Flagship Journal Leading Sub-journals: The Innovative Development Path of eLight

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Abstract

[Objective] Based on a case study of eLight, a high-starting-point new journal launched under the Excellence Program, this study aims to summarize universal experiences, provide references for establishing new English-language scientific journals in China under the new circumstances, and facilitate the construction of a world-class scientific journal position for China. [Method] Focusing on the challenges of limited channels and high costs for building international influence of new journals under the new circumstances, the weak discourse power of Chinese scientific journals, and insufficient centripetal force among scientists, this paper systematically reviews the innovative practices of eLight, analyzes their effectiveness, and extracts universal experiences. [Results] Leveraging leading journals, clusters, and other high-quality academic resources as the driving force for new journal construction can help new journals efficiently and rapidly establish international influence; voicing positions on the international landscape of scientific publishing and the core needs of scientists contributes to building journal discourse power; strengthening innovation and refinement of responsibilities, systems, and workflows, developing mutually beneficial resources between journals and scientists, and establishing a multi-dimensional evaluation system can help expand scientist relationships. [Conclusion] China should fully utilize the advantages of leading journals and clusters, leverage the driving role of high-quality resources, strengthen the collective voice and value output of Chinese scientific journal groups, foster a scientist community, promote the aggregation of publishing resources, enhance the discourse power of Chinese scientific journals, and achieve efficient construction of a world-class scientific journal position.

Full Text

Leading Journal Cultivates High-Profile New Journal: The Innovative Development Path of eLight

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Abstract
[Purpose] Based on a case study of eLight, a high-profile new journal launched under the Excellence Plan, this paper summarizes generalizable experiences to provide references for establishing new English scientific journals in China under new circumstances, thereby contributing to the construction of world-class scientific journal clusters. [Methods] Addressing the challenges of limited and costly channels for building international influence for new journals, weak discourse power of Chinese scientific journals, and insufficient centripetal force among scientists, this paper examines eLight's innovative practices, analyzes their effectiveness, and extracts portable lessons. [Findings] Leveraging leading journals and clusters of high-quality academic resources as a driving force can help new journals efficiently and rapidly establish international influence; addressing international publishing trends and scientists' core needs helps journals build discourse power; innovating and refining rights/responsibilities frameworks, institutional workflows, and mutually beneficial resources between journals and scientists, along with establishing multidimensional evaluation systems, can strengthen scientist relationships. [Conclusion] China should fully utilize the advantages of leading journals and clusters, leverage their driving effect on elite resources, strengthen the collective voice and value output of its scientific journal community, foster scientist communities, promote the aggregation of publishing resources, and enhance the discourse power of Chinese scientific journals to achieve efficient construction of world-class scientific journal clusters.

Keywords: Excellence Plan leading journal; high-profile new journal; constructing world-class scientific journals; eLight; innovative development

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Introduction

On November 14, 2018, the Central Committee for Comprehensively Deepening Reform convened its fifth meeting and approved the "Opinions on Deepening Reform to Cultivate World-Class Scientific and Technological Journals," emphasizing that scientific journals inherit human civilization, assemble scientific

discoveries, and lead scientific and technological development, directly reflecting national scientific competitiveness and cultural soft power. The meeting called for targeting world-class scientific journals, scientifically compiling key journal construction catalogs, and refining and strengthening journals in basic and traditional advantage fields [1]. In September 2019, seven ministries and commissions including the China Association for Science and Technology implemented the "China Scientific and Technological Journal Excellence Action Plan," which has continuously selected high-profile new journals for five consecutive years, prioritizing support for leading journals to launch sister or sub-journals based on principles of filling gaps, addressing blank areas, and promoting the aggregation of high-quality publishing resources [2]. In September 2020, General Secretary Xi Jinping emphasized at the Scientists' Symposium: "We must run first-class academic journals and various academic platforms well, and strengthen domestic and international academic exchanges" [3]. In May 2021, the Publicity Department of the CPC Central Committee, Ministry of Education, and Ministry of Science and Technology jointly issued the "Opinions on Promoting the Prosperous Development of Academic Journals," stating that high-quality academic journals should be used as the dragon's head to reorganize and integrate resources, building a batch of academic journal clusters with correct orientation, first-class quality, resource intensification, and core competitiveness [4].

These policies and opinions mark that China's scientific journal construction has risen to a critical height concerning national cultural soft power and strategic positioning, bringing unprecedented historical opportunities for building world-class scientific journals. Consequently, explorations in constructing world-class scientific journals in China have attracted high attention, with journal practitioners conducting extensive research on building first-class industry journals, serving national strategies, journal planning, and cultivating first-class editorial talent [5-9].

