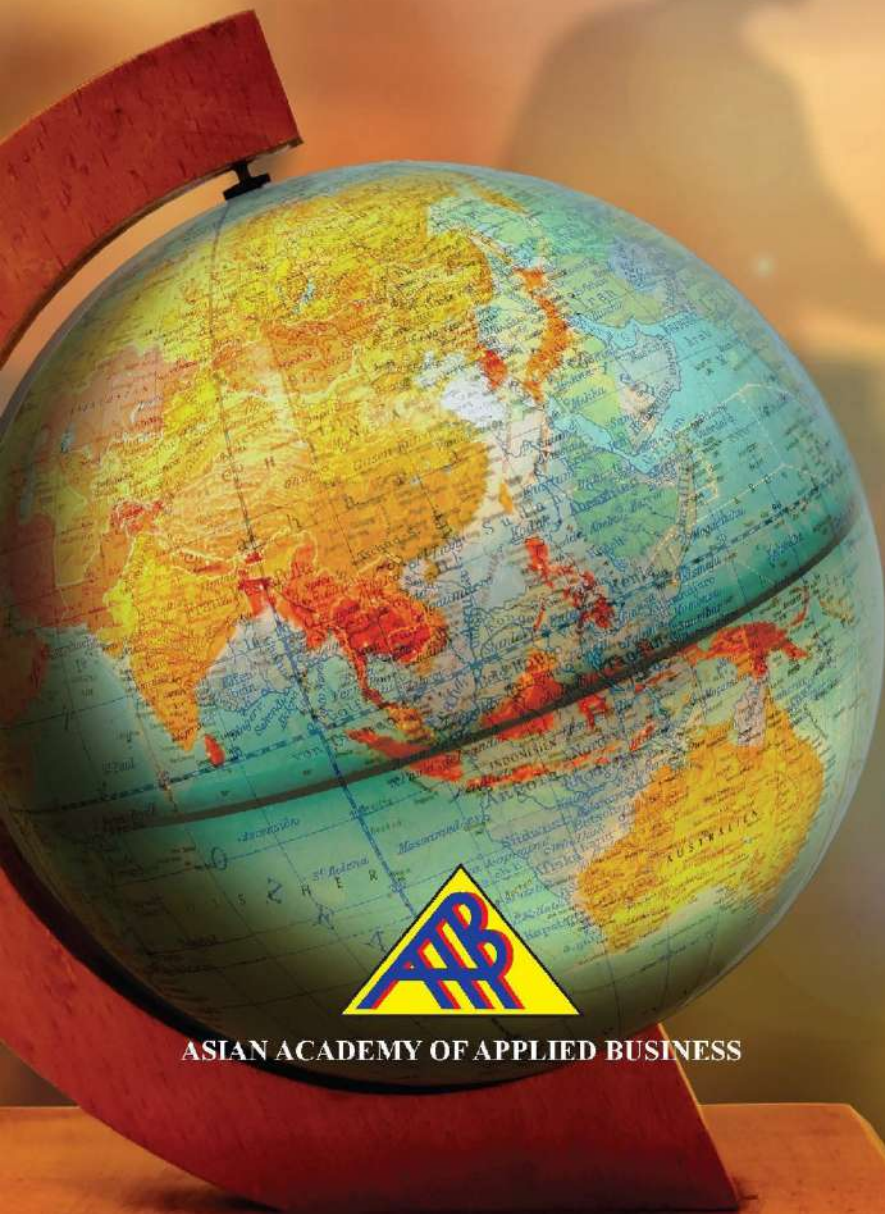


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Inflation Rate and COVID-19: A Bibliometric Analysis Using R

By

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ABSTRACT

This research intends to investigate the connection between the inflation rate and COVID-19 through a literature review and bibliometric analysis. The research set out to rigorously document the author's and source's relevance by cataloging their theoretical framework, total output, and emerging knowledge trends. Information is gathered and analysed using Microsoft Excel and R Studio from Scopus databases. Based on a large body of literature, we compiled a searchable database of the 205 most pertinent documents and papers over the last three years. According to preliminary statistics, there was a rise in the number of studies on the inflation rate and COVID-19 between 2020 and 2022. The most significant journals, authors, documents and papers on the subject are identified using bibliometric analysis using R. By combining the most important aspects of the inflation rate and COVID-19 into a single idea, this study shows how a new research topic can be developed, establishing new study avenues in the vast subject of the inflation rate as well as the recently developed and fiercely fought topic of COVID-19.

