Smartphones Online Marketing: A Bibliometric and Visualized Analysis

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Abstract—Smartphones and high-speed network connections allow businesses to deliver information to customers faster and more efficiently than ever before. This study analyses the most-cited articles on smartphone online marketing. A bibliometric mapping analysis was used to search for articles related to smartphone online marketing between 2010 and 2020, retrieved from the Scopus database. The title, a number of citations, publishing year, journal, country, subject area, and authors were all recorded and evaluated. VOSviewer was used for the bibliometric study. The search yielded a total of 120 articles, with citation counts ranging from 17 to 225. All of the articles were authored in English. The United States was the region with the most articles published. The highest publication source is the Journal of Business Research. Management, accounting, and business dominated the articles. This study benefits the company and marketers with the marketing strategies used in online marketing with smartphones. In terms of marketing activities and research areas, this study suggests future research directions.

Keywords—bibliometric, VOSviewer, smartphone, online marketing, mobile, Internet

1 Introduction

Smartphones have become essential communication tools. As of 2019, over 5 billion people use mobile devices, and half of them use smartphones [1](Sikandar et al., 2022). Smartphones and high-speed network connections allow businesses to deliver information to customers faster and more efficiently than ever before, allowing customers to access a variety of information services regardless of time or location. Mobile de-

vices (cell phones, PDAs, smartphones) can be used for voice or text messaging, watching TV, browsing the Internet, banking and shopping, playing multimedia files, and browsing [2-3]. The targeting of potential customers is easier compared with door-to-door marketing. This is because marketers can set their target segments and promote the right products to the right people. Online retailers must rethink their global strategy as consumers demand richer shopping experiences with a focus on variety, quality, convenience, and customer satisfaction. [4]. The norm is for consumers to have high aspirations. Customers can access a variety of brands and products that would otherwise be unavailable in their city through online shopping sites. Internet shopping platforms offer better deals and discounts year-round, unlike brick-and-mortar stores. Indeed, online stores are discounting to gain market share.

Mobile devices allow brick-and-mortar establishments to gain access to the same level of customer knowledge and sophistication that has given online retailers such an advantage in recent years [5-6]. However, after one use, many users abandon mobile apps. In 2019, 25% of mobile apps were downloaded and used once [7-8]. Some consumers are reluctant to buy online for valid reasons, such as concerns about product quality, privacy, online banking security, etc. Marketers must use proper marketing strategies to increase app retention, purchase intention, and brand confidence. This study aims to analyse the most-cited articles on smartphone online marketing and the activities involved using Bibliometric mapping analysis.

The rest of this paper is structured as follows. The next section reviews a brief description of bibliometric analysis and past studies. The next section is on the methods used in this study (the Scopus database and VOSviewer). The third section describes the results of the content analysis. The fourth section is a discussion on the related smartphone online marketing based on the research objective and question. The last section is the conclusion with a summary, the contribution, the limitation of the study, and future research.

2 Literature review

Bibliometric analyses reveal publication patterns and characteristics that are objectively and quantitatively analysed to reveal the effects and contributions of the information being assessed, both from within the field and from adjacent fields [9-11]. Microsoft Excel and VOSviewer were used to analyse the data. The number of publications co-authored by at least two countries is shown in a co-authorship study of countries. Citation networks can group sources that primarily cite one another. The co-citation of cited sources' analysis can reveal a research field trend and determine the degree of proximity. The number of times two keywords are used together is referred to as the co-occurrence of keywords. The detailed bibliometric analysis is explained in the results section.

Smartphones for trip management are changing the landscape of the hospitality industry in terms of marketing strategies [12-13]. Preceding scholars like Xia et al. [14] found significant relationships between smartphone users' Internet experience and the

destination image. The perception of negative online word of mouth is the polar opposite of that of traditional marketing literature [15-16]. Social media marketing consists of consumer–brand engagement and brand knowledge that can influence people through viral marketing to increase sales and revenues through electronic word of mouth [17-19]. Consumer-brand engagement is also important for companies using social media platforms to market their products, as it increases the consumer's purchase intention [20-21] and allows for more personalised advertising. However, not all customers welcome personalised advertisements [22]. Diet applications in smartphones allow users to order food and beverages from restaurants with a healthier diet menu [23]. Some people, however, have a negative attitude toward mobile marketing communications [24].

Location-based social networking services are used on social networks such as GeoTwitter to allow people in the social structure to communicate information about their current location [25]. On the other hand, new types of spammers are increasingly targeting unsolicited communications based on location clues. Spammers may put users' trust in the system at risk [26]. The Intelligent Shopping Aid Sensing System encourages shopping centres to promote their products, inquire about products, and market the products online [27]. Smart technologies can be used by businesses to transform the shopping experience and capitalise on strategic opportunities [28]. The Internet of Things is a fantastic platform for developing new applications and services, as well as enhancing current applications and services [29].

