A SYSTEMATIC LITERATURE REVIEW WITH BIBLIOMETRIC ANALYSIS: TRIPLE BOTTOM LINE OF SPORTING EVENTS



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This Independent Study Manuscript Presented to The Graduate School of Bangkok University in Partial Fulfillment of the Requirements for the Degree Master of Management in Business Innovation

Academic Year 2022

This manuscript has been approved by the Graduate School Bangkok University

Title:A Systematic Literature Review with Bibliometric Analysis: TripleBottom Line of Sporting Events

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Nguyen, P. Master of Management in Business Innovation, May 2023, Graduate School, Bangkok University.

A Systematic Literature Review with Bibliometric Analysis: Triple Bottom Line of Sporting Events (42 pp.)

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ABSTRACT

This research paper aims to identify the theoretical foundation of literature and describe research trends and themes on the topic of the triple bottom line in sporting events. To do so, we present a bibliometrics assessment of current publications. We used bibliometrics software to evaluate data from the Scopus database. According to the findings, 56 publications were extracted from the SCOPUS database during 2007-2022 for further analysis. The result suggests which is the most famous reference that has been used, the benefit and negatives of sustainability of sporting events on local communities. The keywords sports tourism is also discussed in the last chapter.

Keywords: Sporting Events, Triple Bottom Line, Environmental Sustainability, Economical Sustainability, Environmental Sustainability

ACKNOWLEDGMENT

I would like to thank my advisor Dr. Ronald Surachai Thesenvitz for the guidance and encouragement during this independent study. He gave me a clear vision of how to build and guide me to the final step and a roadmap to follow. In addition, I would like to express my appreciation to all instructors in MBI program for the valuable courses. Lastly, I could not make it through the financial crisis if I didn't have the kind and support of Khun Kesara and the administrative staff at IKI-SEA.

Phuong Nguyen



TABLE OF CONTENTS

ABSTRACT		iii
ACKNOWLED	OGEMENT	iv
LIST OF TABL	LES	vii
LIST OF FIGU	RES	viii
CHAPTER 1: II	NTRODUCTION	1
1.1	Research Background	1
1.2	Problem Statement	1
1.3	Intentions of the Study	2
1.4	Research Objective (RO)	2
1.5	Research Questions (RQs)	3
1.6	Benefits of Study	3
1.7	Limitation of Study	3
CHAPTER 2: L	ITERATURE REVIEW	5
2.1	Triple Bottom Line	5
	2.1.1 Social Sustainability	6
	2.1.2 Environmental Sustainability	7
	2.1.3 Economic Sustainability	7
2.2	Sport Events	8
CHAPTER 3: N	IETHODOLOGY	10
3.1	Method	10
3.2	Search Query	11
3.3	Evaluate Documents	14
3.4	Analysis in Bibliometrix (Rstudio)	14
CHAPTER 4: F	INING	15
4.1	Annual Scientific Production	15
4.2	Three Field Plot	17
4.3	Most Relevant Source	18
4.4	Most Productive Author Over Time	20

TABLE OF CONTENTS (Continued)

		Page
CHAPTER 4: F	INING (Continued)	15
4.5	Most Productive Countries	22
4.6	Top Cited Document	24
4.7	Keyword Analysis and Keyword Co-Occurrence Network	31
4.8	Structures of Knowledge	33
CHAPTER 5: I	DISCUSSION AND CONCLUSION	35
5.1	Summary of the Key Findings	35
5.2	Limitations of the Study	35
5.3	Future Research	35
5.4	Recommendations and Concluding Remarks	36
BIBLIOGRAPH		37
BIODATA		42
	BANGKOK	

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LIST OF TABLES

Table 3.1: Search Boolean Refinement	13
Table 4.1: Annual Scientific production	16
Table 4.2: Most Relevant Sources	19
Table 4.3: Arthur Production	22
Table 4.4: Country Scientific Production	23
Table 4.5: Top Cited Document	26
Table 4.6: Top Cited Document Per Year	28



LIST OF FIGURES

Page

Figure 2.1: Triple Bottom Line	6
Figure 3.1: Bibliometric Review Process	10
Figure 3.2: PRISMA Flow Diagram Based on Moher, et al. (2010)	12
Figure 4.1: Annual Scientific Production	15
Figure 4.2: Three Field Plot	17
Figure 4.3: Core Sources by Bradford's Law	20
Figure 4.4: Author's Production Over Time	21
Figure 4.5: Country Scientific Production	23
Figure 4.6: Country Collaboration Map	24
Figure 4.7: Most Relevant Autor's Keywords	32
Figure 4.8: Keyword Co-occurrence Network Map	33



