

Review

A Bibliometric Analysis of Enterprise Social Media in Digital Economy: Research Hotspots and Trends

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Abstract: With the rise of the digital economy, new business models have expedited the progress of corporate digital transformation. The mobile internet era has made enterprise social media a popular tool for employee communication. Summarizing the development and trends of enterprise social media research is beneficial for identifying future research topics. This paper analyzes the literature from the Web of Science core collection database and employs CiteSpace software to develop a scientific knowledge map, providing a visual analysis of the literature on enterprise social media in the context of the digital economy. The paper presents the research hotspots and evolutionary paths of enterprise social media, thereby clarifying the future development trends in this field. The study reveals that there is a relatively limited amount of literature on this topic, and collaboration among authors is not strong. Most research is conducted by higher education institutions in China and the United States. The research hotspots revolve around the theme of enterprise social media, covering topics such as knowledge sharing, communication, and performance. The research themes have undergone a transition from singularity to diversity. Finally, this paper proposes future research prospects in three areas: the human–computer collaborative model against the backdrop of artificial intelligence, user privacy disclosure and protection, and the impact of enterprise social media usage on the mental and physical health of employees. These prospects aim to provide valuable insights for subsequent research endeavors.

Keywords: enterprise social media; enterprise management; CiteSpace; knowledge map



Citation: Zhang, W.; Yang, Y.; Liang, H. A Bibliometric Analysis of Enterprise Social Media in Digital Economy: Research Hotspots and Trends. *Sustainability* **2023**, *15*, 12545. <https://doi.org/10.3390/su151612545>

Academic Editor: Su-Yol Lee

Received: 7 July 2023

Revised: 15 August 2023

Accepted: 16 August 2023

Published: 18 August 2023



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1. Introduction

With the vigorous rise of the digital economy and sharing economy, profound changes have occurred in the organizational structure, labor force composition, labor relations, and employment patterns of enterprises [1]. The digital economy relies on digital information as its primary resource, utilizes internet platforms as the main information carrier, is driven by digital technology innovation, and manifests itself in various new modes of economic activities [2]. The digital economy plays a pivotal role in driving high-quality economic development through two mechanisms: the augmentation of human capital and the facilitation of green technology innovation. This renders it a crucial engine of global economic transformation [3]. The development of data technology contributes to the transformation of traditional industries and the growth of digital industries [1], reducing the cost of green technology innovation for enterprises [4] and directly creating economic value [5]. The advent of the digital economy, catalyzed by the continuous innovation and development of digital technology, has ushered in novel economic paradigms. This phenomenon has precipitated shifts in social production methods, increasing production efficiency, and consequently bringing about significant transformations for sustained development and the interactions of enterprises [6,7]. In effect, it propels enterprises to continuously progress and develop, promoting digital transformation and upgrading [8].

Under the influence of the country's "dual carbon" goals, energy conservation and carbon reduction, which target the industrial internet and digital transformation, the relationship between the digital economy and low carbon emissions has drawn widespread attention [9]. The digital transformation has brought new solutions for companies to reduce carbon emissions. Concurrently, the shift toward low-carbon and green transformation is reshaping corporate behavior, and the transformation must aim for environmental sustainability [10]. Technology stands as a crucial prerequisite for digital transformation [11], and key information technologies represented by the fifth-generation mobile communication technology have paved the way for enterprise digitalization [12]. Digital technologies can enhance labor productivity in industries and improve the efficiency of business decision-making processes, effectively reducing energy consumption in traditional sectors [13]. Digital technologies and solutions, including artificial intelligence, big data, cloud computing, and blockchain, are gradually becoming suitable for various industries. This progressive integration is leading to substantial enhancements in industrial labor productivity, enterprise management, and the effectiveness of decision-making efficiency [14], thus reducing industrial energy consumption [15]. The digital economy prioritizes industrial structure upgrading, achieving an intelligent and digital transformation of the economic system [16]. This objective is pursued through the advancement of digital technologies, the establishment of digital platforms, and the implementation of digital solutions aimed at optimizing energy structures and resource efficiency, thereby achieving synergy among the digital economy, the low-carbon economy, and environmental benefits [2].

In the era of the diversified information age driven by the digital economy and the internet, social media has rapidly integrated into the public perspective, changing traditional lifestyles and work patterns [17]. Social media has become a crucial channel for online and offline communication for businesses, enhancing the efficiency of internal information dissemination and facilitating communication between management and frontline employees [18]. From the use of communication tools to the development of various social networking platforms, enterprise social media provides users with abundant information and convenient channels for communication, promoting the development of users' social network relationships. Consequently, social media has quickly become an indispensable part of people's daily lives and work [19]. Corporations are harnessing the potential of enterprise social media to facilitate workplace communication, coordination, and collaboration [20], which culminates in heightened managerial efficiency and sustainable business development [21].

Enterprise social media refers to the use of social networks by organizations to achieve work-related collaboration and establish online communities [22]. Leonardi [23] comprehensively summarizes enterprise social media as web-based platforms that allow workers to: (1) communicate messages with specific coworkers or broadcast messages to everyone in the organization; (2) explicitly indicate or implicitly reveal particular coworkers as communication partners; (3) post, edit, and sort text and files linked to themselves or others; and (4) view the messages, connections, text, and files communicated, posted, edited and sorted by anyone else in the organization at any time of their choosing. Sun et al. [24] conducted a comprehensive literature review to capture the dark side of enterprise social media abuse from a conflict perspective. They also explored the potential of enterprise social media platforms from a knowledge management perspective [25]. Wu et al. [26] employed a meta-analysis approach to examine the relationship between ESM usage and work performance. They analyzed the current state of research on enterprise social media, tracked its development, and revealed new trends and challenges in the field of enterprise social media research. Enterprises adopt and deploy enterprise social media platforms within their organizations to enhance employees' work performance by facilitating internal communication, knowledge sharing, and collaboration [27].

These papers provide guidance for later scholars studying enterprise social media. However, they also have some limitations. Firstly, most of these reviews mainly explore the positive impacts of enterprise social media on employees and companies in the context

of Web 2.0 and the mobile internet era, while neglecting the adverse effects. Secondly, they overlook whether the use of enterprise social media in the context of digital economy development plays a facilitating or inhibiting role in corporate digital transformation, as well as how to avoid the generation of adverse factors and better promote digital transformation and the long-term sustainability of companies. Therefore, this article focuses on the development of the contemporary digital economy and the low-carbon environmental background. Through bibliometric analysis, it aims to address four issues related to enterprise social media: first, what can we discover from the perspective of literature analysis? Second, what hotspots and research trends can be obtained using knowledge graphs? Third, how does existing research on enterprise social media influence corporate digital transformation in the context of the digital economy? Fourth, what guidance do existing studies provide for future research directions?

The rest of this article is organized as follows: Section 2 introduces the research method and data sources. Section 3 utilizes a visual knowledge graph of enterprise social media literature to analyze current research hotspots and trends. Section 4 discusses the significance of this research and future research directions. Section 5 summarizes the conclusions, limitations, and prospects of this study.

2. Research Methods and Data Sources

2.1. Research Methods

A scientific knowledge graph refers to the representation of the process and relationships of research development in the form of graphs. It utilizes data mining, information processing, knowledge metrics, and graphical visualization to present a field of scientific research [28]. CiteSpace is an information visualization and analysis software developed by Chaomei Chen, which can be used to examine co-citation networks based on a large amount of bibliometric data [29].

CiteSpace has significant reference value for interdisciplinary studies, enabling researchers to efficiently understand specific research areas, their associations, and emerging areas of interest. For example, Qiu [30] used CiteSpace to trace the development origins of social media, revealing a cutting-edge topics and knowledge graph on social media research. Ran et al. [31] conducted a bibliometric analysis using the information visualization software CiteSpace to display the knowledge structure and hotspots in social media research in the form of a knowledge graph. Li et al. [32] utilized the visualization tool CiteSpace for bibliometric research and analysis, quantifying and visualizing the landscape and evolution of enterprise social media studies. All these studies indicate that using CiteSpace software can intuitively present the trends and research focuses on each stage of a research stream.

