

Analysis of Media Operation and Management Transformation in the Digital Age: A Case Study of Zhiyin Media Group (Postprint)

Authors: Xiao Bocheng

Date: 2025-09-19T15:52:06+00:00

Abstract

[Objective] The advent of the digital era has presented new challenges and opportunities for the traditional journal industry. This paper takes Zhiyin Media Group as a case study to explore how the traditional journal industry can respond to the digital wave through strategic transformation and innovative measures, and analyzes the implications of its successful experience for the industry.

[Methods] Through literature research, case analysis, and inductive summarization, this study systematically reviews the specific initiatives of Zhiyin Media Group in its digital transformation, including market-oriented strategies, construction of an all-media product system, multi-industry interaction, and brand extension. It analyzes how the group integrates high-quality content with digital technology to innovate content production and dissemination methods.

[Results] Through forward-looking strategic transformation, Zhiyin Media Group has successfully achieved digital transformation, significantly enhancing its market competitiveness and brand influence. Its experience demonstrates that the traditional journal industry needs to actively embrace new technologies, innovate content production and dissemination methods, and strengthen brand building to meet the diverse needs of readers.

[Conclusion] The transformation experience of Zhiyin Media Group provides valuable insights for the traditional journal industry. In the future, the traditional journal industry should keep pace with the times, dare to innovate, and achieve sustainable development through technology empowerment and strategic adjustment. Although digital transformation brings challenges, it is also an important driving force for industry progress. The industry should embrace change with a positive attitude to help the traditional journal industry radiate new vitality in the digital era.

Full Text

Digital Transformation of Media Management in the Digital Era: A Case Study of Zhiyin Media Group

(Xiangtan University, Xiangtan, Hunan 411105)

Abstract: [Purpose] The advent of the digital era has presented both new challenges and opportunities for the traditional periodical industry. This paper examines Zhiyin Media Group as a case study to explore how traditional periodical enterprises can respond to the digital wave through strategic transformation and innovative measures, and analyzes the industry-wide implications of its successful experience. [Method] Through literature review, case analysis, and inductive synthesis, this study systematically examines Zhiyin Media Group's specific initiatives in digital transformation, including its marketization strategy, all-media product system construction, multi-industry interaction, and brand extension. The analysis focuses on how the group integrates high-quality content with digital technology to innovate content production and dissemination methods. [Results] Through forward-looking strategic transformation, Zhiyin Media Group has successfully achieved digital transformation, significantly enhancing its market competitiveness and brand influence. Its experience demonstrates that traditional periodical enterprises must actively embrace new technologies, innovate content production and distribution methods, and strengthen brand building to meet diverse reader demands. [Conclusion] Zhiyin Media Group's transformation experience provides valuable insights for the traditional periodical industry. Moving forward, traditional periodical enterprises should keep pace with the times, embrace innovation, and achieve sustainable development through technology empowerment and strategic adjustment. Although digital transformation brings challenges, it also serves as an important driving force for industry progress, and should be approached with a positive attitude to help traditional periodicals gain new vitality in the digital era.

Keywords: digital era; media management; Zhiyin Media Group; strategic transformation; business innovation

Classification Code: G230

Document Code: A

Article ID: 1671-0134(2025)08-70-05

DOI: 10.19483/j.cnki.11-4653/n.2025.08.015

Citation Format: Xiao Bocheng. Analysis of Media Management Transformation in the Digital Era: A Case Study of Zhiyin Media Group[J]. China Media Technology, 2025, 32(8): 70-74.

In the wave of the digital era, traditional journals are facing unprecedented challenges. With the rapid development of technology and the popularization of the Internet, people's reading habits and information acquisition methods have undergone fundamental changes, making digital reading the mainstream [1]. In this context, the characteristics that traditional journals once relied

upon—paper-based carriers, fixed publication cycles, and limited interactivity—have become constraints on their development. The rise of new media not only provides readers with more convenient and faster channels for information access but also attracts significant user attention through diversified interactive methods and personalized content recommendations. Therefore, how traditional journals can maintain their unique value and attract and retain readers in the digital era has become an urgent issue. As a leader in the periodical industry, Hubei Zhiyin Media Group, after thirty years of accumulated operation and management experience, has decisively implemented a series of effective strategic transformations and business innovations in response to the fierce impact of the digital wave, successfully achieving a remarkable turnaround with significant results. Given this, an in-depth analysis of Zhiyin Media Group’s transformation strategies and management experience holds important reference value for China’s newspaper and periodical industry, as well as profound theoretical and practical significance for the entire news communication industry. Such research not only helps us better understand the challenges and opportunities of digital transformation but also provides valuable experience and inspiration for other enterprises in the industry.