CHAPTER 1 INTRODUCTION

1.1 Research Background

Sport has been an integral part of our modern society. In 2000, Nelson Mandela declared that: "Sport has the ability to change the world. It has the power to inspire people. It has the ability to bring people together. It speaks to youths in a language that they could comprehend." (Adam Fraser, 2021). However, with great power comes great responsibility, which is closely connected to the Triple Bottom Line or Sustainable value (Sustainability in Sport, 2021). Sustainability is the topic of the hour. People worldwide are considering eco-friendly solutions in every industry, and sport is one of them. Sustainability in sports refers to the technique of planning a sporting event utilizing environmentally friendly and economic approaches to reduce the negative impacts on the locals. (Symbiosis School of Sports Sciences, n.d.). Whether small or large, today's sports events must be mindful of their social, environmental, and economic responsibilities or simplify the matter: their responsibilities to people, the planet, and profits. The event organizers are under pressure to discover new and sustainable methods to stage their events. This research would like to have a deeper understanding of how sporting events can have huge repercussions on communities. Sports events are expected to provide small to medium-sized geographically isolated cities with unique chances. This makes studying mega and non-mega sporting events an intriguing way better to appreciate their potential significance and role in local communities. (Taks, 2013). This research will investigate the relationship or the impact of the triple bottom line of sporting events on host communities. The explanation of each will be explained in the next chapter.

1.2 Problem Statement

This paper introduces a bibliometrics evaluation of the field of the triple bottom line of sports events, concentrating on establishing a theoretical framework and outlining research trends and themes. Before beginning research on any issue, a literature study is required, especially regarding sustainability and sporting events. Literature assessments outline the fundamentals of literature and developments in the relevant topic that take time to accomplish. With the growth and accessibility of bibliometrics software, there are now tools and methods to supplement and speed up the process of performing literature reviews. In addition, with new software tools, researchers can classify and show current literature in previously inconceivable ways. Researchers often need to pay more attention to the free resources available to them and the advantages they may provide to their study.

1.3 Intentions of the Study

This study aims to give an overview of the previous research paper on the sustainability of sports events in host residences. This paper aims to contribute to the literature via bibliometric analyses and literature reviews. Thus, this paper aims to identify the main trends in sports events and sustainability; thereby, a more profound knowledge of the evolution of this study issue is possible. Second, this study aims to offer a map of the analyzed field or the co-occurrence network of crucial work, which will be helpful for researchers in this area that need a theme tree to guide their careers and future research.

1.4 Research Objective (RO)

This research investigates the knowledge base of the triple bottom line of sports events in the local community. Surprisingly, the topic has not been previously explored clearly. There was a paper published about environment, economical but yet about the triple bottom line. Not many authors or researchers know where and who to find information for their paper about sustainability and sporting events. The paper intends to examine the literature in the area where a gap was identified and to serve as an introduction and a framework for future and more thorough bibliometric studies within this field of study, with the goal of identifying topics for future research efforts on the issue of sustainability and sports events.

1.5 Research Questions (RQs)

The specific research questions generated to help solve the research problem resolution are as follows:

RQ1: What are the significant and hot research topics in the field of study?

RQ2: Which authors and documents are the most impact in the field of study?

RQ3: Which countries produce the most research paper?

This bibliometric research will include documents from the Scopus database, which is the world's biggest abstract and citation collection of peer-reviewed literature. (www.scopus.com). A software, R-Studio or Bibliometrix, has been employed for analyzing publications from SCOPUS databases over the past twenty years span (www.bibliometrix.org).

In the following section, Chapter 2 will discuss about the literature. In Chapter 3, we describe the data sources and bibliometric methods used. The result and discussion are included in Section 4. Finally, Section 5 presents the main conclusions and recommendations for future research.

1.6 Benefits of Study

This study's results will help scholars interested in the possible long-term sustainability of sporting events. This research, like a literature review, will explain the current literature on the issue and the basis of the field and trends within the field of study. Researchers, government, and sports managers will be able to easily locate papers related to their study, important documents, and the basis within the area of research as a result. This study also aims to introduce other researchers or those interested in bibliometrics assessment by demonstrating the available software tools and the potential for academics to use them in their research.

1.7 Limitation of Study

Search results from academic databases other than Scopus, such as Web of Science or Google Scholar, will not be included in this study. The keyword used in the search query is included in the bibliometric research, while there may be justifications for including synonyms or other similar words and concepts. The study is also restricted because it is intended to serve as the foundation and starting point for a more comprehensive bibliometric study on the issue.



CHAPTER 2 LITERATURE REVIEW

This chapter aims to review the literature related to the research topic critically. The first section determines and gives an overview of the triple bottom line, also known as economic, social, and environmental sustainability. The second section explains sports events, and the last section of the chapter is to point out that sports events generate significant social, environmental, and economical that affect local residents.

2.1 Triple Bottom Line

Researchers have begun to pay close attention to the triple bottom-line method. The clarity of the word is a benefit of the triple-bottom-line method (Karamchandani, 2011). The triple bottom line approach acknowledges the link among the economic, social, and environmental sustainability of the sports events (Kilcullen & Ohles Kooistra, 1999), or it can be referred to a condition in which events coordinate their efforts to be economically successful, ecologically sound, and socially responsible. Elkington (1999) identifies a "shear zones" in Figure 2.1 between the three bottom lines. These generate potential for mutual benefit if the sports managers or sport event managers take an intentional approach to utilize such opportunities.

