

## Current Status and Optimization Strategies of Knowledge Services in Chinese Core Geography Journals

**Authors:** Guo Yihua, Guo Yihua

**Date:** 2024-05-17T00:00:00+00:00

### Abstract

**Purpose:** To analyze the current development status of knowledge services in Chinese core geography journals and propose optimization strategies, providing a reference for the quality enhancement and upgrading of knowledge services in scientific journals. **Methods:** Taking the 20 Chinese core geography journals included in the “Overview of Chinese Core Journals (2020 Edition)” as the research object, this study mainly collected specific forms of knowledge services conducted on journal official websites and WeChat official accounts, and investigated the knowledge service modalities provided by the China Geography Resources Journals Network—a cluster platform for geography science and technology journals. **Results:** 1) The knowledge services of most Chinese core geography journals are primarily concentrated in first-level digital information services (basic services such as online first publication, article recommendations, and article retrieval) and second-level knowledge product services (knowledge retrieval and knowledge discovery), while the forms and quantity of third-level knowledge solutions (tools and applications, mobile and social services, multimedia services) remain relatively limited. 2) The knowledge services of China Geography Resources Journals Network are somewhat monolithic, mainly focusing on second-level knowledge product services; although third-level knowledge solutions are partially addressed, relevant information updates are notably delayed. **Conclusion:** Overall, knowledge services in Chinese core geography journals remain at a preliminary stage with relatively singular forms. Future optimizations should focus on: improving readily implementable knowledge service forms to enhance user experience; developing robust tool services to facilitate research; integrating with new media technologies to achieve “content-plus” knowledge services; planning key topics and innovating content production modes to advance industry applications and decision-making support; building journal private domain traffic as precise targets for knowledge services; and leveraging discipline

cluster networks for knowledge services while establishing social service platforms.

## Full Text

### Analysis of the Development Status and Optimization Strategies of Knowledge Services in Chinese Core Journals of Geography

*(Editorial Office of Tropical Geography, Guangzhou Institute of Geography, Guangdong Academy of Sciences, 100 Xianliezhong Road, Yuexiu District, Guangzhou 510070, China)*

**GUO Yihua** (ORCID: 0000-0002-8169-7588), Master, Associate Editor, E-mail: 358516929@qq.com

**Abstract:** [Purpose] This study analyzes the current situation of knowledge services in Chinese core journals of geography and proposes optimization strategies, providing reference for the improvement, upgrading, and transformation of knowledge services in scientific and technological journals.

[Method] Taking 20 core Chinese geography journals included in “The Directory of Core Chinese Journals (2020 Edition)” as research objects, this study mainly collected specific forms of knowledge services on journal official websites and WeChat official accounts, and investigated the knowledge services provided by the Chinese Geographical Resources Journal Network.

[Findings] 1) Knowledge services in most Chinese core geography journals are mainly concentrated at the first level of digital information services (basic services such as online first publishing, paper recommendation, and paper query services) and the second level of knowledge product services (knowledge retrieval and knowledge discovery), while the forms and quantity of third-level knowledge solutions (tools and applications, mobile and social services, multimedia services) are relatively limited. 2) The knowledge services of the Chinese Geographical Resources Journal Network are slightly monolithic, mainly concentrated at the second level of knowledge product services. Although the third level of knowledge solutions is involved, relevant information updates lag behind.

[Conclusions] Overall, knowledge services in Chinese core geography journals are still in the initial stage with relatively single forms. Future optimization can focus on: improving easily implementable knowledge service forms to enhance user experience; providing quality tool services to support research; integrating with new media technology to achieve “content+” in knowledge services; planning key topics and innovating content production forms to promote industry application and decision-making assistance; reserving private domain traffic as precise targets for knowledge services; and developing knowledge services based on disciplinary cluster platform resources while establishing social service platforms.

**Keywords:** scientific and technological journals; knowledge service; digital information service; knowledge product service; knowledge solution; geography

In the digital era, especially amid the current wave of knowledge services, the publishing field is actively seeking a transformation path oriented toward knowledge services. Scientific and technological journals inherit human civilization, assemble scientific discoveries, and lead scientific development, directly reflecting national scientific competitiveness and cultural soft power. They serve as important platforms for academic exchange and dissemination, drivers of scientific and technological innovation, essential components of the publishing field, and crucial windows for researchers to acquire professional knowledge. Consequently, knowledge services in scientific and technological journals are particularly important, representing the main trend and direction for the transformation and upgrading of scientific journal publishing. Scientific and technological journals should fully leverage their existing advantages in resources, talent, and platforms, transforming from knowledge producers to knowledge service providers. They should emphasize the integration, reconstruction, and reuse of academic publishing content, shaping journal brands and enhancing journal influence through knowledge services.

