

The Performance of Corporate Social Responsibility Communication in the Web2.0 Era: A Bibliometric Analysis of CSR Communication in Social Media Field

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Received: September 4, 2023

Accepted: October 10, 2023

Online Published: October 15, 2023

doi:10.11114/smc.v11i7.6355

URL: <https://doi.org/10.11114/smc.v11i7.6355>

Abstract

With the advent of the web2.0 era, the role of CSR communication in social media has become a hot topic in research and business. However, research on the topic in this area is still relatively new and has not been fully researched. In this study, citespace software is used to analyze the performance of literature in this field. The main results show that the use of social media for CSR communication is a long-term and significant research topic. According to the analysis of 490 research articles in this field from 2007 to 2023, the research trend shows an increasing state year by year, and the explosive growth began in 2017. The United States, China and Spain are the countries that contribute the most in this field. Perez Andrea, Camilleri, Mark Anthony and others are among the most influential authors. The network of co-authors is decentralized, while transnational cooperation takes the form of institutions and groups. Twelve clusters of high concern were identified, with "institutional theory," "web," and "citizenship" having been around longer. The changes in 19 burst terms over 17 years (2007 to 2023) indicate the evolution of the research frontier in the field, with the earliest "institutional theory" moving to "web," "image," then "citizenship," "perspective," and more. "loyalty" and "satisfaction" etc. The evolution can be divided into three phases: the initial phase (2007-2011), the debate phase (2012-2017), and the research specialization phase (2018-2023). Finally, the contribution, limitation and further research direction of this paper are discussed.

Keywords: CSR communication, social media, management, Stakeholder, Citespace

1. Introduction

From the early 19th century to the present, the development of corporate social responsibility (CSR) has gradually matured, and has become a topic of concern for many scholars in the fields of business and economics. Many enterprises not only pay attention to corporate social responsibility as a business concept and corporate culture, but also take the fulfillment and commitment of corporate social responsibility as an important way to build a harmonious relationship between enterprises and stakeholders and obtain competitive advantages.

With the advent of the Web2.0 era, the rapid development of social media represented by twitter, YouTube, Facebook, Weibo, blog, etc., has not only greatly changed the mode of information dissemination, but also brought profound impact on the development environment and business model of enterprises (Liu, 2011). On the one hand, since social media has been widely used in product marketing and communication, and has played its own advantages, many enterprises have applied it to the strategy and behavior of enterprises. On the other hand, although social media has built a convenient communication bridge between enterprises and stakeholders, enterprises also face new risks, and even make stakeholders think that enterprises are "hypocritical" if the communication is not smooth (Wagner et al., 2010).

In this context, corporate Social responsibility communication (CSR communication) comes into being, a multidisciplinary issue that covers both strategic and operational issues. Although the concept of corporate social responsibility is broad, diverse and has not yet reached consensus, the dissemination and communication of corporate social responsibility on social media is an important area of interaction between enterprises and stakeholders (Kim et al., 2014). According to Podnar, CSR communication can be defined as "a process of anticipating stakeholders' expectations,

clarifying CSR policies, and managing various corporate communication tools aimed at providing its stakeholders with a true and transparent picture of the business operations of the company or brand, expressing the company's concern for social and environmental issues, and interact with stakeholders "(Podnar, 2008). Although many scholars have proposed that communication is crucial to corporate social responsibility, it has not received sufficient attention in existing research (May, 2011). Companies themselves and scholars in the field of corporate social responsibility are also constantly exploring more appropriate means of corporate social responsibility communication, such as releasing CSR reports, launching CSR advertisements, establishing CSR special websites, disseminating CSR marketing activities, etc., but research The results are inconsistent (Ji et al., 2021). For example: research points out that the combination of corporate social responsibility communication and advertising can produce the best performance (Kadhim, K. G et al., 2023). However, the widespread use of advertising as a means of communicating CSR can increase stakeholder suspicion and reduce the credibility of CSR messages (Schlegelmilch and Pollach, 2005; Morsing and Schultz, 2006). Therefore, no matter from the actual needs of enterprises or scholars' research in this field, there is still a lot of space for the exploration of corporate social responsibility communication in social media, especially the lack of macro and comprehensive combing and induction. On this basis, this paper seriously and comprehensively summarizes the research field of corporate social responsibility communication in social media, and reveals the development status, hot spots and frontier trends in this field.

2. Methods and Data Sources

2.1 Research Method

Knowledge graph is a technology that visualizes the knowledge development process and theoretical research structure, and can present the development history, research hotspot and evolution trend of the research field. CiteSpace visual knowledge graph is a tool used to identify and display research trends and predict research trends in scientific literature. The generated knowledge graph can show the development process and structure of knowledge. Based on this, this study uses CiteSpace 6.2.R3 visual knowledge graph to sort out and analyze research results in the field of CSR communication in social media. The analysis elements include author, publishing institution, publishing country, keywords, keyword clustering, literature co-citation, etc. Through the graphs and data obtained, the status quo and future hot trends in this field are sorted out.

2.2 Data Source and Screening

In this study, the core collection of global academic information important database Web of Science is used as the data collection platform. The data screening process is shown in Figure 1. In order to ensure the comprehensiveness and authority of the literature, the subject (Title, Abstract and Keywords) The search criteria are set to ("social media" AND "enterprise" AND "Corporate social responsibility communication" OR "CSR communication") from January 1, 2007 to June 16, 2023, with a total of 558 original data. Non-journal articles such as journal catalogs, book reviews, and conference notices are excluded, and the language is set to English only. Non-related fields such as medicine, psychiatry, architecture, and political science are excluded. After screening, a total of 490 pieces of original data meeting the requirements were collected and sorted out.

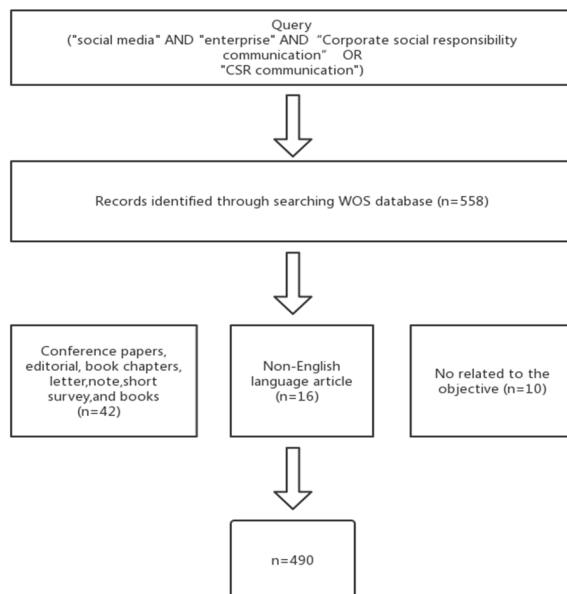


Figure 1. Schematic diagram of the raw data screening process

2.3 Data Processing and Parameter Setting

In this study, CiteSpace 6.2.R3 software was used to detect the number or frequency of repeated occurrence of the keyword "corporate social responsibility communication" in the field of "social media", and co-occurrence analysis was carried out to learn the research hotspots and development trends in this field. Time Slicing is from January 2007 to July 2023. In terms of setting threshold parameters, In this study, the value of "Node Types" is set as Author, Institution, Country, Keyword and Reference. The value of "Top N" is set as 50, and the value of "K" in g-index is set as 10. Pruning Select Pathfinder and Pruning merged Network.

