

Essence, Challenges and Measures of “Building a Ship to Sail Overseas” for Sci-Tech Journals: Postprint

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Date: 2025-09-19T15:52:09+00:00

Abstract

[Objective] To explore the methods, strategies, and means for Chinese scientific journals to “build ships to go to sea,” provide recommendations for accumulating scientific paper data, and offer reference for establishing scientific paper databases to better support China’s scientific and technological development.

[Methods] We analyze the essence and challenges of Chinese scientific journals “building ships to go to sea,” propose solutions tailored to China’s national conditions, and identify entry points.

[Results] We propose that Chinese scientific journals “building ships to go to sea” should establish indigenous international publishing platforms, databases, and evaluation systems. Based on current challenges, we suggest that the primary choice for “building ships to go to sea” is typesetting and proofreading systems, with a focus on scientific paper accumulation and aiming for database construction.

[Conclusion] It is imminent and imperative for Chinese scientific journals to “build ships to go to sea.” We should actively establish indigenous international publishing platforms, databases, and evaluation systems, taking typesetting and proofreading systems as the primary measure to construct scientific journal publishing platforms, accumulate scientific paper data, and achieve large-scale database construction.

Full Text

Preamble

The Essence, Challenges, and Strategies for Chinese Scientific Journals to “Build Ships and Sail Overseas” (Center for Excellence in Molecular Cell Science, Chinese Academy of Sciences; Shanghai Institute of Biochemistry and Cell Biology,

Chinese Academy of Sciences; Chinese Society of Biochemistry and Molecular Biology; Editorial Office of *Chemistry of Life*, Shanghai 200031)

Abstract

Objective: This study explores the methodologies, strategies, and approaches for Chinese scientific journals to “build ships and sail overseas,” offering recommendations for accumulating scientific paper data and providing references for establishing better scientific paper databases to support China’s scientific development.

Method: We analyze the essence and challenges of “building ships to sail overseas” for Chinese scientific journals, propose solutions tailored to China’s national conditions, and identify entry points for implementation.

Results: We propose that Chinese scientific journals must establish localized international publishing platforms, databases, and evaluation systems to “build ships and sail overseas.” Considering current challenges, we identify the typesetting and proofreading system as the preferred starting point, emphasizing the accumulation of scientific papers and aiming for database construction.

Conclusion: It is urgent and imperative for Chinese scientific journals to “build ships and sail overseas” by actively establishing localized international publishing platforms, databases, and evaluation systems. Taking the typesetting and proofreading system as the primary measure, journals should build publishing platforms, accumulate scientific paper data, and ultimately achieve large-scale database construction.

Keywords: scientific journals; building ships to sail overseas; typesetting and proofreading system; one-click publishing; borrowing ships to sail overseas

CLC Number: G230

Document Code: A

Article ID: 1671-0134(2025)08-120-04

DOI: 10.19483/j.cnki.11-4653/n.2025.08.026

Citation Format: Liao Guangyong. The Essence, Challenges, and Strategies for Chinese Scientific Journals to “Build Ships and Sail Overseas” [J]. *China Media Technology*, 2025, 32(8): 120-123.

Introduction

Scientific journals serve as crucial media for disseminating and exchanging research findings, playing a vital role in advancing science and technology and enhancing national scientific competitiveness. In recent years, China’s scientific journals have achieved remarkable growth in quantity and substantial improvement in quality, yet their international influence remains limited, with the

“borrowing ships to sail overseas” model proving difficult to break away from. As China’s scientific strength continues to grow and its journals develop rapidly, “borrowing ships” no longer meets the needs of Chinese scientific journals. This strategy has reached an inflection point, making “building ships to sail overseas” both urgent and imperative [1-3]. According to CNKI, the term “building ships to sail overseas” first appeared in 1990 [4], and has been proposed for over 30 years. While it is no longer a novel concept in other industries, exploration in the scientific journal sector remains in its infancy. Theoretical research and practical exploration are proceeding simultaneously, with English-language journals still primarily relying on “borrowing ships” [5]. This approach often leaves us subject to others’ control and facing significant risks of scientific and technological blockade, making “building ships” the most pressing issue for Chinese scientific journals. Current practical explorations of “building ships” in China cannot yet support large-scale internationalization of Chinese journals. This paper analyzes the essence, challenges, and strategies of “building ships to sail overseas” for scientific journals, aiming to provide theoretical references for this endeavor and support for achieving scientific powerhouse status.