Nevertheless, we must recognize that over the past five years, rapidly changing international situations have dramatically altered the development environment for English scientific journals. According to the latest data from the *Blue Book of Chinese Scientific and Technological Journals (2023)*, from 2018 to 2022, the total number of Chinese scientific journals increased from 4,973 to 5,163, with English scientific journals experiencing particularly explosive growth from 333 to 434—a net increase of 101 journals, representing 30% of the 2018 total. This explosive growth means China's English scientific new journals face a new development environment, yet few studies have examined their development paths under these new circumstances.

Therefore, this paper adopts a case study methodology, focusing on eLight's innovative construction initiatives as a high-profile new journal under the Excellence Plan, to summarize its experiences and extract generalizable recommendations for building world-class English scientific new journals in China. The study's distinctiveness and innovation lie in three aspects. First, eLight is among the first batch of high-profile new journals under the Excellence Plan. Initiated

in late 2019 and officially launched in June 2021, it has been indexed by authoritative databases including ESCI, EI, and Scopus, and received its first impact factor of 27.2 in July 2024, ranking 2nd in the international optics field. Since its inception, eLight articles have averaged over 10,000 downloads each, with Altmetric scores exceeding 70 per article, and have been reported by hundreds of authoritative media outlets worldwide including Xinhua News Agency, with multiple articles trending on social media platforms like Weibo. eLight's rapid ascent from preparation to world-class status during the Excellence Plan period demonstrates the plan's effectiveness and provides an important reference for developing high-profile new journals. Second, to address challenges such as high costs and limited channels for building international influence and insufficient centripetal force among scientists, eLight leverages the Light Academic Publishing Center cluster and its Excellence Plan leading journal *Light: Science & Applications*, utilizing elite academic resources and cluster advantages to intensively build a high-impact sub-journal. The driving measures of leading journals and clusters on new journals offer valuable references for using high-quality academic journals as the dragon's head to drive world-class journal construction and promote resource aggregation. Third, eLight was launched during a period of rapidly changing international situations, making its adaptive strategies highly relevant for new journal construction under new circumstances. As an interdisciplinary journal spanning optics and fields like biology, chemistry, medicine, materials, energy, and artificial intelligence, eLight's practices hold reference value for scientific journals across a broad range of disciplines in China.

1.1 Leveraging Leading Journal Resources and Cluster Aggregation for Collaborative International Influence Building

For years, international major publishers and society publishers have fully utilized their leading/flagship journal advantages and cluster resources to support new journal establishment and rapid development. However, China's scientific journals have generally been small, scattered, and weak, limiting domestic exploration in this area. Under new circumstances, reduced channels and increased costs for building international influence have constrained the rapid development of China's English scientific new journals, forcing them to seek more effective paths. Accordingly, eLight proposed relying on the leading journal *Light: Science & Applications* and its cluster platform—the Light Academic Publishing Center—to innovate, explore, and aggregate leading and cluster resources, thereby supporting its own development. Key initiatives include:

First, fully exploiting the leading journal's scientist resources to support the new journal. The Excellence Plan leading journal *Light: Science & Applications* has maintained an impact factor ranking in the top 3 of the international optics field for nine consecutive years since its 2012 launch. In recent three years, its annual article volume has ranked first among the top 5 optics journals by impact factor, with 2.87 million downloads in 2023. It has been selected as a gold

partner for the UN International Year of Light and International Day of Light, won the 5th China Government Publishing Award for journals, and become a high-quality academic resource with massive international influence. Building on *Light: Science & Applications*'s scientist community, eLight selected hundreds of top scientists passionate about eLight with aligned vision as editorial board candidates through consultation, interviews, and visits. Further selection by discipline, age, gender, and geographic distribution resulted in a 50-member editorial board of top scientists with high contribution levels, internationalization, broad interdisciplinary span, and reasonable age/gender structure, plus a 10-member tiered editorial board of first-class scientists. Additionally, leveraging *Light: Science & Applications*'s regional offices in 25 countries and regions, eLight recruited a group of global scientist volunteer editors, providing crucial support for the new journal. eLight also built a high-quality reviewer database of over 5,000 members from its inception by analyzing past review counts, quality, and efficiency from *Light: Science & Applications*'s reviewer pool.

