

Digital Marketing: A Scientometric Review

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ABSTRACT

The internet has offered marketers a new way to be more creative, resulting in more openness and transparency in marketing. The proliferation of digital media platforms and the commercial use of the internet have changed the business landscape. This study uses ScientoPy to analyze the global evolution of digital marketing research. It is grounded in the eminent Scopus and Web of Science databases. The parameters examined in this study were the number of publications, the most productive author, the analysis of the author's keywords, popular sources, and institutional information. This study discovered a rising trend in digital marketing research in both the Scopus and WoS databases. "Machine Learning" has exploded in popularity during 2019 and 2020. "Digital Marketing" is inextricably linked to "Social Media", "Big Data", "Marketing Communication", "Machine Learning", and "Sentiment Analysis", all of which gained traction in 2018 and beyond. Bucharest University of Economic Studies in Romania has become the most prolific research institution on digital marketing. The findings of this study enabled readers and future researchers to identify the primary research areas, keywords, related studies, and the most notable institutions and researchers. Besides, this study provides readers and future researchers with a global perspective on hot topics

in digital marketing. It offers various analyzes for well-organized information utilization. This study also illustrates recent digital marketing research trends to inform practitioners, future researchers, and policymakers about developing digital marketing research theories and practices that merit scrutiny.

Keywords: Digital marketing, Scientometric, ScientoPy, Scopus, Web of Science

INTRODUCTION

Marketers have new opportunities to hone their marketing creativity in the digital age. Another advantage of the digital age is that it has increased the openness and transparency of marketing. Also, changes in consumer behavior in the digital age necessitate rethinking digital as a platform for marketing strategies (Tiago & Verissimo, 2014). It has been more than two decades since the internet and commercial use of the World Wide Web began to reshape the business landscape allied with the growth of digital media platforms (Herhausen et al., 2020). Today, there is a vital co-existence of social media and digital marketing. For example, Facebook has allowed businesses to communicate with millions of people about their products and services, creating new marketing opportunities (Bala & Verma, 2018; Ramsaran-Fowdar & Fowdar, 2013). This marketing constituent is sensible compared to previous marketing strategies, which were very affluent, such as radio and television advertising.

Advertising products or services through digital technology, primarily the Internet and mobile devices, billboards, and other digital media, are known as digital marketing. Digital marketing is a popular method for promoting products or services and reaching customers via digital platforms (Yasmin et al., 2015). In recent years, digital marketing has seen a significant rise in popularity. A simple reason for this is that the world has become an internet-based society. Consequently, marketing scholars and practitioners are more dynamic and receptive to new techniques and inquiries concerning digital marketing. In digital marketing, key performance indicators are appraised, and their importance is manifested using a decision-making process (Ghahremani-Nahr & Nozari, 2021). As a result, organizations may make better judgments when they better grasp the significance and value of indicators.

Digital channels are a critical marketing component because they have altered how marketers interact with their customers. It is becoming increasingly aggressive as most of the world's users use computers or mobile devices, fuelling the rapid growth of digital advertising spending (Ritz et al., 2019). More tourists, for example, book lodging, transportation, and other tourism products online or research tourist destinations virtually (Yoga et al., 2019). Moreover, it demonstrates how digital channels and digital marketing are mutually supportive. Similarly, numerous business-to-business (B2B)

organizations cultivate customer acquisition through digital marketing. For instance, business-to-business (B2B) marketing executives could bypass multiple layers and connect directly with user department officials via LinkedIn, optimizing sales productivity and tracking real-time consumer engagement and conversions (Pandey et al., 2020). Other widely used social media platforms, such as Facebook, WhatsApp, and Instagram, demonstrated that communication with customers and suppliers is more intimate, practical, and efficient and allows for direct or real-time communication (Chiang et al., 2018; Djakasaputra et al., 2021). Marketing professionals must understand social media marketing campaigns and programs. The affordability and usage of social media are changing market dynamics globally.

Marketing activities can now be completed more easily, quickly, and effectively through digital media. Online marketing activities that promote products and services must incorporate content marketing approaches to attract new customers. In this context, digital marketing makes it simple for business people to monitor and meet all potential customers' needs and desires. Digital marketing also makes it easier for potential customers to research products online. Buyers are increasingly free to make purchases based on search results from anywhere. Digital marketing can reach anyone, anywhere, and at any time. Over the last century, technology and innovation have transformed marketing channels. Marketers increasingly seek more efficient, effective, relevant, and persuasive ways to reach consumers. Digital marketing channels are internet-based systems that enable producers to create, promote, and deliver value via digital networks (Key, 2017). Websites, search engine optimization (SEO), search engine marketing (SEM), e-mail marketing, social media marketing, content creation, digital advertising, mobile marketing, viral marketing, affiliate marketing, online public relations, digital media, and web analytics are some of the most common digital marketing channels (Bala & Verma, 2018; Thaha et al., 2021). Also, non-internet mediums like mobile phones (SMS and MMS), callbacks, and on-hold mobile ringtones are now included in digital marketing channels (Mandal & Joshi, 2017).

Previous researchers have been compelled to conduct in-depth studies on marketing in general or digital marketing. The studies are either empirical or review methods such as bibliometric or scientometric. In terms of bibliometric and scientometric methods, previous studies include artificial intelligence in marketing (Mustak et al., 2021), international marketing (Samiee & Chabowski, 2012), digital marketing (Karaman & Aykin, 2021), digital marketing communication (Kim et al., 2021), and interactive digital marketing (Krishen et al., 2021). Nevertheless, previous research relied on a single database, either Scopus or Web of Science (WoS) (León-Castro et al., 2021; Morais et al., 2021; Ribeiro et al., 2020). Therefore, the scientometric review in this study is executed using ScientoPy software with a

combination of metadata from Scopus and WoS databases. ScientoPy is a Python-based script-based tool for performing temporal scientometric analysis. The temporal analysis enables us to pinpoint the onset of a new phenomenon and its progression to a trending or emerging issue (Ruiz-Rosero et al., 2019).