Smartphones can also be used to care for people's health and wellness online [30](Sikandar et al., 2022). For example, running-related apps [31], drug sales through online pharmacies [32], tobacco control online surveys [33], and eHealth literacy [34]. Smartphone users can take virtual tours of cultural heritage sites [35]. Student's behaviors and attitudes suggest a gradually expanding willingness to use handheld devices to access e-books(Van et al., 2022)(Vaicondam et al., 2022). Faculty members are also increasingly using e-books [36]. The marketers also practised broad online advertising to achieve positive results. Advertising must be promoted through the appropriate channels and locations [37]. For example, a text-only ad, a display ad, the language chosen, and the location of the ad (websites) The methods of study are described in the next section.

3 Methods

A citation search was conducted using the Scopus database. The inclusion criteria were as follows: (1) smartphone-online-related articles; (2) articles that relate to marketing; and (3) those ranked as one of the top 30 papers according to the number of citations. The identification process began with the selection of keywords, which were then searched using the title, abstract, or keywords. The search was not limited to a particular period (see Figure 1). The following was the exact string used to search the articles:

TITLE-ABS-KEY (smartphones AND online AND marketing) AND (LIMIT-TO (DOCTYPE , "ar")).

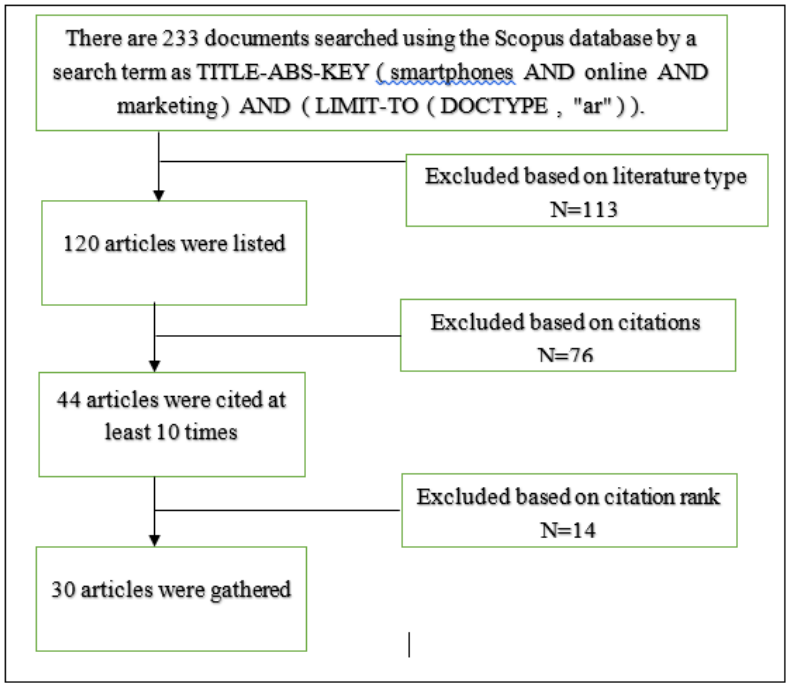

Fig. 1. Flowchart illustrating the article allocation process

A bibliometric mapping analysis was carried out in this study. Initially, the results extracted 233 documents, and then, when limiting the document type to "articles," it became 120 articles listed, and other document types such as conference papers, book chapters, reviews, conference reviews, data papers, and notes were excluded from this study. Finally, the top 30 smartphone online marketing articles written in English were used for data analysis. The title, authors, source title, year of publication, and number of citations were listed for all articles. Scopus data is exported to Microsoft Excel for further analysis.

The VOSviewer was used to do the bibliometric study. The countries were mapped using VOSViewer. The minimum number of documents for a country is set to 1, and the minimum number of citations for a country is 15. The citation of sources was set to 1 for the minimum number of documents for a source, and the number of citations for a source is 15. Next, the co-citation of cited sources uses 12 as the minimum number of citations for a source. Keyword mapping is also done with VOSviewer. The minimal number of keyword occurrences was chosen and set at two to include keywords in the study dataset. As a consequence, each keyword, along with its occurrences and total link strength, was compiled. The networks that have been developed are made up of nodes that represent keywords and edges that represent keyword relationships. To visualise the network, a distance-based technique was chosen; the distance between two nodes would roughly reflect the nodes' relatedness. Similar keywords were put together in clusters.

4 Results

Table 1 lists the top 10 articles with the most citations. A total of 120 articles were found in the first phase of the study. By arranging the number of citations by highest rating, the top 10 articles are chosen, with the highest number of citations being 225. The articles with the most citations reflect the most influential in their fields. Citation analysis can find notable research studies, major authors, and key characteristics.