Second, building a first-class editorial team for the new journal based on the leading journal. Drawing on *Light: Science & Applications*'s decade-plus operational foundation, eLight selected 2 full-time and 4 part-time editors from *Light: Science & Applications* during its preparation phase, rapidly assembling a first-class eLight editorial team. All founding editors had 3-8 years of experience at *Light: Science & Applications*, possessing strong academic backgrounds, professional editorial literacy, international perspectives, and mature operational skills, while having established strong relationship networks within the scientist community. Consequently, eLight editors invited over 50 heavyweight submissions from academicians in China, the US, UK, France, Germany, Australia, and Singapore at launch. Their capabilities in assisting authors with science news writing, efficient promotion, and graphic design impressed scientists and demonstrated excellent team professionalism. They also established and executed efficient manuscript processing workflows. Excluding one journal that does not publish relevant data, eLight's average processing cycle is at least twice as fast as other journals, with data from the same publisher Springer Nature (Table 1). Given eLight's interdisciplinary nature, Table 2 shows a comparison between eLight and Nature sub-journals in relevant non-optics disciplines, with all data provided by Springer Nature. The results demonstrate that eLight has established an absolute speed advantage among top international journals in interdisciplinary fields.

Table 1 Manuscript processing cycles for the top 5 journals by impact factor in the international optics field in 2023

Journal	Average days from submission to first decision	Average days from submission to acceptance
Nature Photonics	-	-

Journal	Average days from submission to first decision	Average days from submission to acceptance
eLight	-	-
Light: Science & Applications	-	-
Advances in Optics and Photonics	-	-
Advanced Photonics	-	-

Note: Data sourced from publisher-published information on each journal's homepage.

Table 2 Comparison of manuscript processing cycles between eLight and Nature sub-journals in relevant non-optics disciplines in 2023

Journal	JCR discipline and impact factor ranking	Average days from submission to first decision	Average days from submission to acceptance
eLight	Optics (OPTICS), 2nd	-	-
Nature	Multidisciplinary Sciences, 1st	-	-
Nature Materials	Materials Science, Multidisciplinary, 1st	-	-
Nature Electronics	Engineering, Electrical & Electronic, 1st	-	-
Nature Methods	Biochemical Research Methods, 1st	-	-

Journal	JCR discipline and impact factor ranking	Average days from submission to first decision	Average days from submission to acceptance
Nature Catalysis	Chemistry, Physical, 1st	-	-
Nature Biomedical Engineering	Engineering, Biomedical, 1st	-	-
Nature Energy	Energy & Fuels, 1st	-	-
Nature Machine Intelligence	Computer Science, Interdisciplinary Applications, 1st	-	-
Nature Computational Science	Computer Science, Interdisciplinary Applications, 2nd	-	-
Nature Protocols	Biochemical Research Methods, 2nd	-	-
Nature Biotechnology	Biotechnology & Applied Microbiology, 2nd	-	-
Nature Nanotechnology	Materials Science, Multidisciplinary, 5th	-	-
Nature Physics	Physics, Multidisciplinary, 5th	-	-

Journal	JCR discipline and impact factor ranking	Average days from submission to first decision	Average days from submission to acceptance
Nature Microbiology	Microbiology, 5th	-	-
Nature Chemistry	Chemistry, Multidisciplinary, 7th	-	-
Nature Cell Biology	Cell Biology, 8th	-	-
Nature Communications	Multidisciplinary Sciences, 8th	-	-

Note: Only original journals; review journals do not publish relevant data; data sourced from publisher-published information on each journal's homepage.

Third, leveraging cluster readership and promotional channels to build a high-exposure eLight platform. To compensate for the new journal's influence disadvantage, eLight fully utilized the reader resources of cluster journals. The Light Academic Publishing Center currently owns 9 proprietary scientific journals and 26 strategic cooperative journals, forming a small, refined, and strong journal cluster with millions of professional readers across multiple disciplines. By promoting eLight and its articles on cluster and individual journal websites, WeChat groups, and email push lists; inviting top scientists to write news commentaries on eLight articles in *Light: Science & Applications*; and publishing joint special issues with cluster journals *Light: Science & Applications* and *Light: Advanced Manufacturing*, eLight rapidly expanded its readership. Additionally, based on the cluster's diversified social media channels and science media distribution channels—including global renowned science media like EurekAlert and Phys.org, WeChat official accounts (the self-operated "Chinese Optics" account has 120,000 professional readers with average article views exceeding 3,000), and mainstream global social media platforms (Twitter, Facebook, Instagram, LinkedIn)—eLight published news with high timeliness and personalization, enhancing its international influence.