Keywords: Inflation rate, COVID-19, bibliometric analysis

INTRODUCTION

Existing knowledge of the inflation

Inflation is the term used to describe the overall rise in prices for goods and services (excluding asset prices) throughout the economy. It is also possible to think of inflation as a general decline in the value of money because when inflation occurs, people can buy fewer products and services for the same amount of money. Measures of inflation are used to alter monetary values to maintain purchasing power through time, enabling more accurate comparisons between various historical periods. Real monetary values are those that have been adjusted for inflation; nominal monetary values are those that have not been.

The average price of a standardised group of products and services also referred to as a market basket, may be tracked over time to determine the inflation rate. A pricing index, such as the CPI or PCE, is typically used to measure inflation. A price index was calculated by dividing the price of a market basket in a given year by the price of the basket in a base year. Chain

weighting takes changing purchasing patterns into account. The percentage change in the price index across several periods is then used to calculate the rate of inflation (Weinstock, 2023).

Different price indices are often used for different objectives and include various items and services in their market baskets. The CPI, which is frequently used to modify family income over time, for instance, covers consumer goods and services that families typically purchase. In contrast, the gross domestic product (GDP) deflator measures inflation for all final goods and services produced in the United States. It is often used to adjust the GDP for inflation over time. Similarly, PCE calculates inflation for all final products and services customers buy in the US. Because of methodological variations, PCE and CPI measurements of inflation differ slightly. The preferred inflation indicator of the Federal Reserve is PCE inflation. Additional inflation indexes include the Producer Price Index, the Employment Cost Index, and the Import/Export Price Index. Moving forward, PCE inflation will be contained in the report.

Inflation is often measured using either headline inflation or core inflation. Core inflation excludes the cost of food and energy, whereas headline inflation covers the whole range of goods and services within a standard market basket. Due to the erratic nature of food and energy prices, which can hide the longer-term patterns in headline inflation that worry policymakers and economists, researchers frequently employ core inflation in place of headline inflation. But a more realistic representation of the price fluctuations that people experience may be found in headline inflation (Weinstock, 2023).

A rise in a particular commodity or service price does not equal an increase in total inflation since inflation monitors the broad changes in prices throughout the economy. To indicate the proportional importance of each commodity or service to the broader economy, different weights are assigned to the items and services in a certain basket. Inflation as a whole will be calculated with greater weight given to categories having higher relative relevance to the economy, such as food, than to categories with lesser relative significance, such as apparel (Federal Reserve Bank of Cleveland).

Limitations and gaps

Following the COVID-19 outbreak, inflation in affluent economies spiked significantly after over two decades of low and steady inflation. (Martin et al., 2022). Although the effects of COVID-19 on pricing may be substantial, there is little evidence of this yet. Thus, this study aims to analyse and evaluate prior studies on inflation and COVID-19. Evaluating the current state and trend of publishing, the most prominent contributors (authors, articles, and sources), and how the topic of the publication has progressed in terms of the inflation rate and COVID-19.

Research question

R studio is used to show the review process utilising the research questions below to use bibliometric, text-mining, and visualisation capabilities.

Table 1: Research Questions (RQ)

No.	Research Question (RQ)	Analysis Procedure
1.	What are the Inflation rate and COVID-19 publications' current state and trends?	• Annual Scientific Production • Three-Field Plot
2.	What are the most impactful contributors to the Inflation rate and COVID-19?	• Most relevant authors • Most relevant sources • Most Cited Countries
3.	What are the most impactful articles, authors and sources on the Inflation rate and COVID-19?	• Most Global Cited Documents • Most Local Cited Documents • Authors' Local Impact • Lotka's Law • Sources Local Impact • Bradford's Law • Co-occurrence Network
4.	How has the subject of the publication coverage on the Inflation rate and COVID-19 evolved?	• Thematic Map • Trend Topics • Word's Frequency over Time • WordCloud • TreeMap

This article follows on to a more in-depth discussion and analysis after simply going through the crucial definitions for inflation rate and COVID-19. The methodology portion of the study includes a description of the procedures utilised in this inquiry, including the data searching process, data collection, extraction, and analysis. The research findings were described in the section that followed. The study's findings are emphasised in the publication's discussion and conclusions, which also address the study's limitations and provide avenues for further investigation.

