Bibliometric Analysis of Maritime Tourism Research

Mahendrran Selvaduray[a*] , Yapa Mahinda Bandara[b] , Rosmaizura Mohd Zain[c] , Ainon Ramli[d]
Mohd Zaimmudin Mohd Zain[e]

[a]Faculty of Maritime Studies, Universiti Malaysia Terengganu, Kuala Nerus, Malaysia.
mahendrran10@gmail.com

[b]Business School, Edinburgh Napier University, Edinburgh, United Kingdom
Y.Bandara@napier.ac.uk

[c]Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, Malaysia
rosmaizura.mz@umk.edu.my

[d]Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, Malaysia
ainon@umk.edu.my

[e]Faculty of Creative Technology and Heritage, Universiti Malaysia Kelantan, Malaysia
zaimmudin@umk.edu.my

*Corresponding author

Abstract

Maritime tourism is a niche market that provides maritime nations with an additional source of foreign exchange and employments. However, due to a lack of awareness of the significance of the maritime tourism sector, a very few studies have investigated the problems faced by this sub sector. Therefore, this paper aimed to identify the problems faced by the maritime tourism industry and propose solutions with which to overcome these obstacles. A bibliometric analysis technique was used to scour databases, such as Scopus and Web of Science (WoS); with VOS Viewer. The content analysis was carried out and then coded using QSR International's NVivo 12. The paper found that the maritime tourism industry is currently plagued by six major problem clusters. These were classified as a) governmental and political supports, b) environmental issues, c) cooperation among stakeholders, d) maritime tourism law and policies, e) technological matters, and f) maritime tourism knowledge. Therefore, this present study proposes the development of a new market; the smart maritime tourism market; which is the most effective and efficient approach of overcoming the current issues. It is believed that smart maritime tourism will not only benefit maritime nations but also adjacent landlocked nations.

39

40

41

1.0 Introduction

43   The fact that global container throughput accounted for nearly 802 million twenty-foot
44   equivalent units (TEUs) in 2019, a 2.3% increase from 2018, is a testament to the notion that
45   the maritime industry is a booming sector of oceanic trade in most coastal countries.
46   Furthermore, full, and empty containers accounted for 80% and 20% of maritime traffic in
47   2021, respectively (World Container Throughput, 2021). The TEU is an imprecise measure of
48   cargo capacity that is frequently used on container ships and at container ports (Jeevan *et al.*,
49   2020; Jeevan *et al.*, 2021). Maritime players mistakenly believe that the maritime industry
50   solely focuses on transportation and servicing centres. According Kwak *et al.* (2005) and
51   Menhat *et al.* (2021), there are only four sectors in the maritime industry: 1) marine
52   transportation, 2) harbours, 3) fisheries and marine products, and 4) shipbuilding. This clearly
53   indicates that maritime players perceiving and interpret the industry as a trade market or a
54   service industry that uses many modes of transportation. The performance of the cruising
55   industry being the main mobile maritime tourism operation showed tremendous growth over
56   the last decade. Li, Wang, and Ducruet (2020) showed that network formation of the global
57   cruise shipping is both globally and regionally determined. Thus, cruising resulted in a network
58   of cruise hub formation along the international shipping network globally and regionally
59   (Kanrak, Nguyen, 2021, 2022). The main reasons for the formation of cruise shipping
60   operational trajectory is the change in demand with respect to change in temperature, season,
61   climate zone on a global scale (Li, Wang & Ducruet, 2021). Nevertheless, under COVID 19
62   hit economic environment, industries are striving to establish resilience operational models
63   and, as King, Iba & Clifton (2021) emphasised, rethinking of the operational design and the
64   business potential of tourism is required to face unforeseen and spontaneous challenges in
65   future.

66

2.0 Maritime Tourism

68   The maritime industry only stands to benefit if the maritime tourism sector develops.
69   As the maritime tourism industry is one of the fastest developing markets around the globe, it
70   has served as an economic catalyst in coastal countries and carries great future potential
71   (Diakomihalis, 2007b; Lam-González *et al.*, 2019). According Lekakou and Tzannatos (2001)
72   as well as Diakomihalis (2007b), the term "maritime tourism" denotes a type of tourism
73   wherein tourists engage in activities in the ocean and the coastal areas. Maritime tourism takes
74   place in a marine space that a country has designated for recreational and leisure activities
75   (Diakomihalis, 2007b). For example, cruises, beach activities, scuba diving, snorkelling, and

76 sport fishing that take place in a marine environment are considered maritime tourism
77 (Kizielewicz, 2012, Menhat *et al.*, 2021).

78   Martínez *et al.* (2021) characterised maritime tourism according to several different
79 types: nautical tourism for those who enjoy boating activities; boating tourism, which includes
80 recreational boating as well as to the use of pleasure boats and cruises and includes a wide
81 range of activities, such as water skiing, windsurfing, underwater fishing, swimming, and tours
82 of marine parks (Diakomihalis, 2007b); and marine tourism which encompasses *"recreational*
83 *activities that involve traveling away from one's place of residence and whose focus is the*
84 *marine environment"*. This is also supported by Orams (1999). Coastal tourism refers to the
85 activities that include sea-based transportation; such as cruises, coastal activities, sport fishing,
86 and other recreational activities that occur in a marine environment (Kizielewicz, 2012; Menhat
87 *et al.*, 2021). Lastly, the cruise tourism sector has boomed in many of countries. For example,
88 in Malaysia, cruise tourism is one of the National Key Economic Area (NKEA) and aims to
89 increase the number of tourists to Malaysia (Jeevan *et al.*, 2019).

90   These terms for "maritime tourism" share conceptual similarities and features that
91 overlap, such as recreational activities that are related to coastal zones and sea-based activities.
92 According to Hall (2011) and Martínez *et al.* (2021), maritime tourism closely relates to all
93 activities related to the sea as well as all sea-related tourism activities, such as deep-sea fishing
94 and cruises. In summary, maritime tourism encompasses all activities that involve water and
95 exposure to a marine environment. However, according to Jeevan *et al.* (2019), seaport tourism
96 is not restricted to sea-based activities but extends to the hinterlands. Based on the preceding
97 literature, maritime tourism can be categorised into three groups: 1) foreland, 2) seaport, and
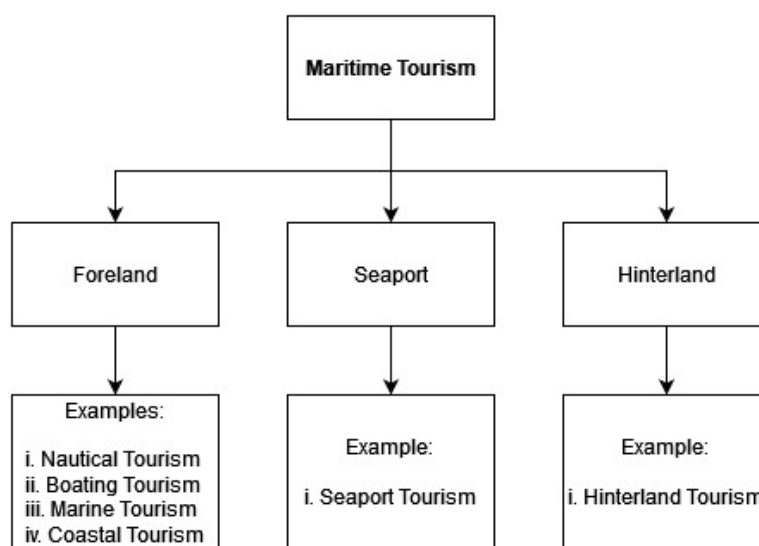98 3) hinterland. Figure 1 shows the segments of the maritime tourism industry.

99

100

Figure 1 depicts the three segments; foreland, seaport, and hinterland; that fall under the maritime tourism industry. Nautical, boating, marine, and coastal tourism are examples of water-based activities that can take place on the surface of the sea, seaport tours could be a new type of tourism in the port limit, and exploring nature in the inland terminal could be a new type of activity in maritime tourism. Although maritime tourism sector has not been performing well, it has continued to compete in the same market. Furthermore, the industry has predicted that it will significantly contribute to the national gross domestic product (GDP) as a global market (Diakomihalis, 2007a). Apart from that, the growth of tourism activities has been initiated to understand and attempt to decrease significant impact from the catastrophic demand of human life (Berno & Ward, 2005). However, at present, many countries are still struggling to cope with the higher number of COVID-19 cases reported daily (Menhat *et al.*, 2021). According to the literature review, COVID-19 posed a major problem for the maritime tourism industry, but maritime stakeholders were completely unaware of it. This was because most of these stakeholders were not aware and did not fully understand what they could gain from the maritime tourism industry. As these stakeholders lacked knowledge of the maritime tourism industry, they were not confident of facing these new challenges. Tourism players made significant efforts to sustain the tourism market after a movement control order (MCOs) was imposed on most of the country. For instance, the tourism industry shifted and advertised tourist attractions by encouraging people to travel via virtual tourism (Rahim *et al.*, 2021). Virtual tourism is fundamentally a hybrid concept that combines virtual reality (VR) and tourism.

2.1 Smart Tourism

In English, "smart" is synonymous with wisdom (Wang, 2012). However, as tourism cannot be simply started as a combination of wisdom (people) and travel (industry), Li *et al.* (2017) proposed the term "smart tourism" instead of "wisdom tourism". The Organisation for Smart Tourism in the United Kingdom provided a different type of smart tourism in 2011 when it used technology in the tourism sector, which was considered digital or "smart" tourism (www.smarttourism.org, 2012). Smart tourism is a typical example of integrated development as it merges the tourism industry with technological novelties (Ma & Liu, 2011, Jeevan *et al.*, 2021; Salleh *et al.*, 2021). Bringing "smartness" into the tourism industry means that the tourism industry is integral to connecting multiple stakeholders through a dynamic platform mediate by advance information and communications technology (ICT) to support prompt information exchange regarding tourism activities through components of the Industrial Revolution 4.0 (Buhalis & Amaranggana, 2014). Virtual tourism is fundamentally a hybrid concept that combines VR and tourism. It allows people to have a tourism experience without having to be mobile. Virtual tourism comes in various forms and varying degrees of technological competence (Skard *et al.*, 2021; Merkx & Nawijn, 2021). The benefits of smart

142   tourism also apply to the maritime tourism industry and is known as "smart maritime tourism"
143   (SMT). For the sake of brevity, the term SMT will be used in the rest of this study.

144   To date, the exact number of tourist operations that are genuinely interested in maritime
145   tourism remains unknown (Diakomihalis, 2007a). This was corroborated by Martínez *et al.*
146   (2021). Furthermore, the fact that maritime tourism lacks a precise definition may be a source
147   of concern that causes most maritime players to be unsure of its benefits. Categorising the
148   maritime tourism sector to statistically record and estimate its actual size has proven difficult
149   (Diakomihalis, 2007b). This clearly indicates a lack of research in this field. The few studies
150   that have investigated the maritime tourism industry only evaluated seaport effectiveness, port
151   competitiveness, liner operations, and seaport supply chains (Jeevan *et al.*, 2019, Salleh *et al.*,
152   2019). Another study solely measured and explored the causes and effects of tourist satisfaction
153   (Li *et al.*, 2016). A handful of studies have examined the determinants of maritime tourist
154   satisfaction at nautical destinations and measured the efficacy of subjectively evaluating past
155   experiences at other competing destinations (Lam-González *et al.*, 2019). As such, there is
156   evidently a dearth of research into identifying the problems and dilemmas that the maritime
157   tourism industry could face, apart from the COVID-19 pandemic, and proposing effective
158   solutions with which to overcome these issues and sustain the maritime tourism market.
159   Therefore, this present study aimed to identify the problems faced, suggest an operative
160   solution, and an efficient future direction for the maritime tourism industry. To that end, a
161   bibliometric analysis of articles from Scopus and Web of Science (WoS) databases was
162   conducted.

163

3.0 Methodology

A bibliometric analysis was conducted using VOS Viewer as the main data mining tool followed by QSR International NVivo 12 qualitative research data analysis software to code the results. To achieve the objective of this study, the automatic coding function of NVivo 12 was used based on text search, word frequency count, word tree, and word cloud.

3.1 Bibliometric Analysis

Bibliometric analysis has been used in many fields, such as library and information science (Liang & Liu 2018; Munim *et al*., 2020). This type of analysis is also applicable in the field of maritime studies. One of the main strengths of a bibliometric analysis is that it uses statistical tools to analyse published academic studies. According to Broadus (1987), a bibliometric analysis is a literature review methodology that can be conducted by statistically and quantitatively analysing published studies. Several types of analysis, such as citation and network analysis, descriptive analysis on the authors, journals, universities, countries, and keywords; can be conducted. This present study adopted a bibliometric analysis approach as it is more reliable and consistence than other literature review techniques (Aria & Cuccurullo, 2017).

