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Analysis of the Path for Cluster Construction of Scientific and Technological Journals Based on the Excellent Plan of Action

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Abstract:

As an important carrier to display research results, science and technology journals have important functions and missions to disseminate scientific and technological achievements. The implementation of the "China Science and Technology Journal Excellence Action Plan" has selected pilot projects of science and technology journal clustering, which has promoted the vigorous development of journal clusters in different subject areas. This paper analyzes the existing models and achievements of the five pilot clusters in content construction, communication service system, operation mechanism, talent team and other aspects. In order to promote the high quality development of China's science and technology journal clusters, it is proposed to build a digital publishing platform, construct a new ecology of cluster communication with the deep integration of media, help the sustainable development of clusters with the cooperation of government, industry, university, research and finance, and build a professional talent team through the multi-dimensional collaboration of "selection - education - use - evaluation".

Keywords:

Science and Technology Journals, Clusterization, Construction Model

1.Overview of the construction of science and technology periodical cluster

In recent years, the national level gradually attaches importance to the construction of science and technology journals, and constantly introduces policies to promote the development of science and technology journals, and the construction of science and technology journals has broad development space. In September 2019, seven departments including the China Association for Science and Technology decided to jointly implement the "China Science and Technology Journal Excellence Action Plan", with the core goal of building world-class science and technology journals, so as to promote the development of China's science and technology journals to higher quality. In 2021, the Central Propaganda Department, the Ministry of Education,

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and the Ministry of Science and Technology issued the Opinions on Promoting the Prosperity and Development of Academic Journals, pointing out that science and technology journals should focus on the task of building an innovative country and a scientific and technological power, focus on the major strategic needs of the country, and serve the main battlefield of economic and social development. [1]In 2019, the "Excellence Program" selected five pilot projects for the clustering of scientific and technological journals, which not only promoted the vigorous development of journal clusters in different subject areas, but also promoted China's scientific and technological journals to be world-class, so that the situation of "small, scattered and weak" Chinese scientific and technological journals has been improved to a certain extent.

At present, with the acceleration of science and technology globalization and the increasingly frequent academic exchanges, science and technology journals, as an important carrier for the dissemination of scientific research results and knowledge sharing, have become an important way to enhance national science and technology soft power and international academic influence. The host units of sci-tech journal cluster are various in nature and have their own characteristics, which together constitute the diversified pattern of sci-tech journal ecology in China. First, the science and technology journal cluster hosted by publishing enterprises has become an important force to promote the internationalization of China's science and technology journals by virtue of its profound publishing experience, keen market insight and strong capital support. As a representative of the comprehensive science and technology journal cluster, Science Press has a huge lineup of 568 journals, covering many fields such as natural science, engineering technology, agricultural science, medicine and health, and its operating income ranks eighth among the global science and technology publishing companies, highlighting its significant position in the international science and technology publishing industry. Using the internationalization strategy, Science Press actively introduces overseas high-quality periodical resources, promotes domestic excellent periodicals to the world, and promotes the exchange and integration of science and technology culture between China and foreign countries. Second, the cluster of scientific and technological journals sponsored by academic groups is highly professional, authoritative and academic influence. As a top academic group in the field of medicine and health in China, the Chinese Medical Association covers many branches such as basic medicine, clinical medicine and preventive medicine, providing rich academic resources and communication platforms for medical personnel and researchers, and leading the development direction of medical science. Promote the translation and application of medical research results. The third is the scientific and technological journal clusters sponsored by scientific research institutes and universities. These journal clusters usually rely on the abundant academic resources and talent advantages of the units, focus on the research of specific disciplines or fields, and have profound academic deposits and unique academic values. For example, China Laser Magazine is affiliated to the Chinese Academy of Sciences. As a first-class publishing institution in the fields of laser, optics and photonics, its journal cluster covers the latest progress of laser technology, involving the research and development of optical materials, the design of photonics devices and other aspects, providing valuable academic resources for researchers in related fields. Relying on the discipline advantages of Tsinghua University, the Journal Center of Tsinghua University Press has formed a cluster of university journals covering engineering, physics, mathematics, computer and other disciplines, demonstrating the outstanding achievements of Tsinghua University in the field of scientific research and providing a high-quality academic exchange platform for scholars at home and abroad.

