

Hotspots of new retail and new logistics research: A comparison analysis based on CiteSpace knowledge graphs

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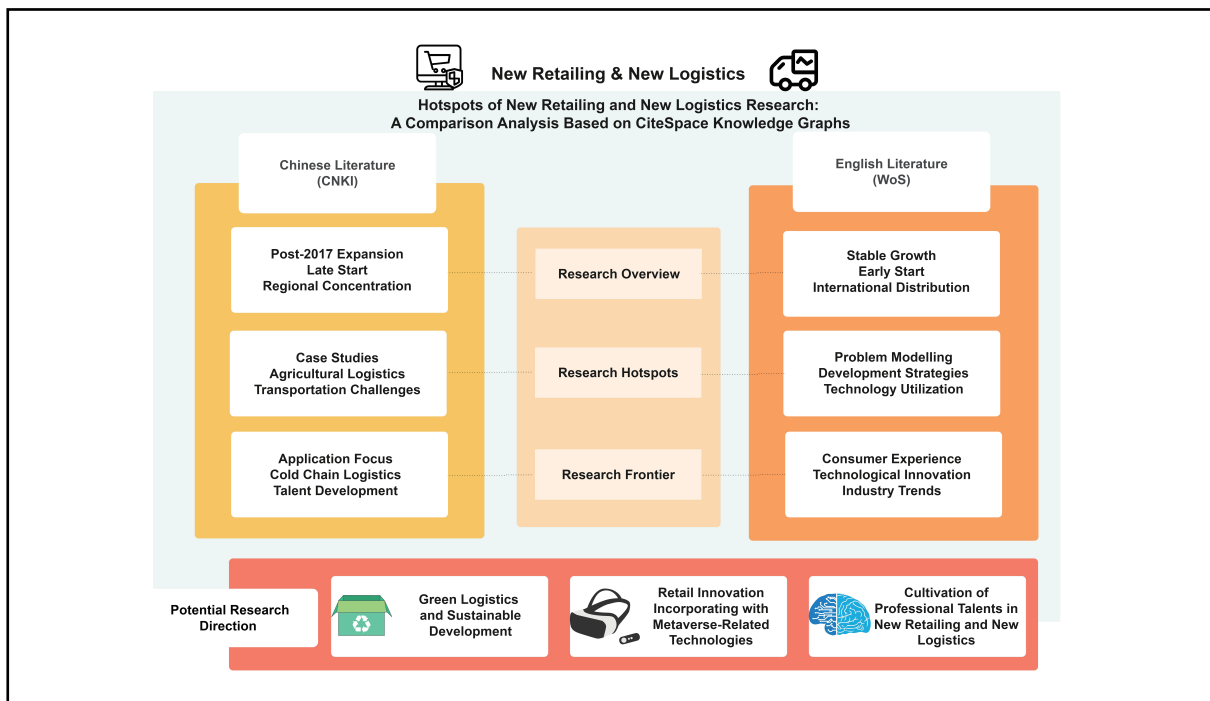
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Graphical abstract




An overview, hotspots, and frontier of new retailing and logistics research, with a comparative analysis of Chinese and English literature.

Public summary

- Global publications on new retail and new logistics are increasing, highlighting their growing importance, especially in Chinese literature.
- Collaboration networks among authors and institutions are limited in both Chinese and English literature.
- Key research areas include innovative sales and logistics strategies, with Chinese literature focusing on technology applications and English literature emphasizing customer satisfaction.
- Future research should explore green logistics, metaverse-related innovations, and training programs for professionals in new retail and new logistics.


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Abstract: This study performs a comprehensive visual comparative analysis of knowledge graphs, utilizing data from the Web of Science (WoS) and the China National Knowledge Infrastructure (CNKI) to compare papers published in English (from WoS) and in Chinese (from CNKI). The analysis uses the bibliometric software CiteSpace, which emphasizes the sectors of new retail and contemporary logistics. Our study reveals global publications' rising and falling trajectories concerning new retail and logistics. Research published in China has transitioned to a state of consistent development, and the themes explored continue to pique the interest of academics on an international level. There must be closer collaborative networks among scholars in Chinese and English research. The focal points of the research are centered around implementing new sales and logistics tactics within supply chain management and e-commerce. In the CNKI literature, the predominant focus is exploring practical applications of new technologies through enterprise case studies. In contrast, in the WoS literature, there is a tendency to examine methods for enhancing customer satisfaction through mathematical modeling. With respect to research frontiers, the CNKI literature promotes rural revitalization via fresh cold chain logistics. In contrast, WoS research is more geared toward optimizing consumer experiences in new retail and logistics. On the basis of this study, we recommend that future research delve into green logistics and sustainable development, retail innovations underpinned by metaverse-related technologies, and the design of training programs tailored for professionals working in the areas of new retail and logistics.

Keywords: new retail; new logistics; CiteSpace; knowledge graph analysis; research hotspot analysis

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1 Introduction

In the context of rapid digital transformation and the advent of Internet of Things (IoT) technologies, the competitive landscape among retailers has intensified markedly. Given these circumstances, a crucial need has emerged for transforming and enhancing retail and logistics operations. Consequently, "new retail" has gained significant traction in academic and industry circles.

In the Chinese landscape, "new retail" is widely recognized as first posited at the 2016 Alibaba Apsara Conference. This paradigm encompasses all activities integrating advanced IoT concepts and technologies to revamp traditional retail approaches, directed by contemporary thought and theoretical frameworks, aiming to sell goods and services to end consumers^[1]. New retail and contemporary logistics are typified by a dual application of online and offline merchandise and logistics channels, a consumer experience-oriented strategy, and innovation driven by digital capabilities. In accordance with the policy of the State Council Office of the People's Republic of China^[2], retailers should engage in contactless consumption model innovation and explore the development of smart supermarkets, stores, restaurants, and other

new retailing formats. The "new logistics" concept encapsulates a sequence of processes rooted in advanced information technology, which facilitates the transit of items from their point of origin to their designated destination or direct delivery to consumers, synergizing with relevant services^[3]. New logistics may be embedded in new retail or functions independently. However, within the context of new retail, new logistics embodies the convergence of new retail and logistics principles, with an amplified focus on consumer requirements, the coordination of upstream and downstream processes, the enhancement of supply chain operations, and the pursuit of mutual benefits for all associated parties^[3].

2 Literature review

New retail and new logistics have generated significant attention from scholars in the Chinese-language and English-language literature. In a recent research review, scholars adopted different approaches to review the current stage and evolution trends in new retail and logistics.

In the realms of Chinese-language and English-language research, several scholars have performed analyses and reviews of research findings. In the Chinese literature, scholars,

such as Han and Wang^[4], have documented the current state and trends of new retail research, noting the considerable societal interest in new retail alongside the scarcity of high-quality research findings. They advocate that scholars prioritize the expansion of the theory behind the deep integration of online and offline retail, encouraging them to bolster research on new logistics issues within the new retail framework to support its advancement. Dong and Tian^[5] conducted a visual analysis of both Chinese and English research on new retail, emphasizing new retail models, omnichannel retail, consumer experience, and retail big data analysis as prominent topics in new retail research. Xia and Sheng^[6] executed a knowledge graph visual analysis of Chinese and English research on smart logistics, pinpointing the integration of technologies such as big data, IoT, and artificial intelligence with smart logistics as crucial research areas.