1. The Essence of “Building Ships to Sail Overseas” for Scientific Journals

As China’s science and technology continue to develop, the drawbacks of “borrowing ships” have become increasingly apparent, bringing Chinese scientific journals to a critical juncture where “building ships” is essential. The fundamental question is: what exactly must be “built” to achieve this goal? Clarifying this is the primary task in solving the “shipbuilding” challenge.

First, the concept of “building ships to sail overseas” for scientific journals is, in some sense, based on the experience of “borrowing ships.” After joining the WTO, Chinese scientific journals collaborated with established foreign publishing groups and utilized their advanced international publishing platforms to better integrate with the global community and meet the needs of international publication—this was “borrowing ships to sail overseas.” In this context, “building ships” means creating indigenous, internationalized publishing platforms that can lead Chinese scientific journals into the global market. These platforms include submission and peer-review systems, editing systems, typesetting and proofreading systems, publishing systems, independent international databases, and evaluation systems—aligning with Yu Cheng et al.’s proposal to “build knowledge service platforms with independent intellectual property rights” [6].

1.1 Establishing Localized International Publishing Platforms

As the origin of “building ships” suggests, the “ship” Chinese scientific journals need to build is an autonomous system similar to internationally renowned publishing groups such as Oxford University Press (OUP), Nature Publishing Group (NPG), and Springer Publishing Group. These groups own numerous scientific

journals and have established efficient, full-process publishing platforms integrating peer review, editing, and publication. These platforms not only serve their own journals but also attract many external journals to operate on their systems. In this sense, “building ships” means constructing full-process publishing platforms or systems. China’s journal community has primarily focused on publishing platforms in its digital publishing exploration of “building ships.” While China already has publishing platforms supporting Chinese-language journals, they cannot support the internationalization of Chinese scientific journals, particularly English-language ones. Therefore, the current priority is to build publishing platforms capable of supporting the international development of Chinese journals and even journals from other countries. Constructing high-level academic publishing platforms with independent intellectual property rights is crucial for the sustainable development of Chinese scientific journals [7] and represents the fundamental path forward [8].

1.2 Establishing Localized International Databases

As an important carrier of scientific achievements, research papers are vital for scholarly communication. Traditional journals compile individual papers into volumes, which libraries purchase to create secondary collections for researchers. With the development of the internet, databases have emerged, enabling the rapid electronic and digital dissemination of scientific achievements at the individual paper level, free from the physical constraints of print media. Researchers can now search for and download papers of interest directly through database portals, typically for a fee. While China has influential databases such as CNKI, Wanfang, and VIP, they primarily collect Chinese-language papers, supplemented by a few English journals published domestically, and rarely include papers in other languages or from other countries. This cannot meet the needs of China’s scientific internationalization.

As China’s science and technology develop and integrate globally, a large volume of important Chinese research is published in English in internationally renowned journals. Meanwhile, major global scientific achievements are also concentrated in these journals, making Chinese researchers highly dependent on international databases. After the Russia-Ukraine conflict began in 2022, some foreign publishing groups suspended cooperation with Russia, adversely affecting Russian scientific journals and, more seriously, preventing Russian scientists from accessing international databases and severely impacting their subsequent research [2, 9]. Data itself has become an important means of production, with scientific paper data being the most critical means of production for science and technology. Restrictions on Chinese researchers’ ability to browse, read, and download data from foreign databases will inevitably hinder normal research activities and seriously affect China’s scientific development.

Therefore, China must actively establish localized international databases to ensure its researchers are not affected by restrictions from other countries’ databases, to collect global scientific and technological achievements for its own

use, and to achieve international dissemination of papers published in Chinese journals. Currently, Chinese journal practitioners are primarily concerned about how restrictions on international databases or publishing groups might affect China's research, rather than considering how to collect and compile existing international research data through various forms of cooperation to establish China's own international scientific paper database center. Just as the saying goes, "before the army moves, provisions must go first," establishing a localized international scientific paper database is imperative to support China in becoming a true scientific powerhouse.

1.3 Establishing Localized International Evaluation Systems for Scientific Journals

Journal evaluation directly affects journal development and guides authors' submission decisions. Currently, China has separate evaluation tracks for Chinese-language and English-language journals. Chinese journals are primarily evaluated or indexed by domestic institutions such as the Chinese Science Citation Database, Peking University Library, and the Institute of Scientific and Technical Information of China. English-language journals, however, typically use impact factors released by Clarivate Analytics as the core evaluation metric. English journals indexed in Clarivate's Science Citation Index (SCI)—referred to as SCI journals—are widely favored by Chinese scientists. The SCI journal list currently includes over 9,600 journals. According to the *Blue Book of China's Scientific Journals Development (2023)*, by the end of 2022, China had 235 SCI journals (excluding Hong Kong, Macao, and Taiwan) [10], accounting for less than 3% of all SCI journals. Chinese researchers' performance evaluations and promotions typically have explicit requirements for publishing in SCI journals, which directly results in China's excellent scientific papers being appropriated by other countries' SCI journals. The development of Chinese scientific journals is severely constrained by the international journal evaluation system. Therefore, establishing China's own scientific and internationalized evaluation system for scientific journals is also essential for future development, thereby guiding more scientific achievements from both domestic and international sources to publish in Chinese journals.