Current research on knowledge services in scientific and technological journals mainly focuses on: 1) Characteristics of knowledge service development. For example, Wang Yan [1] divides knowledge services in scientific and technological journals into three levels: digital information services, knowledge product services, and knowledge solutions, a framework that has gained widespread recognition. 2) Construction of knowledge service systems. For instance, Zhi Dandan et al. [2] propose building a comprehensive academic journal knowledge service system covering the entire process of “production-dissemination-application-feedback” ; Du Xingye et al. [3] construct a framework for digital academic services in scientific and technological journals covering three stages: research preparation, research output publication process, and post-publication. 3) Knowledge service models and implementation paths. For example, Shen Xibin et al. [4] divide the knowledge service paths of scientific and technological journals into five aspects, a model suitable for intensive publishing houses; Chen Ximin [5], building on Shen Xibin et al.’ s work and considering single-journal situations, divides the knowledge service paths of scientific and technological journals into six aspects: basic services, knowledge retrieval, knowledge discovery, tools and applications, mobile and social services, and multimedia services. 4) Knowledge service platform construction. For instance, Ye Xiyan et al. [6] propose a two-way interactive publishing model for digital platforms of scientific and technological journals. 5) Knowledge service practice. For example, Yu Jing et al. [7], taking Chinese Journal of Ship Research as an example, propose that knowledge services must clarify user classification and their knowledge needs, identify main channels for hierarchical and directional diffusion and precise push, and provide embedded knowledge services at key stages of scientific research innovation. In summary, existing research on knowledge services in scientific and technological journals mostly discusses characteristics, systems,

models, and paths from a macro perspective, with relatively few empirical studies. Moreover, most existing empirical studies are based on single-journal perspectives such as Chinese Journal of Ship Research [7], while discipline-based perspectives are mostly seen in medical journals [5]; other disciplines such as geography have rarely been reported. More disciplinary empirical analyses are needed to fully evaluate the stage of knowledge services in Chinese scientific and technological journals and promote better participation in knowledge services.

Geography is a discipline that studies the distribution patterns, change processes, and formation mechanisms of natural and human elements and regional systems on the Earth's land surface, closely related to all aspects of human life and social development. In recent years, geography has continuously made breakthroughs and innovations in resources, environment, and disasters to meet national strategic development needs, contributing theoretical support for the sustainable development of the country and society, with its importance in national economic development becoming increasingly prominent. Therefore, providing knowledge services in geography scientific and technological journals is of great significance for promoting the application and innovative development of geographical knowledge and social progress. This paper takes Chinese core geography journals as the object, analyzes the current development status of their knowledge services, discusses existing problems and causes, and proposes optimization strategies, aiming to provide reference for the quality improvement, upgrading, and transformation of knowledge services in geography scientific and technological journals, and to provide disciplinary case support for more comprehensive analysis of knowledge services in Chinese scientific and technological journals.

## 1 Research Objects and Methods

The study selected 20 geography journals included in the 2020 edition of “The Directory of Core Chinese Journals,” including *Acta Geographica Sinica*, *Geographical Research*, *Scientia Geographica Sinica*, *Progress in Geography*, *Human Geography*, *Journal of Desert Research*, *Economic Geography*, *Arid Land Geography*, *Advances in Earth Science*, *Wetland Science*, *World Regional Studies*, *Journal of Arid Land Resources and Environment*, *Geography and Geo-Information Science*, *Mountain Research*, *Historical Geography*, *Tropical Geography*, *Arid Zone Research*, *Journal of Glaciology and Geocryology*, *Journal of Lake Sciences*, and *Carsologica Sinica* [8].

The study adopted web investigation and statistical analysis methods to investigate the forms of knowledge services provided by these 20 journals. Since official websites and WeChat official accounts are the main platforms for journal activities and information release, the investigation mainly collected knowledge service implementation on journal official websites and WeChat official accounts. Additionally, geography scientific and technological journals have established a cluster platform operating for many years—the Chinese Geographical Resources Journal Network, which includes 15 of the 20 journals investigated in this study.

Therefore, the knowledge services of this platform were also included in the investigation scope.