LITERATURE REVIEW

Inflation rate and COVID-19

The COVID-19 pandemic has interfered with businesses' capacity to manufacture products and services and customers' spending habits since March 2020. These supply and demand interruptions have changed the relative pricing of the impacted items, which has led total prices to fluctuate exceptionally fast at first and eventually decline. Due to the exceptionally low prices in the year before, or "base effects," this trend has also affected 12-month measurements of inflation since March 2021.

Due to closures, business interruptions, shortages, and social alienation, the pandemic resulted in several long-lasting commercial and supply-chain disruptions. Some of these led to higher part pricing and increased company expenses (such as higher cleaning costs), which could be passed on to customers. The producer price index, which tracks the cost of inputs, climbed by 1% in a month (or 12% annually) and 7.3 % in the 12 months before June 2021. A shortage in the manufacture of microchips is one of these long-lasting disruptions that is expected to linger for some time. These days, microchips are used in more than just information technology goods. Microchips are now present in a wide range of consumer items, including home

appliances and automobiles, due to the rise of smart gadgets. As a consequence, there have been supply problems for a variety of items. For instance, scarcity has limited the availability of new cars, contributing to the steep increase in costs for both new and used vehicles.

Individual supply snarls, supply shocks, and bottlenecks are by their very nature likely to be transient, therefore they would only temporarily raise inflation. According to Goldman Sachs, supply-constrained product categories are temporarily but very slightly increasing core inflation by roughly 1%: It is anticipated that by 2022, those categories would reduce core inflation by around 0.5% (David and Laura, 2021). But if these supply variables become pervasive and persistent enough, it may mean that taken as a whole, they are truly being influenced by demand forces.

Consumer spending habits were also disturbed by the pandemic. Closures, social isolation, virus concerns, and other limitations, for instance, contributed to a sharp fall in several categories of in-person-only services in 2020. Famous examples are restaurants, hotels, and air travel. Additionally, in 2020, prices for several of these goods dropped significantly. With the economy's recovery, there is a pent-up desire for expenditure categories that were prohibited in 2020. Prices for these groups are now stabilising or, in circumstances where supply or labour disruptions are also a problem, even exceeding 2020 levels. However, this unmet demand could not by itself result in ongoing inflation in the future. In 2021, a family that avoided holiday travel in 2020 could elect to spend more money on vacation or take more time off, but probably not in subsequent years.

This demonstrates the short-term influence of "base effects" on inflation. Economists often examine inflation over the preceding 12 months instead of monthly statistics since monthly data are "noisy" (i.e., they increase and decrease swiftly without indicating a longer-term trend). According to the CPI, prices dropped in March, April, and May of 2020 and did not wholly recover until August of that year. (PCE reports that prices dropped in both March and April of 2020.) Since the "base" of the computation is an artificially low index number for 2020, 12-month CPI inflation rates for March through August 2021, notably in March and May 2021, will seem high. But base effects cannot account for the full inflation spike in March, April, May, and June of 2021; these months had double-digit percentage increases in only one month.

As a result of the pandemic, consumers were unable to spend money on some services and they were spending more time at home, leading to an increase in demand for other goods and services, such as consumer durables (which saw 28% growth in output in four quarters ending with the first quarter of 2021). A temporary increase in pricing may result from a sudden increase in demand for a product, but in certain circumstances, the supply side may respond by bringing prices back down. Lumber prices, for instance, peaked in the second half of 2020 as demand increased but have since fallen (Dezember, 2021). There is no guarantee that the price of an item will continue to go up in the future, even if the demand shift that led to the price increase is permanent. In such a case, the price rise won't affect overall inflation. This emphasises the role of broad price rises, rather than changes in relative prices, in generating inflation over the long run.

Economic impact payments (often referred to as "stimulus checks") from pandemic relief measures seem to be fueling the growth in demand for consumer durables (Weinstock, 2020). There should be no lasting inflation from stimulus payments since they are only one-time. Every good or service has its own set of unique variables that may be used to justify its pricing.

Some have, for instance, paid particular attention to the sharp increase in the cost of secondhand automobiles that has been widely reported since April of 2021. But from the beginning of this year through June 2021, practically every key component of the CPI has indicated above-average growth.