Figure 2.1: Triple Bottom Line



2.1.1 Social Sustainability

The method in which events affect changes in the collective and individual value system, habits of behavior, community structures, lifestyle, and standard of life of the community is referred to as social impact (Balduck, Maes & Buelens, 2011). A few indicators reflect the level of satisfaction of the local, such as local government, job satisfaction, quality of life, sports participation, health literacy, and well-being (Lee, Cornwell & Babiak, 2013; Littig & Griessler, 2005).

As mentioned above, local governments are in a unique situation when it comes to managing the effects of sporting events because their purpose is to act as an intermediary between event organizers and the residents of the area. As a result, their task is threefold: (1) they must comprehend the various social consequences that sporting events may have; (2) they must acknowledge their local community's expectations; and (3) they must communicate those expectations to the organizers in order to enable positive and minimize negative impacts. Since they entail the reciprocal interplay of information seeking, meaning ascription, and organizational reaction, such activities might be defined as strategic sensemaking processes (Thomas, Clark & Gioia, 1993).

2.1.2. Environmental Sustainability

It is obvious that all human activities impact the environment around us (Ross & Leopkey, 2017). Whether beneficial or harmful, human effects on the environment take time to manifest themselves, making it difficult to respond effectively if we cannot predict and foresee them. Sporting events, as large-scale human activities, necessarily influence the environment (Collins, Munday & Roberts, 2012). Given that land and nature are scarce resources, efforts must be implemented to reduce the negative environmental impact of sporting events while enhancing the impacts deemed suitable for the host region (Chappelet, 2008; Gaffney, 2013).

Sport and the natural environment have an intriguing interaction. They both affect one another. Some sports are heavily impacted by climate change. Consider snow sports or the effects of heat waves on tennis events. However, the sport influences climate change. Consider the amount of travel necessary to participate in particular sports (for example, winter sports, tennis, and racing) or the environmental effect of thousands of people watching a game (due to their travel and consumption on-site). If sport is to remain an essential part of people's lives, it must consider this potential source of conflict. Otherwise, the hashtag #noplanetnoplay will quickly become a reality (Nico, 2021).

2.1.3 Economic Sustainability

There is plenty of data to analyze regarding the economic impact of sporting events. Sports continue to be popular in many cultures across the world. It should be noted that the financial effects of sporting events ranging from national to international. For example, this year's World Cup is the most expensive in history; They allocated an incredible \$220 billion. This involves billions of dollars for new stadiums, hotels, and transportation.

On the other hand, no business or event can survive if it fails to act economically responsibly. The consequences when managers spend more than what they can earn or burden can lead to an economic crisis and affect much of the community. Mega-events are susceptible to exceptional risks that range from public health and environment to technology and economic risks (Miles & Shipway, 2020). Many papers have discussed how an event can bring benefit to a host local; it can promote their culture, secure the inflow of foreign capital, generate employment, and is expected to boost one country

and its region's economy (Yahia, 2018). However, besides all the benefits, there is a threat to the government to concern, such as the cost of building stadiums and its short-term uses after an event and the potential for negative publicity (Pettinger, 2019).

However, (Kaptein & Wempe, 2002) claim that social problems are taken into account in the World Commission on Environment and Development definition because environmental issues can only be pursued if social issues, such as poverty and lack of formal education, are addressed first, thus intertwining the environmental, social, and economic agendas. Organizations acknowledge economic, social, and environmental views on sustainable management. For example, the Vancouver 2010 Winter Olympics organizing committee defines sustainability as "managing the Games' social, economic, and environmental impacts and possibilities that generate lasting, local and global benefits." The triple bottom line technique, on the other hand, emphasizes the linkages between social, environmental, and economic concerns.

2.2 Sport Events

This overview will assist in determining whether mega or non-mega sport event has a stronger chance of generating sustainable benefit for host communities locally and subsequently worldwide. Since the quality of life of residents in the host areas is directly impacted by the staging of sporting events. They can have a variety of short or long-term, beneficial or adverse effects leading to either good or bad outcomes (Taks, Chalip & Green, 2015).

Mega-events are rare, huge occurrences that occur on a worldwide scale. They have an ongoing impact on the host city in the form of new infrastructure, economic growth, and urban reconstruction and are massive or mega in terms of size, attendance of fans, public attention, financial investment, and media coverage (Mair, Chien, Kelly & Derrington, 2021). Mega also means the biggest and most important events, which produce particularly high levels of tourism, media coverage, prestige, or economic effect for their host city due to the size of the event. (Taks, 2013).