Table 1. The top 10 cited articles in smartphones online marketing

Rank	Title	Authors	Journal	Year of publication	Total citations
1	"On the go: How mobile shopping affects customer purchase behavior"	"Wang R.J.H., Malthouse E.C., Krishnamurthi L."	Journal of Retailing	2015	225
2	"Mobile banking rollout in emerging markets: Evidence from Brazil"	"Cruz P., Neto L.B.F., Muñoz-Gallego P., Laukkanen T."	International Journal of Bank Marketing	2010	170
3	"Innovative mobile marketing via smartphones: Are consumers ready?"	"Persaud A., Azhar I."	Marketing Intelligence and Planning	2012	142
4	"Still a hard-to-reach population? Using social media to recruit Latino gay couples for an HIV intervention adaptation study"	"Martinez O., Wu E., Shultz A.Z., Capote J., Rios J.L., Sandfort T., Manusov J., Oxtejero H., Carballo-Dieguez A., Baray S.C., Moya E., Matos J.L., DelaCruz J.J., Remien R.H., Rhodes S.D."	Journal of Medical Internet Research	2014	92
5	"Consumer attitudes towards mobile marketing in the smart phone era"	"Watson C., McCarthy J., Rowley J.""	International Journal of Information Management	2013	87
6	"User acceptance of location-based social networking services: An extended perspective of perceived value"	"Yu J., Zo H., Choi M.K., Ciganek A.P."	Online Information Review	2013	71
7	"Understanding mobile shopping consumers' continuance intention"	"Shang D., Wu W."	Industrial Management and Data Systems	2017	70
8	"Consumer adoption of smart in-store technology: Assessing the predictive value of attitude versus beliefs in the technology acceptance model"	"Kim H.-Y., Lee J.Y., Mun J.M., Johnson K.K.P."	International Journal of Fashion Design, Technology and Education	2017	50
9	"The influence of innovativeness on on-site smartphone use among American travelers: Implications for context-based push marketing"	"Tussyadiah I.P."	Journal of Travel and Tourism Marketing	2016	43
10	"Assessing hotel-related smartphone apps using online reviews"	"Wang D., Xiang Z., Law R., Ki T.P.	Journal of Hospitality Marketing and Management	2016	43

4.1 Number of documents by year of publication

Figure 2 reveals that 2017 ranked first with 6 articles, followed by 2014 with 5 articles, 2016 and 2018 with 4 articles each, 2015 with 5 articles, and both 2020 and 2013 with 2 articles. There is one article for each of the years 2010, 2011, 2012, and 2019.

The majority of the top-cited 30 articles on smartphone online marketing were published in 2017. This is most likely due to the popularity and ease of use of online marketing via smartphones in 2017. Smartphones are portable and can be connected to the Internet at any time. So, this makes it easier for marketers to connect with and promote brands and products to current and future customers.

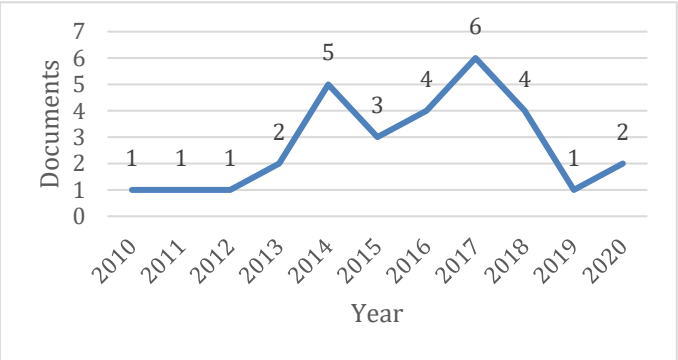

Fig. 2. Number of documents by year of publication

4.2 Country by the number of documents

Figure 3 illustrates that the top 30 papers are published in the United States (15), Australia (4), China, and South Korea (3). The United Kingdom, Taiwan, Portugal, Hong Kong, and Brazil recorded two each. The countries that only have one paper are Spain, the Netherlands, Macao, Japan, Italy, India, Finland, Canada, and Belgium. This may be because many new countries became interested in online marketing with smartphones and entered the field. The top country, like the United Kingdom [25, 31], should have entered this field early. The United States has the most articles published for marketing online, probably because the United States has a very good marketing environment. There are multinational corporations (MNCs) that come from the United States, like Google, Apple, Facebook, and MasterCard. Therefore, many publications that come from the United States are reasonable.