In the English-language literature, scholars such as Verhoef et al.^[7] introduced the transition from multichannel retailing to omnichannel retailing, pioneering the conceptualization of omnichannel retailing for the first time. Their content, akin to the Chinese definition of new retail, delineates omnichannel retailing as the integration of online and offline goods and logistics, marking an early instance of the Chinese concept of new retail in non-Chinese contexts^[5]. Hübner et al.^[8] delved into the evolution of retailers from a unified multichannel to an integrated omnichannel logistics system, providing an inaugural comprehensive analysis of retailers' integrated fulfillment logistics development options. Risberg^[9] reviewed 373 papers and proposed a decision framework for omnichannel logistics in the new retail context, encompassing issues ranging from the supply chain and internal distribution to last-mile delivery and reverse logistics decision-making. A summary of previous review studies on new retail and new logistics is shown in Table 1.

Studies on new retail and new logistics adopt different

databases and methods to conduct the analysis. For example, they focus on different databases, including CNKI in Chinese literature and WoS, Scopus, and Business Source Preview in English literature. Moreover, these studies utilize different systematic analysis tools, such as CiteSpace (e.g., Refs. [5, 6]) and VOSviewer (e.g., Refs. [19, 20]), to review the literature. Despite the comprehensive nature of these papers in summarizing research content within this field, these review studies lack a comparative analysis of the research hotspots and trends in the intersection domain of new retailing and new logistics and in both the Chinese and English literature. To address these gaps, this study aims to answer the following research questions: What are the current research frontiers in new retail and new logistics? How have these research frontiers evolved over recent years? What are the most prominent research-front terms in this domain?

Given its context, this study commences with a bibliometric approach, leveraging literature data sourced from the Web of Science (WoS) and China National Knowledge Infrastructure (CNKI). For convenience, "Chinese literature" refers to Chinese-language articles listed in CNKI, and "English literature" refers to English-language articles listed in WoS. As China's premier academic database, CNKI comprehensively collects Chinese academic literature, providing valuable insights into research trends within the Chinese academic community. Additionally, given that the concept of new retail, which this study investigates, was initially proposed in China, the integration of CNKI and WoS data ensures a comprehensive understanding of both the Chinese and English research landscapes. CiteSpace, which is widely recognized bibliometric software, facilitates a comparative analysis of knowledge graphs aimed at discerning research focal points and developmental trajectories. Our objective is to review history and then predict the prospects of both Chinese and English research in the realms of new retail and logistics. Furthermore,

Table 1. Summary of the key review literature focusing on new retail and new logistics.

Source	Research area	Sample Size	Period	Database
Chinese literature				
Han and Wang ^[4]	New retail	\	2016-2018	CNKI
Dong and Tian ^[5]	New retail	208 (CN) 358 (EN)	1979-2019	CNKI & WoS
Yang et al. ^[10]	New logistics	217 (CN) 175 (EN)	2011-2021	CNKI & WoS
Gu ^[11]	New logistics	472	2000-2021	CNKI
Xia and Sheng ^[6]	New logistics	474 (CN) 572 (EN)	2011-2021	CNKI & WoS
Zhuang ^[12]	New logistics	1191	1999-2022	CNKI
Wang ^[13]	New retail & new logistics	\	\	\
English literature				
Winkelhaus and Grosse ^[14]	New logistics	114	2005-2018	Scopus & Business Source Premiere
Cai and Lo ^[15]	New retail	192	2005- 2019	WoS
Mishra et al. ^[16]	New retail	131	2011-2020	WoS
Zhen and Li ^[17]	New retail & new logistics	657	2010-2020	WoS
Risberg ^[9]	New retail & new logistics	373	2000-2021	Scopus & WoS

CN stands for Chinese literature, and EN stands for English literature. The symbol "\" indicates that the size of the samples considered in the literature is not provided. CNKI is the abbreviation for China National Knowledge Infrastructure, and WoS is the abbreviation for Web of Science.

we compare the similarities, differences, and gaps between Chinese and English research via objective data generated via CiteSpace. Through this endeavour, we aspire to offer new directions for future research in China and worldwide regarding new retail and new logistics while also offering practical guidance for transforming retail and logistics structures in the era of Web 3.0 and the Fourth Industrial Revolution.

3 Materials and methods

In previous research in the fields of marketing, retailing and management, scholars have employed a range of software tools to facilitate bibliographic analysis for literature review. Among all of the software tools, CiteSpace (e.g., Refs. [5, 6]) and VOSviewer (e.g., Refs. [19, 20]) are frequently employed for the visual representation of scientific graphs, such as collaboration networks. The visualizations generated with CiteSpace are better suited to the evaluation and analysis of network visualizations^[20] and are more appropriate for the study of a topic's evolution^[21]. Therefore, this study uses CiteSpace to perform knowledge graph analysis of Chinese and English research pertaining to new retail and new logistics, in particular, to leverage its strengths in the evaluation and analysis of network visualizations and tracing of our interesting topic's evolution. Knowledge graph analysis visually represents the evolution and structural relationships of scientific knowledge within a specific domain. It significantly influences the approach to research, enabling the explanation and prediction of theoretical functions within the research field^[21]. This investigation explicitly examines the knowledge graphs derived from studies on new retail and new logistics sourced from both Chinese-language (covered in CNKI) and English-language (covered in WoS) literature.

To build this study's Chinese literature data, this study initially utilized the Chinese terms "new retailing" and "new logistics" as key terms for topic and subtitle searches on the CNKI platform, yielding 154 academic journal articles. The search was subsequently expanded to include "new retailing" and "smart logistics", resulting in the retrieval of 238 additional journal articles. Refinement and manual screening, incorporating terms such as "intelligent retailing", "omnichannel retailing", "unmanned retailing", and "intelligent logist-

ics", led to a total of 255 Chinese literature samples. To ensure the quality of the literature, dissertations, conference papers, reports, and notices were excluded, and only articles and reviews from academic journals were retained. Ultimately, 255 Chinese literature samples were obtained, covering the period from 2016 to 2024, with the search concluding on February 29, 2024.

To compile this study's English literature data, this study utilized the core collections of WoS. While the Chinese term translates directly to "new retailing", the English term "new retailing" does not fully encapsulate the same concept. Therefore, to ensure comprehensive coverage of relevant research, this study considered both the literal and expanded meanings of "new retailing" and "new logistics" in English. Guided by the Association of Business Schools (ABS) journal rankings^[22], this study focused on four specialized retail journals: the *Journal of Retailing*, *International Journal of Retail and Distribution Management*, *Journal of Retailing and Consumer Services*, and *International Review of Retail, Distribution and Consumer Research*. Recognizing "omnichannel retailing" as a pivotal keyword beyond "new retailing", it was included in the search strategy. Moreover, drawing from previous comparative analyses of new retailing in Chinese and English research, as evidenced by CiteSpace (e.g., Ref. [5]), "intelligent retailing" and "unmanned retailing" were incorporated as additional search terms. Similarly, informed by synonyms of new logistics keywords identified in WoS and Chinese literature reviews on international smart logistics and employing knowledge graph analysis (e.g., Ref. [22]), "smart logistics" and "intelligent logistics" were integrated into the search strategy. Consequently, searches were conducted in the WoS core collection database utilizing "New Retailing" and "New Logistics" as primary keywords, supplemented by the aforementioned terms. This comprehensive approach yielded 576 English literature articles. Subsequent database filtering, in which only research and review articles were retained, resulted in 407 articles. Following manual precision screening, 255 English literature articles were selected, covering the period from 1996--2024, with the search concluded on February 29, 2024. A summary of the literature search is provided in Table 2. Notably, having an identical number of Chinese papers and English papers was coincidental.

Table 2. Summary of the literature search across databases.