Non-mega sports events can be described as the smaller version of MSE, which consists of remarkable, irregular, short-duration of sporting occurrences (Taks, 2013). Nonetheless, these occasions could provide local communities with better and more lengthy social effects in certain ways. In terms of tangible results, the decreased hosting costs could make it possible for public funds to be distributed more effectively. In terms of intangible consequences, these occasions may increase sentiments of empowerment and community belonging (Djaballah, Hautbois & Desbordes, 2015).

When starting with the preparation process, the organizer must establish the primary goal of the athletic event (InitLive, 2011). Every sporting event, from local community sports days to large-budget events like the Olympics, has its own set of logistical needs and problems. Here are the fundamental steps to preparing a successful and engaging sports tournament to assist the manager with their next event: (Manchester Metropolitan University, 2023; Simi Valley, 2022).

1) Consider the budget and plan supplies.

2) Choose a venue. A venue secured will solve the problem of transportation among cities to cities or among stadiums to stadiums. There should be an analysis of how the event could impact the local communities.

3) Determine the style of the events, how to schedule and how to market it. The sport manager should put more concern about the weather forecast during the time the sporting events.

4) Put more focus about safety not only to athletes but also to the fans.

5) Evaluate and measure the success.

CHAPTER 3 METHODOLOGY

3.1 Method

The author chose the SCOPUS database to ensure a transparent methodology and the data's authenticity (Mongeon & Paul-Hus, 2015). The database is regarded as one of the largest interdisciplinary abstract and citation databases of peer-reviewed literature, encompassing scientific journals, conference proceedings, and books (Schiavi & Behr, 2018). Even though we are gathering data from the SCOPUS database, the various stages are virtually identical. The procedure is as follows:

- 1) Determine search query
- 2) Evaluate documents
- 3) Analysis in Bibliometrix and RStudio
- 4) Interpret results

Figure 3.1: Bibliometric Review Process



Source: Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021, September). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285–296. Following the selection of a search query in the first stage, the process proceeds to step two, which is the inspection of the documents. First, all downloaded papers' titles will be carefully scanned. The keywords will then be extracted using Bibliometrix (RStudio). If the evaluation of the documents following these two phases is unsatisfactory, the search query will be changed to achieve better results, and the review method will be repeated. The third evaluation, which includes scanning the abstracts of all clusters, may only be completed after the bibliometric analysis in stage three. After the bibliographic coupling in step three, all clustered papers are assessed based on their abstracts. We only evaluate the clustered papers since they are the most relevant to this study. If the clusters contain papers that do not satisfy the domain of research, the search query will be changed and the process will be repeated. If the stage three results are sufficient, they will be investigated for this independent research.

3.2 Search Query

The chosen search phrase was designed to be broad enough to produce a large number of results but not so broad that it included synonyms or other phrases that are closely related to the search terms we are interested in. We disregard the assessment of full-text articles for the database since the dataset is too vast for the purpose of this independent study, and the full-text articles are not accessible to us through SCOPUS. The constructed search query covers many spelling variants of sustainable and alternate reverses of sustainable environment, social or economic sustainability, and sport. As a result, the primary search term for the SCOPUS database is "sustainable" OR "Econom" AND "sport". The search includes titles, abstracts, and keywords. The dataset was gathered on March 15, 2023, and the findings were downloaded as '.csv' and '.bib' files. Rstudio interprets and analyzes the results downloaded in '.csv' and '.bib' format.

The author adopted the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) checklist (Page, et al., 2021). As (Page, et al., 2021) stated, the aim of PRISMA "is to assist writers in improving systematic review and meta-analysis reporting."



Source: Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2010, July 21).
 Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *International Journal of Surgery*, 8(8), 658.

Table 3.1: Search Boolean Refinement

Searches	Details of the search	Hits
1	Search for "Sport event" "Triple bottom line"	399
2	Refine 1. Limit to Conference, article and Journal	308
3	Refine 2. Limit to English, exclude "No authors" and	260
	"Corrupt sate"	
4	Refine 3. Exclude from full text review	200
5	Refine 4. Refine search voolean, add "Mega Sport event"	56
	"Non-mega sport event"	

The first result from the search after considering all criteria and using the query string is 399 documents. The earliest document was published in 1997, and the latest in 2023. To narrow the search to relevant documents, the search was further limited to research subject areas, including Sustainable Value, Sustainable environment, environment sustainability, socially sustainable, economic sustainability, and sports events. The search query was also restricted to only documents published in English, documents that have been double peer-reviewed, and document types to articles and conference papers published in journals and conference proceedings. Articles without authors or corrupt data were excluded as well. The number of documents after being excluded was 260. After all, the reports excluded from full-text review and after focus only on "sports event" was 56.