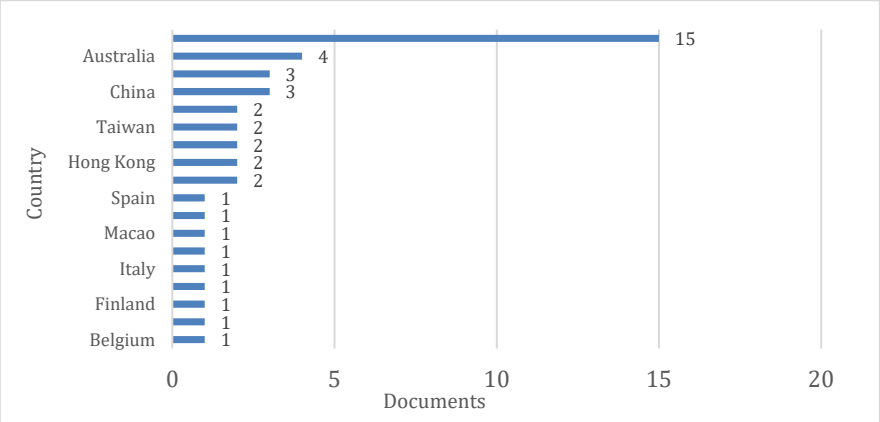

Fig. 3. The country by the number of documents

4.3 Co-authorship map of countries

Figure 4 shows 8 clusters with 16 links, and the total link strength is 18 based on VOSviewer. In the top-cited 30 articles, there are 17 countries. After the minimum number of citations for a country was set at 5, 10 countries met the threshold. The big nodes represent influential countries. Meanwhile, the links between the nodes represent the cooperative relationships among institutes. The United States has the most cooperation with other countries like South Korea, Taiwan, Japan, China, and Macau, followed by Australia's cooperation with Hong Kong, Brazil, and the United Kingdom. The Netherlands and Belgium have cooperated. Cooperation among other countries such as Canada, India, and Italy needs to improve because these three countries are working independently [3, 19, 35]. Cooperation among countries can generate higher-quality documents because different countries have distinct viewpoints, ideas, and experiences.

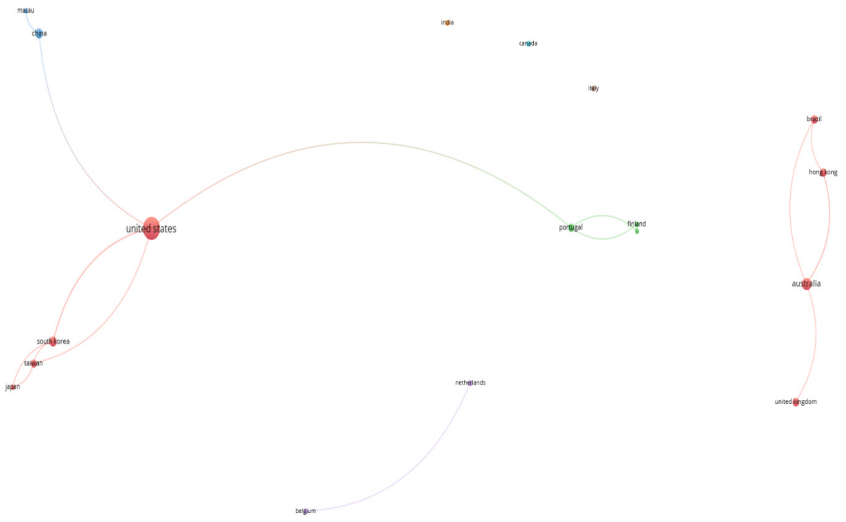

Fig. 4. VOSviewer's co-authorship map of countries in detail

4.4 Citation of sources

Source citations were generated by VOSviewer. In this study, 27 sources are met with a minimum of 15 citations, and 25 clusters have 3 links. It has many research directions because the map is multicoloured. The Journal of Retailing and Consumer Services has the most citations and link strength with 25 and 2. With 182 citations and the same link strength as the Journal of Retailing and Consumer Services, Marketing Intelligence and Planning placed second (see Figure 5). The Journal of Retailing and Consumer Services is linked to Marketing Intelligence and Planning, the Asia Pacific Journal of Marketing and Logistics, and the International Journal of Information Management.

