

Innovative Development of Ordinary Journals in the Context of Cultivating World-Class Scientific and Technological Journals: Reflections and Practices from *China Wood-Based Panels* (Post-print)

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Abstract

Against the backdrop of cultivating world-class scientific journals, this study takes *China Wood-Based Panels* as an example and employs bibliometric methods to analyze the current operational status of the journal. The analysis reveals that the journal has not yet established a core author group, suffers from an imbalanced author distribution, and exhibits excessive reliance on its sponsoring institution. Additionally, there is insufficient coverage of key topics such as “formaldehyde emission” and “green eco-friendly products,” which are of widespread public concern, as well as industry-focused issues like “digitalization and intelligent transformation.” Finally, experiences and reflections on innovative development are shared based on practices in five aspects: adhering to the journal’s mission, constructing a core author group, innovating journal operation models, planning characteristic columns, and skillfully leveraging new media platforms.

Full Text

Reflections and Practices on the Innovative Development of Ordinary Journals in the Context of Cultivating World-Class Scientific and Technological Journals: A Case Study of *China Wood-Based Panels*

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Abstract: Against the backdrop of cultivating world-class scientific and technological journals, this study employs bibliometric methods to analyze the current status of *China Wood-Based Panels* in order to provide reference for the development of ordinary journals. The analysis reveals that the journal has not yet formed a core author group, exhibits an imbalanced author distribution, and shows excessive dependence on its host institution. Additionally, its coverage of socially prominent topics such as “formaldehyde emission” and “green environmental products,” as well as industry concerns like “digital and intelligent transformation,” remains insufficient. Finally, the paper shares experiences and reflections on innovative development from five perspectives: adhering to the journal’s purpose, building a core author group, innovating operational models, planning special columns, and skillfully utilizing new media platforms.

Keywords: world-class scientific and technological journals; ordinary journals; bibliometrics; new media platforms; innovative development

In 2019, the China Association for Science and Technology, the Publicity Department of the CPC Central Committee, the Ministry of Education, and the Ministry of Science and Technology jointly issued the “Opinions on Deepening Reform and Cultivating World-Class Scientific and Technological Journals” [1]. On November 22, 2019, the China Association for Science and Technology announced the selected projects for the China Science and Technology Journal Excellence Action Plan [2]. Concurrently, various domestic societies and associations successively released high-quality scientific and technological journal grading catalogs in their respective disciplines. Since then, the construction of world-class scientific and technological journals has become a focal point in China’s journal and scientific communities. Researchers have explored and analyzed development strategies [3], practical experiences [4], opportunities and challenges [5], enhancement of international competitiveness [6], and editorial talent [7], offering numerous suggestions for cultivating world-class scientific and technological journals.

According to statistics, China has approximately 5,000 scientific and technological journals, among which ordinary non-core journals account for over 60% [8]. These ordinary journals constitute the main body of China’s scientific and technological journals and serve as the foundational guarantee for building world-class scientific and technological journals in China [9], making indelible contributions to promoting China’s high-quality economic development. Against the backdrop of accelerated cultivation of world-class scientific and technological journals, the series of policies and measures introduced have primarily and directly benefited “major” and “strong” journals, while the vast number of ordinary journals have become increasingly perplexed. However, research on the development of ordinary journals remains scarce. Liu Biying et al. analyzed the value of ordinary journals [9], while Guo Wei discussed development strategies for ordinary journals at the macro level [8]. Based on bibliometric analysis and grounded in the editorial practice of *China Wood-Based Panels* (hereinafter re-

ferred to as *Wood-Based Panels*), this paper briefly analyzes the development path of ordinary journals, aiming to provide reference for their development.

1. Research Object and Methods

Wood-Based Panels is sponsored by the Institute of Wood Industry, Chinese Academy of Forestry. Founded in 1994, it is a leading professional journal in China's wood-based panel and products industry and one of the most market-oriented journals in China's forestry sector. On February 18, 2021, we accessed the CNKI database to retrieve papers published in *Wood-Based Panels* between January 1, 2006, and December 31, 2020. We recorded the titles, primary authors, research institutions, keywords, publication years, citation frequencies, download frequencies, and national funding information into Excel for statistical analysis, and employed VOSviewer software to conduct term frequency analysis of primary authors and keywords.

2. Analysis of the Current Status of *Wood-Based Panels*

2.1 General Situation

From 2006 to 2020, *Wood-Based Panels* published a total of 1,639 papers, with an annual average of 109 papers, total citations of 4,860, an average of 2.97 citations per paper, total downloads of 193,284, and an average of 117.93 downloads per paper. The publication volume generally showed a trend of first decreasing and then increasing [Figure 1: see original paper].

2.2 Core Authors

According to Price's Law [10], the condition for core authors is that their publication volume should satisfy $N = 0.749\sqrt{N_{\max}}$, where N_{\max} represents the maximum number of papers published by a single author during the statistical period. The first author with the most publications in *Wood-Based Panels* over the past 15 years is Huang Yongping from the Guangxi Forestry Industry Association, with 17 papers. Calculating $N = 3.1$ and rounding to the nearest integer gives 3, meaning authors with 3 or more papers are considered core authors of *Wood-Based Panels*, totaling 87 individuals. These 87 core authors published 425 papers over the past 15 years, accounting for 25.93% of the journal's total publications. According to Price's Law, the formation condition for a core author group is that core authors' publications should reach 50% of the total. Therefore, *Wood-Based Panels* has not yet formed a core author group.