The final SCOPUS search query is:

TITLE-ABS-KEY (("Sustainable Value*" OR "Sustainable Environment*" OR "Environment* Sustainab*" OR "Social Sustainab*" OR "Sustainable Econom*" OR "Econom* Sustainab*" OR "Triple Bottom Line") AND (sport* OR "Sport* Event*")) AND (LIMIT-TO (DOCTYPE,"ar") OR LIMIT-TO (DOCTYPE,"cp")) AND (LIMIT-TO (LANGUAGE,"English")) AND (LIMIT-TO (SRCTYPE,"j") OR LIMIT-TO (SRCTYPE,"p")).

3.3 Evaluate Documents

This stage guarantees that the documents transferred from SCOPUS to the bibliometrics evaluation dataset are relevant to the topic of research. As part of the operation, all of the papers included in the dataset's keywords are physically scanned. This procedure resulted in a change of an earlier initial search query that contained the topic area of computer science, which turned out to have publications that were unrelated to this bibliometrics evaluation.

3.4 Analysis in Bibliometrix (Rstudio)

The next step is to use Bibliometrix (R-Studio) to analyze the SCOPUS data. The study exports data for the annual research paper, the most cited documents, and the documents with the greatest average citations per year, as well as information on the top journals in the area, using Bibliometrix (R-Studio). It also exports the most common terms throughout the study article (Aria & Cuccurullo, 2016). This program is a popular tool for keyword processing. All 743 keywords from our database were used (keywords appear below the abstract).

R-Studio was used to reduce duplicates in our database's keywords, creating a co-occurrence network of keywords. This program is a popular tool for keyword processing. All 743 keywords from our database were used (keywords appear below the abstract). The method such as "Most related sources", "Country Scientific Production", "Most Global Citation", "Most Frequent Words" and "Co-Citation Networks" are used to answer the research question.

CHAPTER 4 FINDING

The findings of the systematic review of the literature with bibliometric analysis indicated the following current research in the subject of the triple bottom line of sporting events and prospective research directions:

4.1 Annual Scientific Production

Figure 4.1 shows the distribution of 56 publications indexed in Scopus from 2007 until now. The annual growth rate is 11.33%, the field of research shows it fluctuates over time. From 2007 to 2010 the annual number of publications was less than 3. During the 2011- 2015 period, the number of papers published the most in the year 2015 (5) and there is none was published in the year of 2015. The annual number of publications hit 5 again in 2017 and decease to 1 before COVID-19. However, the number of publications increased intensively and reach 12 papers in 2022.





Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Articles	1	2	2	1	3	5	4	2	0	3	5	2	1	8	12	5



4.2 Three Field Plot

Figure 4.2: Three Field Plot



Figure 4.2 displays trends in research on the sustainable of sport event on local resident from 2007 to 2022, spanning authors, countries and keywords. The left column is the countries of the research paper, the middle column represents the authors written those paper and the right column show the most used keywords. The height of the box and the thickness of the connecting lines are given greater emphasis; the taller the box and the thicker the lines represented, the more volume of paper in the field is created. By observing the thickness of the connecting line from country to author, we can see that Mcculough is the main contributor in USA. The result shows that most papers were collaborative with multiple authors because they focus on the same keywords or trends and that led to dual authorship becoming more widespread. For example, the increasing desire for cooperation with other researchers worldwide promotes higher specialization, expertise, financing, and labor division. Furthermore, the graph demonstrates how the relationships between nations, authors, and keywords might give valuable information. According to the graph, Qatar and China have the most active writers who publish high-quality papers.

4.3 Most Relevant Source

Table 4.2 below provides the top ten sources that have published the most articles in the field. At the top of the list, Sustainability (Switzerland) stands out for having high productivity levels, with 10 articles about the topic, with Journal of sport and tourism and Sport Management Review- 4 articles and European Sport Management Quarterly- 3 articles.

Sources	Articles
SUSTAINABILITY (SWITZERLAND)	10
JOURNAL OF SPORT AND TOURISM	4
SPORT MANAGEMENT REVIEW	4
EUROPEAN SPORT MANAGEMENT QUARTERLY	3
FRONTIERS IN SPORTS AND ACTIVE LIVING	2
SPORT, BUSINESS AND MANAGEMENT: AN	2
INTERNATIONAL JOURNAL	
TOURISM MANAGEMENT	1
EUROPEAN JOURNAL FOR SPORT AND SOCIETY	1
DEVELOPMENT SOUTHERN AFRICA	1
INTERNATIONAL JOURNAL OF CULTURE, TOURISM	1
AND HOSPITALITY RESEARCH	

Moreover, R-Studio helps to analyze the papers through Bradford's law (Figure 4.3). (Hjørland & Nicolaisen, n.d.) explains that Bradford's law is a tool that helps to scatter subject in information sources. Bradford's Law divides all citations on a subject into three zones; the first zone is known as the "core zone," and it gathers the most citations from the fewest journals. The second zone requires more journals than the first to acquire the same number of citations, whereas the third zone requires more than the first. Bradford describes a "decrease in productivity" due to the transition from core zone 1 to zone 3 (2016) (Venable, et al., 2016). As a result of this, Bradford's Law may be used to determine the most relevant source for a topic or issue, aiding in the classification of significant journals in the field, as seen in the Figure 4.3.