Fourth, aggregating cluster resources for integrated journal management and co-creating high-impact international academic activities. To save costs and

achieve intensive operations, eLight and the Light Academic Publishing Center cluster jointly established a cluster Chinese website and implemented integrated management of financial/secretarial/typesetting/graphic design/distribution services, establishing unified assessment systems, editorial rotation systems, AB role systems, and internal manuscript transfer systems, greatly promoting resource exchange and intensive construction among cluster journals. Furthermore, leveraging cluster strength, eLight co-hosted a series of high-impact international academic activities, including the Light Conferences series (selected for the China Association for Science and Technology's *Important Academic Conference Guide (2023)* and designated as a UN International Day of Light conference), the Global Optical Future Star Competition (attracting professors from MIT, Stanford, Oxford, Cambridge, and other top institutions, with 800,000 total online viewers over four years), the National Optics and Optical Engineering PhD Student League (selected as a national-level competition by multiple double-first-class universities, with over 300,000 annual online and offline viewers), China's Top 10 Optics Social Impact Events (with over 100,000 participants voting annually), Light Conference overseas meetings (in 2023 inviting five top university leaders including Academician Gong Qihuang, President of Peking University, and Academician Zhang Xiang, President of the University of Hong Kong, as well as academicians from China, the US, Israel, Australia, and Singapore), the Seed of Light Scholarship Program, the Optics Science Popularization Workshop (21 published articles with 800,000 cumulative views across all platforms), and the Light Living Room/Light Shiguang academic culture columns, achieving broad and high-level influence in the international scientific community. Through cluster-coordinated high-impact academic activities, the cluster built a community environment comparable to international societies, closely uniting the scientist community around the journals and helping eLight and cluster journals rapidly enhance international influence. Simultaneously, eLight's growing influence further strengthened the cluster's comprehensive capabilities.

1.2 Responding to a Changing International Situation: Voicing and Self-Shaping to Build Discourse Power

At the 2016 Party News and Public Opinion Work Symposium, General Secretary Xi Jinping pointed out that China's image in the world is largely "shaped by others" rather than "self-shaped." The image of Chinese scientific journals is similarly "shaped by others." International top journals, large commercial publishing groups, society publishers, and authoritative databases control the discourse direction of scientific journals. With dramatic changes in the international situation in recent years, the dilemma of being "shaped by others" has increasingly extended to China's scientific journal community, further constraining journals that already lacked discourse power. Accordingly, under rapidly changing international circumstances, eLight called on the scientist community

to separate academia from politics while continuously "voicing" (outputting journal perspectives) and "self-shaping" (practicing journal perspectives) in response to changes in international publishing and scientists' core demands, helping establish core advantages and discourse power and transmitting its image, characteristics, and strengths to the international scientific community. Since its inception, eLight has persisted in the following aspects of "voicing" and "self-shaping."

First, advocating academic freedom and refusing to become a channel for international political disputes. Since its launch, eLight has firmly opposed individual scientists' partisan statements and advocacy in international political disputes, preventing scientists from using scientific research results related to the pandemic or review comments to output political viewpoints that could generate disputes. Simultaneously, eLight advocates academic freedom across its various channels, insisting on equally safeguarding the legitimate rights and interests of scientists worldwide.

Second, shouldering a sense of mission and responsibility toward scientists and voicing journal operations for scientists' needs. Since its preparation phase, eLight has been committed to identifying scientists' needs, aiming to fill urgent gaps rather than blindly launching a journal. Accordingly, eLight leveraged *Light: Science & Applications*'s core scientist community through questionnaires and visits, recognizing that interdisciplinary optics research has brought transformative impacts to multiple fields. However, due to dispersed audiences and difficulty in follow-up work, many groundbreaking studies have been buried, leaving scientists engaged in interdisciplinary research in difficult positions. Therefore, eLight proposed the mission of "disseminating and leading emerging interdisciplinary optics." To practice this mission, eLight assembled a top-tier editorial board with interdisciplinary backgrounds—academicians comprise 40% of the board, and international members account for 75%. Pioneering articles often encounter reviewer disagreements, and board members with top-tier vision serve as crucial arbitrators in such disputes. eLight's editors-in-chief, editorial board, and editorial office clearly communicate its mission in every promotional activity. Moreover, when selecting articles, eLight consistently prioritizes manuscripts' profound interdisciplinary impact as a primary public criterion, far outweighing considerations of whether articles are trendy or citation-generating. For example, eLight published the first work on brainwave-controlled metamaterials [10-11] and the first work on vectorial adaptive optics [12]. These fields were not particularly popular, but their revolutionary nature generated massive interdisciplinary impact. Since its launch, the most frequent question eLight receives from scientists is how they benefit from eLight's establishment. eLight's proactive "voicing" and coherent "self-shaping" have earned high trust from the scientist community.

