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## Article

# Bibliometrix analysis of information sharing in social media

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## OPERATIONS, INFORMATION & TECHNOLOGY | REVIEW ARTICLE

# Bibliometrix analysis of information sharing in social media

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**Abstract:** Social media has evolved at a rapid pace, influencing every aspect of the global community. The purpose of this paper is to use bibliometric analysis tools to evaluate valid works on the relationship between social media and information sharing. A review study of research papers on social media and information sharing published between 2009 and 2020 was conducted. The bibliometric analysis identified the following characteristics: (1) the primary articles are based on information sharing through social media; (2) the main authors deal with information sharing in social media; (3) the newest trend topics related to information sharing in social media are demographic characteristics, cognition, sentiment, healthcare, products and services recommendations, tourist recommendations, and COVID-19. The results show significant impact rates in studies of information sharing in social media. Overall, this study serves as a basis for new scientific questions that will contribute to the further development of this research field.



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### ABOUT THE AUTHORS

Alhamza F. Abbas is a Ph.D. student of Azman Hashim International Business School (AHIBS) at University Technology of Malaysia (UTM), Malaysia. His main research interests are digital marketing, information technology, consumer behaviour, and bibliometric and SLR analysis. He has published several research papers in the field of digital marketing and consumer behaviour.

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### PUBLIC INTEREST STATEMENT

The rising interest in exploring the role of social media in sharing information in different aspects like social media platforms (Facebook, Twitter, and Instagram), and different aspects like organizations, consumers behavior, health information, COVID-19, and user-generated content, which is a massive machine-human knowledge processing function capable of managing volumes of information sharing. This study provides the global trend in scientific publications in the area of "social media and information sharing" according to the outputs of publications such as type of document, annual scientific production, scientific sources, source growth, number of articles per author, the frequency distribution of scientific productivity, keywords of the author, thematic dendrogram, factorial map of the document with the highest contributions, citation of the articles, production of the country, citation of the country, and map of collaboration of the country.

**Subjects: Business, Management and Accounting; Consumer Behaviour; Information Technology; Behaviour**

**Keywords: bibliometrix; biblioshiny; information sharing; social media; R packages**

## 2. Introduction

The term “social media,” coined in the late 1990s, has become so popular that it now has over 2 billion active users worldwide (Osatuyi, 2013). Social media, by definition, are computer-mediated technologies that allow people to share information, ideas, and other expressions through virtual communities and networks (Obar & Wilman, 2015). Social media has transformed communication between businesses and customers by connecting everyone in ways previously unimaginable (Kietzmann et al., 2011).

Given its increasing popularity and informative use, the study of social media seems to offer great scientific potential, especially about information behavior. It is useful to approach social media from an information behavior perspective, as it is concerned with “how people need, seek, manage, give, and use information in different circumstances”. By sharing information or posting activities, social media encourage people to communicate more on the Internet. The amount of social information communicated (e.g., posts, comments, likes) between individuals on social networks can be used to define the relationship (Hendry et al., 2017). Social networks make more visible the ties and connections that have always bound people together, such as the relationships between teams, partnerships, tribal groups, alliances, businesses, institutions, organisations, and health care, to name a few; types of relationships that were less visible before the existence of social networks (Hansen et al., 2011; Kapoor et al., 2018). It is possible to use the information available in social networks to identify knowledge that can be valuable in providing better products and services to people in different industries. For example, in the area of recommender systems (RS), social networks can help researchers and developers better understand user preferences because the masses of information produced by online users on social networks create new opportunities to help researchers and developers better understand user preferences (Alejandra & Camacho, 2020).

Additionally, sharing information in social media during COVID –19 can consider one of the most important trends (Armitage et al., 2020; Islam et al., 2020; Laato et al., 2020; Picone et al., 2020; Shehata, 2021; Yusof et al., 2020). As (Islam et al., 2020) noted that People take crisis-related information seriously and share COVID –19 information on WhatsApp not only to be entertained and inquire about status or information, but also to help others. In addition, the study identified reciprocity rules, habitual distraction and socialisation as motivators for WhatsApp users’ positive attitude towards COVID –19 information sharing. (Nadia et al., 2020) Suggested that a discussion be held on how to ethically manage the Malaysian response to the pandemic COVID –19 in terms of information sharing. It is suggested that the general population develop basic skills to evaluate information and determine its validity. In addition, online health information has the potential to improve people’s quality of life. In studying the health information behaviour of Egyptian students during the pandemic COVID –19, (Shehata, 2021) found that the level of health information literacy and information skills affects a person’s ability to obtain trustworthy and valuable health information.

As a result, the authors wonder what academic efforts have been made to study social media and information behavior and characterize the state of the field. This study will focus on the current academic debate and attempt to identify significant research and researchers in the field as well as the overall pace of publications. In recent years, researchers and practitioners have explored and studied the numerous aspects of social media. Organizations use social media to get input from their stakeholders (Phang et al., 2015). Consumer reviews are another important aspect of social media that raises concerns about the quality, credibility, and authenticity of information.

Microblogging has become extremely popular due to the success of online communities that bring together people with similar interests and aspirations. While the majority of messages shared on social media are personal status updates or messages, other posts are support-seeking, in which people ask for help and support (Alalwan et al., 2017; Dwivedi et al., 2017; Ismagilova et al., 2017; Kapoor & Dwivedi, 2015; Kapoor et al., 2016, 2018; Plume et al., 2016). Moreover, sharing information during COVID-19 is another big part of social media nowadays, and need to identify significant research and researchers in that topic as well.

There is a comprehensive review that integrates and summarises the results of articles published in business information systems journals. Even though the authors discovered by reviewing the literature, there is a lack of understanding of the main trends and themes in this topic. Also, according to the author's knowledge, there is not any previous study analyze the articles by using bibliometrics and specially biblioshiny by R package to understand deeply the information sharing in social media trends and their interest in different cultures and countries. The existence review studies have been done in different countries around the globe sharing information in different contexts. However, fewer studies investigate the previous studies in sharing information in social media by gathering organizations, consumer behavior, demographic, health, and COVID-19. So, the current research evaluates the overall influence and productivity of these studies to see if other scholars are paying attention to this work and to identify thematic areas of strength and weakness.

the main contributions of this paper discuss the findings of 825 publications contributing to the literature on social media and information sharing by using bibliometrics which is gradually extending to all disciplines. It is particularly suitable for science mapping at a time when the emphasis on empirical contributions is producing voluminous, fragmented, and controversial research streams. And this type of study has not been used before in this Multiple emergent themes in these quantitative variables and have been identified to enhance understanding of the advances in social media research in sharing information. By building on Bibliometrics findings of previous social media and information sharing research, The description of the main bibliometric statistics is followed by the analysis of the results many Several recent studies have managed to theorise the nature of most social media networks, like Twitter and Instagram, and different filed like organizations, consumers behavior, health information, COVID-19, and user-generated content, which It is a large machine-human knowledge processing function capable of managing large amounts of shared information.

