



Bibliometric analysis of scientific production on digital marketing

Análisis bibliométrico de la producción científica sobre marketing digital

Nube Estefania Venegas Sanchez

Master in Accounting and Finance, Universidad Católica de Cuenca, Accounting and Auditing, Cuenca, Ecuador. nvenegass@ucacue.edu.ec. ORCID: 0000-0002-5398-1557

Sonia Marlene Bonilla Carchi

Magister en Docencia de las Matemáticas, Universidad Católica de Cuenca, Carrera de Administración, Cuenca, Ecuador. smbonilla@ucacue.edu.ec. ORCID: 0000-0002-3684-194X

Manuel Rafael Quevedo Barros

Master in Accounting and Auditing, Catholic University of Cuenca, Accounting and Auditing, Azogues, Ecuador. mrquevedob@ucacue.edu.ec. ORCID: 0000-0001-5928-1618

José Alciviades Guzmán Ávila

Master's Degree in Entrepreneurial Development and Innovation, Universidad Católica de Cuenca, Business Administration, Cuenca, Ecuador. jguzman@ucacue.edu.ec. ORCID: 0000-0002-1558-8826

Abstract

Digital marketing contributes to create a competitive advantage for national and international commerce. The objective is to analyze the trend of scientific production on digital marketing at a global level, using bibliometric indicators. The results present production, visibility, impact and collaboration indicators. Identifying a sustainable and exponential rate of production, the country with significant levels of publications is in quartile 4, the prevalent keywords are "Digital Marketing", "Social Media" and "Marketing", is the United States. It is concluded that the bibliometric analysis provides information on the products generated from the different territories where they are produced, which becomes important elements for business, public and social decision making.

Received 2021-05-02

Revised 2021-09-11

Accepted 2021-10-21

Published 2022-01-04

Corresponding Author

Nube Estefania Venegas Sanchez

nvenegass@ucacue.edu.ec

Pages: 142-155

<https://creativecommons.org/licenses/by-nc-sa/4.0/>

Distributed under



Copyright: © The Author(s)

Keywords: Trend, production, scientific, digital marketing, bibliometric.

Resumen

El marketing digital contribuye a crear una ventaja competitiva para el comercio nacional e internacional. El objetivo realizar un análisis de la tendencia de producción científica sobre marketing digital a nivel global, mediante indicadores bibliométricos. Los resultados presentan indicadores de producción, visibilidad, impacto y colaboración. Identificando un ritmo de producción sostenible y exponencial, el país con niveles significativos de publicaciones se encuentra en el cuartil 4, las palabras claves prevalentes son "Digital Marketing", "Social Media" y "Marketing", es Estados Unidos. Se concluye, que el análisis bibliométrico da información relativa a los productos generados desde los diferentes territorios donde se produce, lo cual se convierte en elementos importantes para la toma de decisiones empresariales, públicas y sociales.

Palabras clave: Tendencia, producción, científica, marketing digital, bibliométrico.

Introduction

Nowadays, the diverse demands of the environment and the needs of their customers are prompting organizations to revise their strategies and policies (Quiñonez, Castillo, Bruno, y Oyarvide, 2020) to adapt to the new competitive outlook (Cantillo, Pedraza, y Suarez, 2021; Narváez y Villalobos, 2020). Therefore, marketing is a tool that allows the company to know the market in order to adapt its products and services, giving priority to the relationship with its customers and their long-term satisfaction, in order to obtain what they need and want through the creation and exchange of value. (Kotler y Armstrong, 2007).

In this context, the business landscape remains in a constant change since the commercial use of the internet (Kannan y Li, 2017) organizations are looking for strategies that allow them to enter the

global market. (Bricio, Calle, y Zambrano, 2018), sales through cellular devices grew between 22% and 27%, where 7.4% of retail spending in the U.S. was attributed to online sales (Malcolm, 2015) In fact, for the exchange, promotion and sales of products and services, technology plays an essential role in the exchange, promotion and sales of products and services. (Perdigón, Viltres, y Madrigal, 2018).