1. Development History of Zhiyin Media Group

1.1 Historical Evolution

In January 1985, the predecessor of Zhiyin Media Group, *Zhiyin* magazine, was established in Hubei under the supervision of the Hubei Provincial Women’s Federation. In its founding stage, *Zhiyin* magazine quickly gained widespread readership and steadily grew its circulation thanks to its unique editorial mission and style. In January 2000, with approval from the Hubei Provincial Government, Hubei Zhiyin Periodical Publishing Industry Group Co., Ltd. was established, marking Zhiyin Media’s advancement toward corporatization and collectivization. During this period, through continuous resource integration and business expansion, Zhiyin Media gradually formed a diversified business structure encompassing periodicals, newspapers, advertising, film and television, and more. In August 2006, with approval from the Central Publicity Department and the General Administration of Press and Publication, Hubei Zhiyin Media Group Co., Ltd. was officially established, becoming the first enterprise-based media group in China’s periodical industry. At this stage, Zhiyin Media achieved rapid business development through measures such as strengthening brand building, expanding market channels, and optimizing content quality [2]. Its flagship publications, including *Zhiyin* and *Zhiyin Manga*, each achieved monthly circulations exceeding one million copies and won numerous national awards. In 2016, Zhiyin Media was transferred from the Hubei Provincial Women’s Federation to the direct management of the Provincial Party Committee’s Publicity Department, beginning to face the strong impact of Internet new technologies and new media. In response to these challenges, Zhiyin Media actively explored the path of digital transformation and implemented the “3+N” development

strategy (publishing media, education and training, modern services + other diversified industries). Through developing diversified businesses such as new media, online education, property services, and domestic services, the group strives to achieve industrial transformation and upgrading.

Over nearly 40 years of development, Zhiyin Media has undergone earth-shaking changes. Starting with just tens of thousands of yuan allocated by the Hubei Provincial Women's Federation, through continuous innovation and enterprising spirit, it has remained at the forefront of periodical publishing reform. From the core *Zhiyin* magazine, it gradually expanded to a series of periodicals and eventually evolved into a modern media group covering comprehensive businesses, becoming an industry leader. Notably, as early as 2011, Zhiyin Media achieved a net profit exceeding 100 million yuan, establishing its position as the most competitive and influential media group in the industry [3].

1.2 Current Status

Zhiyin Media currently holds a top position in the national periodical industry, with total group assets reaching 2.4 billion yuan and net assets of 760 million yuan. In the periodical and newspaper sector, Zhiyin Media owns nine well-known periodicals, including *Zhiyin* and *Good Friends Digest*, as well as two newspapers, demonstrating its strong publishing capabilities. In terms of business layout, the group has formed a diversified industrial development pattern covering printing, film and television, animation, and culture, with a total of ten subsidiaries, showcasing its comprehensive market layout and strong overall strength [4]. In talent cultivation, Zhiyin Media also spares no effort. Its Wuhan Information Communication Vocational and Technical College has established seven departments, including Media and Film Department, Printing and Packaging Engineering Department, and Art Design Department, covering 29 majors and providing a solid talent foundation for the media industry's development. Furthermore, keeping pace with industry development trends, Zhiyin Media has successively established three new media platforms—Zhiyin Network, Manker Network, and First Life Network—since 2007, actively embracing digitalization and networking and continuously expanding its influence in the new media field. Today, Zhiyin Media has developed into a comprehensive cultural media group with nine periodicals, three newspapers, eleven subsidiaries, one higher vocational education institution, and eight kindergartens, employing nearly 1,500 people with total assets exceeding 2.4 billion yuan, becoming a leader in the state-owned cultural media sector.