The present study aims to (i) identify the publication growth, (ii) conduct an analysis of the author's keywords and influential digital marketing themes, and (iii) recognize prominent sources and primary institutions in the field of digital marketing research. The authors believe that this article contributes to expanding knowledge about current trends in digital marketing research, which policymakers and practitioners can use to allow digital improvements to market their products. Also, this article provides readers and future researchers with an overview of research conducted on the possessions of this marketing constituent.

MATERIALS AND METHODS

ScientoPy is the software platform to manage the study's top topics, authors, countries, and other related publications (Abdullah & Sofyan, 2023). It is a free and open-source Python-based scientometric analysis tool that eliminates bias in individual publications through its unique pre-processing segment (Ruiz-Rosero et al., 2019). With this method, readers and future researchers could get more readability, exactness, systematic, complete, and representative conclusions from a large amount of data from Scopus and WoS. This study also used VOSviewer to generate a co-occurrence map of the authors' digital marketing-related keywords. It is critical to afford credible information on the vast bulk of nexus themes or topics previously researched (Abdullah, 2022) that have impacted digital marketing research globally.

Dataset

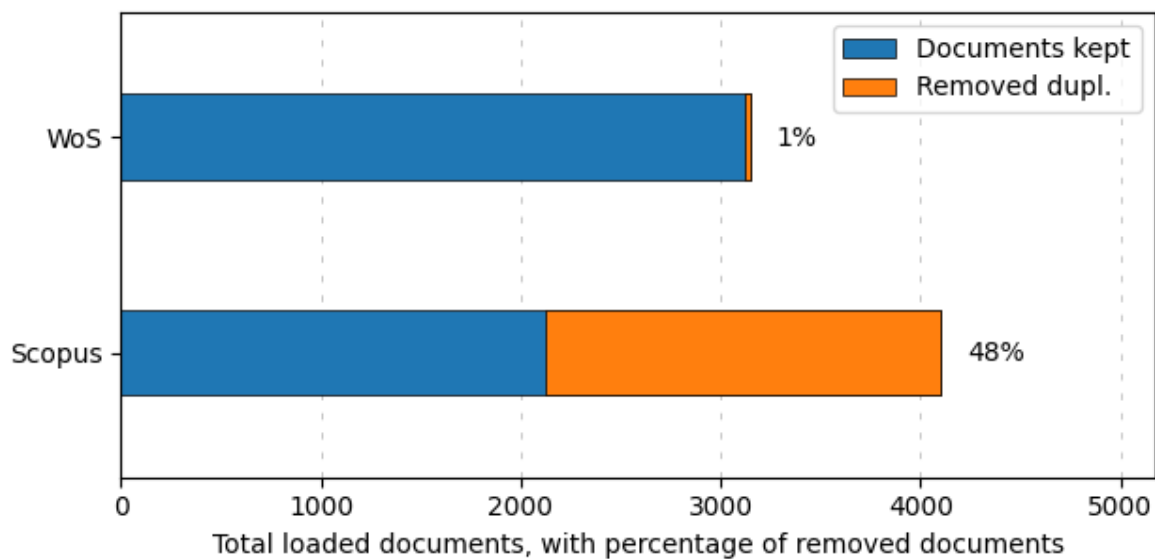
The Scopus and WoS databases were used to collect and analyze data for this study. These databases are regarded as the world's largest abstract and citation databases of peer-reviewed research literature and the most frequently visited databases by previous researchers worldwide (Abdullah, 2021; Sweileh, 2020). An institutional subscription was required to access and retrieve data entries from both databases to download the raw source datasets. This study performed the query on November 15, 2021, using the string "digital marketing" OR "online marketing" OR "internet marketing" to obtain the data registered in each database using the requisite web applications.

Pre-processing Data

Pre-processing data was performed to ensure that the datasets from both WoS and Scopus were unique. Thus, the secondary dataset is created for the subsequent analysis

stage. ScientoPy was used to make the pre-processing of the bibliographic dataset. During the pre-processing step, ScientoPy uses the following criteria to normalize the author's name by replacing it with a semicolon for metadata retrieved from the Scopus database, stripped of dots, commas, and special characters for retrieval metadata from both databases and removing duplicated samples by identical title and authors (Abdullah & Sofyan, 2023; Pabon et al., 2020).

Figure 1. *Data pre-processing from WoS and Scopus databases*



The pre-process brief graph in Figure 1 shows the loaded documents for each database and the removed duplicated records. Based on Figure 1, the ScientoPy pre-processing script puts WoS documents ahead of Scopus documents; there are more documents from WoS databases than Scopus after the duplication removal. Information in Table 1 depicted that the initial results of retrieved data consist of 7782 raw data from Scopus and WoS publications. It is shown that 535 publications (6.90%) were omitted due to the automatic document-type filtration process. There were 7247 publications in the initial stage before entering the duplicate removal stage. The total number of duplicates in this study was 2009 from both databases. Ultimately, 5238 publications are valid in the current study, with 3117 (59.50%) publications in WoS and 2121 (40.50%) in Scopus.

