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# **Research Trends and Mapping on Social Media in SMEs: A Bibliometric Analysis**

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## **Abstract**

As the backbone of the economy from various countries, SMEs use social media in their business activities. This study aims to determine trends and maps in social media and SMEs research from the Scopus database. This study uses bibliometric analysis on the Scopus database from 2009 to 2020. Social Media and SMEs search string use in titles, abstracts, keywords, and English article in the Scopus database. Further filtering by reading article content unrelated to SMEs to eliminate irrelevant articles. Search results were processed with VOSviewer software to acquire trends and co-occurrences of article keywords. A total of 210 articles were found from 2009-2020, with the number of publications increasing every year. The United Kingdom and the United States have a significant role in the article social media and SMEs on Scopus. Three cluster topics were found: the adoption of social media in SMEs, social media technology's role in SMEs innovation and entrepreneurship, and social networks' role in SMEs marketing.

Keywords: SMEs, social media, bibliometric analysis, Scopus, VOSviewer.

## **1. Introduction**

Today's social media is a forum for communication and interaction unlimited by time and space. Social media is defined as an interactive web and mobile-based technology platform where individuals and communities share, co-create, discuss, and access user-generated content (Kietzmann et al., 2011). Social media is used in interactions between individuals, but social media has significantly contributed to the economy. Entrepreneurs in managing business activities use social media a lot. According to Mohsin (2020), more than 80 million small and medium enterprises (SMEs) worldwide use Facebook pages as a means of advertising, promotion, and other supporting activities.

Social media has helped SME entrepreneurs with limited resources run their businesses. Social media in business activities is used in marketing, information retrieval, business networks,

funding, customer relationship management (Ahani et al., 2017; Cheng & Shiu, 2019; Guha et al., 2018), digital channels (Nakara et al., 2012; Virtanen et al., 2017), research (Mohsin, 2020), and advertising effectiveness (Carmichael & Cleave, 2012; Hadining et al., 2016).

The widespread use of social media for SMEs and their benefits have done research related to social media and SMEs a lot to be done. This study describes an analysis of social media and SMEs literature by extracting knowledge from various previous studies. Research data is used from the Scopus database with a bibliometric analysis approach using the VOSviewer application.

## **2. Literature Review**

### **2.1 Scopus**

Scopus is an index database of highly reputable international scientific publications such as Thomson Reuter. The Scopus database includes journals, conference proceedings, reviews, and book chapters. The database provides information or a comprehensive overview of various research results in science, technology, medicine, social sciences, arts, and humanities. As a means of tracing information, Scopus has sophisticated tools to track, analyze and visualize research results. Scopus can map research results based on fields of study/subject/category, author, keywords, publisher, year of publication, geography, keyword, which can be monitored in terms of author and keyword collaboration.

### **2.2 Bibliometric**

Bibliometric studies in information science can reveal document use patterns, literature development, or information sources in a subject area. Bibliometrics includes two types of studies, namely descriptive studies, and evaluative studies. Descriptive studies analyze the productivity of articles, books, and other formats by looking at authorship patterns such as author's gender, types of author's works, collaboration levels, author's productivity, author's affiliations, article's subjects. Evaluative studies analyze the use of literature by calculating references or citations in research articles, books, or other formats (Pattah, 2013).

Nicolai (2010) explains that the bibliometric application can be divided into two parts: 1) bibliometric calculation (performance) of indicators at different levels of behavior; and 2) analysis and visualization of bibliometric networks. Bibliometrics can be differentiated into descriptive bibliometric and evaluative bibliometrics. Descriptive bibliometrics takes a top-down approach, trying to get a big picture, such as a country's research output in various fields, the proportion of various fields, and changes over time. In addition, the evaluative bibliometric is a tool for assessing

the performance of smaller units, such as research groups or individuals, using a bottom-up approach, namely collecting all relevant publications from each unit.

### **2.3 Co-Word Analysis**

According to He (1999), co-word analysis can calculate the number of keywords from a research document that appear simultaneously in the paper under study. The author usually specifies keywords in research documents. The more keywords that appear in the group of documents being analyzed, the stronger the relationship between documents. A map based on a co-word analysis of keywords is a map based on the co-occurrence of important or unique terms in the article and can be seen by looking at the title or the abstract only. The terms derived from subject analysis represent a concept. The use of keywords that are not standardized will result in varied terms. To standardize it, a thesaurus and terms that represent concepts called descriptors are used. Standardizing keywords with a thesaurus is meant to ensure that the words are used consistently. Only one term is used for concepts that are represented by different texts but have the same meaning.