The development history of Zhiyin Media Group is a magnificent epic of continuous innovation, active expansion, and flexible adaptation to market changes. Starting from a single magazine, it has transformed into a diversified comprehensive cultural media group, consistently adhering to the development philosophy of “people-oriented, content is king,” constantly exploring cutting-edge business models and market spaces. Through careful planning and a series of strategic transformations, Zhiyin Media not only consolidated the leading position of its

core brand *Zhiyin* but also achieved diversified operations across fields and media. Its industrial layout is extensive and deep, covering periodicals and newspapers, animation creation, film and television production, advertising operations, book distribution, online new media, printing and plate-making, property management, domestic services, and higher education, building a comprehensive and powerful media ecosystem [5]. These achievements have not only made Zhiyin Media the dominant player in Hubei Province but also established a benchmark for the media industry nationwide. Faced with the rapid challenges of Internet new technologies and new media, Zhiyin Media has demonstrated extraordinary courage and wisdom. It has dared to innovate and practice, actively exploring the path of digital transformation, and achieved organic integration of traditional and emerging media by integrating online and offline resources to build an all-media platform. These innovative initiatives have laid a solid foundation for Zhiyin Media's sustainable development and given it a competitive edge in the media industry.

2. Business Transformation of Zhiyin Media Group in the Digital Era

At the macro level, China's domestic periodical publishing industry suffers from deficiencies in management mechanisms and systems, academic environment, internationalization, digitalization, and open access. The administrative ownership system of academic journals restricts the rational flow of resources, leading to the prevalence of small workshop-style publishing operations. At the micro level, problems include uneven journal quality, insufficient knowledge management, single knowledge dissemination methods, and serious homogenization. Some journals lower their manuscript requirements in pursuit of quantity, resulting in the publication of low-quality articles that affect journal reputation and academic research standards [6]. Under the sweeping tide of digitalization, the periodical industry faces dual tests of digitalization and market competition. How to achieve transformation and successfully deepen this transformation has become a major issue facing the industry. Through a series of forward-looking strategic deployments, including a firm marketization strategy, building an all-media product system strategy, implementing a multi-industry interaction strategy, and brand extension strategy, Hubei Zhiyin Media Group has successfully achieved digital transformation and innovation, providing valuable experience and inspiration for the entire periodical industry.

2.1 Marketization Strategy

As a pioneer in China's periodical industry reform, Zhiyin Media Group was among the first to implement an enterprise-based operational mechanism in the process of cultural system reform, and its reform practices hold important demonstrative significance for the industry. Through analyzing Zhiyin Media's marketization transformation path, this study finds that its successful experience is mainly reflected in the following dimensions:

In terms of operational mechanism reform, Zhiyin Media achieved a fundamental transformation from a traditional public institution to a modern enterprise. By establishing an independent operation and self-responsibility for profit and loss mechanism, the enterprise broke away from its previous dependence on administrative appropriations and formed an independent market entity status [7]. This transformation not only enhanced the enterprise's market adaptability but also significantly improved resource allocation efficiency.

In content production, Zhiyin Media has built a market demand-oriented content innovation system. By establishing reader feedback mechanisms and market research systems, the enterprise can accurately grasp changes in audience needs and continuously optimize content structure [8]. Simultaneously, the enterprise emphasizes content format innovation, enhancing content appeal and dissemination effectiveness through multimedia integration and interactive reading methods.

In market expansion, Zhiyin Media has implemented a diversified development strategy. While consolidating its traditional periodical business, it actively explores emerging fields such as digital publishing and new media operations, forming a three-dimensional business pattern of "traditional media + new media." Through industrial chain extension, the enterprise has achieved transformation and upgrading from a single periodical publisher to a comprehensive cultural media group. Statistics show that new media business already accounts for 35% of the group's total revenue, becoming an important growth pole.

In human resources development, Zhiyin Media has established a systematic talent cultivation and introduction mechanism. By implementing a "dual-track" talent strategy that emphasizes both internal talent cultivation and active introduction of high-quality professionals, the enterprise has established a comprehensive performance evaluation system and incentive mechanism, forming a professional and younger talent echelon. Currently, 85% of the group's employees hold bachelor's degrees or above, and over 40% have intermediate or senior professional titles, providing solid talent support for the enterprise's sustainable development.

Zhiyin Media's reform practices demonstrate that the key to cultural system reform lies in establishing market-oriented operational mechanisms, strengthening content innovation capabilities, expanding diversified business channels, and building a professional talent team [9]. These experiences hold important reference significance for promoting the transformation and upgrading of traditional media. In the future, as media convergence advances, Zhiyin Media needs to further optimize its strategic layout and deepen digital transformation to cope with increasingly fierce market competition.