Therefore, this paper will adopt a bibliometric analysis method using CiteSpace 6.1.R6 software to investigate the core content of enterprise social media from the perspectives of journals, core authors, institutions, the co-occurrence of keywords, the clustering of hot words, and emerging terms. The study aims to map the current status, hotspots, and frontiers of research and further explore the development trends and future research directions of enterprise social media in the context of the digital economy.

2.2. Data Sources

Due to the inclusion of literature from various disciplines, such as engineering, social sciences, medicine, management, and philosophy, the Web of Science Core Collection database was selected as the source of data for this study [33]. The theme of this study is enterprise social media. Through various trials, it was found that the most comprehensive articles were retrieved using the search term TS = ("enterprise social media" OR "firm social media" OR "company social media" OR "corporation social media" OR "organizational social media"). The literature was limited to English language articles, and the search was conducted on 20 June 2023. Finally, a total of 288 relevant articles were selected, covering the period from 2008 to 2023. The research roadmap of this article is shown in Figure 1.

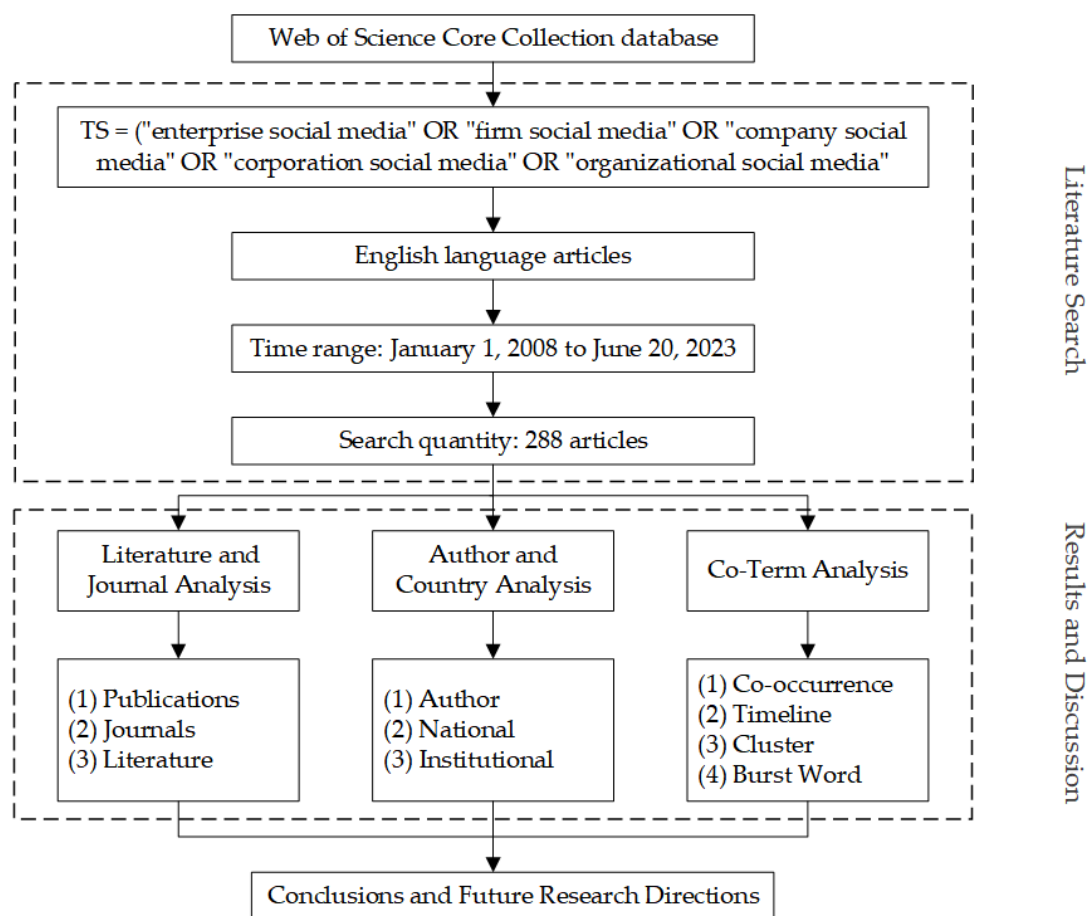


Figure 1. Research roadmap.

3. Results of the Analysis

3.1. Journal Analysis

3.1.1. Overview of Publications

From the perspective of the publication volume of enterprise social media research literature, it can be observed that with the application and development of enterprise social media in recent years, the related literature has also shown an increasing trend. Based on Figure 2, the research can be divided into three stages: the initial stage of research, the stage of slow development, and the stage of rapid growth, according to the publication volume. Before 2013, there were relatively few publications, indicating the nascent stage of enterprise social media research during that period. From 2013 to 2017, with the development of popular technologies such as the internet and big data, scholars gradually paid attention to research on enterprise social media, leading to a slow growth in the number of papers on the subject. Commencing from 2018, the number of publications grew rapidly, indicating a higher level of attention from scholars due to the increasing number of enterprise social media users. At the same time, a search on Web of Science reveals that there are still relatively few research achievements in the field of enterprise social media literature, indicating that there is still significant room for scholars to continue in-depth research.

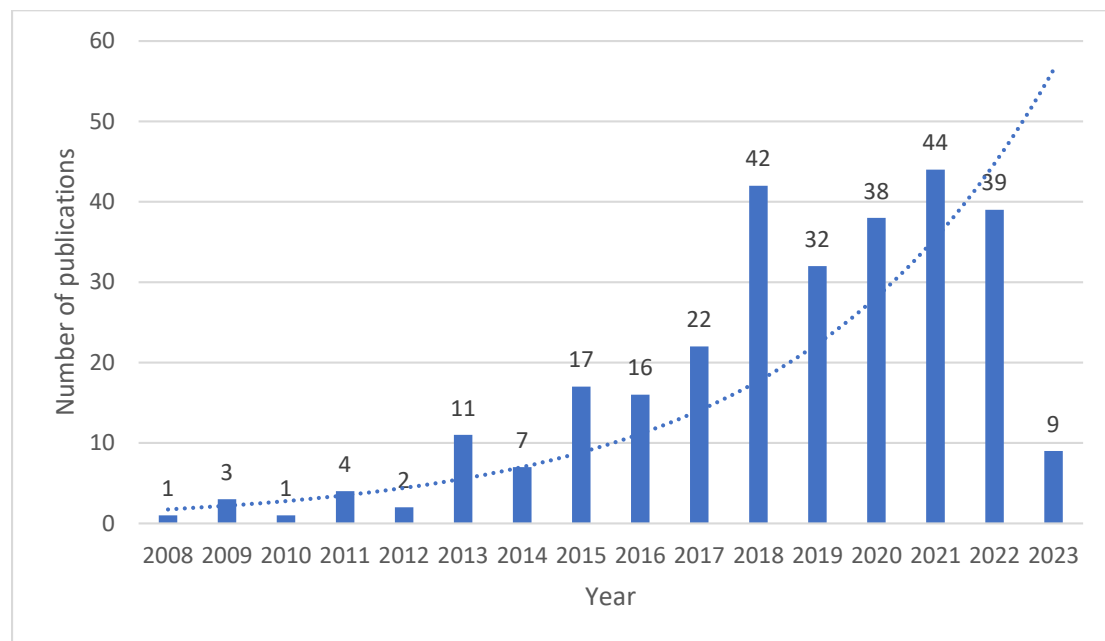


Figure 2. Annual publication volume of enterprise social media research. Note: The statistical data are as of 20 June 2023.

3.1.2. Analysis of Publishing Journals

Journals are platforms for showcasing research areas and achievements [34]. Table 1 summarizes the journals with more than five publications, revealing that most articles on enterprise social media are published in internationally renowned journals, indicating that enterprise social media is a popular research topic in recent years. The top three journals in terms of publication volume are *Internet Research*, *Information Technology People*, and the *International Journal of Information Management*. Among them, *Internet Research* has the highest number of publications, surpassing ten, and constitutes the largest proportion. Other journals publishing research on enterprise social media have fewer publications but remain important publishing platforms.

Table 1. Major journals for enterprise social media research.