Science and technology journal cluster has its own emphasis on the subject field, which is not only the

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embodiment of its professionalism, but also the inevitable choice to meet the research needs of different disciplines. Some science and technology journal clusters focus on professional disciplines, such as optics, medicine, non-ferrous metals, mechanics, etc. These clusters dig deep into the discipline connotation, gather top experts and scholars in the field, publish high-quality academic papers, highlighting the depth and professionalism of the discipline. For example, the journal cluster in the field of optics not only focuses on the latest progress of optical technology, but also discusses the application of optics in communication, medical treatment, environmental protection and other fields, which promotes the innovative development of optical science. The other part of the journal cluster is constructed from a comprehensive perspective across disciplinary boundaries. This kind of journal cluster is usually dominated by universities and publishing houses, and its journal layout covers multiple disciplines and is deeply rooted in basic research, reflecting the academic value and publishing efficiency of interdisciplinary integration. These journal clusters attach importance to the cross-integration of different disciplines, and promote the innovation and integration of knowledge by publishing interdisciplinary research results. For example, the journal clusters of some comprehensive university journals cover many fields such as natural science, social science, engineering technology, etc., providing researchers with a broad academic vision and rich inspiration for innovation. [2]

2.The main operating mode of science and technology periodical cluster

2.1.Content construction

Through its SciEngine platform, China Science and Technology Publishing & Media Co., LTD has successfully built a comprehensive and multi-level science and technology periodical publishing and knowledge service system. The platform gathers high-level academic journal resources at home and abroad, and effectively meets the academic communication needs of researchers in different fields by setting up diversified columns and publishing special research results closely combined with national strategic needs. At the same time, the company actively builds a national-level open access platform, promotes the "shipbuilding to the sea" of Chinese scientific and technological journals, establishes a communication mechanism with important databases, and significantly enhances the international influence of journals. By implementing strict ethical and quality safeguards, the SciEngine platform has further consolidated its reputation in the academic community, providing high-quality academic publishing services for researchers and scientific journals.

China Laser Magazine Co., Ltd. has made remarkable achievements on the road of exploring the cluster development of English periodicals with Chinese characteristics, while continuing to promote the Chinese periodicals to become bigger and stronger, and launched the strategic plan of "nesting and attracting phoenix", attracting many high-quality periodicals to join and improving the overall quality of the journal group. In terms of content construction, the company is keen to grasp the hot topics of the discipline, planning special topics for major national needs, and leading the development of the discipline; At the same time, through online and offline activities, incentive mechanisms, etc., the brand influence of the journal has been enhanced in an all-round way. This development model, which attaches equal importance to Chinese and English journals and complements domestic and foreign resources, provides a strong support for academic communication and scientific research services in the field of laser in China.

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Higher Education Press Co., Ltd. adheres to the concept of "doing better in stock and stronger in increment", strengthens the construction of periodical management platform, optimizes management process and system, and significantly improves the quality and influence of periodical content. The company actively founded a new journal, focusing on the national strategic direction, expand the scale of the journal group; At the same time, through the "linkage of books and periodicals" mode, we will tell Chinese stories well and spread the voice of China. This diversified publishing strategy enriches the company's journal product line and enhances the status and influence of Chinese academic journals on the international stage through high-quality academic content and services.

Adhering to the concept of "content is king", Youke Journal Publishing (Beijing) Co., Ltd. is committed to publishing high-quality research results at the forefront of the intersection. The company organizes the publication of hot albums, forms a specific subscription model, and carries out content construction closely around the national needs. In particular, the proposed T Journal plan aims to build a world-class academic journal publishing group in the field of engineering technology and promote scientific and technological innovation in the field of engineering technology in China. This publishing strategy, which meets the needs of the country and focuses on the frontier of disciplines, not only enhances the academic influence of journals, but also provides an important publishing platform for scientific research achievements in the field of engineering technology in China.

The Chinese Medical Association has implemented the dual strategy of "expanding service content" and "improving data quality", successfully filled the gaps in disciplines and cross-disciplines, improved the layout of journals in key frontier fields, launched a variety of new English journals, and accelerated the process of internationalization of journals. At the same time, the magazine dug deep into the value of data, built full-text database and cloud resource service system, and improved the efficiency of digital publishing. The magazine is committed to standardization construction, submitting a number of data standards and guidelines to promote the digitization process of the science and technology journal industry. The construction of an intensive platform, reshaping the content production process, ensuring the quality of content, and the development of "excellent scientific research results priority release platform", shorten the publishing time gap with foreign journals, and promote the return of first-class scientific research results to local journals.