2.2 All-Media Product System Strategy

In recent years, with the wave of media convergence innovation and transformation development, Zhiyin Media Group has keenly grasped this era's op-

portunities. Leveraging Zhiyin brand' s profound social influence and adhering to the core advantage of high-quality content, the group established Zhiyin All-Media Company to extend its industrial chain based on the high-quality content of *Zhiyin* magazine. While adhering to the core concept of “content is king,” Zhiyin Media Group has carefully built the *Zhiyin* all-media product system [10] by closely following the evolution of reader preferences and changes in market demand. This system covers diverse narrative methods and platforms, aiming to present readers with rich, colorful, and high-quality original content that meets the spiritual and cultural needs of different audience groups, thereby building a comprehensive and three-dimensional communication ecology. Zhiyin Media Group' s all-media product matrix centers on the in-depth content narrative of *Zhiyin* magazine, while expanding network emotional narrative through Zhiyin Network, meeting mobile reading era periodical narrative needs through *Wo Zhiyin* mobile journal, providing terminal audio narrative through the *Ting Zhiyin* platform for immersive reading experiences, and using Zhiyin WeChat Official Account and Zhiyin Weibo as the main channels for self-media narrative for real-time interaction with audiences, together forming an all-media product matrix covering multiple media forms.

2.3 Multi-Industry Interaction Strategy

Centered on *Zhiyin* magazine, Zhiyin Media Group has implemented the “mother publication incubation” strategy. By sharing *Zhiyin*' s human resources, management experience, and brand influence, it has successfully cultivated a series of sub-publications such as *Zhiyin Manga* and *Zhiyin Finance*. This “old-bringing-new” development model not only reduces the risks and costs of launching new publications but also forms a virtuous talent circulation mechanism. The maturity of sub-publications feeds back to the mother publication, providing backbone editors for *Zhiyin* and significantly optimizing the talent team structure [11].

In terms of business strategy innovation, the group has built differentiated market competitive advantages through diversified periodical layout. *Zhiyin Finance* focuses on high-end business audiences, while *Zhiyin Fashion* targets young consumer groups. This multi-type periodical portfolio not only expands audience coverage but also enhances advertising bargaining power and improves the group' s overall competitiveness.

In the printing business sector, the group solved long-standing printing quality issues that constrained periodical development through a vertical integration strategy by establishing Zhiyin Printing Company. The company introduced internationally advanced printing equipment and established a strict quality control system. Notably, the company' s independently developed “Zhiyin Special Paper Type” obtained national patents, and its unique paper texture and environmental characteristics have been adopted by many major periodicals nationwide, promoting the upgrading of China' s periodical paper standards.

In terms of industrial synergy effects, Zhiyin Printing Company has developed into an important periodical printing base in Hubei Province, printing various central and provincial-level periodicals. Through scaled operation and technological innovation, the company has achieved the unity of social and economic benefits [12]. Simultaneously, the expansion of the printing business has driven the development of related industries such as logistics and warehousing, forming a complete publishing industry chain.

Zhiyin Media Group' s practices demonstrate that the transformation and upgrading of traditional media groups need to adhere to the development strategy of "content as the foundation, industry as the wings." Through in-depth cultivation of core businesses and vertical extension of the industrial chain, optimal resource allocation and maximum benefits can be achieved [13]. Its innovative experience provides useful references for the diversified development of traditional publishing enterprises and has important enlightening significance for promoting the transformation and upgrading of the entire publishing industry.

2.4 Brand Extension Strategy

As a leading enterprise in China' s periodical industry, Zhiyin Media Group has successfully built a multi-level brand development system based on its core product *Zhiyin* magazine. From the perspective of brand extension strategy, Zhiyin Media' s brand extension strategy reflects a typical concentric diversification development model. By launching secondary magazine products such as *Zhiyin Overseas Edition*, *Zhiyin Girl*, and *Zhiyin Inspiration*, Zhiyin Media has achieved precise market segmentation and effectively met the differentiated needs of different reader groups. This brand extension strategy not only expands market share but also enhances brand market penetration, enabling Zhiyin Media to maintain significant competitive advantages in the highly competitive periodical market.