3. Statistical Analysis

3.1 Number of Publications Calculated by Year

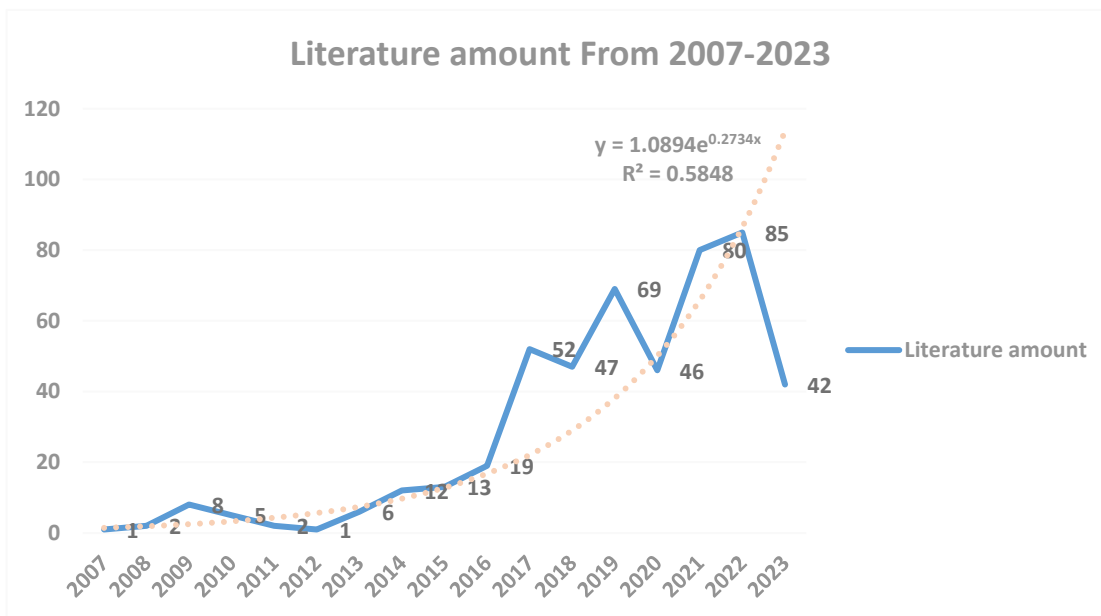


Figure 2. Publishing situation of CSR communication in the field of Social Media Research in 2007-2023

Based on Figure 1, the literature on CSR communication in social media has exhibited a steady growth trend, as demonstrated by a fitting curve with an index of $y = 1.0894e^{0.2734x}$. This field was gradually proposed in the early 20th century. The roots of this field can be traced back to the 2007, although in the 2012, there was a noticeable lull in publications, with an average of only 3.2 articles per year. Following this period, from 2013 to 2016, The number of publications in this field remains relatively stable and increasing year by year, with an average of 12.5 publications per year. In contrast, the period from 2017 to 2022 saw a significant uptick in publications, reaching a peak in 2022. As the data collection for this analysis ended on June 17, 2023, the statistics for 2023 are incomplete, but the trend suggests that the number of publications will continue to increase in keeping with the annual trend and the fitting curve formula.

3.2 Country/Region Analysis

The national cooperation map (Figure 3) was generated using CiteSpace software, producing 66 nodes and 189 connections (N=66, E=189). Table 1 presents data on the top 10 countries by production. The analysis reveals a closely intertwined network of collaboration among these countries. USA tops the list with 137 articles, constituting approximately 30.44% of the total literature. Followed by Peoples R China (56 articles, 12.44%) and Spain (54 articles, 12%) in second and third place, respectively. England and Italy are tied for fourth and fifth place with 44 articles and 40 articles each, followed by Germany (30), Austria (26), Australia (23), Netherlands (22), and France (18). From the perspective of the time of studying this field in different countries, USA is not only the country with the highest number of publications, but also the earliest research country (begin 2007). Although China is the latest research country, the first article was only published in 2017, but only a few years later, the relevant research article ranked the second in the world. Spain, Britain, Italy, Germany and Australia almost all conducted relevant research before 2010 (except Italy in 2013), so the total number of publications is stable and continued to rise. In contrast, Australia, the Netherlands and France, which had earlier studies in this field, ranked eighth, ninth and tenth overall. The countries with the highest centrality are England (0.45), Spain (0.28), USA (0.12), Peoples R China (0.11), and Australia (0.11), indicating that the research output of these countries is widely recognized and exerts significant influence in the field.

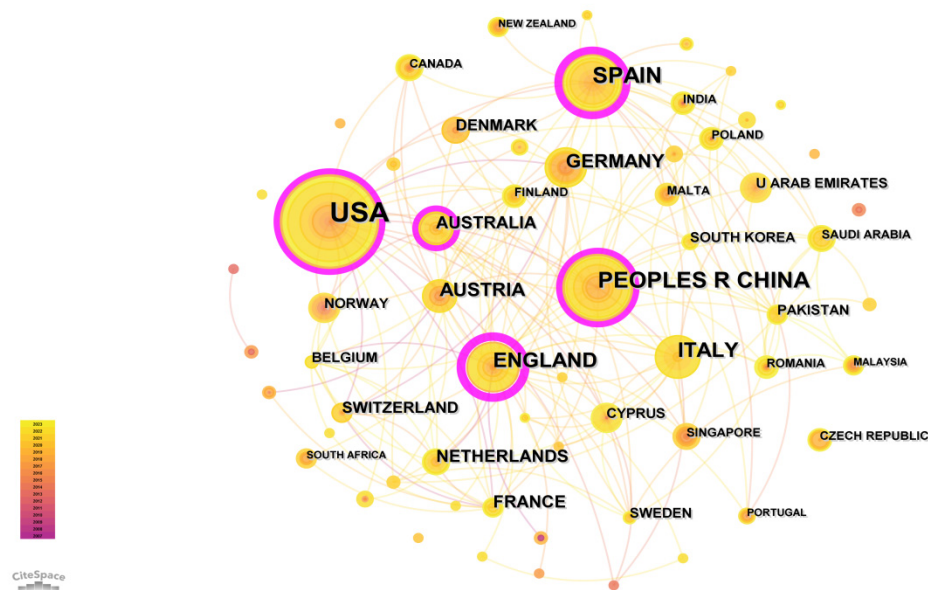


Figure 3. National Cooperation Knowledge Map of CSR communication in the field of social media research

Table 1. Results of national collaborative analysis in the field of CSR communication in social media research

Ranking	Country	Frequency	Centrality	Year
1	USA	137	0.12	2007
2	PEOPLES R CHINA	56	0.11	2017
3	SPAIN	54	0.28	2009
4	ENGLAND	44	0.45	2008
5	ITALY	40	0.05	2013
6	GERMANY	30	0.05	2009
7	AUSTRIA	26	0.03	2009
8	AUSTRALIA	23	0.11	2014
9	NETHERLANDS	22	0.02	2009
10	FRANCE	18	0.08	2010

3.3 Core Author Analysis

The author collaboration network (Figure 4) generated by CiteSpace software comprises 324 nodes and 197 connections. Each node represents an author, with the size of the node corresponding to the number of posts by the author, and the connections indicating cooperative relationships between authors. Table 2 provides information on the top 10 authors by post volume. Perez & Andrea, who first studied in 2018, is the most prolific author in the field with 7 posts, followed by Camilleri Mark Anthony with 6 posts, and Cheng Yang; Dong Chuqing; Weder Franzisca, and Vollero Agostino ranking third to sixth. Additionally, Siano Alfonso; Morsing Mette, Chaudhri Vidhi, and Ahmad Naveed have also contributed significantly to the field. Overall, the centrality is not high, and the cooperation mainly revolves around high-yielding authors, forming a strong cooperative relationship and fostering a positive atmosphere. Among them, Cheng Yang and Dong Chuqing cooperated in the latest paper published in 2023. In their research on CSR communication in the Chinese context, they pointed out that in the current research on corporate social responsibility communication in China, most Some scholars have a certain gap in the cognitive concept of corporate social responsibility, communication strategies of corporate social responsibility, and research perspectives and methods.(Dong, C et al, 2023)