Knowledge service is a service based on the search, organization, analysis, and reorganization of information and knowledge, which integrates into the entire process of problem-solving according to users' problems and contexts, providing effective support for knowledge application and knowledge innovation [9]. Based on this definition, this study mainly refers to Wang Yan's [1] three-level division of knowledge services—digital information services, knowledge product services, and knowledge solutions—and Chen Ximin's [5] six-path division of knowledge services—basic services, knowledge retrieval, knowledge discovery, tools and applications, mobile and social services, and multimedia services—to categorize the collected knowledge service forms. The investigation was conducted up to 2023.

## 2.1 Knowledge Services of Individual Journals

Table 1 shows that most Chinese core geography journals have implemented various forms of knowledge services, mainly concentrated in the first level of digital information services and the second level of knowledge product services, while the forms and quantity of services at the third level of knowledge solutions are relatively limited. Specifically:

- 1) First-level digital information services: Among them, 13 journals provide online first/priority publishing services on CNKI or their official websites, while 7 journals have not yet implemented this service. Eighteen journals provide single-paper recommendations on WeChat official accounts, among which 4 journals have relatively low push frequency. Only 6 journals provide information on QQ groups for paper progress inquiry and communication channels on their official websites; most journals still use email to contact authors, and no journals have been found to offer real-time inquiry services through WeChat official accounts. This reflects that current information inquiry services in Chinese core geography journals need improvement.
- 2) Second-level knowledge product services: In terms of knowledge retrieval, 15 journals provide free full-text downloads on their official websites; all 20 journals provide single-paper search functions on their official websites; 13 journals provide virtual special issue services. In terms of knowledge discovery, 14 journals provide rich HTML structured data; all 20 journals provide paper hot trends (download rankings and citation rankings, etc.) on their official websites; regarding knowledge association, 16 journals provide information on previously published papers in the same journal related to the article's theme.
- 3) Third-level knowledge solutions: In terms of tools and applications, only 4 journals provide research assistance services, mainly including industry policy documents, important industry R&D achievements, authoritative scholars' interpretations of research hotspots, research skills, and the lat-

est domestic and international research progress. For example, Journal of Desert Research published key content of the “Low Coverage Sand Control Theory” developed by Yang Wenbin from the Chinese Academy of Forestry Sciences, organized by 28 domestic units over 20 years; Geographical Research forwarded “How to Convert EPS Maps from the National Map Service System to shp Layers,” providing guidance for authors’ mapping; Economic Geography provides “Skill Courses” in the “Learning Channel” on its WeChat official account, mainly inviting experts to teach necessary skills involved in the research process such as data mining, quantitative modeling, qualitative analysis, software operation, and scientific writing. Seven journals provide paper writing assistance, mainly including writing guidelines and chart specifications. For example, Journal of Lake Sciences has set up a writing guide column on its official website, organizing online paper writing tips and insights. In terms of mobile and social services, 19 journals have opened WeChat official accounts; 14 journals provide RSS or E-mail Alert services for users to conveniently obtain the latest website content; 4 journals provide extended services such as conferences, training, and science popularization. Among them, Economic Geography holds multiple academic conferences annually, such as the 2023 Excellent Young Scholars Development Forum with more than 500 participants and 6 sub-forums, generating great influence domestically. Two journals have joined the OSID Open Science Identity program, which can provide research process materials such as article audio, video, data, and pictures to three-dimensionally display research achievements. Currently, no journals have been found to provide value-added services such as advertising, recruitment, or e-commerce. In terms of multimedia services, 4 journals provide enhanced publishing (documents, pictures, audio, and video, etc.). For example, Scientia Geographica Sinica provides rich charts related to papers; Journal of Glaciology and Geocryology encourages authors to provide research data related to papers and has added a data paper column. Only 2 journals have opened video accounts (Journal of Glaciology and Geocryology on WeChat Video Channel and Advances in Earth Science on Bilibili and WeChat Video Channel), mainly for video promotion of papers. No journals have been found to conduct live streaming services.

