



## Review article

## How digital marketing evolved over time: A bibliometric analysis on scopus database

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## ABSTRACT

Nowadays, a large number of customers are spending their time on social and digital media for a variety of purposes ranging from information searching to the final purchase of products. Responding to this shift, marketers are spending a significant part of the advertising budget on digital marketing. Therefore, the purpose of this study is to review articles on digital marketing to identify top themes, determine the current status of research in digital marketing and indicate how influential works have shaped it. This research has reviewed 925 papers published between 2000 and 2019 in Scopus by applying bibliometrics analysis. These results show that on average 2.18 authors have contributed to every single paper on digital marketing and the collaboration index is 2.71. The top contributing countries in the digital marketing field are USA, India and UK. The study also identifies three dominant clusters in digital marketing research, e.g., 1) strategic planning with digital marketing 2) mobile marketing with apps development and 3) dealing with demographic profiles of customers.

## 1. Introduction

It is reported that, in December 1995, internet users were only 16 million. On the other hand, in June 2019, the number increased to 4,536 million which cover 58.8% of the total world population that amounting to 7.71 billion (Busca and Bertrandias, 2020). It is estimated that everyday people spend, on average, 6 h and 42 min online and by 2021, 73% of e-commerce sales will be generated through the mobile platform (Mandal, 2017). Moreover, the 4<sup>th</sup> industrial revolution has begun with the invention of web 4.0, the internet of things (IoT), blockchain, artificial intelligence (AI), big data analytics and 4g/5g internet speed (Kerren, 2014). These technological inventions have significantly affected the lifestyle of consumers and the way marketers communicate with their customers. In 2004, Facebook came into the market, followed by many other social networking sites in later years. People had accepted these social media at an exponential rate affecting the way people communicated and interacted with each other.

After the induction of world wide web technology, people have become used to the virtual world. When people (e.g., customers) shifted to the internet or virtual marketplace, marketers focused their marketing attention on this market. Consumers are spending more time on social media for a variety of purposes ranging from brand information

searching to the final purchase of products. Consumers' shifting from traditional media to digital media enables marketers to reach, notify, engage, sell to, study about and provide services to the targeted audience more effectively and efficiently. Responding to this fundamental shifting of consumers from traditional to digital media, marketers are continuously trying to grab the opportunity by devising product, price, place and promotion strategies for this marketplace. Therefore, scholars have investigated different aspects of digital marketing (DM).

While reviewing the literature, it is noticed very few research studies were focused on identifying and analyzing the development of themes and clusters in this arena by applying bibliometric analysis (Ghorbani et al., 2021; Kim et al., 2019; León-Castro et al., 2021). Ghorbani et al. (2021) conducted a bibliometric analysis to identify key trends and patterns in the field of DM by investigating 924 research articles published in the Scopus database. However, given the importance of digital marketing, more systematic literature reviews are necessary for this field. Kim et al. (2019) undertook a bibliometric analysis that was more focused on digital marketing communication (DMC) and hence, studies other than DMC were ignored. León-Castro et al. (2021) covered only a web of science database to run a bibliometric analysis on digital marketing, but the keywords focused on more specific aspects of DM such as "influencer", "ewom", "youtube", "instagram" and "facebook".

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However, finding out how scholarly works on digital marketing practice and theory have been developed over time and contributed to DM literature is limited. Analyzing which journals, countries and authors are contributing more in the field of digital marketing was also nascent. The authors have exactly taken the endeavour to address these issues. Since this study will analyze all the major scholarly articles that are published in the Scopus database, it will pave the way for future researchers who intend to research digital marketing.

Considering the limitations of the past studies on DM, the study has been undertaken to serve several purposes such as a) to identify the evolution of DM literature over time by applying a bibliometric analysis; b) to assess and synthesize 925 Scopus papers and offer future research directions in the field of DM.

The significant contribution of this study includes identifying which are the journals and authors that contributed the most in the development of digital marketing. It also contributes by explaining the emergent themes in DM along with identifying the most cited journals in this sector. Moreover, the co-citation networks that exist between most cited researches and the schools of thought that exist in co-citation networks have also been investigated thoroughly.

This paper is organized into several parts. The following section contains a literature review followed by the research methodology. The next section includes results and discussion from the bibliometric analysis of the articles published in Scopus between 2000 and 2019. The final part of the paper includes the conclusion and implications from theoretical and practical perspectives along with limitations and future research directions.

## 2. Literature review

With the advent of social media and development in the web and mobile apps technologies, communication has become much easier than that of past decades (Khomenko et al., 2020). Since modern customers are spending their time in digital media, marketers have also developed strategies and tactics to reach them through these media. Therefore, a significant amount of scholarly research had been conducted on different aspects such as search engine optimization, social media marketing, affiliate marketing, content marketing, video marketing and many others (Jimenez, 2020). This study presents an intensive analysis of scholarly works done and published by scholars from different countries on this revolutionary field of marketing between 2000 to 2019. Digital marketing opens up new opportunities for reaching, informing, and engaging consumers, as well as providing and selling goods and services. Digital marketing is projected to remain at the forefront of the technological transition in the future (Ko, 2019; Lamberton and Stephen, 2016; Martín-Consuegra et al., 2018). Millions of people's daily lives have been transformed by digital marketing through social and mobile media, which has expanded into popular social media practices and often leads to the formation of customer relationships (Fujita et al., 2017; Han et al., 2016; Kim, 2018; Woodside and Mir, 2019).