### **2.4 VOSviewer**

VOSviewer is a software to develop to build and view bibliometric maps. VOSviewer offers a text-mining function that can build and visualize networks/relationships from a collection of articles. Publication maps are displayed in various ways and functions, such as mapping, scrolling, and searching, and mapping articles/publications in more detail. VOSviewer can present and represent specific information about bibliometric graphic maps. Through VOSviewer, we can easily display bibliometric maps to interpret a relationship (Van Eck & Waltman, 2010).

## **3. Method**

This study uses quantitative methods with bibliometric analysis. The bibliometric method is used to study activities and evaluate scientific productivity quantitatively (Todeschini & Baccini, 2016). This research is expected to provide an overview of the mapping and trends regarding the latest social media and SMEs research.

Figure 1 summarizes the procedure of data collection and bibliometric analysis. This research attempts at collecting data and searching for articles using the SCOPUS database, peer-reviewed at the end of 2020. This research's main search strings are "Social Media" and "Small and Medium Enterprises." Henceforth the development of the search strings in the Scopus database search, namely:

("Social media" OR "Facebook" OR "Twitter" OR "Instagram") AND ("SME" OR "small and medium enterprises" OR "small and medium-sized enterprises" OR "small and medium-sized businesses")

Search strings are listed on the title, abstract, and keywords to avoid irrelevant results when derived from the text article's entire contents. The search string results revealed 569 journal articles, book chapters, conferences, and editorials between 2007 - 2020. The search results were filtered by taking English journal articles and stage final publications with 281 articles. A manual exploration was carried out through the title, abstract, and keywords to filter irrelevant articles. Irrelevant articles were filtered by looking at the abbreviation of SME. Some of the abbreviations for SME are not directly related to small and medium enterprises, such as social media engagement, the society of manufacturing engineers, social media editors, social media experiences, the society of manufacturing engineers, social media-enhanced, social media entertainment, and social media exposure. The manual exploration resulted in 210 relevant journals with 1046 citations. The articles that had been collected were made in the form of a bibliographic database for further processing using the VOSviewer software. The collected articles were made in the bibliographic database form for further processing using the VOSviewer software.

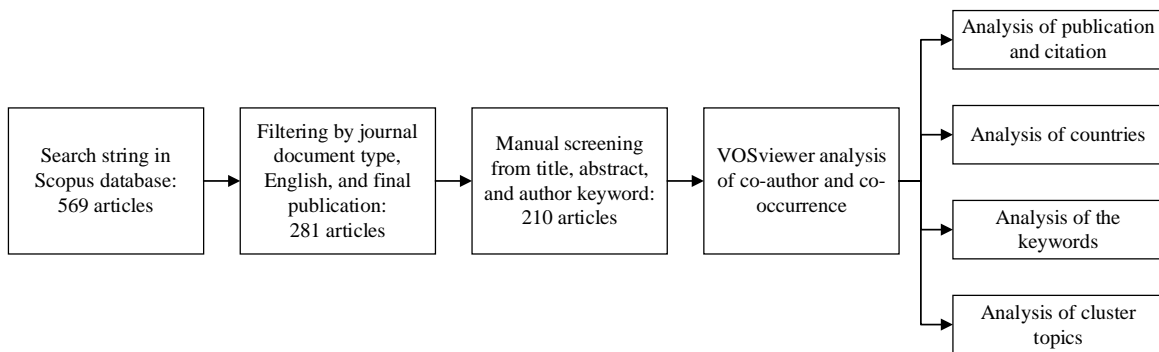


Figure 1. The Procedure of Data Collection and Bibliometric Analysis

## 4. Result and Discussion

### 4.1 Bibliometric Analysis of the Publications and Citations

The number of articles published increases from year to year. Figure 2 presents the number and distribution of publications and citations per year. The number of publications is marked with bar shape and left axis, while the number of article citations is marked with line shape and right axis. Articles on SMEs and social media appeared in 2009. They continued to experience growth

where a significant increase in social media and SMEs' research occurred in 2013 to 2014 and 2018 to 2019. In general, the number of citations exceeds the number of articles published in the same year. The most cited articles are primarily studies in the field of social media adoption and performance in SMEs. In 2011 there was one article with 414 citations. The article explained how SMEs use social networks to get brand objectives and attract new customers (Michaelidou et al., 2011).