	Chinese-language literature	English-language literature
Database	CNKI	Web of Science Core Collection
Search Method	Topic Search	Topic Search
Additional Search Method	Subtitle Search	\
Keywords	“新零售” (New Retailing) OR “智慧零售” (Intelligent Retailing) OR “全渠道零售” (Omnichannel Retailing) OR “无人零售” (Unmanned Retailing) AND “新物流” (New Logistics) OR “智慧物流” (Smart Logistics) OR “智能物流” (Intelligent Logistics)	“New Retailing” OR “Intelligent Retailing” OR “Omnichannel Retailing” OR “Unmanned retailing” AND “New Logistics” OR “Smart Logistics” OR “Intelligent Logistics”
Type of Literature	Academic journals: Article, Review	Article, Review
Timespan	2016–2024	1996–2024
Search Deadline	February 29, 2024	February 29, 2024
Valid literature	255	255
Export format	RefWork	Plan Text File (Full Record and Reference)

We now discuss how we configure the CiteSpace software. In line with the standard CiteSpace guidelines (e.g., those outlined in [21] and [23]), this study follows the steps and parameter settings, including identifying a knowledge domain with the broadest possible term, collecting data, extracting research front terms, time slicing, threshold selection, pruning and merging, layout configuration, visual inspection, and verifying pivotal elements[23]. After the data were collected from CNKI and WoS, we specified time zones, set thresholds, and chose functions. Thresholding offers various strategies for filtering data. As suggested by Ref. [21], we use the Top N approach (i.e., the first N high-frequency nodes are selected) to conduct thresholding analyses, such as author collaboration, institution collaboration, and keyword occurrence, clustering, bursting, and timeline analysis, as described in Sections 1.2, 1.3 and 2. In this study, N is set to 50.

4 Results and discussion

4.1 Analysis of the characteristics of new retail and new logistics research in the Chinese and English literature

4.1.1 Temporal and spatial distribution of publications

Annual publication volume serves as a pivotal indicator for gauging the developmental trajectory and future prospects within a given field. This study undertook a comprehensive statistical analysis of the publication volume pertaining to new retail and new logistics.

Fig. 1 delineates the annual publication trends discerned from the Chinese and English literature, with a focus on new retail and new logistics. Notably, owing to the termination of literature searches in February 2024, data pertaining to the year 2024 remain incomplete. Consequently, any analysis regarding the publication volume for 2024 may be inherently biased, thereby potentially obscuring an accurate depiction of that particular year's circumstances. Consequently, the data for 2024 have been omitted from this analytical framework.

Overall, the publication volume in this field for Chinese and English literature shows an upward trend until 2021–2022, followed by a downturn thereafter. Research on new logistics and new retail can be traced back to 1996, when Rowe et al.[23] proposed a retail logistics scheduling system based on artificial intelligence technology. English research

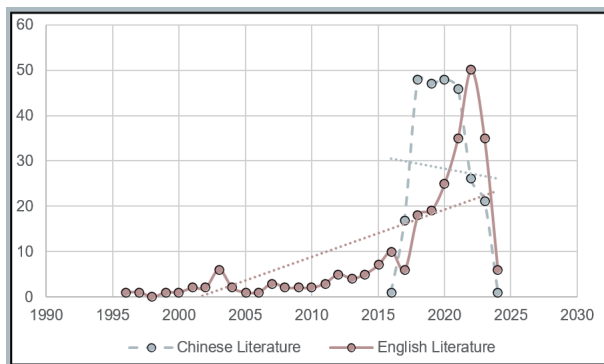


Fig. 1. New retail and new logistics: Annual publication trends in Chinese and English literature.

gradually increased after 2005 and surged after 2017, peaking in 2022. Chinese research began later, starting in 2017, closely related to when the concept of “new retailing” was first proposed at the Alibaba Apsara Conference in October 2016. On “Double Eleven” (November 11, one of China’s biggest shopping days) in the same year, the State Council Office of the People’s Republic of China[25] emphasized the importance of data-driven online and offline integration and expanding omnichannel layouts, further promoting the development of research in new retail and new logistics.

In the preceding two years, there was a noticeable decrease in publication volume in both the Chinese and English literature, suggesting a gradual normalization of research activities within this domain. Notably, in comparison with their English-language counterparts, Chinese scholars exhibit heightened enthusiasm toward addressing pertinent issues. This discrepancy could be attributed to the perceived stability in the developmental stage of new retail and new logistics within China. As the industry progresses toward maturity, the research focus is likely to pivot from theoretical inquiries toward practical exploration, application, and prospective integration with other emerging technologies, such as those associated with the metaverse. However, the recent downturn in research enthusiasm may be linked to the immaturity of related technologies, thus impeding their effective deployment within the retail and logistics sectors. This scenario presents both opportunities and challenges for fostering collaboration between academia and industry, as efforts are directed toward advancing the practical utilization of innovative technologies within these spheres.

4.1.2 Author collaboration network analysis

Collaboration network analysis can reveal the social relationships among scholars or institutions within a specific research field, offering a fresh perspective for evaluating academic impact and identifying researchers or institutions of interest[21]. Among them, author collaboration network analysis constitutes a microlevel approach for scrutinizing collaborative networks within an academic domain, aimed at gauging the interconnections among authors. Consequently, this study employs collaboration network analysis to investigate the relational dynamics among collaborators.

Fig. 2 presents knowledge graphs depicting author collaboration networks in the Chinese and English literature context. The knowledge graphs contain nodes and lines. The nodes represent authors, the size of each node reveals the number of papers, and the lines reflect the collaboration network[26]. The legends represent the publication year.

As shown in Fig. 2, the author collaboration networks in both the Chinese and English literature display a dispersed nature. The network has several groups of authors who are closely connected within their respective clusters, indicating close collaboration within groups. However, intergroup collaboration is relatively limited, suggesting that collaborative efforts are concentrated within specific groups rather than being widespread across the network. This pattern highlights the potential for increased intergroup collaboration with the application of new technologies such as augmented reality (AR), virtual reality (VR), and the IoT. Interdisciplinary col-

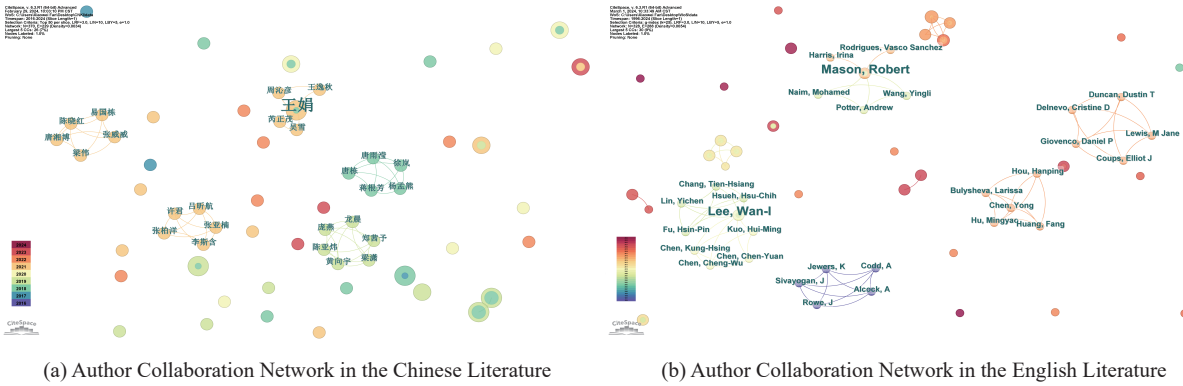


Fig. 2. Author collaboration networks in the Chinese and English literature.

laboration in new retail and logistics is highly recommended in this area. Additionally, the overall decentralized structure underscores the fragmented state of research collaboration in these fields. The lack of a dominant group implies that the research area is still emerging and has yet to have a core group of leading authors.