Step 1: Define Field of Study {Maritime Tourism}

The maritime tourism industry is one of the fastest growing industries in the world and serves as an economic catalyst in coastal countries. It also has the potential to be accomplished in the future. As such, further research should be conducted.

Step 2: Define Search Platform {Scopus & WoS}

Scopus is a scientific research platform with robust databases and reasonable availability of search filters (De Oliveira *et al*., 2019). It is also one of the largest databases of abstracts and citations of peer-reviewed literature with N22,800 journals from 5000 publishers worldwide. Scopus contains diverse subject areas; such as environmental sciences, social science and agriculture, and biological sciences (Shaffril *et al*., 2018). As it is one of the largest databases of peer-reviewed literature with a holistic coverage of academic articles, it is frequently used as a database for literature searches (Elsevier.com., 2019; Jia *et al*., 2020). As Scopus is the largest scientific database in the world, it is sufficient for any study as it is the most complete, accurate, and most widely used database for bibliometric studies (Lancho-Barrantes & Cantú-Ortiz, 2019). However, according to De Oliveira *et al*. (2019), extracting scientific data from a combination of platforms can lead to more consistency when conducting a bibliometric analysis. Therefore, the scientific platforms Scopus and WoS were used extensively throughout this present study to integrate the bibliometric data from these two platforms. The primary reasons behind integrating WoS with Scopus were because they are frequently used in multidisciplinary studies, they both contain a comprehensive collection of relevant scientific

203 publications, and they both have various tools for scientific data mining purposes (Zupic &
204 Cater, 2015; De Oliveira *et al*. 2019; Lancho-Barrantes & Cantú-Ortiz, 2019; Kabil *et al*.,
205 2021).

206

207 **Step 3: Search Criteria**

208 As established in the literature review (Section 2.0 Maritime Tourism), the term "Maritime
209 Tourism" is sufficient to cover all types of sea-related activities as well as all tourist activities
210 derived from the sea, water, and the marine environment. As such, the term "Maritime
211 Tourism" does not require any synonyms. However, according to the world's largest and most
212 trusted free online thesaurus, the words "dilemma," "issue," "obstacle," "trouble", and
213 "dispute" are synonyms for the word "problem" while the addition of the keyword "challenge"
214 changes the original meaning of the word "problem" (thesaurus.com, 2022). To enhance the
215 statement from thesaurus.com, the Cambridge dictionary was used to clarify the meaning of
216 the word "challenge". According to the Cambridge dictionary (2022), the term "challenge" is
217 (*the situation of being faced with*) *something that needs great mental or physical effort to be*
218 *done successfully)*. Therefore, it differs slightly with the term "problem" as "challenge" denotes
219 a demanding situation to achieve something. For this reason, the term "challenge" was omitted
220 from this present study. Table 1 below shows the search string strategies that were used on the
221 Scopus and WoS databases.

222

223   Table 1: Search string strategies used on the Scopus and WoS databases

No.	Keyword Search on Scopus	No. of Articles
1.	"Maritime Tourism" and "Problem"	10
2.	"Maritime Tourism" and "Dilemma"	0
3.	"Maritime Tourism" and "Dispute"	0
4.	"Maritime Tourism" and "Issue"	6
5.	"Maritime Tourism" and "Obstacle"	1
6.	"Maritime Tourism" and "Trouble"	0
	Total	17
	After removal of duplicate files	**15**
No.	Keyword Search on WoS	No. of Articles
1.	"Maritime Tourism" and "Problem"	10
2.	"Maritime Tourism" and "Dilemma"	0
3.	"Maritime Tourism" and "Dispute"	0
4.	"Maritime Tourism" and "Issue"	5
5.	"Maritime Tourism" and "Obstacle	0

6.	"Maritime Tourism" and "Trouble"		0
	Total		15
	After removal of duplicate files		**13**

<div align="center">Source: Author</div>

Step 4: Define, Review, & Save

As it is almost impossible for researchers to review all existing published articles, researchers should identify a period that can be reviewed (Okoli, 2015). According Shaffril *et al*. (2018), 12 years is an adequate period with which to observe the evolution of a research and related publications. To maintain the quality of the data, only article journals with analytical evidence and published at the final stage should be selected for inclusion, therefore, book series, book, chapters, conference papers should be excluded (Chen & Liu, 2020; Shaffril *et al*., 2018). These two sources were selected to maintain the quality of the results but also because they were suitable for transferability and generalised the outcome (Shaffril *et al*. 2018). To prevent confusion and avoid the complexity of translation, the search only included articles that had been published in English (Jia *et al*., 2020). Table 2 provides a summary of the inclusion criteria that was used in this present study.

<div align="center">Table 2: Summary of inclusion criteria</div>

No	Inclusion Criteria	
i.	Access Type:	All
ii.	Years of Publication:	12 years
iii.	Subject area:	Social science, business, and management
iv.	Document type	Article
v.	Publication stage	Final
vi.	Source type	Journals from Scopus & WoS
vii.	Language:	English

<div align="center">Source: Author</div>

Step 5: Export Data {Comma-separated values (CSV) format - Scopus & WoS}

Scientific platforms provide a variety of file format options for export. The best file formats for export are ".csv" as it makes it possible to analyse bibliometric data in spreadsheets and/or bibliometric software (De Oliveira *et al*., 2019).

Step 6: Import Data {VoS Viewer}

248 The use of the open source software, such as VOS Viewer; is recommended to make
249 bibliometric analysis more accessible to the scientific community (VOS, 2018; De Oliveira *et*
250 *al*. 2019)

251

252 **Step 7:** Bibliometric Data Analysis

253 The most researched areas are quantified using the bibliometric data of the studied areas. This
254 bibliometric data analysis parameter provides information that can be used to determine where
255 researchers have focused their efforts and which areas remain unexplored (De Oliveira *et al*.,
256 2019; Kabil *et al*., 2021). Bibliometrics encompasses a few distinct types of data analysis
257 methods, such as the evolution of publication, keywords, countries, authors, articles, and
258 institutions. Table 3 provides a description of the bibliometric data analysis method that was
259 used in this present study.

260

261 Table 3: Description of the bibliometric data analysis approach of the study

No	Type of Bibliometric Data Analysis	Description
i.	Evolution of publication	A timeline allows researchers to better visualise the contribution of each group to the development of the state-of-the-art over time and years. A timeline is an analysis tool that can illustrate, from a temporal point of view, the general evolution of each group over the years. (Zupic & Cater, 2015; De Oliveira *et al*., 2019; Kabil *et al*., 2021)
ii.	Keywords	Keywords are regarded as one of the most important components of any research paper as it aims to identify the core research topics of various scientific research fields. They provide a succinct representation of a text that enable readers to predict its content. Bibliometric data on keywords can be used to create frequency charts of the most frequently used keywords as well as elaborate "word clouds." (Kabil *et al*., 2021; De Oliveira *et al*., 2019; Gao *et al*., 2019; De Oliveira *et al*., 2019)
iii.	Countries	Country analysis is one of the most visible bibliometric analysis units. It implies research collaboration and illustrates the flow of scientific knowledge between various entities (Zupic & Cater, 2015; Gao *et al*., 2019)

iv.	Authors	Author analysis identifies the structure of a scientific community in each field by locating significant analysis features related to the authors in the collected research articles. The most relevant author analysis technique is a component of citation bibliometric analysis that seeks to answer, "Who is the best expert in the field?" (Jeevan *et al.*, 2021)
v.	Articles	Here, the present study focused on answering the main question of the published documents, "Which studies are the most frequently cited for Maritime Tourism and Problem in the two selected scientific databases?" (Kabil *et al.*, 2021)
vi.	Institutions	Institution analysis is one of the most well-known bibliometric analysis units as implies research collaboration and the flow of scientific knowledge between different entities (Kabil *et al.*, 2021)

<div align="center">Source: Author</div>

Step 8: Analyse and Review the Selected Articles to Achieve the Objective, Which Was to Identify the Problems Faced in the Maritime Tourism Industry (NVivo 12 was used for coding)

The final method of analysing and reviewing the selected articles is to identify the problems faced by the maritime tourism industry in the literature by reading the text. These gaps are harder to identify because they are not highlighted in an explicit manner in the text. Hence, to identify these implicit gaps, it is important to consider the experience and familiarity of the reader with the topic. This is because researchers with more experience in each topic are more likely to identify relevant gaps than less experienced researchers. The use of NVivo 12 helped organise and code the data to present a clearer outcome.

Step 9: Conclusion

Finally, it is noteworthy that the results and new comprehensive framework obtained using the bibliometric analysis method may vary depending on the experience and familiarity of the researcher with the scientific field under investigation. Figure 2 shows the methodology of the bibliometric analysis.
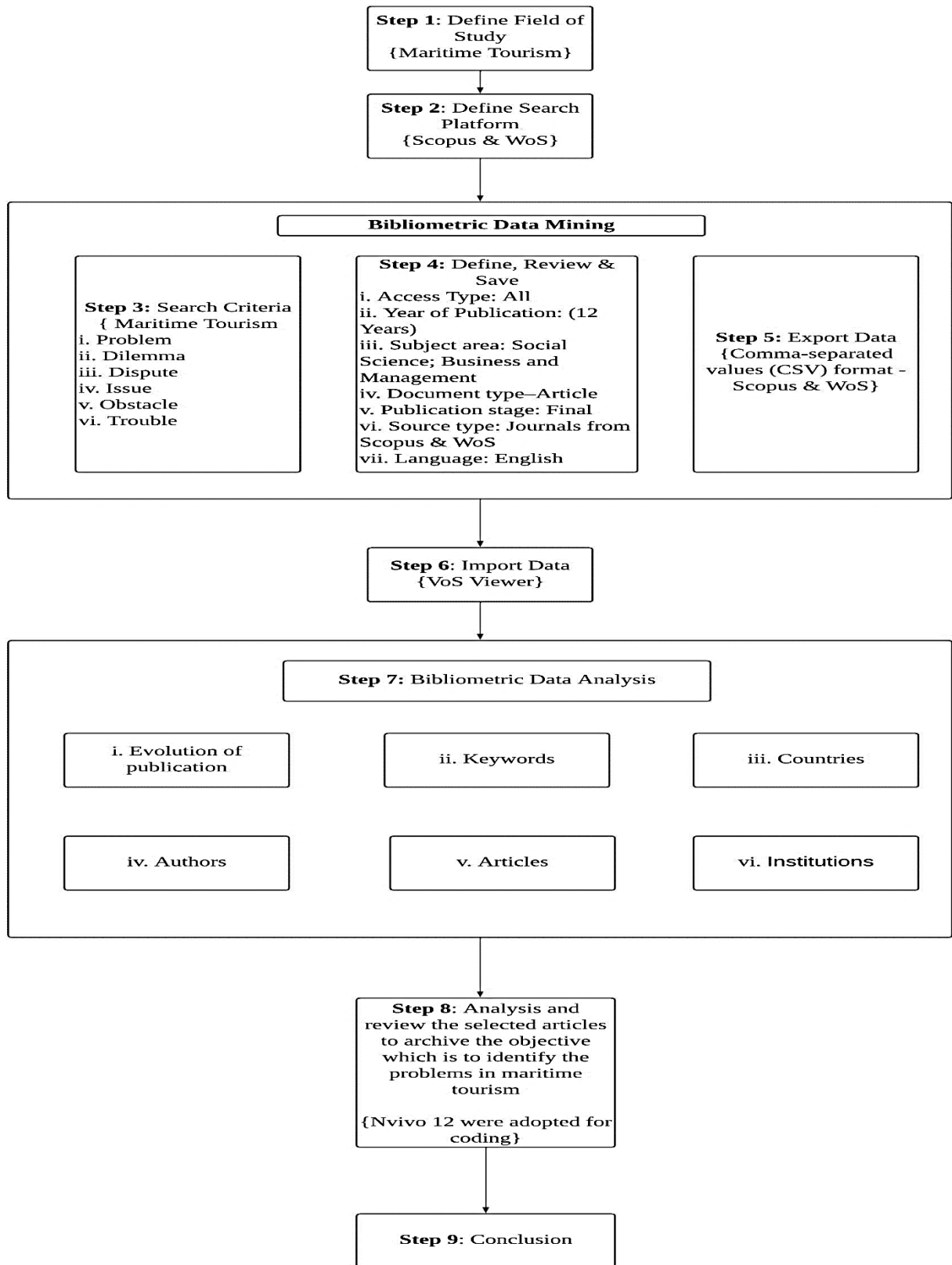
3.2 Content Analysis

As an analysis tool, NVivo 12 aided in the structural and sequential organisation of the study data. NVivo 12 is a computer-assisted qualitative data analysis software (CAQDAS) tool. Prior to data analysis, the results of the two databases were coded using NVivo 12. The data was

284   analysed using a content analysis method while keeping the context of the study in mind
285   (Ritchie *et al*., 2013).