To more comprehensively understand the authorship situation of *Wood-Based Panels*, we analyzed the occurrence frequency, co-occurrence frequency, and citation frequency of all authors from the 1,639 papers, with results shown in [Figure 2: see original paper]. Node size indicates author occurrence frequency, line thickness between authors indicates co-occurrence frequency, and node color indicates average citation frequency (with colors ranging from yellow to red

representing increasing average citation frequency). The analysis reveals that core authors of *Wood-Based Panels* primarily originate from several research teams: Lü Bin' s team, Tang Zhaoqun' s team, Duan Xinfang' s team, Chen Zhilin' s team, Guo Wenjing' s team, and Li Jianzhang' s team, with relatively simple cooperation networks among authors.

2.3 Main Institutions

From 2006 to 2020, the 1,639 papers published in *Wood-Based Panels* involved 508 institutions. Institutions with more than 10 first-author papers are listed in . The journal' s host institution, the Institute of Wood Industry, Chinese Academy of Forestry, published 148 papers, accounting for 9% and ranking first, far exceeding other institutions. Beijing Forestry University ranked second with 59 papers, and Suzhou Sufoma Machinery Co., Ltd. ranked third. The top 30 institutions collectively published 753 papers, accounting for 46.0% of the total. These results indicate that *Wood-Based Panels* has an imbalanced manuscript source distribution and strong dependence on its host institution.

2.4 Reporting Focus

To systematically analyze the reporting hotspots of *Wood-Based Panels* over the past 15 years, we examined the occurrence frequency, co-occurrence frequency, and citation frequency of over 40,000 keywords from the 1,639 papers, with results shown in [Figure 3: see original paper]. Node size indicates keyword occurrence frequency, line thickness between keywords indicates co-occurrence frequency, and node color indicates average citation frequency. The analysis shows that *Wood-Based Panels* has focused on the physical and chemical properties, manufacturing processes, production equipment, standards and quality, and industry status of wood-based panels and their products. However, the journal' s coverage of socially prominent topics such as “formaldehyde emission” and “green environmental products,” as well as industry concerns like “digital and intelligent transformation,” remains insufficient.

3. Practice and Reflection on the Innovative Development of *Wood-Based Panels*

3.1 Adhering to the Service-Oriented Purpose for Industry High-Quality Development

A journal' s purpose determines its positioning and development direction. Establishing a clear purpose is fundamental to forming journal characteristics, enhancing core competitiveness, and promoting long-term development [11]. *Wood-Based Panels* once experienced confusion: adhering to its industry journal positioning resulted in a persistently low impact factor, with low enthusiasm for submissions from high-level authors at universities and research institutions, and low success rates in solicited contributions. Transitioning to a purely academic journal might reduce market recognition and affect advertising business.

Through continuous practice and exploration, the editorial department concluded that as China continuously strengthens enterprises' principal position in innovation and promotes the aggregation of innovation elements toward enterprises, this presents tremendous development opportunities for ordinary journals. *Wood-Based Panels* should firmly adhere to its purpose of serving industry high-quality development while simultaneously enhancing academic influence—these two objectives are not contradictory. In fact, in the history of China's wood-based panel development, many scientific and technological achievements were completed through enterprise R&D, and many innovations in basic theory were transformed into products through enterprises. Therefore, high-quality articles from enterprises can also generate strong academic influence.

3.2 Leveraging Industry Resources to Build a Balanced Core Author Group

As revealed by the preceding analysis, *Wood-Based Panels* has not yet formed a core author group, exhibits imbalanced author distribution, and shows excessive dependence on its host institution—all of which are detrimental to the journal's long-term development. To address these issues, the following measures have been implemented: First, fully utilize the numerous wood-based panel and products industry associations and standardization committees affiliated with the host institution. By serving as a supporting media outlet and participating in reporting on forums, press conferences, exhibitions, and new product appraisal events organized by these associations and committees, the editorial department can gain deeper insights into the industry, establish friendships with associations and enterprises, and gradually develop association and committee leaders as well as management and R&D personnel from member enterprises into editorial board members and authors. Second, strengthen solicitation of contributions from the journal's advertising clients. Most advertising clients of *Wood-Based Panels* are brand enterprises upstream in the industrial chain, including machinery and equipment, adhesives and other raw/auxiliary materials, and pollution control. These enterprises possess substantial industry-critical technologies and market information and are familiar with the wood-based panel industry. Therefore, their papers hold strong reference value for the journal's target readers while also serving as promotion for the advertising clients. Third, further consolidate cooperative relationships with universities and research institutions. For the journal's core authors, the editorial department should thoroughly explore their research fields and expertise, continue targeted solicitation to form series of papers, and provide green channels for their publication. Through these initiatives, a structurally rational and evenly distributed core author group can be constructed, providing solid support for the journal's development.