Figure 4.4 shows the publication flow of the most productive writers. The size of the circles represents the number of publications, while the intensity of the blue color represents the significance of the study in terms of citations. In this aspect, it is clear that output has been concentrated throughout the past decade.



Figure 4.4: Author's Production Over Time

The result in Table 4.3 shows that McCullough produced a total of 5 articles from 2013-2022 and received 112 citations, which is more outstanding than other authors. Thus, he remains the most relevant author in the environmental sustainability and sports events. His first article was published in 2013 with a total citation of 24 and a total citation per year of 2.18. The rest authors have the same two articles published but the most outstanding is Mallen with 72 citations.

Authors	Articles	Total citation
MCCULLOUGH BP	5	112
ZHANG J	2	15
BYON KK	2	15
HUGAERTS I	2	8
KÖNECKE T	2	8
HUANG H		23
SAAYMAN M		13
KRUGELL W	ER2 TY	13
MALLEN C		72
(KIKI) KAPLANIDOU K	1	34

Table 4.3: Arthur Production

4.5 Most Productive Countries

In Figure 4.5 which shows the world's scientific production on the sustainability of sports events, the territories with the most intense blue tomes are responsible for the highest publication records. It appears that the topic is widespread around the world, from Asia to America, with significant relevance belonging to the United States of America (39), the UK (13), Belgium, Canada, and Qatar (10), considered the most productive countries in the selected base (Table 4.4).





It is understood that undeveloped countries and countries that are under invasion are not in the list of the most productive countries. The reason might be poverty, invasion, or lack of financial support. Countries that are interested in hosting mega sports events or non-mega sports events should consider those reasons first before planning anything, an example of Greek and their huge debt after the Olympics in 2004 which led them to a financial crisis until now.

Table 4.4: Country	^v Scientific	Production
--------------------	-------------------------	------------

Country	Articles
USA	39
UK	13
Belgium	10
Canada	10
Qatar	10

(Continued)

Country	Articles
Italy	9
South Africa	8
China	7
Portugal	7
Spain	7

Table 4.4 (Continued): Country Scientific Production

Figure 4.6: Country Collaboration Map



As can be seen that, top 1 country scientific production has the most collaboration with other countries. However, countries that have collaborated or worked together in this topic with USA are not on the top of the list of production, they are China (top 8) and Australia (top 12). They both have 2 collaborations between the authors in their countries and the USA.

4.6 Top Cited Document

The dataset's 56 documents have an average of 31.8 citations. Surprisingly that almost half of the 56 papers have been published during the period from 2019 - 2022, but only 4 articles have not been cited yet. Table 4.5 lists the 10 documents with the most referenced articles. Based on the result, (Gibson, Kaplanidou & Kang, 2012)

is the most influential leading five prominent publications which are Taks (2013); Ritchie, Shipway & Cleeve (2009) and Minnaert (2012) whose have more than 100 and 10 of total citations and total citations per year. As mentioned above about how impact the Core Sources in Bradford's law to the author, there are 5 articles from the core sources, 4 papers from zone 2 and only 1 from zone 3.



Table 4.5:	Top	Cited	Document
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Paper	Source Title	Documents	Total Citations
Gibson et al., 2012	SPORT MANAGEMENT	Small-scale event sport tourism: A case study in	234
	REVIEW	sustainable tourism	
Ritchie et al., 2009	JOURNAL OF SPORT AND	Resident perceptions of mega-sporting events: A	184
	TOURISM	non-host city perspective of the 2012 london	
		olympic games	
Minnaert, 2012	TOURISM MANAGEMENT	An Olympic legacy for all? The non-infrastructural	139
		outcomes of the Olympic Games for socially	
		excluded groups (Atlanta 1996-Beijing 2008)	
Taks, 2013	EUROPEAN JOURNAL SPORT	Social sustainability of non-mega sport events in a	135
	AND SOCIETY	global world1	
Smith, 2009	JOURNAL SPORT AND	Theorising the relationship between major sport	112
	TOURISM	events and social sustainability	

(Continued)

Table 4.5	(Continu	ied): Top	Cited	Document
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Paper	Source Title	Documents	Total Citations
Cornelissen, et al.	DEVELOPMENT SOUTHERN	Towards redefining the concept of legacy in relation	100
(2011)	AFRICA	to sport mega-events: Insights from the 2010 FIFA	
		world cup	
O'Brien & Chalip	INTERNATIONAL JOURNAL	Executive training exercise in sport event leverage	78
(2007)	OF CULTURE		
Duglio & Beltramo	SUSTAINABILITY	Estimating the economic impacts of a small-scale	62
(2017)	(SWITZERLAND)	sport tourism event: The case of the Italo-Swiss	
		mountain trail CollonTrek	
Collins & Flynn	TOURISM ECONOMICS	Measuring the environmental sustainability of a	56
(2008)		major sporting event: A case study of the FA Cup	
		Final	
Fairley, et al. (2011)	SPORT MANAGEMENT	The Formula One Australian Grand Prix: Exploring	49
	REVIEW	the triple bottom line	

However, in Table 4.6, we can see that 7 out of 10 cited documents are on the annual list of the most citations. This point out 3 exceptional paper which are McCullough, et al. (2020); Casper, et al. (2020) and Cooper & Alderman (2020). Even though those papers were newly published in 2020, they are so impacted the field of study. The ten most influential publications receive 1048 citations, accounting for 58,84% of the dataset's 1781 citations.