Thus, digital marketing is an effective tool for national and international business processes, it helps to create a competitive advantage through marketing plans, market segmentation and social media recognition (Bricio et al., 2018; Tarazona-Montoya, Peris-Ortiz, y Devece, 2020) establishing relationships with customers through digital media, seeking to increase sales of the product offered. (Álvarez y Zulueta, 2021; Duque y Duque, 2020) seeking to increase sales of the product offered through advertising and dissemination via the Internet. (Blanco y Segarra, 2013).

Likewise, digital marketing arises to achieve less costly communication between customers and companies (Adam, Mulye, Deans, y Palihawadana, 2002) but the lack of information of the various applications of the Internet combined with digital marketing strategies for value creation is a disadvantage for organizations (Chappell, 2006; Porter, 2001) The lack of information about the behavior of the new generations in relation to purchases through virtual media. (Petit, Velasco, y Spence, 2019).

Although some studies related to digital marketing have been conducted, up to the date of submission of this article and through an extensive review of the literature, it is evident that there is a shortage of bibliometric studies that explore the factors associated with the research topic. Therefore, the objective is to analyze the trend of scientific production on digital marketing globally, using bibliometric indicators.

Materials and methods

The search and identification of the documents was performed on January 14, 2021 in the SCOPUS database owned by Elsevier. (Scopus, 2020). We used the search equation for document extraction

("Digital Marketing") linked to the title of the article, abstract and keywords. The first result was 1400 results, and then only the typologies of "Article" and "Review" were selected, subjecting them to a process of metadata normalization and elimination of duplicate documents, obtaining a final sample of 875 documents published from the year 2000 to 2020.

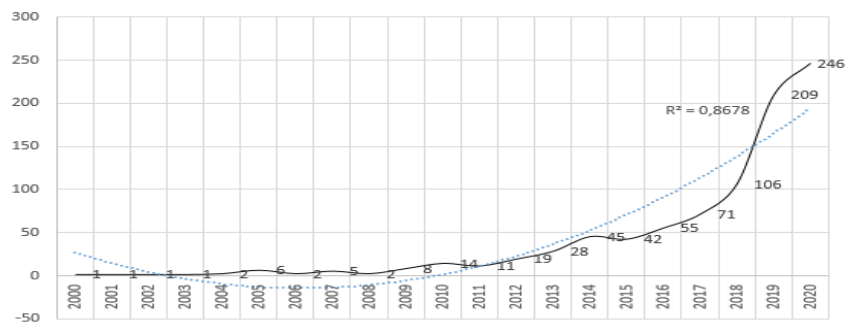
The bibliographic tool Mendeley version 1.19.4 was used to process the data, while the frequency distribution lists were generated with the Microsoft Excel program, which included the following data: name of authors, title of publication, type of publication, year of publication, type of access to publication, institutions of affiliation, journal of publication, country of publication and number of citations received.

In the first instance, with this information, a descriptive analysis was carried out to determine the annual behavior of the production on digital marketing. Then, countries, journals, institutions and the visibility of the main authors were identified. Finally, a network of the main keywords of the publications was elaborated using the VOSviewer software. (van Eck y Waltman, 2010).

Results

The bibliometric study identified 875 documents published in the SCOPUS scientific database that were related to the subject of study for the period from 2000 to 2020; of these, 92.57% corresponded to articles and 7.43% to reviews. Likewise, as shown in Figure I, the annual distribution of the scientific production on digital marketing at a global level made it possible to evaluate the trends of its research, observing a gradual increase in publications, with 2020 being the year of highest productivity, and according to the coefficient of determination (R^2) of the second order polynomial trend line, a propensity to growth of publications for the coming years can be distinguished.

Graph 1. Annual production behavior. Source: Elaborated from the analysis of search results in. Scopus (2020).



The documents were published by authors with affiliation from 88 countries, where 75.66% correspond to open access and the predominant language of the publications is English (95.31%). The United States ranks first in the number of published papers on digital marketing with 196 publications, representing 18.32% of the world's scientific production, followed by India and the United Kingdom, as shown in Table 1:

Table 1: Productivity by country

Ranking	Country	D
1°	United States	196
2°	India	137
3°	United Kingdom	107
4°	Spain	46
5°	Australia	41
6°	Indonesia	34
7°	Canada	27
8°	Portugal	24
9°	Brazil	20
10°	South Korea	20

D: Documents. Source: Prepared from the analysis of search results in. Scopus (2020).