Table 3 summarizes the top ten authors in terms of publications in the Chinese and English literature.

As depicted in Table 3, the most prolific authors in the Chinese literature samples include Hong Wang, Bingyi Li, Fang Ren, Yu Wang, Jixiang Wang, and Juan Wang, each credited with three publications. Their research focused primarily on the integration pathways of new retail and new logistics, intelligent retail solutions for enterprises, and the transformation of logistics distribution and supply chain systems. These authors are recognized as high-yield contributors within the realm of Chinese literature concerning new retail and new logistics. According to Price’s law (i.e., $m = 0.749 \sqrt{n_{\max}}$, where n_{\max} is the highest publication volume of an author in the field and where m is the minimum publication volume to be considered a high-yield author)^[26], the threshold for high-yield authors in Chinese literature is 1.28 (i.e., $m = 1.28$), meaning that authors with two or more publications are considered high-yield authors in Chinese research. On the basis of the statistical analysis, the collective publication volume of high-yield authors in the Chinese sample amounts to 30, constituting 7.73% of the total publica-

tion volume (388, which results from counting the number of authors and better reflects the extent of each author’s contribution). This finding suggests that the research output of high-yield authors in Chinese literature is relatively modest, with no discernible formation of core authors wielding significant influence.

In the English literature sample, the most prolific author is Joris Beckers, whose research delves into the ramifications of e-commerce and logistics on the user experience, societal dynamics, and environmental considerations. According to Price’s law, the benchmark for high-yield authors in English literature stands at 1.48, implying that authors with two or more publications attain high-yield status in this domain. Statistical analysis reveals that the cumulative publication volume of high-yield authors in the English literature sample amounts to 356, representing 15.50% of the total, thereby indicating a dearth of core authors wielding substantial influence within English literature as well.

Moreover, this study conducts an analysis of authors’ centrality, which gauges the number of connections between an author node and other author nodes within the collaborative network graph, thereby quantifying the extent of collaboration among authors. In both the Chinese and English literature, high-yield authors present a centrality measure of 0.00, which falls below 0.10. This finding implies that high-yield authors have few connections within the collaboration network across the Chinese and English literature.

Table 3. Top ten authors by publication count in the Chinese and English literature.

Rank	Chinese literature			English literature		
	Number	Centrality	Author	Number	Centrality	Author
1	3	0	WANG Hong	4	0	Beckers, Joris
2	3	0	LI Bingyi	3	0	Huebner, Alexander
3	3	0	REN Fang	3	0	Cardenas, Ivan
4	3	0	WANG Yu	3	0	Holzzapfel, Andreas
5	3	0	WANG Jixiang	2	0	Kuhn, Heinrich
6	3	0	WANG Juan	2	0	Hellstrom, Daniel
7	2	0	CHEN Shiyu	2	0	Winkenbach, Matthias
8	2	0	WANG Baoyi	2	0	Rai, Heleen Buldeo
9	2	0	CAI Liyan	2	0	Tappia, Elena
10	2	0	ZHOU Baochang	2	0	Goldsby, Thomas J

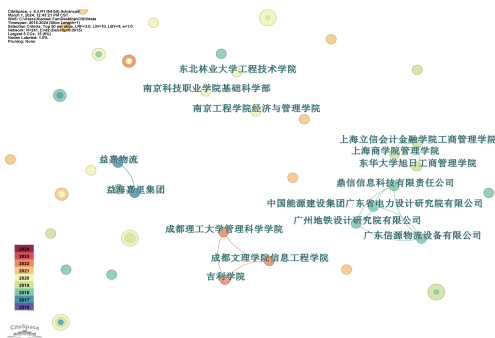
One possible explanation for this phenomenon is the rapid evolution of research on new retail and new logistics after 2017. Additionally, owing to the interdisciplinary nature of research in these domains, scholars encounter certain collaboration challenges, leading to fragmented cooperation and a scarcity of close collaborative relationships.

4.1.3 Institution collaboration network analysis

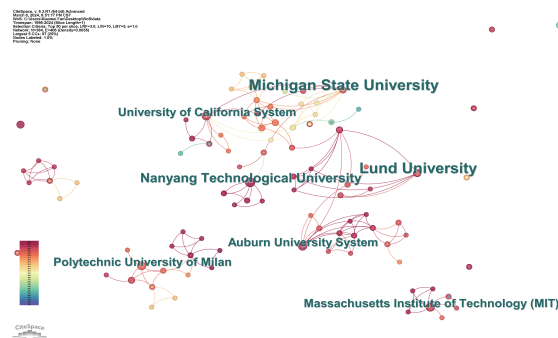
The analysis of institution collaboration networks represents a meso-level analytical framework utilized to evaluate collaborative relationships among publishing institutions within a specified field. This study employs the institution collaboration network to scrutinize the collaborative dynamics among publishing institutions. Fig. 3 shows the knowledge graph depicting the institution collaboration network in the Chinese and English literature.

As presented in Fig. 3, the institutional collaboration network contains clusters in both the Chinese and English literature on new retail and new logistics, revealing patterns of cooperation. The clusters of institutions that are closely connected within their respective groups indicate the existence of intracluster collaboration. However, similar to the author collaboration network, intercluster collaboration is relatively limited, suggesting that collaborative efforts are confined primarily to specific groups rather than being broadly distributed across the network. This pattern highlights the potential for interdisciplinary cooperation.

Table 4 summarizes the top ten institutions in terms of publications in English and Chinese literature.



(a) Institution Collaboration Network in Chinese Literature



(b) Institution Collaboration Network in English Literature

Fig. 3. Institution collaboration networks in Chinese and English literature.

Table 4. Top ten institutions by publication count in the Chinese and English literature.

Rank	Chinese literature			English literature		
	Number	Centrality	Institution	Number	Centrality	Institution
1	3	0	China Association of Warehousing and Distribution	7	0.03	Michigan State University
2	3	0	Beijing Wuzi University	7	0	Lund University
3	3	0	Hainan College of Economics and Business	5	0	Catholic Univ Eichstatt Ingolstadt
4	3	0	School of Economics and Management, Sanmenxia Polytechnic	5	0.01	Nanyang Technological University
5	3	0	School of Management, Guizhou University	5	0	University of Antwerp
6	3	0	College of Economics and Management, Nanjing Forestry University	4	0	Massachusetts Institute of Technology (MIT)
7	3	0	Guangzhou College of Technology and Business	4	0.02	Auburn University System
8	2	0	Shandong Agriculture and Engineering University	4	0.01	University of California System
9	2	0	Department of Traffic Engineering, Shandong Jiaotong University	4	0	Polytechnic University of Milan
10	2	0	Business School, Yangzhou University	3	0	Harvard University

Drawing upon the knowledge graph illustrating the institution collaboration network for Chinese and English literature, as depicted in Fig. 3, and the rankings delineating the top ten institutions on the basis of publication volume, as presented in Table 4, it becomes evident that certain institutions stand out for their prolific contributions to research in new retail and logistics within the respective linguistic domains. In Chinese literature on new retail and logistics research, institutions such as the China Storage and Distribution Association, Beijing Wuzi University, and Hainan Vocational University of Economics and Business emerged as leaders in terms of publication volume. Conversely, in the English literature, institutions such as Michigan State University in the USA and Lund University in Sweden, alongside other European and Singaporean counterparts, lead in publication outputs. These institutions have made substantial contributions to the development of new retail and logistics research. The geographical distribution of research institutions demonstrates a concentration of research activities in the provinces of North, East, South, and Southwestern China. In contrast, institutions in Northeast China and Northwest China exhibit comparatively limited engagement within this domain.