No.	Journals	Publications	Proportion
1	Internet Research	14	4.86%
2	Information Technology People	9	3.13%
3	International Journal of Information Management	9	3.13%
4	Journal of Enterprise Information Management	9	3.13%
5	Sustainability	9	3.13%
6	Frontiers in Psychology	7	2.43%
7	Journal of Knowledge Management	7	2.43%
8	Computers in Human Behavior	6	2.08%
9	Journal of Business Research	6	2.08%
10	Journal of Computer Mediated Communication	6	2.08%
11	Journal of Organizational Computing and Electronic Commerce	6	2.08%

3.1.3. Analysis of High-Frequency Co-Cited References

Highly cited literature refers to documents that have been cited frequently, reflecting the quality of research, innovation in a specific field, and substantial attention and recognition from scholars [35]. It aids researchers in understanding the hot topics and key milestones in their respective fields [36]. Table 2 presents the top ten most cited documents, with citation indices exceeding 100.

Table 2. High-Frequency Co-Cited References in Enterprise Social Media Research.

No.	Title	Journals	Year	Authors	Citation Frequency
1	Enterprise Social Media: Definition, History, and Prospects for the Study of Social Technologies in Organizations	Journal of Computer Mediated Communication	2013	Leonardi, PM; Huysman, M; Steinfield, C [23]	541
2	The effects of network sharing on knowledge-sharing activities and job performance in enterprise social media environments	Computers in Human Behavior	2016	Kwahk, KY; Park, DH [37]	185
3	What factors influence knowledge sharing in organizations? A social dilemma perspective of social media communication	Journal of Knowledge Management	2016	Razmerita, L; Kirchner, K; Nielsen, P [38]	183
4	Knowledge sharing motivational factors of using an intra-organizational social media platform	Journal of Knowledge Management	2012	Vuori, V; Okkonen, J [39]	134
5	The impact of firms' social media initiatives on operational efficiency and innovativeness	Journal of Operations Management	2016	Lam, HKS; Yeung, ACL; Cheng, TCE [40]	124
6	Improving the agility of employees through enterprise social media: The mediating role of psychological conditions	International Journal of Information Management	2018	Cai, Z; Huang, Q; Liu, HF; Wang, XY [41]	118
7	Location, Motivation, and Social Capitalization via Enterprise Social Networking	Journal of Computer—Mediated Communication	2013	Fulk, J; Yuan, YC [42]	113
8	Why men and women continue to use social networking sites: The role of gender differences	Journal of Strategic Information Systems	2017	Krasnova, H; Veltri, NF; Eling, N; Buxmann, P [43]	112
9	The Role of Marketer-Generated Content in Customer Engagement Marketing	Journal of Marketing	2019	Meire, M; Hewett, K; Ballings, M; Kumar, V; Van den Poel, D [44]	111
10	An affordance perspective of enterprise social media and organizational socialization	Journal of Strategic Information Systems	2018	Leidner, DE; Gonzalez, E; Koch, H [45]	108

Among them, the most cited article is by Leonardi et al. [23], which comprehensively explores enterprise social media from various aspects, such as its definition, history, and prospects. This work has been widely accepted, adopted, and referenced by scholars. The second most cited paper is by Kwahk et al. [37], investigating the impact of third-generation young individuals' orientation toward knowledge-sharing activities and individual work performance in the context of enterprise social media. It concludes that knowledge self-efficacy, social interaction, and mutual norms positively influence third-party inclinations and knowledge-sharing activities on social media, which further affect individual work performance. The third most cited paper is by Razmerita et al. [38], studying the factors that drive or hinder employees' engagement in enterprise social media. Their research identifies important drivers for knowledge sharing, including willingness to help, monetary rewards, management support, management encouragement, and recognition for knowledge-sharing behaviors. On the other hand, barriers to knowledge sharing include behavior changes, lack of trust, and time constraints. This study contributes to understanding the factors influencing the success or failure of enterprise social media.

Several other papers also investigate the impact of enterprise social media on organizational efficiency [40], employee psychology [41], organizational socialization [45], and other aspects. Thus, enterprise social media is a crucial medium for organizations and employees, influencing the long-term development of enterprises, and these highly cited papers provide guidance for future researchers, offering theoretical and practical significance for sustainable organizational development.

3.2. Author and Country Analysis

3.2.1. Author Analysis

The author collaboration network graph can reflect the influence of authors in specific research domains and the closeness of their collaboration network [46]. In this section, core author analysis is conducted using the author collaboration network graph. The size of the nodes in the graph represents the number of published articles, while the lines between nodes represent collaborative relationships between authors. The density of the

lines is positively correlated with the strength of collaboration. Figure 3 illustrates the formed author collaboration graph, which consists of 313 nodes and 298 connections, with a network density of 0.0061. Among them, the nodes representing Sun, Pitafi, and Luqman are relatively large, indicating that these authors have produced more research results on enterprise social media. Additionally, these nodes have different colors from the inside to the outside, indicating their sustained interest and achievements in this topic. The connections between nodes in the graph are relatively sparse, and some nodes are isolated and dispersed, suggesting that there is only limited collaboration between certain authors. Overall, the level of collaboration is not strong; there has not been a widespread trend of collaboration among the authors.

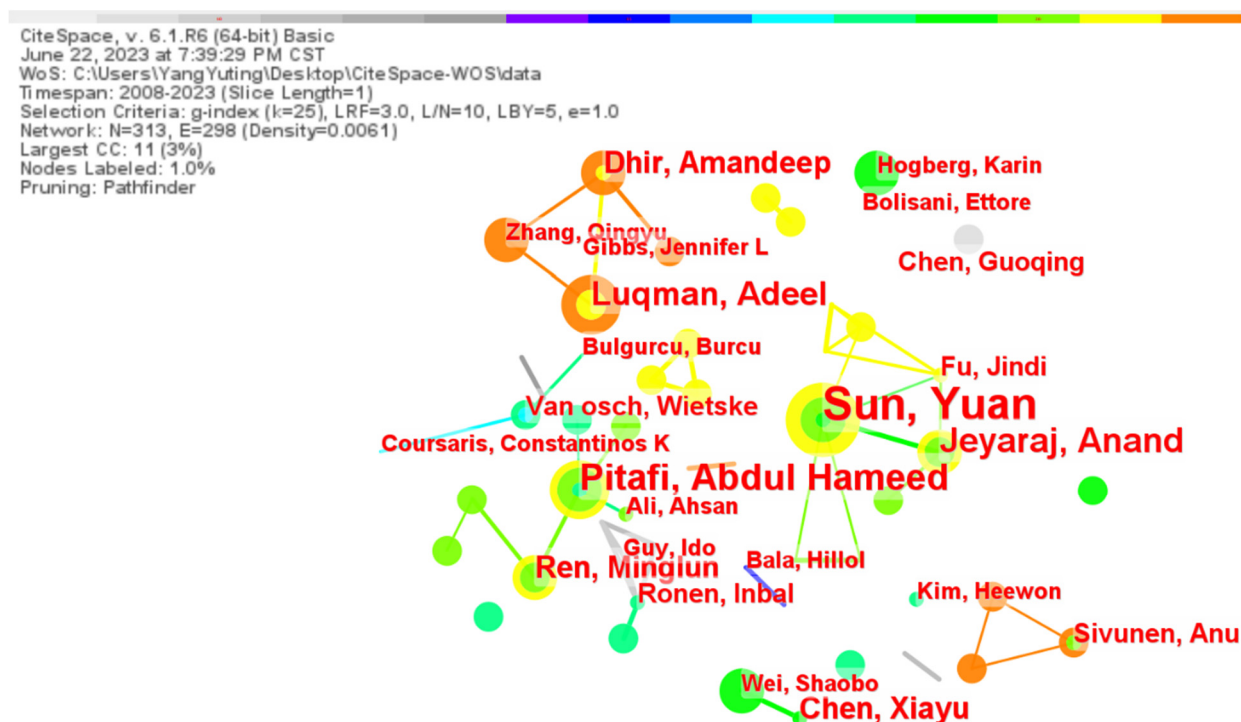


Figure 3. Author network map.