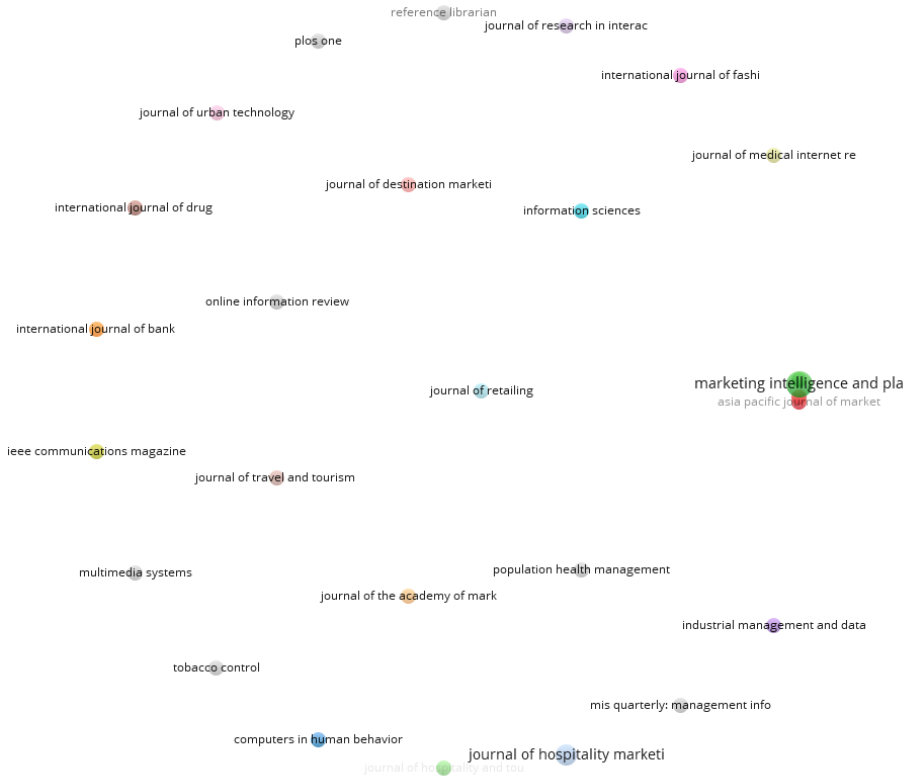

Fig. 5. VOSviewer's citation of sources.

Table 2 shows the citations of sources' results. With 25 citations and 2 total link strengths, the Journal of Retailing and Consumer Services ranks first. With 182 citations and the same overall link strength as the Journal of Retailing and Consumer Services, Marketing Intelligence and Planning scored second with three articles. The Marketing Intelligence and Planning journal is placed second because it has two clusters and two links, whereas the Journal of Retailing and Consumer Services only has one cluster and two links. Therefore, the total link strength of the Journal of Retailing and Consumer Services is greater than that of Marketing Intelligence and Planning. The Asia-Pacific Journal of Marketing and Logistics and the International Journal of Information Management had a total link strength of one.

Table 2. The citations of the sources

Sources	Documents	Citations	Total link strength
Journal of Retailing and Consumer Services	1	25	2
Marketing Intelligence and Planning	3	182	2
Asia Pacific Journal of Marketing and Logistics	1	26	1
International Journal of Information Management	1	87	1

4.5 Co-citation of the cited sources

VOSviewer's co-citation of the cited sources shows there are 21 journals generated. In the top-cited 30 articles, there are 942 sources. After the minimum number of citations for a source was set to 12, 21 met the threshold. Figure 6 shows four clusters with 261 links, and the total link strength is 7161. Each node represented a source, and the size of the node reflected the number of citations received. A link between two items reflected a co-citation relationship. The nodes were categorised according to similarity; that is, sources in the same cluster (colour) were more similar to each other, as were those that were closer together. The highest source is the Journal of Business Research. Computers in Human Behavior, the Journal of Interactive Marketing, the Journal of Marketing, and the Journal of Consumer Research were the following most cited sources: The green cluster was comprised of seven journals. The green cluster was dominated by research, which is a business area and a big picture of the business, so they were grouped into the same cluster. The red cluster was comprised of 11 journals. This cluster was grouped based on marketing research as the main field. The third cluster was in blue with three journals. Advertising was the focus of research in this cluster.

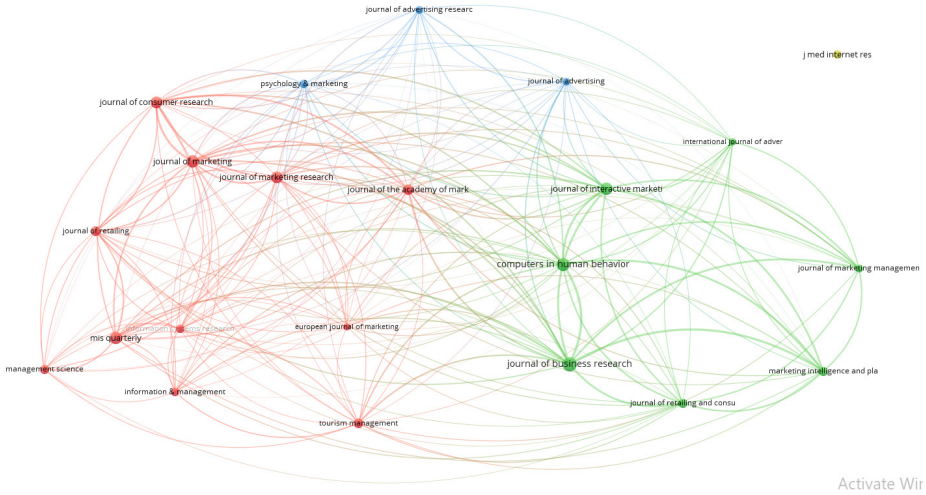

Fig. 6. The Co-citation of the cited sources from VOSviewer.

