International Journal of Ecosystems and Ecology Science (IJEES) **Vol. 13 (3):** 45-52 (2023)
https://doi.org/10.31407/ijees https://doi.org/10.31407/ijees13.3

TRENDS OF BLUE ECONOMY AND DIGITAL MARKETING WORLDWIDE A BIBLIOMETRIC ANALYSIS

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Received June 2023; Accepted July 2023; Published August 2023;

DOI: https://doi.org/10.31407/ijees13.307

ABSTRACT

This paper aims to find out the level of the scientific literature worldwide regarding the blue economy and related aspects, especially blue tourism considering the development of digital marketing at a global level. The Blue Economy is crucial for the goals of developing sustainably coasts, oceans, and their resources, and important also for the European Green Deal and the UN`s vision for more inclusiveness in this sector. Aspects of circular economy, blue tourism, and fishery, as well as expenses to and income from these activities, and human resource issues regarding the field, will be researched as well. The bibliometric analysis using RStudio helps identify the leading researchers in the field, their origin, place of work, or research institution. It shows an increase in research on marketing, machine learning, international trade, information technology, tourism, etc. after 2002. The paper shows also how this increase was distributed for each of them, as well as trends, individual and institutional collaborations, etc., which would be of great interest to policymakers, stakeholders, and future researchers to find out these trends and further elaborate them in future findings.

Keywords: Marketing, blue economy, technology, human resources, circular economy, blue tourism.

INTRODUCTION

Due to technological development and the linked massive use of the internet through different mediums, operators of the blue economy worldwide have taken advantage of the digital marketing-driven shift of customer behavior towards an increased awareness of the elements of the blue economy. This can be seen also in the scientific literature over the last two decades. Iustin-Emanuel & Alexandru (2014) reinforce the importance of the Blue Economy which, including the Circular Economy, goes beyond it, combatting the negative effects of the "red economy". As one of the most important aspects of the Blue Economy, tourism (Mani et.al., 2022) has faced a rapid increment in marketing in this changing world of new technologies and service providers (Nafi & Deb, 2022). Internet technologies have changed the way tourists consume tourism, from the planning phase to the consumption and post-consumption phases, which are all characterized by different forms of use of e-commerce and digital marketing from the one side and unpredictable forms of spending money for vacations, such as luxurious vacations, city sightseeing tours or longer trekking at the other side (Gretzel et al, 2016). As part of goals of the European

Green Deal (European Commission, 2022), but also of the UNWTOs` vision on sustainability (UNWTO, 2023), the Blue Economy is a very interesting area of study and very important for our planet and our daily lives. As this paper is about a bibliometric analysis of the field under study, the part which comes next is Methodology explaining immediately the way the scientific literature all over the world on this matter will be investigated. There have been various scientific publications on this theme such as bibliometric analysis in the field of the blue economy: Kabil et al., 2021; Paredes-Coral, 2021; Martinez-Vazquez, et al., 2021; Liang et al., 2022. Some bibliometric studies on digital marketing are: Faruk et al., 2021; Patrick, 2020, Hussain & Ayob, 2023, etc. It will be followed by the respective analysis of keywords, authors, sources, institutions, etc. in descriptive and deeper analysis. This will help not only policymakers and stakeholders of the field of Blue Economy, such as businesses, and customers, but also other scientists to write a more complete Literature Review in their studies.

METHODOLOGY

Due to the technological development and fast online publication opportunities over the last decades, it has been easier to access information from all over the world, but also difficult to stay up to date with all of them or use this scientific information in an exhaustive way in order to conduct scientific works (Briner & Denyer, 2012). To shorten the time involved in this process, bibliometrics was used to find out the significance of the group of scientific literature on the matter in question (Hwalla, 2023), namely Blue Economy and Digital Marketing. For this purpose, the Scopus database was used, in order to comply with the statistical analysis of Bibliometrics.

The software used was RStudio (Kulevicz, et.al., 2020). The relevant keywords used for this research were differently combined at the beginning and after a few attempts to find the right match with the most relevant scientific papers on this matter. The five parts of the query represented at first digital marketing, then economy, followed by blue/tourism and international/global, then awareness in this industry, and finally the financial aspects, human resources, and some other aspects of the blue economy such as fish, and coastal destinations.