3.2.2. National and Institutional Analysis

Analyzing the degree of cooperation among different countries, institutions, and scholars is crucial from the perspective of national and research organizations [47]. This enables a deeper interpretation of the research advancements of enterprise social media within diverse cultural contexts. The national collaboration network is built upon the foundation of collaborative efforts cited in the literature. Collaboration is considered to exist when authors from two different countries contribute to the same article [48]. The visualization graph in Figure 4 encompasses a total of 284 nodes and 503 edges. Each node represents a country or institution, and the edges between nodes represent collaboration among countries or institutions. The circular color legend radiating from the center corresponds to publication years, ranging from gray to teal and finally to red, representing early research to recent years' studies, respectively. Furthermore, the color of the center of the circles represents the earliest year of publication, while the thickness of the color scale corresponds to the number of publications in the respective year. The circle centers of the United States and Germany are depicted in deep purple, indicating that these countries initiated research on enterprise social media at an earlier stage. The distribution of average annual publications in the United States is evenly spread, indicating sustained research output in this field. The circle center of China is blue-purple, suggesting

a comparatively later start in research. However, the color progression primarily shifts from blue-purple to red, implying recent research output in the past few years.

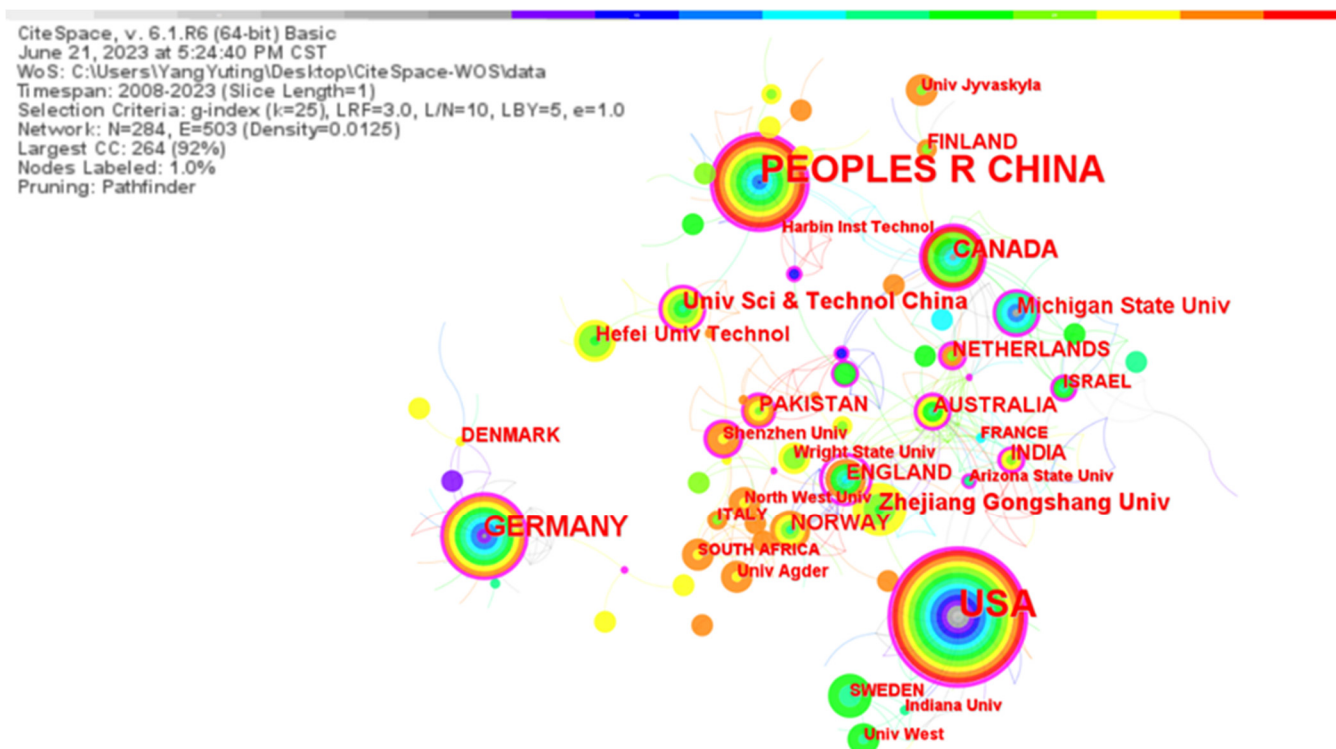


Figure 4. National and institutional cooperative network map.

According to the results of the national collaboration network in CiteSpace, the top ten countries in terms of publication volume were identified. As shown in Table 3, in terms of quantity, China has the highest number of publications in Web of Science, with a current publication count of 100 articles. The following countries include the United States (96 articles), Germany (27 articles), and others. The United Kingdom has the highest centrality (0.85), followed by the United States (0.52), China (0.43), Canada (0.37), and other countries. While China has a much higher publication volume than the United Kingdom, its centrality is relatively lower. Therefore, future research should focus on strengthening international cooperation and communication to promote the development of enterprise social media research.

Table 3. Total number of national papers issued.

Serial	Countries	Publications	Centrality	Serial	Countries	Publications	Centrality
1	China	100	0.43	6	England	12	0.85
2	USA	96	0.52	7	Australia	12	0.24
3	Germany	27	0.36	8	Pakistan	12	0.12
4	Canada	17	0.37	9	India	9	0.29
5	Norway	13	0.10	10	Finland	9	0.04

According to the results of the institution collaboration network in CiteSpace, the top ten research institutions in terms of publication volume were identified. As shown in Table 4, the research institutions with higher publication volumes are mainly concentrated in Chinese and American universities. These include China's Zhejiang Gongshang University (15 articles), the University of Science and Technology of China (14 articles), and Hefei University of Technology (10 articles), as well as the United States' Michigan State University (13 articles) and Wright State University (6 articles), etc. While the initial

research on enterprise social media emerged from the United States, China's rapid construction and development of 5G technology and base stations, as well as the widespread and portable nature of social media mobile terminals, have provided greater advantages. The innovation of Chinese social media has brought great value. With the increase in the duration, frequency, and number of social media users, as well as the high attention from the government and the market, Chinese scholars are particularly concerned about the field of social media and have invested in in-depth research, resulting in excellent research achievements on the platform. Agder University College from Norway and the University of Jyväskylä from Finland also show interest in researching enterprise social media.

Table 4. Number of publications by research institutions.

Serial	Research Institutes	Publications	Centrality
1	Zhejiang Gongshang University, Hangzhou, China	15	0.03
2	University of Science and Technology of China, Hefei, China	14	0.24
3	Michigan State University, East Lansing, MI, USA	13	0.38
4	Hefei University of Technology, Hefei, China	10	0.03
5	Agder University College, Arendal, Grimstad and Kristiansand, Norway	6	0.00
6	Wright State University, Dayton, OH, USA	6	0.00
7	Shenzhen University, Shenzhen, China	6	0.21
8	Arizona State University, Phoenix, AZ, USA	5	0.15
9	Northwest University, Xi'an, China	5	0.01
10	University of Jyväskylä, Jyväskylä, Finland	5	0.00

3.3. Co-Term Analysis

3.3.1. Keyword Co-Occurrence Analysis

Co-occurrence analysis of keywords can reveal the popular research topics and general research trends in a particular field over the years [31]. The larger the node, the higher the frequency of occurrence of the keyword, which reflects the stronger research enthusiasm of scholars in the relevant field. The more connections between nodes, the stronger the co-occurrence relationship among them [49]. By importing the literature into CiteSpace with a time range from 2008 to 2023, employing a “1-year” time slice and selecting “keyword” as the node type, along with selecting the Pathfinder and Pruning sliced networks and Pruning the merged network trimming method, a keyword co-occurrence network was constructed, consisting of 352 nodes and 738 edges. The network density was calculated to be 0.0119, indicating a relatively dense and interconnected structure of research themes. Figure 5, dentered around enterprise social media, expands into several important key themes, including social media, communication, work performance, knowledge sharing, and more. The dense and intertwined connections among the nodes illustrate the strong association between research topics in the literature. Among them, keywords such as social media, behavior, influence, and performance exhibit larger node sizes, indicating a greater emphasis from researchers on the impact of enterprise social media, as well as aspects related to organizational management and performance.