Table 2 shows the top 10 journals that have published papers related to digital marketing, among which the Journal Of Direct Data And

Digital Marketing Practice stands out with 36 articles located in Quartile 2 of the Scimago Journal Rank. Of this ranking, two have an H index higher than 50. The scientific production is concentrated in journals with a low impact index (quartile 4) only two of the ten journals are in quartile 1 (Journal Of Business Research and Journal Of Marketing Education). It is important to note that three of the most productive journals are published in the United Kingdom and most belong to the thematic area and category of business, management and accounting.

Table 2. Journals with the highest production

Ranking	Magazine	D	SJR	Q	H	Country
1°	Journal Of Direct Data And Digital Marketing Practice	36	0,24	2	11	United Kingdom
2°	Journal Of Digital And Social Media Marketing	22	0,13	4	1	United Kingdom
3°	Emerald Emerging Markets Case Studies	16	0,17	3	4	United Kingdom
4°	International Journal Of Recent Technology And Engineering	16	0,11	4	7	India
5°	International Journal Of Advanced Science And Technology	15	0,11	4	3	Australia
6°	Spaces	12	0,22	3	6	Venezuela
7°	Journal Of Business Research	12	1,87	1	79	Netherlands
8°	Journal Of Marketing Education	12	1,01	1	53	United States

9°	International Journal Of Scientific And Technology Research	11	0,1 2	3	1 5	India
10°	Sustainability Switzerland	11	0,5 8	2	6 8	Switzer land

D: Documents, **SJR:** Scimago Journal Rank, **Q:** Quartile, **H:** H Index.

Source: Prepared from the analysis of search results in. Scopus (2020).

On the other hand, Table 3 shows that most of the published papers were written in India, where Bina Nusantara University (11) is the institution with the highest number of articles, followed by Fujitsu Ltd. (9) and Amity University (9).

Table 3: *Institutions with the highest production*

Ranking	Institution	D	Country
1°	Bina Nusantara University	11	Indonesia
2°	Fujitsu Ltd.	9	Japan
3°	Amity University, Noida	9	India
4°	Yonsei University	7	South Korea
5°	Texas A&M University	7	United States
6°	University of Jyvaskyla	7	Finland
7°	Jaypee Institute of Information Technology	7	India
8°	University of Pennsylvania	6	United States
9°	King Juan Carlos University	6	Spain
10°	Symbiosis International Deemed University	6	India

D: Documents. **Source:** Prepared from the analysis of search results in. Scopus (2020).

Table 4 shows the ten authors with the highest number of publications, characterizing their level of production through the H index. (Hirsch, 2005). Karjaluo, H. heads the list with 6 publications and the author with the highest impact is Dwivedi, Y.K. with an H

index of 62 from Prifysgol Abertawe in the United Kingdom, followed by Kelly, B. with an H index of 36 from the University of Wollongong in Australia. It is worth mentioning that the Institution with the highest presence of the ten authors is the University of Wollongong.