As more marketing researchers and professionals have dedicated themselves to digital technologies, the speed of transition has quickened. The digital marketing model has changed from selling unique goods and services to marketing campaigns that are introduced across digital platforms to now make use of digital resources. Social media has existed for over the past decade for several different purposes such as blogging, video and photography/photo-sharing using mobile phones (Fujita et al., 2017; Han et al., 2016; Kim, 2018). Virtual technologies such as artificial intelligence (AI), augmented reality (AR), and virtual reality (VR) seem to be replacing traditional approaches to marketing suggesting new territory for marketing researchers to pursue (Brodie and Juric, 2018; Guercini et al., 2018; Kim and Yang, 2018, J. Kim et al., 2018; Taylor and Costello, 2017; Zhang and Dholakia, 2018).

Marketers soon noticed the networking advantages of social networks like Facebook, YouTube, Twitter, Instagram, Snapchat, Pinterest, and LinkedIn, and invested \$51.3 billion on global social network ads in

2017, up 55.4% from 2016 (Cooper, 2020). The amount spent on digital ads is expected to rise 17.7% in 2018, accounting for \$273 billion (44%) of the \$629 billion spent on advertising globally (McNair, 2018). In 2017, mobile ad spending rose by 39%, and it is projected to rise by another 27% in 2018, accounting for 55% of all digital ad spending (Magnal Global, 2017). The growing concentration of advertising dollars demonstrates digital marketing's effectiveness in targeting audiences and achieving growth goals such as increased revenue, brand recognition, consumer loyalty, lead generation, and lower customer acquisition and service costs (Labrecque et al., 2013; Lamberton and Stephen, 2016; Tuten, 2020).

The way businesses market themselves is changing as a result of social media, posing new obstacles as well as opportunities (Arora and Sanni, 2019; Dwivedi et al., 2015, 2017; Hossain et al., 2019; Nisar et al., 2018; Wang and Herrando, 2019). Digital marketing, whether used inappropriately or by unskilled practitioners, may harm businesses (Aswani et al., 2018). As a result, businesses must gain social media expertise (Braojos-Gomez et al., 2015). Companies should focus on aligning their digital marketing strategies with their overall business goals (Tafesse and Wien, 2018; Thorpe, 2018). When used strategically, social media marketing may lead to increased consumer satisfaction and perceived value (Chen and Lin, 2019; Pacauskas et al., 2018), co-creation (Kamboj et al., 2018; Zhang et al., 2017), brand loyalty (Laroche et al., 2013; Shanahan et al., 2019) and positive attitude (Laroche et al., 2013).

Furthermore, social media has opened up new avenues for marketers to obtain audience experience by researching online user-generated content, electronic word of mouth (eWOM) conversations (Chang et al., 2019; Liu et al., 2019; Xu et al., 2017), and online communities (Chang et al., 2019; Habibi et al., 2014; Liu et al., 2018). Consumer reviews are a large part of social media, and they throw up questions about content accuracy, credibility, usefulness, and validity (Ismagilova et al., 2017; Kapoor et al., 2018; Singh et al., 2017). Consumer preferences and purchasing habits can be affected by online feedback, which can affect a company's results (Ismagilova et al., 2020; Kawaf and Istanbuluoglu, 2019; Shareef et al., 2018; Yerasani et al., 2019).

A variety of factors can influence digital marketing activities and practices. Some research, for example, looked at the impact of new laws on digital marketing (Hemsley, 2018; Sposit, 2019). Furthermore, social media marketing research has begun to concentrate on developing markets, where the adoption rate of social media marketing is lower than the developed countries (Christino et al., 2019; Liu et al., 2019). Some businesses in these developing countries continue to rely on conventional media for product and service ads because they are more trustworthy than social media platforms (Ali et al., 2016; Olanrewaju et al., 2020). Therefore, this article aims at assessing different paradigms of published articles on DM and finding out how these studies evolved. In addition, finding out what are the dominant themes in this area of research is also a concern of this paper.

## 3. Methodology

Bibliometric analysis along with a citation and co-citation analysis presents a powerful way to analyze the patterns and characteristics of already published papers in any scholarly field. It may also help to find out the school of thought, if any, in any specific area of study (Mandal, 2017; Christie, 2008). The bibliometric analysis takes the objective philosophy and employs a quantitative investigation method on written documents (i.e., journals, books, websites). Citation and co-citation analysis focus on finding out the emergent themes in specific areas of study, the impact of different journals and different schools of thought (Nyagadza, 2020). Going beyond merely counting and collating citations, previous studies have pointed out the nature and course of development of a discipline to assess which journals and authors have created value to other researchers by collaboration.

Bibliometric studies, such as citation and co-citation analyses, are useful for delving into the trends and characteristics of what has been

written, making it easier to explore, organize, and articulate work done in a particular discipline (Diodato, 1994; Ferreira et al., 2014). Bibliometric analyses can help to guide collection growth, define institutional scholarship strengths and citation/co-citation trends, and identify possible schools of thought in a discipline (Lewis and Alpi, 2017). For a comprehensive investigation of written source documents (e.g., academic journal papers and books), bibliometric research uses citation and co-citation analyses as an analytical tool for inspecting part or the entirety of a scholarly discipline (Diodato, 1994; Ferreira et al., 2014; Nerur et al., 2008; Ramos-Rodríguez and Ruíz-Navarro, 2004; Shafique, 2013).