It should be noted that although no journals have been found on official websites or WeChat platforms to provide decision-making assistance and industry application services, geography scientific and technological journals have been actively engaged in these areas through their published achievements. In terms of decision-making assistance, geography scientific and technological journals have planned and published a series of special issues aligned with major national development strategies, such as the “Innovation and Development of Guangdong-Hong Kong-Macao Greater Bay Area” special issue in Geographical Research, the “Rural Revitalization and High-Quality Development of Rural Culture and Tourism” special issue in Progress in Geography, the “Cross-regional Major Infrastructure and Spatial Governance” special issue in Scientia Geographica

Sinica, and the “Chinese-style Modernization and Economic Geography” column in *Economic Geography*. The publication of these special issues provides intellectual support from geographical science for the scientific and democratic decision-making of relevant government departments. Additionally, *Geographical Research* invited renowned geographers led by Academician Lu Dadao to conduct in-depth discussions around Premier Li Keqiang’s question “Can the Hu Huanyong Line be broken through?” providing theoretical support for the adjustment and formulation of relevant national strategies. In terms of industry application, journals such as *Progress in Geography* and *Tropical Geography* have planned special issues related to crime geography, such as the special issue on “Research on Missing Persons and Trafficking Crime Geography,” with relevant results providing theoretical guidance for public security departments in solving cases. In major social public safety events, research results reported by geography scientific and technological journals have also contributed to decision-making. For example, when the COVID-19 pandemic broke out at the end of 2019, *Tropical Geography* quickly organized manuscripts and opened a green channel for efficient publication, assisting its host institution in providing rapid response information services and theoretical references for pandemic response.

## 2.2 Knowledge Services of the Chinese Geographical Resources Journal Network

The “Chinese Geographical Resources Journal Network” ([www.geores.com.cn](http://www.geores.com.cn)) is a disciplinary cluster platform for geographical resources journals established in 2008. Currently, the platform has been built into a module-complete, integrated sharing platform for disciplinary journal clustering and knowledge services (integrated management for computers, mobile phones, and WeChat) [10]. Among the 20 journals investigated in this study, 8 are core journals of the platform, and 7 are extended journals.

Currently, the knowledge services provided by the Chinese Geographical Resources Journal Network mainly include: A list of major domestic geographical resources and related discipline journals with links to official websites, enabling readers to clearly and quickly grasp official journal information and avoid entering fake websites that cause unnecessary trouble; Knowledge retrieval services such as recommended articles, highly cited articles, highly downloaded articles, virtual special issues, advanced search, and chart search; Display of author academic relationship information and visualization of author cooperation networks; Knowledge context analysis of keywords, showing the annual publication volume of searched keywords, presenting publication trends, and displaying related keywords; Keyword clouds that aggregate related articles based on keywords and set links to jump to article webpages for full-text reading (rich HTML structured data or PDF); Provision of discipline-related information such as conferences/lectures, research information, research funds, and enrollment and recruitment, but with lagging updates. The WeChat official account “Chinese Geographical Resources Journal Network” based on this cluster plat-

form currently provides knowledge services including cluster journal directory information, single-paper recommendations, and special issue solicitations. In summary, the current knowledge services of the Chinese Geographical Resources Journal Network mainly focus on the second level of knowledge product services (knowledge retrieval and knowledge discovery), followed by the first level of basic services (single-paper recommendation), with the third level of knowledge solutions only minimally involved in extended services.

### 2.3 Existing Problems and Cause Analysis

Based on the above analysis, the main problems in knowledge services of Chinese core geography journals can be summarized as follows: 1) The forms of first-level digital information services are still insufficient, with some services such as online first publishing and paper query being implemented by relatively few journals. Particularly, communication channels between journals and authors/users are not smooth, lacking awareness of establishing user communities as private domain traffic for journals. 2) The forms of second-level knowledge product services are relatively complete, but some functions such as providing free full-text and virtual special issues need improvement. 3) At the third level of knowledge solutions, tool services are insufficient, with only a few journals providing research assistance and paper writing assistance; extended services and value-added services in mobile and social services are limited; multimedia service forms such as enhanced publishing, short video accounts, and live streaming have considerable room for expansion. 4) The knowledge services provided by cluster platforms are mainly based on existing paper resources, without using new technologies for deep content mining, reorganization, and integration, nor effectively leveraging cluster platform advantages to provide diverse knowledge value-added services beyond papers.

The main causes of these problems are: 1) Editorial departments generally face staff shortages, with editors busy with journal publishing work and insufficient energy to develop knowledge services. Moreover, surveys have shown that many editorial departments have not listed knowledge services as a priority in journal work or integrated them into traditional workflows [11]. 2) Lack of necessary financial support and profit models makes sustainable development difficult. 3) Inadequate understanding of users' knowledge service needs and lack of user-oriented service awareness. 4) Failure to fully mobilize experts and scholars as providers of academic content, with provided content limited to papers and relatively single. 5) Inadequate understanding of the connotation of knowledge services, lacking organization, analysis, reorganization, and secondary deep processing of content resources, and failing to innovate knowledge service forms. Editors lack awareness of how to conduct secondary operations of content [11].