Table 1 *Data Integration and Duplicates Exclusion*

Data Pre-processing Output	Information	Number	Percentage (%)
Initial results	Raw data from Scopus and WoS	7782	
	Automatic type-filter publication to remove non-related document	535	6.90
	Total publications after selecting document types (Research articles, conference papers, book chapters, review papers, and proceedings)	7247	
	Publications in WoS	3154	43.40
	Publication in Scopus	4102	56.60
	Duplicated removal results	Duplicated publications in both databases	2009
Duplicated publications from WoS		28	0.90
Duplicated papers from Scopus		1981	48.30
Final results	Total publications after eliminating duplicates	5238	
	Publications in WoS	3117	59.50
	Publications in Scopus	2121	40.50

RESULTS AND DISCUSSION

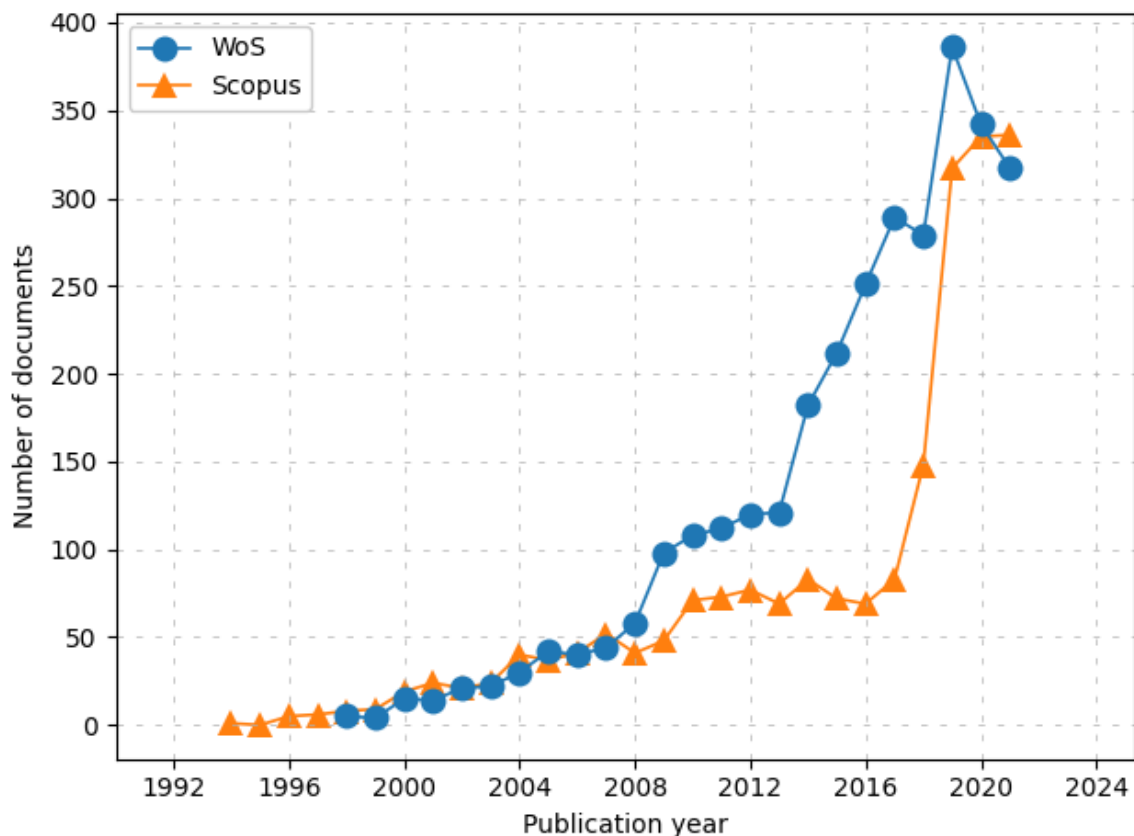
This section presents the results fitting together with the processes used to determine the current state of research in digital marketing and the anticipated trends.

Publication Growth

Digital marketing has become a globally recognized trademark in a rapidly-evolving industry. The importance of digital marketing is well-known. People nowadays use digital means for almost everything, which may spark the next digital revolution. Figure 2 illustrates the growth of publications on digital marketing in both databases and the remarkable direction that research is taking in the field of digital marketing. It has demonstrated the conclusive nature of integrating forms of marketing via digital platforms in today's climate, prompting numerous researchers to examine

this field of study's usefulness in growing a product's demand. For instance, print and online newspaper advertising reveals that digitalization is becoming progressively popular among Generation Z consumers. Generation Z is digital natives, highly educated, digitally savvy, imaginative, and creative (Duffett, 2017; Priporas et al., 2017; Vieira et al., 2020).

Figure 2 *The Growth of publications on digital marketing in the WoS and Scopus databases*



As can be seen, contributions to publications increased significantly in 2000, most likely due to previously mentioned factors. Additionally, it is quantified that digital media platforms revolutionized marketing in 2000 by introducing new methods for contacting, informing, engaging, selling to, learning about, and serving customers (Lamberton & Stephen, 2016). It demonstrates how internet usage continues to grow globally, with digital becoming a key source of competitive advantage in business-to-consumer (B2C) and business-to-business (B2B) marketing (Leeftang et al., 2014). Consequently, much attention has been presumed to the tremendous opportunities digital marketing presents rather than the fundamental challenges businesses face.

Author Analysis

It is also obliging for researchers to know the most representative authors in their fields and cite them in their contributions or reference-related works. The extracted data revealed the number of authors who frequently published digital marketing literature, as shown in Table 2. Also, Table 2 lists the top ten authors who have contributed significantly to digital marketing research. The table includes total publications, average growth rate (AGR), average documents per year (ADY), percentage of documents in the last years (PDLY), and the author's h-index. The fact that indispensable authors are cited in the research aids in their dissemination and scientific recognition. Also, by presenting Table 2, readers and future researchers will recognize familiar names of authors in digital marketing with whom they will most likely collaborate.