The researchers have adopted objectivist research philosophy since it focuses on quantitative methods of analysis and bibliometric analysis is a powerful quantitative tool to analyze published documents in any scholarly area (Diodato and Gellatly, 2013). The authors have mined the bibliometric data from the Scopus database with the keyword “Digital Marketing”. Digital marketing is the common keyword across different papers, however, articles with other related keywords such as “social networking online”, “social media sales”, “electronic commerce”, “data mining”, “information systems” were considered. Scopus database was selected by the authors since they had authorized access to this database only. Hence analysis on other prominent databases such as Web of Science can be considered in future research.

After loading the dataset, it is observed that it contains 935 articles in total starting from 1982. However, the authors have applied the “publication year” filtering strategy and kept the data from 2000 to 2019. This period is chosen since the proliferation of the internet began in the 21st century. In the case of “document type”, all types of documents (i.e., article, book, book chapter, conference paper, conference review, editorial, short survey, note review) were considered. All types of documents were considered since the author had applied only one keyword “digital marketing” for retrieving data and it only produced 935 articles. In addition, the authors wanted to investigate the theoretical and practical development of digital marketing throughout every scholarly research field and understand the relationship among them. Other studies also applied a similar technique to represent the whole DM research (Ghorbani et al., 2021). About “total citation”, the full range of citations from 0 to 305 were considered since the authors wanted to consider both highly cited articles and lowly cited articles and this helps to identify the difference between good work and mediocre research work. In addition, about “source by Bradford Law Zones”, all the sources were considered. This filtration has produced 925 papers finally which are to be analyzed. After retrieving the data from the Scopus database, with the help of the bibliometrics package of R programming, the data were analyzed.

## 4. Results and discussion

### 4.1. Summary statistics

This chapter presents analysis and findings from bibliometric analysis of 925 documents related to digital marketing published between 2000 and 2019. Table 1 presents the summary findings from the analysis. The documents that were published in this period in the Scopus database received 5.076 citations on average. The higher average citations per document indicate a speedy growth of scholarly papers in the field of DM. The results also showed that 2015 unique authors have contributed to the digital marketing field in this period, who got impressions of 2359 times. In addition, single-author documents counted as 262. On average, 2.18 authors contributed to completing each document while every single author contributed to at least 0.459 documents. Documents per author counted to 0.459 while co-authors per document are 2.55. This signifies that in the development of digital marketing, a good amount of research studies are done in collaboration with other authors which is again confirmed in the collaboration index of 2.71. However, a significant amount of single-author articles are also undertaken.

**Table 1.** Summary statistics.

Description	Results
Documents	925
Sources (Journals, Books, etc.)	527
Keywords Plus (ID)	2355
Author's Keywords (DE)	2355
Period	2000–2019
Average citations per document	5.076
Authors	2015
Author Appearances	2359
Authors of single-authored documents	220
Authors of multi-authored documents	1795
Single-authored documents	262
Documents per Author	0.459
Authors per Document	2.18
Co-Authors per Documents	2.55
Collaboration Index	2.71

### 4.2. Performance analysis

Figure 1 showed the key trends in annual scientific production in the DM field. The timeline can be broadly divided into two main decades with varying trends in annual publications. Although research on digital marketing and related topics had begun as early as 2000, digital marketing studies were almost overlooked by the researchers during the first decade (2000–2010). Therefore, the actual proliferation commenced after 2010 meaning in the second decade (2010–2020) and as time passes, research in this domain has grown exponentially. This growth can be attributed to the increasing number of internet and social media users in the 2000s (Ghorbani et al., 2021). When we see the research development from the perspective of Pareto's law, in only 4 years' time period (2016–2019), 70% (648) of the research papers were published in Scopus on digital marketing. Contemporary studies are found to focus more on marketing science issues accompanied by modern information technology tools and techniques such as artificial intelligence, big data, deep learning etc.

### 4.3. Relationship between authors, keywords and sources

Figure 2 contained three field analyses showing the relationship between authors, keywords and sources where the left column contained the name of authors, the middle column contained keywords and the right column contained the journal name. This confirms that most of the authors have considered digital marketing as their keyword. However, “social media marketing”, “internet”, “machine learning”, “web 2.0”, “social networks”, “customer relationship management”, “Facebook”, “Twitter” and many others closely related keywords with digital marketing had also been used in different research articles. A new trend is represented by social media for companies that strive to communicate with their customers using both online and offline media. For example, popular social media sites like Facebook, Twitter, YouTube and corporate blogs are increasingly used by the Fortune 500 companies in their marketing communication campaigns (Markos-Kujbus and Gati, 2012). Previous researchers who used digital marketing as their keyword also found to include the above-listed keywords. But this is also clear from the data that focus on digital marketing is higher than any other keywords. The reason for this consideration can be justified with the proliferation of the use of digital marketing compared to other semantic terminologies which can also be used to mean the same thing. Almost every journal contributed equally, although some journals such as Journal of Direct, Data and Digital Marketing Practice, are pioneering the advancement in this field. Although mobile marketing is a powerfully dominant domain of digital