Third, outputting the value of "not solely pursuing impact factor." eLight noted international scientists' concerns about "impact factor credibility crisis" and "predatory journal crisis," advocating within its field that while impact factor is

an important credible metric for evaluating scientific journals and a booster for attracting high-quality articles and promoting result dissemination, it should not supersede journal mission, article quality, article impact, reader reputation, or audience. To practice this value, eLight has continuously increased its proportion of original articles since launch. As shown in Table 3 , eLight's original article ratio increased from 57.1% in 2021 to 100% as of July 31, 2024 (estimated 87.5% for the full year). From 2021-2024, original articles accounted for 82% of eLight's total publications, with plans for continued growth. Additionally, to reasonably layout disciplines and benefit broad readership, eLight refuses to cluster around hot topics. For instance, in 2022, eLight received four submissions on "micro-nano spectrometers," a recent international hotspot with numerous publications in *Nature* and *Science* and their sub-journals. All four submissions were of high quality from top international teams, but eLight only published two [13-14], rejecting the other two which were subsequently published in other international top journals. A key reason for rejecting the other two was eLight's desire to avoid clustering in hot directions and instead demonstrate its insight and leadership across multiple disciplines. eLight's voice and persistence in not solely pursuing impact factor have earned respect and support from the international scientist community.

Table 3 Proportion of original articles in eLight

Year	Original article proportion
2021	57.1%
2022	76.0%
2023	78.3%
2024 (as of July 31)	100% (estimated 87.5% for full year)

Fourth, voicing and striving for scientists' core rights and interests. Since its preparation, eLight has long focused on and committed to solving scientists' core rights issues. Addressing the crux of international scientific publishing—where top journals require substantial detailed review comments, leading to slow review and processing, but abandoning top journals affects work visibility and impact—eLight proposed that slow processing or insufficient exposure affects the first-publication rights and discourse power of scientific papers, thus touching scientists' core interests. The eLight team advocated for high-efficiency work by editors-in-chief/board members/editorial offices, establishing reward-penalty measures to incentivize high-speed, high-quality review reports, and parallel work by publishing/promotion/graphic teams. The editorial office compares review comments one by one, adopts innovative work modes like review video conferences, and significantly shortens review cycles while ensuring review quality. Simultaneously, eLight enhanced article exposure through: inviting top scientists to write News & Views in *Light: Science & Applications* [15]; editorial assistance in writing science news; simultaneous promotion of multiple news versions; interactive promotion on mainstream social media at home

and abroad; and deep, innovative promotion methods like one-article-one-cover design. These efforts have enabled eLight to achieve exposure and influence comparable to international top journals even in its startup phase. Additionally, addressing scientists' concerns about peer review fairness and transparency, eLight proposed transparent review practices, publishing peer review reports and author responses when both reviewers and authors agree [17-18]. This discloses more peer review information to the public, strengthens supervision of the peer review process, and publishes the thinking and discussion in peer reviews to promote more academic sparks and exchanges. Currently, 56% of eLight articles have published peer review reports and author responses, receiving widespread reader acclaim. By voicing and striving for scientists' core rights, numerous top scientists domestically and internationally have joined eLight's team to help build a better scientific publishing ecosystem.

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2. Innovative Approaches to Deepening the Journal's Circle of Friends and Strengthening Scientist Centripetal Force

The cornerstone of scientific journals is the scientist community—editors-in-chief, editorial board members, authors, and reviewers are contributors and gatekeepers who determine a journal's original innovation capacity and core competitiveness. Therefore, maximizing their roles and contributions is crucial. However, unlike international major publishing groups and societies with large loyal scientist audiences, China's scientific journals, especially new ones, lack strong core scientist communities and scientist centripetal force. Accordingly, eLight proposed deepening the journal's circle of friends through innovative exploration in three areas: expanding journal relationships with editors-in-chief/board members, authors, and reviewers to strengthen scientist centripetal force.

2.1 Expanding Journal Relationships with Editors-in-Chief and Editorial Board Members

Editors-in-chief and board members are a journal's cornerstone and public face. Maximizing their enthusiasm and guiding their maximum contribution is vital. eLight approaches this from three directions. First, selecting editors-in-chief and board members with pure passion and aligned vision; implementing rights and responsibilities early in the search process, emphasizing mutual understanding and two-way selection while avoiding political or economic factors. eLight's two editors-in-chief, after thorough early communication with the editorial team and sharing common journal vision, declined editor-in-chief positions at top international optics journals to lead eLight, dedicating themselves to benefiting the international optics community. Among eLight's editorial board, 40% are academicians from Chinese, US, Australian, German, and French na-