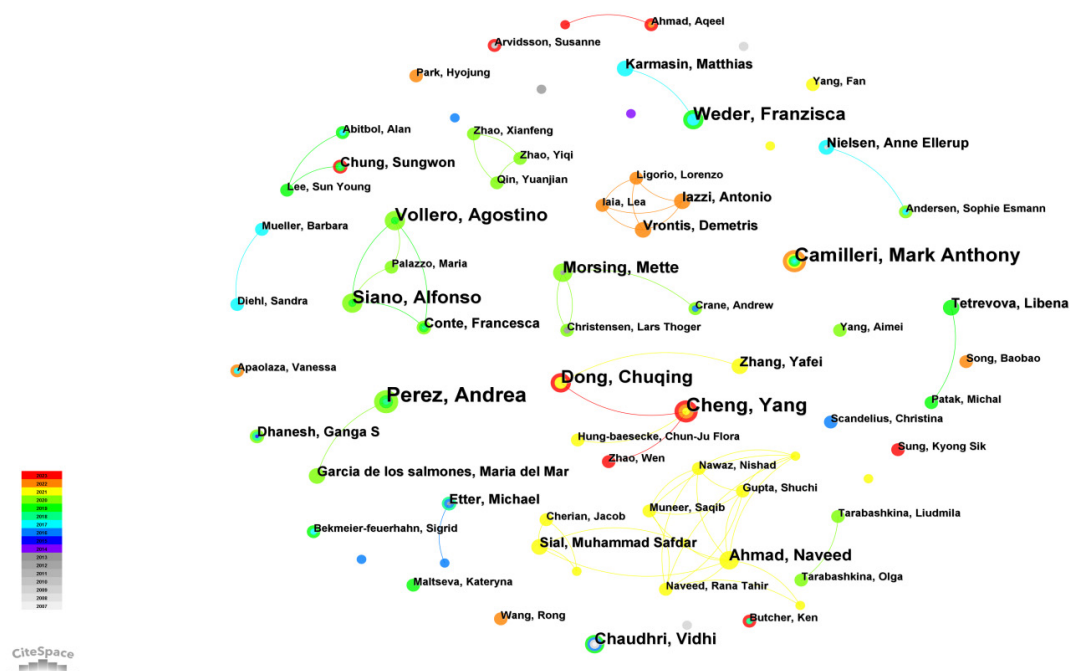


Figure 4. Core author knowledge map of the field of CSR communication in social media

Table 2. Result analysis of Core author in the field of CSR communication in social media

Ranking	Author	Frequency	Year
1	Perez, Andrea	7	2018
2	Camilleri, Mark Anthony	6	2017
3	Cheng, Yang	6	2021
4	Dong, Chuqing	5	2021
5	Weder, Franzisca	5	2017
6	Vollero, Agostino	5	2019
7	Siano, Alfonso	5	2019
8	Morsing, Mette	4	2013
9	Chaudhri, Vidhi	4	2007
10	Ahmad, Naveed	4	2021

3.4 Core Research Institutions Analysis

The knowledge graph of core research institutions in the research field of CSR communication in social media is shown in Figure 5. The larger the literature output of research institutions, the larger the node diameter and the darker the node color; The connections between nodes represent academic collaboration between research institutions.

There are 287 nodes in the picture (N=287), that is, 287 institutions contributing to the field. The institutional contributions are presented in detail in Table 3. Institutions with large literature output mainly include University of Klagenfurt, Copenhagen Business School, Universidad de Cantabria, Erasmus University Rotterdam, Leuphana University Luneburg, Erasmus University Rotterdam - Excl Erasmus MC, North Carolina State University, Aarhus University, DePaul University, University of Salerno and Chinese University of Hong Kong. It can be seen that the research topic of corporate social responsibility communication in social media is an important topic of international concern. There are 286 cooperation links between research institutions (E=286). In particular, North Carolina State University, University of Salerno, Erasmus University Rotterdam - Excl Erasmus MC, Institutions such as Leuphana University Luneburg have formed their own stable, extensive collaboration network. The close cooperation of these institutions helps to form an international academic community of corporate social responsibility in the field of social media communication.

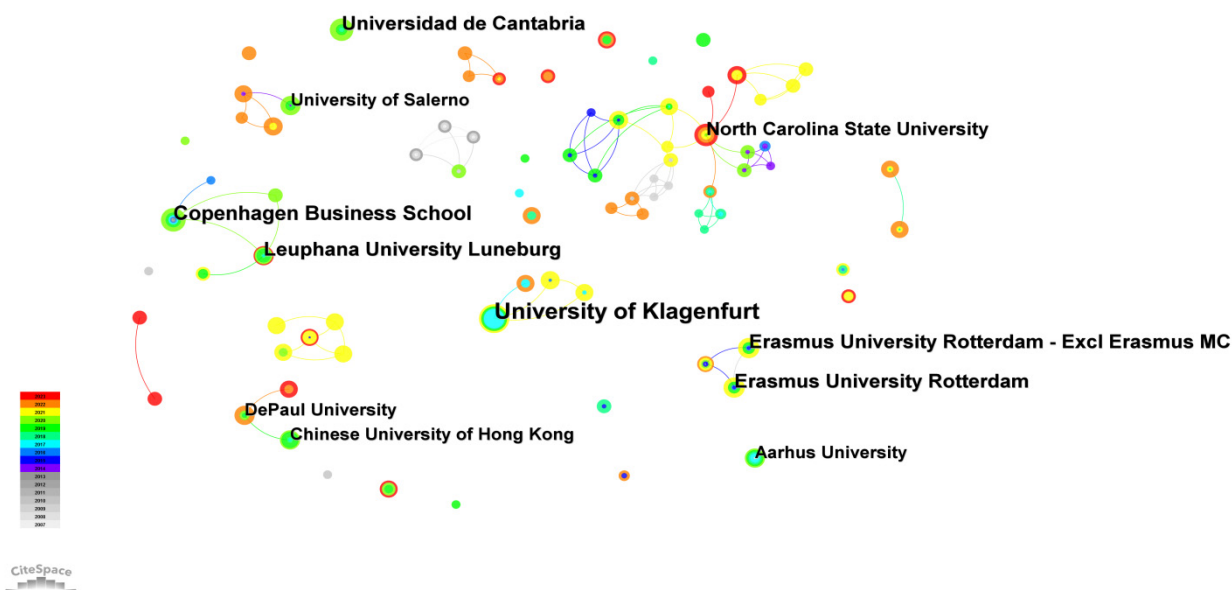


Figure 5. Core research institution knowledge map of the field of CSR communication in social media

Table 3. Result analysis of core research institution in the field of CSR communication in social media

Number	Count	Centrality	Year	Institution
1	13	0.01	2017	University of Klagenfurt
2	9	0.01	2013	Copenhagen Business School
3	8	0	2018	Universidad de Cantabria
4	8	0	2009	Erasmus University Rotterdam
5	8	0	2016	Leuphana University Luneburg
6	8	0	2009	Erasmus University Rotterdam - Excl Erasmus MC
7	7	0.01	2020	North Carolina State University
8	6	0	2009	Aarhus University
9	6	0	2018	DePaul University
10	6	0	2014	University of Salerno
11	6	0	2017	Chinese University of Hong Kong

4. Research Hotspots and Evolution Trends

4.1 Key Words / Research Hotspot Analysis

The knowledge graph of keyword analysis in the communication research field of social responsibility in social media is shown in Figure 6. The higher the keyword frequency, the larger the node diameter and the darker the node color, and the more it can become a research hotspot. In the search, "social media", "enterprise" and "CSR communication" are used as keywords, so in the keyword summary analysis, The four words "social media", "CSR communication", "communication" and "company" are excluded from the results. Meanwhile, when sorting out the data, It merged "CSR" with "Corporate Social Responsibility" and "CSR communication" with "Corporate Social Responsibility communication." As can be clearly seen from Table 4, csr, Impact, strategy, performance, media, management, business, reputation, engagement and sustainability are the most frequent keywords. They are the focus of research in this field. Among them, the centrality of CSR, impact and management is the highest, which indicates that these three keywords are highly valued by researchers in this field. At the same time, according to Figure 6, there are 212 keywords (N=212) in the communication field of CSR in social media, with 431 connections (E=431) and a network density of 0.0193, and

the keywords involve finance, economics, management, environment, communication and other disciplines, showing an interdisciplinary and diversified development trend. It shows that the communication research of corporate social responsibility in social media is gradually moving towards comprehensive, high-quality and sustainable development.