Paper	Source Title	Title	Total	TC per
			Citations	Year
Gibson, et al. (2012)	SPORT MANAGEMENT	Small-scale event sport tourism: A case study in	234	19.5
	REVIEW	sustainable tourism		
Taks (2013)	EUROPEAN JOURNAL SPORT	Social sustainability of non-mega sport events in a	135	12.3
	AND SOCIETY	global world1		
Ritchie, et al. (2009)	JOURNAL SPORT AND	Resident perceptions of mega-sporting events: A	184	12.3
	TOURISM	non-host city perspective of the 2012 London		
		olympic games		
				(Continued)

 Table 4.6: Top Cited Document Per Year

Table 4.6 (Continued): Top Cited Document Per Year

Paper	Source Title	Title	Total	TC per
			Citations	Year
Minnaert (2012)	TOURISM MANAGEMENT	An Olympic legacy for all? The non-	139	11.6
		infrastructural outcomes of the Olympic Games		
		for socially excluded groups (Atlanta 1996-Beijing		
		2008)		
McCullough, et al.	Journal of Sport Management	Measuring externalities: The imperative next	40	10
(2020)		step to sustainability assessment in sport		
Casper, et al. (2020)	Sport Management Review	Examining environmental fan engagement	36	9.0
		initiatives through values and norms with		
		intercollegiate sport fans		
Duglio & Beltramo	SUSTAINABILITY	Estimating the economic impacts of a small-scale	62	8.9
(2017)	(SWITZERLAND)	sport tourism event: The case of the Italo-Swiss		
		mountain trail CollonTrek		
				~

(Continued)

Table 4.6 (Continued): Top Cited Document Per Year

Paper	Source Title	Title	Total	TC per
			Citations	Year
Cooper &	Tourism Geographies	Cancelling March Madness exposes	34	8.5
Alderman (2020)		opportunities for a more sustainable sports		
		tourism economy		
Cornelissen, et al.	DEVELOPMENT SOUTHERN	Towards redefining the concept of legacy in	100	7.7
(2011)	AFRICA	relation to sport mega-events: Insights from the		
		2010 FIFA world cup		
Smith (2009)	JOURNAL SPORT AND	Theorising the relationship between major sport	112	7.5
	TOURISM	events and social sustainability		

4.7 Keyword Analysis and Keyword Co-Occurrence Network

The author examines 217 author's keywords to have a greater awareness of the most relevant terms in the dataset. Figure 4.6 shows the top 15 most relevant keywords, with triple bottom line (24 occurrences), mega-sporting event (14 occurrences), and sports events (13 occurrences) ranking as the first, second, and third most occurring keywords, respectively. These findings are somewhat consistent with our SCOPUS research inquiries. "triple bottom line", "sport event" and "mega-sporting event", indicating that these are among the most often discussed topics in the field of sustainability and sports events. Other than that, "sport tourism" "Olympic" "legacy" are the keywords that seem interesting and thus they affect the triple bottom line in some ways. "Olympic" is a worldwide mega event that bring many good and bad impact to the host city, in other words a negative or positive "legacy". It can bring a huge amount of tourists, financial, and cultural expression. But it can also bring environmental pollution based on transportation, hurt the finances of the host and lead the city to face a financial crisis. Another significant term that is in the figure "Sport Tourism" will be discussed more in Chapter 5.

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Figure 4.7: Most Relevant Autor's Keywords

4.8 Structures of Knowledge

Following the advancement of ideas and procedures, each community of scientists would get an in-depth review of the essential results linked to their specialized subject. Science Mapping enables statistical investigation of scientific information.

Figure 4.8: Keyword Co-occurrence Network Map.



Figure 4.8 shows a co-occurrence analysis that was used to generate the keyword network. This study examined how frequently a keyword occurred in a manuscript and how frequently two keywords were referenced together (Ding, et al., 2001). The analysis can also be used to find subjects of interest. Co-occurrence linkages were found by the lines connecting two nodes. While the line thickness shows the number of times two items appears together, the closer the nodes were together, the more tightly the keywords were associated (Van Eck & Waltmann, 2017).