Table 4: *Authors with the highest production*

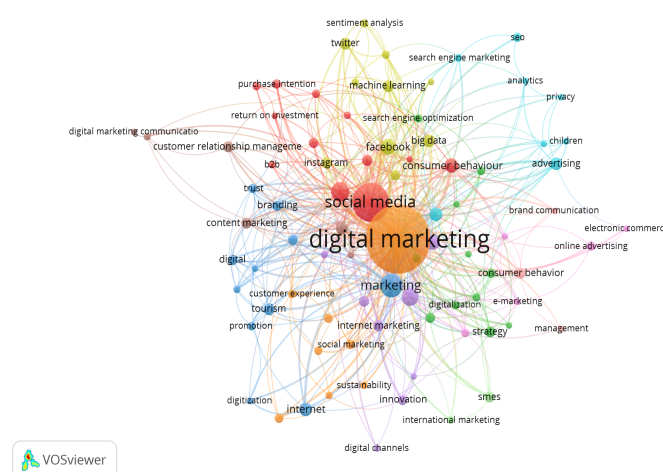
Ranking	Author	D	H	Institution	Country
1°	Karjaluoto, H.	6	28	University of Jyvaskyla	Finland
2°	Ahuja, V.	4	9	Amity University	India
3°	Buchanan, L.	4	3	University of Wollongong	Australia
4°	Dwivedi, Y.K.	4	62	Prifysgol Abertawe	United Kingdom
5°	Kelly, B.	4	36	University of Wollongong National	Australia
6°	Pandey, N.	4	5	Institute of Industrial Engineering Direct	India
7°	Reed, D.	4	1	Marketing Association Texas A and	United Kingdom
8°	Smith, K.T.	4	13	M University - Corpus Christi	United States
9°	Yeatman, H.	4	21	University of Wollongong Jaypee	Australia
10°	Alavi, S.	3	5	Institute of Information Technology	India

D: Documents, H: Index H. Source: Prepared from the analysis of search results in. Scopus (2020).

Also, the top 5 most cited publications involving authors on the list are: The use of Web analytics for digital marketing performance measurement by the authors. Järvinen y Karjaluoto (2015) with 81 citations; Search engine marketing is not all gold: Insights from Twitter and SEOclerks by the authors Aswani, Kar, Ilavarasan, y Dwivedi (2018) with 71 citations; Digital marketing strategies that Millennials find appealing, motivating, or just annoying by the authors Smith (2011) with 71 citations; The usage of digital marketing channels in SMEs by Taiminen y Karjaluoto (2015) with 54 citations; The role of digital channels in industrial marketing communications from Karjaluoto, Mustonen, y Ulkuniemi (2015) with 54 citations and Using Clickers in a Large Business Class: Examining Use Behavior and Satisfaction from Rana y Dwivedi (2016) with 30 citations.

Figure II presents the links from one concept to another, showing the main keywords associated with the topic of digital marketing. There are three concepts "Digital Marketing", "Social Media" and "Marketing" that group the various relationships between keywords and co-citation networks.

Figure 2. Main thematic axes: Source: Elaborated from the analysis of search results in. Scopus (2020).



Digital marketing has evolved over time, encompassing not only the presentation of the company and the product, but also the establishment of an association around the brand. Thus, the bibliometric study through its results provides relevant information on the global trend of digital marketing according to the Scopus database.

From the totality of the search, there are 875 documents published from 2000 to 2020 on the research topic, characterized by a progressive annual increase. Therefore, it is important to develop research on the implications of digital marketing in organizations, especially in the current situation of social isolation, where the proper use of the Internet is essential for the digital presence of companies.

In addition, understanding that marketing today comprises all aspects of the business model where the protagonist is the customer, it is necessary to recognize the importance of processing each data to obtain information that clarifies the current vision on digital marketing and its unavoidable application in organizations, in addition, it is suggested to expand the scientific databases to be used in future research in order to establish similarities and differences in the results obtained.

Conclusions

In response to the objective formulated, aimed at analyzing trends in digital marketing research at the global level, it can be concluded that there is a sustainable and exponential rate of scientific production on digital marketing. The United States is the country with the largest number of articles published on the subject. The United Kingdom Journal Of Direct Data And Digital Marketing Practice, located in quartile 2, has the largest number of articles on the subject, followed by the Journal Of Digital And Social Media Marketing and Emerald Emerging Markets Case Studies, it should be noted that most of the publications are in a low quartile (Q4). The institution with the highest number of production was Bina Nusantara University in Indonesia.

Similarly, the keywords most commonly used in research on digital marketing are "Digital Marketing", "Social Media" and "Marketing".