Table 2 *The Top Ten Productive Authors on Digital Marketing Research*

Rank	Author	Total	AGR	ADY	PDLY	h-index
1	Stoica, I.	16	-0.5	0	0	2
2	Bacik, R.	12	-1	0.5	8.3	4
3	Orzan, G.	11	-1	0	0	2
4	Jankowski, J.	10	-0.5	0.5	10	6
5	Radu, A.C.	10	0	0.5	10	3
6	Fedorko, R.	9	-1.5	0	0	4
7	Eid, R.	8	0	0.5	12.5	7
8	Law, R.	8	0	1.5	37.5	6
9	Smutny, Z.	8	0	0.5	12.5	2
10	Watrobski, J.	8	-0.5	0.5	12.5	4

Note. AGR = Average growth rate; ADY = Average documents per year; PDLY = Percentage of documents in last years.

Stoica, I. from the Romanian Academy of Sciences, Bacik, R. from the University of Presov, and Orzan, G. from the Bucharest University of Economic Studies were among the top three most proactive authors who published academic works on digital marketing. This study also depicts that the top three proactive authors were mainly from Eastern Europe. The fact that Eastern Europe's transition economies have a large population of technologically competent young people makes it clear that these regions have both opportunities and challenges. As a result, markets must consider the macro environment and market conditions, making certain market technologies more practicable than others requiring additional research in these areas (Jayaram et al., 2015).

In this study, until December 2021, the author's extended metadata results generated by ScientoPy indicated a top paper by Stoica, I. entitled "user satisfaction regarding healthcare education services financed through the European social fund",

published in 2017, which received seven citations. This study aims to assess user satisfaction with traditional and online services. The article found that developing online healthcare education courses benefits learners and lecturers by saving time and improving field knowledge. Thus, it is verified that the early 2000s development of digital technology and the internet also benefited the delivery of educational services. Therefore, educational institutions' digital marketing strategies can significantly increase the number of students enrolled in specific courses (Kusumawati, 2019).

An article that Bacik, R. wrote in 2016 titled "website content quality in terms of the perceived image of higher education institution" obtained a total of 25 citations. This paper became a favourite academic work of previous researchers. The article discussed the importance of different types of website content found on higher education institutions' websites concerning student and customer perceptions. The article concluded that website content could help higher education institutions better understand their target audience's preferences and optimize their online reputation management activities (Stefko et al., 2016). It is indicated that digital platforms have facilitated students' access to academic information, and the education industry has effectively implemented tools to adapt to students' needs (Fierro et al., 2017).

One of the top articles that Orzan, G. authored in 2016, entitled "conceptual model regarding the influence of social media marketing communication on brand trust, brand effects and brand loyalty", gained 19 citations. This article discussed how many businesses incorporate social media into their digital marketing communication strategies to determine whether its use can influence consumers' perceptions of brands. A brilliant point posed in the article is that social media marketing communications have much to do with how people trust and like brands, two of the main factors in brand loyalty (Orzan et al., 2016). This article indirectly supported a study conducted by Tiago and Verissimo (2014), which stated that marketers must focus on customer relationship-based interactions to improve digital marketing engagement. It is critical because advanced marketing technology has revolutionized digital marketing, and social media has become a widely accepted platform for customer interaction (Raghavan & Pai, 2021).