METHODOLOGY

Searching strategy

A well-organized set of search phrases is a search strategy. In order to get accurate and thorough results, the search strategy will use keyword search techniques (Piccarozzi et al., 2021; Salameh et al., 2020). PRISMA (Preferred Reporting Items for Systematic Reviews) and bibliometric analyses were employed in this research (see Figure 1). This strategy comprehensively studies the information amassed throughout time (Visser et al., 2021). Filtering and enhancing bibliographic data usually involve bibliometric approaches, such as discovering important articles in a database (such as Scopus). The VOSviewer application is currently being used to display the data. Using bibliometric analysis, future research ideas may be identified and predicted (Paul & Criado, 2020). Over 50 million items from over 5,000 articles may be found in Scopus, an Elsevier database (De Mauro et al., 2016). At the same time, our institution also obtained the Scopus database. We selected the Scopus database as our primary data source primarily for this reason.

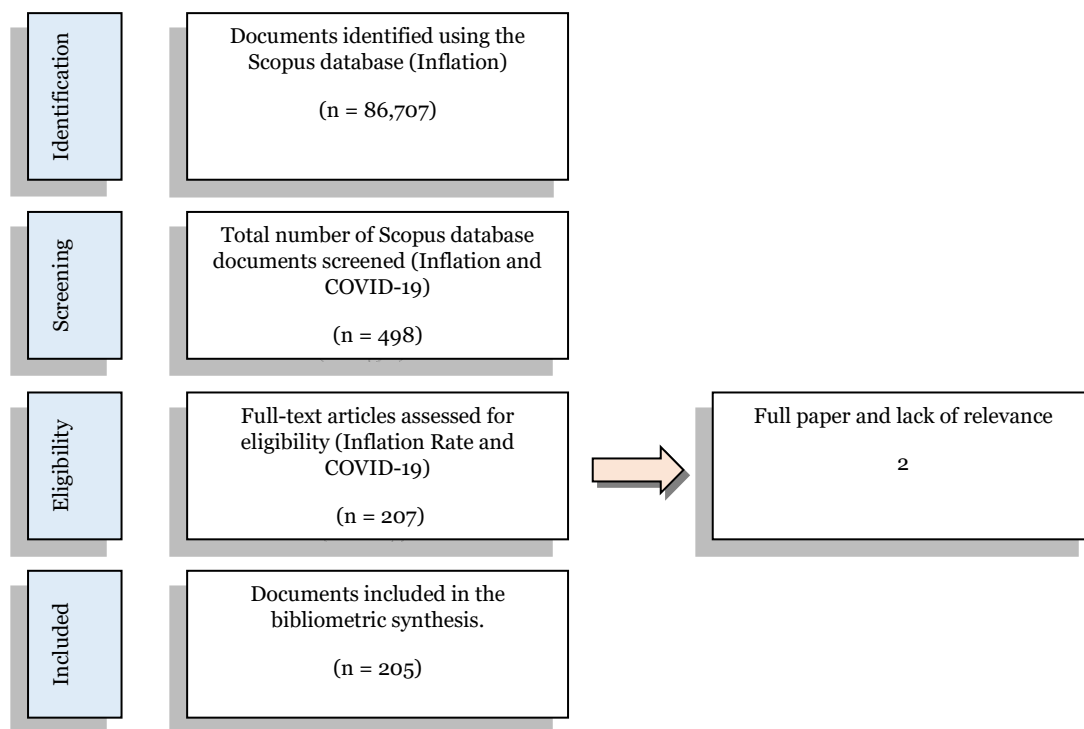


Figure 1: PRISMA diagram

Inclusion and exclusion criteria

Following previously specified criteria, all search results are initially checked for titles and abstracts (refer to **Table 2**). After that, they reviewed and summarised each article that had made it beyond the first screening process. Each research study is assessed based on the number of publications, the most esteemed journals and authors, and the research topics that were often discussed. We decided to create a final database of 205 publications from 2020 to 2023 due to the abundance of research on the inflation rate and COVID-19.