The commands used on the Scopus database were: TITLE-ABS-KEY) (“digital” OR “technology”) AND (“marketing” OR “e-commerce”) AND (“economy” OR “circular”) AND (“blue” OR “global” OR “international” OR “tourism”) AND (“awareness” OR “industry” OR “importance”) AND (“expense” OR “income” OR “fish” OR “customer” OR “destination” OR “coast” OR “coastal” OR “human” OR “resource”). Of the 396 resulted scientific works, 392 were in the English language, 2 in German, 1 in Croatian, and 1 in Russian language, but only the works in English were considered in the analysis in order to have a precise readable data set at disposal. After extracting the documents in CSV, the needed information in Excel could be uploaded to Biblioshiny, a web-interface application, which makes Bibliometrics easier to conduct (Aria & Cuccurullo, 2017). After the data was loaded and converted in the app, all the needed figures and tables after filtering the relevant information, were downloaded, and finally, after being selected, they were integrated into the required format in this paper.

Bibliometric Analysis

Statistics in general from this research (Table 1) reveal that the documents generated according to the chosen keywords are within the timeframe from 1975 to 2023. The 392 documents derive from 311 sources, have an annual growth rate of 6.75, and an average age of 9.7 years, which is relatively a “young” age considering the vast timeframe from the year 1975. The average number of citations per document is 9.885 from 13943 references in total. The author`s keywords (879) are much less than keywords plus (1829).

As keywords plus are not included in the titles, therefore there are higher success chances in cited – references through different areas of search (Clarivate, 2022). There are 801 authors in total, of which 117 authors are single authors, who have not written more than one document as a single author, because the authors of single–authored documents are also 117. There are 2.07 co-authors per document and 12.24 % is the international co-authorship, which is relatively low. Most documents are articles in journals (165). 84 are conference papers, 52 conference reviews, 45 book chapters, and 17 books.

Table 1. General Statistics

GENERAL INFORMATION	
Timespan	1975-2023
Sources (Journals, Books, etc)	311
Documents	392
Annual Growth Rate %	6.75
Document Average Age	9.7
Average citations per doc	9.885
References	13943
DOCUMENT CONTENTS	
Keywords Plus (ID)	1829
Author's Keywords (DE)	879
AUTHORS	
Authors	801
Authors of single-authored docs	117
AUTHORS COLLABORATION	
Single-authored docs	117
Co-Authors per Doc	2.07
International co-authorships %	12.24
DOCUMENT TYPES	
Article	165
Book	17
Book chapter	45
Conference paper	84
Conference review	52
Editorial	3
Note	1
Review	25

The author`s productivity is shown in Table 2 through Lotkas`s Law (Lotka, A.J., 1926). Of 892 authors only 11 (1.4 %) have written 2 documents, the other only 1 (98.6 %). This shows a very low author productivity in this theme.

Table 2. Author Productivity through Lotka's Law

Documents written	No. of authors	Proportion of authors
1	790	0.986
2	11	0.014

Authors	Articles	Articles Fractionalized
Chen H	2	1.00
Fu S	2	1.00
JAUHARI V	2	1.50
LIN J	2	1.00
LIU Z	2	0.67
NOLAN P	2	1.00
PARK H	2	0.83
RAY K	2	1.00

Figure 1. Most relevant authors

From Figure 1 it can be seen some of the authors who have written 2 articles, which is the maximum number of articles written by one author in this group of documents.