In addition, the article with the highest number of citations "The use of Web analytics for digital marketing performance measurement" published in 2015 in the Industrial Marketing Management journal, highlights that the benefits obtained by organizations when exploiting the metrics system to measure marketing performance respond to the results of the reasoning and data processing of the chosen metrics according to the organizational context

Reference

- Adam, S., Mulye, R., Deans, K. R., & Palihawadana, D. (2002). Emarketing in perspective: a three country comparison of business use of the Internet. *Marketing Intelligence & Planning*, 20(4), 243-251. <https://doi.org/10.1108/02634500210431649>
- Álvarez, B., and Zulueta, C. (2021). Marketing view and the demand for sustainable housing in Peru. *Revista de Ciencias Sociales (Ve)*, XXVI(1), 368-384. <https://www.produccioncientificaluz.org/index.php/racs/article/view/35317/37407>
- Aswani, R., Kar, A. K., Ilavarasan, P. V., & Dwivedi, Y. K. (2018). Search engine marketing is not all gold: Insights from Twitter and SEOClerks. *International Journal of Information Management*, 38(1), 107-116. <https://doi.org/10.1016/j.ijinfomgt.2017.07.005>.
- Blanco, I., and Segarra, M. (2013). Exploratory study of the use of E-Marketing as a strategy for micro, small and medium-sized service companies. *Puente: Scientific Journal of the Universidad Pontificia Bolivariana*, 29-37. <https://docs.google.com/viewerng/viewer?url=https://riunet.upv.es:443/bitstream/handle/10251/60171/119-369-1-PB.pdf?sequence%3D2&isAllowed=y>
- Bricio, K., Calle, J., & Zambrano, M. (2018). Digital marketing as a tool in job performance in the Ecuadorian environment: case study egresados de la Universidad de Guayaquil. *Universidad y*

- Sociedad*, 10 (4), 103-109. <http://rus.ucf.edu.cu/index.php/rus>.
<http://rus.ucf.edu.cu/index.php/rus>
- Cantillo, N., Pedraza, C., and Suarez, H. (2021). Training view of social entrepreneurship: Commitment of the University of Guajira in Colombia. *Revista de Ciencias Sociales (Ve)*, XXVI(1), 216-229.
<https://www.produccioncientificaluz.org/index.php/racs/article/view/35308/37384>
- Chappell, D. (2006). *Understanding .NET: A Tutorial and Analysis* (2nd Editio). Pearson Education Inc.
- Duque, P., and Duque, E. (2020). Digital marketing and e-commerce: a bibliometric analysis. In *Nuevos modelos de Negocios* (pp. 74-96). Universidad Libre Seccional Pereira.
https://www.researchgate.net/publication/344443254_Marketing_digital_y_comercio_electronico_un_analisis_bibliometrico
- Hirsch, J. E. (2005). An index to quantify an individual's scientific research output. *Proceedings of the National Academy of Sciences of the United States of America*, 102 (46), 16569-16572.
<https://doi.org/10.1073/pnas.0507655102>
- Järvinen, J., & Karjaluoto, H. (2015). The use of Web analytics for digital marketing performance measurement. *Industrial Marketing Management*, 50 , 117-127.
<https://doi.org/10.1016/j.indmarman.2015.04.009>.
- Kannan, P. K., and Li, H. "Alice." (2017). Digital marketing: A framework, review and research agenda. *International Journal of Research in Marketing*, 34 (1), 22-45.
<https://doi.org/10.1016/j.ijresmar.2016.11.006>.
- Karjaluoto, H., Mustonen, N., & Ulkuniemi, P. (2015). The role of digital channels in industrial marketing communications. *Journal of Business and Industrial Marketing*, 30 (6), 703-710.
<https://doi.org/10.1108/JBIM-04-2013-0092>
- Kotler, P., and Armstrong, G. (2007). *MARKETING Latin America*