286

287

Step 1: Define Field of Study
{Maritime Tourism}

Step 2: Define Search Platform
{Scopus & WoS}

Bibliometric Data Mining

Step 3: Search Criteria
{ Maritime Tourism
i. Problem
ii. Dilemma
iii. Dispute
iv. Issue
v. Obstacle
vi. Trouble

Step 4: Define, Review & Save
i. Access Type: All
ii. Year of Publication: (12 Years)
iii. Subject area: Social Science; Business and Management
iv. Document type—Article
v. Publication stage: Final
vi. Source type: Journals from Scopus & WoS
vii. Language: English

Step 5: Export Data
{Comma-separated values (CSV) format – Scopus & WoS}

Step 6: Import Data
{VoS Viewer}

Step 7: Bibliometric Data Analysis

i. Evolution of publication

ii. Keywords

iii. Countries

iv. Authors

v. Articles

vi. Institutions

Step 8: Analysis and review the selected articles to archive the objective which is to identify the problems in maritime tourism

{Nvivo 12 were adopted for coding}

Step 9: Conclusion

288

289　　　　　　　　Figure 2: Methodology of the bibliometric analysis

290　　　　　　　　　　　　Source: Author

291

4.0 Results

Sub-sections 4.1 to 4.7 will discuss the outcome of the bibliometric data analysis, which consisted of an evolution of the publications, keywords, countries, authors, articles, institutions, and results of the analysis and review of the selected articles from the Scopus and WoS databases.

4.1 Evolution of Publications

As seen in Figures 3 and 4, the publication timeline evolution of the maritime tourism is still lacking compared to that of maritime transportation. According Menhat *et al.* (2021), articles on the maritime sector solely focused on the operations or transportation sector. However, Jeevan *et al.* (2019) posited that the maritime sector can be further investigated as it extends to the hinterlands. The results clearly shows that there is a huge gap to be closed by exploring maritime tourism as an important industry in the maritime sector.
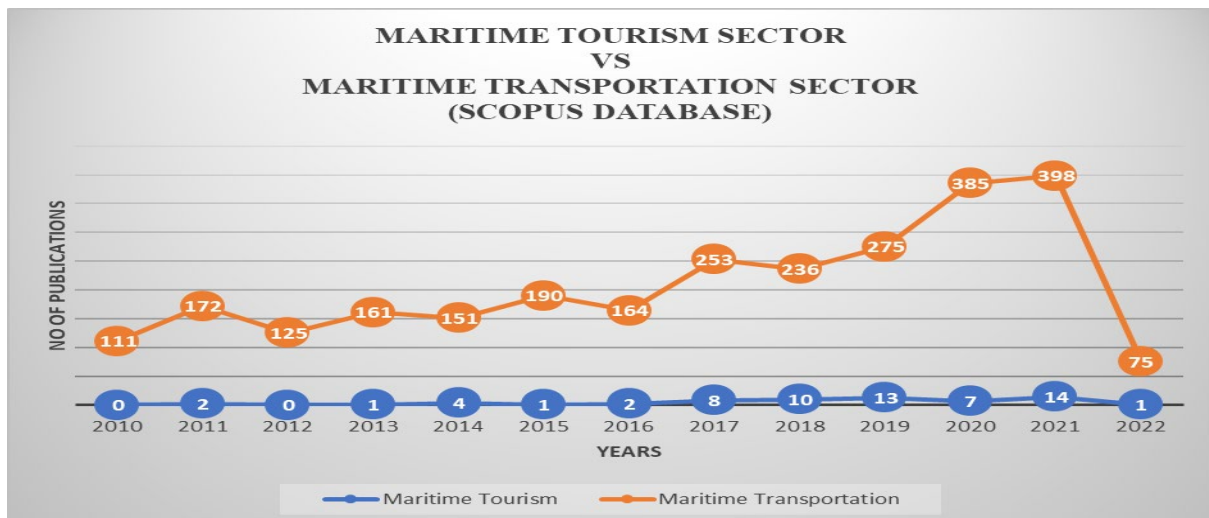
Figure 3: Evolution of publications on the Scopus database
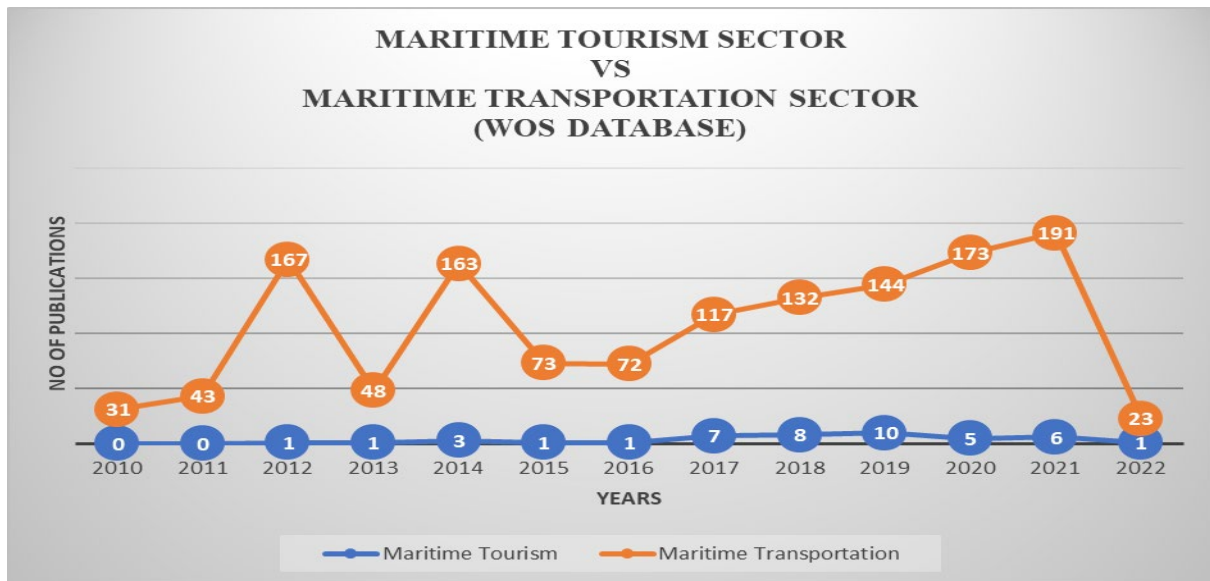
Source: Author

Figure 4: Evolution of publications on the WoS database

Source: Author

4.2 Keywords on the Scopus and WoS databases

As seen in Figures 5 and 6, "maritime tourism", "tourism" and "eco-tourism" were the most frequently used keywords. This is because the tourism industry continues to contribute as a national and international source of income. Maritime tourism; a sub sector of the tourism industry; has the potential flourish in the future. Figures 5 and 6 clearly shows that researchers are beginning to explore the maritime tourism industry. As such, it has the potential to burgeon into a new maritime market in the future. This proves that further research is needed to enhance and identify more studies. Apart from that, the results indicate that researchers are However, slowly beginning to adopt the keyword "technology". As the world moves towards digitalisation, the maritime tourism industry is not left behind to adopt the technology of the future.
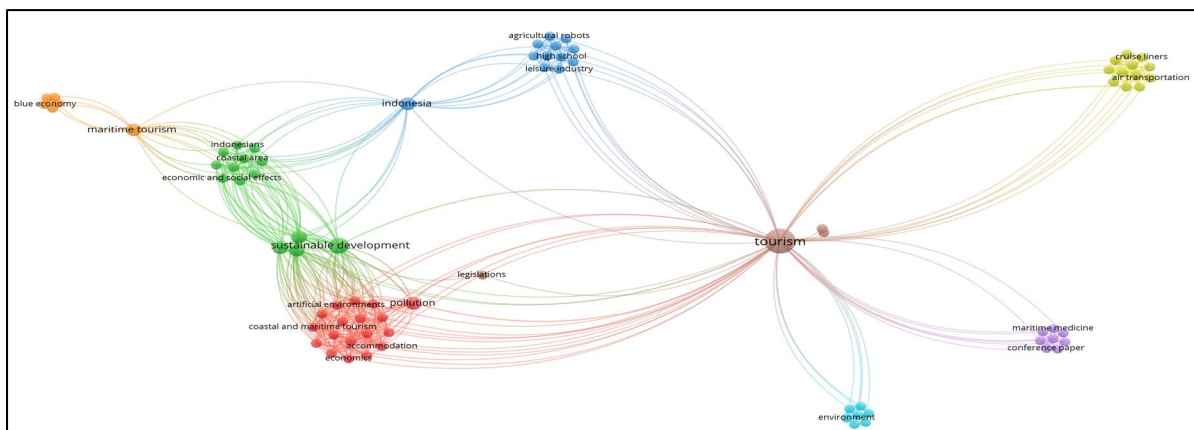
Figure 5: Keywords on the Scopus database
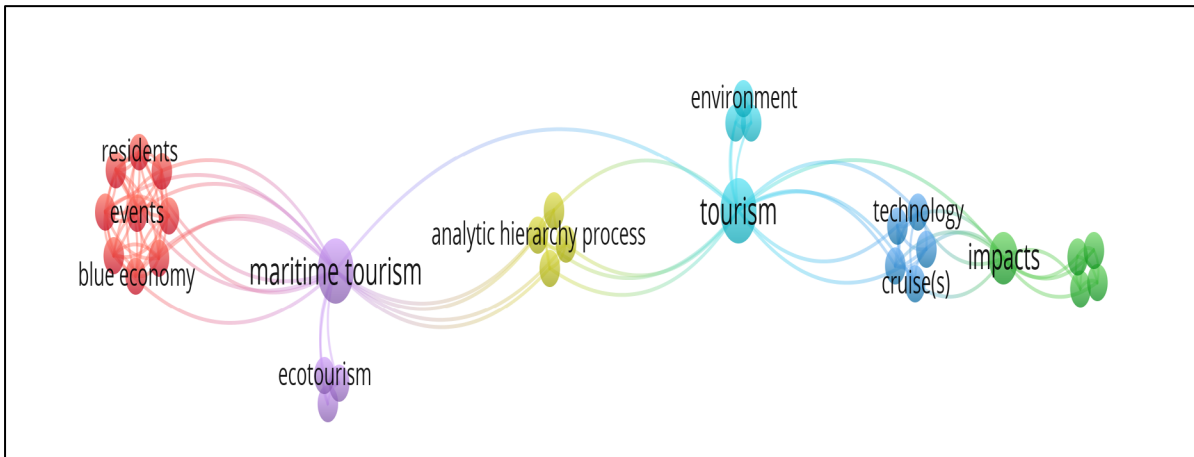
Figure 6: Keywords on the WoS database