Figure 6. Keyword knowledge map of the field of CSR communication in social media

Table 4. Result analysis of keyword knowledge map of the field of CSR communication in social media

Keywords	Count	Centrality	Year
csr	345	0.25	2007
impact	119	0.21	2008
strategy	75	0.03	2009
performance	70	0.16	2014
media	53	0.01	2016
management	52	0.25	2009
business	52	0.07	2009
reputation	50	0.03	2016
engagement	47	0.01	2018
sustainability	44	0.03	2014

4.2 Research Frontier Analysis

By using the knowledge cluster analysis function of Citespace6.2.R3 software and combining with the log-likelihood rate algorithm (LLR), key words are classified and summarized, and knowledge groups with clear boundaries and high internal consistency are gradually generated, which more comprehensively demonstrates the cutting-edge achievements in the field of corporate social responsibility communication. The cluster analysis in the field of CSR communication research (as shown in Figure 7, Figure 8 & Table 5) obtained a total of 12 keyword subgroups. The Modularity index $Q = 0.7261$ exceeds 0.3, indicating that the network structure in the field of CSR communication is reasonable. The Mean homogeneity of the network (Mean Silhouette) = 0.8979 indicates that the clustering results are reasonable and effective, with good keyword subclusters and high internal consistency of nodes within the cluster. Cluster 0 focuses on the main body of the research company, including: company, media, business, public relations, disclosure. Cluster 1 mainly studies management strategies, including performance, management, reputation, sustainability, legitimacy. Cluster 2 mainly studies the subject of corporate social responsibility, including corporate social responsibility, framework, corporate communication, content analysis, web. Cluster 3 mainly studies stakeholder engagement, including engagement, stakeholder engagement, moderating role, governance, organizations. Cluster 4 mainly studies consumer

behavior, including word of mouth, antecedents, purchase intention, responsibility csr, initiatives. Cluster 5 mainly studies corporate social responsibility communication strategy, which mainly includes strategy, communication, behavior, perception, corporate reputation. Cluster 6 mainly studies consumer attitudes, mainly including consumers, attributions, financial performance, mediating role, loyalty. Cluster 7 mainly studies the application of stakeholder theory, mainly including perceptions, credibility, associations, trust, stakeholder theory. Cluster 8 mainly studies the impact on stakeholders, including stakeholders, social media, responsibility, brand, organizational legitimacy. Cluster 9 examines the performance of different countries in this field, mainly including the cross country study, csr communication, Chinese; emerging countries, csr in india. Cluster 10 impact studies on consumers, including impact, attitudes, consumer responses, perspectives, equity. Cluster 11 studies the logic and rationality of company system, mainly including institutional logics, identification, consumption, economic industry analysis, labor standards.

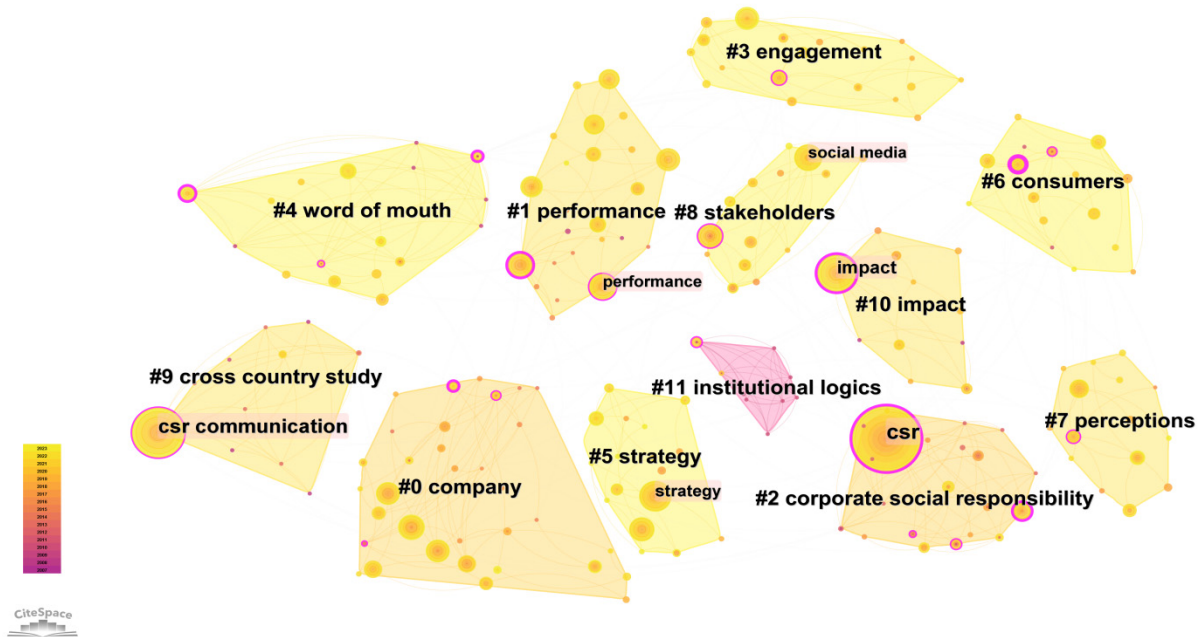


Figure 7. Cluster knowledge map of the field of CSR communication in social media