The highest source is the Journal of Business Research, with 43 citations and a total link strength of 1600, followed by Computers in Human Behaviour, the Journal of Interacting Marketing, the Journal of Marketing, etc. (see Table 3). This outcome is to be expected, given that the scope of the Journal of Business Research includes business strategies and activities that cover all business areas.

Table 3. Co-citation of the cited sources

Rank	Source	Citations	Total link strength
1	Journal of Business Research	43	1600
2	Computers in Human Behavior	36	1309
3	Journal of Interactive Marketing	35	1172
4	Journal of Marketing	32	974
5	Journal of Consumer Research	30	893

4.6 Keywords co-occurrence

The key occurrence of the terms is depicted in Figure 7. The size of the nodes indicates the frequency of the keywords, with larger nodes indicating a higher frequency. The thickness and length of the edges represent the relationship between the two nodes' interactions. The colours of the keyword nodes denote the cluster to which the keywords belong. There are 308 keywords in these 30 articles. A total of 36 keywords appeared at least twice. A map of keyword co-occurrences was created. Based on term occurrence, cluster analysis yielded three clusters with 228 links and a total link strength of 380. The red cluster represents Internet smartphone marketing and related activities such as personalization, purchase intention, and many more. The blue cluster indicates social media with the related keywords such as "consumer behavior," "consumer attitude," "social network," etc. The green cluster is the surveys and questionnaires' details, which consist of gender, age, mobile application, etc.

The Internet came out on top as the most frequent keyword, with 9 occurrences and a total link strength of 56. The three top keywords are "Internet" (9) followed by "marketing" (7) and "smartphones" (7). The keyword "Internet" was the highest-ranking of the keywords because of online trends. The Internet is widely used by most people around the world, no matter where they live. That is the reason the Internet term ranked the highest. The Internet allows smartphones to offer real-time interactions between the central system and end-users. Marketing is crucial for businesses and other sectors like medical, engineering, and computer science. To conduct marketing activities such as advertising, retargeting, and online surveys [33], marketing is one of the most important aspects of business and trade. Accordingly, the term is significant in the articles selected. Smartphones also cannot be separated from marketing because many of the activities involve marketing by using smartphones. Smartphones allow users to do various

other activities online, such as play games, watch videos, and read books through electronic books [36]. The term ranked third because the topics involved smartphones.

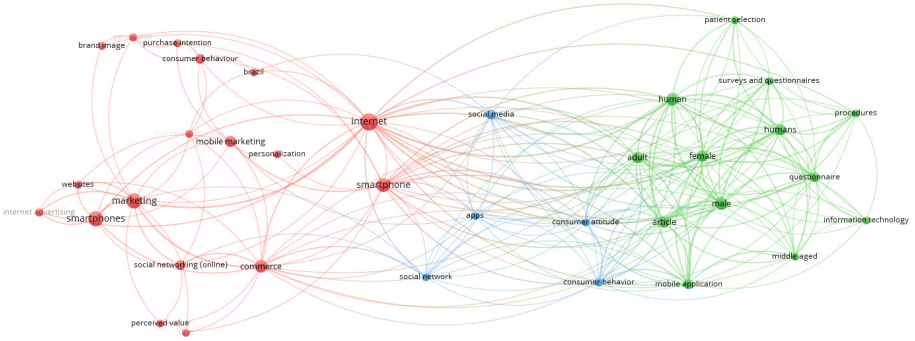

Fig. 7. Keywords co-occurrence from VOSviewer

4.7 Documents in the subject area

Figure 8 shows the most documents in the study area are in Business, Management, and Accounting (16), followed by Computer Science (9), Social Science (6), Engineering (5), Medicine (4), Arts and Humanities (2), Decision Sciences (2), Agricultural and Biological Sciences (1), Biochemistry, Genetics, and Molecular Biology (1), Economics, Econometrics, and Finance (1), Mathematics (1), Multidisciplinary (1), Nursing (1), and Psychology (1). Smartphones and online marketing are widely used in business and management, as well as in the computer science sector. This is reasonable because many marketing activities are used in business management and information technology. The researchers should do more research on the subject areas that are covered in the next two documents so that the marketing techniques in certain fields can be discovered. Smartphone online marketing in most subject areas will be discussed in the next section.