Summary of high-frequency keywords and centrality statistics (Table 5) based on keyword co-occurrence graph. From the analysis of keyword frequencies in the field of enterprise social media research, we determined that the term “enterprise social media” has appeared 133 times, significantly surpassing other keywords. It holds the largest node and represents the core of the entire research field. Other prominent themes include social media, work, influence, and communication. The advancement of internet technology has provided convenient services to humans in various ways, speeds, and scales. These services enable users to effectively conduct work on online platforms and foster the prosperity of businesses [50]. Currently, internet technology has evolved from Web 2.0 to Web 3.0, where artificial intelligence facilitates bidirectional connections between humans and the internet [51]. Technologies such as big data and AI automatically capture user needs and provide high-quality services [7]. The user base of social media platforms

has experienced explosive growth, and users' reliance on social media has progressively increased. According to a report by the McKinsey Global Institute, it is estimated that by 2030, approximately 70% of businesses will adopt at least one form of AI technology. A report by market intelligence company Tractica suggests that AI may flourish in industries such as consumer goods, automotive, financial services, telecommunications, and retail. By 2025, the global annual revenue of the AI software market is projected to reach USD 126 billion.

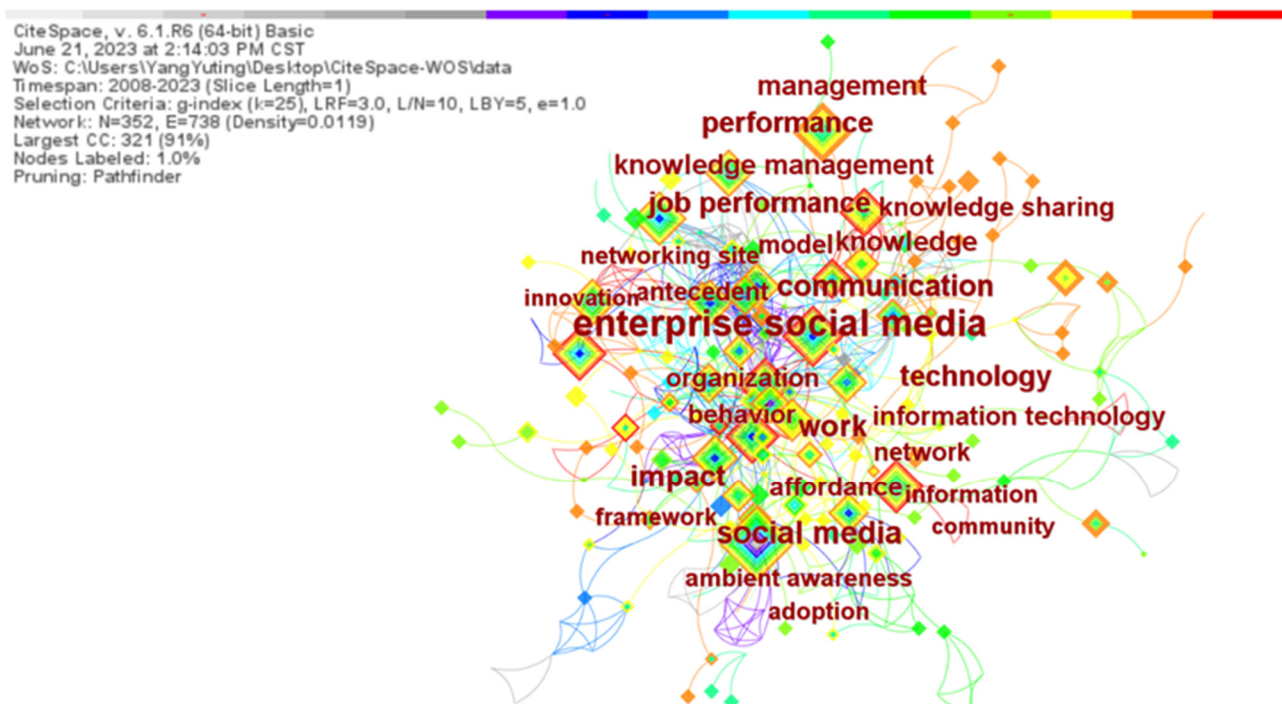


Figure 5. Keyword co-occurrence analysis map of enterprise social media research.

Table 5. Statistical table of high-frequency keywords.

Serial Number	Keyword	Year	Frequency	Centrality
1	Enterprise social media	2013	133	0.03
2	Social media	2009	57	0.19
3	Work	2015	48	0.13
4	Impact	2013	47	0.02
5	Communication	2013	43	0.22
6	Job performance	2018	40	0.04
7	Technology	2015	39	0.04
8	Performance	2018	38	0.00
9	Knowledge	2013	37	0.04
10	Knowledge management	2011	35	0.04

Enterprise social media is a critical medium for information exchange and external governance. Leonardi et al. [23] have mentioned that enterprise social media can serve as a tool for communication among employees and be used in organizational work. As a platform for users to create, disseminate, and acquire information, enterprise social media offers convenience and efficiency in its operation [52]. Zhao [53] found that employees can establish faster connections with others and obtain and disseminate information more quickly through social media. In the era of the digital economy, social networks and other media have expanded the spatial scope of information dissemination [54]. The rise of social media has significantly reduced the speed and distortion rate of original information dissemination, improved information accuracy, and enabled employees to quickly access

and share information, thereby increasing the diversity of information acquisition channels and accelerating the speed of information dissemination [55]. Companies can utilize social networking to establish direct communication and good relationships with customers, further bringing sustainable performance to the organization [56]. Mantymaki et al. [57] studied how employees use corporate social networks from a knowledge management perspective and explored the value of using corporate social networks. They identified five purposes through qualitative content analysis: problem-solving, idea exploration, updates on activities, task management, and informal conversations. The use of social media can facilitate collaborative knowledge management and reduce the complexity of knowledge management through the integration of individual and collective knowledge [58]. Zhao et al. [59] suggest that managers should adopt an open attitude towards the use of social media. They should actively encourage employees to use social media for communication, bridging the gaps in formal communication within the organization, ensuring rapid information dissemination, and promoting effective knowledge sharing among employees.

3.3.2. Timeline Analysis

Using the “Timeline” feature in CiteSpace software, we drew a keyword timeline map to analyze the hotspots and evolutionary trends in research on enterprise social media. The keyword timeline graph is arranged in chronological order from left to right, and the size of nodes is proportional to the frequency of the corresponding keywords [60]. In Figure 6, the identified node clusters represent the forefront of enterprise social media research. Ever since Andrew P. McAfee proposed the concept of “Enterprise 2.0” in 2006, scholars’ attention to related topics has shown a gradual increase. In 2008, Antony Mayfield [61] first introduced the concept of social media, considering it as a series of online media where users can form interconnected community networks, allowing for greater engagement. Users can actively participate in these online media by paying attention to, commenting on, providing feedback for, and analyzing information, which stimulates their own interests and facilitates bidirectional content dissemination. Initially, scholars extended the topic of “social media”, focusing primarily on studying topics such as information, knowledge, and others. With the rapid development and convenience of social media, it has drawn increasing attention from businesses, leading to the emergence of the concept of enterprise social media and related research. Enterprise social media has gradually become a hot topic within the field. In terms of research content, the current foci include four aspects: the definition, adoption, use, and impact of enterprise social media [62]. Researchers began to focus on various aspects, including technology, behavior, community, and innovation, with a particular emphasis on performance and motivation. In recent years, research interests have become more comprehensive, encompassing areas such as information overload, creativity, challenge stressors, and emotional exhaustion. The literature has shifted from a singular focus to a more diverse perspective, with tighter connections between nodes and a greater variety of research perspectives.

3.3.3. Cluster Analysis

Based on the co-occurrence of keywords in the relevant literature, a cluster analysis of the keywords was conducted using the log-likelihood ratio algorithm in CiteSpace software to identify the core theories and hot topics in the theoretical knowledge. The Modularity Q value and Mean Silhouette S value of the literature clusters indicate a good clustering profile. The Cluster ID represents the post-clustering numbering, presented in the form of #0, #1, #2, and so on in the graph. The smaller the cluster number, the earlier the theme appeared, and the larger the number of labels included in the cluster, the larger the cluster size. From Figure 7, it can be observed that the keyword clustering map displays a total of 17 reasonable cluster categories, including #0 knowledge sharing, #1 impact, #2 coordination, #3 challenge stressors, #4 popularity, #5 digital transformation, #6 social media, etc., representing the main themes in the research on enterprise social media.