Bibliometrics can be used to determine the key quantitative variables in a research stream (Junquera & Mitre, 2007). It is also conceivable to apply the recommended five-step process of science mapping (Aria & Cuccurullo, 2019). We used the R package "bibliometrix" to perform the analysis (Aria & Cuccurullo, 2017). The topic dendrogram, conceptual map, and trend-topic figure were also created using "biblioshiny", a Shiny software that provides a web interface for bibliometrix. In addition, we used a conceptual map to select the primary keywords to find more specific research topics and to find and read the most cited articles, which allowed us to evaluate the most active geographical areas. The following research questions were used as a result of the above research (Zupic & Čater, 2015):

Q1: What is the global trend in scientific publications in the area of "information sharing in social media"?

Q2: What information is left uncovered considering this trend?

Q3: In what direction might research in this area develop? The aim of this bibliometric analysis is to.

a. Providing bibliometric information on 825 scientific studies extracted from the Scopus database;

- b. Use R software with Bibliometrix codes and Biblioshiny to obtain and record quantitative data in the different articles selected;
- c. Use variables as authors per article and to understand the leading authors in this research area;
- d. Use citation analysis and the collaboration map to understand the network of this research stream;
- e. Within each country, analyse the productivity, citations, and network.

Finally, the document is structured as follows. The main related works in the field are listed in the second section. The technical phases are described in section 3. The results are presented in Section 4, which includes all the main bibliometric variables. The final section of the paper ends with research implications for the future.

### 3. Methodology

In the field of bibliometrics, bibliometric mapping is a research topic (Srisusilawati et al., 2021). The construction of the bibliometric map and the graphical representation of the map are two different bibliometric features. The development of bibliometric maps has attracted much attention in the bibliometric literature. Marlina et al. (2021) investigated the effect of differences on size similarity assessed by different mapping methods. The graphical form of bibliometrics received little attention. Despite the fact that some academics take graphical representation seriously (Campra et al., 2021). Most publications in the bibliometric literature rely on computer programmes to produce simple graphical representations.

The Scopus database is considered to be the largest abstract indexing database that would help not to overlook or exclude important papers from the study (Abbas et al., 2020a, 2020b, 2021; Alsharif et al., 2020, 2021; Hazaea et al., 2021; Khatib et al., 2020, 2021; Zamil et al., 2021; Sahi et al., 2021; Ali et al., 2021a, 2021b, 2021c). This database also covers a wide range of topics and provides advanced search options to help researchers develop search strings with accurate results, especially in broad areas. There are five main steps in the methodology. The processes involved in this study are as follows: (1) Study Design, (2) Data Collection, (3) Data Analysis, (4) Data Visualization, and (5) Data Interpretation. (Aria & Cuccurullo, 2017; Cobo et al., 2011; Zupic & Čater, 2015).

### 4. Study design

The research process begins with the formulation of three research questions. It was found that the terms “information sharing” and “social media” are the most important keywords in the Scopus database. According to (Chen & Xiao, 2016), the two most common methods of selecting keywords are as follows. First, using high-level publication keywords, and second, using important keywords that indicate a large field of study and its micro-level connexion, as described above. The second strategy is used in this paper: The term “information sharing” or “social media” represents large search fields that contain a large number of results in Scopus. The focus of this research was on the knowledge structure of journal articles in English journals from 2009 to 2020 and peer reviewers in the field of peer assessment selection. The analysis was able to identify 836 relevant materials among the published materials. Due to the limitations considered, the number has decreased. The study decided to choose articles in English due to the author’s language capabilities and because it is the most common language that has been used in the Scopus database. Following this, we thoroughly examined the abstracts of all the documents and removed those that had no relation to each other. The final number was 825.

#### 4.1. Data core choose

The second stage involves the development of the business model using the open source statistical tool R. The data collection stage enables the creation of the “.bib” file that will be used in the subsequent stage.

#### 4.2. Data analysis

The R programme and bibliometrix codes were used to produce a descriptive bibliometric study and matrix table in the third phase that will be used to classify and organise all the documents studied. The construction of a network and a conceptual map of co-citations was also done using “biblioshiny”, which is a web-based interface of bibliometrix.

#### 4.3. Data visualization

The data reduction technique was used to visualise the results after the results had been analysed.

#### 4.4. Interpretation

Finally, the data were analysed and interpreted. By using bibliometric analysis which consider as a description of the main bibliometric statistics is followed by the analysis of the results. Then, the study continues considering the indicators and information provided by the authors. Finally, the countries are considered. Each of these main categories is then thoroughly analysed considering the following details: (1) type of document, (2) annual scientific production, (3) scientific sources, (4) source growth, (5) number of articles per author, (6) Frequency Distribution of Scientific Productivity, (7) keywords of the author, (8) thematic dendrogram, (9) factorial map of the document with the highest contributions, (10) citation of the articles, (11) production of the country, (12) citation of the country, (13) map of collaboration of the country and (14) network of collaboration of the country.

### 5. Results

#### 5.1. Descriptive bibliometric analysis

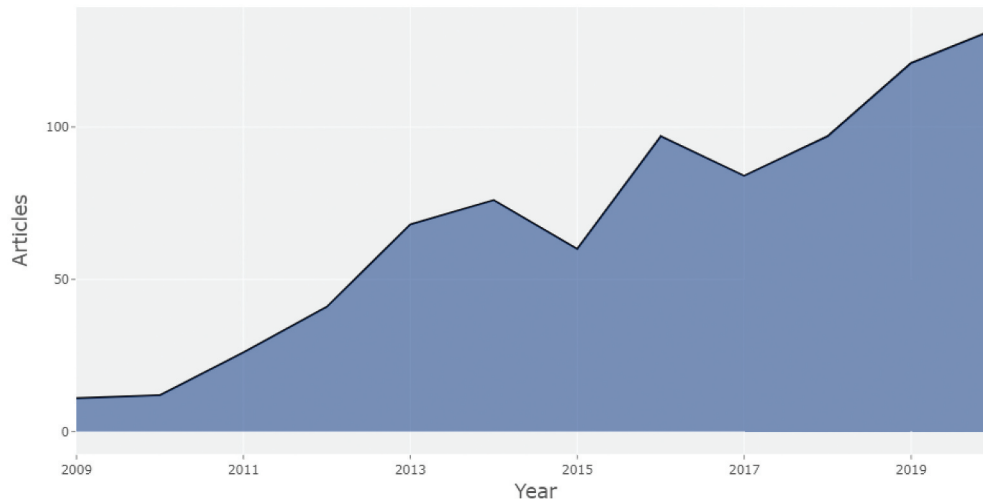
**Table 1** presents the main collected information from the Scopus database for 825 publications published between 2009 and 2020. These articles appeared in 499 publications, most of them were scientific journals. “Keywords plus” is the total number of keywords that frequently appear in the title of the article, namely 3216, which is four times the number of articles. The study period covers 12 years of scientific output. However, in the last ten years, the number of publications has increased dramatically (**Figure 1**). Each article is written by two authors on average (3.2), and the