4.2 Analysis of research hotspots and evolution trends of new retail and new logistics research in the Chinese and English literature

4.2.1 Keyword co-occurrence graph

Keywords serve as a concise encapsulation of the research

theme within the literature, and their frequency analysis can illuminate the prevailing research focal points within a given field. Moreover, the keyword co-occurrence graph is more conducive to analyzing research hotspots and their evolution, especially with the use of the burst term function^[21]. It provides insights into the research hotspots and research patterns within the field. In other words, it enables researchers to identify critical areas of focus within a field and uncover the relationships between various research topics^[28]. Consequently, this study employs keyword frequency analysis and co-occurrence graph analysis to elucidate the research hotspots within the realms of new retail and new logistics in both the Chinese and English literature. Fig. 4 shows the keyword co-occurrence graphs for the Chinese and English literature.

This study conducted a keyword co-occurrence analysis of 255 Chinese and 255 English studies on new retail and new logistics research. Given the significant difference in the frequency of high-frequency keywords between Chinese and English literature and to optimize the aesthetics and readability of the graphs, the threshold for the Chinese literature keyword co-occurrence graph was set at threshold = 6 (i.e., analyzing co-occurrence using keywords with a frequency above 6), and the threshold for English literature was set at threshold = 25 (i.e., deriving the keyword co-occurrence graph using keywords with a frequency above 25). The research results for the Chinese literature, as shown in Fig. 4a, encompass 276 keyword nodes and a total of 1210 connections.

In addition to the search terms (i.e., new retailing, new logistics, intelligent logistics, and smart logistics), high-frequency terms such as supply chains, big data, e-commerce, and development strategies delineate the research focal points and hotspots of the field. Conversely, the English literature results, shown in Fig. 4b, include 1039 keyword nodes and 9242 connections. In the English literature, frequently appearing keywords include “logistics”, “model”, “performance”, “supply chain”, “management”, “impact”, “framework”, “design”, and “e-commerce”, which are prevalent in English research on new retail and new logistics.

Furthermore, this study delves into the analysis of keyword centrality. In Chinese literature, some keywords have a centrality greater than 0.1, such as “new retailing” and “intelligent logistics”, indicating their significant mediatory role within the network, thereby reflecting the research hotspots, main threads, or core themes of the field. Conversely, the centrality of all keywords in English literature remains below 0.1, indicating a more dispersed array of research themes at the international level.

According to Table 5, prevalent research themes in new retail and new logistics research exhibit similarities across the Chinese and English literatures, with a primary focus on supply chain management and e-commerce. Nevertheless, disparities in research emphases exist. The Chinese literature tends to scrutinize case studies of representative enterprises (e.g., Freshippo), whereas the English literature places greater em-

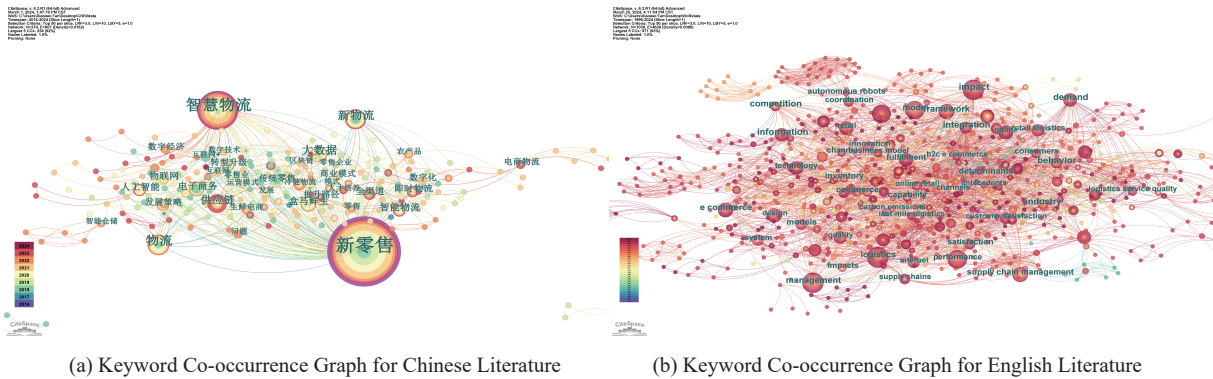


Fig. 4. Keyword co-occurrence graphs for Chinese and English literature.

Table 5. Top ten keywords in the Chinese and English literature.

Rank	Chinese literature			English literature		
	Number	Centrality	Keywords	Number	Centrality	Keywords
1	133	1.21	New Retailing	34	0	Logistics
2	50	0.32	Smart Logistics	29	0	Model
3	17	0.08	Logistics	29	0	Performance
4	14	0.03	New Logistics	28	0	Supply Chain
5	13	0.03	Supply Chain	25	0	Management
6	10	0.05	Big Data	25	0	Impact
7	8	0.01	Freshippo	18	0	Supply Chain Management
8	7	0.02	E-commerce	16	0	Framework
9	6	0.01	Development strategy	15	0	Design
10	6	0.03	Intelligent Logistics	15	0	E-Commerce

phasis on models, development strategies, and framework design. Researchers advocate for continuous innovation in technology and models, as well as enhancements in business models, to glean insights and proffer developmental recommendations, thereby infusing vitality into the field’s progression.

4.2.2 Keyword clustering graphs

Keyword clustering graphs depict closely related keywords, thereby offering insights into the research hotspots of the field. It focuses on the structural characteristics of the clusters, highlighting key nodes and important connections^[21]. This study employs keyword clustering graph analysis to scrutinize the clustering relationships within the research domain. The clustering graphs were generated via the K-method and log-likelihood ratio algorithm in CiteSpace software. The results are illustrated in Fig. 5.

Fig. 5 presents the nine most significant clusters of research on new retail and new logistics and shows how keywords are grouped on the basis of co-occurrence. Table 5 summarizes the top ten most frequently used keywords in the Chinese and English literature.

A keyword clustering graph is used to recognize research hotspots and concentrations, whereas the clustering modularity index (Q) and clustering silhouette index (S) serve as indicators and criteria for assessing the clustering effect of the graph. In the Chinese literature, $Q = 0.5768 > 0.3$, indicating a significant community structure and notable clustering effect, and $S = 0.9005 > 0.7$, suggesting that the clustering results are convincing. In the English literature, $Q = 0.7579 > 0.3$ also indicated a significant community structure and convincing clustering effect, and $S = 0.919 > 0.7$, indicating that the clustering results are compelling. Both the Chinese and English literature exhibit significant clustering structures.

The top ten clusters from the Chinese and English literature were selected for presentation. The clustering outcomes are displayed in Table 6, where a smaller cluster number indicates a larger cluster volume.