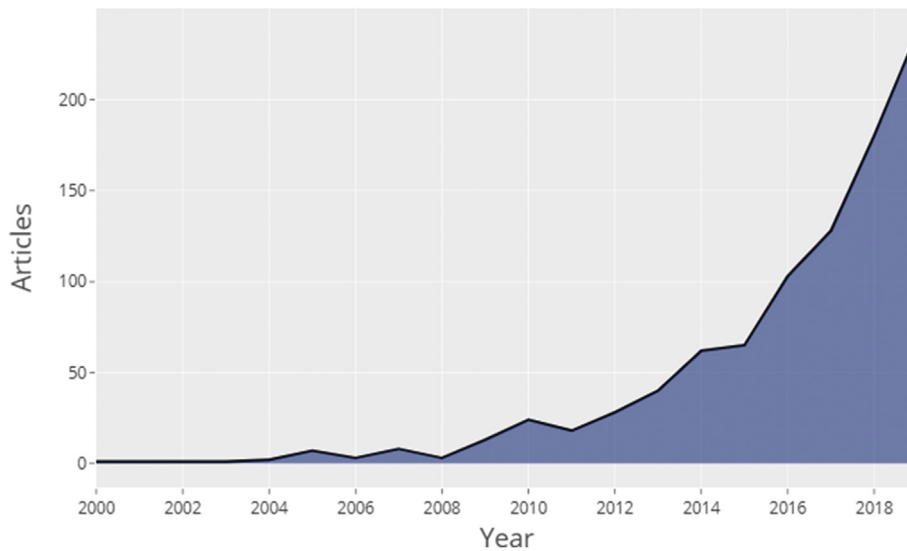


Figure 1. Annual scientific production in digital marketing.

marketing (Cheng et al., 2013), this area is yet to be explored. Therefore, future researchers can contribute to this domain.

4.4. Performance of academic journals

To identify the most contributing journals, Figure 3 showed that the “Journal of Direct Data and Digital Marketing Practice” had the highest contribution in this domain. This journal solely published 46 research papers within the specified period amounted to almost 5% of the total publications. However, this journal of Springer has last published articles in June 2016 and till then it is not being published anymore. That means the top-most contributing journal is out of the market and thereby creating a gap in the field and providing other journals to fill the gap. “Journal of Digital and Social Media Marketing” has published 10 papers and “Journal of Marketing Education” has also contributed 10 papers in this domain. Moreover, another critical point to be noted here, the

Journal of Research in Interactive Marketing is not on the top contributing list, although this journal is contributing significantly in the domain with its strong editorial board.

4.5. Source growth of digital marketing over time

As we explained earlier in this paper, “Journal of Direct Data and Digital Marketing Practice” had contributed the most in the digital marketing research area. However, the contribution of this journal has decreased significantly in recent times (see Figure 4). On the contrary, the contribution of sources like the “International Journal of Recent Technology and Engineering” is increasing exponentially. Adobe Research, Amity University, Yonsei University are found to be the most contributing parties in the scholarly publications on digital marketing. However, other universities such as Chaoyang University of Technology,

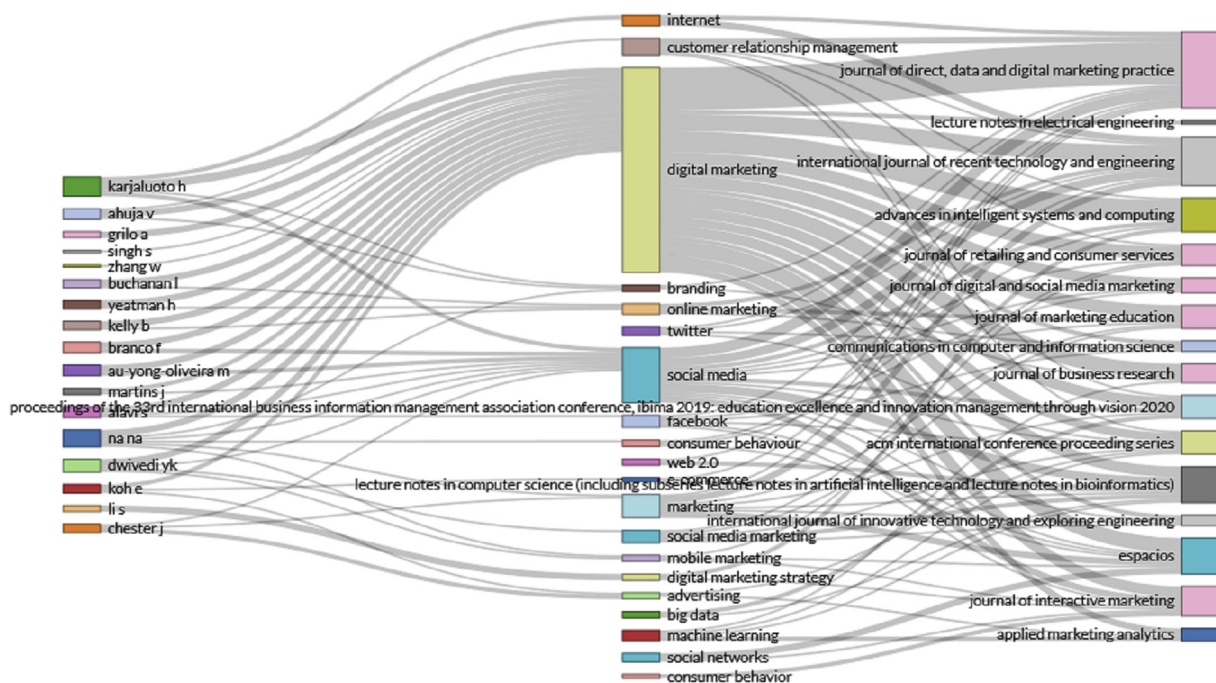


Figure 2. Three field analyses in digital marketing.