4.3 Countries on the Scopus and WoS databases

As shown in Figures 7 and 8, Greece is the most interested in developing the maritime tourism industry of their country. Some other countries also conducted an equal amount of research exploring the maritime tourism market for the future benefit of their nation. As presented in the results, not one landlocked country took the initiative to explorer maritime tourism as most of these countries believe that maritime tourism, which is sea-based activities, can only occur in the foreland. As stated by Jeevan *et al*. (2019), maritime tourism is not limited to the forelands but can be extended to the hinterlands as well.
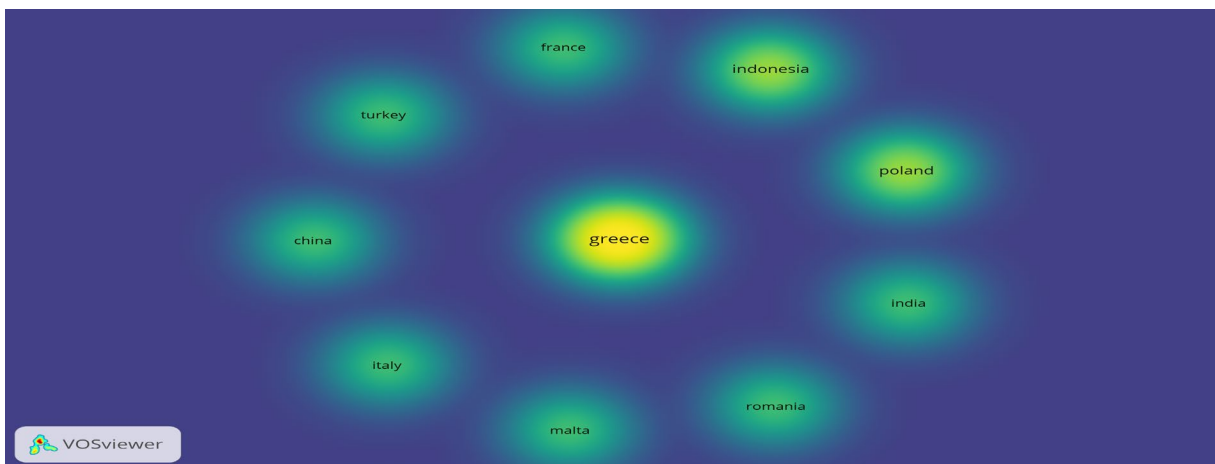
Figure 7: Countries that support the creation of a maritime tourism industry on the Scopus database
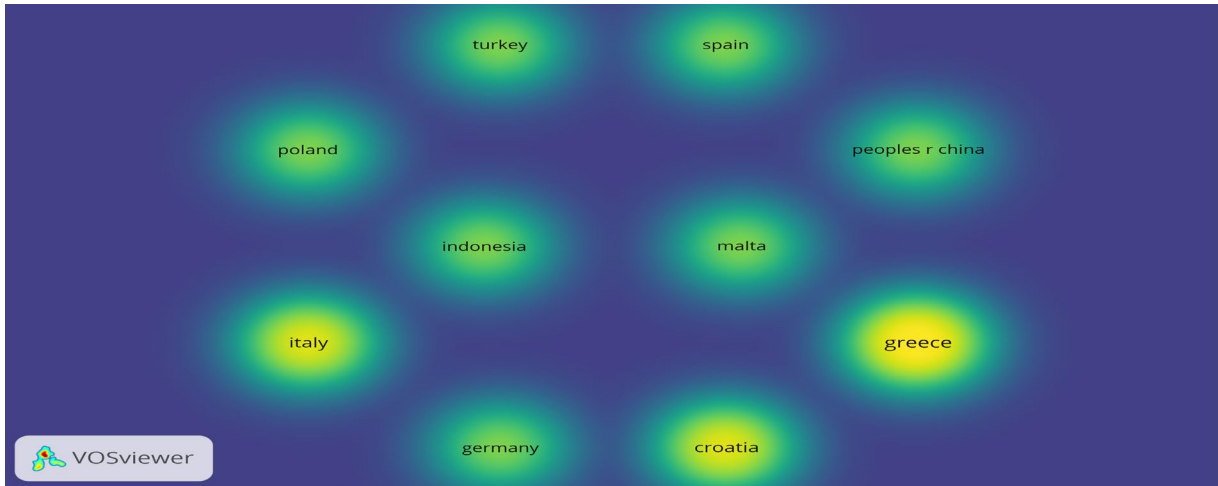
Figure 8: Countries that support the creation of a maritime tourism industry on the WoS database

Source: Author

4.4 Author Collaboration on the Scopus and WoS databases

As shown in Figures 9 and 10, many authors have collaborated with each other to research the maritime tourism industry as having good international connections will improve the maritime tourism market. This collaboration indicates that existing authors have begun investigating the maritime tourism industry. In this present study, the most active authors in the maritime tourism field and their most recent articles on the subject serve as a guide for developing a maritime tourism sector as well as identifying and analysing gaps and trends.
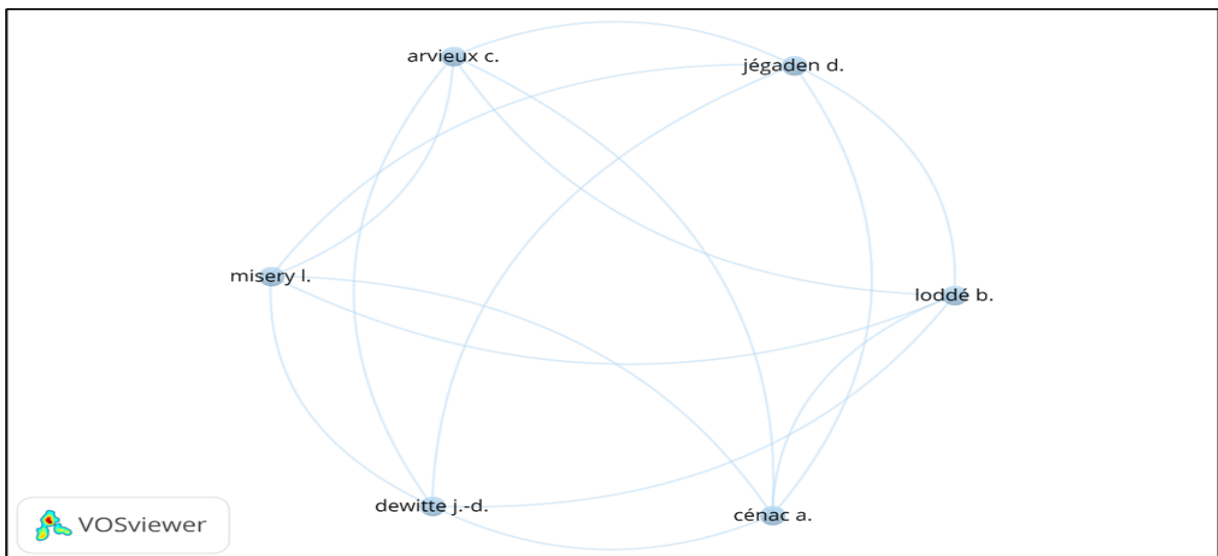

Figure 9: Collaboration between authors on the Scopus database
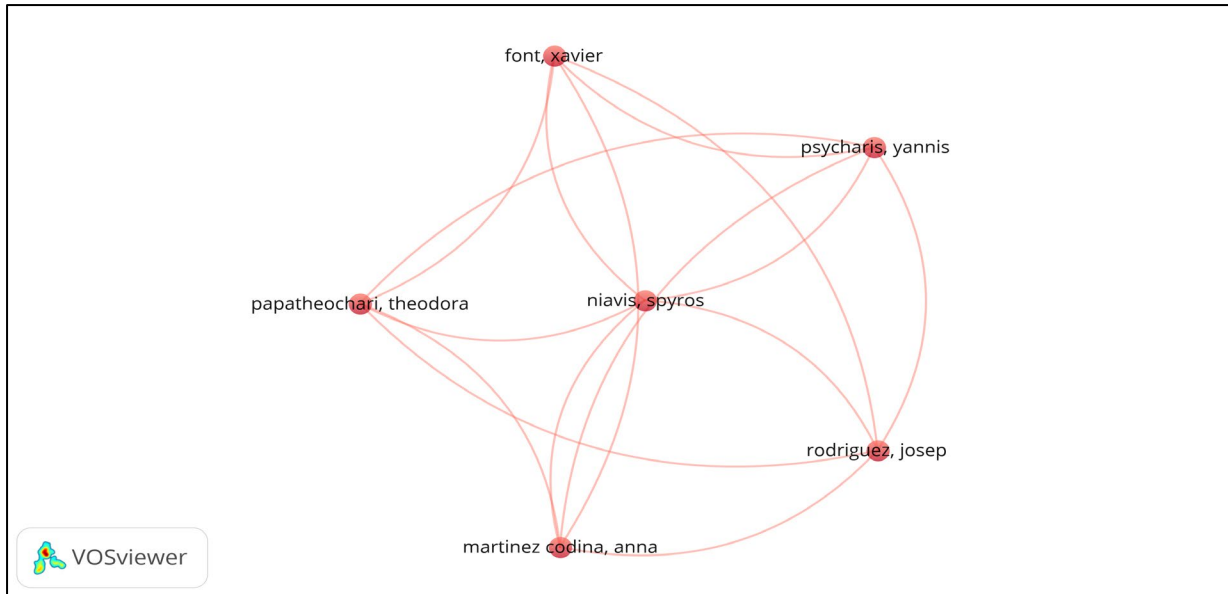
Source: Author

Figure 10: Collaboration between authors on the WoS database

Source: Author

4.5 Articles Published on the Scopus and WoS databases

As shown in Figures 11 and 12, the connection between publications over a 12-years period was more productive, which may indicate that more attention may be given to the maritime tourism industry in the future. Therefore, a rigorous cycle of maritime tourism-based publications is needed to remain competent in the maritime industry.
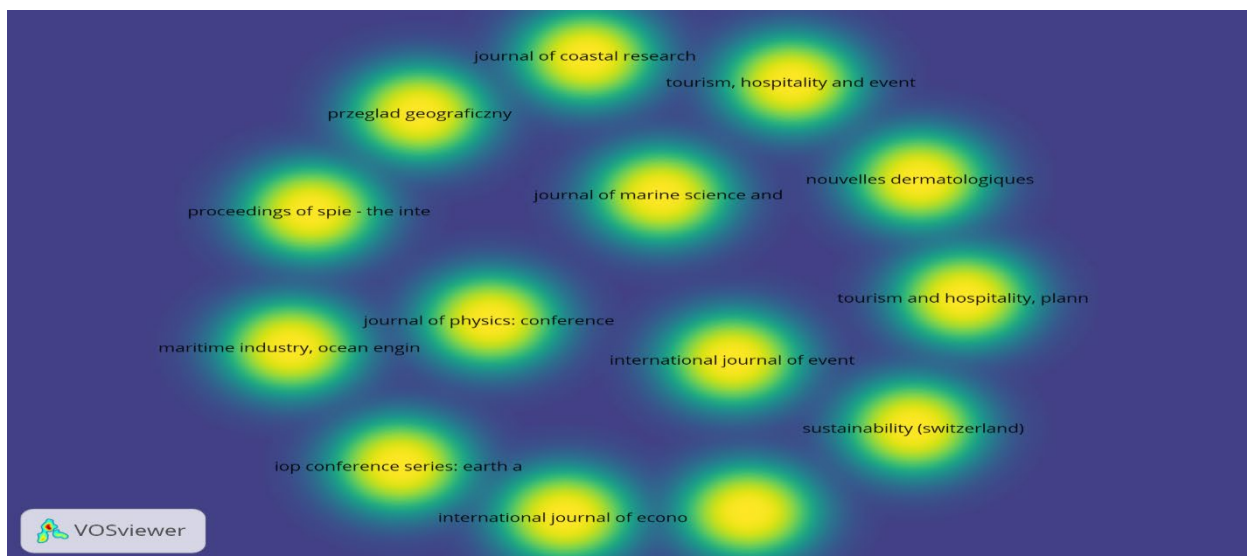

Figure 11: Collaboration between Articles Published on the Scopus database
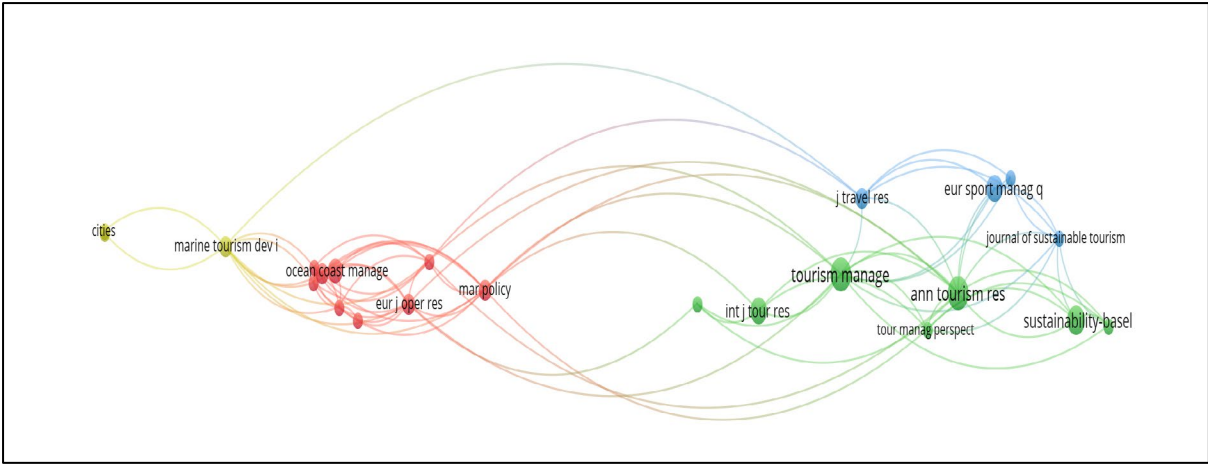
Source: Author