Drawing upon semantic relevance and logical coherence, the ten clusters identified in Chinese literature can be succinctly summarized into three primary aspects:

i. Business Models and Retail Development (including clusters “#0 New retailing”, “#2 E-commerce Logistics”, “#7

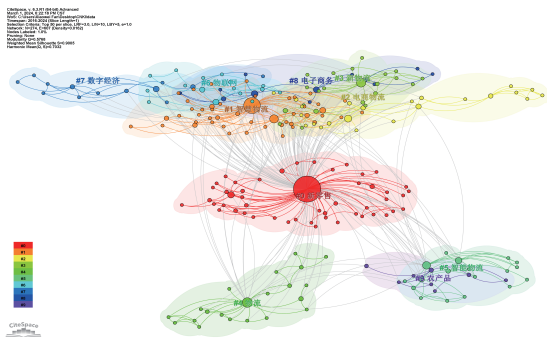
Digital Economy”, and “#8 E-commerce”): Notably, the keyword “New retailing” signifies alignment with the thematic focus of this field. Presently, the consumer-centric nature of new retail necessitates elevated standards for logistic service models, thus attracting considerable scholarly attention. For example, Sun Ting^[29] conducted an exhaustive examination of the impacts and challenges of e-commerce logistics distribution within the new retail paradigm, offering targeted recommendations and suggestions.

ii. Intelligent Logistics and Technological Innovation (comprising clusters “#1 Intelligent Logistics”, “#3 New Logistics”, “#4 Logistics”, “#5 Smart Logistics”, and “#6 Internet of Things”): Here, #1, #3, and #5 are related to “New Logistics”, further reinforcing the coherence of the literature search with the field’s thematic focus. Presently, modern logistics within the framework of new retail confronts persistent challenges, such as devising cost reduction and efficiency enhancement strategies, addressing structural imbalances, rectifying the issue of large yet weak logistics enterprises, and mitigating deficiencies in specific domains. In the IoT era, the development trajectory of smart logistics necessitates seamless integration with cutting-edge technology applications to achieve a profound amalgamation of logistics operations and technological advancement.

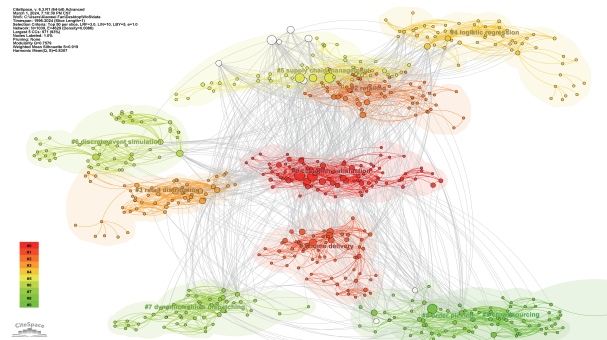
iii. Agricultural Products and Rural E-commerce (including the “#9 Agricultural Products” cluster): With significant advances in 2021 in China’s battle against poverty, advancing rural revitalization has become a key focus in China. The “E-commerce Boosting Agriculture” project initiative outlined in the central No. 1 document of 2022 aims to bolster rural e-commerce development, catalyzing related research endeavors. Given the pronounced regionality, seasonality, and timeliness associated with agricultural products, most studies concentrate on leveraging advanced technology to optimize cold chain logistics for agricultural products (e.g., Ref. [30]), thereby offering substantial support for enhancing the quality and efficiency of rural e-commerce.

Moreover, the ten clusters identified in the English literature can be summarized into three main aspects:

i. Retail and Distribution Services (including clusters “#0 Customer Satisfaction”, “#1 Home Delivery”, “#2 Retailing”, and “#3 Retail Distribution”): Cluster #0 emerges as the most prominent, underscoring the increasing significance of customer satisfaction within the realm of new retail and new lo-



(a) Keyword Clustering Graph for Chinese Literature



(b) Keyword Clustering Graph for English Literature

Fig. 5. Keyword clustering graph for Chinese and English literature.

Table 6. Keyword clustering results in the Chinese and English literature

Rank	Chinese literature		English literature	
	Cluster name	Clustering subcluster	Cluster name	Clustering subcluster
0	新零售 (New Retailing)	新零售; 发展策略; 物流业; 生鲜冷链; 智慧 (New Retail; Development Strategies; Logistics Industry; Fresh Cold Chain; Smart)	Customer satisfaction	customer satisfaction; order fulfillment; online retailing; customer retention; consumer returns
1	智慧物流 (Smart Logistics)	智慧物流; 供应链; 智能化; 商业模式; 物流企业 (Smart Logistics; Supply Chain; Intelligentization; Business Models; Logistics Enterprises)	Home delivery	home delivery; omnichannel; logistics management; delivery services; physical distribution
2	电商物流 (E-commerce Logistics)	电商物流; 盒马鲜生; 转型发展; 核心竞争力; 对策 (E-commerce Logistics; Freshippo; Transformation and Development; Core Competitiveness; Countermeasures)	Retailing	retailing; reverse logistics; business model; quality control; closed-loop supply chain
3	新物流 (New Logistics)	新物流; 生鲜电商; 提升路径; “三位一体”; 共生发展 (New Logistics; Fresh E-commerce; Enhancement Path; "Three-in-One"; Symbiotic Development)	Retail distribution	retail distribution; discrete optimization; vehicle routing; transportation; personalized threshold-type policy
4	物流 (Logistics)	物流; 配送; 餐饮; 全渠道化; 共现网络 (Logistics; Distribution; Catering; Omnichannelization; Coexistence Network)	Logistic regression	logistic regression; planning and analysis; street use; customer relationship management; urban freight transportation
5	智能物流 (Intelligent Logistics)	智能物流; 全渠道; 零售; 大数据; 黑龙江 (Intelligent Logistics; Omnichannel; Retail; Big Data; Heilongjiang)	Supply chain management	supply chain management; simulation; logistics; information sharing; artificial intelligence
6	物联网 (Internet of Things)	物联网; 超高清; 人工智能; RFID; 互联网 (Internet of Things; Ultra HD; Artificial Intelligence; RFID; internet)	Discrete-event simulation	discrete-event simulation; intelligent packaging; cloud computing; warehouse management; blockchain technology
7	数字经济 (Digital Economy)	数字经济; 智慧化转型; 价值输出; 流通产业; 服务创新 (Digital Economy; Intelligent Transformation; Value Output; Circulation Industry; Service Innovation)	Dynamic vehicle dispatching	dynamic vehicle dispatching; energy; community logistics strategy; spatial and temporal postponement; agricultural logistics network
8	电子商务 (E-commerce)	电子商务; 现状; “新零售”; 一带一路; 趋势 (E-commerce; Current Situation; New Retailing; Belt and Road; Trends)	Order picking	order picking; case study; data envelopment analysis; apparel industry; fast-fashion
9	农产品 (Agricultural product)	农产品; 社交电商; 无缝对接; 直播电商; 农村 (E-commerce; Current Situation; "New Retail"; Belt and Road; Trends)	Crowdsourcing	crowdsourcing; quality service; parcel locker; tomato; sweep-adaptive genetic algorithm

gistics research. This trajectory resonates with the fundamental tenet of new retail, which emphasizes enhancing consumer experiences. The English-language literature has focused predominantly on analyzing the factors influencing customer satisfaction, exploring the utilization of emerging technologies such as AR and VR to augment customer satisfaction, and leveraging optimization algorithms to increase logistics distribution efficiency and customer satisfaction (e.g., Ref. [31]).

ii. Supply Chain Management and Technological Applications (including clusters “#5 Supply Chain Management”, “#8 Order Picking”, and “#9 Crowdsourcing”): Supply chain management, order picking, and new logistics are intricately interconnected. The application of crowdsourcing in new retail and new logistics focuses predominantly on distribution challenges, particularly within the last-mile delivery domain. Leveraging blockchain technology for order distribution, the crowdsourcing model facilitates the provision of high-quality logistics services. Moreover, this model contributes to reducing the total cost of the supply chain while enhancing the overall performance of the delivery team. Simultaneously, op-

timizing the delivery process to improve efficiency enables customers to experience enhanced shopping encounters, thereby fostering heightened consumer satisfaction and loyalty, ultimately culminating in a mutually beneficial outcome.

iii. Supply Chain Simulation and Optimization (including clusters “#4 Logistic Regression”, “#6 Discrete-event Simulation”, and “#7 Dynamic Vehicle Dispatching”): English research underscores the endeavor to increase logistics and supply chain efficiency through simulation and optimization methodologies. Logistic regression, discrete-event simulation, and dynamic vehicle dispatching have emerged as focal points among scholars in the English-language literature. Logistic regression is frequently used to analyze issues pertaining to customer retention and satisfaction, whereas discrete-event simulation is commonly employed to establish smart logistics systems and optimize logistics solutions. For example, to increase customer satisfaction, the parcel delivery company may employ a smart territory design approach that enables adjustments to the territory plan while maintaining consistent service quality^[32]. These research endeavors under-

score the keen interest of scholars in English literature in applying cutting-edge technologies and methodologies within the domains of new retail and new logistics.