**Table 1. Main information**

Description	Results
Documents	825
Sources (Journals, Books, etc)	557
Keywords Plus (ID)	3216
Author's Keywords (DE)	2125
Timespan	2009:2020
Average citations per documents	16.67
Authors	2251
Author Appearances	2636
Authors of single-authored documents	122
Authors of multi-authored documents	2129
Average years from publication	4.62
Single-authored documents	153
Documents per Author	0.367
Authors per Document	2.73
Co-Authors per Documents	3.2
Collaboration Index	3.17



**Figure 1. Annual scientific production– “information sharing” and “social media”**



collaboration index (CI) is 3.17, which is compiled as (Total Authors from Multi-Authored Articles / Total Multi-Authored Articles; Elango & Rajendran, 2012).

We already know that 825 peer-reviewed scientific articles were considered. There is no significant concentration in the distribution of articles. The journals, on the other hand, concentrate on “information sharing” and “social media” (see, Table 2). The table illustrates that the top journal

**Table 2. Sources that involve “information sharing” and “social media”**

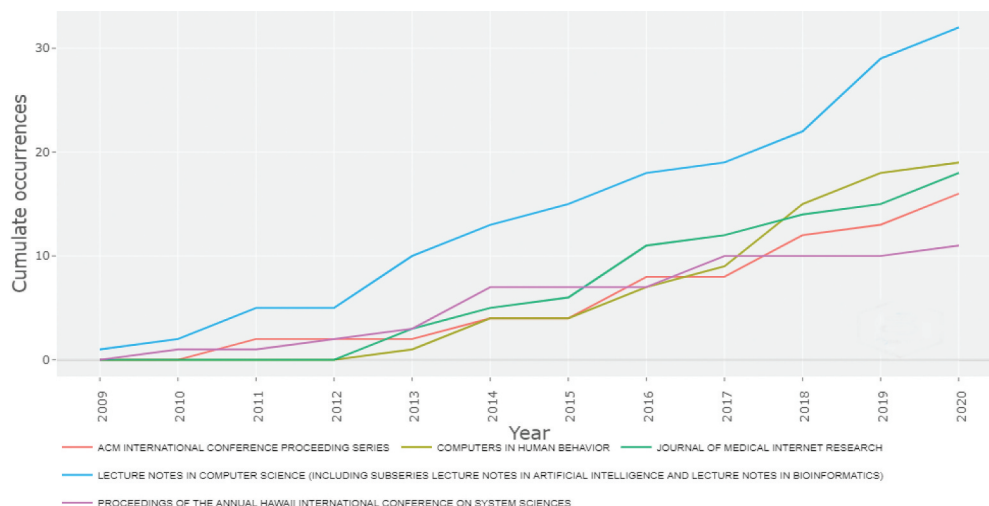
Sources	Articles
LECTURE NOTES IN COMPUTER SCIENCE (INCLUDING SUBSERIES LECTURE NOTES IN ARTIFICIAL INTELLIGENCE AND LECTURE NOTES IN BIOINFORMATICS)	32
COMPUTERS IN HUMAN BEHAVIOR	19
JOURNAL OF MEDICAL INTERNET RESEARCH	18
ACM INTERNATIONAL CONFERENCE PROCEEDING SERIES	16
PROCEEDINGS OF THE ASIST ANNUAL MEETING	9
CONFERENCE ON HUMAN FACTORS IN COMPUTING SYSTEMS—PROCEEDINGS	7
INFORMATION TECHNOLOGY AND PEOPLE	7
ADVANCES IN INTELLIGENT SYSTEMS AND COMPUTING	6
CEUR WORKSHOP PROCEEDINGS	6
INTERNATIONAL JOURNAL OF INFORMATION MANAGEMENT	6
PLOS ONE	6
INFORMATION COMMUNICATION AND SOCIETY	5
JOURNAL OF THEORETICAL AND APPLIED INFORMATION TECHNOLOGY	5
PROCEEDINGS OF THE ACM CONFERENCE ON COMPUTER SUPPORTED COOPERATIVE WORK CSCW	5
PROCEEDINGS OF THE ASSOCIATION FOR INFORMATION SCIENCE AND TECHNOLOGY	5
SOCIAL MEDIA AND SOCIETY	5
CYBERPSYCHOLOGY BEHAVIOR AND SOCIAL NETWORKING	4
DIGITAL JOURNALISM	4
IEEE ACCESS	4
IFIP ADVANCES IN INFORMATION AND COMMUNICATION TECHNOLOGY	4



is “Lecture Notes in Computer Science”, all other journals are either about social media and information or about medicine or behavior. Most of the topics are about social media and how people share information.

Figure 2, which shows the increase in publications, visualizes Journals that deal exceptionally well with the subject and related topics. Between 2017 and 2020, there will be a huge increase in the number of articles published on this topic.