Currently, discussions about "building ships to sail overseas" in the scientific journal community have focused primarily on publishing platforms, with less attention given to databases and evaluation systems. The three types of "ships" described above are already prevalent internationally and have various impacts on the development of Chinese scientific journals. Building these existing "ships" aims to escape the dilemma of "borrowing ships," but starting from this perspective can only achieve catching up and keeping pace, making it difficult to break the existing ecosystem of scientific journals and challenging to leverage our own advantages. As the research environment evolves and China's scientific strength continues to grow, can China develop a new type of scientific journal fleet that differs from existing "ships," breaking the current ecosystem and achieving tran-

scendence through a new path? This would be the best approach and strategy to surpass international publishing institutions. Chinese scientific journal practitioners must have the courage to explore and innovate, actively embrace new technologies (such as artificial intelligence), and build international scientific journal giants that suit China's national conditions and can sail far and wide.

2. Challenges in “Building Ships to Sail Overseas” for Scientific Journals

Although some Chinese publishing institutions have made bold efforts and attempts in “building ships to sail overseas,” with platforms such as Science Press's SciEngine [11-12] and Tsinghua University Press's SciOpen publishing and dissemination platform [13-14] already capable of supporting this goal, China's scientific journals remain in the initial stages of “building ships.” They are far from meeting the rapid development needs of Chinese scientific journals, let alone supporting foreign journals. What exactly makes “building ships to sail overseas” so difficult?

First, developed countries in Europe and America have experienced rapid scientific development, quickly forming various supporting systems and market mechanisms for research, including scientific journals, databases, and evaluation systems. The global scientific community has formed a relatively stable ecosystem, making it difficult for Chinese scientific journals to become strong and large, as they face constraints everywhere. Second, after joining the WTO, to quickly enter the international scientific arena, Chinese scientific journals adopted the “borrowing ships” strategy, which met the development needs of the time and enabled a small number of top Chinese English-language journals to rapidly achieve internationalization. However, this also forced Chinese English-language journals into the arms of international publishing groups and created dependency. Third, Chinese scientific journals are highly dispersed across various universities, research institutes, journal publishers, and enterprises. Due to different affiliations, true journal clusters are difficult to achieve, and individual journals or small collections cannot leverage agglomeration advantages, making “building ships” a distant dream and “borrowing ships” a reluctant choice. Fourth, scientific journals are not the primary responsibility of their host institutions and are easily marginalized, receiving limited human and financial resources. For isolated journals, “building ships” is a distant prospect. Fifth, accustomed to “borrowing ships,” domestic “shipbuilding” lacks opportunities for experimentation, and newly built platforms lack users for repeated training and deep improvement. Sixth, the initial investment in “building ships” is substantial and the cycle is long; “ships” built as one-off projects cannot sail. Additionally, in terms of talent, Chinese scientific journal practitioners are primarily disciplinary experts, with few top-tier talents in informatics and related fields joining the industry. This has resulted in most Chinese journal practitioners being “passengers” rather than “shipbuilders.”

The internationalization of Chinese scientific journals through “building ships”

has just begun and lacks accumulation, just as turning a desert into an oasis cannot be accomplished in a day or a month. The scientific journal community faces these challenges head-on. Only by confronting difficulties directly, bravely stepping out of our comfort zone, and tackling problems one by one can we ultimately achieve comprehensive and independent development.

3. The Typesetting and Proofreading System as the Preferred Strategy for “Building Ships”

Despite the numerous difficulties, it is imperative for Chinese scientific journals to “build ships to sail overseas” [1]. While journal practitioners work hard to improve their internal operations and standards, they must also focus on strategy, cooperate fully, keep a close eye on domestic and international scientific development trends, and guide the “shipbuilding” process according to the circumstances. Based on the current situation of Chinese scientific journals, this paper proposes that the preferred strategy for “building ships” is to establish a typesetting and proofreading system.