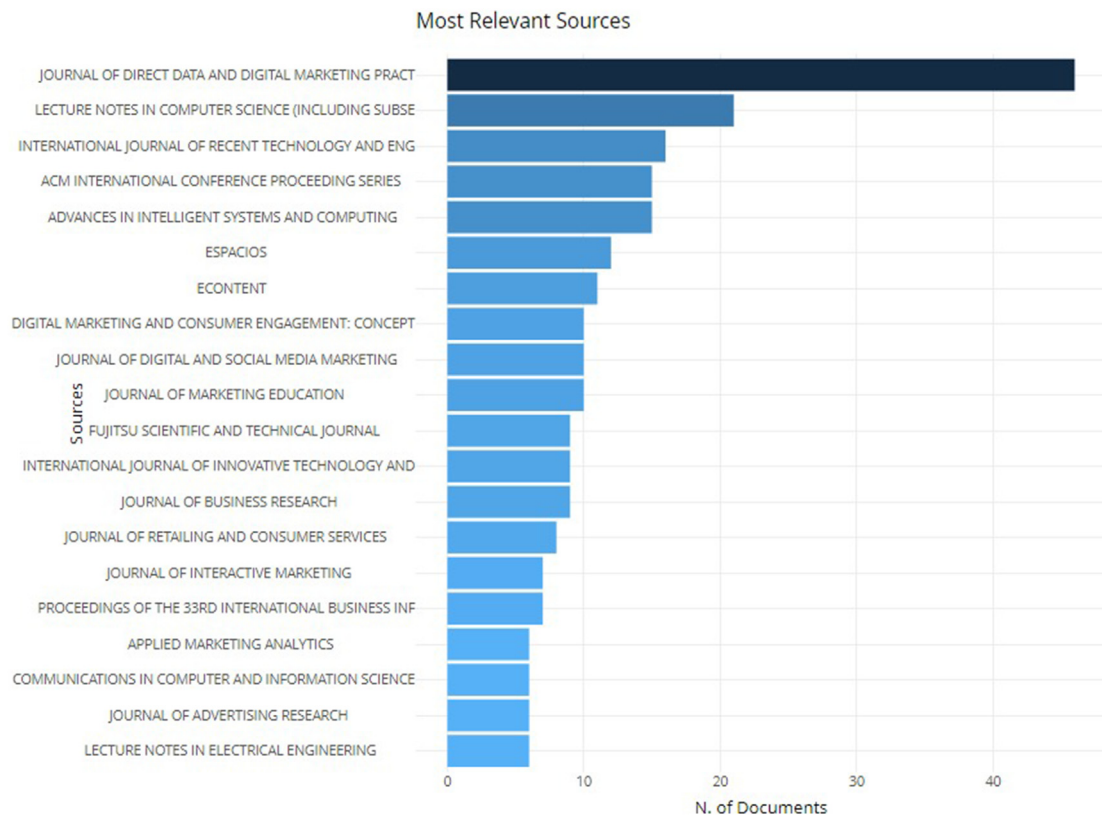


Figure 3. Most contributing journal in digital marketing.