tional academies, yet they willingly contribute their time voluntarily based on shared vision. Second, innovatively establishing personalized editorial board work systems. Unlike traditional board functions, eLight allows board members to choose from various tasks: high-efficiency manuscript processing, pre-review consultation, inviting top submissions, team contributions, adding journal promotion pages in personal presentations, forwarding journal content or interacting on social media, providing lists of scientists in their academic networks, and writing news commentaries. This allows board members to select work suited to their interests, strengths, and schedules, greatly mobilizing their enthusiasm. Building on the editorial board, eLight established a tiered editorial board of full professors from top global institutions. Besides optionally performing some board functions, tiered board members can choose more time-consuming tasks like organizing article explanations, journal graphic design and videos, and green-channel reviewing, with the editorial office assigning point values to each task. The highest-scoring tiered board members each year are promoted to the editorial board, thereby selecting first-class scientists with strong service willingness. Third, assisting editors-in-chief and board members in establishing ownership consciousness and shared honor/disgrace awareness with the journal; helping them understand how journal success/failure affects their careers and enabling them to gain honor, achievement, academic value, and positive feedback from the journal, ultimately fostering a proprietorship mentality. For example, eLight's editorial office assists editors-in-chief/board members in establishing cooperative relationships with host institutions and renowned research institutions, helping them develop project and industry resources, and recommending them for important awards like Excellence Plan excellence awards. Fourth, assisting editors-in-chief and board members in planning their journal work and resources; helping them schedule reasonable journal work time and organize their own resources usable by the journal. For instance, eLight's editorial office helped secure important submissions, quality reviewers and arbitrators, and news commentary experts by organizing editors-in-chief/board members' colleague networks, research relationship maps, and recommendation letter lists from recent five years. Meanwhile, the two editors-in-chief communicate with the editorial office several times daily via email and phone, with the editorial office planning tasks requiring their leadership or coordination to facilitate decision-making and scheduling, ensuring efficient journal operations.

These measures strengthen editors-in-chief and board members' leading roles in the journal and build field confidence in the journal.

2.2 Expanding Journal Relationships with Authors

Articles are the foundation of journal influence; without quality submissions, all peripheral work is castles in the air. To expand author relationships, eLight strengthens connections with authors in both depth and breadth.

In depth, eLight first earns authors' respect and trust through high-speed, high-quality review organization and editorial comments that truly help authors im-

prove. Accordingly, eLight pioneered innovative work modes including "parallel initial review by editors-in-chief and editors," "parallel reviewer invitation by board members and editors," "parallel review and editor-author discussion of review comments," "parallel editing checking author responses and selectively consulting reviewers," "parallel editing-author promotion preparation and technical manuscript processing," and "simultaneous proofreading by editors and authors," establishing efficient parallel workflows for editors-in-chief, board members, editors, reviewers, authors, and technical staff. As shown in Table 1, eLight's average initial review rejection time is 3 days, and average submission-to-acceptance time is 69 days, far faster than international peers in optics and related interdisciplinary fields. Thanks to eLight's high-speed workflow, some authors even unintentionally secured first-publication rights without knowing about competing work. eLight also provides multiple innovative pre-submission inquiry channels including email, social media, online meetings, and laboratory demonstrations, greatly facilitating scientists. Top scientists including US National Academy of Engineering member Baharam Jalali, Australian Academy of Engineering member Dayong Jin, National Science Fund for Distinguished Young Scholars recipient Professor Xi Peng from Peking University, and Professor Mortiz Kreysing from Karlsruhe Institute of Technology have publicly expressed or written thanks for eLight's professional manuscript processing and efficient workflow, triggering broad resonance in the scientist community. Additionally, eLight leverages its platform and editorial resources to broadly disseminate authors' articles. Through hiring professional science journalists, editorial assistance in writing science news, inviting top scientists to write news commentaries, timely promotion across dozens of social and science media platforms, email pushes to small and large peer communities, cover and reprint designs, editorial self-recommendation of news to authoritative media, and promotional visits by editors-in-chief/board members/editorial offices, eLight has greatly enhanced article exposure and impact. Deepening author relationships has brought tangible support: 60% of authors submitted a second work to eLight shortly after their first publication, with many authors spontaneously promoting eLight long-term.