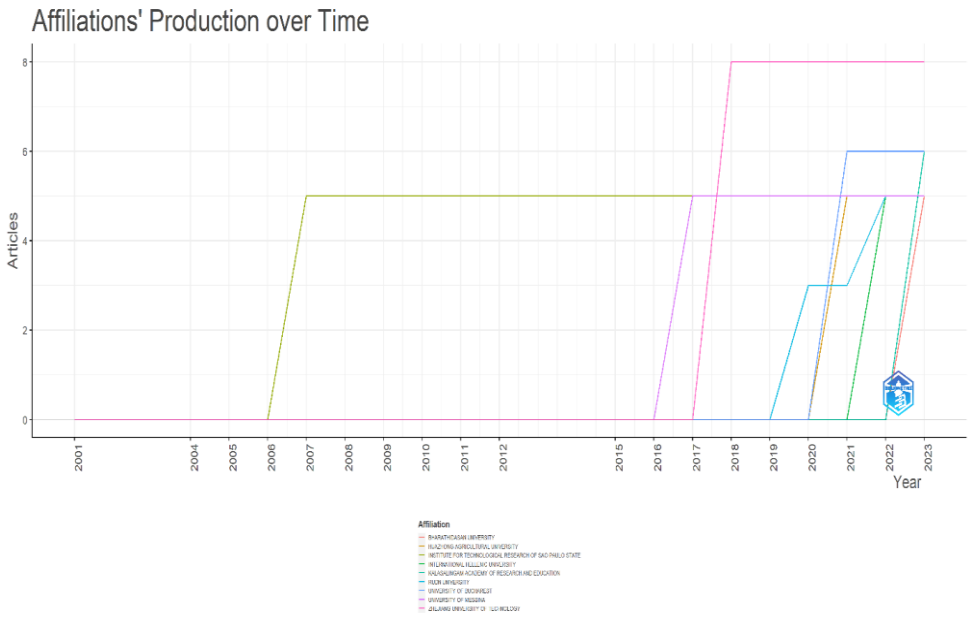

Figure 2. Affiliation`s Production over Time

In Figure 2 above the Affiliation`s Production over time shows that Zhejiang University of Technology has the highest yearly number of articles (8) but only during the last 6 years, while the Institute for Technological Research of Sao Paulo State has 5 articles. Some other universities with a considerable number of articles throughout the years are the University of Bucharest, the University of Messina, the Kalasalingam Academy of Research and Education, and Rudn University. Figure 3 divides the corresponding author`s countries in two ratios, MCP (Multiple Country

Publication) and SCP (Single Country Publication). China has the highest ratios, followed by the USA, India, then the United Kingdom, Portugal, Spain, Malaysia, Australia, Greece, Sweeden, etc.

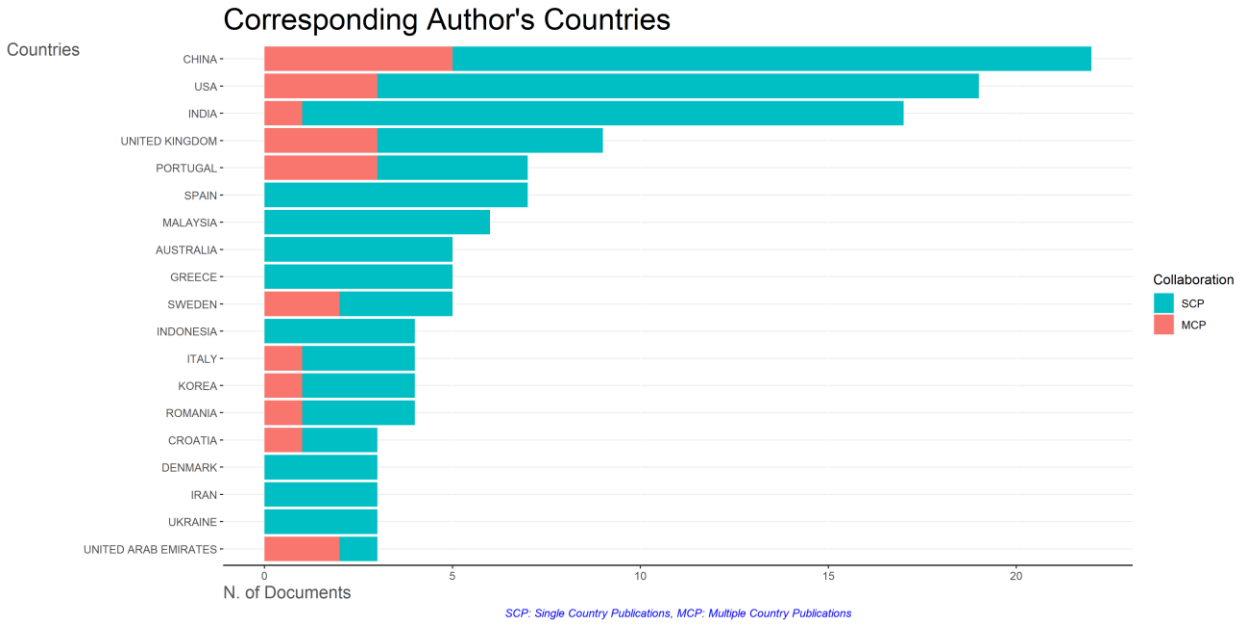

Figure 3. Corresponding author`s countries

Even though there are only 3 (MCP ratio) documents of authors from Denmark, this country holds the highest number of citations (932), followed by the USA with 509, China with 200, etc. (Figure 4).