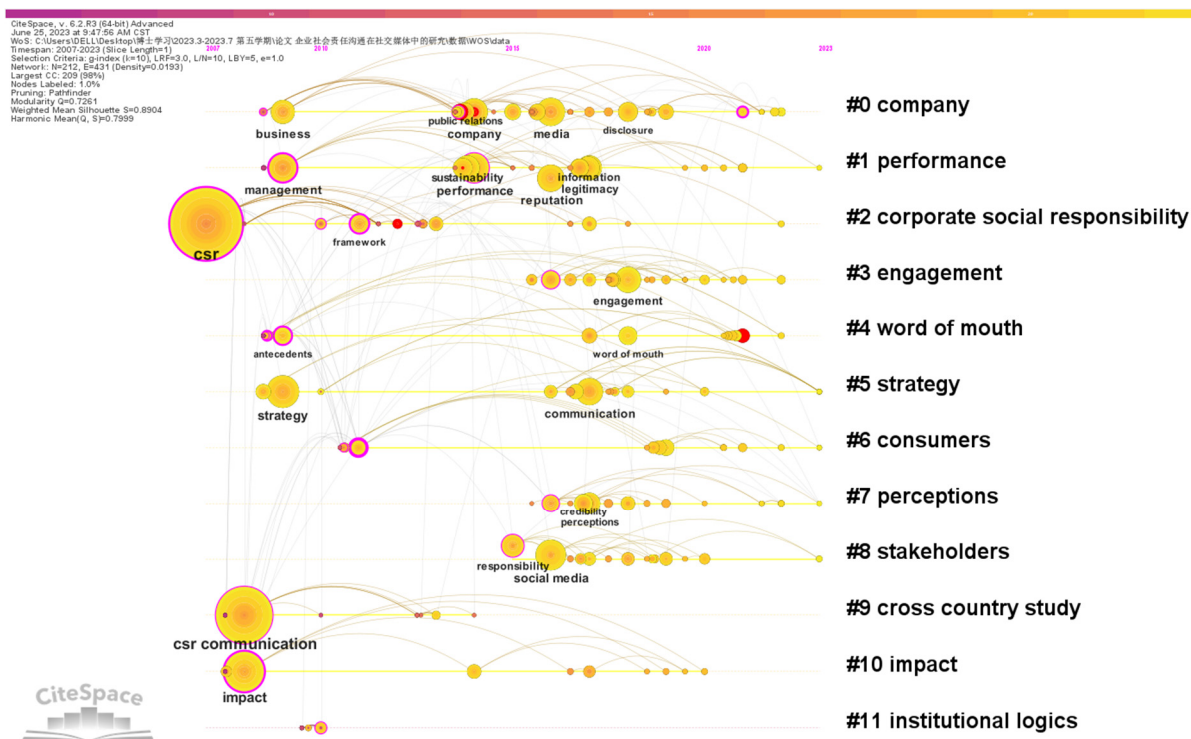


Figure 8. Time line of cluster knowledge map of the field of CSR communication in social media

Table 5. Result analysis of cluster knowledge map of the field of CSR communication in social media

Cluster ID	Size	Silhouette	Top Terms (LLR log—likelihood ratio)	Main theme
#0 company	33	0.871	company; media; business; public relations; disclosure	Company main body
#1 performance	24	0.977	performance; management; reputation; sustainability; legitimacy	Management policy
#2 corporate social responsibility	22	0.848	corporate social responsibility ; framework; corporate communication; content analysis; web	main body of corporate social responsibility
#3 engagement	19	0.778	engagement; stakeholder engagement; moderating role; governance; organizations	stakeholder engagement
#4 word of mouth	18	0.984	word of mouth; antecedents; purchase intention; responsibility csr; initiatives	consumer behavior
#5 strategy	17	0.816	strategy; communication; behavior; perception; corporate reputation	Corporate social responsibility communication strategy
#6 consumers	16	0.875	consumers; attributions; financial performance; mediating role; loyalty	consumer attitude
#7 perceptions	15	0.776	perceptions; credibility; associations; trust; stakeholder theory	Application of the stakeholder theory
#8 stakeholders	14	0.958	stakeholders; social media; responsibility; brand; organizational legitimacy	Impact on the stakeholders
#9 cross country study	11	0.904	cross country study; csr communication; Chinese; emerging countries; csr in india	Performance in the different countries
#10 impact	11	0.988	impact; attitudes; consumer responses; perspectives; equity	Impact on consumers
#11 institutional logics	9	1	institutional logics; identification; consumption; economic industry analysis; labor standards	company system

According to the research hotspot analysis and cluster analysis results, the research fields of CSR communication from 2007 to 2023 are mainly divided into the the main body and decision-making of CSR communication in social media, the relationship between CSR communication and consumers in social media, the research on multi-platform communication of CSR and the corporate social responsibility communication and stakeholder mediating factor research in four directions.

First, the main body and decision-making of CSR communication in social media are mainly concentrated in clusters #0, #1, #5, #9 and #11. With the development of the Internet and the wide application of social media, the communication of corporate social responsibility on the Internet has also made enterprises feel the urgency and importance. When organizations realize the need to engage in corporate social responsibility and sustainability initiatives, communicating that they are doing so is indispensable (Brunton et al., 2015). Therefore, it is of great significance for the communication and decision-making of corporate social responsibility in social media. Through the content analysis of Chinese enterprise websites, Tang found that enterprises mainly adopt one of the following three ways in the communication of social responsibility: CSR as a temporary charity, CSR as a strategic charity, and CSR as an ethical business practice. (Tang & Li, 2009). By studying the different messaging strategies used by 16 companies on their CSR dedicated Facebook pages, Abitbol found that when the topic of the post is aligned with the company's core business, the topic can effectively engage stakeholders (Abitbol & Lee, 2017). The use of CSR statements in crisis communications is more effective for companies with a longer CSR history than for those with a shorter CSR history (Vanhamme & Grobbsen, 2008). In addition to some widely used corporate social responsibility communication strategies, the research on corporate social responsibility communication in different countries has very important theoretical and practical significance. Wanderley's 2008 analysis of 127 corporate websites in emerging countries such as Brazil, Chile, China, India, Indonesia, Mexico, Thailand and South Africa found that country of origin has a greater impact on CSR information disclosure (Wanderley et al., 2008). Through a national survey of U.S. consumers, this study demonstrates the positive impact of corporate social responsibility (CSR) communication factors on consumers' perceptions of CSR knowledge, trust, and corporate reputation (Kim, 2017). Lattemann, C(2009) Using data from 68 of the largest multinational corporations in China and India, our research shows that Indian companies communicate more about CSR mainly because the governance environment in India is more rules-based than relation-based (Lattemann et al., 2009).

Second, corporate social responsibility is to communicate with consumers in social media. The main focus is on clusters #4, #6 and #10. With the development and continuous refinement of the field, consumers are the one that receives the most attention among the many stakeholders. At the same time, a large number of studies have found that CSR communication has a significant effect on consumer behavior, satisfaction and cognition of corporate brands. Through the research on the relationship between consumer behavior and e-word of mouth, it is found that customer behaviors such as e-word of mouth and purchase intention of consumers when enterprises release customer-related social responsibility activities have a significant impact (Cheng et al., 2021). Ettinger's study of 1383 e-word of mouth from customers found that they were most concerned about environmental issues and supplier relations (Ettinger et al., 2018). In many marketing practices, companies enhance their corporate image through CSR communication on social media. However, consumers are inundated with this more or less well-founded corporate social responsibility information and often struggle to find a truly responsible business. The study found that only adhering to corporate sustainability ratings and fulfilling corporate social responsibility can help consumers build confidence in companies (Parguel et al., 2011). However, if the internal and external aspects of corporate social responsibility are unified, consumers will respond positively to corporate social responsibility behavior. However, if there is a deviation between positioning and actual implementation, it will backfire if consumers feel the disunity (Ginder et al., 2019). So, while most consumers have a positive attitude towards socially responsible companies, effective and clear CSR communication is important in order to reap the benefits of CSR. Consumers may have trouble identifying truly responsible businesses, which can lead to less effective CSR actions, even for those who are responsible. Research has found that external CSR labels have a greater impact on consumer responses to companies than uncertified internal CSR statements. (Gosselt et al., 2017)

Third, research on multi-platform communication of corporate social responsibility. The main clusters are #2 and #8. Over the past decade, social media has enabled ordinary citizens to bypass the gatekeeping functions of these agency evaluators and make their personal judgments public on their own. Abitbol & Lee studied the effectiveness of different messaging strategies used by companies on their corporate social responsibility dedicated Facebook pages to engage stakeholders. The results show that themes can effectively engage stakeholders when aligned with a company's core business (Abitbol & Lee, 2017). In social platforms such as Twitter or Facebook, the use of information with clear theme labels or the combination of social hot information to convey content related to social responsibility has a higher overall level of content dissemination and recognition, and is positively correlated with the resonance of consumers (Saxton et al., 2017; Araujo & Kollat, 2018). Troise & Camilleri's study of 167 Italian businesses found that they are

using Facebook, LinkedIn and YouTube to communicate business information and promote their business. In addition, they are using Instagram and Twitter to raise awareness among consumers and users about their corporate social responsibility initiatives. (Troise & Camilleri, 2021)