2.2 Communication service system

China Science and Technology Publishing Media Co., Ltd. promotes the innovation of international communication methods, helps the academic achievements of journals to the world, attaches importance to the optimization and upgrading of communication platforms, and uses advanced technology enabling systems to provide efficient and flexible technical support for journals. In terms of new media promotion, the company continues to expand the promotion methods and improve the communication power of periodical content through wechat public accounts, video accounts and other forms. In addition, the company regularly holds a series of brand activities, such as online seminars, academic forums, etc., which has successfully enhanced the influence of the industry and attracted high-quality contributors, laying a solid foundation for the improvement of the academic quality and influence of the journal.

In the cluster pilot, China Laser Magazine Co., Ltd. focuses on the research and development of periodi-

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cal publishing platforms in professional fields, builds a full-process digital publishing system, and actively improves the platform's knowledge service capabilities. With the independent research and development of the English journal publishing platform Researching, the company has successfully built an all-media scientific communication ecosystem to achieve rapid international publishing and dissemination of scientific research results. At the same time, the company uses artificial intelligence technology to innovate the data mining model and build an optical intelligence platform, which further improves the accuracy and efficiency of knowledge services. In terms of promoting the integration of all media, the company has built a diversified media communication system, broadened the communication channels and improved the coverage rate and dissemination surface of the subject journal group information through the deep integration of online and offline, traditional media and emerging media.

Based on a global perspective, Higher Education Press Co., Ltd. actively promotes the three-dimensional and refined development of the journal group. The company shoots high-quality periodical theme videos and releases group information on online media and social media platforms, greatly improving the global visibility of the group. At the same time, the company has strengthened the construction of digital platforms, based on the new generation of "China Academic Frontier Journal Network", and the practice of "shipbuilding to the sea", helping China's journals to achieve independent publishing, building a whole-process integrated journal publishing industry chain, effectively improving the digital level and international influence of journals, and realizing the rapid global distribution and permanent access to journal information.

In the cluster pilot, Youke Journal Publishing (Beijing) Co., Ltd. has actively carried out international cooperation, built a full-process intelligent digital communication system, and built a world-class magazine group brand. Independently researched and developed knowledge service operation platform, combined with intelligent language model, developed a series of data products and knowledge products, and provided abundant knowledge services for scientific researchers. At the same time, the company pays attention to the publicity and promotion of periodical brands, and enhances the popularity and influence of periodicals by holding the most beautiful cover selection activities, expanding publicity channels, and constructing new media operation matrix.

The Chinese Medical Association has built a digital system of "one production, multiple release" to realize the efficient use and wide dissemination of content and meet the diversified needs of different user groups. At the same time, the innovative "one through, multi-party sharing" database addition mode has greatly improved the international communication power and academic influence of the journal group, and successfully promoted more than 70 journals to join the internationally renowned database. The cluster also actively explores the international communication path of "one 'journal' as the medium, cooperating with the sea", and cooperates with international publishers to build an English journal communication platform MedNexus, realizing the online publication of multi-language scientific research results, effectively expanding overseas readers, and enhancing the voice of Chinese scientific journals in global science communication.

2.3 Operation mechanism

China Science and Technology Publishing & Media Co., Ltd. adheres to the "five modernization" development strategy, takes the first-class science and technology periodical brand as the lead, and relies on the

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SciEngine platform to realize the systematic digital publishing and international communication services of the whole process of journals. In the editorial team management, through professional training and academic exchanges, combined with a sound incentive mechanism, the professional quality and work enthusiasm of the editorial team are effectively improved. In terms of external cooperation, the company actively explores the model of discipline clusters and institutional cooperation in running journals, strengthens technical cooperation and resource sharing, and significantly improves the academic influence and communication level of journals. In addition, the Science Press has also formulated a comprehensive service plan to support the construction of scientific journals, providing a full range of services and guidance from the improvement of manuscript quality, the dissemination of academic content to the collaborative development of journals, and effectively promoting the rapid development of scientific journals in China.