### 3.1 Improve Easily Implementable Knowledge Service Forms to Enhance User Experience

First- and second-level knowledge services are relatively easy to implement. Among them, digital information services belong to basic knowledge services with low implementation thresholds that most journals can achieve. Especially in today's highly developed communication environment, scientific and technological journals should smooth communication channels with authors, improve service efficiency, and establish QQ groups, WeChat groups, or community groups for real-time social interaction, or bind WeChat service accounts with manuscript processing systems to push manuscript status updates to authors in real time so they can keep abreast of the latest developments. Additionally, online first publishing should be emphasized. On one hand, it helps accelerate the publication speed of research achievements, which is important for authors to confirm their priority. On the other hand, some authors, due to various reasons such as project completion, graduation, or title evaluation, need their papers published before certain deadlines after acceptance. Therefore, online first publishing is a knowledge service of considerable interest and demand to some authors, effectively addressing the long publication cycle issue widely criticized by authors, and serving as an effective way to attract high-quality authors.

Regarding second-level knowledge product services, free full-text downloads facilitate readers' access to literature, while virtual special issues systematically organize previously published literature, enabling readers to discover more related articles by theme. These services can reduce the time cost for readers to search for literature.

### 3.2 Provide Quality Tool Services to Support Research

Research assistance and paper writing assistance are also relatively easy knowledge services for current scientific and technological journals to implement. Although they require considerable time and effort for collection and organization, they are in high demand among graduate students and young teachers. Scientific and technological journals can seize this demand as an opportunity to provide quality tool services, intervening and serving throughout the entire process of research, writing, publishing, and information acquisition for researchers [12], helping research proceed more smoothly.

In terms of research assistance, journals can organize and share valuable information on their official websites and WeChat platforms, such as research assistance tools found online, important guiding documents in disciplinary fields, research datasets, mapping precautions, and insights on fund application lectures. Particularly regarding mapping precautions, the state has become very strict in map review in recent years, but many authors know little about mapping requirements, making their maps prone to problems. Since geography scientific and technological journals involve many maps, it is necessary to compile mapping guidelines, techniques, and common problems to guide authors in map

production and avoid “problem maps.” Additionally, journals can actively collect outstanding domestic and international research achievements and transmit information to scholars in simple and understandable forms to help them efficiently obtain information. For example, Journal of Remote Sensing opened the “Little Bee Radio” program, organizing excellent papers recently published by young scholars in top international journals into short, easy-to-understand Chinese articles, and releasing them weekly at fixed times through multiple established academic exchange groups, using brief 150-word introductions for precise recommendations to peers [12], a measure widely praised by author groups.

Regarding paper writing assistance, journal editors possess solid experience and consciously pay attention to relevant information in their daily work, which can be systematically collected and shared with author groups, as exemplified by the outstanding performance of Journal of Lake Sciences in this regard. Meanwhile, high-quality review comments and revision statements are valuable learning materials for graduate students and young scholars to improve their research and writing abilities. After obtaining authorization from experts and authors, editorial departments can organize high-quality review comments and revision statements and publish them on official websites or WeChat platforms along with articles.

### **3.3 Integrate with New Media Technology to Achieve “Content+” in Knowledge Services**

The essence of knowledge services in scientific and technological journals is for traditional journals to achieve “content+” through internet and mobile platforms, enhancing their ability to provide knowledge and information services to external industries [13]. Therefore, knowledge services in scientific and technological journals need to integrate with new technologies, especially emerging new media technologies, to realize “content+.” Current new media forms for knowledge services include enhanced publishing, short video accounts, and live streaming.

Enhanced publishing is a new publishing model that can achieve “root publication + enhanced content.” Its essence is to use digital technology to add hyperlinks and other technical means to traditional publications to integrate journal-related information and data, enabling convenient sharing in various academic circles, thereby promoting broader knowledge dissemination, improving knowledge service capabilities, and achieving content value-added [14]. Enhanced publishing in scientific and technological journals can use multimedia integration methods such as images, audio, video, and animation to provide users with content beyond print journals and bring new reading experiences. For example, journals can ask authors to provide materials related to articles (such as peer review comments and detailed revision statements or other relevant materials), important pictures/audio/video from the research process (such as field investigations and actual research processes), and research data. Through digital technology, these can be associated with articles on journal official web-

sites or other platforms (such as OSID platform or RAYS system) and presented to readers. Research data, in particular, as valuable research materials, are in relatively wide demand. As a basic and applied discipline, geography research cannot proceed without data. Geography scientific and technological journals can prioritize data services as a key aspect of knowledge services, encouraging authors to provide paper-related data, promoting scientific data sharing, improving data utilization rates, and reducing redundant research.