Table 2: Search criteria

Scopus Category	Searching criteria	No. of article
Topic 1	"Inflation"	86,707
Topic 2	"Inflation AND COVID-19"	498
Topic 3	"Inflation AND Rate AND COVID-19"	207
Research year	2020-2023	207
Document Type	All types of publication	205
Language	Chinese, Czech English, English, Portuguese, French, German, Hungarian, Russian, Spanish	205
Author name	All	205

Extraction techniques

Table 2 lists the 207 journal articles exported in a format compatible with the applications. To increase the study's accuracy, the downloaded database underwent a thorough analysis. The term "Inflation" is the first one that is looked for in the extraction process, then "Inflation AND COVID-19," and finally "Inflation AND Rate AND COVID-19." Excel (.csv) and VOSviewer were the tools we employed for this study. For bibliometric academic researchers, VOSviewer software is a free programme that visualises bibliometric maps. The final Scopus database offers the most helpful information on article titles, authors, keywords, and citations, including all references. It is beneficial to analyse bibliometric data since it can identify and foresee potential future study topics (Paul & Criado, 2020).

Choice of synthesis method (Analysis)

Analysis of descriptions was part of the initial investigation procedure. We created several Excel graphs to chart the evolution of works on inflation rate and COVID-19 concepts across time. The bibliometric analysis method was applied in the phase that came next. This method uses citations to identify the articles and scholars who have had the most impact on a certain subject. Several other metrics, including the H-index, total citations, and citations per article, may also represent academic standing. Depending on the results, the co-citation analysis may concentrate on the author, journal, co-citations of particular keywords, etc. We produced "network maps" based on article links by viewing our sample database with VOSviewer and R studio.

RESULTS AND DISCUSSIONS

Document Profiles

The publications discovered covered the years 2020 through 2023. Only after 2020 did publications begin to improve in an organisation and start to steadily and gradually grow in number. Based on the 205 papers in total (**Table 3**), there is a -44.34% yearly growth rate, a 3,41 average number of citations per document, and a total of 7950 references. Additionally, articles (160) are the most common kind of publication for this field of study, followed by reviews (7).

Table 3: Document Profiles

Description	Results
MAIN INFORMATION ABOUT THE DATA	
Timespan	2020:2023
Sources (Journals, Books, etc)	165
Documents	205
Annual Growth Rate %	-44.34
Document Average Age	1.59
Average citations per doc	3.41
References	7950
DOCUMENT CONTENTS	
Keywords Plus (ID)	766
Author's Keywords (DE)	713
AUTHORS	
Authors	657
Authors of single-authored docs	41
AUTHORS COLLABORATION	
Single-authored docs	45
Co-Authors per Doc	3.38
International co-authorships %	22.44
DOCUMENT TYPES	
Article	160
Book	1
Book chapter	9
Conference paper	22
Conference review	2
Erratum	1
Letter	2
Note	1
Review	7

RQ1: What are the Inflation rate and COVID-19 publications' current state and trends?

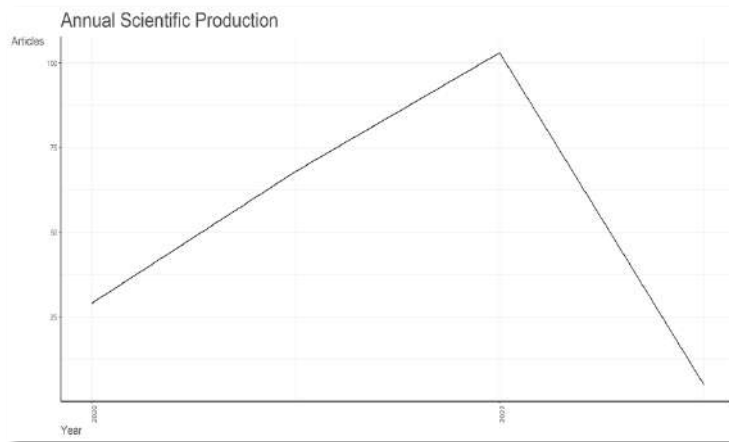


Figure 2: Annual Scientific Production (total articles published from 2020-2023)

In 2023, only 5 out of 205 papers were successfully published, as shown by the data in **Figure 2**. This topic's lack of interest in mainstream media discourse may explain the low number of publications. Dialogue has been hampered because experts in the field and academics cannot understand the importance of the inflation rate from a broader perspective. The number of publications increased between 2020 (29 articles published) and 2022. The COVID-19 pandemic that hit at that time caused the subject of the inflation rate to start receiving greater attention. The year 2022 they had the most production with 103 publications.