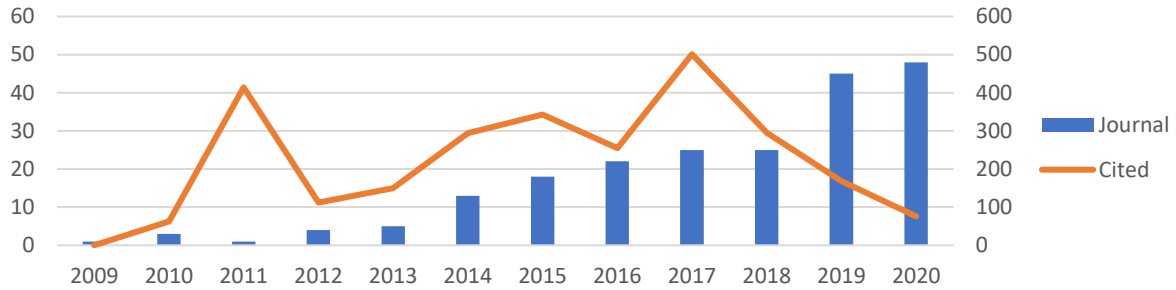


Figure 2. Trends in SMEs and Social Media Publication From 2009 to 2020 in the Scopus Database

#### 4.2 Bibliometric Analysis of the countries

There were 58 author affiliation countries in the search results that contributed to SMEs and Social Media articles. Table 1 shows the articles scattered in 17 countries from various regions with a minimum number of five document articles. There are four countries: the United States, Indonesia, the United Kingdom, and Malaysia, which have more than or equal to 20 documents. A large number of publications does not guarantee a large number of citations. The United Kingdom and the United States are the documents with the highest number of citations than Indonesia and Malaysia. Figure 3 shows the two countries being the centre of the country's affiliate network. These results indicate that the United Kingdom and the United States contributed significantly to Social Media and SMEs' research.

Table 1. Number of Publications and Citations for Each Country With a Minimum of Five Documents

Num.	Country	Doc.	Citation	Num.	Country	Doc.	Citation
1	United States	27	459	10	Spain	7	189
2	Indonesia	26	48	11	United Arab Emirates	7	104
3	United Kingdom	25	842	12	Finland	6	154
4	Malaysia	20	195	13	France	6	171
5	Australia	18	143	14	Portugal	6	64
6	Italy	11	126	15	Russian Federation	6	87
7	South Africa	11	22	16	Canada	5	33
8	Saudi Arabia	9	104	17	New Zealand	5	105
9	India	8	22				