- version (11 Ed). Pearson Prentice Hall.
www.pearsoneducacion.net
- Malcolm, H. (2015, December 2). *Cyber Monday clocks record sales as mobile sales surge*. USA Today. <https://www.usatoday.com/story/money/2015/12/01/cyber-monday-sales-results/76602534/>
- Narváez, M., and Villalobos, K. (2020). Perfil social business view for the marketing of tourism companies in Paraguaná, Venezuela. *Revista de Ciencias Sociales (Ve)*, XXVII(1), 287-299. <https://produccioncientificaluz.org/index.php/rccs/article/view/31325/32375>
- Perdigón, R., Viltres, H., & Madrigal, I. (2018). E-commerce and digital marketing strategies for small and medium-sized enterprises. *Revista Cubana de Ciencias Informáticas*, 12 (3), 192-208. <http://rcci.uci.cu>
- Petit, O., Velasco, C., & Spence, C. (2019). Digital Sensory Marketing: Integrating New Technologies Into Multisensory Online Experience. *Journal of Interactive Marketing*, 45 , 42-61. <https://doi.org/10.1016/j.intmar.2018.07.004>.
- Porter, M. (2001). Strategy and the Internet. *Harvard Business Review Home*, 1-20. <https://hbr.org/2001/03/strategy-and-the-internet>
- Quiñonez, O., Castillo, S., Bruno, C., and Oyarvide, R. (2020). Vista de Gestión y comercialización: Pequeñas y medianas empresas de servicios en Ecuador/ Management and marketing: Small and medium service companies in Ecuador. *Revista de Ciencias Sociales (Ve)*, XXV(3), 194-206. <https://produccioncientificaluz.org/index.php/rccs/article/view/33242/34914>
- Rana, N. P., and Dwivedi, Y. K. (2016). Using Clickers in a Large Business Class. *Journal of Marketing Education*, 38 (1), 47-64. <https://doi.org/10.1177/0273475315590660>.
- Scopus. (2020). *SciVerse Scopus fact sheet*. SciVerse® Scopus.

Expertly curated abstract & citation database.
<https://www.elsevier.com/solutions/scopus>

SCOPUS. (2020, January 14). *Scopus - Document search results / Digital Marketing*. Document Results Digital Marketing.
[https://www-scopus-](https://www-scopus-com.vpn.ucacue.edu.ec/results/results.uri?sort=plf-f&src=s&nlo=&nlr=&nls=&sid=700a9f60851135d5b04e1dbd257806fe&sot=a&sdt=cl&cluster=scopubyr%252C%25222020%2522%252Ct%252C%25222019%2522%252Ct%252C%25222018%2522%252Ct%252C%25222017%2522%252Ct%252C%25222016%2522%252Ct%252C%25222015%25)

[com.vpn.ucacue.edu.ec/results/results.uri?sort=plf-f&src=s&nlo=&nlr=&nls=&sid=700a9f60851135d5b04e1dbd257806fe&sot=a&sdt=cl&cluster=scopubyr%252C%25222020%2522%252Ct%252C%25222019%2522%252Ct%252C%25222018%2522%252Ct%252C%25222017%2522%252Ct%252C%25222016%2522%252Ct%252C%25222015%25](https://www-scopus-com.vpn.ucacue.edu.ec/results/results.uri?sort=plf-f&src=s&nlo=&nlr=&nls=&sid=700a9f60851135d5b04e1dbd257806fe&sot=a&sdt=cl&cluster=scopubyr%252C%25222020%2522%252Ct%252C%25222019%2522%252Ct%252C%25222018%2522%252Ct%252C%25222017%2522%252Ct%252C%25222016%2522%252Ct%252C%25222015%25)

Smith, K. T. (2011). Digital marketing strategies that Millennials find appealing, motivating, or just annoying. *Journal of Strategic Marketing*,*19* (6), 489-499.
<https://doi.org/10.1080/0965254X.2011.581383>.

Taiminen, H. M., & Karjaluoto, H. (2015). The usage of digital marketing channels in SMEs. *Journal of Small Business and Enterprise Development*,*22* (4), 633-651.
<https://doi.org/10.1108/JSBED-05-2013-0073>

Tarazona-Montoya, R., Peris-Ortiz, M., and Devece, C. (2020). The Value of Cluster Association for Digital Marketing in Tourism Regional Development. *Sustainability*,*12* (23), 9887.
<https://doi.org/10.3390/su12239887>.

van Eck, N. J., and Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*,*84* (2), 523-538.
<https://doi.org/10.1007/s11192-009-0146-3>.