The author determined 3 main clusters in the field which excited namely red, brown, and orange. The most impact cluster is red, with a "triple bottom line" in the center. The occurrence between " triple bottom line" and "sports tourism" is very high based on the thickness of the line connecting them. Think about the Olympics, think about the huge amount of tourism visits to that host country and how it affects the" economy" and "community". The economic advantages are also obvious. Investing in the future gives massive opportunities for the local people. For example, Qatar's World Cup expenditure is organized around a larger economic plan. Infrastructure investments are being incurred in order to establish the country as a cutting-edge center. New stadiums, airports, and subway lines set the stage for 2030 and beyond (Cristea, 2022).

The brown cluster represented keywords related to "mega-sporting events" also having the thickness line with "triple bottom line". During the mega events in general or the Olympics in specific, there is always a fight between sports branding, The industry is not limited to sports jerseys but to beverages, accommodations, transportation, and so on.

The orange cluster represented keywords related to sports events in general. Some important keywords with high frequencies were "transportation", "willingness to pay", "tourism" and "climate change". Transportation takes an important part within the tournament. Better public transportation networks allow more people to avoid driving, lowering greenhouse gas emissions and air pollution. While transportation changes are not needed for the Games' organization, many previous Olympic organizers have utilized the event as a catalyst for such advances, leaving long-term, good legacies for the hosts. Better public transportation networks allow more people to travel without a car, reducing greenhouse gas emissions and air pollution. While transportation changes are unnecessary for the Games' organization, many previous Olympic organizers have utilized the event as an accelerator for such developments, creating long-term, good legacies for the hosts (IOC, 2022).

For another cluster green, purple, and blue which is less impacted to the field of study. Cluster purple and blue have a connection with "triple bottom line" which is "legacy" and "event impact". "Legacy" also has a connection with "mega sporting event" and "sustainable development". There is one cluster that doesn't connect with "triple bottom line" which is green (sustainable and environment).

CHAPTER 5 DISCUSSION AND CONCLUSION

This independent research presents an overview of bibliometrics for the topics of triple bottom line and sports events. The author acknowledged that the issue is relatively unusual and that no bibliometrics assessment on especially sustainability in athletic events has been undertaken to examine the area. On the other hand, previous bibliometrics evaluations identified the environment, and economy and sport events as one cluster in the triple bottom line.

5.1 Summary of the Key Findings

Chatper 4 is used to clarify and answer the research question. To be more specific, Section 4.2 Three Field Plot and Section 4.7 Analysis and co-occurence network of keywords will answer for RQ1. Research question 2 will be answered under section 4.4 Most productive author and section 4.6 Top cited document. Section 4.5 Most productive countries will answer for RQ 3. With high citations and highquality publications, the United States has led in this field of study. McCullough became famous in the field of sustainability and sports event with his outstanding number of citations and articles published.

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5.2 Limitations of the Study

The limitation of the data set needs to be bigger (just only 56 papers). The paper is limited as it is just an independent study and should therefore be treated as such.

5.3 Future Research

The recommendation for future researchers is to improve the search Boolean so that to make sure to include all interesting topics. During the analysis, the author has identified some interesting keywords which future researchers could put more attention to. Furthermore, similar to the bibliometrics evaluations outlined in the literature review, future studies might compare the outcomes of the bibliometrics assessment to empirical findings and qualitative insights.

5.4 Recommendations and Concluding Remarks

Sport tourism is one of the interesting keywords that would impact future research. Sports events attract media attention, they are expected to advertise their city as an "international" tourist destination in order to attract future visitors (Taks, 2016). It stimulates local residents, generates jobs, and increases tax income. This expenditure is divided into three major categories:

- 1) Direct (hotels, restaurants, commerce, transportation)
- 2) Indirect (consumables and services)
- 3) Induced (employee spending)

In the near future, The Olympic Games that take place in Paris 2024 will promote energy conservation, innovation, and creativity, ushering in a new era for the Olympic Games. Comparing to previous Games, Paris 2024 will compensate for more than 100% of its residual emissions and leverage the Games' impact to build longterm carbon compensation initiatives and inspire climate action among its partners. The Paris 2024 Olympic Games have always prioritized sustainability. 95% of the planned Games venues are either already existing or will be temporary. The usage of 100% renewable energy, sustainably sourced food, sustainable transportation, and biodiversity conservation are important priorities for Paris 2024. (IOC, 2022). In the other hand, country with lack of government monitoring would named for Greece and their preparing for Olympic. An example of the Athens 2004 Olympic Games and how it affects the economy of Greece could be a real-life lesson for sports managers or the government. By current currency rates, the 2004 Athens Olympics cost over \$11 billion, more than double the intended budget. And that amount does not include major infrastructure projects that were pushed to completion at inflated prices. Construction teams worked around the clock in the months leading up to the games, utilizing floodlights to keep the work moving at night. However, after the tournament, more than a dozen Olympic venues--now unoccupied, gated off, and monitored by private security guards--were left abandoned. The money was completely wasted in a careless manner, resulting in a huge debt years later (The Economic Times, 2010).

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