Table 6 presents the top ten clusters based on the clustering results. We will discuss these ten clusters at the individual level and the organizational level.

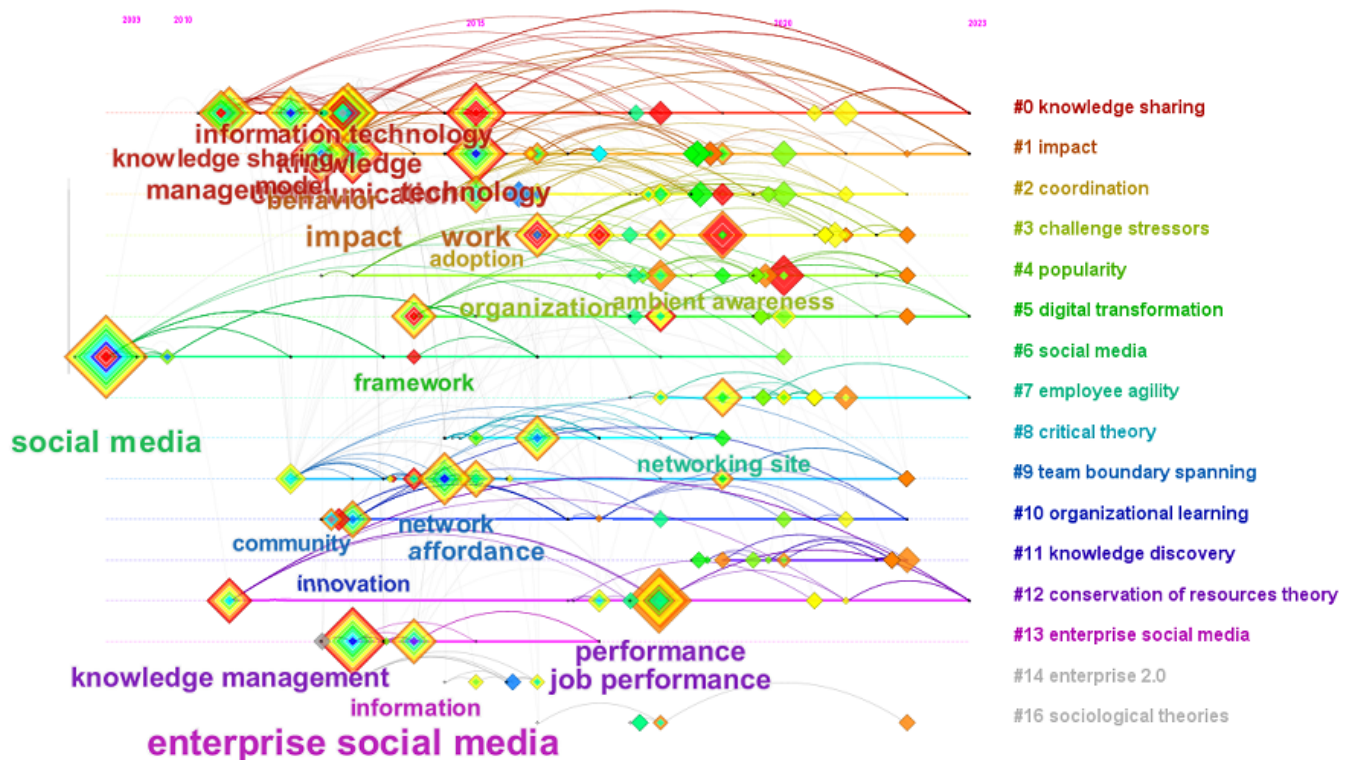


Figure 6. Timeline of keywords in enterprise social media research.

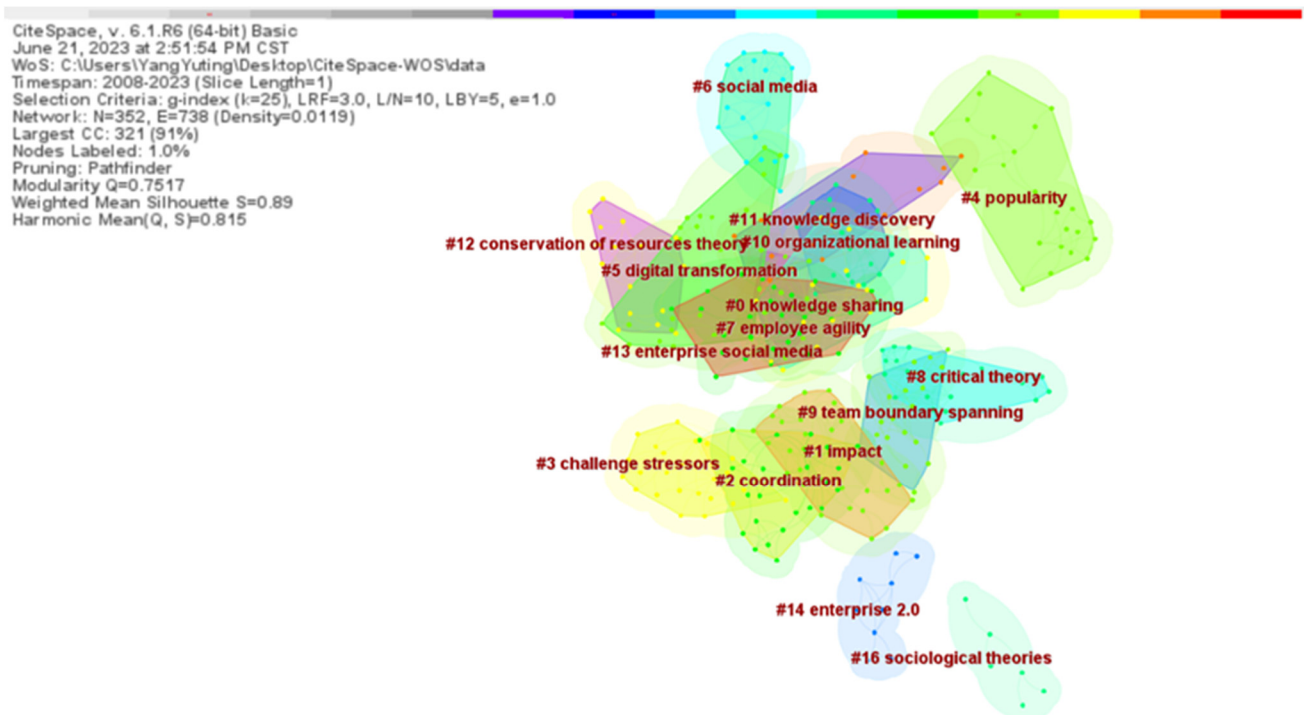


Figure 7. Keyword clustering map of enterprise social media research.

Table 6. Clustering analysis of keywords in enterprise social media.

Cluster ID	Cluster Name	Year	Size	Main Keywords
#0	knowledge sharing	2015	33	organizational social media; knowledge work; reflective learning
#1	impact	2017	32	job satisfaction; work-related use; topic analysis
#2	coordination	2018	25	enterprise social software; enterprise social networks; perceived task autonomy
#3	challenge stressors	2020	24	interruption overload; hindrance stressors; psychological transition
#4	popularity	2018	23	celebrity; referrals; business outcomes; social media use
#5	digital transformation	2019	22	online social relationship; small organizations; proactive creativity
#6	social media	2013	21	enterprise social media; social networks; knowledge sharing
#7	employee agility	2020	21	communication quality; firm performance; social media marketing
#8	critical theory	2016	20	contingency interactivity; German media theory; social media exposure
#9	team boundary spanning	2016	20	hierarchy; ESM usage regret; job reattachment; task performance

1. The Impact of Enterprise Social Media on Individuals

Cluster #0 “knowledge sharing” is the largest cluster. Knowledge sharing refers to the process wherein members of an organization share their individual knowledge with other members through various forms of communication, ultimately transforming it into an organizational intellectual asset [63]. Only by using information technology, appropriate management practices, and other means can knowledge be effectively utilized. The introduction of enterprise social media in organizations is driven by the need to improve internal communication and knowledge sharing [64]. The motivation for sharing knowledge through social media platforms within the organization is to assist colleagues and the organization in problem-solving and goal achievement [39]. Lam et al. [40] advocate that social media within companies can facilitate internal and cross-organizational information exchange and knowledge sharing, further enhancing interaction between companies and customers, and improving both internal and external collaborations. Users can acquire customer knowledge from enterprise social media to enhance customer relationship management in large organizations [65] and improve product innovation [66]. Companies can also utilize social media to reduce information asymmetry with the market, enhance corporate transparency, and improve market efficiency [67]. Chen et al. [68] confirmed that knowledge sharing serves as the best mediator for workplace social media usage and employee skill improvement. However, Leonardi [69] explicitly points out that the potential of enterprise social media in communication visibility may lead employees to conceal certain knowledge to maintain exclusive skills and competitive advantages. Lin et al. [70] believe that when users are in an environment lacking incentives for knowledge sharing, they are more inclined to refrain from participating in community contributions, often leading to knowledge hiding behaviors. Knowledge hiding may result from various factors, such as distrust, previous non-reciprocity, negative personal relationships, prior interactions, risks to reputation or status, subject complexity, time and effort constraints, task relevance, and organizational atmosphere [71]. Nevertheless, Ford et al. [72] discovered that employees may simultaneously engage in both knowledge sharing and knowledge hiding.