From an organizational structure perspective, Zhiyin Media has built a concentric circle model with upstream and downstream subsidiaries of periodicals as the third layer and strategic investment companies as the fourth layer. This organizational structure conforms to the development trend of modern enterprise collectivization, achieving optimal resource allocation and synergy effects through a combination of vertical integration and horizontal diversification. Specifically, upstream subsidiaries can ensure the quality and efficiency of content production, downstream subsidiaries help expand distribution channels and marketing networks, while strategic investment companies provide new growth points for the group' s long-term development [14].

However, as Zhiyin Media' s brand influence continues to expand, brand image management faces new challenges. According to brand equity theory, brand image constitutes an important dimension of brand assets. Against the backdrop of increasingly intensified homogenization competition in the periodical industry, differentiated brand image shaping becomes particularly important [15].

This requires Zhiyin Media to make systematic improvements in the following aspects:

First, at the material level, it needs to improve the printing quality and design standards of publications. According to consumer behavior research, product physical attributes are important factors affecting consumer perceived quality. Improving printing quality can not only enhance readers' reading experience but also increase the collection value of publications [16]. Meanwhile, excellent design standards can strengthen the publication' s visual identification system and enhance the brand' s professional image.

Second, at the social image level, Zhiyin Media needs to strengthen corporate social responsibility construction. By participating in social welfare activities and establishing cultural foundations, the publication can enhance its social reputation and credibility. Research shows that enterprises that actively fulfill social responsibilities often obtain higher brand loyalty and consumer recognition.

Finally, in terms of brand competition strategy, Zhiyin Media should focus on brand differentiation positioning. According to Porter' s competitive theory, differentiation strategy is an important way to obtain competitive advantages. Zhiyin Media can strengthen brand competitiveness through: first, deepening content innovation and creating featured columns; second, strengthening reader interaction and building brand communities; third, expanding digital publishing and achieving all-media integration.

In the digital era context, traditional media faces unprecedented challenges and opportunities. Through in-depth analysis of Zhiyin Media Group' s media management transformation, we can clearly see that traditional periodical enterprises, under the impact of new media rise and digital wave, have not passively accepted their fate but have achieved their own transformation and upgrading through active strategic adjustment and innovative practices. Zhiyin Media Group' s successful transformation not only provides valuable experience for traditional periodical enterprises but also points out the direction for the sustainable development of the entire media industry.

First, Zhiyin Media Group' s transformation practice reflects its profound insight and forward-looking layout for digital trends. Against the background of generally declining circulation of traditional periodicals, Zhiyin Media Group has opened up new development paths by deeply integrating high-quality content with digital technology. For example, the group has built an all-media communication matrix by developing mobile applications, optimizing official websites, and deploying social media platforms, achieving multi-channel distribution and precise reach of content. This "content + technology" dual-wheel drive model not only expands the brand' s audience coverage but also significantly improves user stickiness and interaction frequency.

Second, Zhiyin Media Group emphasizes user experience optimization and personalized service enhancement in its digital transformation process. Through big data analysis and artificial intelligence technology, the group can accurately

capture readers' reading preferences and behavioral habits, thereby achieving personalized content recommendation and customized services [17]. This user-centered operational philosophy not only meets readers' increasingly diverse needs but also significantly improves user satisfaction and brand loyalty. Additionally, Zhiyin Media Group actively explores diversified interaction methods, such as online reader salons, live interviews, and interactive Q&A sessions, enhancing readers' sense of participation and belonging.

From a management perspective, Zhiyin Media Group's transformation experience has important reference significance. First, the group has provided a solid guarantee for digital transformation through organizational structure optimization and talent team upgrading, such as establishing specialized digital media departments, introducing technology R&D and data analysis talents, and building cross-departmental collaboration mechanisms [18]. Second, the group has achieved remarkable results in business model innovation, realizing a win-win situation of economic and social benefits through diversified profit models such as precise advertising, paid reading, and knowledge payment.

However, Zhiyin Media Group's transformation path has not been smooth sailing. In the digitalization process, the group also faces many challenges such as content copyright protection, technology iteration, and user privacy security. To address these, the group has adopted a series of countermeasures, such as strengthening copyright management, increasing technology R&D investment, and improving the data security system, to safeguard digital transformation.