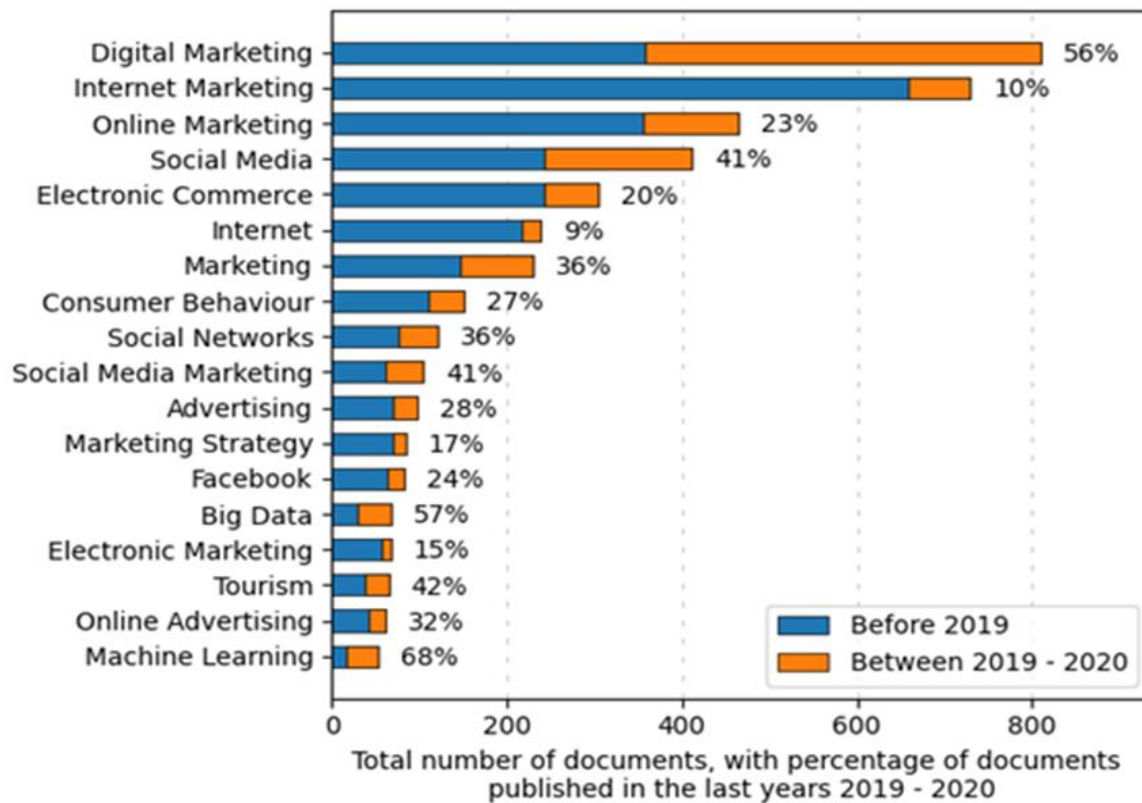
Author Keywords Analysis

Author keywords are denoted as the keywords chosen by the authors to describe their document's content immaculately. Most authors in the data set examined include their research topic in the document keywords. The authors' keywords assisted readers and future researchers in identifying critical ideas and arguments in the articles. Countless electronic search engines, databases, and journal websites rely on author keywords to find relevant articles and present them to potential readers. Readers should

be aware that keywords generate links to other relevant publications. In this context, ScientoPy could scrutinize the evolution of a research topic or search argument based on the keywords used by the authors. This section examines the authors' primary keywords in the previously researched digital marketing. The research trends were discovered based on the authors' keywords to accomplish the workflow. It has been suggested that similar terms such as "consumer behavior" (American spelling) and "consumer behaviour" (British spelling) be combined, as well as pairs such as "e-commerce" and "electronic commerce." These manual exercises aid in data organization and help avoid term duplication for more robust results.

Figure 3 illustrates 18 previously used keywords in prior research. The most frequently used keyword, as exemplified in Figure 3, is "Digital Marketing," followed by "Internet Marketing" and "Online Marketing". Data processing furnished precedence to this broad term directly related to the subject. Following that, significant keywords are accessible to assist readers and future researchers in determining which ones to use when analyzing documents. Although Figure 3 depicts the first 18 keywords, ScientoPy allows us to view unlimited keywords (Ruiz-Rosero et al., 2019).

Figure 3 also depicts the percentage of documents published in the previous years (2019–2020) as a measure of relative growth. This indicator shows that "Machine Learning" is the 18th topic on this list but has the highest PDLY (68 per cent). It is explicit that the topic has grown the most among other keywords over the last two years. Other topics with high PDLY of more than 50 per cent are "Big Data" and "Digital Marketing". It has been noted that research on machine learning, big data, and digital marketing has piqued interest among scholars recently. These results were consistent with the findings of a literature review by Miklosik and Evans (2020). They discovered that using big data and machine learning in marketing could lead to new research from which academics and businesses could benefit. Furthermore, big data and marketing intelligence have already become a reality, as evidenced by the various digital and social techniques applications in which traditional outbound marketing is supplemented and amplified by inbound marketing (Lies, 2019).

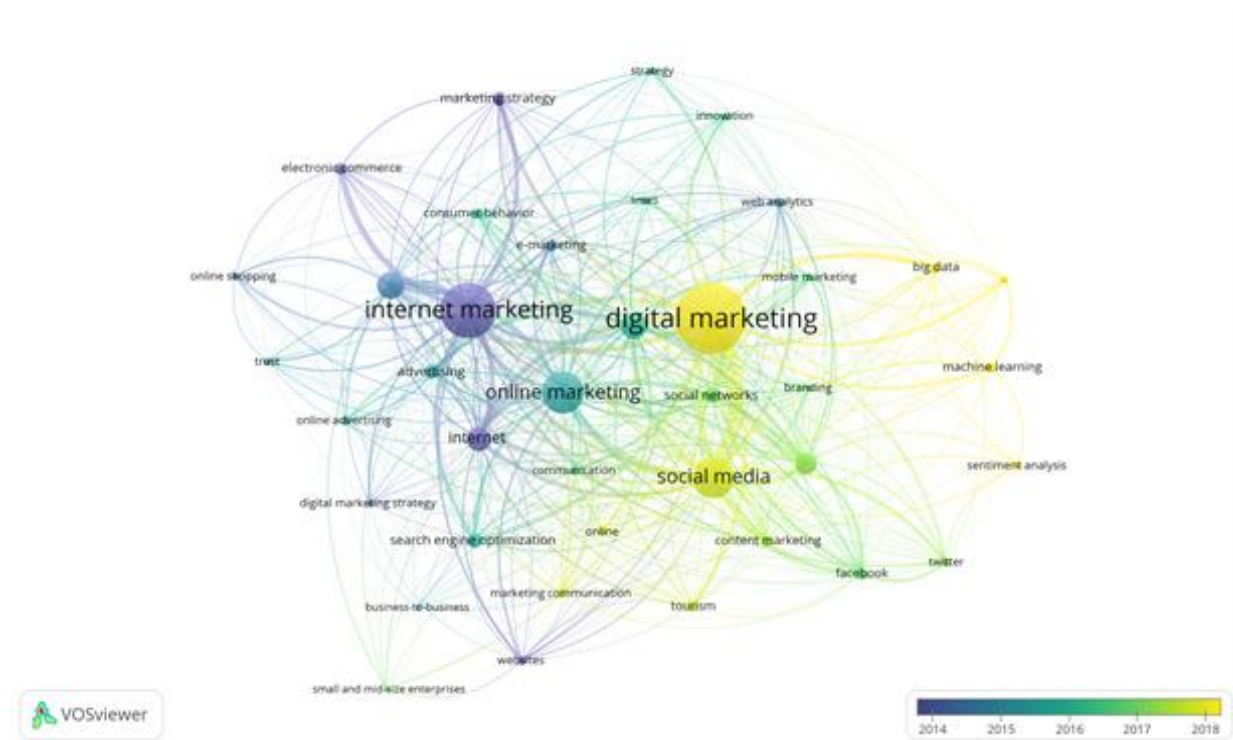
Figure 3 *The Top 18 Authors' Keywords on Digital Marketing Research*