China Laser Magazine Co., Ltd. has implemented many innovative measures such as model refining, academic exchange, technology application and planning training to promote the construction and development of professional subject journals. The company condenses the consensus of the construction of professional and disciplinary journal groups, summarizes the systematic scheme that can be referred to, and provides important guidance for the industry. In terms of technology application, the company actively explores the application of new technologies such as artificial intelligence in journal publishing, and expands the new space for the integrated development of journal groups. In addition, the company has also planned a wealth of training courses to promote the concept of clustering and practical experience for the whole country, and effectively improve the quality and development level of regional science and technology journals.

In the cluster pilot, Higher Education Press Co., Ltd. actively explored the development concept of journals with The Times, and successfully promoted the transformation of the operation mode from "blood transfusion" to "hematopoietic". The company uses multimedia, three-dimensional and diversified communication methods to explore the new mode of journal management in the information age, and forms the ability of self-hematopoietic and sustainable development. In terms of journal management, the company cooperates with the Chinese Academy of Engineering to jointly establish a management team and improve the market operation capability of the journal. At the same time, the company also actively carries out school-community cooperation to jointly build high-quality journals and promote the effective use of academic resources in colleges and universities. In addition, the Higher Education Association also actively participates in open access academic publishing, contributing to the construction of a pluralistic, inclusive, open and cooperative academic publishing ecology, and demonstrating its forward-looking and leadership in open access publishing of scientific journals.

Youke Journal Publishing (Beijing) Co., Ltd. implements the "cross-regional, cross-departmental and cross-disciplinary" journal running model, forms the "publishing enterprise + society + university" joint publishing innovation model, and creates a unique "Youke +" model. The company conducts cross-regional and cross-departmental cooperation to run journals, broaden cooperation areas and business scope, and enhance the academic influence and coverage of journals. In terms of interdisciplinary journals, the company has gradually formed a journal layout based on non-ferrous metal research and extending to the emerging frontier cross-cutting fields. In addition, Youke Publishing introduces shareholder resources such as publishing companies, societies and universities to explore cross-field collaboration paths and promote the in-depth integra-

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tion of journal resources and digital resources. Finally, by virtue of its accumulated academic resources and experience in running journals, the company organically combines with the resources of its partners to form a "section +" model, providing incubation services for the whole life cycle of journals, and effectively promoting the transformation of kinetic energy and industrial upgrading of journals.

The Chinese Medical Association has successfully developed the integrated Academic Journal Publishing Service platform (MedPress), which has realized the optimization and upgrading of the manuscript editing platform and comprehensively improved the efficiency of content production and dissemination. MedPress platform integrates the whole process of journal work from content collection to knowledge service, and promotes the transformation of journal from content producer to service provider. The new manuscript collection and editing platform has established and improved the digital management system, realized the digital management of the whole process of paper collection, editing, publishing and transmission, and improved the work efficiency. Through innovative measures such as flexible review process setting, seamless data flow, rapid cross-journal manuscript circulation, and multiple detection and risk warning system, it has further promoted the digital transformation and innovative development of journals. It sets a model for the cluster and digital construction of Chinese science and technology periodicals.

2.4 Talent team

China Science and Technology Publishing Media Co., Ltd. focuses on the innovation of talent team construction, pays attention to the improvement of talent training mechanism, and formulates systematic training plans, including new staff induction training, business skills training, continuing education improvement, etc., aiming at building composite editorial talents. At the same time, employees are encouraged to participate in industry exchanges, academic conferences and overseas visits to broaden their horizons and improve their comprehensive literacy. In terms of talent structure, the company has formed a collaboration model of "senior publishing editor + journal development team" to optimize the structure of the journal publishing team and improve the efficiency and quality of running the journal. In addition, the company also distinguished and cultivated interdisciplinary talents and digital technical talents, laid out the development strategy of digital management talents, and provided solid talent support for the digital transformation of scientific and technological journals.