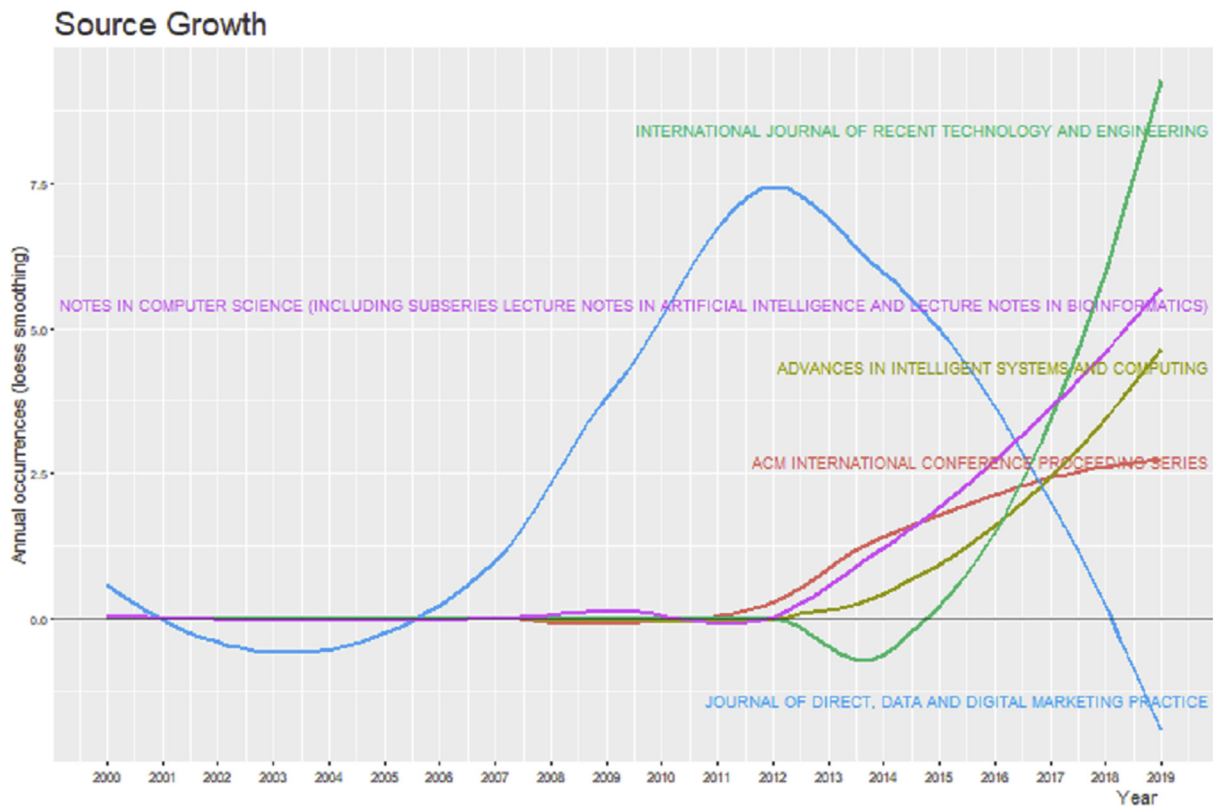


Figure 4. Source growth of digital marketing over time.

Jaypee Business School, and the University of Florida have also kept significant contributions in this domain.

#### 4.6. Contribution by countries

In the case of the contribution of different countries in scholarly works on digital marketing, the bibliometric analysis found that the USA had contributed the most (223 papers). Surprisingly researchers from India have achieved the second position in contributing to this emerging field of study (187 papers). However, this is a powerful point that in the case of MCP or author collaboration with the authors from other countries, the USA ranked 1st while the UK ranked 2nd. India's authors have not secured the second position in this area. In addition, the UK has kept a significant amount of contribution and other countries such as Indonesia, Spain, Korea, Portugal, Brazil, and France's contributions are average.

As the contribution from the USA, UK and India are the most, theoretically, this is expected that collaboration among researchers in these countries would be the highest. This expectation is confirmed with this Figure 5. As a country Australia does not have many contributions, however, different authors from this country have collaborated significantly with authors from other countries. From a continental analytical point of view, it is observed that North America and Europe contributed the most followed by Asia. However, South America and Africa are completely void of any kind of notable contribution. This can be attributed to the economic and demographic development of the countries. Most of the countries in South America and Africa are not developed as other contributing countries. Another interesting insight is also observed in this analysis, which is the "North-South gap". Countries located north of the equator are observed to contribute more than the countries located south of the equator.

#### 4.7. Bibliographic links of academic journals

This bibliometric analysis identified 3 dominant research clusters in digital marketing, as illustrated in Figure 6. Each cluster has a significant amount of difference from other clusters. As identified with the analysis, the biggest cluster in digital marketing is about strategic planning with digital marketing. Another dominant research domain in digital marketing focuses on mobile marketing with apps development. In addition, the third cluster on digital marketing concentrates especially on dealing with demographic profiles of customers along with website marketing metrics. In addition, the word-cloud analysis expresses which keyword was discussed the most in these 925 papers published from 2000 to 2019 in Scopus. Digital marketing is the central word which is accompanied by other dominant keywords such as commerce, marketing, social networking online, social media sales and internet. Another amazing insight generated from this cluster analysis, e.g., three clusters represents three different facets of marketing; the green-coloured cluster represents societal and humane aspects of marketing while the red-coloured cluster represents the fundamental philosophical and strategic aspects of marketing (i.e., consumer behaviour, strategic planning, information management, social media, public relations) and the blue coloured cluster represents the recent development of digital marketing because of the proliferation of extensive data generation (i.e., database management, data mining, artificial management). But here one inconsistency can be noticed that theoretically big data analytics should fall in the blue coloured cluster but here it falls in the red coloured cluster and the authors are unable to explain the reason for this which can also be considered as a limitation of the article. Although digital marketing has received its importance after the advent of social media after 2000, it is considered in the red coloured cluster. That means digital marketing must be