In addition, this study used cluster mapping to determine the co-occurrence of authors' keywords to identify themes or topics pertinent to digital marketing. Before generating a network map with the VOSViewer, the dataset used has been pre-processed with SientoPy (a combination of Scopus and WoS metadata). Also, this study implemented an additional method before mapping the co-occurrence of the authors' keywords by creating a thesaurus file. The thesaurus file is vital to concatenating similar terms, spelling variations, and singular or plural terms such as "SEO" with "Search Engine Optimisation", "Consumer Behavior" with "Consumer Behaviour", and "Marketing Strategy" with "Marketing Strategies".

It can be deduced that the most frequently used keywords in 2014 and 2015 were "Internet Marketing", "Marketing Strategy", "Electronic Commerce", "Internet", and "E-marketing". These keywords are inextricably linked. The keyword "Internet Marketing" contains innumerable documents, with 729 in the same clusters (blue colours). According to this mapping, the rapid development of internet technology and marketing opportunities enabled a radical shift in traditional marketing activities, allowing Internet marketing to thrive. Hence, many businesses, regardless of their economic activity, recognize the benefits of Internet marketing to improve business results and become an increasingly important success factor in the business system (Batinić, 2015). Along with the propagation of the Internet as the primary channel for

implementing the optimal “one-to-one” marketing model, internet marketing has emerged as a new area of marketing theory and practice that is constantly evolving (Grubor & Jakša, 2018).

Figure 4 *Overlay Visualisation of the Co-occurrence of Authors' Keywords*



By observing publications in 2016 and 2017, the cluster mapping of author keywords revealed that most articles were contributed by “Online Marketing” (464 documents). The keyword “Online Marketing” has a close nexus with other keywords such as “advertising”, “Search Engine Optimization”, “Strategy”, and “Innovation”. With the progression of technology in 2016 and 2017, advanced advertising techniques such as search engine optimization, content showcasing, and e-mail marketing have become more mainstream in the fast-paced world of innovation. It demonstrates, for instance, how applications such as Facebook or Twitter and the increasing use of Internet marketing are opening up new avenues for automated advertising to reach clients. Accordingly, digital advertising generates revenue and impacts businesses. Furthermore, choosing an effective marketing strategy could lower the cost of online mediation, providing additional impetus to narrow the selection of online marketing strategies (Angeloni & Rossi, 2021).

The most recent keywords, which were initiated in the research after 2018, are “Digital Marketing”, which has 810 documents, followed by “Social Media”, “Big Data”, “Marketing Communication”, “Machine Learning”, and “Sentiment Analysis”.

We may conclude that today's recent trending research has been adjacent to these keywords. Clustering, association rule mining, ensemble models, deep learning, and sentiment analysis are all examples of data science techniques utilized in conjunction with digital marketing (Saura et al., 2019). Also, there has been lots of research on sentiment analysis and community discovery for customer targeting, segmentation, and subject modelling latterly conducted (Bhatnagar & Choubey, 2021). The keyword relationship also demonstrates that brand-related discussions of a product on social media have provided many opportunities for digital marketers to track and analyze consumer feelings and opinions about brands, products, influences, services, and advertising campaigns in user-generated content (Nikseresht et al., 2021). Indirectly, the collection of keywords in the most recent cluster, after 2018, affects each other, significantly impacting digital marketing. Marketers can use this information to learn about the most popular and trending digital marketing tactics to market their products or services worldwide successfully.

This study also uncovered the top five articles on "Internet marketing", "Online marketing", and "Digital marketing", based on a high citation. The list of these articles attained in the expanded authors' keywords based on ScientoPy generated results. The authors believe that further reading of these articles will provide valuable information for future researchers who want to delve deeper into the elements of "Internet marketing", "Online marketing", and "Digital marketing". Also, the articles that have been listed are critical for future researchers to cite and thoroughly read to obtain additional information about Internet marketing, online marketing, and digital marketing. It is beneficial for future researchers to understand how the impact and performance of those publications can be quantified and how the authors influenced the research.

The top five articles on "Internet Marketing" were written by Novak et al. (2000) (1756 citations), Xiang and Gretzel (2010) (1377 citations), Godes and Mayzlin (2004) (1344 citations), Dholakia et al. (2004) (1283 citations), and Zhu and Zhang (2010) (1217 citations). Next, the five focal articles on "Online Marketing" written by Litvin et al. (2008) obtained 1341 citations, De Bruyn and Lilien (2008) received a total of 459 citations, followed by Leeflang et al. (2014) (234 citations), Scharl et al. (2005) (225 citations), and Urban et al. (2009) (182 citations). Regarding the study of "Digital Marketing", it was shown that Day (2011) wrote an article with the most citations (439), followed by Kumar et al. (2016) (345 citations), Lamberton and Stephen (2016) (324 citations), Kannan (2017) (281 citations), and Felix et al. (2017) (255 citations).

Popular Sources

The term “source” usually refers to a journal, a conference proceeding, or a book. In this study, 59 sources that have published more than ten articles on digital marketing were identified. Table 3 lists the top 20 sources with the most articles published between 1990 and 2021. The results were attained using a default setting in ScientoPy, as Ruiz-Rosero et al. (2019) recommended. The journal with the most published articles was the International Journal of Internet Marketing and Advertising, which had 63 documents. The following journal, with 47 documents, was the Journal of Research in Interactive Marketing, and the third, with 39 documents, was the Journal of Direct, Data and Digital Marketing Practice.