**Figure 2. Source growth.**



## 6. Authors

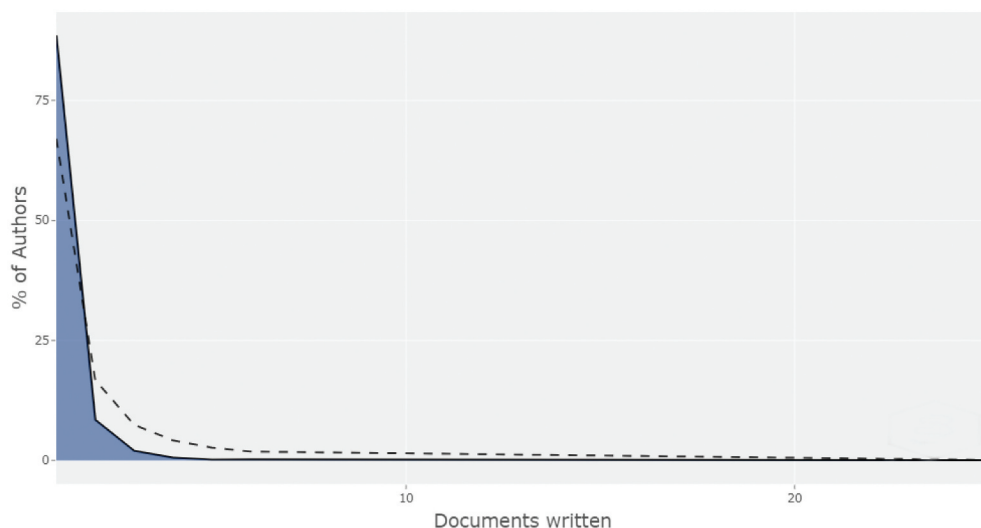
This section lists the most frequently cited authors in the “information sharing” and “social media” sections. It is also possible to check the authors’ keywords and the total number of citations in this section. The authors and their articles in the top ten positions are listed in Table 3. According to the table, Jansen has the most publications (6), followed by Gan and Riemer who both have five, Chung, Holmberg, Liu, Mukherjee and Starbird with (4) publications, Adamic and Ali with (3) publications. Consequently, the first authors have extensive expertise on the subject as well as In-depth information, updated over time. Some authors were the first to publish their work, but most were co-authors.

**Table 3. Authors productivity**

Author	Number of articles
Jansen, B.J.	6
Gan, C.	5
Riemer, K.	5
Chung, N.	4
Holmberg, K.	4
Liu, L.	4
Mukherjee, P.	4
Starbird, K.	4
Adamic, L.A.	3
Ali, M.	3

Figure 3 of the frequency distribution of scientific productivity shows a map of the distribution of Lotka's Law. The abscissa shows the number of articles, while the ordinate shows the percentage of authors from different literary genres. Lotka's law is shown as a dashed line in the figure. More than 75% of the authors in this graph wrote at least one article. The proportion of authors writing many articles is less than a quarter of the total. The number of articles and the number of authors on "information sharing" and "social media" are virtually identical to the dashed line in the figure, which follows Lotka's general law. This could indicate that there were significantly more authors who wrote only one article.

**Figure 3. The frequency distribution of scientific productivity.**



## 7. Author's keywords

This section contains information between the keywords "information sharing" and "social media". The researchers have included several keywords in the articles. This study is needed to assess the current research trend, identify any gaps in the areas of "information sharing" and "social media", and recommend potential research areas. The total number of keywords per author in the first 20 positions is shown in Table 4. The ranking is social networking (online), information sharing, and information dissemination. These items are not predictive, and they do not even consider the keywords that were stated. However, if we concentrate on the terms listed below, we can identify key features of understanding the characteristics of social media users involved in information creation and dissemination, consumers of different ages, as well as a distinction between male and female consumers, who are considered to be the main users of social media and for information sharing behaviors.

The TreeMap highlights the available keyword combinations. Using Figure 4, we can identify them and use the word cloud to indicate what they stand for: "information sharing" and "social media" are areas of study, both shown in Figure 5 in order of magnitude.

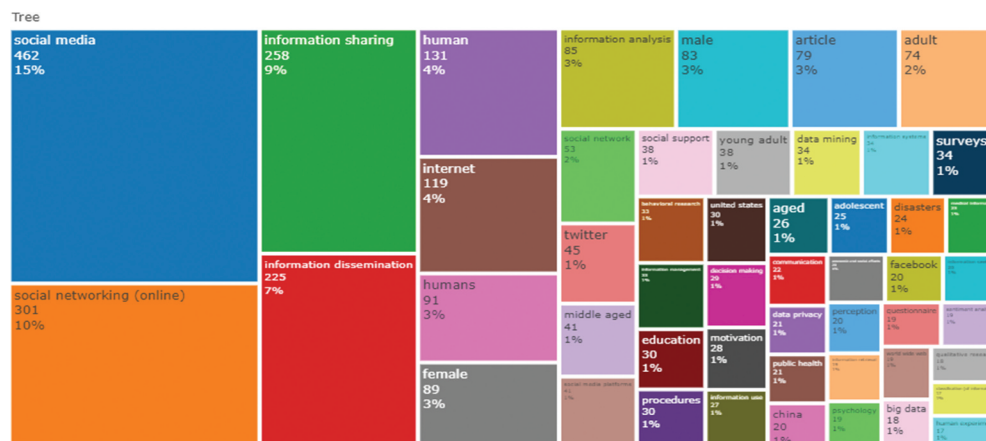
In this research, the conceptual structure map or contextual structure map of each word, which is commonly seen in research on "information exchange" and "social media", is also subdivided by area mapping is used to map the link between two words. To create a mapping between words with similar values, the values of Dim 1 and Dim 2 are used to insert each word.

The red and blue areas in Figure 6 are divided into two parts of the domain. In each area, some words are related to each other. The red area in the above figure shows more and different words

**Table 4. Author's keywords in "information sharing" and "social media"**

Words	Occurrences
social media	459
social networking (online)	297
information sharing	255
information dissemination	223
human	130
internet	119
humans	90
female	89
information analysis	84
male	83
article	79
adult	74
social network	53
twitter	45
middle aged	41
social media platforms	41
social support	38
young adult	38
data mining	34
information systems	34

**Figure 4. Word TreeMap.**



that are related to each other. This is included in it and shows that many research publications relate the words listed in this area.

The dendrogram in Figure 7, on the other hand, shows the hierarchical order and connections between the concepts identified by hierarchical clustering. The plot assigns a weight to each item based on the clusters and measures the connections between them. In other words, each item is a collection of keywords related to the concepts of "information sharing" and "social media".