Cluster #1, “impact”, involves keywords such as job satisfaction, work-related use, and topic analysis. The use of social media enhances job satisfaction by increasing employee engagement and organizational commitment [73]. Social media in the workplace can have a significant impact on knowledge sharing within the organization and help members achieve professional and personal goals, resulting in substantial cost savings. The use of enterprise social media can be divided into two categories: work-related use and social-related use [74]. Work-related use refers to employees using it for work purposes, and activities related to work may have a positive impact on their task performance and outcomes [75]. Conversely, social-related use involves employees using enterprise social media to build and maintain social relationships. Fu et al. [21] found that both work-related and social-related use have positive effects on social capital bonding and bridging. Furthermore, bundled social capital promotes job satisfaction, while bridging social capital inhibits job satisfaction. Eliane et al. [76] discovered that work-related social media has no significant impact on

employees' job satisfaction, whereas social-related social media has a positive influence on job satisfaction.

Cluster #2, "coordination", reflects the perceived task autonomy for individual employees, which indicates their perception of having a certain degree of control over the management process and decision-making freedom regarding task assignments. The use of enterprise social media requires a significant amount of time balancing task scheduling, leading to no impact on perceived task autonomy for employees [77].

Cluster #3, "challenge stressors", includes interruption overload, hindrance stressors, and psychological transitions. Challenge stressors are a type of stressor that can generate challenges and may lead to positive outcomes [78]. Employees can overcome this type of stress to achieve their work goals and developmental capabilities [79]. On the contrary, hindrance stressors arise from constraints that hinder individual developmental goals. Prevalent hindrance stressors include bureaucracy, organizational politics, job insecurity, and career stagnation [80]. Liu et al. [18] argue that the use of social media enriches emotional communication among employees, increases their social interaction scope, and provides them with more social support and networking resources. Consequently, this can lead to a reduction in both challenge stressors and hindrance stressors. The social use of enterprise social media during working hours can result in interruption overload and psychological transitions, which negatively impact employee well-being, creativity, and overall productivity [81]. Harris et al. [82] indicated that the use of social media may lead to social overload and even task overload, resulting in emotional exhaustion and tension.

Cluster #6, "social media", emphasizes that through social media, employees can not only communicate their explicit knowledge in written form but also share tacit knowledge. Social media allows for an increasingly diverse range of knowledge-sharing activities, and actively using social media enables users to gain knowledge and information to help them solve problems [37].

Cluster #7, "employee agility", refers to the ability of employees to adapt to rapidly changing and unpredictable environments [83]. Individuals can use enterprise social media to cope with unpredictable market changes [84]. Sherehiy et al. [85] propose autonomy, job demands, and collaboration as important strategies to promote individual agility. Lai et al. [86] found that task autonomy significantly influences employee agility. High communication quality and trust among employees lead to high agility [87]. The pressures related to enterprise social media can reduce the relationship between communication visibility and employee agility. However, the pressures related to enterprise social media have an insignificant moderating effect on the relationship between communication quality and employee agility [88]. Ma et al. [89] applied the Grounded Theory to investigate and found that the use of enterprise social media can impact employees' work performance through work efficiency and emotional maintenance.

2. The Impact of Enterprise Social Media on Organizations

Cluster #4, "popularity", reveals that key factors such as external pressure, internal readiness, expected benefits, strategic goals, and perceived risks influence the use of social media within organizations. This subsequently affects the performance outcomes in operations and marketing, as well as customer, employee, partner, and supplier satisfaction [90]. Zhang et al. [91] pointed out that in influencer marketing, influencer outreach is a crucial step, where brands engage with influencers and establish cooperative relationships. When customers perceive a brand as highly interactive on social media, they are more likely to purchase the brand's products. Additionally, perceived social media interactivity has a positive influence on customer purchase, recommendation, influence, and knowledge, varying depending on the brand and social media platform type [92].

Cluster #5, "digital transformation", involves online social relationships, small organizations, and proactive creativity. It suggests that internal social media within organizations can help establish a flexible platform that facilitates employee communication and collaboration [93].

Cluster #8, “critical theory”, states that media theory provides a specific perspective that explains how media shape, form, support, promote, hinder, and determine organizational communication [94].

Cluster #9, “team boundary spanning”, involves keywords such as ESM usage regret, job reattachment, and task performance. Team boundary spanning indicates that the relationship between enterprise social media use, network structure, and content with task performance varies depending on the degree of team dispersion in terms of geography and time. The use of enterprise social media significantly influences the content and structure of individual social networks, thereby enhancing task performance. While the use of social media has certain benefits, it can also have negative impacts. For example, social media use is positively correlated with work overload, leading to reduced employee performance, and information overload in social media can affect workplace anxiety among employees [95]. Deng et al. [77] found that employees’ perception of task structure plays a mediating role between the use of enterprise social media and task performance.

Through the above analysis, it is found that the use of enterprise social media has both positive and negative impacts on individuals and organizations. For instance, enterprise social media can facilitate internal and external knowledge sharing [40,68], improve employee satisfaction [73,76], enhance employee agility [84,88], and boost overall corporate performance [75,77,89]. However, it may also lead to negative effects such as knowledge hiding [69,72], hindrance to individual development [81], and information overload for employees [82]. Therefore, for different types and scales of enterprises, further research is needed to effectively enhance the positive effects and mitigate the adverse effects brought about by enterprise social media. This will enable the maximization of net benefits for employees and organizations, thereby promoting sustainable development for the enterprise.

3.3.4. Burst Word Analysis

We used the “Burstness” option in the CiteSpace software to identify burst keywords in the literature on enterprise social media. These burst keywords were further analyzed to examine their variations across different years. This method distinguishes the burst keywords in different time periods using different colors, thereby displaying potential research turning points for the topic in certain years [96]. From Figure 8, it can be observed that a total of 16 burst keywords were found in the research on enterprise social media, indicating high scholarly attention to these thematic terms during specific time periods. Among them, the highest burstiness intensity was observed for “social media” (6.1), followed by “technology”, with the second highest burstiness intensity (4.32), and “framework”, ranked third, with a burstiness intensity of 3.29. This indicates significant attention to these topics in the field of enterprise social media research. In terms of burst timing, both “social media” and “knowledge sharing” keywords attracted scholars’ attention from the beginning, suggesting that the initial exploration of enterprise social media development focused on the study of social media and knowledge sharing. The burstiness of “knowledge sharing” lasted for a relatively long time, starting from 2011 and continuing until 2017, making it a hot research topic for several years. Subsequently, keywords such as “culture”, “technology”, “organization”, “online”, and “job performance” had relatively shorter research durations. In recent years, the keyword “employee” has continued to be a topic of research interest and is expected to receive continued attention from scholars, becoming a research hotspot and frontier area.