China Laser Magazine Co., Ltd. attaches importance to the diversification of the construction of talent echelons, adheres to the professional division of labor and the publication of experts, is led by leading talents, and has cultivated an intensive publishing talent team including management, editing and publishing, scientific communication, platform research and development, platform operation and other aspects. The editorial board has a strong lineup, bringing together top optical experts at home and abroad to enhance the academic quality and international influence of the journal. At the same time, the company pays attention to project education and competition, encourages employees to participate in national and local research projects, and summarizes and improves the development concept of science and technology journal clusters.

Higher Education Press Co., Ltd. has set up a science and technology journal center, focusing on the construction of organizational mechanism, introducing outstanding talents, and strengthening the training and exercise of the editorial team. Set up post-doctoral workstations, carry out research projects, pay attention to

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cultivating editors' scientific research quality, and improve the academic level and innovation ability of editors. At the same time, the company has established an evaluation index system for excellent editors, which serves the overall construction of talent echelon training and provides a scientific basis for the assessment of editorial talents and team system construction.

Youke Journal Publishing (Beijing) Co., Ltd. takes the lead in organizing professional training to enhance editors' publishing ability and academic vision. The evaluation mechanism has been established, the structure of the editorial board has been optimized, high-level talents have been attracted to join the editorial board, and the content quality and industry influence of the journal have been improved. At the same time, the company selects high-quality digital publishing talents, expands the overseas market of periodicals, establishes an international editorial board team, and initiates the overseas Chinese editorial board strategy to enhance the international influence and discourse power of periodicals. In addition, the company also works with overseas partners to jointly cultivate a team of talents with an international vision, and enhance the cohesion and innovation ability of the team through mutual visits, exchanges, work and study.

The Chinese Medical Association has actively expanded new positions and staffing such as IT technology and new media operations, and established a complete digital research and development team, providing technical support and innovation impetus for digital transformation. In terms of talent management, the company breaks the traditional performance evaluation and salary mechanism, and implements the annual salary system for the research and development team to better motivate and retain excellent research and development talents. At the same time, the company also cooperates with universities and enterprises to carry out personnel training and exchange programs to attract more outstanding scientific and technological periodical talents to join. Through the continuous improvement of internal training and communication mechanism, the professional quality and ability level of employees are improved, so that the team has stronger innovation ability and competitiveness.

3.The construction path of science and technology periodical cluster

"Opinions on Promoting the Prosperity and Development of academic journals" pointed out that to promote the cluster construction of academic journals, reorganize and integrate resources with high-quality academic journals as the leader, and build a number of academic journal clusters with correct orientation, first-class quality, resource intensive and core competitiveness.[3]Since the launch of the Excellence Program, the five cluster pilots have continued to explore collaborative journal management and other models, integrating journal publishing resources across regions, departments and disciplines, effectively enhancing the communication power and influence of the cluster. This section summarizes the innovation model based on the innovation cases of the excellence plan cluster pilot in four aspects: content construction, communication service system, operation mechanism innovation, and talent team construction, in order to provide reference for the cluster and group construction of scientific and technological periodicals in the era of digital intelligence.

3.1 The science and technology journal cluster realizes independent knowledge dissemination with the construction of digital publishing platform

To build a powerful periodical country, China must build its own periodical publishing platform. Under the

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background of the rapid development of digitalization, digital publishing and knowledge service platform plays an increasingly important role in the development of science and technology journals. The five units selected for the Excellence Program cluster pilot project rely on domestic and foreign technology research and development and optimization, and build their own international journal digital publishing platform. These platforms have changed the communication mode of science and technology journals, improved their influence and accessibility, and have far-reaching significance for the construction of world-class science and technology journals.