Academic live streaming, as an emerging communication method of integrated publishing, on one hand, brings researchers expert perspectives and in-depth thinking on disciplinary development trends and frontier hotspots, effectively promoting academic discussions and exchanges and broadening research horizons; on the other hand, it can timely expand the dissemination scope of high-quality research achievements and enhance journal influence. Geography scientific and technological journals can invite authors to conduct academic lectures via live streaming for high-quality articles, especially important series of special issues planned around disciplinary development frontiers, national and regional major strategic deployments, and social hot topics, and invite experts for commentary. Existing research [15] shows that interactive sessions in live streaming activities can effectively stimulate users' dissemination behaviors. During live streaming, scientific and technological journals need to guide experts and authors to actively participate in discussions, proactively share knowledge, enable experts and authors to gain a sense of achievement in the knowledge sharing process, actively create a good academic exchange and knowledge sharing atmosphere, build a knowledge service ecosystem, and cultivate groups of knowledge providers and knowledge demanders to provide human resources support for knowledge services [16]. For example, the "Vision" live streaming conducted by Journal of Natural Resources has generated excellent responses in the academic community and is worth learning from for Chinese core geography journals.

### **3.4 Plan Key Topics and Innovate Content Production Forms to Promote Industry Application and Decision-Making Assistance**

Geography is a discipline that "explores natural laws and reveals human essence," characterized by spatial and comprehensive attributes, and interdisciplinary nature across natural and social sciences. Therefore, from national macro strategies to social livelihood issues, geography can provide corresponding strategic references for policy planning and social events. Topic planning in geography journals should closely integrate with national or regional development strategies, social hotspots, and major social public events, publishing more research achievements serving national and social development needs. Journals should leverage the authority and professionalism of their knowledge content for secondary deep processing and innovate knowledge production forms [15], such as popular science and news-oriented reporting, to improve knowledge comprehension and acceptance, enabling greater roles in industry application and decision-

making assistance. For example, in paper writing, journals can guide authors to learn from the introduction writing paradigms of Science and Nature, which feature news-oriented introductions that connect to current hot issues, show obvious problem orientation, and avoid terminology only understandable to small peer groups [17]. This model can improve research comprehension and acceptance, attract more attention, and promote achievement transformation and application. Gao Dan et al.'s research also points out that knowledge services in scientific and technological journals need to promote news-oriented publicity of academic papers [18]. Additionally, for these research achievements, journals can try to assemble them into virtual special issues by theme and push them to relevant departments and industries, promoting the transformation from "passive discovery" to "active reach" and increasing the probability of being discovered and applied. Furthermore, for major national strategies such as the "Belt and Road Initiative," "Guangdong-Hong Kong-Macao Greater Bay Area," "Territorial Spatial Planning," and "Ecological Civilization Construction," geography scientific and technological journals can dynamically track and report research progress, form series of special issues, continuously expand research depth and breadth, and provide knowledge support for national decision-making.

### 3.5 Reserve Private Domain Traffic as Precise Targets for Knowledge Services

How to deliver high-quality knowledge to target users is a key issue for scientific and technological journals to consider when developing knowledge services. Journal message releases are mainly on official websites or WeChat official accounts, remaining in a passive discovery state. Although some journals use influential platforms in their fields to help spread messages (paid or free), the cost of public domain traffic is increasing, raising the threshold for forwarding. Therefore, scientific and technological journals need to consciously reserve user groups through various channels [19], namely private domain traffic, as precise targets for knowledge services to promote high-quality content to more knowledge demanders and expand knowledge service effectiveness. For example, journals can expand their private domain traffic pool by establishing academic community groups, author exchange groups, reviewer expert exchange groups, editorial board/young editorial board exchange groups, and various conference exchange groups. In recent years, some journals have recruited academic correspondents in major universities and research institutes nationwide, who can also be relied upon to establish graduate student groups in various institutions as journal private domain traffic. Additionally, knowledge service target needs should be surveyed to facilitate precise knowledge services.