### Conceptual Structure Map - method: MCA

Dim 2 (3.34%)

Dim 1 (90.68%)

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**Figure 7. Topic dendrogram.**

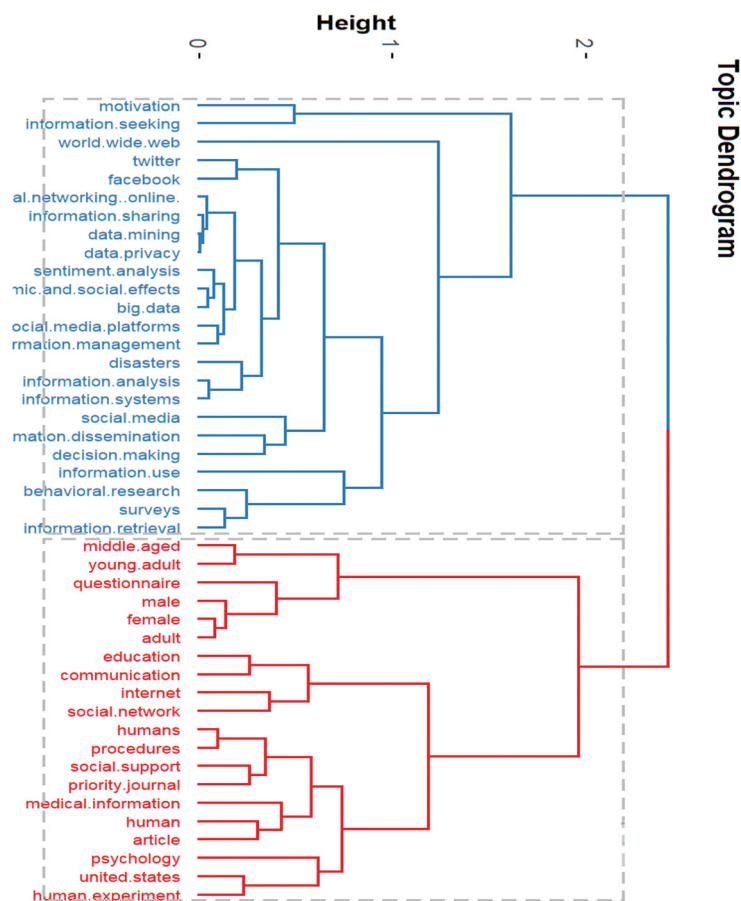
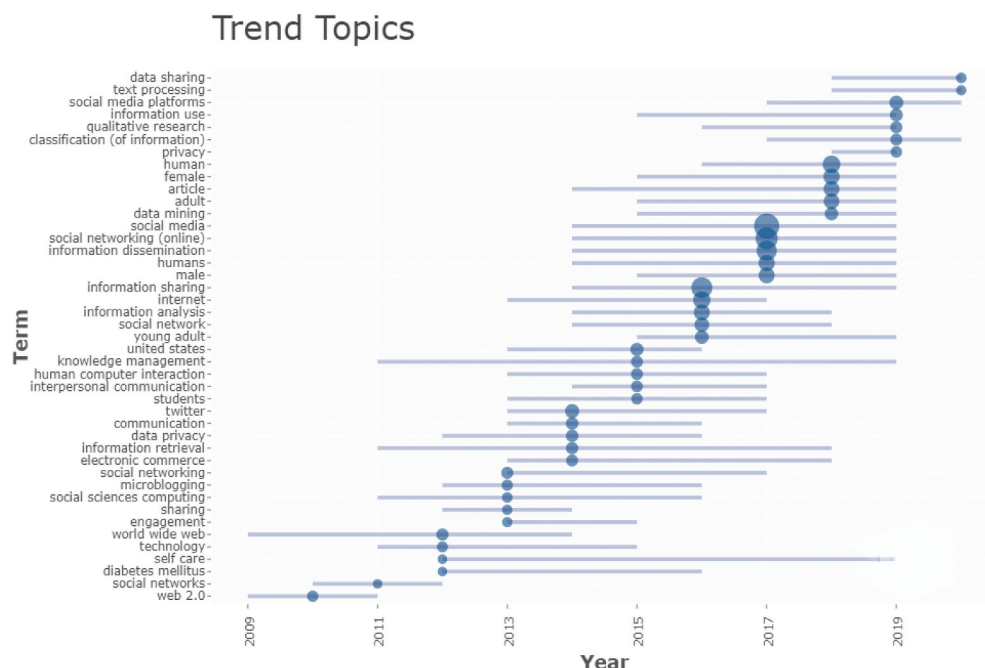


Figure 8 shows the evolution of the “information sharing” and “social media” theme over time. Between 2009 and 2011, “information sharing” and “social media” were associated with dominant themes such as social networks and Web 2.0. Since 2011, another relevant component has been highlighted, namely the cost of self-care and technology in “information sharing” and “social media”. An analysis in 2013 revealed that the trending topics were engagement, sharing and microblogging. From 2013 to 2015, new themes were explored that were directly related to communication through a platform such as Twitter and knowledge management from an educational perspective (in the United States). From 2015 to 2017, many themes related to “information sharing” and “social media” were introduced, including a) information analysis and b) information sharing c) attention to men. Only since 2016 there has been a significant increase in attention to data mining and information sharing. The authors are particularly concerned with demographic characteristics related to “information sharing” and “social media”. In 2019, the focus is again on activities related to “information sharing” and “social media”, such as the use of information on different platforms, the use of qualitative techniques to evaluate and measure the phenomena, and the categorization and organization of information. In the same year, a new goal for text processing and data sharing was launched resulting in the focus of numerous investigations.

**Figure 8. Trend topics.**



## 8. Total citations

**Table 5** shows the number of citations in the papers that are among the top twenty. It shows that some articles were cited exclusively in certain years. Numerous authors include knowledge sharing in different fields. This has a significant impact on the number of citations, especially when social media results are related to concepts such as market or cost, and information search and provision. The most cited article is Stieglitz's from 2012, which has received the most citations (661) for any year to date. Lee Hughes is the second article published in 2009 and has been cited (479) times. More articles have been cited on different aspects. This indicates that the publications are significant as they provide information and identify the concepts of "information sharing" and "social media" as research areas that have been shared by the community.

The results show that the citations are from different journals, with the *Journal of Management Information Systems* being the most cited journal and its average TC per year (73.4444). Another journal, *Qualitative Market Research: An International Journal* gave an average of (52.1111) TC per year. The former journal mainly focuses on emotions, health information dissemination, gratification approach, and understanding information sharing on various platforms like Twitter and Flickr. It contains research articles, discussions on current problems, and case studies conducted by academics and practitioners. The second part looks at the motivations behind information sharing, taking the approach of academics. It also addresses the issue of shopping and word of mouth in social media. The topics and content are focused on the dissemination of information.