Figure 12: Collaboration between Articles Published on the WoS database

Source: Author

4.6 Productive institutions on the Scopus and WoS databases

As shown in Figures 13 and 14, the respective institute have an interest in furthering their research on maritime tourism as the tourism market will contribute just as much as to the national GDP as the other sectors. Governments could also provide institutions who are exploring new maritime market segments with incentives. Lastly, researchers who have begun examining the maritime tourism industry could seek advice or consult with experts from the institution as the view and details that they will receive from the institution is much more significant and reliable.
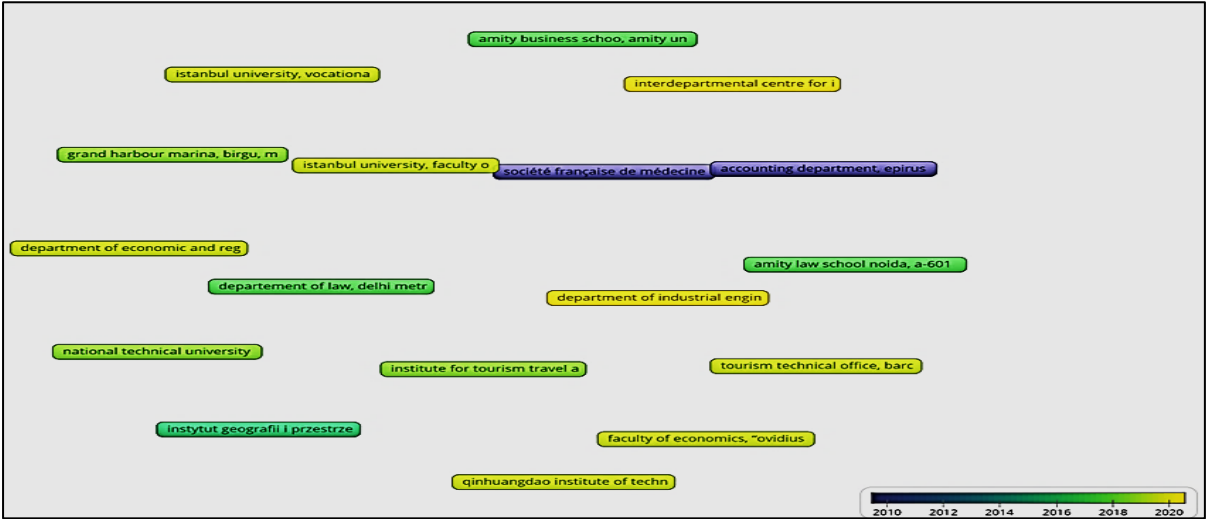

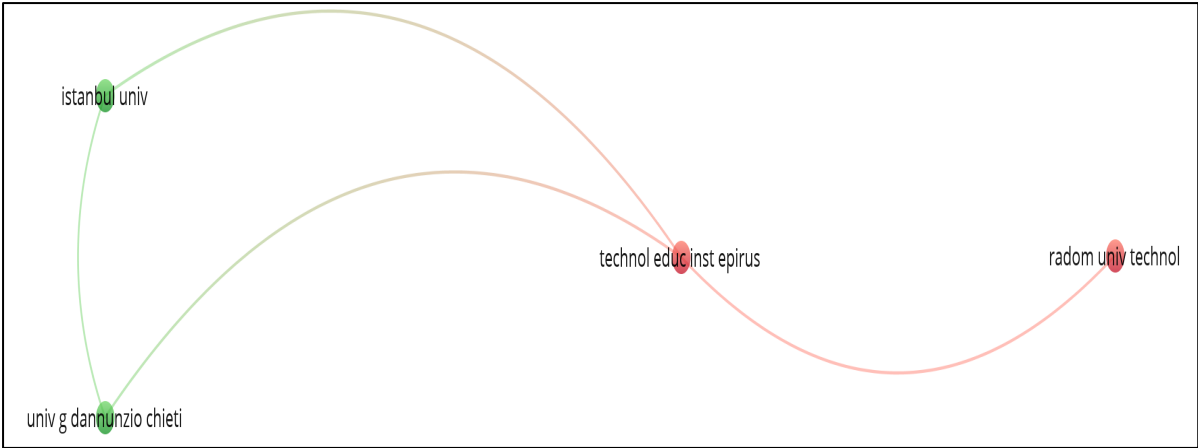Figure 13: Productive institutions on the Scopus database

Source: Author

Figure 14: Productive institutions on the Scopus database

Source: Author

4.7 Results of the analysis and review of the selected articles

With the assistance of content analysis and NVivo 12, this present study coded concepts that had been extracted from the original data and developed them in terms of their properties and dimensions (Corbin, 2008). The results below were obtained after using NVivo 12 as a coding tool to analyse 28 journals from both the Scopus and WoS databases. According to De Oliveira *et al*. (2019), integrating two different scientific data sources allows generation of more robust results in a bibliometric analysis. The outcomes of the NVivo 12 coding are shown below. Figures 15a and 15b shows the text search query for the problem and cluster areas of maritime tourism, respectively, while Figure 15c depicts the word frequency query search results for the code "problem". As seen in Figures 15a and 15b, maritime tourism has faced several problems, such as environmental issues, issues in biodiversity, poor waste management, lack of coordination, and uncontrolled development. Additionally, maritime stakeholders were found to be unaware of environmental concerns as maritime tourism involves nature. The results shown in Figure 15c confirm that natural pollution is the most severe problem that maritime tourism has encountered.
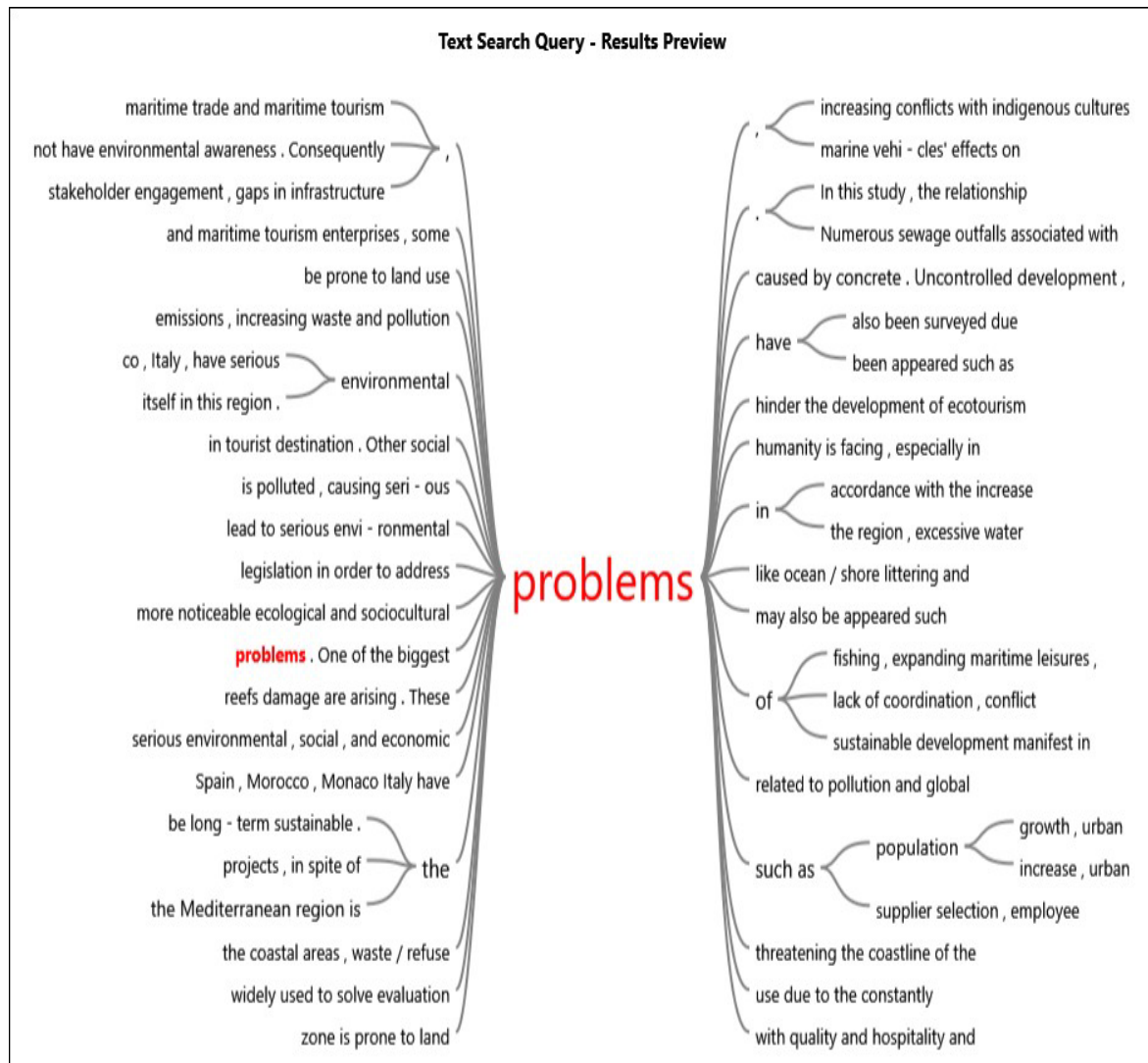

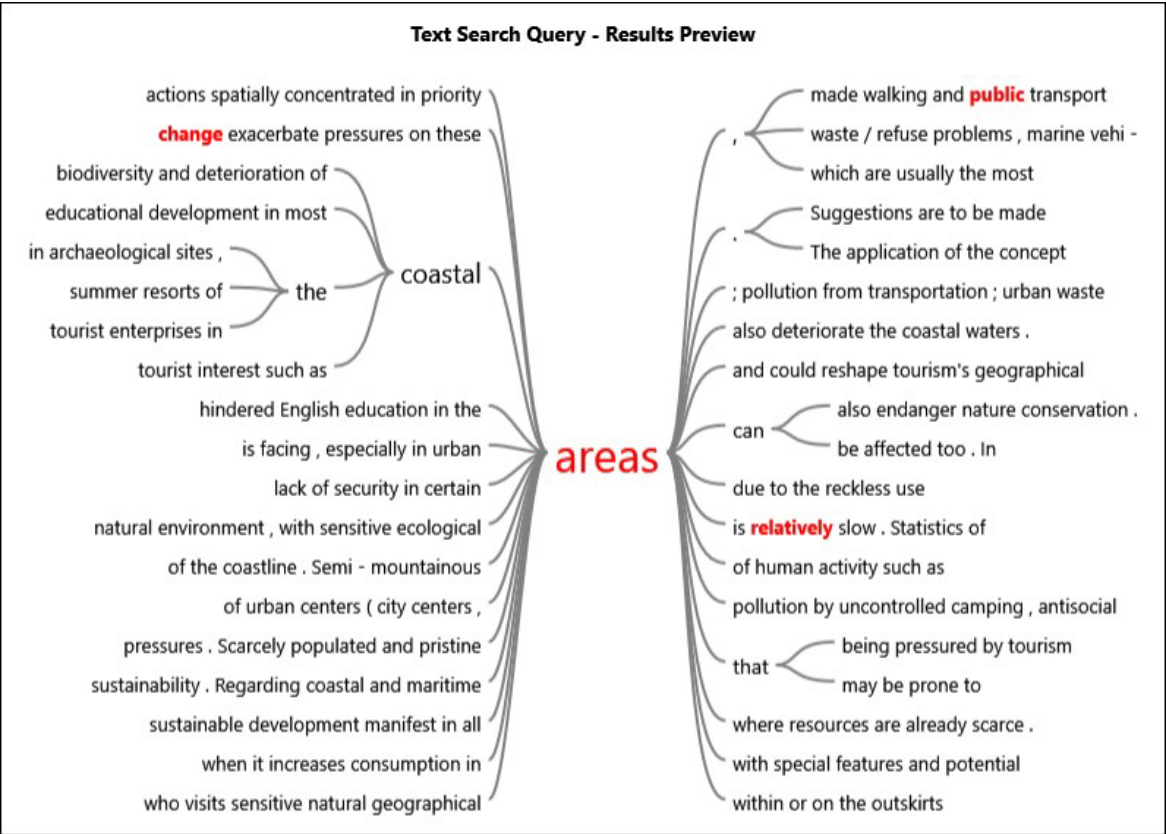Figure 15a: Text search query for the problem cluster for maritime tourism

Figure 15b: Text search query for the cluster area in maritime tourism

Figure 15c: Word frequency query search for the code "problem"