### 3.6 Develop Knowledge Services Based on Disciplinary Cluster Platform Resources and Establish Social Service Platforms

Currently, domestic geography journal clusters have begun to take shape, such as the Chinese Geographical Resources Journal Network. Developing knowledge services based on cluster platforms can achieve more significant results than single journals. First, the platform possesses a considerable number of geography scientific and technological journal resources widely recognized by scholars (16 platform journals, 43,468 articles, 36 special issues, 123,298 figures, and 78,285,358 visits as of April 13, 2024). Second, the platform has talent resources of geography researchers nationwide and a stable editorial team with solid publishing expertise, possessing unique talent advantages. Third, the platform has high influence in the domestic geography academic community and inherently carries “traffic.” It can be said that the platform has good advantages in content, talent resources, and traffic, making it an ideal platform for scientific and technological journals to develop knowledge services. However, currently, the knowledge service forms on this platform are somewhat single, especially regarding knowledge solutions that need to be explored. In the future, the platform could integrate resources and talents from various journals, fully mobilize experts and scholars to become providers of academic content, and on the basis of doing well in knowledge product services, focus on knowledge solution services to enhance the content depth and breadth of knowledge services in geography journals. Additionally, after knowledge services develop into a scaled system, the platform could attempt a knowledge payment model based on the cluster platform to achieve profitability. Only when scientific and technological journal knowledge services achieve “self-financing” can they possibly achieve sustainable development.

This investigation found that no social platforms based on geography scientific and technological journals have been established, and social platforms for in-depth academic exchange and sharing among geography scholars still need to be constructed. Currently, foreign publishing groups have outstanding performance in this regard. For example, since 2015, Springer Nature (SN) has cooperated with Zapnito software company to build a professional research social platform—Nature Portfolio & Springer Nature Communities. The platform aggregates the latest research achievements, news, viewpoints, and information from various publishing brands under SN on one homepage and organizes content by theme to establish communities. The published content differs from formal publications, with most content revealing stories behind research or academic viewpoints not published with formal publications, mostly in informal forms by paper authors [20]. The platform has built 17 professional communities for SN journals, providing academic exchange platforms for its authors, editors, and scholars. Another example is Elsevier’s intelligent academic platform IEEE, which has launched rich services to promote scholar exchanges, such as allowing authors and potential authors to participate in IEEE journal pub-

lishing forums, engage in discussions, share links and ideas about publishing, and ask questions to other community participants or IEEE publishing staff. Social platforms provide professional fields for sharing, exchange, and dialogue, helping knowledge spread more widely, academic ideas collide more deeply, and academic cooperation be explored more thoroughly, forming a good academic ecosystem and serving as an important approach for scientific and technological journals to develop knowledge services. Geography scientific and technological journals can build professional social platforms based on disciplinary clusters. Notably, social platforms need to guide user interaction and communication toward purposeful knowledge creation through “topics with clear themes,” helping users understand the meaning of their own experiences [21].

Overall, knowledge services in Chinese core geography journals are still in the initial stage, mainly concentrated in the first level of digital information services and the second level of knowledge product services, while third-level knowledge solution forms are relatively limited. Future efforts to promote knowledge services in Chinese core geography journals can focus on: improving easily implementable knowledge service forms to enhance user experience; providing tool services throughout the entire process of research, writing, publishing, and information acquisition; integrating with new media technology to achieve “content+” in knowledge services; planning key topics and innovating content production forms to promote industry application and decision-making assistance of research achievements; reserving private domain traffic as precise targets for knowledge services; developing knowledge services based on disciplinary journal cluster platform resources and establishing social service platforms.

Based on existing knowledge service paths, this paper analyzes the current situation and problems of knowledge services in core geography journals and proposes optimization strategies, which helps promote the quality improvement and upgrading of knowledge service capabilities in geography scientific and technological journals and enriches disciplinary case studies of knowledge services in scientific and technological journals. However, this paper also has limitations. First, the investigation mainly focused on knowledge service forms, and due to space limitations, did not investigate the effectiveness of various services. Future research could conduct effectiveness analysis on specific knowledge service forms such as enhanced publishing and live streaming. Second, the investigation did not cover editorial staff’s willingness to develop knowledge services, existing difficulties, and future plans, which may result in incomplete cause analysis. Future research could use questionnaires or semi-structured interviews with editorial staff to obtain more comprehensive information.