3.3 Focusing on Industry Hotspots and Continuously Planning Special Columns

A journal's vitality lies in its keen insight and precise capture of industry hotspots. Most of *Wood-Based Panels'* highly influential papers over the past 15 years were targeted contributions invited by the editorial department from relevant experts and entrepreneurs based on then-current industry hotspots. Practice has proven that these efforts generated strong industry and academic influence. In recent years, the customized home furnishing industry has flourished, driving rapid development of upstream wood-based panel, decorative paper, and panel industries. To further strengthen coverage of industry hotspots and expand the journal's influence, the editorial department has organized and planned special issues on "particleboard," "oriented strand board (OSB)," "customized home furnishing," "wood flooring," "decorative paper," and "decorative panels." Joint special issues have been published with renowned domestic wood flooring enterprise Shengxiang Group ("Shengxiang Special Issue") and well-known customized home furnishing enterprise Suofeiya ("Suofeiya Special Issue"). These special issues have generated positive responses in the industry, with WeChat promotion data showing that articles in special issues receive between 1,000-2,000 and 3,000-4,000 reads, further consolidating *Wood-Based Panels'* position as an industry-leading professional journal. However, the preceding analysis of reporting focus indicates insufficient coverage of topics such as "formaldehyde emission," "green environmental wood-based panel products," and "digital and intelligent transformation." Moving forward, the journal should organize relevant resources, plan special columns, and conduct in-depth, systematic, and continuous reporting on these topics.

3.4 Keeping Pace with the Times and Innovating Journal Operation Models

As science and technology develop and times change, journal operation models must also keep pace and continuously innovate. As an industry journal, in addition to publishing papers, it should actively monitor market dynamics—this poses challenges for traditional editorial departments. Constrained by institutional mechanisms, *Wood-Based Panels* cannot freely recruit staff as needed. To address this, the traditional editorial model can be improved by establishing a special correspondent/editor mechanism. Part-time correspondents and editors can be recruited in wood-based panel industry clusters, universities, and research institutions, trained and certified, and paid remuneration to timely collect and edit market information. Unlike purely academic journals that can fully adopt open access (OA) models, print distribution holds special value and significance for industry journals and enterprises. Regarding traditional postal distribution, the author previously conducted surveys revealing that many wood-based panel enterprises in areas with underdeveloped transportation and information infrastructure never receive postal mail, while express delivery is costly and outsourcing to third parties risks core data leakage. To address this, a "con-

ference distribution + online distribution 为主, postal distribution 为辅” model can be adopted: First, implement a new conference distribution model. Based on the annual number of industry conferences and exhibitions, targeted distribution plans can be formulated through communication and negotiation with organizers to distribute the journal as a conference proceedings, greatly improving distribution efficiency, targeting, and the journal’ s visibility and influence. Second, adopt new online distribution methods. Electronic magazines can be produced with technical encryption, allowing interested readers and subscribers to directly pay for and read electronic versions. Third, supplement with limited postal distribution for readers who can receive postal mail.

3.5 Seizing the Pulse of the Times and Skillfully Utilizing New Media Platforms

To adapt to developmental changes of the era, *Wood-Based Panels* began exploring new media operations in the early stages of mobile internet development, launching its WeChat public account in 2013, which has since accumulated over 20,000 active followers with nearly 1 million platform visits in 2020. The development has roughly experienced three stages: (1) Exploration period (2013-2015): primarily posting short messages to guide readers to the print journal with irregular updates; (2) Rapid development period (2016-2019): mainly posting industry dynamics with journal articles as supplementary content, during which follower numbers rapidly increased; (3) Important leap period (2020-present): promoting deep integration between print and WeChat public accounts and skillfully utilizing new media platforms to comprehensively serve journal development. First, skillfully use new media to provide featured services for authors. After each issue is published, key articles are selected for release on the WeChat public account. For key authors, their scientific and technological achievements are promoted free of charge to facilitate transformation. This initiative stimulates authors’ enthusiasm for submission and improves solicitation success rates. Second, skillfully use new media to provide data support for journal topic planning. The editorial department regularly organizes high-impact post rankings, discusses and analyzes industry hotspots, further excavates valuable content, and then organizes and solicits contributions. Third, skillfully use new media to innovate advertising operation models. The strategy of mobilizing print journal advertisements has been fully implemented, with journal advertisements implanted in WeChat posts according to content to compensate for print media dissemination disadvantages. An efficient information transmission mechanism has been established with advertising clients to timely report dynamics and provide value-added services. Interview columns have been opened on the public account to conduct in-depth interviews with key clients.

In the context of accelerated cultivation of world-class scientific and technological journals, ordinary journals have tremendous potential to contribute. As a member of the numerous ordinary journals, *China Wood-Based Panels* possesses both particularities and universalities. This paper employs bibliometric

methods to analyze the current status of *China Wood-Based Panels* and introduces relevant thoughts and measures for future development, aiming to assist other ordinary journals in better fulfilling their mission and responsibility to serve industry high-quality development, thereby making greater contributions to China' s strength in science and technology and modernization.

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

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