In comparing disparities between the Chinese and English literature, this study delineates several distinct research characteristics. Primarily, both the Chinese and English literature converge on new retail and intelligent logistics management issues germane to the research theme. This content encompasses leveraging novel technologies to increase logistics distribution efficiency and streamline supply chain management processes, albeit with divergent research focuses. Chinese-language research predominantly scrutinizes e-commerce logistics distribution within the new retail paradigm, whereas English-language research accentuates the utilization of advanced technologies to increase customer satisfaction, which is intimately linked to the core tenets of new retail. Furthermore, the Chinese literature places a heightened emphasis on employing technologies such as the IoT to address logistics distribution challenges for agricultural products, whereas the English literature focuses on optimizing logistics systems through structured modeling approaches. These disparities underscore variations in research issues and solutions between Chinese and English research.

4.2.3 Keyword bursting graph

A keyword-bursting graph can elucidate the evolutionary trends of research hotspots at particular stages. Keyword burst analysis is employed to detect keywords that have shown a notable rise in frequency within a particular topic or field, uncovering emerging concepts, trending research areas, or shifts in keyword usage within a specific domain^[28]. This study scrutinizes ten emerging keywords each for the two types of literature pertaining to new retail and new logistics to delineate the progression of research hotspots within these domains. The results are illustrated in Fig. 6.

The study findings reveal that shifts in research hotspots are evident in both the Chinese and English literature, mirroring the evolution of research concerning new retail and new logistics. Initially, according to the keyword bursting graph, new logistics began to emerge as a hotspot in Chinese literature in 2017, while it garnered attention in English literature as early as 2003. The identification of bursting keywords in the Chinese and English literature signifies that the research forefront of new retail and new logistics predominantly centers on investigating and strategizing future developmental trajectory-

ies. This includes in-depth examinations of forthcoming trends and investigations into training and reserve schemes for pertinent talent. These observations underscore the considerable emphasis placed by scholars in both the Chinese and English literatures on forecasting future development and trajectories within the realms of new retail and new logistics.

4.2.4 Keywords timeline graph

A keyword timeline graph serves as a tool to delineate the shifting trends and evolutionary trajectories of keywords over time within a research field, facilitating the exploration of the research frontier within the domain. It focuses on outlining the relationships between clusters and the historical span of documents in a cluster^[21]. This study uses keyword timeline graphs, as shown in Fig. 7, to scrutinize research endeavors in new logistics and new retail in the Chinese and English literature.

As depicted in Fig. 7a for the Chinese literature, from 2017 to 2019, new retail and new logistics gradually emerged as primary research focal points. During this period, research hotspots transitioned from omnichannel development to e-commerce automation and subsequently to fresh food cold chain logistics management. Taking Freshippo as an example, scholars have revealed that the reason for the rapid development of fresh food e-commerce in new retail modes is information technology, and the future of fresh food e-commerce will be a technological war^[33]. However, current studies have provided limited insights into the impact of digital technologies on consumer behavior in e-commerce, but more recent research has provided a clearer understanding of this dynamic. From 2020 to 2024, the emphasis in the Chinese literature shifted toward the transformation and upgrading of business models. Over time, talent cultivation, optimization paths, and production-sales coordination have progressively gained prominence as research hotspots, reflecting the preoccupation of Chinese scholars.

Examining the keyword timeline graph of the English literature in Fig. 7b, it becomes evident that prior to 2005, scholars in the English literature predominantly concentrated on logistics distribution, channels, and supply chain management. Starting in 2010, the focus gradually shifted toward online retail, and by 2015, it extended to encompass consumer behavior, product and service quality enhancement, and other related issues. In the early stages, there were few studies on consumer behavior in new retail, particularly within the con-

Top 10 Keywords with the Strongest Citation Bursts

Keywords	Year	Strength	Begin	End	2016 - 2024
新物流	2017	1.56	2017	2018	
物流	2017	0.98	2017	2018	
电子商务	2018	1.74	2018	2019	
传统零售	2018	1.74	2018	2019	
盒马鲜生	2019	0.97	2019	2020	
物联网	2020	1.04	2020	2021	
问题	2021	1.14	2021	2022	
农产品	2021	1.14	2021	2022	
数字经济	2021	1.14	2021	2022	
人才培养	2022	1.01	2022	2024	

(a) Keyword Bursting Graph for Chinese Literature

Top 10 Keywords with the Strongest Citation Bursts

Keywords	Year	Strength	Begin	End	1996 - 2024
industry	2003	2.02	2003	2014	
logistic regression	2010	1.87	2010	2012	
system	2012	2.4	2012	2015	
networks	2015	1.9	2015	2019	
special issue	2018	2.72	2018	2019	
algorithm	2020	2.74	2020	2022	
systems	2013	3	2021	2022	
impact	2007	2.53	2021	2022	
multichannel	2019	2.8	2022	2024	
future	2013	1.97	2022	2024	

(b) Keyword Bursting Graph for English Literature

Fig. 6. Keyword bursting graph for Chinese and English literature.

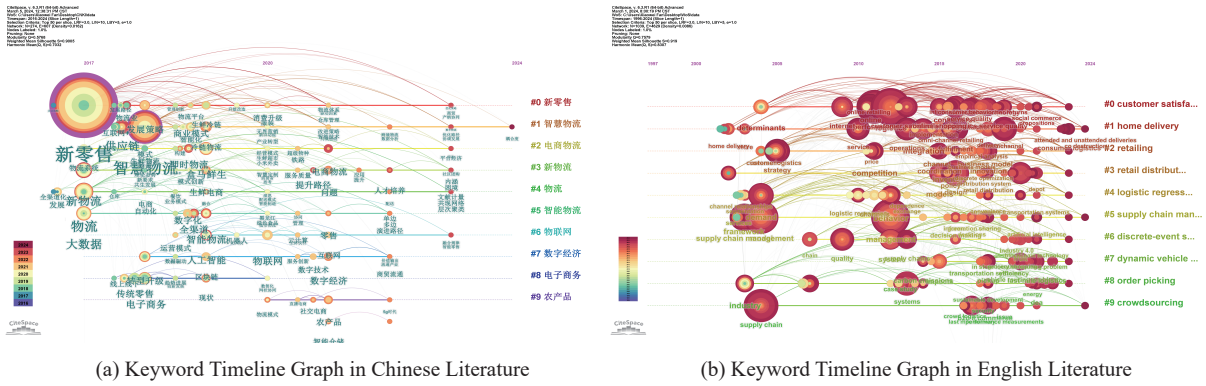


Fig. 7. Keyword timeline graph in Chinese and English literature.

text of omnichannel strategies. Additionally, the application of big data for predictive analysis and optimization still needs to be developed, especially in practical scenarios. Since 2020, English literature has focused on exploring the potential of advanced technologies, such as artificial intelligence and big data, to increase logistics efficiency. This underscores the importance English literature attributes to advanced technology and consumer experience. Furthermore, the relationship between cost and efficiency in the context of new retail and new logistics remains unclear. Scholars posit that the advent of new retail has ushered in an omni-channel era, wherein online and offline channels converge. In this context, enterprises must invest in the development of a responsive logistics system to meet the evolving demands of customers^[34].