**Table 5. Articles that receive citations**

Ranking of authors (top 20)	Author	Journal	Total citations (TC)	Average TC per year
Emotions and information diffusion in social media—Sentiment of microblogs and sharing behavior	(Stieglitz & Dang-xuan, 2013)	Journal of Management Information Systems	661	73.4444
Twitter adoption and use in mass convergence and emergency events	(Hughes & Palen, 2009)	International Journal of Emergency Management	479	36.8462
Why people use social media: a uses and gratifications approach	(Whiting et al., 2013)	Qualitative Market Research: An International Journal	469	52.1111
Dissemination of health information through social networks: Twitter and antibiotics	(Scanfeld et al., 2010)	American Journal of Infection Control	445	37.0833
Networked privacy: How teenagers negotiate context in social media	(Marwick & Boyd, 2014)	New Media and Society	369	46.125
Advances in Social Media Research: Past, Present and Future	(Kapoor et al., 2018)	Information Systems Frontiers	296	74
Crisis in a networked world: Features of computer-mediated communication in the 16 April 2007, Virginia Tech event	(Hughes & Palen, 2009)	Social Science Computer Review	277	21.3077
Spatial, temporal, and socioeconomic patterns in the use of twitter and flickr	(Taylor et al., 2013)	Cartography and Geographic Information Science	267	29.6667
Insights from hashtag #supplychain and Twitter analytics: Considering Twitter and Twitter data for supply chain practice and research	(Chae, 2015)	International Journal of Production Economics	229	32.7143
Travel Recommendation Using Geo-tagged Photos in Social Media for Tourist	(Memon et al., 2015)	Wireless Personal Communications	129	18.4286
We Create, We Connect, We Respect, Therefore We Are: Intellectual, Social, and Cultural Value in Online Communities	(Seraj, 2012)	Journal of Interactive Marketing	126	12.6
Motivations for sharing information and social support in social media: A comparative analysis of Facebook, Twitter, Delicious, YouTube, and Flickr	(Oh & Syn, 2015)	Journal of the Association for Information Science and Technology	121	17.1429
Trust and Involvement in Tourism Social Media and Web-Based Travel Information Sources	(Munar & Kr, 2013)	Scandinavian Journal of Hospitality and Tourism	119	13.2222
Hey mom, what's on your facebook? comparing facebook disclosure and privacy in adolescents and adults	(Christofides et al., 2012)	Social Psychological and Personality Science	119	11.9

(Continued)



**Table5. (Continued)**

Ranking of authors (top 20)	Author	Journal	Total citations (TC)	Average TC per year
Information sharing on social media sites	(Osatuyi B., 2013)	Computers in Human Behavior	117	13
Shopping and word-of-mouth intentions on social media	(Mikalef et al., 2013)	Journal of Theoretical and Applied Electronic Commerce Research	117	12.8889
User comments for news recommendation in forum-based social media	(Li et al., 2010)	Information Sciences	115	9.5833
Web 2.0 and internet social networking: A new tool for disaster management?—Lessons from Taiwan	(Huang et al., 2010)	BMC Medical Informatics and Decision Making	115	9.5833
“Breaking Ground” in the use of social media: A case study of a university earthquake response to inform educational design with Facebook	(Dabner, 2012)	Internet and Higher Education	111	11.1
Talking in Circles: Selective Sharing in Google +	(Kairam et al., 2012)	Conference on Human Factors in Computing Systems	102	10.2000

## 9. Country

This section examines the geographical distribution of information sharing and social media publications considered the nations in which the publications were discovered, the number of articles published, the total number of citations, and the formation of scientific networks. The next part deals with the total number of articles published.

### 9.1. country total of articles

The total number of countries whose articles were analyzed for the topics “information sharing” and “social media” is shown in Table 6 and Figure 9. In first place is the United States (305). As noted in various publications, the USA is the country most affected by this phenomenon, with a significant number of residents migrating to less developed countries where the cost of treatment is much lower for the same or similar quality. China (82) and United Kingdom (78) rank second and third, respectively, among countries where the development and spread of information sharing via social media has recently accelerated. For this reason, local government is concerned, and several researchers have studied the phenomenon, highlighting characteristics that have a direct impact on the field.

Other countries are ranked below them in the world. Here, “information sharing” and “social media” are developing more slowly. They are Australia (44), South Korea (37), Canada (35), and India (32). Most of the studies have been conducted in developed and developing countries, and the use of information dissemination technologies on various online platforms has been studied in a global region.

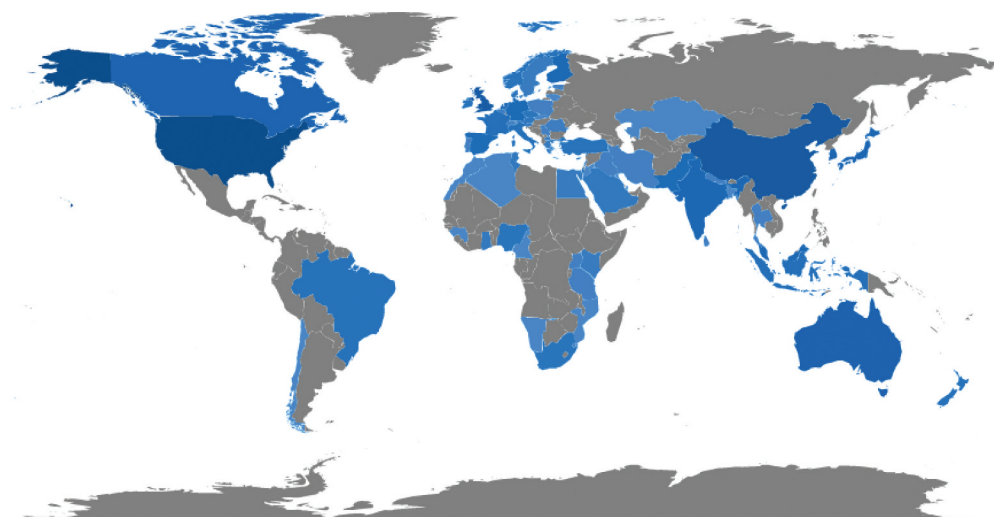
### 9.2. Country publications and collaboration map

Articles are discussed in the area of “information sharing” and “social media”, considering either single or numerous publications in each country. It also aims to document collaborations and networking among scholars researching the topic in other countries. The average number of

**Table 6. Total of articles in the country**

Region	Freq
USA	305
CHINA	82
UK	78
AUSTRALIA	44
SOUTH KOREA	37
CANADA	35
INDIA	32
HONG KONG	30
MALAYSIA	27
GERMANY	26
FINLAND	22
JAPAN	21
NETHERLANDS	21
SINGAPORE	19
SPAIN	16
INDONESIA	15
PAKISTAN	14
TAIWAN	13
FRANCE	12
ITALY	11

**Figure 9. Country's production.**



citations per country is shown in Table 7. The US, the UK and China retain their leading roles. However, a large number of citations are reported from Korea, India, Ireland, Greece and New Zealand. The phenomenon affects countries for several reasons: On the one hand, some of them are now competing to build some kind of “information sharing” and “social media”; on the other hand, some countries have already created virtuous circles that have favoured the rise of “information sharing” and “social media”.