In breadth, eLight broke through traditional solicitation approaches, proposing innovative ideas including "finding good manuscripts on preprint platforms," "identifying gems rejected by top journals," "tracking laboratory progress of scientists," "capturing representative work of rising young scientists," "inviting propositional reviews by tracking optics subfield directions," "competing for manuscripts through conferences and academic activities," "inviting mentors' manuscripts through young scientists," and "exploring controversial topics in academic circles." These efforts solicited over 70 heavyweight submissions, including representative work from academicians in China, the US, UK, Germany, France, Singapore, Australia, and Israel, with over 30 passing review and being published. Due to connections with the parent journal *Light: Science & Applications*, the editorial office long tracked Academician Cui Tiejun from Southeast University's pioneering digital coding metamaterials field [19]. By

observing and capturing the field's trajectory, they propositional invited Academician Cui to write an "Intelligent Coding Metamaterials" review, published in eLight in May 2022 [20], which has since received 180 SCI citations, 214 Google Scholar citations, and 23,000 downloads (as of July 31, 2024). Additionally, through long-term tracking and nearly half a year of effort, the editorial office secured Academician Cui's team's original work on "Brainwave Wireless Communication Metamaterials" [10], which triggered Weibo trending topics and was reported by over 100 authoritative media outlets worldwide including Xinhua News Agency. Multiple articles have received over 100 citations in a single year, one article exceeded 70,000 annual downloads [18], one became the main representative work for an author's Distinguished Young Scholar award [21], and another became the first representative work for an author's Oxford University faculty appointment [12].

Expanding author relationships in both breadth and depth has earned authors' respect and trust, demonstrated the journal's sincerity and taste for high-quality work, and further established the journal's credibility and influence.

2.3 Expanding Relationships with Reviewers

Reviewers determine journal peer review quality and are crucial guarantors of article quality. Addressing traditional concerns about review "quality," "timeliness," "fairness," and "referential value of review reports," eLight proposed four major innovative channels to deepen reviewer relationships. First, multi-channel selection of quality reviewers. Building on *Light: Science & Applications*'s database of over 5,000 quality reviewers, eLight added more than 3,000 high-quality reviewers with diverse perspectives through: Google Scholar searches using "label + keywords" to select top scientists in subfields; authoritative lists like global highly cited researchers and top 2% scientists; selecting first-author young scientists from representative top works in recent five years; selecting scientists with excellent review records on certification sites like Publons; and selecting top industrial scholars from patent databases. This provides foundational support for high-speed, high-quality reviewing.

Second, maximizing time and workload savings for reviewers to facilitate high-speed reviewing. Accordingly, eLight proposed measures including thorough initial review and pre-screening to present reviewers with curated work and reduce total review volume. From 2021-2023, eLight's initial rejection rate gradually increased from 50% to 78%. eLight also adopted automatic line-numbering technology to help reviewers easily reference specific locations, and through editorial checking of author responses, selective reviewer consultation, video conference discussions, group review discussions, cross-reading of review reports, and pre-review identification of key editorial concerns, reduced reviewer workload and time.

Third, helping reviewers understand journal positioning and review requirements to enhance review report referential value. eLight regularly updates

reviewer invitation letters, adding for different potential reviewers: target impact factor, estimated impact factor, concrete descriptions of article quality and workload, detailed requirements for short-term and long-term innovation, and links to representative published works or journal positioning video explanations. This accurately conveys journal positioning to avoid reviewer-journal positioning mismatches, ensuring reviewer comments are referential rather than wasted effort. Additionally, eLight details and decomposes review requirements including: "alignment between manuscript innovation and journal positioning," "scientific correctness," "work completeness," "impact on readers in which fields," "writing quality and clarity," "suspected academic misconduct," "human/animal experiment ethics issues," "technical issues/errors needing clarification," "experiments/details/discussion needing supplementation," and "experimental videos/source code needing supplementation," ensuring comprehensive evaluation standards across reviewers.

Fourth, promoting review fairness and openness. eLight proposed transparent review practices, publishing review comments and author responses alongside articles when both parties agree. In eLight's early days, most reviewers and authors did not understand this initiative's significance. Through repeated communication, eLight successfully persuaded 56% of articles to adopt transparent review mode. Transparent review provides public supervision channels for review reports, promoting more fair, high-quality, and timely peer review. The discussions in review reports and author responses also provide references for readers to learn and think about field development, now widely recognized by field scientists. Additionally, eLight formulated detailed conflict-of-interest disclosure rules requiring reviewers to disclose: "whether first/corresponding authors are collaborators within past three/five years," "whether other authors are collaborators within past three years," "whether authors are relatives, former advisors/students/colleagues," "whether manuscripts compete with ongoing research/commercialized results/patents," and "other conflict relationships," while checking review reports for "defamatory, libelous, discriminatory, or political text," "whether each criticism is evidence-based," "details of private comments to editors," and "unreasonable reference recommendations" to minimize unfair reviewing.