Fourth, research on the mediating factors of corporate social responsibility communication and stakeholders. There is a growing recognition that communication with stakeholders is an essential element in the design, implementation and success of corporate social responsibility (CSR). The analysis and discovery of mediating factors or moderating factors between corporate social responsibility communication and stakeholders has become a research focus of scholars in recent years. A key mediating condition between clients' level of knowledge about CSR programs and their willingness to participate in them is that they associate CSR with CSR (Lee et al., 2017). Customer trust plays a complete mediating role in the relationship between corporate image and economic and legal social responsibility, and a partial mediating role in the relationship between corporate image and moral and charitable social responsibility (Chen et al., 2021). The moderating effect of environmental awareness on consumers' green perception, positive attitude and behavioral intention (Park et al., 2021). Sung found through research that social distance can regulate the release of specific corporate social responsibility information of chain restaurants in social networks and the credibility of customers on the brand. (Sung et al., 2020)

4.3 Research Trend Analysis

4.3.1 Time Zone Analysis

The time zone chart can show the distribution and change of keywords in a topic or a field in different time periods, helping us to grasp the hot topics and their evolution process in the field of corporate social responsibility communication from the time dimension. In order to better understand the development of this research area, we can use two methods for analysis: the first method is the keyword distribution analysis of the field, and the second method is the detection for the burst of keywords or cited articles. In a time zone view of CSR communication in social media (Figure 9), the chart shows popular phrases and keywords used over a period of about 17 years from 2007 to 2023.

In 2007, there were already a large number of studies on CSR. CSR communication was first proposed in 2008. In the following five years, management, framework, strategy and antecedents frequently appear, which put forward suggestions on the decision-making of CSR subjects and management. In 2012, a notable keyword "web" broke out. A business strategy study on the good effect of enterprises' disclosure of CSR on websites and social media (Du & Vieira, 2012). It has triggered a wave of research by scholars on the use of websites and other social media platforms by companies to communicate corporate social responsibility to stakeholders. In the following five years (2013-2017), with the emphasis on CSR communication, there was also a debate on the motivation of CSR communication. There has been a sharp increase in the claim of CSR washing. Some enterprises harvest the interests of stakeholders in the name of CSR, which has attracted the attention of researchers and the society. Some scholars even believe that successful CSR washing is rampant (Pope & Wæraas, 2015). At the same time, in combination with sustainability, which has always been talked about in the field of CSR, there have been a large number of studies on "media" and "social media", especially more and more studies on the communication of corporate social responsibility in different social media platforms. A Troise & Camilleri study of 167 Italian companies, for example, found that they are using Facebook, LinkedIn and YouTube to communicate business information and promote their business. In addition, they are using Instagram and Twitter to raise consumer and user awareness of their corporate social responsibility initiatives (Troise & Camilleri, 2021).

After 2017, we found that the research in the field of CSR communication began to be more detailed. In the analysis of the impact of CSR communication on stakeholders, more and more scholars focused on the analysis of consumer behavior, including the research on consumer purchase behavior, loyalty, trust in enterprises and corporate social responsibility. If the internal and external aspects of corporate social responsibility are unified, consumers will respond positively to corporate social responsibility behavior. However, if there is a deviation between positioning and actual implementation, it will backfire if consumers feel the disunity (Ginder et al., 2019). At the same time, in the study of the relationship between corporate social responsibility communication and stakeholders, scholars have found different mediating or regulating factors, which makes the research in this field more and more perfect. (Lee et al., 2017; Sung et al., 2020; Chen et al., 2021)

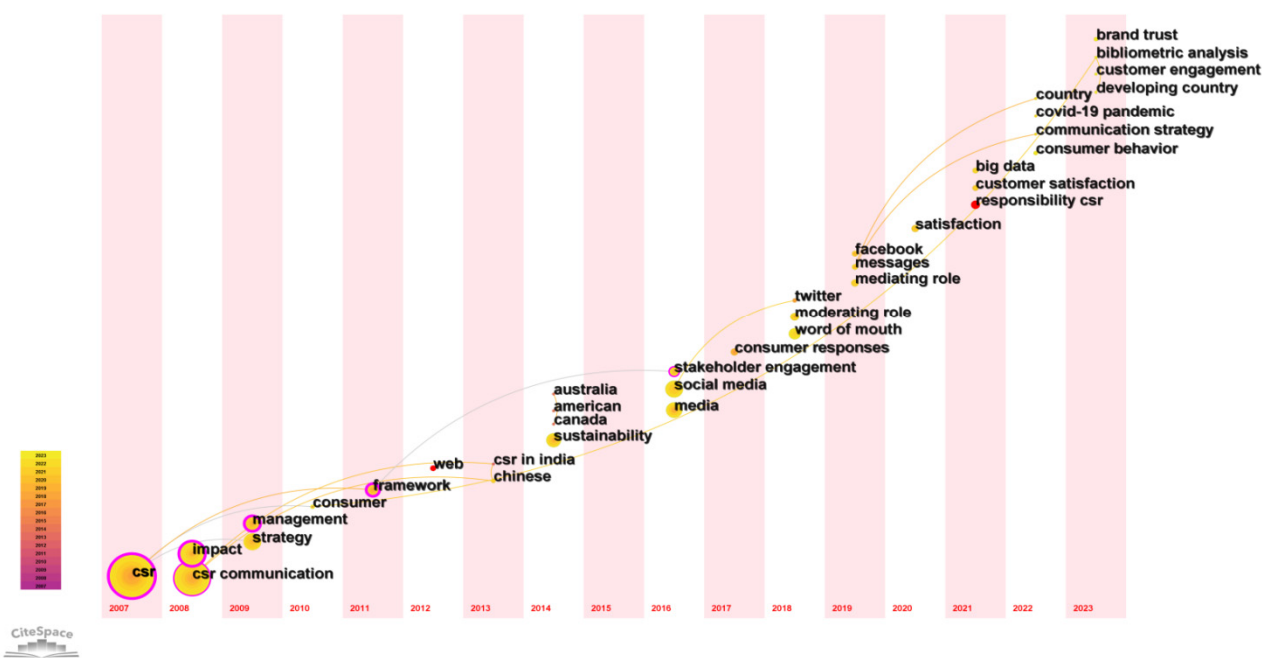


Figure 9. Time zone knowledge map of the field of CSR communication in social media

4.3.2 Analysis of Keyword Burst

Keyword burst refers to keywords whose frequency increases sharply in a certain period of time. Keyword burst analysis is a useful method to find the keywords that have been paid special attention by the relevant scientific community in a certain period of time, and has important value in the research frontier and prediction of research trends in the field of analysis. The figure 10 lists the burst keywords in the last 15 years (2009-2023) obtained by using ceitespace keyword emergence analysis, as well as the intensity and time of the emergence. In software operation, the time span is set to at least two years, $\gamma = 0.6$, $f(x) = \alpha * e^{-\alpha x}$ ($\alpha_1 / \alpha_0 = 2.0$, $\alpha_I / \alpha_{I-1} = 2.0$). The red part of the figure shows the time span of the outbreak. In the past 15 years, the burst period of the keyword "web" has been the longest. With the development of the Internet, enterprises have gradually adapted to and used social media for corporate social responsibility communication, so there has been much discussion about the word "network". Citizenship has the highest burst power, which can also be obtained from the analysis. For CSR research, most researchers focus on CSR communication and stakeholders, and civil rights is exactly an important factor among stakeholders, especially for consumer analysis. It can also be seen from the picture that loyalty, satisfaction, initiatives and responsibility csr are the hot spots after 2020. Combined with the previous cluster analysis and time line analysis, the two major research directions in this field will focus on the subdivision research on the impact of consumers. For example, CSR communication in social media is related to the research on consumer loyalty, satisfaction, purchasing behavior, etc. Another direction is the strategy and decision-making of enterprises themselves. For example, enterprises should take the initiative to try different types of communication platforms, conduct CSR communication research based on the characteristics of different countries, or study different types of enterprises with different emphases in CSR communication.