Looking ahead, with the rapid development of 5G, artificial intelligence, virtual reality, and other new technologies, the media industry will usher in more profound changes. Zhiyin Media Group's transformation experience shows that for traditional periodical enterprises to achieve sustainable development, they must adhere to the following principles: first, adhere to content as king and continuously improve content quality and original capabilities; second, embrace technological innovation and actively explore the application of new technologies in content production, dissemination, and operation; third, deepen user operation and build a user-centered service system; fourth, strengthen brand building and enhance the brand's core competitiveness and market influence.

Through in-depth analysis of Zhiyin Media Group's transformation experience, we have reason to believe that as long as traditional periodicals keep pace with the times and embrace innovation, they will certainly gain new vitality in the digital era and contribute more to the development of news communication.

References: [1] Huang Xiaogang. Brand Management: The "Zhiyin" Practice of Media Convergence Innovation and Development[J]. *New Observation on Media Convergence*, 2021(6): 47-49. [2] Cai Yali. Media Management from the Perspective of Game Theory: A Case Study of "Zhiyin Media Micro-Journal," a Mini Program under *Zhiyin Magazine*[J]. *Satellite TV and Broadband Multimedia*, 2020(8): 216-217. [3] Lei Yida. Exploration and Practice of Zhiyin Media Group's Transformation and Development[J]. *Decision and Information*,

2016(2): 107-111. [4] Sun Jin. Research on the Business Strategy of Zhiyin Media Group under the Background of Enterprise System Reform[D]. Wuhan: Huazhong University of Science and Technology, 2015. [5] Yang Ruowen, Zuo Minxing. “Zhiyin” Can Be Found Everywhere: Documentary on the Development of Zhiyin Media Group[J]. Media, 2013(9): 27-30. [6] Huang Xiao. Analysis of the Core Competitiveness of Hubei Zhiyin Media Group: Based on the Value Chain[J]. Modern Business Trade Industry, 2013, 25(5): 29-30. [7] Yang Yongqiang. Integrated Communication and IP Innovation of Animation Periodicals: A Case Study of *Zhiyin Manga*[J]. Media, 2019(15): 32-34. [8] Lin Shihui. Narrative Research on Typical Character Reporting in *Zhiyin*’s “China Power” Column[D]. Changsha: Hunan University, 2020. [9] Jiang Haijun. Multi-dimensional Interpretation of the Connotation of the “Zhiyin Phenomenon” [J]. Decision-Making Exploration (Second Half), 2016(4): 72. [10] Zhou Min, Gan Le, Yao Shiyue. “Virtual IP + Scene Power” : Zhiyin Culture Communication and Wuhan Urban Development Strategy—Based on the Inspiration from Sichuan Meishan’ s Digital Spokesperson “Su Xiaomei” [J]. Journal of Hubei University of Education, 2024(6): 82-87. [11] Wang Yingkun. Integrated Media Operation Path and Dilemmas of the Animation Industry: A Case Study of Zhiyin Animation[J]. Youth Journalist, 2019(10): 16-18. [12] Zhang Yijia. Current Status and Development of Media Management in China[J]. Radio and Television Network, 2024(9): 110-112. [13] Liu Kun. Transformation of Media Management in the New Media Environment[J]. Chinese Prefectural City Newspaper Research, 2023(8): 71-73. [14] Wang Siqi. Discussion on the Transformation Direction of Media Management in the New Media Environment[J]. Enterprise Reform and Management, 2022(2): 27-29. [15] Ren Kai. Reflections on Media Operation and Management under the New Situation: Based on a Comparative Analysis of “Cover Media” and “Chutian Metropolis Daily” [J]. Collection, Writing and Editing, 2021(4): 65-67. [16] Xu Min. Transformation of Media Operation and Management in the New Media Environment[J]. News Tribune, 2020(6): 122-124. [17] Wu Yumei. Profit Dilemmas and Countermeasures of Traditional Media in the New Media Era[J]. Urban Party Newspaper Research, 2020(5): 46-48. [18] Zhou Chuanlin. Transformation Direction of Media Operation and Management in the New Media Environment[J]. Research on Communication Power, 2019(30): 196-197.

Author Biography: Xiao Bocheng (2001–), male, from Loudi, Hunan, master’s degree candidate, research direction: new media studies.

Note: The final section containing references to space industry and science publishing (beginning with “上接第 46 页”) appears to be from a different article and has been omitted as per the instruction to skip garbage text.

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

Source: ChinaXiv –Machine translation. Verify with original.