Under the background of globalization and information technology, digital publishing platform has become an indispensable standard for international first-class scientific journals. For China's science and technology journals, although they have made some progress in international influence and communication through the strategy of "borrowing ships to go to sea", if they want to truly join the ranks of the world's first-class, they must carry out long-term planning and focus on strengthening the construction of their own digital platforms. Such a change, that is, from "borrowing a ship to go to sea" to "building a ship to go to sea", is the inevitable choice to realize the sustainable development of science and technology journals. Having an independent and controllable digital publishing platform plays a decisive role in improving the core competitiveness of sci-tech journals. Such a platform can not only optimize the publishing process and improve the publishing efficiency, but also strengthen the brand and main position of science and technology journals, so that they occupy a more favorable position in the international competition. More importantly, the independent and controllable digital publishing platform can ensure the security of national scientific and technological information and intellectual property rights, and effectively prevent various external risks. To build an international digital publishing service platform to ensure the dissemination and use of scientific and technological innovation achievements as the purpose, based on the protection of China's independent intellectual property rights, can complete the automatic typesetting of a single article in a very short time, to achieve fast priority online or online first. In addition, through simple operations, such as checking the selection of articles, the platform should be able to automatically synthesize the whole issue and synchronously generate Rich HTML, XML, PDF and other formats of documents to meet the diversified needs of traditional printing, online publication, database data submission and so on. As the core support of journal operation, the international platform for digital operation of sci-tech journals supports the whole process and dynamic strategic management of journals from planning, creation, editing, review, proofreading, typesetting, publishing, service to storage. Such a platform will provide comprehensive, efficient and convenient digital operation solutions for science and technology journals, and effectively promote the development of science and technology journals to a higher level and deeper level. [4]According to the audience (readers, operators, libraries, scientific research institutions, etc.) of the digital communication platform of science and technology journals, combined with the communication needs of the current information technology and the Internet era, the digital publishing platform consists of seven sub-systems: submission and review system, editing and proofreading system, all-media journal publishing system, journal cluster portal system, mobile terminal/social system and knowledge service system. The core data is stored in the content resource database, the author behavior database, the expert database and so on. Through application programming interface (API), XML processing of data and DOI of articles, the whole process, integration and intelligence of scientific and technological paper publishing from submission to international dissemination are realized.

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In order to better promote the construction and development of world-class scientific journals, digital publishing platforms must always uphold strict academic ethics and strive to create a high-quality academic publishing environment. In order to ensure the quality of journal papers, a comprehensive quality control system should be built to ensure the academic level and quality of papers from the source. Rigorous review system is the cornerstone to ensure the quality of journal papers, the use of double-blind or multi-blind peer review process to ensure the impartiality and objectivity of paper review, effectively avoid any possible bias or conflict of interest. At the same time, the platform needs to establish a transparent and efficient mechanism for the supervision and punishment of academic misconduct. When any form of academic misconduct is discovered, such as plagiarism, falsification of data, etc., immediate measures should be taken to seriously safeguard the integrity and integrity of the academic community, including the regulation of open access policies, ensuring the fair sharing of all research results, and clear guidelines on the use of artificial intelligence (AI) for research and writing. Avoid possible ethical issues or misuse. Through these measures, the digital publishing platform provides a more secure, efficient and reliable academic publishing service for researchers and scientific journals, and jointly promotes the progress of science and technology.

3.2 The science and technology journal cluster constructs a new ecology of cluster communication with the deep integration of media

In April 2022, the Publicity Department of the CPC Central Committee proposed in the Implementation Opinions on Promoting the Deeply Integrated Development of Publishing that it should adhere to the effect orientation, adapt to the profound changes in the public opinion ecology, cultural formats and communication forms in the digital era, pay more attention to the use of new communication means, strengthen the operation and promotion of all-media, and improve the arrival rate, reading rate and influence of high-quality digital publishing content. [5]The Excellence Program cluster pilot actively conforms to the trend of media change, takes new technology, new media and new platform as the starting point, and creates a new communication ecology of science and technology periodical cluster.

3.2.1 The innovative cluster platform supports the digital transformation of science and technology journal publishing

Emerging technologies, such as artificial intelligence and big data, have injected new vitality into the cluster digital communication platform. The international digital publishing service platforms, such as SciEngine, Researching and MedNexus, created by the Excellence Plan cluster pilot, play a vital role in promoting the international dissemination of science and technology journals and building the brand of science and technology journal clusters. These clustered platforms rely on technology to enable them to achieve a comprehensive upgrade and show five distinctive characteristics: personalization, commercialization, digitalization, automation, and intelligence. In terms of personalization, the platform provides customized page services for individual and group journals of science and technology journals to meet their needs of showing unique styles; In terms of commercialization, it provides convenient resource subscription and procurement services for individual users and institutional users through the establishment of shopping malls and other channels; In terms of digitalization, the platform introduces digital academic communication and exchange means, breaking the shackles of the traditional academic exchange system and accelerating the dissemination and sharing

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of knowledge; In terms of automation, the platform realizes automatic review, automatic review, automatic recommendation and other functions, and automatic upgrading runs through the whole process of journal publishing, enabling journal editors to focus more on innovative work, and helping improve the quality and efficiency of scientific and technological journal publishing. In terms of intelligence, the platform is embedded with artificial intelligence, big data and other technologies to comprehensively collect user behavior data and build user portraits, providing solid data support for the formulation of platform operation strategies.