Table 3 *The Top 20 Active Sources of Digital Marketing Research*

Rank	Source Title	Total	AGR	ADY	PDLY	h-Index
1	International Journal of Internet Marketing and Advertising	63	0.5	1.5	4.8	13
2	Journal of Research in Interactive Marketing	47	1.5	8	34	14
3	Journal of Direct, Data and Digital Marketing Practice	39	0	0	0	6
4	Sustainability	37	6	15	81.1	8
5	Journal of Business Research	34	5	7.5	44.1	18
6	Marketing Science	32	0	0	0	25
7	Internet Research	30	-0.5	1.5	10	16
8	Journal of Digital and Social Media Marketing	30	0	8.5	56.7	2
9	Advances in Intelligent Systems and Computing	29	1.5	9	62.1	3
10	Journal of Interactive Marketing	29	0	2.5	17.2	21
11	Emerald Emerging Markets Case Studies	27	0.5	4.5	33.3	1
12	International Journal of Recent Technology and Engineering	27	-13.5	0	0	2

Rank	Source Title	Total	AGR	ADY	PDLY	h-Index
13	International Journal of Online Marketing	26	0.5	2.5	19.2	4
14	Marketing Intelligence & Planning	26	-1	0.5	3.8	13
15	International Journal of Research in Marketing	25	1	4.5	36	13
16	Journal of Marketing Education	25	0.5	3	24	12
17	Lecture Notes in Computer Science (Including Subseries Lecture Notes In Artificial Intelligence And Lecture Notes In Bioinformatics)	25	1	5.5	44	4
18	European Journal of Marketing	23	0	1.5	13	13
19	Marketing And Management of Innovations	23	1.5	3.5	30.4	2
20	International Journal of Advanced Science and Technology	22	-3	8	72.7	2

Note. AGR = Average growth rate; ADY = Average documents per year; PDLY = Percentage of documents in last years.

Also, Table 3 shows that the source appears first and that its average growth rate (AGR) from 2019 to 2020 was positive. As a result, the number of articles produced increased. On the other hand, the third source is zero, indicating that the annual growth rate for the last two years (2019 and 2020) is unchanged. Marketing Science has the highest h-Index, meaning that its publications are productive and have a high citation impact. The information in Table 3 will assist future researchers in locating resources to publish their articles based on the desired scope and explore the best gateway for publishing their papers.

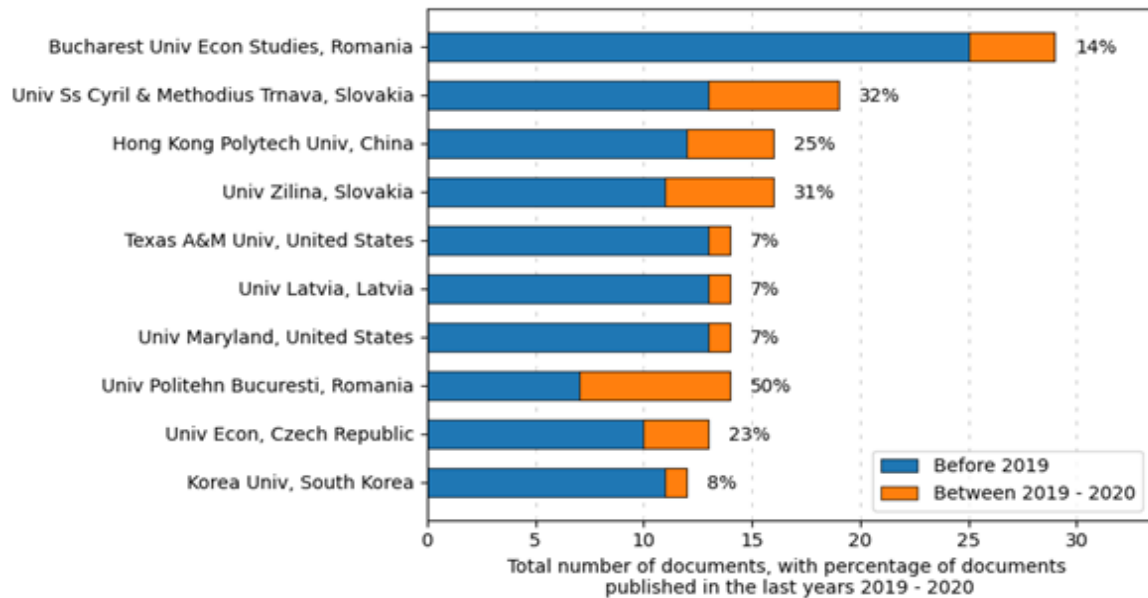
Institutional with Country Analysis

Typically, each author listed in the publications is affiliated with a specific institution for publishing purposes. ScientoPy uses this data to process information about institutions and countries. Knowing which institutions are most represented on a subject allows researchers to select a research location or participate in academic programmes or research projects with which they want to collaborate. This study enhances the institutions' prestige and encourages others to continue writing to acquire a superior position. The bar graph in Figure 5 depicts the top ten significant institutions with countries published on digital marketing themes.

This study includes extended ScientoPy results identifying the most cited articles from the top three institutions. It is essential to note that the results were based on the corresponding author's institution. The most cited article from the Bucharest University of Economic Studies in Romania was written by Orzan et al. (2016). Four authors wrote this article. The two authors are from the Bucharest University of Economic Studies (Orzan, G. and Orzan, M.). The other two authors were from different institutions; Platon, O. E. is attached to Bucharest University, and Ștefănescu, C. D. works at the University of Medicine and Pharmacy in Bucharest. This article obtained 19 citations. The article discovered that the value assigned to social media marketing communications features is strongly related to brand trust and affect, two key indicators of brand loyalty.