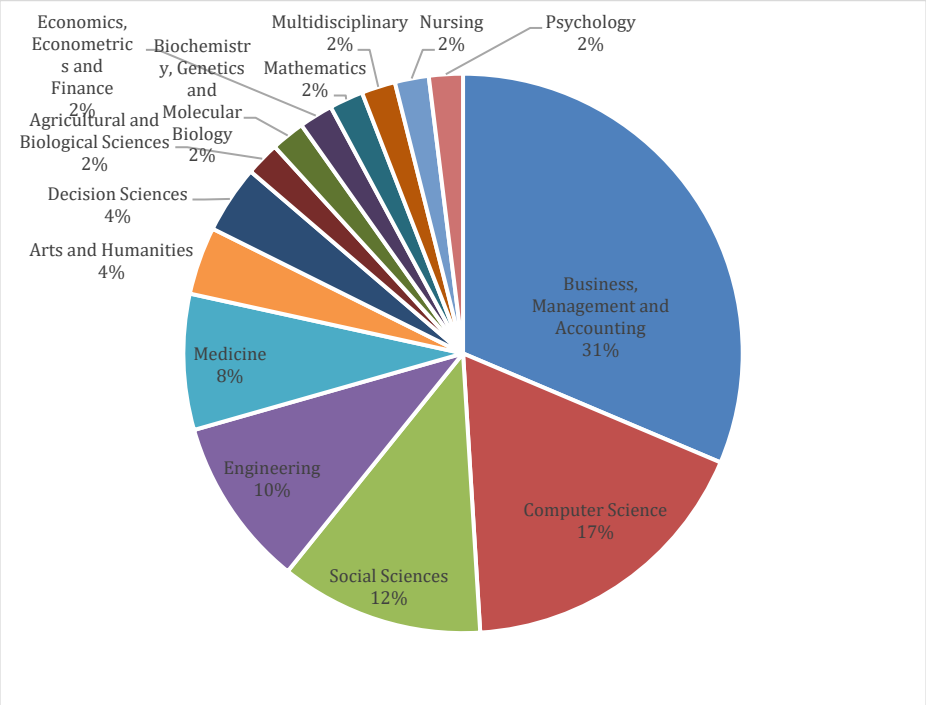

Fig. 8. Documents in the subject area.

5 Discussion

This study analysed the most-cited articles on smartphone online marketing. A bibliometric mapping analysis was used to search for articles related to smartphone online marketing between 2010 and 2020, retrieved from the Scopus database. This study found that of the 30 most-cited articles, the majority are from the business, management, and accounting areas. In this subject area, there are a variety of activities such as mobile banking, mobile marketing, mobile shopping, electronic word of mouth (EWOM), social media marketing (SMM), viral marketing, smartphone applications, online experience, and purchase intention. The activities are based on the author's keywords in the articles related to this area.

Smartphone online marketing allows marketers to have a much greater range of possibilities for reaching and serving customers, not just through rich media but also through several pull-based apps, especially with the expanded capabilities of smartphones. Consumers who engage in flat-fee unlimited social media services have unlimited access to popular social networking sites. For example, YouTube This opens up a lot of opportunities for marketers to merge and grow their social media and mobile marketing strategies. Millennials are well-informed and seek international services [4]. This credit goes to the digital era with conveniences such as food delivery, online shopping, tourism, and other software that is used in business and accounting. Information

and communication technology (ICT) can be a powerful tool for gaining a competitive advantage over other market participants. By analysing data, a corporation can gain useful insights and make more informed decisions. They need to create a platform that provides a "user-engaged experience," resulting in increased customer satisfaction and loyalty to the apps and brands.

Mobile shopping allows users to conduct a purchase transaction anytime they want to purchase a product [2]. Besides, users utilise mobile devices to organise their pre-shopping activities, such as discovering directions and store hours. The use of smartphones by travelers emphasises on-site experiences [12]. Tourism destinations and hospitality firms will benefit from more targeted marketing techniques. Travelers can book the hotel's room online before they reach their destinations. This gives convenience to travelers, as they can plan their journey. They can use their smartphones to share their travel experiences with their friends through social media and comment about their experiences with the hotel they stayed at. So, this helps the hotel's company gain an advantage through online reviews. Hotel marketing uses mobile apps and websites for a beautiful design webpage, appealing views of the hotels and decorations of rooms, simplicity of use of the apps and websites to reserve rooms and providing reviews and rating features.