Figure 16a shows the text search query for the solution cluster in maritime tourism while Figure 16b depicts the text search query for the policy and management clusters in maritime tourism. Lastly, Figure 16c illustrates the result from the word frequency query search for the code "solution". As seen in Figures 16a and 16b, the maritime tourism industry has developed a few solutions, strategy concepts, and technological approaches with which to solve the problem above. As most stakeholders and players in the maritime industry are believed to have good cooperation with management, formulating policies could solve these problems. However, although many innovative solutions have been developed and implemented in organisations, the maritime industry has yet to develop an effective and efficient solution to address all these issues. This is evident in Figure 16c, which shows that maritime tourism requires sustainable maritime activities to thrive in the future.
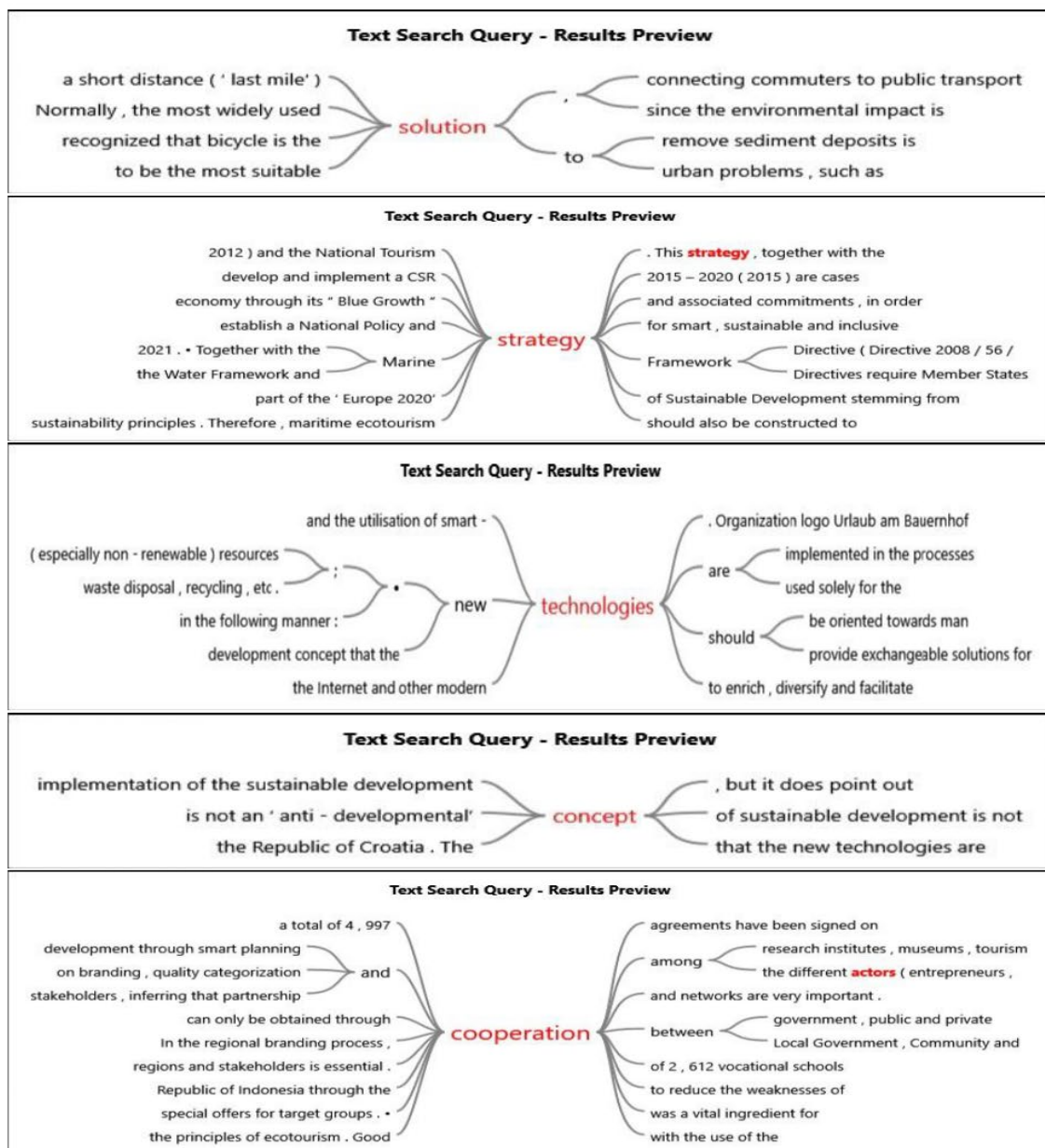

Figure 16a: Text search query for the solution cluster in maritime tourism
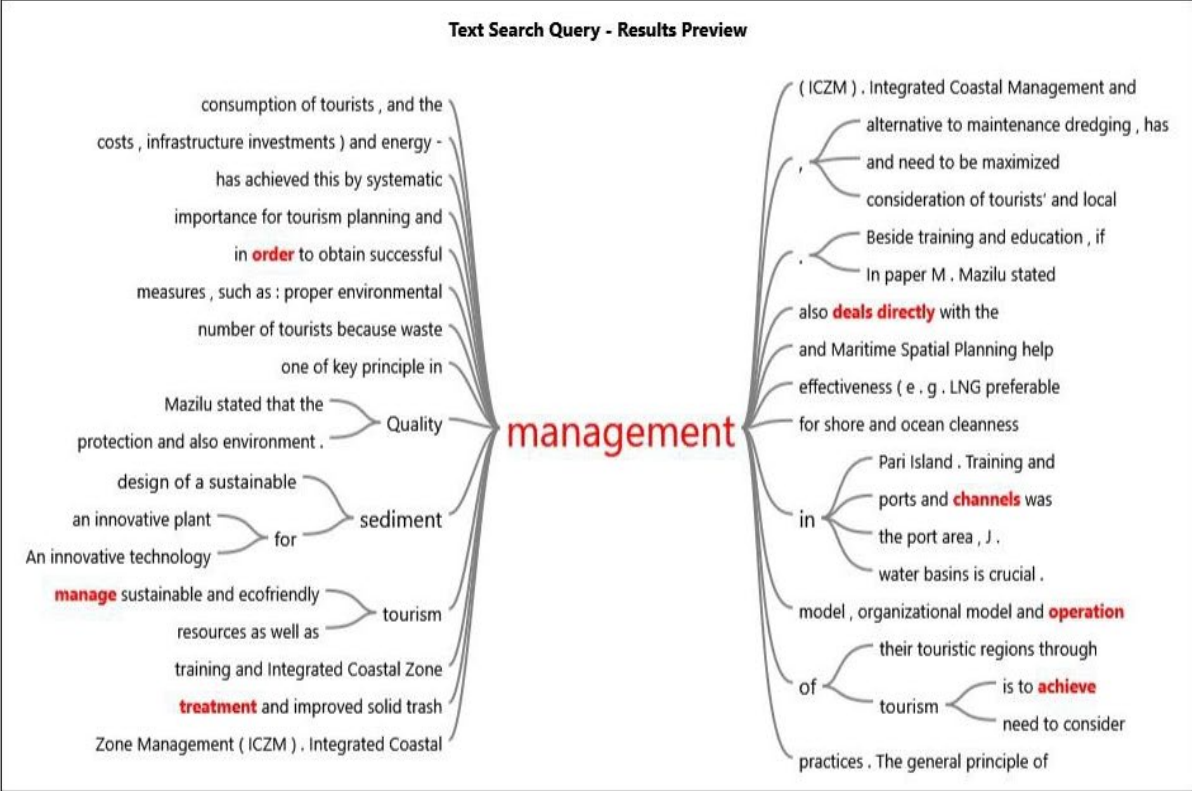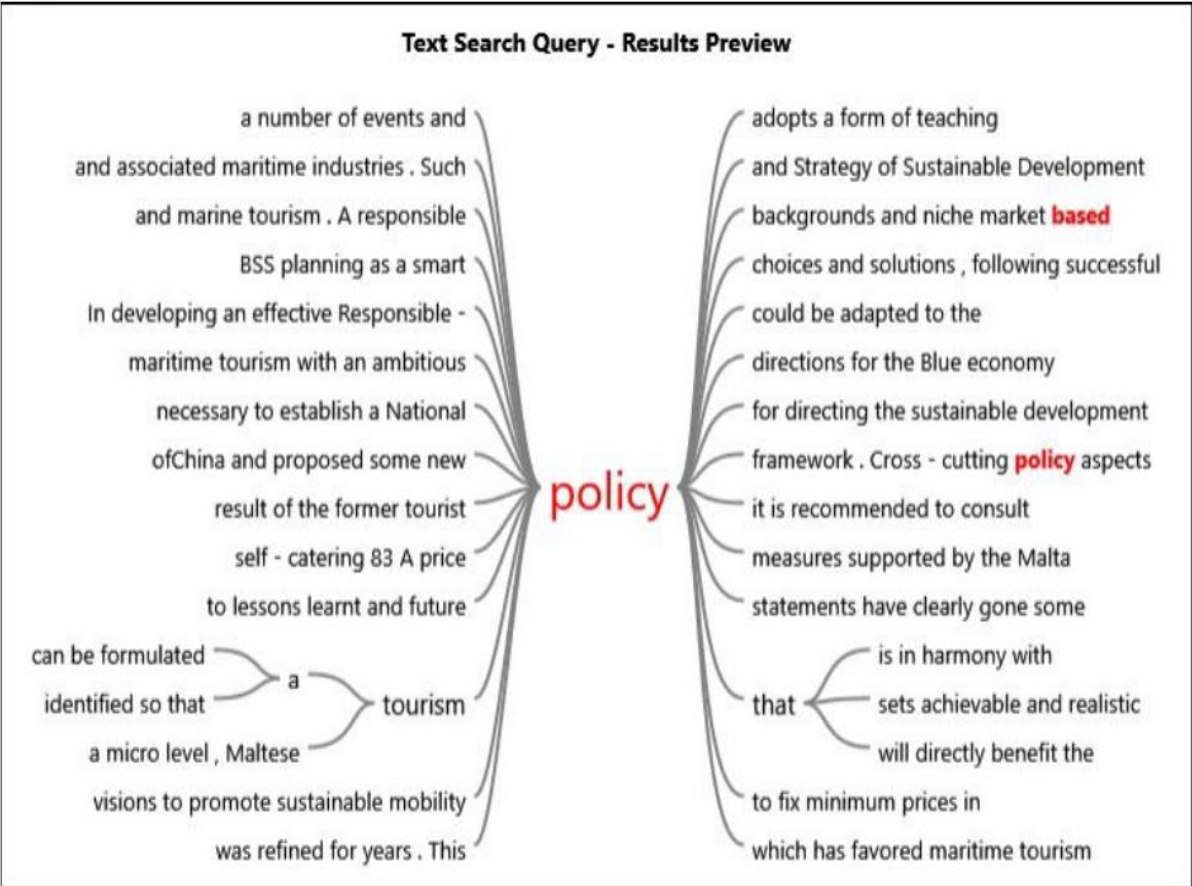
Figure 16b: Text search query for the policy and management clusters in maritime tourism

Figure 16c: Word frequency query search for the code "solution"

5.0 Discussion

Based on the results discussed in Section 4.0, the problem clusters could be classified into six major categories: a) governmental and political support, b) environmental issues, c) cooperation among stakeholders, d) maritime tourism law and policies, e) technological matters, and f) maritime tourism knowledge. Furthermore, 18 sub-clusters were also categorised: i) lack of government support, ii) lack of experienced maritime tourism organisations, iii) lack of maritime tourism laws and policies, iv) lack of maritime tourist data, v) lack of environmental awareness, vii) unnecessary infrastructure development, vii) lack of maritime tourism knowledge in terms of activities and language, viii) over utilisation of maritime resources, ix) unclear benefits of maritime tourism, x) unclear classification of maritime tourism segments, xi) political instability, xii) large population, xiii) exchange rate, xiv) natural disasters, xv) climate change, xvi) lack of sustainable maritime activities, xvii) maritime tourism fraud, and xviii) lack of cooperation among maritime stakeholders.

Firstly, due to a lack of government initiative to support and train more tour guides in vocational schools, many tour guides lack maritime tourism knowledge, and are unable to communicate effectively. According Ariyani (2021), governments hesitate to support or establish more marine and tourism vocational schools as they do not realise the importance of the maritime tourism market and the human resource requirement to run it. This is because governments still view the maritime industry simply as a medium with which to trade business via transportation and supply chains. Apart from that, although there are many education institutes, universities and colleges established across the globe, their primarily focus is on specific sectors, such as medicine, engineering, information and communications technology, and supply chains. This may be one of the reasons why the maritime tourism industry trails behind the other industries. This was corroborated by Ariyani (2021) that governments only focus on industrial and technology vocational education in universities and schools. Furthermore, a lack of specialised maritime tourism schools and institutes will cause a lack of English proficiency in non-English speaking countries (Sofiana *et al*., 2018; Drosos, 2020; Jeevan *et al*., 2022). As the main approach of maritime tourism is to attract more international tourist, if command of the English language remains a barrier, it is difficult to produce good tourist guides for the maritime tourism sector. Furthermore, maritime tourism is a leisure activity in which people want to spend time engaging in maritime sports. Lack of proper training of individuals from inexperienced maritime tourism training organisation result in tourist guides who are ill-equipped to handle tourists which will, in turn, negatively affect the maritime tourism market.