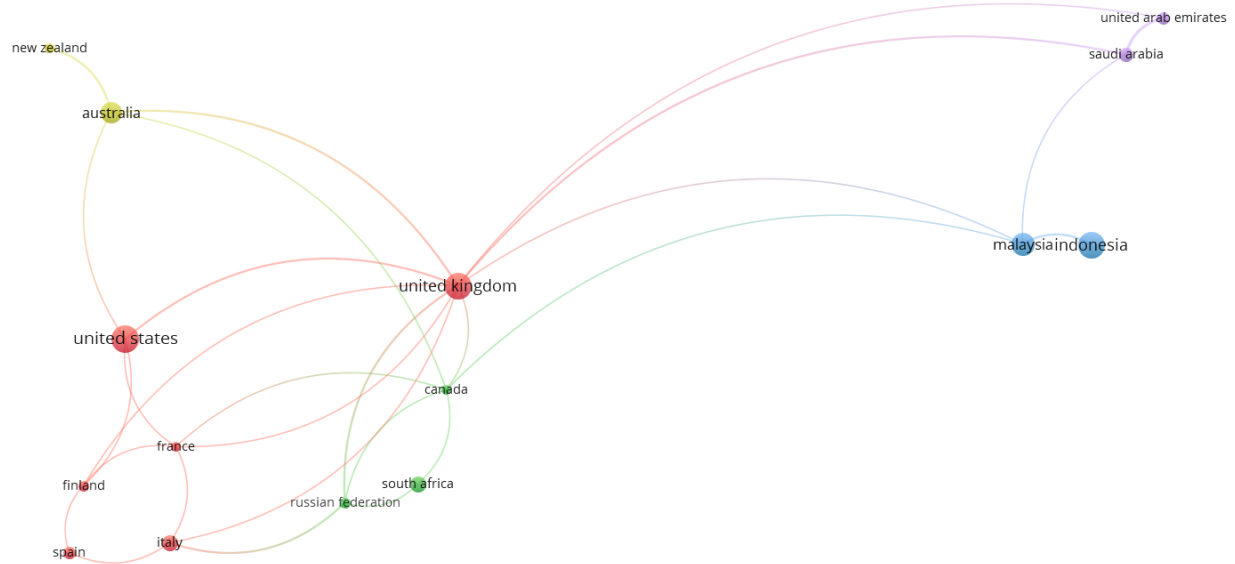


Figure 3. Network Visualization of Researcher Country Affiliation

### 4.3 Bibliometric Analysis of the keywords

The keyword of the author's article that appeared initially was 628 keywords. Before analyzing keywords, the keyword carried out a thesaurus to replace the keywords with the same meaning as in Table 2. Term SMEs has many different writings with the same meaning. Next, keyword filtering was carried out with a minimum of five occurrences in the article database so that 13 relevant keywords appeared. The most appear keywords are SMEs and social media, followed by Facebook, social media marketing, marketing, digital marketing, innovation, social network, social media adoption, web 2.0, Instagram, entrepreneurship, and technology adoption keywords.

Tabel 2. Thesaurus Term

Num.	Keyword label	Replace by
1	MSME, SME, Small And Medium Enterprises, Small and Medium-Sized Enterprises, Small Medium Enterprise, Small to Medium-Sized Enterprises, Small and Medium-Sized Firms	SMEs
2	Customer Relationship Management	CRM
3	Electronic Commerce	E-Commerce

### 4.4 Bibliometric Analysis of Cluster Topics

The keywords of all articles were analyzed with the keyword co-occurrence. The association strength approach is applied when graphing the network. VOSviewer converts and classifies keywords that appear five times into three clusters in the network visualization display

in Figure 3. Keywords are mapped into clusters with similar colors according to association strength. Three clusters were obtained from the keyword analysis without including the main keywords SMEs and social media, as shown in Table 3.

Table 3. Keyword Cluster With the Occurrence

Num.	Keyword	Occurrences	Total Link Strength
1	SMEs	128	147
2	Social Media	83	110
<b>Cluster 1</b>			
1	Facebook	19	30
2	Social Media Marketing	17	20
3	Digital Marketing	13	18
4	Social Media Adoption	10	9
5	Technology Adoption	5	12
<b>Cluster 2</b>			
1	Innovation	12	20
2	Web 2.0	7	15
3	Entrepreneurship	6	7
<b>Cluster 3</b>			
1	Marketing	14	22
2	Social Networks	11	19
3	Instagram	7	14