**Table 7. country with a total of citations**

Country	Total citations	Average article citations
USA	4451	26.65
UNITED KINGDOM	953	23.24
CHINA	691	15.7
KOREA	399	13.3
CANADA	272	16
HONG KONG	270	19.29
AUSTRALIA	250	16.67
SINGAPORE	188	17.09
GERMANY	143	28.6
NORWAY	137	27.4
TURKEY	136	22.67
MALAYSIA	134	16.75
NETHERLANDS	130	18.57
GREECE	117	39
IRELAND	114	19
INDIA	107	9.73
NEW ZEALAND	91	30.33
AUSTRIA	74	14.8
BELGIUM	71	35.5
BRAZIL	61	20.33

**Figure 10. Country's collaboration map.**

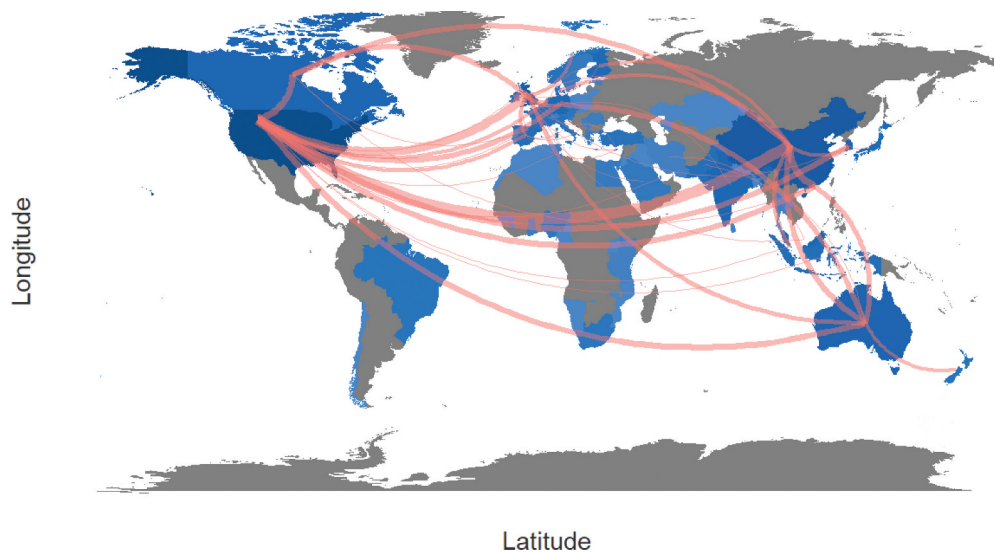


Figure 10 shows the path of global cooperation: the presence of international research networks is indicated by the blue colour on the map. It is important to note that the countries with the highest number of publications on “information sharing” and “social media” are also the countries with a higher rate of cooperation, indicating that they have shared information and supported each other in achieving scientifically useful results. The US, UK, Australia and China had the highest rates of networking with other countries due to policies and practises.

## 10. Discussion

The main objective of this bibliometric analysis is to identify the evolution of studies in terms of authors, journals, citations, and also topics. It was found that four authors have the most publications on the studied topic (3): Jansen, B.J., Gan, C., Riemer, K. Almost all of their contributions are devoted to the study of “information sharing in social media”, with different emphases: (i) Jansen examines e-commerce information sharing, opinion sharing, and social sharing TV, thus focusing on network engagement; (ii) Gan focuses mainly on the factors that drive users’ intention to continue using social media, and understands the impact of gratifications on intention to continue using social media, as well as on social media use and gratifications; (iii) finally, Riemer focuses on corporate social networking in knowledge-intensive work settings.

According to the results of the study, the journals most actively involved in the research are the field of computer science with nine publications in the top ten of information sharing in social media research. Table 5 lists the most frequently cited publications on this topic and the journals in which they appeared. Lecture notes in computer science is the journal which have the most articles on information sharing in social media. This is in contrast to the Journal of Management Information Systems, which has more citations that are not in the top 20 journals. The multidisciplinary nature of the topic is illustrated in Table 2 and Figure 2. The journals that explore and extend the topic of information sharing through social media are oriented towards Human Factors in Computing Systems and human behavior in online information-sharing. The topics of “information sharing” and “social media” both revolve around the principles of determination and maintenance. As a result, the major publications on this topic are often published in a journal that focuses more on one topic or the other, except for one journal that focuses on information sharing in healthcare and medicine, which is the Journal of medical internet research.

In terms of citation analysis, Stieglitz’s comprehensive approach has led to the publication of the paper with the largest number of citations. The assumed business models for “information sharing” and “social media” can be derived from the keywords used and considering the areas of emotion and information dissemination on social media. This study contributes to research and practise in several ways. First, we shed light on the role of emotions in the dissemination of information in the context of social media. It is shown that emotions (positive or negative) in social media are associated with the dissemination of information, not only in terms of quantity but also in terms of speed. This discovery has a number of policy and financial implications. Companies should pay more attention to sentiment research related to their brands and goods in social media communications. They should also produce promotional content on social media that evokes emotions, as such content is more likely to be shared, as sentiments can have viral consequences (Stieglitz & Dang-xuan, 2013). For example, Jie and Ling (2019) found that the affective dimensions (anger, sadness, fear, disgust, and joy) of political hurricane messages are indeed significantly associated with retweet behaviour in terms of retweet quantity, just as negative, emotionally charged tweets are more likely to be shared than positive ones.

Most papers in healthcare and health information come from PubMed, the finding of the prominence of mental health posts, and interactions these generated, aligns with previous studies examining the use of social media to promote Indigenous health (Sweet et al., 2015), (Scanfeld et al., 2010) Provides valuable findings. First, because health information is widely available on social media, it is critical for health care workers to have a basic understanding of sites such as Twitter. Second, such systems could be used to collect important health data in real time and provide a platform to identify potential overuse of antibiotics or misconceptions, promote positive behaviour change, and disseminate accurate information. Other research has focused on Twitter, the most widely used social network among the public (Harris & Mueller, 2013; Thackeray et al., 2012). Primarily because most messages and user profiles are public, Twitter is an excellent tool for gathering and disseminating information. However, advocates of risky health behaviours may choose other social media platforms that offer more exclusive networks (Park, 2019).