Secondly, maritime coastal zones are subjected to the highest pressure and pollution due to the presence of ports and natural anchors (Drosos, 2020). Unnecessary infrastructure development along shorelines as well as concrete pollution, degradation, and sedimentation caused by construction also damages the marine ecosystem. Apart from that, the continuous development of tourist accommodations along the coastline (Gedik & Mugan, 2019; Pellegrini *et al*., 2020, Drosos, 2020) continues to adversely affect environmental health. It is evident that most property developers prioritise profit over environmental protection. According to Gao (2019), there is a lack of sustainable maritime tourism approaches as most maritime players are unaware of the maritime tourism segments. According to Jeevan *et al*. (2019), maritime tourism can be extended from the seaport to the hinterlands. It shows that maritime tourism areas can be segregated into three distinct parts: foreland, seaport, and hinterland tourism.

Therefore, indecorous expansion towards these areas will damage the environment. Furthermore, extending maritime tourism areas and spatial activities to semi-mountainous regions may increase the occurrence of landslides (Drosos, 2020) as improper development and planning will lead to natural disasters. One of the main causes of natural disasters may be that the environment cannot cope with the pressures causes by humankind. Therefore, proper research on maritime tourism and good cooperation among the maritime stakeholders are required prior to the execution of maritime tourism activities. Many agencies should also play a role before a maritime tourist spot is examined. For instance, the Ministry of Health and a disaster management team could investigate if the proposed area is suitable for maritime tourism and development. The Meteorological Department could forecast when the next natural disaster may occur while the Ministry of Environment could determine if the development is necessary or if it will harm animal or people. This is because alternative approaches are always available if proper research and planning is conducted.
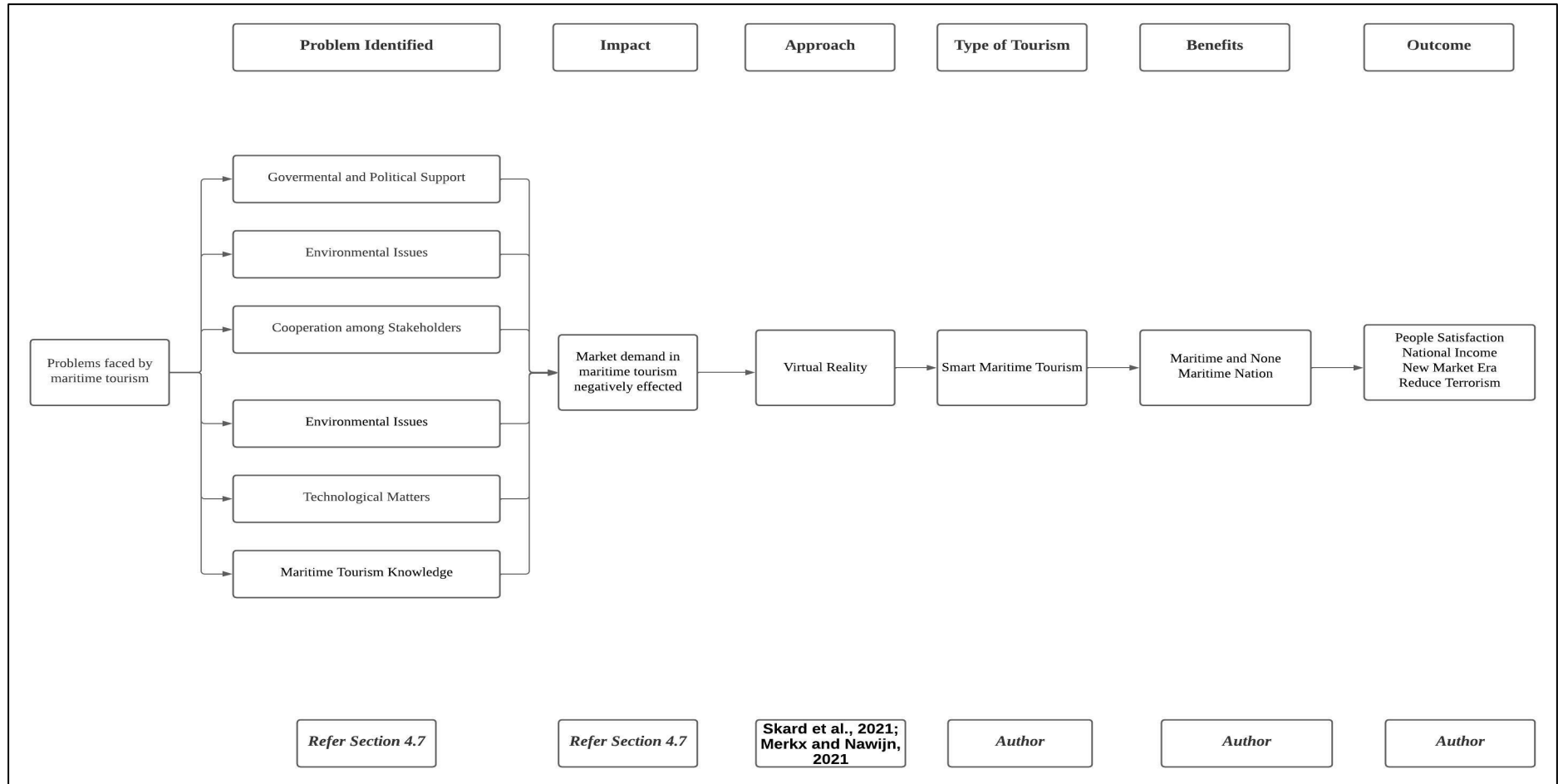
A lack of proper research planning could contribute to climate change as climate change pressures on maritime tourism areas could reshape the geographical and seasonal circulation of tourist activities. Apart from that, unstable weather conditions: such as storm (Pajak, 2007); may not inspire tourists to visit the maritime areas of a country. This will, in turn, negatively affect the income and GDP of a nation. According Gedik and Mugan (2019), many accommodations are generating and discharging untreated wastewater into the sea. Such irresponsible practices could lead to the formation of exotic species and marine mammals that are more dangerous to marine life. As such, political parties play a significant role in managing the sewage outfall of companies and industries as they can impose a tax or take immediate legal action against companies that have no regard for the environment. Apart from wastewater, maritime transportation negatively affects the marine ecosystem as well. According to Gedik and Mugan (2019), a continuous flow of marine vehicles will affect the ecosystem and could lead to serious environmental problems. For example, the propeller of a boat and the hull of a vessel affects marine life below the sea. Most maritime nations may not be able to prevent this as it is one of the economic sectors of the nation. Maritime stakeholders who lack proper research and only focus on the maritime transportation industry may be faced with issues of unstable currency in a nation. This is because as maritime tourism attracts more international tourist, there will be a great direct exchange rate between foreign countries.

Apart from that, countries with a larger population put a tremendous amount of pressure on natural resources while the continuous and extreme consumption of natural resources will lead to scarcity (Gedik & Mugan, 2019; Gao, 2019). Countries with larger populations are also struggling to contain the spread of the COVID-19 virus. This is because poor management of government causes ageing and younger people to develop many health problems. A lack of awareness of health conditions also severely affects the maritime tourism industry. Apart from the COVID-19 virus, water pollution causes body, nose, and throat infections when engaging in maritime tourism activities. Furthermore, as differently abled persons cannot engage in maritime tourism activities, it may cause them mental stress. Therefore, integrating maritime tourism with the current latest technologies as well as VR could form a new emerging market known as SMT. The SMT approach is an effective and efficient solution with which to solve many of the problems faced by people. For example, people with financial issues, medical problems that prevent them from travelling, or full-time commitments can explore maritime tourist spots virtually. Even though virtually engaging in maritime activities using VR headsets

is different from experiencing it in real-life, at least they can plan or have the same feelings. Virtually visiting many tourists spot could also boost the national economy. Moreover, SMT not only benefits maritime nation but also landlock countries as properly exploring maritime hinterlands could lead them towards SMT. This type of SMT could be a new market for non-maritime nations and could serve as an opportunity for them to explore the new maritime tourism market. Landlock countries should take the initiative to compete with maritime nations as the current tourist behaviour and leisure market fluctuates. Therefore, SMT is an operational approach that could solve most of the problems and challenges that the maritime tourism industry faces.

The legislation of a nation is particularly important to make tourists feel safe during their visit. According to Gao (2019) and Jaswal *et al*. (2017), social crimes and tourism fraud, such as providing a service for an unreasonable price could adversely affect the reputation of a nation. This is because the misbehaviour of locals towards international tourists reflects the culture of the country, governments should enact a tourism policy for local people that outlines how to take care of international tourists during their visit. Furthermore, maritime tourism fraud has been a major source of concern for most maritime players in this digital age. Based on the result discussed in Section 4.7 above, innovative strategies, such as "Blue Growth;" are an effective framework for sustainable maritime tourism development, advance technological tactics, effective cooperation with many parties, and systematic policy management were adopted but maritime tourism was still adversely affected. Although many solutions have been implemented to address the issues that the maritime tourism faces, most of the issues remain unsolved, which could have a negative impact. The only way to solve the problems is to take the right approach. Even though this present study proposed the development of SMT, policy makers should play a significant role in deciding policies on visiting restricted areas at seaport or other specific areas. Apart from that, exploring maritime archaeology in forelands requires the enactment of strict laws that protect the identity of historical artifacts and prevent people or countries from claiming that the artifacts belong to them. Moreover, the National Security, port authorities, employee union and Defence Department should play a significant role during international tourist visits as extra precautions should be taken by the government to mitigate negative occurrences during maritime tourism activities. This is because, in the future, seaport tourism will be an emerging tourist area and currently seaports are one of the nodes that significantly contribute to the income of a nation. However, implementing SMT can reduce the likelihood of terrorist activities in the maritime tourism sector. Figure 17 provides a summary of the results and the novel approach with which to overcome the issues.

1

| Problem Identified | Impact | Approach | Type of Tourism | Benefits | Outcome |

Govermental and Political Support

Environmental Issues

Cooperation among Stakeholders

Problems faced by maritime tourism

Environmental Issues

Technological Matters

Maritime Tourism Knowledge

Market demand in maritime tourism negatively effected

Virtual Reality

Smart Maritime Tourism

Maritime and None Maritime Nation

People Satisfaction
National Income
New Market Era
Reduce Terrorism

Refer Section 4.7

Refer Section 4.7

Skard et al., 2021; Merkx and Nawijn, 2021

Author

Author

Author

2

3 Figure 17 Summary of the results and the novel approach to overcome the issues

4

6.0 Conclusion

The maritime tourism sector contributes just as much or even more to the national gross domestic product (GDP) of a nation as other sectors. Therefore, maritime tourism is an important economic activity in many maritime nations. Smart Maritime Tourism, is a new type of tourism encompassing and altering the segments of maritime tourism industry which are foreland, seaport, and hinterland by utilising the features of virtual reality (VR). These SMT strategies respond as the novel approach resulted from the new wave of digitalization. SMT is an effective and efficient solution with which to solve the problems faced by the maritime tourism market of the day. From bibliometric approach, this paper uncovered 6 major problem clusters in maritime tourism namely governmental and political support, environmental issues, cooperation among stakeholders, maritime tourism law and policies, technological matters, and maritime tourism knowledge with several other sub issues pertinent to each cluster. Future studies can identify the criteria required to transform the maritime tourism industry to an SMT industry. Although numerous previous studies have examined a variety of sectors in the maritime industry, this present study took the first step towards creating a completely new body of knowledge by focusing on the problems faced by the maritime tourism industry and identifying existing approaches that can be used to solve these issues. The motivation for this research extends beyond marine tourism, coastal tourism, and nautical tourism as most of the study focused on the forelands and its related activities. Future studies may conduct an exploratory factor analysis (EFA) to validate and solve the problems by utilising virtual reality (VR) as the main solution. Future studies may also examine the exact maritime tourism segments, such as the clear distance, definition, and activities that can be carried out; as well as the transition from foreland, seaport, and hinterland tourism and the area covered.

References

Adams, N. and Harris, N. R. (2005). Best practice guidelines for regional development strategies, *Cardiff University.*

Aria, M., and C. Cuccurullo. 2017. "Bibliometrix: An R-tool for Comprehensive Science Mapping Analysis." *Journal of Informetrics* 11 (4): 959–975. doi:10.1016/j.joi.2017.08.007.

Ariyani, L. F., Pamungkas, A. H., Pratama, C. B. A., Widjaja, S. U. M., Wahyono, H., & Haryono, A. (2021, April). Conformity Between The Choices Of Entering Majors With Employment After Graduation At Non-Technology And Industrial Vocational Schools In Indonesia. In *Journal of Physics: Conference Series* (Vol. 1807, No. 1, p. 012027). IOP Publishing.

Berno, T. and Ward, C. (2005), "Innocence abroad: a pocket guide to psychological research on tourism", American Psychologist, Vol. 60 No. 6, p. 593.