### Country Collaboration Map

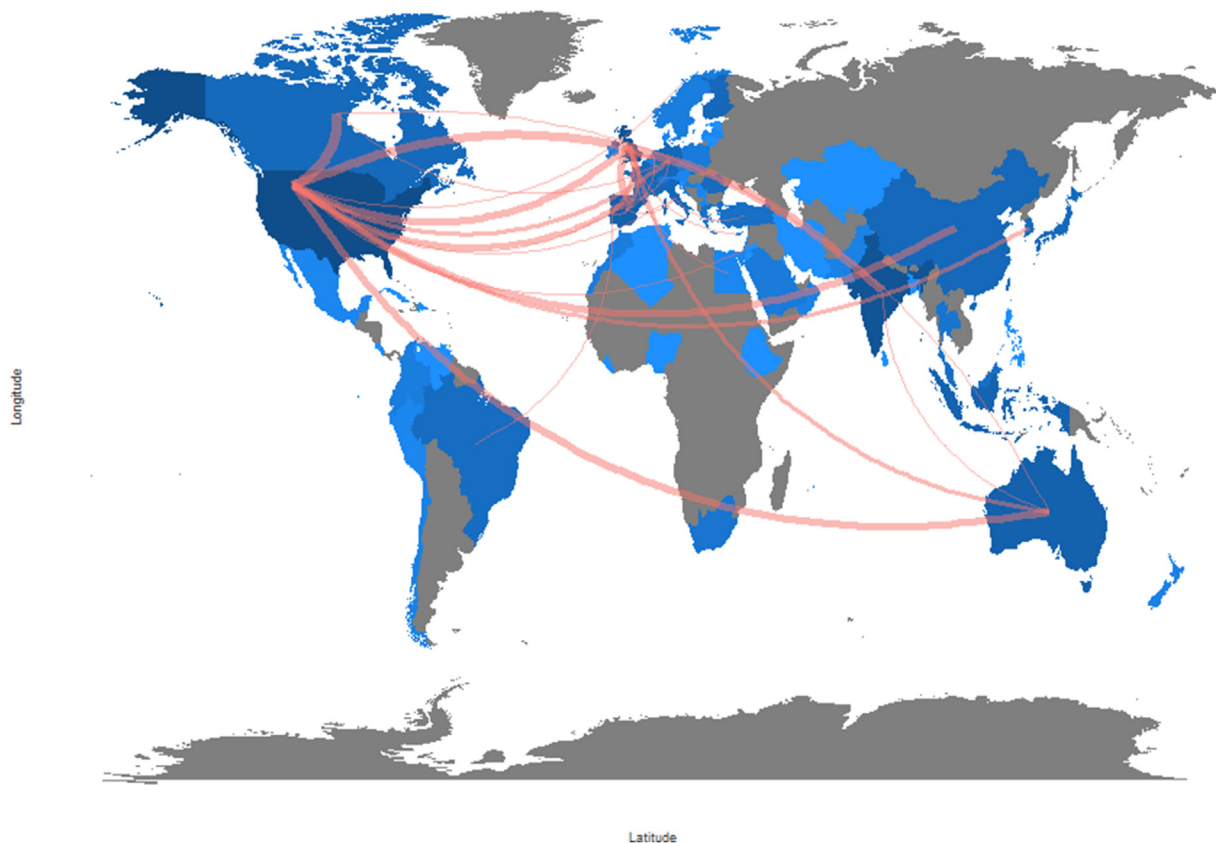


Figure 5. Authors' collaboration around the world.