Top 19 Keywords with the Strongest Citation Bursts

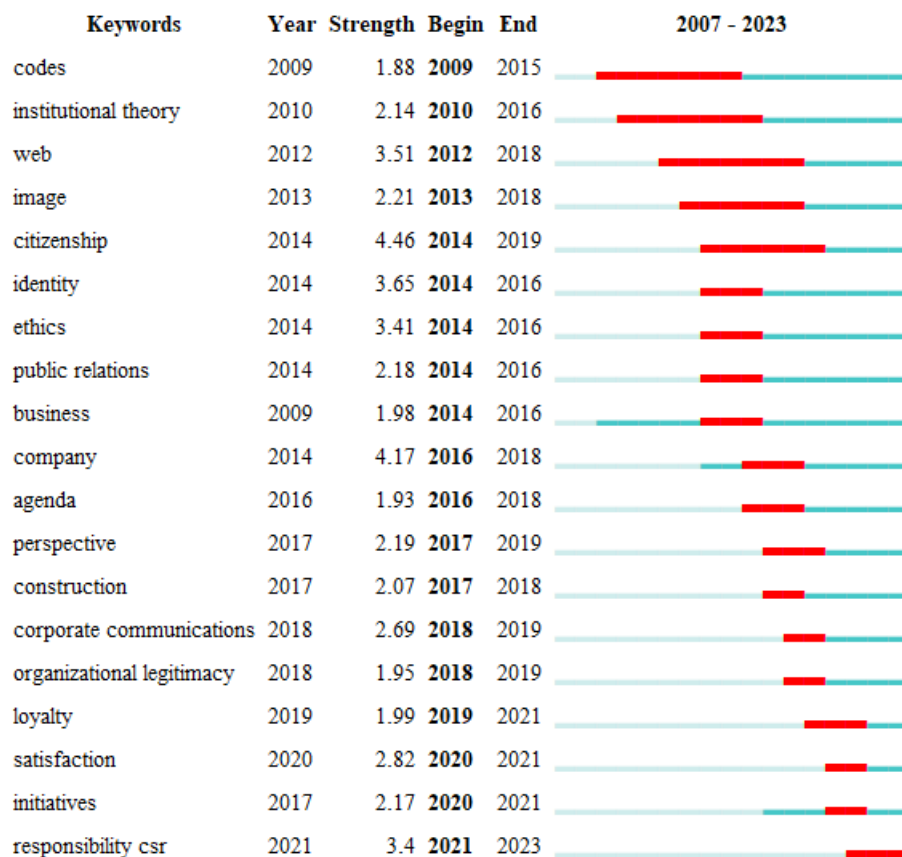


Figure 10. Keyword burst in the field of CSR communication in social media

Top 12 References with the Strongest Citation Bursts

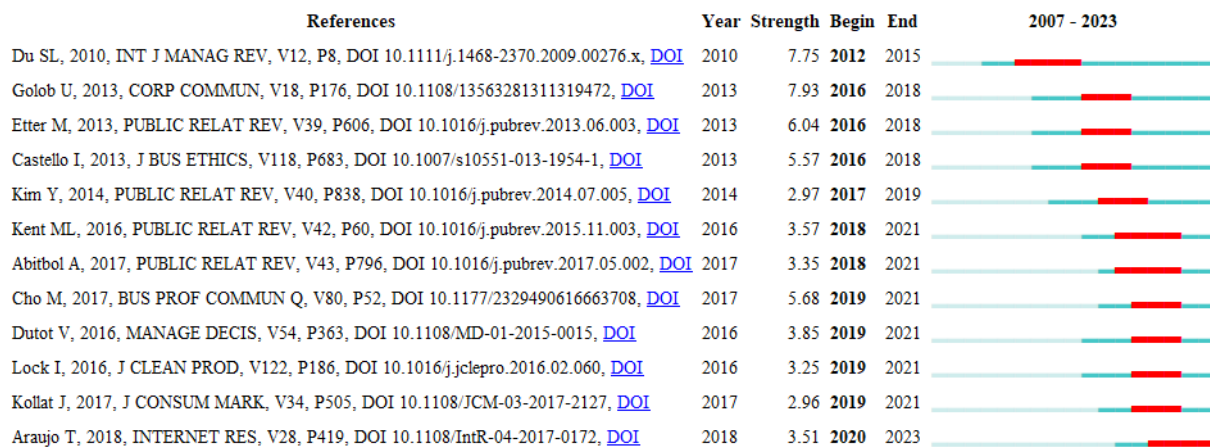


Figure 11. Cited references burst in the field of CSR communication in social media

4.3.3 Analysis of Cited Reference Burst

Figure 11 shows the year-by-year burst of cited reference in this field of CSR communication in social media research. In the software operation Settings, the main time span is set to at least 3 years, as the number of 2-year journals is larger and more spread out. The picture shows that Golob U, 2013; Du SL, 2010; Etter M, 2013; Articles by Cho M, 2017, Castello I, and 2013 all had a high explosiveness, which indicates that many scholars cited their journal during that

period, and that this article was of great significance in the field at a specific period. The research of Araujo T, 2018 has attracted more attention in the past three years.

Through the analysis of the above articles with high burst, it is found that most papers in this field are related to the topic of CSR disclosure, while articles on the results of CSR communication are less prominent (Golob U, 2013). Companies have always had concerns and worries about CSR communication, which has led to the inability to communicate openly and intuitively with stakeholders. As a result, stakeholders have insufficient understanding of the company's CSR activities, and thus unilaterally believe that the company is trying to maximize commercial benefits from CSR activities (Du et al., 2010). The reason for this is that CSR involves sensitive and sometimes controversial areas of the company, the company opens the stage for possible criticism and risks attracting key stakeholders who openly question the legitimacy and damage the company's reputation (Etter, 2013).

In view of the current situation, many enterprises have realized the importance of CSR communication. The frequency of non-CSR information conveyed by enterprises is higher than that of corporate social responsibility (CSR) information, and the public is more involved in non-CSR information than CSR information (Cho et al., 2016). In view of this situation, scholars will always strive to create a sustainable and replicable "communication model" now and in the future, which can enable enterprises to openly disclose CSR situation to stakeholders on the basis of reducing risks. In a large number of studies, it is found that by elaborating the characteristics of the network society, enterprises should become more polyphonic in CSR communication. An organization that can appreciate dissent may deal with dissent by diversifying its own reality. Communication and questioning are like independent but mutually integrated. Perceived as acceptable by key stakeholders and observers who question their actions (Castello et al., 2013). Companies and brands that tweet more frequently about CSR result in higher levels of content dissemination and recognition (Araujo & Kollat, 2018).

5. Discussion

The aim of this study is to present the overall picture of CSR communication research related to social media. By using the bibliometric analysis method, the author, country, institution and other basic analysis, at the same time, through keyword clustering, time line and time zone analysis, keyword and article burst detection, the research status and future trend of this field are summarized and analyzed. The period is 2007 to 2023, and the data is based on the scientific literature on corporate social responsibility communication/social media in the WoS/SSCI database. Quantitative analysis and visualization of the knowledge map of CSR communication/social media science research using CiteSpace software (V6.2.R3). Through further explanation and analysis, the development status, research hotspot and frontier evolution are determined.