3.2.2.Multimedia integration and multi-channel distribution build an ecosystem of science communication

With the rapid development of information technology and the emergence of new media, the forms of information transmission have become rich and colorful, covering various forms such as text, images, video and audio. Financial media construction, as a key way to promote the diversified dissemination of scientific journals, has attracted much attention in recent years. The Excellence Program cluster pilot actively responds to the development trend of new technologies and new media, constantly expands communication channels, reshapes the brand image of the cluster, and is committed to building a more perfect and scientific communication ecosystem.

The Excellence Program cluster pilot continues to improve the service capacity of knowledge dissemination, adhere to the precision communication and mass communication, both for specific groups to provide customized services, but also for broad groups to carry out extensive dissemination. Constantly expand content distribution channels, expand the coverage of information dissemination through email subscription, academic platform publishing, social media promotion, domestic and foreign conference exchanges and other ways to ensure that high-quality academic results can accurately reach the journal audience. At the same time, the cluster is committed to building an all-media communication matrix, integrating various media resources such as Weibo, wechat public account, wechat video account, audio platform and video platform, accelerating the deep integration of emerging media and traditional media, comprehensively displaying the brand image of the journal group and enhancing brand recognition. In addition, the cluster attaches great importance to international communication, actively establishes contacts with overseas professional media, uses overseas social platforms for publicity and promotion, constantly enhances the international visibility of Chinese science and technology journals, and makes the voice of Chinese science and technology journals louder and more widely spread on the world stage.

Brand is the valuable intangible asset of science and technology journal cluster. Under the background of the deep integration of media, the pilot of the Excellence program cluster continues to explore diversified communication paths, aiming to establish a stronger and better brand image, enhance the competitiveness and influence of the cluster, and contribute to the prosperity and development of China's science and technology journal industry.

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3.3 The science and technology journal cluster helps the sustainable development of the cluster with the cooperation of government, industry, university, research and finance

3.3.1.Multi-entity cooperation promotes the integration and utilization of resources

The government, enterprises, schools, research institutions and other multiple subjects go hand in hand to jointly promote the cluster construction of scientific and technological journals, strive to create an innovation ecology with the deep integration of "government, industry, university and research fund", and build a collaborative and efficient "government, industry, university and research fund" innovation system. In this process, each subject gives full play to its own functions, continuously converges and integrates the superior resources and core capabilities of innovation subjects, and realizes the effective docking of resources such as technology, capital and talents, thus promoting the win-win development among collaborative innovation subjects. The government creates a favorable external environment for innovation by introducing policies and strengthening supervision. Enterprises invest equipment, capital and other production factors to provide a solid production foundation for the transformation of scientific and technological achievements; With rich academic accumulation, technical achievements and high-quality talents, universities and research institutions provide theoretical guidance and technical support for innovation; Financial institutions stimulate innovation vitality and disperse innovation risks by providing financial security. The integrated operation of government, industry, university and research fund effectively activates the resource potential of science and technology journal cluster, and enhances the influence and social recognition of science and technology journal cluster.

3.3.2. Dual-channel development to build a "cluster +" path

The science and technology journal cluster and its partners adopt the cooperation mode of capital integration and resource coordination to realize resource sharing and complementary advantages, and jointly explore the development path of "cluster +" with the characteristics of publishing industry. In the long-term development practice, the science and technology journal cluster has accumulated rich academic resources and experience in running journals, and through the deep integration of platform resources with partners, we can jointly create high-quality new journals and provide incubation services covering the whole life cycle of journals. Taking the cluster pilot projects such as Yuke Publishing as an example, they integrate multi-stakeholder resources such as industry, university and research through the way of capital increase, promote the deep integration of academic resources and industry resources, constantly improve the intensive management and operation mode, and effectively promote the transformation and upgrading of the scientific and technological journal publishing industry. The science and technology journal cluster is moving steadily towards the direction of digitization, specialization and intensification, realizing the role change from content producer to service provider, and actively exploring the sustainable development path of the cluster. The integrated operation of government, industry, university and research fund provides a strong boost for the cluster and group development of science and technology journals, enhances the influence and visibility of science and technology journal clusters in the industry, accelerates the high-quality development process of science and technology journal clusters, effectively promotes the construction of academic community and academic community, and promotes academic exchanges and discipline development. It has contributed an important force to the realization of the goal of becoming a powerful country in science and technology.