Findings of insights from hashtag #supplychain and Twitter analytics, and geotagged photos on social media used to create travel recommendations highlighted this field of study's comprehensive approach to transdisciplinary and enterprise issues. The paper of (Memon et al., 2015) Presented a method for extracting semantically recommended destinations from geo-tagged social media such as photos for tourist travel recommendations. The paper presented a method to extract tourist preferences by using a user's publicly provided photos and considering the user's current context for a tourist recommendation system that uses collaborative filtering and context rank in a scalable approach. Thus, most cited articles on sharing information in social media focused on sentiment, healthcare, and recommendations.

In terms of the topic dendrogram, (or topic tree) in Figure 6 shows two phases of discussion. The first is a representation of a motivational region that has been analyzed to highlight its possible impact on information seeking and to understand the phenomenon of "social media". The second classification considers novel aspects of socio-demographic parameters. In the period from 2006 to the present, the topic highlighted in (Figure 7) shows the evolution of an emerging topic related to e-commerce, communication through a platform such as Twitter, and knowledge management from an educational perspective. Between 2015 and 2017, numerous themes related to "information sharing" and "social media" were introduced, including (information analysis, information sharing, attention to men). Qualitative techniques were also used to evaluate and measure the phenomenon and to classify and categorize information. Facebook and Twitter have been used for informational purposes in the past (Hughes et al., 2012). (Fan, 2019) added to the current body of knowledge by rigorously comparing the variance of information sharing and social interaction in social network and microblogging persistence factors.

Customers of all ages were studied to better understand the characteristics of consumers who engage in social media content creation and distribution. This covered both young customers, who are thought to be the main users of social media, and older consumers. As the different types of social media used in different ways by different age groups were not studied individually and the differences in the way information are disseminated in the different types of social media could only be identified to a limited extent (Nam et al., 2021). This is in line with the bibliometric results of this study by examining the behavior of users or consumers in different age groups and socio-demographic backgrounds. Consumers use social media to create and share information and to extend interactions with others. Demographic characteristics were often the most considered variables in previous research on social media users (Idemudia et al., 2017; Nadkarni & Hofmann, 2012). In addition, psychological factors such as cognitive needs and self-esteem are now also considered (Hughes et al., 2012; Nadkarni & Hofmann, 2012; Zhong et al., 2011). Variables such as demographic characteristics, personality traits, and self-esteem correlated significantly with Facebook use, according to a study that analysed numerous previous studies on Facebook user characteristics (Nadkarni & Hofmann, 2012). In addition, cognitive needs are considered an important variable in information behaviour (Hughes et al., 2012; Nadkarni & Hofmann, 2012). While some studies have focused on specific demographic characteristics, most empirical models also incorporate additional variables. For example, one study examined how self-esteem and demographic factors such as gender, age, and education influence addictive social media use (Schou et al., 2017). Age, gender, economic level, and education level are all common demographic factors used in social media studies. According to the results of these studies, younger people, women, and people with better income and education levels are more likely to use social media (Nam et al., 2021).

In terms of countries, It is important to note that the countries with the highest number of publications on "information sharing" and "social media" are also the countries with a higher rate of cooperation, indicating that they have shared information and supported each other in achieving scientifically useful results. The USA, UK, Australia, and China had the highest rates of networking with other countries due to policies and practices.

## 11. Conclusions and direction for future research

This bibliometric analysis helps to identify the phenomenon of “information sharing in social media”, as well as the lack of publications on the region Asia-Pacific, based on the Asia-Pacific source legislation, found a large gap in the literature that needs to be filled. which recognizes mobility within the region. Assessments were conducted on “information sharing” and “social media” across countries, as well as the interaction between the United States and other countries.

It shows that research on “information sharing” and “social media” has increased every year. Jansen, B.J., Gan, C. and Riemer, K. are authors who frequently deal with this topic; their papers are devoted to the study of “information sharing and social media” during the research period. Meanwhile, the terms “social media” and “online information sharing” are frequently used in this study. the newest trend topics are sentiment, healthcare, recommendations, and COVID-19. So that research with the theme of “information sharing” and “social media” is increasingly developing. Therefore, research with this theme needs to be continuously developed considering the growing development of information sharing behavior in social media.

There are few studies on this subject. These studies are relatively new, but they reflect a new emerging trend: the formation of health and support-oriented communities. The size of such communities appears to be largely determined by the ability of members to absorb information and maintain a wide range of social connections. The use of social media to bring together people with similar health problems shows that information and social support can have different effects on patients’ health (Kapoor et al., 2018). Because Twitter is a widely used social media communication medium that is also used in fields other than politics and health care, the problem of generalizability may not be as severe. However, future studies could extend our analysis to other domains (such as business, marketing, or personal communication) and a larger scale (e.g., longer periods of data collection and other countries and languages). In addition, we can investigate whether there is a link between the sentiment of Twitter messages. If more people participate in cognitive efforts, the information can be expanded. Therefore, future studies need to investigate the usefulness of consumer-driven information in social media. Therefore, research on this topic needs to continue in light of evolving social media information-sharing behaviours.

Some interesting articles deal with a new concept: the use of social media within companies or between companies and their customers. The use of Web 2.0 tools to solve business problems and improve an organization’s knowledge management, such as tagging, reviews, networking, and information sharing (Big Data), is becoming increasingly popular. In this study, we open the door for academic research to join a movement that is taking place around Enterprise 2.0 and knowledge management are used to explore how social media can be used in collaboration to increase information sharing and innovation in an organization (Noor et al., 2020). Unfortunately, most of the information systems used to manage these specialised services between companies and their customers are private, which creates a significant barrier to data access. This could be one reason why there is little research on this topic. As a result, it seems that the theme of the phenomena of information management, consumer decision making, marketing and organisational challenges, and accounting should be developed. Moreover, sharing information during COVID –19 is another big part of social media nowadays especially in the health sector, and need to identify significant research and researchers in that topic as well.

According to the introduction of this study, this analysis is based on data provided by Scopus, which is considered the most authentic data source; however, it is possible to use other databases such as WOS as a substitute and perform it in R packages. Moreover, the bibliometric analysis proposed in this paper can be extended to databases other than the SCI /SSCI index and data from different periods. Secondly, no additional software such as VOSviewer was used in this study to enliven the issues of “information sharing” and “social media”. An additional study is needed to investigate this area further.



Finally, the introduction of the extracted data is entitled “information sharing” and “social media” only. Future studies can be more specific by including other terms like “customers”, “COVID-19” and “organization” which have not yet been analyzed. Moreover, more studies can focus on specific countries to study the phenomenon of information sharing in social media from a different cultural background as well.

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