5.1 Post Trends and Domain Contributors

As a rapidly developing subfield, corporate social responsibility communication has been favored by more and more scholars.(Dong et al., 2023). Between 2007 and 2023, the number of CSR communication studies on social media shows a steady upward trend. Since 2017, the annual contribution of CSR communications to the social media space has shown a significant growth trend, faster than the past two years, indicating that dual-topic research has received more and more extensive attention in the academic field. The author analyzes and identifies the authors who have made great contributions in this field and the cooperation situation. Perez & Andrea, who first studied in 2018, is the most prolific author in the field with 7 posts, followed by Camilleri Mark Anthony and Cheng Yang, each of them with 6 posts. Institutions with large literature output include the University of Klagenfurt, Copenhagen Business School and Universidad de Cantabria. By country/region analysis, it was determined that the USA had the highest number of relevant studies, with China and Spain ranking second and third.

5.2 Distribution of Keywords and Cluster

The analysis of the distribution of keywords of CSR communication in the field of social media shows that CSR, impact and strategy are the three keywords with the highest contribution. For a deeper understanding, cluster analysis classifies keywords into 12 clusters and classifies these different clusters into 12 different topics. Such as: Company main body, Management policy, main body of corporate social responsibility, stakeholder engagement, consumer behavior, Corporate social responsibility communication strategy, consumer attitude, Application of the stakeholder theory, Impact on the stakeholders, Performance in the different countries, Impact on consumers and company system. These 12 clusters are the hot topics in this field in recent years. At the same time, four research directions are summarized: (1) The main body and decision-making of CSR communication in social media(Brunton et al., 2015; Abitbol & Lee, 2017; Wanderley et al., 2008; Kim, 2017; Lattemann et al., 2009) . (2) Corporate social responsibility is to communicate with consumers in social media (Cheng et al., 2021; Ettinger et al., 2018; Parguel et al., 2011; Ginder et al., 2019; Gosselt et al., 2017). (3) Research on multi-platform communication of corporate social responsibility (Abitbol & Lee, 2017;

Saxton et al., 2017; Araujo & Kollat, 2018; Troise & Camilleri, 2021). (4) Research on the mediating factors of corporate social responsibility communication and stakeholders (Lee et al., 2017; Chen et al., 2021; Sung et al., 2020).

5.3 Research Trend

When the clusters were sorted by time line, the researchers found that CSR communication was first proposed in 2008, and in the following five years, management, framework, strategy and antecedents frequently appear, which put forward suggestions on the decision-making of CSR subjects and management. At the same time, there is also a debate on the motivation of corporate social responsibility communication (Du & Vieira, 2012). Some people put forward CSR washing and sustainability (Pope & Wæraas, 2015). At the same time, in the way of communication, it also presents the communication research on twitter, facebook, YouTube and other platforms besides the company's website. After 2017, we found that the research in the field of CSR communication began to be more detailed, especially the research on the impact of consumers, from the general impact on consumers to the relevant research on consumer behavior habits, brand attitudes, brand satisfaction and so on (Troise & Camilleri, 2021). At the same time, many mediating factors and moderating factors have been found in the study of CSR communication and stakeholder relationship, which makes the research in this field more comprehensive and in-depth (Lee et al., 2017; Sung et al., 2020; Chen et al., 2021).

5.4 Keyword Burst

It is more important to analyze burst keywords and burst cited articles. In the future, the two major research directions in this field will focus on the subdivision research on the influence of consumers, such as the relevant research on the loyalty, satisfaction and purchasing behavior of consumers caused by the communication of CSR in social media. The other direction is the strategy and decision-making of enterprises themselves. For example, enterprises should take the initiative to try different types of communication platforms, conduct CSR communication research based on the characteristics of different countries, or study different types of enterprises with different emphases in CSR communication. (Cho et al., 2016; Castello et al., 2013).

In addition to these findings, the development trend of this field can be divided into three different period: the initial stage (2007-2011), which focuses on the subject research and strategy research of CSR communication; The debate stage (2012-2017) showed the preliminary debate on the starting point and purpose of CSR communication in social media, while relevant research on CSR communication in different social media platforms emerged. The research specialization phase (2018-2023) shows the methodological strategies of corporate social responsibility communication and its more detailed impact on consumers and other stakeholders, indicating that research in this field tends to be detailed and concentrated.

6. Conclusion and Contribution

Based on the visual knowledge graph analysis of CSR communication in the field of social media, we help to fully understand the knowledge structure in this field. (1) We outline the trends and distribution of article contributions, which indicate that the common theme of CSR communication and social media is an ongoing and highly concerned research direction. (2) We identify the authors, institutions, and countries that contribute most to the field, and further analyze keyword clusters and most-cited articles. (3) Reveal current research hotspots, identify the formation and evolution of clusters, and reveal topics and topics of high interest in the field. (4) The evolution process of corporate social responsibility communication and social media is revealed, the evolution process is classified in the period, and the future research direction is summarized. It will also help future researchers to find relevant statistics and analysis in the field of CSR communication and social media. In terms of practical significance, it can provide more thinking for enterprises' CSR communication strategy. More and more scholars encourage enterprises to face up to CSR communication in social media, rather than fear and avoid it. Positive, positive announcement and sincere response are a good choice, and consumers or other stakeholders should also hold a trust attitude to accept, and give each enterprise a certain time on the road of CSR development, so that they can become more mature (Etter, 2013; Du et al., 2010; Cho et al., 2016; Castello et al., 2013).

7. Limitations and Future Studies

There are still some shortcomings in the research on CSR communication in social media. First, bibliometric analysis has several typical limitations. The data analyzed in this study were downloaded from the WoS/SSCI database (June 16, 2023); therefore, data collected from other databases or at different times may have different results and conclusions. In addition, the scope of this study is limited to WOS, AND limit search phrases to "social media" AND "enterprise" AND "Corporate social responsibility communication" OR "CSR communication", this ensures that the data is scientific and accurate; therefore, there is a possibility of missing the adaptation literature in this analysis. These limitations can be addressed in future research by extending the coverage of database and document types and using similar terms.

In addition, CSR communication in social media is a multi-layered and multi-disciplinary topic, which often leads to contradictory results and conclusions from analyses with different viewpoints and theories. Therefore, interdisciplinary, cross-regional and cross-cultural collaborative research should be encouraged to enrich the perspectives in this field.

Even so, based on our review and findings in the field of CSR communication and social media, although this field is favored by scholars in academic aspects, its deep connection with corporate strategy and CSR communication in practical application is weak. There is still debate about the contribution of CSR communication to the refinement of stakeholder impact. Therefore, how enterprises should better communicate social responsibility in social media is something that enterprises and academic circles should pay attention to. This requires the joint efforts of more scholars and enterprises, and also lays more possibilities for future research.

Acknowledgments

I would like to extend my gratitude to my co-authors, whose unique perspectives and solid expertise have made significant contributions to the completion of this paper. Special appreciation goes to Nurul Ain Mohd Hasan for her precise control in determining the direction of the paper and meticulous organization of the content, enabling our research to focus and delve deeper into the heart of the matter. The exceptional contributions of Feroz De Costa in software operations and data organization are indispensable, with their professional skills providing essential support to our research.

We hope that our work can pave a new path for research on CSR communication in the social media field, and further propel the advancement in this field. Once again, my heartfelt thanks to everyone who has supported us in this research.

Authors contributions

Associate professor Dr. Nurul Ain Mohd Hasan was responsible for study design and revising. Dr. Feroz De Costa was responsible for data collection. PhD student Xiangzhou Hua drafted the manuscript and revised it. All authors read and approved the final manuscript.

Funding

Not applicable.

Competing interests

We further state that we have no economic or proprietary interests in any of the materials, products, services, or methods discussed in this paper. Our research findings and recommendations do not represent any form of conflict of interest with any commercial entities or organizations.

Moreover, we have not entered into any agreement that could interfere with our independent judgement, nor have we engaged in any activities that might generate conflicts of interest with our research. All research activities were conducted in accordance with the highest ethical and professional standards.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Redfame Publishing.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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