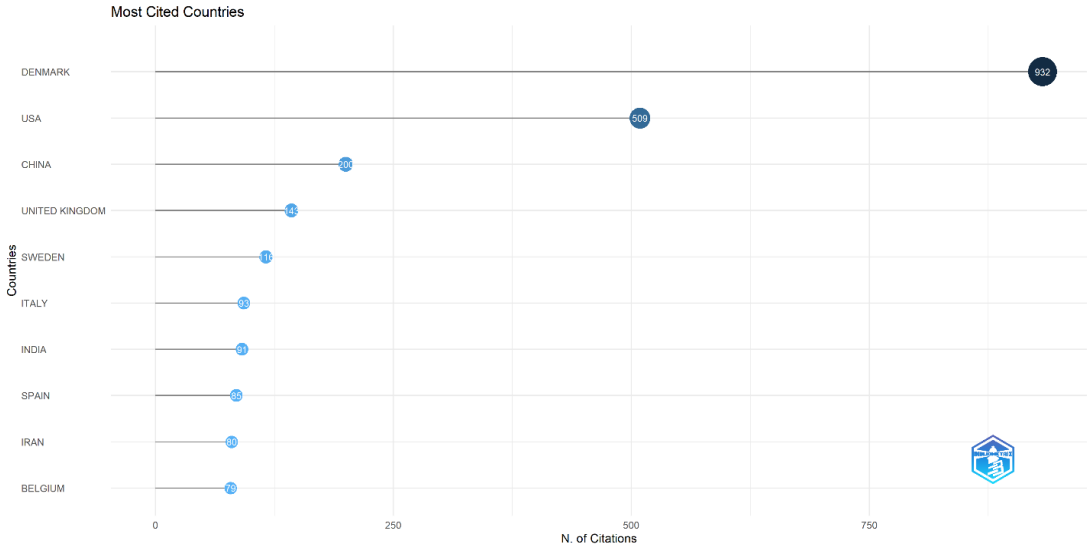

Figure 4. Most Cited Countries

According to the WordCloud in Figure 5 the word “marketing” is the most used word (82 times). After it comes “competition” with visible lower number (31), “commerce” (30), “economics” (29), international trade (27), electronic commerce (25), “information technology” (24), “industry” (23), “human” (22), “industrial economics” (20).

Figure 5. WordCloud

As can be seen in Table 3 marketing has the highest frequency with 82, but not during the recent years, rather in 2003, 2005 and 2013. According to the year_med "machine learning" has a frequency of 7 in 2022, "digital storage" 5 in 2021, "decision making", and "tourism" by 11 in 2020, "sales", and "global economies" by 16 and 8 respectively in 2018, "commerce" and "humans" by 30 and 11 respectively in 2017, etc.

Table 3. Trend Topics by highest Frequency.

Item	Freq	Year_q1	Year_med	Year_q3
marketing	82	2003	2005	2013
competition	31	2004	2008	2013
commerce	30	2013	2017	2021
economics	29	2007	2014	2017
international trade	27	2004	2010	2020
electronic commerce	25	2006	2011	2021
information technology	24	2002	2005	2010
industry	23	2008	2011	2013
human	22	2014	2016	2020

As can be understood by Figure 6, there is not a high collaboration between the countries worldwide regarding the matter. The countries with the largest collaboration (4) are USA and China, USA – UK, followed by 2 by China – Korea, UK – Germany, and USA – Saudi Arabia, the others have only 1 collaboration. The same lack of collaboration, even though it is in terms of authors, also shows the Collaboration Network in Figure 7 below.

Figure 6. Country Collaboration Map

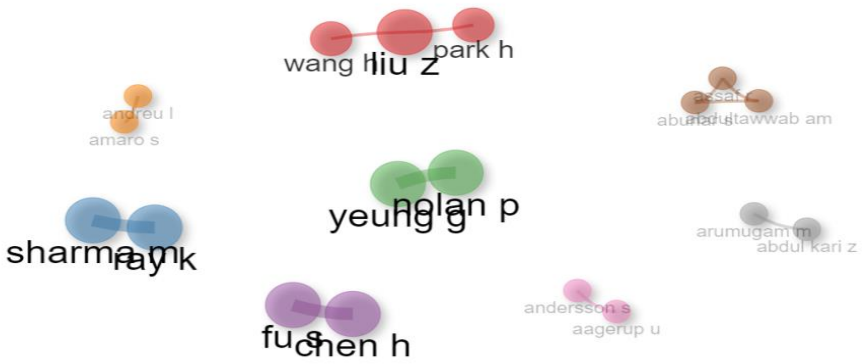

Figure 7. Collaboration Network

CONCLUSIONS

The findings of this paper help analyze the previous research globally over the selected keywords mostly regarding the blue economy and digital marketing, as well as to fill the gaps that these trends show. There is less research on "digital marketing of the blue economy" as a whole, but only for specific elements of the blue economy, such as tourism, etc. Marketing is a widely used term but not recently and instead of "digital" the words such as "electronic commerce", "information technology", "machine learning", etc. are more frequently used There is also a small collaboration between countries, only 8 collaboration clusters between authors, and even fewer regarding the co-citation network. The authors` productivity is low and there is also not a very promising affiliations` production over time. Curious is also the fact that a country which has not a high publication number, Denmark, is the most cited country. This might be a sign of the country's given importance to the industry related to the Blue Economy as a strategic sector. Considering the fast development of the internet and technology in general, the internationalization of trade and sharing economy, and the related sustainable goals, as mentioned above at the beginning, it is of crucial importance that academia shows a higher engagement and collaboration regarding the blue economy and the related digital marketing.

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