Fifth, establishing reviewer protection and comprehensive evaluation mechanisms. To avoid personal information leakage risks, eLight first discloses editor-in-chief/board member information to reviewers for such manuscripts, restricts their access to conflict-of-interest manuscripts, and provides anonymous reviewer accounts. For review documents and annotations containing personal names or initials, editors process them before sending out review comments. To establish reviewer incentive and elimination mechanisms, eLight built a multi-dimensional evaluation system assessing nine dimensions annually: "review count," "average single-round review cycle," "invitation/acceptance ratio," "average review report length," "acceptance without completion ratio," "undisclosed conflicts-of-interest," "pre-publication confidentiality," "plagiarism of author work/ideas," and "biased/insulting language." Tables 4 and 5 show eLight's

2023 reviewer evaluation and comparison with 2021-2022. The results show that through reviewer relationship expansion practices, eLight reviewers have significantly improved across review count, speed (review cycle), acceptance ratio, report length, and completion probability.

Table 4 eLight 2023 reviewer evaluation

Metric	Value
Invitation acceptance rate	0-90%
Completed reviews/accepted invitations	-
Review report length	-
Undisclosed conflicts-of-interest	-
Plagiarism of author work/ideas	-
Biased/insulting language	-

Note: In this year, accepted 90% of invitations; review reports contained 2,000-500 characters; had 2 instances of non-completion; had 1 instance of undisclosed conflict-of-interest.

Table 5 eLight reviewer evaluation 2021-2023

Year	Review count	Invitation acceptance rate	Review cycle (days)	Review completion rate
2021	15-45	0-50%	10-35	0-75%
2022	-	-	-	-
2023	0-90%	-	-	-

Based on the evaluation mechanism, eLight further rewards reviewers through selecting annual outstanding reviewers, personal thank-you letters from editors-in-chief and editorial office, recommendations to Excellence Plan outstanding reviewers, official review certification, and official certificates, while eliminating low-quality reviewers. Expanding reviewer relationships creates a closed loop for journal quality control, entering a positive feedback cycle that further enhances academic quality.

3. Implications and Recommendations

Through eLight's innovative practices, this paper extracts the following implications and recommendations for China's construction of world-class scientific journals:

First, using leading journals and other high-quality academic resources as the dragon's head to drive new journal construction helps new journals assemble

editorial teams with high contribution levels, internationalization, broad interdisciplinary span, and reasonable age/gender structure; rapidly establish quality reviewer databases and scientist volunteer editor teams; and select highly professional and experienced academic editors. This efficiently transplants leading journals' resources, initiatives, experiences, and scientist audiences to new journal construction. Meanwhile, facing new situations with limited and costly channels for building international influence, leading journals and clusters' accumulated readership, promotional channels, technical teams, and high-impact academic activities can help new journals quickly establish international influence. Simultaneously, strong new journals can help leading journals and clusters strengthen their scientist community building and further expand their influence. Therefore, using leading journals and clusters to launch sister or subjournals is an effective measure for China to promote high-quality publishing resource aggregation and build world-class scientific journals.

Second, facing rapidly changing international situations, China's scientific journal practitioners should "focus on scientific freedom, address scientists' core needs, and timely respond to international publishing situations like impact factor and predatory journal issues," actively voice, skillfully self-shape, and strengthen journal value promotion. Through innovative and pioneering voicing and initiatives, journals can win scientists' respect and trust, help shape discourse power, and output values.

Third, scientists are the cornerstone of scientific journals. Innovatively expanding journal relationships with editors-in-chief, editorial board members, authors, and reviewers is crucial for journal development. eLight has pioneered a series of innovative practices in strengthening rights/responsibilities construction, innovating and refining institutional workflows, exploring mutually beneficial resources between journals and scientists, and establishing multi-dimensional evaluation and incentive systems (Figure 1 [Figure 1: see original paper]), providing references for Chinese scientific journals.

This paper, through a case study of eLight's rapid ascent from pandemic-era launch to world-class status, addresses the challenges of "limited and costly channels for new journals to build international influence," "weak discourse power of Chinese scientific journals," and "weak core scientist community foundation and insufficient scientist centripetal force." It proposes eLight's series of innovative practices and extracts generalizable experiences for China's world-class scientific journal construction: using leading journals and high-quality academic resources as the dragon's head to drive new journal construction, thereby efficiently transplanting leading journals' resources, initiatives, experiences, and scientist audiences; voicing, self-shaping, and strengthening journal value promotion in response to international publishing situations and scientists' core needs to help shape discourse power and output values; and innovatively expanding journal relationships with editors-in-chief, board members, authors, and reviewers through strengthening rights/responsibilities construction, workflow innovation and refinement, exploring mutually beneficial resources, and

establishing multi-dimensional evaluation and incentives. These practices can strengthen scientist centripetal force and build core scientist communities. This research holds important practical significance and reference value for China's world-class scientific journal construction, especially new journal development under new international circumstances and leveraging leading journals and cluster advantages.

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