management.

-Launch an "*international publishing support*" program for faculty/researchers: English–writing support, data preparation, journal selection, comply with XML/HTML standards for digital publication.

-Foster a digital-culture: encourage authors to attend international conferences, engage foreign peer review, share data/code (*open data/open code*).

d.International collaboration and publication enhancement

- Build relationships with international publishers, host international special issues, invite international peer-reviewers to enhance citation and indexability.

-Adopt systems like *DOI, ORCID iD, Crossref, ROR ID;* register for open access publishing where possible.

-Conduct digital-marketing: use academic social networks (*ResearchGate, Academia.edu*), employ alt-metrics, SEO optimised for articles/institution to boost discoverability.

e.Monitoring, evaluation and continuous improvement

-Establish KPI metrics (e.g., number of digitized articles, number of downloads, number of internationally indexed articles, average peer-review time, alt-metrics), publish annual reports.

-Analyse publishing data to identify weaknesses

(e.g., journals not indexed, articles with low downloads, slow peer review) and then propose improvement actions.

-Maintain the digital platform: upgrade software versions, ensure data security, backups, disaster recovery. Ensure sustainability.

-Review the business model: consider publishing fees, financial support, collaboration with commercial publishers, open access models with defined funding.

7.5.4. Conditions for implementing the solution

To ensure effective and sustainable implementation of the solution, the following conditions must be met:

a.Leadership commitment and clear strategy

-Senior management must treat digital transformation in academic publishing as a strategic priority, allocate resources (personnel, finance, time). Studies in Vietnamese universities show leadership strongly influences digital maturity.

-Clear policies and incentive mechanisms – e.g., rewards for journals achieving international indexing, author support, research grants.

b.Technical infrastructure and technology investment

- Servers, cloud or onsite storage, sufficient internet bandwidth, cybersecurity, data backup.

-Publishing software (submission system, peer-review workflow, repository, metadata manager) or reputable external service provider.

-Plan for upgrades, maintenance and risk mitigation (cybersecurity, data loss, obsolescence).

-Up-front investment can be significant; a viable business model is needed.

c.Human resources and digital capacity

-Editorial/assistants trained in digitisation, metadata, international publishing standards.

-Researchers/authors ready to write in English, use digital systems, engage in international peer-review.

- IT department, library staff ready to support digital platform operations and research data management.

- Continuous training/upskilling since technologies and publishing trends evolve rapidly.

d.International collaboration and connectivity

-Network with international publishers, international peer-reviewers, use of *DOI/ORCID iD/ ROR ID*/Crossref systems.

-Participation or linkage with open access publishers or international indexing bodies (*Scopus, WoS*) to improve quality and citation potential.

- Policy encouraging internationalisation: English-language articles, international special issues, data sharing.

e.Policy and financial mechanism

-Budget allocated for digitalisation, platform operation, training, author support or publishing fees.

-Mechanisms to mobilise resources: institution funds, publisher contributions, external grants, collaboration with industry, business model for academic publishing (open access, value-added services).

-Quality assurance and safeguards against predatory publishing – ensuring academic credibility and meeting international standards. For example, academic publishing is exploring blockchain for transparency.

g.Innovation culture and readiness for change

-The institution must adopt a "digital mindset": willing to change workflows, adopt open publishing, share data, take digital accountability.

-Ability to adapt to technological change, international publishing market, new publishing trends.

-Awareness of benefits and risks of digital transformation – e.g., open access may incur cost, digitised publishing needs rights protection and anti-fraud.

Building and implementing a digital transformation solution system for academic publishing at non-public universities in Vietnam is not only an inevitable trend but also a necessary condition to enhance academic status, strengthen international connections and improve research quality. If non-public universities implement seriously, have strategies and have appropriate resources, they will be able to overcome challenges – such as low digital capacity, investment costs, lack of international peer review – and take advantage of opportunities from digital platforms and open publishing.

8. Conclusion and Recommendations

8.1. Conclusion

This study provides a comprehensive overview of the current state, driving forces, challenges, and future prospects of digital transformation in academic publishing among Vietnam's non-public universities. Drawing on qualitative, quantitative, and extended SWOT analyses, five key conclusions are reached:

8.1.1.Digital transformation in academic publishing is an inevitable trend, intrinsically linked to the globalization of knowledge and the expansion of scientific accessibility. In Vietnam, particularly in non-public institutions, this process remains at an early stage, characterized by fragmentation and a

lack of strategic direction.

8.1.2.Leadership and knowledge governance are decisive factors. The commitment and strategic vision of university leaders significantly determine the success of digital transformation initiatives.

8.1.3.Digital competence among faculty and editorial teams is essential. As digital skills and understanding of scholarly publishing increase, management efficiency and publication quality improve correspondingly.

8.1.4.Technological infrastructure and policy frameworks serve as critical enablers, though gaps persist between investment and practical application. The absence of stable funding and a coherent legal framework continues to impede transformation progress.

8.1.5.An integrated digital publishing ecosystem must be established, connecting universities, enterprises, regulators, and scholarly communities to form an environment that is open, connected, data-driven, and sustainable.

Overall, the study concludes that digital transformation in academic publishing is not merely a technical shift but a reform of academic culture, governance, and epistemic practice within the evolving landscape of higher education.