Top 16 Keywords with the Strongest Citation Bursts

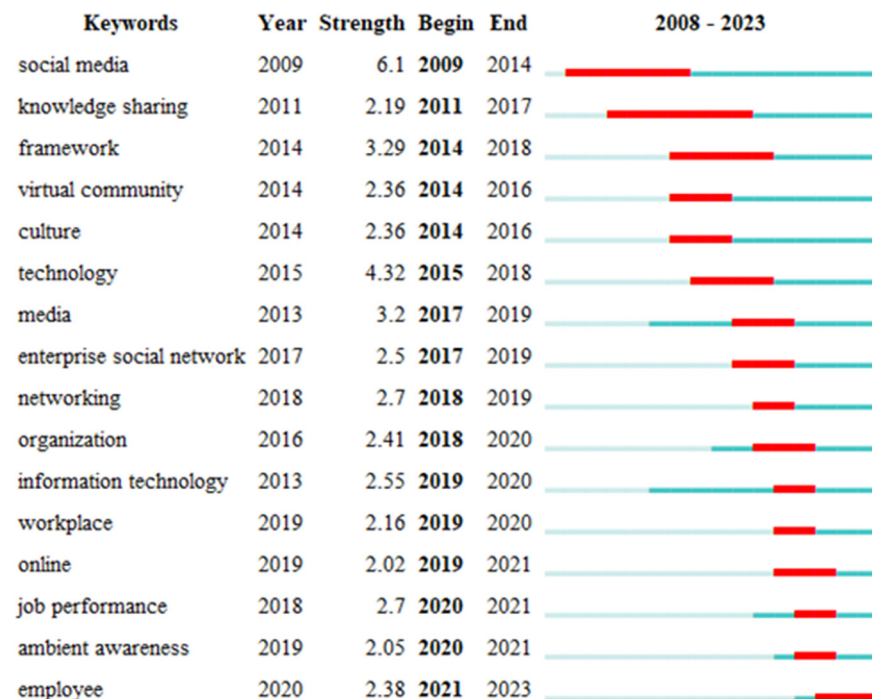


Figure 8. Top sixteen keywords with the strongest citation bursts.

4. Discussion

4.1. Research Implications

This study carries significant implications for both researchers and practitioners in the field of enterprise social media. For researchers, this paper summarizes key countries, institutions, highly cited literature, and core authors in the field of enterprise social media research. It aids researchers to quickly identify hot-topic journals and core authors in the domain and to locate valuable information. Additionally, we employed CiteSpace software to analyze the current status and emerging trends in enterprise social media research and propose potential future research directions. This endeavor aids researchers to focus on the research hotspots in this domain. For business managers, our study sheds light on the impact of enterprise social media on employees. It highlights positive facets such as improved communication and collaboration among team members, as well as negative effects like information overload, distraction, emotional fatigue, and burnout. As a result, managers can actively guide employees to properly use enterprise social media in the workplace, mitigating negative impacts and promoting employee motivation, thereby promoting enterprises' transition to digitalization. Within enterprises, employees can gain insight from understanding the various advantages inherent to enterprise social media. This comprehension empowers them to leverage its benefits to create more value for themselves and their organizations.

4.2. Future Research Directions

With the development and application of enterprise social media technology, the knowledge map also demonstrates the importance and necessity of research in this field. Based on the previous analysis, future research on enterprise social media needs to advance in the following aspects:

1. Explore the enterprise human-machine collaborative models within the context of artificial intelligence. Social media plays a role in facilitating communication and knowledge sharing within organizations, promoting emotional exchange among

employees and teams. With the rapid popularity of generative AI, employees may gradually shift their communication from person-to-person to conversations with intelligent machines due to trust, risk, and other factors. Whether this new form of emotional exchange enhances or replaces effective communication through enterprise social media and whether it reduces team cohesion are questions worth further research by scholars. The use of enterprise social media and the human–machine collaborative office model may also have an impact on employee competence. It is important to examine how this human–machine collaboration model will influence the digital transformation of enterprises.

2. Ensure the privacy of users during the use of enterprise social media. While enterprise social media provides convenient services to users, it also involves risks such as user identity and privacy breaches. Privacy breaches related to enterprise social media users may directly trigger a trust crisis in the platform and even raise doubts about the entire internet [97]. To some extent, this could decrease user satisfaction and usage rates, consequently driving users away from engaging with enterprises. Therefore, it is necessary for companies to pay attention to issues such as safeguarding users' personal information and privacy, as well as creating a favorable information security environment for users.
3. Focus on the impact of enterprise social media use on employees' physical and mental health. The main source of value creation in companies is human capital, so it is particularly important to pay attention to employees' physical and mental health. With the development of digital technology, various software technologies have brought about significant changes in human life and work. The use of enterprise social media allows employees to work remotely online, strengthening communication and collaboration among members, but it also brings negative effects such as information overload, distraction, emotional exhaustion, and fatigue. It may even lead to employees complaining about the blurring of boundaries between work and personal life due to the use of enterprise social media. Therefore, companies should pay attention to the negative impacts arising from employees' use of enterprise social media, improve their physical and mental well-being, enhance employee satisfaction, enable efficient utilization of digital technologies for new forms of office work, and promote sustainable development within the organization.

5. Conclusions, Limitations, and Prospects

5.1. Conclusions

This study uses literature from the Web of Science Core Collection database as the data source and employs CiteSpace software to construct scientific knowledge maps, aiming to help interpret the research hotspots and evolutionary trends of enterprise social media within the context of the digital economy. The following conclusions are drawn:

From the analysis of literature and journals, it can be observed that the publication volume of research on enterprise social media has been steadily rising, but the overall quantity of literatures is relatively small; there is still a significant research space. Prominent outlets such as *Research, Information Technology People*, and the *International Journal of Information Management* have published the most literature and become the primary platforms for enterprise social media literature publications. Highly cited literature reflects scholars' heightened attention to sub-topics such as the prospects of enterprise social media, knowledge sharing, and work performance.

Based on the distribution of authors and national institutions, it can be observed that there is not a strong overall level of collaboration among authors, and there is not a discernible pattern pointing towards sustained long-term collaboration. From the analysis of regions and research institutions, it can be seen that the United States and Germany have been conducting research on enterprise social media earlier and continuously, whereas China started relatively late but has published research results in recent years. The institu-

tions with a higher publication volume are mainly concentrated in Chinese and American higher education institutions.

From the perspective of hotspots and evolutionary trends in enterprise social media research, several important key themes have been extended from the core subject of enterprise social media. These themes include social media, communication, work performance, knowledge sharing, and others. Scholars are increasingly focusing on the impact of enterprise social media, as well as hot topics related to corporate management and performance. The literature research has evolved from a single focus to a more diverse array of research perspectives.

By integrating cluster diagrams and emergent word analysis, it was found that research on enterprise social media originally started from the field of social media research and then expanded into the realm of enterprise social media. In its early stages, the research primarily focused on knowledge-sharing themes and had a longer research history. In recent years, there has been increasing attention to topics such as performance and challenge stressors, with employee-related research being ongoing and expected to become a hot and cutting-edge research area.

5.2. Limitations and Future Research

Despite the contribution of our research, there is still room for improvement. Firstly, in terms of the selection of research samples, this paper utilizes CiteSpace software for literature analysis, the data only comes from the Web of Science Core Collection database, and the literature type of this paper is English articles. In future studies, a broader set of academic papers, including conference papers and other types of literature, could be included, and data could be extracted from multiple platforms for conducting literature research. Secondly, with respect to the research content, scholars could initiate research from other perspectives, such as human–computer collaboration, employee mental and physical well-being, user interests, and the privacy of enterprise social media users.

Author Contributions: Conceptualization, W.Z., Y.Y. and H.L.; methodology, W.Z. and Y.Y.; software, Y.Y.; validation, W.Z., Y.Y. and H.L.; formal analysis, W.Z., Y.Y. and H.L.; writing—original draft preparation, W.Z. and Y.Y.; writing—review and editing, W.Z., Y.Y. and H.L.; visualization, Y.Y.; supervision, H.L.; funding acquisition, W.Z. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by Shaanxi Social Science Foundation Project (2023R200); Shaanxi Soft Science Program Research Project (2022KRM172); Project of Shaanxi Intellectual Property Office (YJ2023-15); Postgraduate Teaching Reform Project of Xi'an University of Finance and Economics (2023J022); Research project on education and teaching reform of Xi'an University of Finance and Economics (23xcj013).

Conflicts of Interest: The authors declare no conflict of interest.

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