Broadus, R. 1987. "Toward a Definition of "Bibliometrics"." *Scientometrics* 12 (5–6): 373–379. doi:10.1007/BF02016680.

Buhalis, D., & Amaranggana, A. (2015). Smart tourism destinations enhancing tourism experience through personalisation of services. In *Information and communication technologies in tourism 2015* (pp. 377-389). Springer, Cham.

Cambridge Dictionary, challenge. (2022). Retrieved 20 March 2022, from https://dictionary.cambridge.org/dictionary/english/challenge

Chen, S. Y., & Liu, S. Y. (2020). Developing students' action competence for a sustainable future: A review of educational research. Sustainability (Switzerland), 12(4). https://doi.org/10.3390/su12041374

Chloe King, Wa Iba & Julian Clifton (2021) Reimagining resilience: COVID-19 and marine tourism in Indonesia, Current Issues in Tourism, 24:19, 2784-2800, DOI: 10.1080/13683500.2021.1873920

Corbin, J.; Strauss, A. Strategies for Qualitative Data Analysis. InBasics of Qualitative Research; Sage: Thousand Oaks, CA, USA, 2008.

De Oliveira, O. J., da Silva, F. F., Juliani, F., Barbosa, L. C. F. M., & Nunhes, T. V. (2019). Bibliometric method for mapping the state-of-the-art and identifying research gaps and trends in literature: an essential instrument to support the development of scientific projects. In Scientometrics recent advances. IntechOpen. Okoli, C. (2015). A guide to conducting a standalone systematic literature review. Communications of the Association for Information Systems, 37(1), 879–910. https://doi.org/10.17705/1cais.03743

Diakomihalis, M. N. (2007a). The impact of maritime tourism on the Greek economy via the tourism satellite account. *Tourism and Hospitality Planning & Development*, *4*(3), 231-244.

Diakomihalis, M. N. (2007b). Greek maritime tourism: evolution, structures and prospects. Research in Transportation Economics, 21, 419-455.

Drosos, V. C., Lazaris, D. C., & Sismanidis, I. (2020, August). Surveying and mapping of potential sources of pressure in Lefkada tourist areas for sustainable growth and jobs in

the blue economy. In *Eighth International Conference on Remote Sensing and Geoinformation of the Environment (RSCy2020)* (Vol. 11524, p. 115240B). International Society for Optics and Photonics.

Elsevier.com. (2019). Scopus | The largest database of peer-reviewed literature | Elsevier. [online] Available at: https://www.elsevier.com/en-gb/solutions/scopus.

Gao, F.; Jia, X.; Zhao, Z.; Chen, C.-C.; Xu, F.; Geng, Z.; Song, X. Bibliometric Analysis on Tendency and Topics of Artificial Intelligence over Last Decade. Microsyst. Technol. 2019.

Gao, Y. (2019). Sustainability Assessment of Maritime Tourism Industry Based on Uncertain Evidential Reasoning Approach in the Context of Big Data and Internet. *Journal of Coastal Research*, *94*(SI), 749-753.

Gao, Y. (2019). Sustainability Assessment of Maritime Tourism Industry Based on Uncertain Evidential Reasoning Approach in the Context of Big Data and Internet. Journal of Coastal Research, 94(SI), 749-753.

Gedik, S., & Mugan-Ertugral, S. (2019). The effects of marine tourism on water pollution. *Fresenius Environ. Bull*, *28*, 863-866.

Hall, C.M. Publish and perish. Bibliometric analysis, Journal ranking and the assessment of research quality in tourism. Tour. Manag. 2011, 32, 16–27. [CrossRef]

Jeevan, J., Chen, S. L., & Cahoon, S. (2019). The impact of dry port operations on container seaports competitiveness. *Maritime Policy & Management*, *46*(1), 4-23.

Jeevan, J., Othman, M. R., Mohd Salleh, N. H., Abu Bakar, A., Osnin, N. A., Selvaduray, M., & Boonadir, N. (2022). Interpretations of Maritime Experts on the Sustainability of Maritime Education: Reducing the Lacuna of Amalgamation Between Maritime Education and Industries. In *Design in Maritime Engineering* (pp. 339-357). Springer, Cham.

Jeevan, J., Ramamoorthy, K., Salleh, N. H. M., Hu, Y., & Park, G. K. (2020). Implication of e-navigation on maritime transportation efficiency. WMU Journal of Maritime Affairs, 19(1), 73-94.

Jeevan, J., Yeng, C. K., & Othman, M. R. (2021). Extension of the seaport life cycle (SLC) by utilising existing inland capacity for current and future trade preparation. The Asian Journal of Shipping and Logistics, 37(1), 45-60.

Jeevan, Jagan, Mohamad Rosni Othman, Zuha Rosufila Abu Hasan, Thi Quynh Mai Pham, and Gyei Kark Park. "Exploring the development of Malaysian seaports as a hub for tourism activities." Maritime Business Review (2019).

Jeevan. J, Selvaduray. M, NHM Salleh, Ngah. AH & Zailani. S (2021) Evolution of Industrial Revolution 4.0 in seaport system: an interpretation from a bibliometric analysis, Australian Journal of Maritime & Ocean Affairs, DOI: 10.1080/18366503.2021.1962068

Jia, F., Peng, S., Green, J., Koh, L., & Chen, X. (2020). Soybean supply chain management and sustainability: A systematic literature review. Journal of Cleaner Production, 255. https://doi.org/10.1016/j.jclepro.2020.120254

Jia, F., Peng, S., Green, J., Koh, L., & Chen, X. (2020). Soybean supply chain management and sustainability: A systematic literature review. Journal of Cleaner Production, 255. https://doi.org/10.1016/j.jclepro.2020.120254

Kabil, M., Priatmoko, S., Magda, R., & Dávid, L. D. (2021). Blue economy and coastal tourism: A comprehensive visualization bibliometric analysis. *Sustainability*, *13*(7), 3650.

Kasim, A., Karim, M. S., Muchtar, S., Asis, A., Muliani, S., & Tenri, A. (2021). School Drug Education and Leadership Agility: Narcotics Crime Study in Children. Asian Journal of University Education, 17(4), 388-398.

Kizielewicz, J., 2012. Theoretical considerations on understanding of the phenomenon of maritime tourism in Poland and the world. Zesz. Nauk./Akademia Morska w Szczecinie 31 (103), 108–116.

Kwak, S.J., Yoo, S.H., Chang, J.I., 2005. The role of the maritime industry in the Korean national economy: an input-output analysis. Mar. Pol. 29 (4), 371–383. https://doi. org/10.1016/j.marpol.2004.06.00

Lam-González, Y. E., León, C. J., & de León, J. (2019). Coopetition in Maritime Tourism: Assessing the effect of Previous Islands' Choice and experience in tourist satisfaction. Sustainability, 11(22), 6334.

Lekakou, M., & Tzannatos, E. (2001). Cruising and sailing: A new tourist product for the Ionian sea (in Greek), Volume in Honor of Emeritus Professor M. Rafael (pp. 475–496). Pireaus: University of Piraeus.

Li, H.; Song, H.; Li, L. A Dynamic Panel Data Analysis of Climate and Tourism Demand: Additional Evidence. J. Travel Res. 2016, 56, 158–171. [CrossRef]

Li, X. M., C. J. Wang, and C. Ducruet. 2020. "Globalization and Regionalization: Empirical Evidence from Itinerary Structure and Port Organization of World Cruise of Cunard." Sustainability 12 (19): 7893. doi:10.3390/ su12197893

Li, Y., Hu, C., Huang, C., & Duan, L. (2017). The concept of smart tourism in the context of tourism information services. *Tourism Management*, *58*, 293-300.

Liang, T. P., and Y. -H. Liu. 2018. "Research Landscape of Business Intelligence and Big Data analytics: A Bibliometrics Study." Expert Systems with Applications 111: 2–10. doi: 10.1016/j.eswa.2018.05.018.

Ma Y., Liu J. (2011) The enormous prospects of the smart tourism applications. China Tourism News, 2011-08-24(13).

Maneerat Kanrak, Hong-Oanh Nguyen, 2022An analysis of connectivity, assortativity and cluster structure of the Asian-Australasian cruise shipping network DOI: 10.1016/j.martra.2021.100048

Martínez Vázquez, R. M., Milán García, J., & De Pablo Valenciano, J. (2021). Analysis and trends of global research on nautical, maritime and marine tourism. *Journal of Marine Science and Engineering*, *9*(1), 93.

Matheson, C. M., & Tinsley, R. (2016). The carnivalesque and event evolution: a study of the Beltane Fire Festival. *Leisure Studies*, *35*(1), 1-27.

Menhat, M. N., Zaideen, I. M. M., Yusuf, Y., Salleh, N. H. M., Zamri, M. A., & Jeevan, J. (2021). The impact of Covid-19 pandemic: A review on maritime sectors in Malaysia. Ocean & Coastal Management, 105638.

Merkx, C., & Nawijn, J. (2021). Virtual reality tourism experiences: Addiction and isolation. *Tourism Management*, *87*, 104394.

Munim, Z. H., Dushenko, M., Jimenez, V. J., Shakil, M. H., & Imset, M. (2020). Big data and artificial intelligence in the maritime industry: a bibliometric review and future research directions. *Maritime Policy & Management*, *47*(5), 577-597.

Orams, M. Marine Tourism: Development, Impacts and Management; Routledge: London, UK, 1999.

Pająk, M. (2007). Fuzzy multi-objective model of the sailing yacht skipper decision making during the storm conditions. In *12th International Congress of the International Maritime Association of the Mediterranean, IMAM* (Vol. 2, pp. 1023-1031).

Pellegrini, M., Preda, G., & Saccani, C. (2020). Application of an Innovative Jet Pump System for the Sediment Management in a Port Channel: Techno-Economic Assessment based on Experimental Measurements. *Journal of Marine Science and Engineering*, *8*(9), 686.

Rahim, N. Z. A., Nasaruddin, N. I. S., Shah, N. B. A., Halim, F. H., Samah, K. A. F. A., Saman, F. I., & Rum, S. F. M. (2021, July). Aftermath of pandemic Covid-19 on tourism industry: A review on virtual tourism platform. In AIP Conference Proceedings (Vol. 2347, No. 1, p. 020173). AIP Publishing LLC. Lancho-Barrantes, B. S., & Cantú-Ortiz, F. J. (2019). Science in Mexico: A bibliometric analysis. Scientometrics, 118(2), 499-517.

Ritchie J, Lewis J, Nicholls CM, Ormston R. The foundation of qualitative research. Qual Res Pract A. 2013;0–25.

S. Skard, E. Knudsen, H. Sjåstad, and H. Thorbjørnsen, "How virtual reality influences travel intentions: The role of mental imagery and happiness forecasting," Tourism Management, vol. 87, pp. 104360. 2021.

Salleh, N. H. M., Hanafiah, R. M., Ngah, A. H., Jeevan, J., & Abdullah, L. (2019). A framework proposal for evaluating the organizational reliability and capability of a liner shipping operator in a fuzzy context. Int. J. of Engineering and Advance Technology, 8(6S3), 327-341.

Salleh, N.H.M, Selvaduray, M., Jeevan, J., Ngah, A. H., & Zailani, S. (2021). Adaptation of Industrial Revolution 4.0 in a Seaport System. Sustainability, 13(19), 10667.

Shaffril, H. A. M., Krauss, S. E., & Samsuddin, S. F. (2018). A systematic review on Asian's farmers' adaptation practices towards climate change. Science of the Total Environment, 644, 683–695. https://doi.org/10.1016/j.scitotenv.2018.06.349

Sofiana, N., Yuliasri, I., & Haryanto, H. (2018, July). Promoting English Education along Indonesian Coastal Zone. In *IOP Conference Series: Earth and Environmental Science* (Vol. 175, No. 1, p. 012220). IOP Publishing.

The use and application of technology in the tourism sector has been called "digital" or "smart"tourism. [EB/OL]. www.smarttourism.org, 2012-03-11.

Thesaurus.com - The world's favorite online thesaurus. (2022). Retrieved 5 March 2022, from https://www.thesaurus.com/

VOS Viewer [Internet]. 2018. Available from: http://www.vosviewer.com [Accessed: 2018-01-05]

World Container Throughput| Port Economics, Management and Policy. (2021). Retrieved 26 November 2021, from https://porteconomicsmanagement.org/pemp/contents/part1/maritime-shipping-and-international-trade/world-container-throughput/

Xumao Li, Chengjin Wang & César Ducruet (2021) Cruise trajectory network and seasonality: empirical evidence from Queen Elizabeth cruise, Maritime Policy & Management, 48:2, 283-298, DOI: 10.1080/03088839.2020.1855481

Zupic, I., & Čater, T. (2015). Bibliometric methods in management and organization. Organizational research methods, 18(3), 429-472.