## References:

- [1] Wang Yan, Chen Yinzhou. Knowledge service models and strategies for academic journals based on mobile applications [J]. Chinese Journal of Scientific and Technical Periodicals, 2017, 28(10):

- [2] Zhi Dandan, Zhang Shengnan, Zhan Lijuan, et al. Construction of a whole-process knowledge service system for academic journal knowledge production-dissemination-application-feedback [J]. *Chinese Journal of Scientific and Technical Periodicals*, 2023, 34(1): 15-23.
- [3] Du Xingye, Li Hanxiao, Zhu Luying. Construction of a digital academic service framework for scientific and technological journals oriented to the whole research process [J]. *Chinese Journal of Scientific and Technical Periodicals*, 2022, 33(9): 1161-1170.
- [4] Shen Xibin, Liu Hongxia, Li Peng, et al. Analysis of knowledge service models for Chinese scientific and technological journals in the digital environment [J]. *Acta Editologica*, 2019, 31(1):
- [5] Chen Ximin. Investigation and analysis of knowledge services in academic journals—Taking Jiangsu medical academic journals as an example [J]. *Chinese Journal of Scientific and Technical Periodicals*, 2021, 32(3): 372-381.
- [6] Ye Xiyan, Hou Chunmei, Pang Yu, et al. Two-way interactive publishing and knowledge services for digital platforms of scientific and technological journals [J]. *Academic Publishing and Communication*, 2022, 1(00): 177-185.
- [7] Yu Jing, Chen Jiejie, Wang Na, et al. Exploration and practice of knowledge services for scientific research innovation in Chinese Journal of Ship Research [J]. *Chinese Journal of Scientific and Technical Periodicals*, 2019, 30(3): 258-263.
- [8] Chen Jianlong, Zhang Jun' e, Cai Ronghua. The directory of core Chinese journals 2020 edition [M]. Beijing: Peking University Press, 2020.
- [9] Zhang Xiaolin. Toward knowledge services: Seeking growth points for library and information work in the new century [J]. *Journal of Library Science in China*, 2000, (5): 30-35.
- [10] Chinese Geographical Resources Journal Network. Introduction to Chinese Geographical Resources Journal Network EB/OJ[2023-12-28] <https://www.geores.com.cn/CN/column/column25.shtml>.
- [11] Zhu Yao, Shen Xibin, Wang Haijuan, et al. Investigation and analysis of knowledge service cognition and construction in Chinese scientific and technological journal editorial departments [J]. *Chinese Journal of Scientific and Technical Periodicals*, 2021, 32 (9): 1174-1180.
- [12] Bian Zhao, Li Wei, You Di, et al. Innovative path practice for academic achievement dissemination in the media convergence era—Taking Journal of Remote Sensing as an example [J]. *Chinese Journal of Scientific and Technical Periodicals*, 2024, 35 (02): 235-242.
- [13] Chen Xiaotang. Construction of knowledge service system for academic journals under media convergence background [J]. *Science-Technology and Publication*, 2020 (6): 55-60.

- [14] Gao Shukai. Enhanced publishing helps knowledge production and dissemination of academic journals [N]. Chinese Social Sciences Today, 2021-01-26(006).
- [15] Xiang Yingjiao, Yun Haiyan, Zhang Qiang, et al. Practice and reflection on academic live streaming operation of scientific and technological journals—Taking JME College as an example [J]. Chinese Journal of Scientific and Technical Periodicals, 2022, 33(11): 1470-1476.
- [16] Guo Yumei, Jing Yong, Guo Xiaoliang, et al. Analysis of knowledge service platform operation models for scientific and technological journals under open science situation [J]. Acta Editologica, 2023, 35(3): 273-278.
- [17] Chen Yunzhen. Overview, characteristics, and sample papers of Science and Nature magazines EB/OJ[2023-12-28]. <https://blog.sciencenet.cn/blog-3477506-1414125.html>
- [18] Gao Dan, He Lin, Li Zhangchao, et al. Knowledge service models of domestic and foreign scientific and technological journals from the perspective of information exchange [J]. Chinese Journal of Scientific and Technical Periodicals, 2021, 32(10): 1262-1268.
- [19] Wen Youhua, Zhu Benhua, Zhou Chunjuan. Innovative exploration of private domain traffic construction for scientific and technological journals [J]. Science and Technology Management Research, 2023, 43 (10): 200-206.
- [20] China Association for Science and Technology. Blue book on the development of Chinese scientific and technological journals (2022) [M]. Beijing: Science Press, 2023: 314.
- [21] Xia Dengwu. Construction and capability enhancement of knowledge service models for scientific and technological journals in the media convergence environment [J]. Chinese Journal of Scientific and Technical Periodicals, 2021, 32(2):

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

*Source: ChinaXiv –Machine translation. Verify with original.*