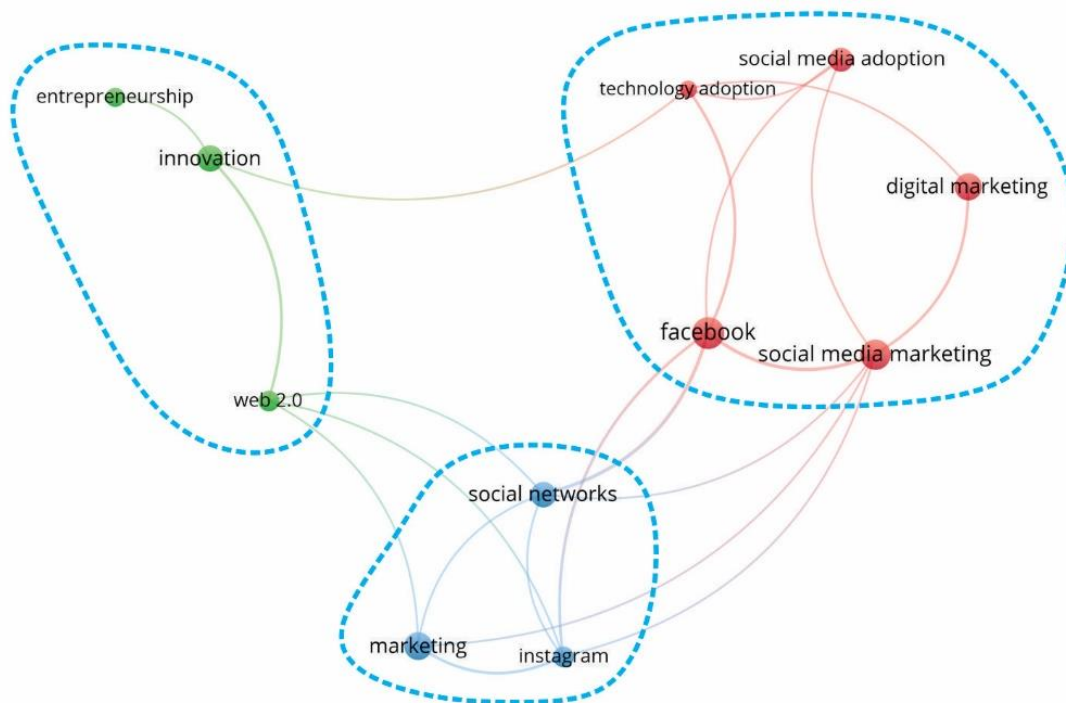


Figure 3. Network Visualization of Keyword Articles Related to SMEs and Social Media



The first cluster marked in red color contains the keywords Facebook, Social Media Marketing, Digital Marketing, Social Media Adoption, and Technology Adoption. These keywords show that the first cluster deals a lot with adopting social media in SMEs as a marketing tool, with Facebook as the most discussed platform. Several articles explain the themes in this cluster. According to Durkin et al. (2013), the approach to social media adoption in each SME is different in terms of organizational form and employee competence. The primary motivation for adoption is SME owners' anxiety if they do not adopt social media for business growth. One of the media most frequently used by SMEs is Facebook, where the use of Facebook by SMEs is influenced by innovation, size, and company managers' age (Wamba & Carter, 2016). On the other, SMEs do not use digital devices' full potential and thus do not get the benefits due to SMEs' lack of knowledge on digital marketing development (Taiminen & Karjaluoto, 2015; Wamba & Carter, 2016). Besides used in marketing, social media adoption in SMEs is also used in customer management relationships (Ahani et al., 2017). Social media governance has an essential role in implementing customer management relationships (Abedin, 2016).

The second cluster marked in green color contains the keywords innovation, web 2.0, and entrepreneurship. The second cluster shows a link between innovation and web 2.0 as well as innovation and entrepreneurship. These keywords indicate that the second cluster explores the theme of how web 2.0, in this case, social media, can drive business innovation. Social media in SMEs also explains the contribution of innovation to entrepreneurship. Several articles explain the themes in this cluster. According to (Stankovska et al., 2016), web 2.0 technology facilitates various new digital channels and changes the concept of marketing and business. The advantage of web 2.0 lies in an open innovation strategy where the exchange of knowledge on social networks can lead to collaboration which is the basis for open innovation (Hitchen et al., 2017). Web 2.0 is also used to support customer acquisition, reduce resource constraints, and maintain customer enthusiasm regarding the customer purchasing process (Lehmkuhl & Jung, 2013). Social media also increases knowledge overcomes knowledge management and creativity problems in SMEs' entrepreneurial problems (Crammond et al., 2018).

The third cluster contains the keywords Marketing, Social Network, and Instagram. These keywords show the third cluster marked in blue color explaining the theme of how to market using social networks with Instagram as the most discussed platform. Several articles explain the themes in this cluster. According to Alzougool (2019), besides Facebook, Instagram is a social media

application that SMEs widely use. Instagram is used in marketing practices using endorsement and interaction with customers to get instant followers. Companies can achieve success in social media marketing by actively engaging with customers and potential customers on various social media platforms (Virtanen et al., 2017). Social media helps maintain customer relationships and reach potential clients (Au & Anthony, 2016). These findings indicate that social networking relationships can increase SME products' purchases (Jung, 2019).

## 5. Conclusion

This bibliometric analysis provides an overview of the publications in Scopus about social media and SMEs. The search result for the social media and SMEs string in Scopus should be explored further to understand the abbreviation SME in question is small and medium enterprises or other meanings. The search results show that social media publications and SMEs have continued to grow from 2009 to 2020. The United Kingdom and the United States are author-affiliated countries with a significant contribution to the number of articles and citations.

In the co-occurrence keyword analysis, three cluster topics are generated. Most topics are the adoption of social media in SMEs in marketing and CRM, followed by social media technology's role in encouraging innovation and entrepreneurship of SMEs, and social networks' role in SMEs marketing.

This study has two limitations. First, this research is based on a limited set of keywords used to search for articles. Second, even though this study uses bibliometric analysis applications, the author's subjective opinions still allow errors to occur. Future studies should use a larger sample size by expanding the keywords used, for example, other social media platforms and databases other than Scopus. Also, it is advisable to compare the analysis results using different bibliometric analysis software.

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