8.2.Contributions of the Study

The study contributes to three major domains:

- *Theoretical contribution:* It develops an integrated analytical framework linking digital transformation, knowledge governance, and academic publishing - an underexplored nexus in Vietnam's context.

-*Practical contribution:* It provides primary empirical data reflecting current practices of non-public university journals, offering a grounded basis for institutional and national strategy formulation.

- *Policy contribution:* It presents a set of actionable recommendations to promote sustainable and globally aligned digital academic publishing.

8.3. Policy Recommendations

Based on the findings, four strategic policy recommendations are proposed to foster digital transformation in academic publishing in Vietnam:

8.3.1. Strengthen legal and governance frameworks

-Develop a dedicated *Law or Decree on Digital Academic Publishing.*

-Standardize *DOI, ORCID,* and digital copyright management procedures.

-Establish a national accreditation mechanism aligned with global standards *(DOAJ, Scopus)*.

8.3.2.Enhance digital capacity of academic and editorial staff

Integrate digital literacy and scholarly publishing competencies into faculty development programs. Offer international training in open-access publishing, bibliometric analytics, and digital academic ethics.

8.3.3. Invest in digital infrastructure and scholarly data ecosystems

Build a national integrated platform for journal management, research data, and citation metrics. Provide preferential funding schemes for non-public universities to develop e-publishing systems, open repositories, and analytics tools.

8.3.4.Promote collaboration and internationalization

Encourage partnerships among universities, enterprises, government agencies, and global publishers. Facilitate the inclusion of Vietnamese journals in ASEAN and Asia-Pacific publishing networks.

8.4. Limitations and Future Research Directions

Despite valuable insights, this study has certain limitations:

-The survey sample focuses primarily on non-public universities, thus not fully representing Vietnam's higher education landscape.

-Quantitative metrics are largely descriptive and have not yet captured the socio-economic impacts of digital transformation.

Future research should therefore:

-Conduct cross-sectoral and cross-regional comparisons (public vs. private vs. international).

-Employ *Social Network Analysis (SNA) and AI-driven Publishing*

Analytics to measure knowledge diffusion and digital impact more precisely.

Overall Synthesis

Digital transformation in academic publishing is not merely a contemporary requirement but a strategic pathway to elevate national intellectual visibility. By harmonizing policy, technology, and human capacity, Vietnam's non-public universities can become catalysts of innovation in scientific publishing, enabling Vietnamese scholarship to integrate more deeply into the global academic landscape.

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CHUYỂN ĐỔI SỐ TRONG XUẤT BẢN HỌC THUẬT TẠI CÁC TRƯỜNG ĐẠI HỌC NGOÀI CÔNG LẬP Ở VIỆT NAM: THÁCH THỨC, ĐỊNH HƯỚNG CHIẾN LƯỢC VÀ HỘI NHẬP TOÀN CẦU

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Tóm tắt:

Nghiên cứu này phân tích quá trình chuyển đổi số trong xuất bản học thuật tại các trường đại học ngoài công lập ở Việt Nam, tập trung vào các thách thức, định hướng chiến lược và khả năng hội nhập vào hệ sinh thái học thuật toàn cầu. Bằng phương pháp nghiên cứu hỗn hợp, kết hợp giữa phân tích tài liệu, phỏng vấn có cấu trúc với các tổng biên tập tạp chí và so sánh đối chiếu với các tiêu chuẩn khu vực và quốc tế (ví dụ: hệ thống Scopus, DOAJ, OJS), bài báo xác định những khoảng trống trọng yếu trong quản trị, hạ tầng công nghệ và quản lý chất lượng biên tập. Các phát hiện cho thấy rằng mặc dù nhiều tạp chí đã khởi xướng các nền tảng số, nhưng vẫn còn những hạn chế trong chính sách truy cập mở, số hóa quy trình phản biện, chuẩn hóa siêu dữ liệu và khả năng hiển thị toàn cầu.

Nghiên cứu đề xuất khung ba chiều cho chuyển đổi số bền vững gồm: (1) cải cách quản trị và chính sách; (2) xây dựng và nâng cao năng lực công nghệ – biên tập; và (3) quốc tế hóa thông qua lập chỉ mục số và mạng lưới cộng tác. Khung này là cơ sở thực tiễn giúp các cơ sở giáo dục đại học ngoài công lập của Việt Nam tiệm cận chuẩn toàn cầu trong xuất bản học thuật, đồng thời đóng góp vào diễn đàn lý luận về chuyển đổi số trong hệ sinh thái học thuật ở các nước đang phát triển.

Trong khuôn khổ của bài báo này cũng cung cấp một lộ trình thực tế cho các tổ chức giáo dục đại học ngoài công lập trong xuất bản học thuật, phát triển Tạp chí Khoa học nhằm mục đích phù hợp với các tiêu chuẩn toàn cầu về truyền thông học thuật. Bài báo này cũng đóng góp vào diễn ngôn lý thuyết về chuyển đổi số trong hệ sinh thái học thuật ở các nước đang phát triển và cung cấp những kiến thức thực tế cho các nhà hoạch định chính sách, quản trị viên trường đại học và biên tập viên tạp chí muốn nâng cao sự hiện diện của Việt Nam trong mạng lưới tri thức toàn cầu.

Từ khóa: *Chuyển đổi số; Xuất bản học thuật; Đại học ngoài công lập; Việt Nam; Quản trị; Hội nhập toàn cầu.*