The most cited article from The University of St. Cyril and Methodius Trnava in Slovakia is written by Zaušková and Grib (2015). Both of these authors were attached to the Faculty of Mass Media Communication. This article obtained five citations. The article discusses marketing communication in businesses' eco-innovation efforts, emphasizing digital marketing, and presents a study conducted in small and medium-sized companies operating in the Slovak business climate.

The top-cited article from The Hong Kong Polytechnic University is authored by Li et al. (2017). It is critical to emphasize that four authors wrote this article collaboratively. The two authors (Li, L. and Peng, M.) work at South China University of Technology's School of Tourism and Hospitality Management. The other two authors (Jiang, N., and Law, R.) are from the Hong Kong Polytechnic University School of Hotel and Tourism Management. Since Jiang, N. is the corresponding author of this article; therefore, the metadata of the institution for this article is associated with The Hong Kong Polytechnic University. This article received 63 citations. The study examines the theoretical links between the quality of economy hotel websites, eTrust, and online booking intentions in China. The findings of this study aided in the development of cost-effective hotel internet marketing in China by bridging the divide between the investigation of hotel website quality and its effect on online booking intentions.

Figure 5 *The Top Ten Institutions with Country On Digital Marketing Research*

CONCLUSION

Based on a scientometric review of publications in the Scopus and WoS databases, this study identifies and discusses valuable information pertinent to the growth of publications on digital marketing in the WoS and Scopus databases, as well as the most productive authors, most studied keywords, most popular sources of publications, and most productive institutions. Prior researchers had undertaken extensive research on digital marketing; however, they have relied solely on Scopus or WoS (León-Castro et al., 2021; Morais et al., 2021; Ribeiro et al., 2020).

This study simultaneously processed two databases using ScientoPy software. This endeavour will provide potential readers and future researchers with pertinent information by collecting, summarising, evaluating, and synthesising the Scopus and WoS-published information on digital marketing. This may be directly or indirectly beneficial for the development of digital marketing concepts and the expansion of relevant data for the advancement of empirical investigations in future.

In a rapidly changing industry, digital marketing has become a global trademark. The growth of digital marketing publications in databases and the remarkable direction research is taking in the field started in 2000. Publications on digital marketing are analyzed using a scientometric procedure. The endeavour aims to broaden the range of scientometric indicators used to assess relative performance, providing accommodating information for decision-makers and illuminating future directions for this area of research. Consequently, many scholars are investigating the efficacy of digital marketing in raising product demand. They may seek supportive publications,

productive authors, and institutions to get relevant and up-to-date information and resources.

This study depicted that the journal with the most articles published was the International Journal of Internet Marketing and Advertising, which had 61 articles that have been published. In terms of prominent authors, Stoica, I. from the Romanian Academy of Sciences, Bacik, R. from the University of Presov, and Orzan, G. from the Bucharest University of Economic Studies were among the top three most productive authors who published academic works on digital marketing. This study also shows that the top three productive authors were from Eastern Europe. Eastern Europe's transition economies have a large population of technologically competent young people, demonstrating that these regions face opportunities and challenges. Furthermore, the premier institution that published digital marketing research was also based in Eastern Europe, the Bucharest University of Economic Studies in Romania, with 29 publications.

A marketer must comprehend the aspects influencing the demand for numerous products and the complementary approach using digital or online platforms. They should investigate the identified components of consumer attraction tactics, which can transform regular consumers into devoted ones, in addition to understanding the potential of digital marketing. Therefore, the most often used keywords are of the utmost importance for generating ideas regarding how digital marketing can be applied more effectively to the marketing plan.

According to an analysis of the author's keywords from 2014 and 2015, the most frequently used terms were "Internet Marketing," "Marketing Strategy," "Electronic Commerce," "Internet," and "E-marketing." These are inextricably linked terms. By probing publications from 2016 and 2017, we discovered that most articles were contributed by "Online Marketing" (464 documents). "Online Marketing" is closely related to other keywords such as "advertising," "search engine optimization," "strategic", and "innovation." The most recent keywords added after 2018 are "Digital Marketing", which has 810 documents, followed by "Social Media", "Big Data", "Marketing Communication", "Machine Learning", and "Sentiment Analysis". One of the most critical findings in this study is that the term "Machine Learning" exploded in popularity between 2019 and 2020.

The limitation of this study is mainly related to the search string we used. In this study, the keyword "digital marketing", "online marketing", or "internet marketing" is used to obtain the metadata discussed in the entire manuscript. The discussion may differ slightly if additional keywords are used. Nevertheless, this analysis is merely a starting point that can be expanded upon through a more in-depth investigation, either through a scoping review or a systematic literature review.

This study proposes a future research agenda for researchers seeking a deeper understanding of digital marketing. These data can be utilized to construct a theoretical framework, map the current state of knowledge, and rapidly identify research gaps. Among the tasks that can be completed with further precision is refining the keyword analysis in Figures 3 and 4. Based on the results of keyword analysis, the findings of this study are expected to stimulate the development of novel ideas, allowing for the more effective dissemination and communication of scholarly works related to digital marketing research and the formation of new, more relevant concepts and dimensions.

This study is intended to serve as a starting point for future work in the development of digital marketing research on topics such as digital marketing and consumer behavior, the impact of digital marketing on different target market segments, the relationship between digital marketing and beauty and health products, and in-depth studies on the specific topics discussed in this study.

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