Smartphone apps have become a major commercial channel for tourism organisations due to the development of mobile technology [13]. They not only offer a wide range of options for assisting travelers, but they have also become a valuable source of revenue for them. This will indirectly affect the travelers' perceptions of the destination they want to travel to. As a result, the tourism industry must effectively advertise and market its position in order to attract tourists for vacations and spending. China's smartphone apps for tourism information are widely used [14].

Online word of mouth has transformed how consumers evaluate products and make purchases [15]. In the travel sector, online reviews are especially crucial. It is realistic to expect that when making hotel reservations on a website that includes reviews, the majority of people will read at least some of the reviews. This could give travellers more options to choose their ideal hotel, and at the same time, hotels can increase their revenues and profits through positive comments, reviews, and ratings. Mobile app features and ubiquity boost stickiness and positive word-of-mouth [16]. Smartphone apps make it easier for users to learn about and share the company's marketing. Smartphones can also be carried around. This increases their mobile stickiness and direct marketing exposure.

Negative online word of mouth occurs for every business and product because everyone has different preferences and behaviors. Negative word of mouth, on the other hand, can benefit brand-affiliated customers and assist online retailers in running more effective promotions [15]. This would help the company strengthen its position. Customers who are loyal to the company will try to promote it and provide as much feedback as they can through online reviews and blogs. This increases the likelihood that prospective customers will stick with the positive feedback. Consequently, companies must continue to study and remarket their strategies in order to increase consumer brand loyalty.

Social media marketing allows companies to promote brands and manage customer relationships [17]. They use social media marketing to learn about customer preferences. They also promote their new products and promotions on YouTube, Facebook, Twitter, and Instagram to reach potential customers and to engage and strengthen customer loyalty. This platform is free in comparison to other promotion strategies such as television and radio advertisements, campaigns, rewards, and discounts, which require a larger investment. The most appealing option for businesses is to use social media to interact with customers and provide feedback for product improvements. Continuous improvement increases their repurchase intention.

Viral marketing aids to promote a product primarily on social media platforms [18-19]. The intention of consumers to co-create brand value increases purchase intentions [20-21]. Smartphone functionality enables differentiated service, tiered pricing, and the option for a discount. As a result, it is critical to assess the effectiveness of advertising to users, particularly personalised advertising [22]. This is due to the fact that a good advertisement will increase user acceptance of a product and thus increase the company's sales. Consider the smartphone diet apps. Restaurants are developing novel marketing strategies to target a specific group of customers who are concerned about health issues, such as diet apps and specialty menus, to assist people in purchasing healthier and more specific diet menu items via the restaurants' apps [23].

6 Conclusion

This bibliometric analysis furnishes fresh research pathways and particular insights into the current situation of smartphone online marketing. The year 2017 had the highest number of articles published on the aforementioned topic. The United States is the country with the most articles published. This country has also been the most cooperative with other countries. With 25 citations and a total link strength of 2, the Journal of Retailing and Consumer Services ranks first in the citation of sources. In the co-citation of referenced sources, the “Journal of Business Research” is the highest source. Business, management, and accounting are the most involved subject areas. Activities in this area include mobile banking, mobile marketing, mobile shopping, electronic word of mouth (EWOM), social media marketing, viral marketing, smartphone applications, the online experience, and purchase intention. Online marketing with smartphones is crucial for organisations to gain market coverage and increase sales and revenues.

Smartphone marketing online enables marketers to easily connect with customers and leads. This enables marketers to more precisely target customers and track purchase behaviour. Mobile banking is a technological advancement that allows users to conduct financial transactions without having to visit a bank. Mobile banking also enables businesses to sell products online through mobile shopping. Users can also learn more about a newly released product by using social media. Marketers can interact with customers, build relationships, and generate leads. Customers' online experiences are important because they will share them on social media, blogs, and websites. Viral word of mouth are examples of this. As a result, marketers must create a smartphone application that is easy to use and has an appealing interface in order to increase purchase intent.

This study benefits the company and marketers with the marketing strategies used in online marketing with smartphones. The present research findings advance the research on the trends of smartphone online marketing and the existing literature. However, there are a few limitations to this study. First, this study used keywords to find articles, which may or may not have included all articles about smartphone online marketing. Second, this study did not take into account self-citation or citations in textbooks or courses. Finally, this is a cross-sectional study that took place at a specific point in time. If the survey is done at a later date, the list's 30 most-cited articles may change. Future research should look into how the current technology is influencing the marketing profession in activities like social media, EWOM, and online purchase intention in further detail. Artificial intelligence (AI) technology could be on the verge of causing a complete paradigm shift in the field of marketing. The application of AI in the marketing area will enhance marketers' creative ways of doing business with a smartphone.

7 References

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