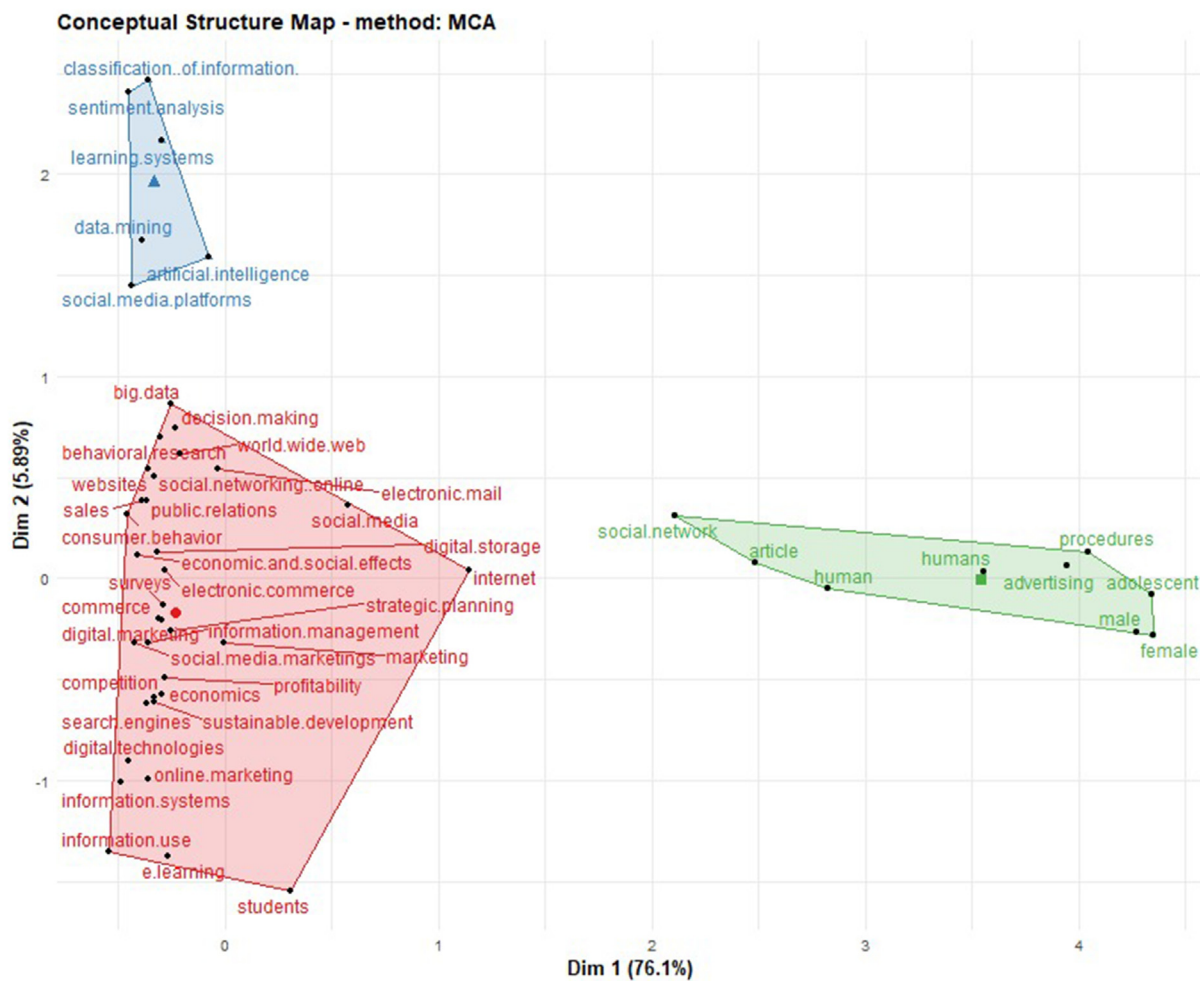


Figure 6. Cluster analysis in digital marketing research.

considered as the fundamental part of marketing and it must be given its due importance from the implicational aspect while the theory and philosophy remain the same.

### 5. Conclusion and implications

The bibliometric study provides a comprehensive picture of specific research fields and enables researchers to focus on unique areas to add new results and knowledge to the literature (Ghorbani et al., 2021). In summary, this can be firmly claimed that the growth in the field of DM research has started in 2014. Three dominant themes of study have been developed including a strategic framework, mobile marketing and apps development and demographic analysis with web analytics. As a country, USA, UK and India contributed the most to this development. In the last half-decade, digital marketing has evolved as a buzzword. Revolution has been created by electronic commerce in business by transforming the physical aspect of delivery to the virtual aspect of marketing and selling. Digital marketing has become an integral part of any marketing and sales strategy (Bhojaraja and Muniraju, 2018).

Analysis of the DM literature through bibliometric analysis will assist both the academicians and practitioners in various ways. First of all, this study will inform academic researchers and digital marketers regarding the evolution, trends and history of digital marketing. This paper will also inform about the most researched domains under DM, hence, enables researchers to identify research gaps to be filled by further studies in the future. The analysis shows that digital marketing is the single most keyword used in most of the studies. The other areas along with DM

should also be investigated including consumer behaviour, social networks, machine learning, big data, advertising, mobile marketing, web 2.0, branding and so forth. Secondly, the study shows that research on DM has received tremendous focus since 2010 due to the growth of the internet and social media. As social media allure customers to speak for the brands, global companies increasingly focus on digital marketing as an effective tool of brand communication (Bhuyan and Rahman, 2014). Thus, digital marketers should ensure the best use of digital media in brand communication. Third, the analysis reveals that DM literature is the most prevalent in the countries like USA, UK and India. Future researchers should focus on other parts of the world especially the developing countries regarding the prospects of digital marketing.

Finally, there are three dominant clusters are identified from the analysis. Strategic planning with digital marketing is the largest cluster suggesting the significant domain for both researchers and policymakers. After happening the latest technological revolution in businesses, digital marketing has become more prominent and widely practised. The methods of traditional marketing are completely replaced by those of digital marketing. Nowadays, marketers are forced to use the internet and digital technology for selling and promoting their products and services. Therefore, both the prospects and challenges of digital marketing must be properly detected and analyzed by marketers to set the best marketing plan and communication goals (Bhojaraja and Muniraju, 2018). Mobile marketing with apps development is another domain identified from the cluster analysis. The rate of smartphone penetration and mobile applications is going up day by day due to availability and affordability. Therefore, markers should adopt mobile marketing such as

banner ads on apps, SMS marketing and so forth to reach the target customers. The last research cluster is demographic profiles of customers along with website marketing metrics. The outcomes of marketing investment can easily be measured using digital marketing metrics. The effectiveness and quality of online content can also be evaluated and audited with the help of digital marketing (Bhojaraja and Muniraju, 2018).

### 5.1. Limitations of the study and future research direction

This study does not include the major works indexed in another significant database (i.e. web of science), which is the major limitation of the study. In addition to that, documents were explored using the only keyword “Digital Marketing”, hence, other relevant keywords were not considered. Only one keyword is chosen to keep the analysis simple and to make it easier for the authors to interpret the analysis. Hence, further researches can be conducted to get a more holistic view by considering other strongly related keywords such as “online marketing”, “social media marketing”, “email marketing”, “affiliate marketing” and “mobile marketing”.

In future, how big data analytics and artificial intelligence are going to affect the digital marketing landscape can be explored. How marketing research has been shaped in the digital marketing field can also be an interesting pathway to pursue future research. Why USA, UK and India have contributed the most, on the other hand, why Canada, Australia, Germany, Russia, France and others are lagging in contributing to this field should also be analyzed.

### Declarations

#### Author contribution statement

All authors listed have significantly contributed to the development and the writing of this article.

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#### Data availability statement

Data will be made available on request.

#### Declaration of interests statement

The authors declare no conflict of interest.

#### Additional information

No additional information is available for this paper.

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