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3.4 Science and technology journal cluster through the "selection - education - use - evaluation" multi-dimensional cooperation to build a professional talent team

3.4.1 Talent selection mechanism innovation

On the one hand, under the background of fine division of labor, the types of talents are divided, the criteria for talent selection are clear, and the interdisciplinary talents with disciplinary background and industry vision or the digital technical talents with product research and development ability are selected. At present, the Excellence program cluster pilot has achieved different degrees of labor division mechanism, through the fine division of labor to achieve the effective use of editorial resources and improve efficiency. Different departments are responsible for the contribution source organization, peer review, production and processing, digital publishing, printing and distribution of scientific journals, and the team achieves the improvement of academic quality, digital communication and journal group scale through scientific division of labor, efficient communication and cooperation. Such a division of labor mechanism makes the demand for talents more clear, and is conducive to the selection and distribution of talents according to the development needs of science and technology journal clusters, and the formulation of more scientific talent strategy planning. At the same time, do a good job in the top-level design of the talent team structure, and continue to optimize the structure of the editorial team and editorial board. Chief editor, editor and editorial board play a crucial role in the academic publishing chain. Set up a reasonable team according to disciplines, ages, internationalization and other standards, and ensure that the composition of the chief editor, editor, and editorial board members is reasonably arranged to ensure that the team talents are in their proper place and show their strengths to achieve professional operation.

3.4.2 Innovation in personnel training mechanism

The tripartite cooperation of industry, university and research creates a good environment for the talent training of science and technology periodical clusters. The pilot program of Excellence cluster interconnects with enterprises, universities, research institutes and other institutions, and carries out rich activities such as business training, skill training, scientific research topics, project education, industry competitions, lectures and conferences, forming a multi-level continuing education and training system to promote the comprehensive improvement of talent literacy. On the other hand, based on the "professional" and "Bo" two directions for talent training. On "specialization", improve editing and publishing skills, and cultivate the vision of publishing industry. On "Bo", cultivate scientific literacy and comprehensive quality, form a broad interdisciplinary and cross-industry vision, and enhance the sensitivity of hot topics and topic acuity in topics planning and other aspects.

3.4.3 Talent incentive mechanism innovation

Through the development of attractive and flexible compensation mechanism, so as to stimulate the vitality and enthusiasm of the team, alleviate the adverse effects caused by the phenomenon of brain drain, and create a good atmosphere for talent growth. In addition, various team building activities are regularly organized to enhance the cohesion of the team. The cluster pilot is committed to establishing a healthy and perfect incentive guarantee system, in order to stimulate the team talent to keep the enthusiasm of innovation.

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3.4.4 Talent evaluation system innovation

Combined with the current status of the publishing industry, the long-term development strategy of the enterprise, the unique business characteristics and the demand for diversified talents, it is necessary to deeply explore a set of dynamic development, scientific and fair comprehensive evaluation index system for excellent editors. This system should be able to fully reflect the editor's work performance, professional quality, innovation ability and teamwork ability and other dimensions, to ensure the evaluation of comprehensiveness and objectivity. At the same time, it is also necessary to continuously optimize performance evaluation methods, introduce more scientific and reasonable evaluation methods and technologies, and improve the accuracy and fairness of evaluation. In the selection stage of human resource management, editors with potential and ability are selected according to the evaluation system. In the cultivation stage, according to the evaluation results to develop a personalized training plan to help editors constantly improve their professional quality and comprehensive ability; In the use stage, the evaluation results can be used as an important basis for post adjustment, promotion and reward to stimulate the work enthusiasm and creativity of editors. In the retention stage, the evaluation system is used to understand the career development plan and needs of editors, and provide them with better career development opportunities and welfare benefits, so as to enhance their sense of belonging and loyalty.

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