The full process of scientific paper production involves many stages and requires various systems, including submission and peer-review systems, editing systems, and typesetting and proofreading systems. All these systems are important and indispensable for scientific journals. While seemingly simple, they are not easy to create and maintain. Submission and peer-review systems serve as communication platforms between authors, reviewers, and editors, performing manuscript screening functions. These systems and editing systems are now relatively mature, but there remains a final step before publication. The typesetting and proofreading system handles the final processing of accepted papers, transforming semi-finished manuscripts into formally published products. Currently, typesetting is performed either through desktop software or online platforms. Online typesetting and proofreading systems have developed in recent years, facilitating online collaboration among authors, editors, and proofreaders in paper processing and enabling conversion into multiple versions for different purposes (such as PDF and XML), thereby achieving one-click publishing functionality and interfacing with various databases to complete paper publication.

The typesetting and proofreading system completes the final processing of manuscripts to produce the finished scientific papers. Technically speaking, it is not overly complex. Intervening at the typesetting and proofreading stage is suitable for building large platforms, as it can serve various journals without affecting their ownership structures, and has broad service scope unrestricted by geography, discipline, or field. As the final production stage, the typesetting and proofreading system is the “delivery room” for scientific papers. Based on this final production link, the system can simultaneously establish portal websites for participating journals with comprehensive data and convenient publishing capabilities. Through long-term accumulation, once a massive database is established, the typesetting and proofreading system will no longer be merely a platform serving scientific journals but will become

“infrastructure” serving scientific development, achieving knowledge services. Additionally, once completed, the typesetting and proofreading system can provide customized portal websites for scientific journals to meet various needs, including independent copyright requirements.

Establishing a typesetting and proofreading system as the preferred strategy for “building ships” offers multiple advantages. First, it suits China’s relatively fragmented scientific journal ecosystem, allowing all journals to maintain their existing management structures and host institutions [15]. By the end of 2022, China had 5,163 scientific journals managed by 1,339 responsible authorities, averaging 3.86 journals per authority, with 65.57% of authorities managing only one journal [10]. It is difficult to achieve clustering without addressing ownership issues—this is the fundamental reality of Chinese scientific journal development and an unavoidable basic problem for “building ships.” An efficient and convenient typesetting and proofreading system can effectively integrate dispersed scientific journals, achieving data integration and clustering of scientific paper publication. The system should first integrate and serve domestic scientific journals, continuously improving service capabilities to attract foreign journals and achieve the goal of acquiring foreign data for our use. Second, building a typesetting and proofreading system is relatively straightforward technically and requires lower investment costs, while generating revenue once it attracts journals to the platform. Third, once the platform is successfully built and reaches scale, it can attract foreign journals to join the typesetting and proofreading system, achieving shared publishing platforms [16] and facilitating the acquisition of foreign data for our use. Fourth, the system enables one-click publishing of processed papers. As the final production stage, it can simultaneously establish comprehensive portal websites for participating journals. Through long-term accumulation, once a massive database is established, the typesetting and proofreading system will become infrastructure serving scientific development. Fifth, after the system is built, it can simultaneously establish portal websites for scientific journals with personalized customization to meet various independent copyright needs.

Under the imperative trend of “building ships to sail overseas,” scientific journal practitioners should actively establish localized international publishing platforms, databases [17], and evaluation systems across all stages and the full process. More importantly, they should take the typesetting and proofreading system as the optimal path and breakthrough point for “building ships,” establishing publishing platforms, accumulating scientific paper data, and achieving large-scale database construction. Additionally, as the breakthrough point for “building ships,” the typesetting and proofreading system should shoulder its mission, dare to think and act, emancipate minds, and innovate courageously. Journal practitioners should explore more methods and new technologies, such as artificial intelligence [18, 19], to comprehensively serve the development of scientific journals and science itself. The scientific journal community also needs to attract various interdisciplinary talents, especially top talents in information technology, from the internet and technology industries who possess expertise

in platform construction and database development, injecting fresh blood into “building ships” [20]. We must constantly remind ourselves not to be led by the rhythm of international publishing groups, not to be limited to the present, and not to remain in the follow-or-keep-pace stage. We should actively explore and innovate, using new technologies and inventions to provide new opportunities for “building ships,” and emancipate our minds to find new methods and approaches that provide new momentum for Chinese scientific journals to “build ships and sail overseas.”