Comparative analysis demonstrated that the focus of Chinese and English literature is shaped by social, economic, and cultural contexts within the same temporal and research-related parameters. For example, the Chinese literature tends to focus on practical applications of new technologies in specific fields, such as the utilization of new technologies in agricultural product cold chain logistics. In contrast, English literature tends to prioritize the assessment of the impact of new technologies on consumer experience.

5 Conclusions

This study drew upon a dataset of 255 journal articles from CNKI, representing research within China, and 255 articles from WoS, representing research outside China. Using CiteSpace software, a multidimensional bibliometric comparative analysis was conducted, yielding numerous research findings. The primary findings are outlined as follows:

(I) Research overview: The global publication volume of research on new retail and new logistics demonstrated an upward trajectory until 2021–2022, after which a downturn was observed. The commencement of English research preceded that of Chinese research and demonstrated a steady growth trajectory. In contrast, Chinese research commenced later and experienced a period of rapid expansion after 2017, gradually stabilizing thereafter. Moreover, given the interdisciplinary nature of the field, the networks of scholars in the Chinese and English literature remain dispersed and have yet to establish close collaborative relationships. Furthermore, the majority of researchers in English literature are based in the United States, Europe, and Singapore, whereas those based in main-

land China are located primarily in the North, East, South, and South–West regions. Scholars from Northeast China and Northwest China are comparatively less engaged in this area of research.

(II) Research hotspots: While there are similarities between Chinese and English research themes in this field in that they both focus on supply chain and e-commerce management, there are notable differences in the research emphases that can be observed. The Chinese literature tends to favor case studies of prominent companies (such as Freshippo), whereas the English literature prioritizes problem modeling, development strategies and service model design. Furthermore, Chinese research places greater emphasis on addressing challenges related to the transportation of agricultural products and other logistics distribution issues. Conversely, research conducted in English places greater emphasis on leveraging new technologies to increase customer satisfaction levels and on optimizing logistics systems through structured modeling approaches.

(III) Research frontier: The primary focus of research in this field is the investigation of prospective avenues of development and the formulation of strategies for the cultivation of talent in related disciplines. Scholars engaged in the study of both Chinese and English literature have focused their attention on the prospective trends and developments that may be observed within the industry. However, it is notable that the specific research adopted by these scholars is influenced by a number of factors, including their respective social, economic, and cultural backgrounds. The Chinese literature focuses on specific application areas, such as the fresh food cold chain logistics sector. In contrast, English literature tends to prioritize the consumer experience and technological innovation.

In consideration of the research findings, this study has several managerial implications for retailers. First, the results indicate that research on new retail and logistics is predominantly conducted in developed regions. Consequently, retailers should adopt a strategic focus on emerging markets and adapt their strategies to address region-specific challenges. Furthermore, it is recommended that retailers make use of interactive technologies, such as AR and VR, in both physical stores and e-commerce platforms with the goal of enhancing customer experiences and improving customer satisfaction. In conclusion, given the dispersed nature of collaboration networks among authors and institutions, it would be beneficial

for researchers to consider cross-regional collaboration to bridge the gaps between practice and knowledge.

5.1 Contribution, limitations, and future work

i. Contribution: To the best of our knowledge, this study presents the first bibliometric review, which comparatively analyzes research hotspots and trends at the intersection of new retail and new logistics in both the Chinese and English literature. Using quantitative tools, this study offers a data-driven analysis of the literature, which includes a historical overview and a future research direction forecast by examining differences and gaps between Chinese and English studies. Furthermore, this study presents innovative ideas and potential research directions for China in the fields of new retail and new logistics, and it provides practical implications for evolving retail and logistics frameworks in the context of Web 3.0 and the Fourth Industrial Revolution.

ii. Limitations: First, the study compared English and Chinese publications on new retail and new logistics, with the exclusion of literature in other languages. Although most reviews focus on comparisons between Chinese and English literature (e.g., Refs. [5, 6, 10]), future research should discuss literature in other languages from a more global or regional-specific perspective. Second, although the study aims to present objective results on the basis of empirical data, it is acknowledged that some degree of subjective interpretation may be inherent in the analysis. Although the focus on objectivity is commendable and aligns with the predominant approach in the literature, incorporating subjective analysis can also offer valuable insights. Therefore, future research should include more critical analyses that integrate both objective and subjective perspectives. Furthermore, this study acknowledges the importance of analyzing research questions in different papers for a more comprehensive understanding of research trends. Unfortunately, the focus of CiteSpace on keyword-based metrics indicates that it does not support direct analysis of the research question in each paper. Therefore, future work should employ more sophisticated techniques to analyze the research questions in the literature. Such methods might involve Python-based text analysis to capture the trend and evolution of research questions.

5.2 Potential research direction of new retail and new logistics

On the basis of this literature analysis, this study summarizes three potential key research directions for the future of new retail and new logistics:

(I) Green Logistics and Sustainable Development: On the basis of our analysis, agricultural products and rural e-commerce have emerged as key areas of interest in the research on new retail and logistics. This focus aligns with the goals of sustainable development. According to business big data monitoring, last year, Chinese rural e-tailing sales reached 2.5 trillion yuan, with an average yearly growth of 12.9%, which is 13 times greater than that in 2014. Chinese agricultural e-tail sales reached 587.03 billion yuan, with 12.5% growth each year^[36]. The United Nations' 17 Sustainable Development Goals underscore global concerns for sustainable development. Research on logistics within the realm of new retail

should aim to promote sustainable urban and community development, foster responsible consumption and production practices, and facilitate green and low-carbon distribution and recycling initiatives. As emphasized by President Xi Jinping, in the "Two Mountains" theory^[37], the preservation of pristine natural environments is invaluable, rendering the pursuit of green logistics and sustainable development imperative in the domain of new retail and new logistics.

(II) Retail Innovation Incorporating with Metaverse-Related Technologies: Previous research has examined the elements affecting customer satisfaction and investigated how emerging technologies such as AR and VR can increase this satisfaction. The metaverse commonly discussed is a virtual world that resembles the real world: a space for interacting with other users^[38]. New retail has the potential to integrate with metaverse-related technologies, including artificial intelligence (AI), 5G, blockchain, AR and VR. Applications such as virtual dressing rooms utilizing AR/VR technology and supply chain management optimization through blockchain technology exemplify these possibilities. Metaverse-related technologies offer promising avenues for enhancing the efficiency of retail and logistics operations, although they remain in the exploratory phase. Therefore, there is a critical need to advance the application of metaverse technologies in supply chain logistics, foster the open sharing of industry data, and augment and refine new retail and logistics services.

(III) Cultivation of Professional Talents in New Retail and New Logistics: Our analysis indicates that talent cultivation and improvement paths, as well as production and marketing synergies, have gradually become research hotspots. Among them, logistics professional education is facing challenges, including outdated talent cultivation programs, antiquated teaching curricula and training systems, and disparities between logistics talent and enterprise requirements^[39]. While artificial intelligence and large language models can partially address the demand for professional logistics talent, a substantial gap remains. The new retail and new logistics industry urgently requires professionals who not only comprehend relevant technologies but also possess a profound understanding of logistics theories to address future developmental challenges.

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Conflicts of interest

The authors declare that they have no conflict of interest.

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