References

- [1] You Saining. Chinese Scientific Journals: Building Ships to Sail Overseas is Imperative [J]. *Science and Technology Review*, 2017, 35(15): 13-14.
- [2] Wang Ningning, You Saining, Liu Hongxia. Building Ships to Sail Overseas is Urgent for Chinese Scientific Journals [J]. *Acta Editologica*, 2022, 34(2): 126-130.
- [3] Chu Jingli. From “Borrowing Ships” to “Building Ships” : Chu Jingli, Director of the Editorial and Publishing Center, National Science Library, Chinese Academy of Sciences [J]. *Science News*, 2015(11): 33-35.
- [4] Zhu Zheng, Shen Bingxi. Comparison and Selection of “Sailing Overseas” Strategies [J]. *Zhejiang Economy*, 1990: 19-22.
- [5] Yan Yongsong, Wang Weilang, Guo Wei, et al. Development Status of Chinese SCI Journals and Recommendations for Cooperation with Publishing Platforms [J]. *Chinese Journal of Scientific and Technical Periodicals*, 2022, 33(1): 766-772.
- [6] Yu Cheng, Gu Yalin, Zhang Wenyan. The “Building Ships to Sail Overseas” Model of World Scientific Journal Publishing Companies and Its Implications for China [J]. *Chinese Journal of Scientific and Technical Periodicals*, 2019, 30(7): 766-772.
- [7] Ding Shuai, Guo Chenzi, Zhang Ying, et al. Reflections on Cooperative and Independent Journal Founding—Based on the Founding Process of *Light: Science & Applications* and *Light: Advanced Manufacturing* [J]. *Chinese Journal of Scientific and Technical Periodicals*, 2023, 34(7): 859-867.
- [8] Yu Cheng, Tang Leshui. Publishing Strategies for “Borrowing Ships” and “Building Ships” for Open Data in Scientific Journals [J]. *Chinese Journal of Scientific and Technical Periodicals*, 2020, 31(9): 1462-1466.
- [9] Li Xinpo, Zheng Xiujuan. Three Key Issues for Chinese Scientific Journals “Building Ships to Sail Overseas” [J]. *Acta Editologica*, 2022, 34(4): 360-362.
- [10] China Association for Science and Technology Service Center. *Blue Book of China’ s Scientific Journals Development (2023)* [M]. Beijing: Science Press, 2023.

- [11] Yu Cheng, Li Yujia. Experience and Challenges of Science Press' s Sci-Engine Platform in Building Ships to Sail Overseas [J]. *China Media Technology*, 2023(3): 143-146.
- [12] Liang Yongxia, Li Cuixia. Building Ships to Sail Overseas and Creating a Chinese Academic Brand Journal Cluster Platform—An Interview with Dr. Huang Yanhong [J]. *Chinese Journal of Scientific and Technical Periodicals*, 2022(7): 995-998.
- [13] Zhang Li, Zeng Jie, Zhao Kuo, et al. Operation Practice and Reflections on SciOpen, a Domestic Scientific Journal Publishing and Dissemination Platform [J]. *Acta Editologica*, 2023(1): 811-818.
- [14] Tang Mei, Chen He. Practical Exploration of Independently Founding New English Journals Based on the Domestic Digital Publishing Platform SciOpen [J]. *Chinese Journal of Scientific and Technical Periodicals*, 2024(11): 1561-1568.
- [15] Liao Guangyong, Guan Xinghua, Chang Anni. Building an Independent International Distribution Platform for English Scientific Journals—A Concept for a “Split-Merge Publishing” Model [J]. *Chinese Journal of Scientific and Technical Periodicals*, 2020(12): 1462-1466.
- [16] Kang Jun. Internationalization Development Strategies for Chinese English-Language Academic Journals “Building Ships to Sail Overseas” [J]. *Chinese Journal of Scientific and Technical Periodicals*, 2024(6): 811-818.
- [17] Ding Zuoqi, Li Chuwei. Current Status and Prospects of OA Publishing in China from the Perspective of the “Excellence Action Plan for China’ s Scientific Journals” [J]. *Chinese Journal of Scientific and Technical Periodicals*, 2022(11): 1561-1568.
- [18] Zhang Xinling, Chen Yu. Publication Dynamics of International ChatGPT Research Literature and Implications for the Development of Chinese Academic Journals—A Bibliometric Analysis Based on Web of Science [J]. *China Media Technology*, 2024(10): 27-31.
- [19] Shi Jialiang, Zhang Yao. Convergence Innovation, Development, and Regulation of the Publishing Industry Driven by Artificial Intelligence—Focusing on Risk and Opportunity Analysis of AI Proofreading Technology [J]. *China Media Technology*, 2024(10): 98-101.
- [20] Fu Ruhai. Transformation and Innovation of Editing and Publishing Models in the Digital Age [J]. *China Media Technology*, 2024(10): 110-113.

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(Responsible Editor: Ren Lingxuan)

Note: Figure translations are in progress. See original paper for figures.

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