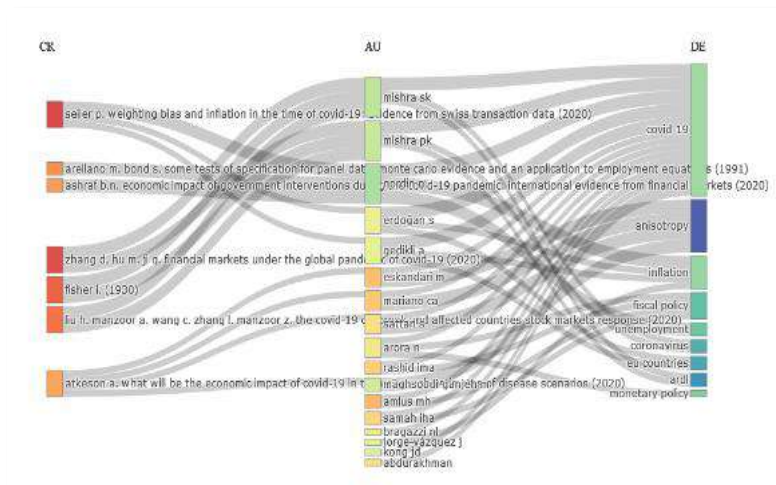


Figure 3: Three-Field Plot

The name of the published journal, a list of the author's names, and the themes/topics covered are the three elements that make up the Three Fields Plot image above (**Figure 3**). The three elements are connected by a grey plot that is relevant to each one. Following the names of the journals is a list of their regular contributors, followed by a list of the topics that each author frequently researches about the inflation rate and COVID-19-related issues. The rectangle's size shows how many publications there are for each component.

It is clear from the image above that the first element of the Three Fields Plot has seven journals that publish papers on the inflation rate and the COVID-19 subject. The top publication that publishes the most articles on the topic of COVID-19 research and inflation rates is “What will be the economic impact of COVID-19 in the US? Rough estimates of disease scenarios (2020)” is shown with an orange rectangle associated with various authors, including Eskandari M, Mariano CA, Sattari S, and Maghsoudi-Ganjeh M.

The author's name is displayed in the second element in the image's centre. The topical keywords often used to the right of the image will be linked to the author. In this study, 17 eminent researchers participated in this plot. The rectangle size represents the number of research articles each author has published. Regarding this study, the authors, Mishra SK and Nordin N, who are shown by green rectangles, mainly discuss the inflation rate and COVID-19.

On the right side of the image, there is a third element that explains the study topic. Authors who produce a lot of work on related subjects are linked to each topic. Nine keyword topics have been listed based on the image's results. The term "COVID-19" is one of the topics frequently indicated with a green rectangle among all the topics displayed. Anisotropy and inflation, which virtually all writers use often, are in second and third place, respectively. This shows how studying the inflation rate and COVID-19 is intimately tied to the word COVID-19 itself.

RQ2: What are the most impactful contributors to the Inflation rate and COVID-19?

Regarding the second research topic, the study focuses on the most pertinent authors, most relevant sources, most cited countries, and most locally cited sources in the field of the inflation rate and COVID-19. The sample database has the most relevant authors and publications, as shown in **Figure 4**. Generally, six authors have major influence: Amlus MH, Eskandari M, Mariano CA, Rashid IMA, Samah IHA, and Sattari S.

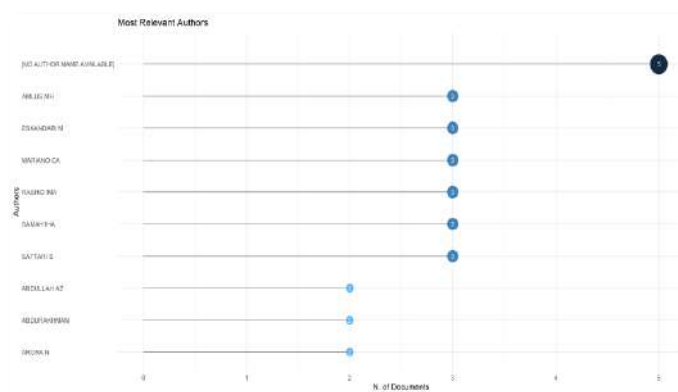


Figure 4: Most Relevant Authors

Figure 5 displays the number of research articles produced by each journal based on how pertinent they are to the inflation rate and COVID-19. The information displays a list of the top journals by name along with an interval for the number of documents published as a blue bar

chart. The amount and importance of the study subject are indicated by the darker the blue colour is, and all journals have been published somewhere between 0 and 4 documents.

The top-ranking journals are Mathematics and Sustainability (Switzerland), with four published documents, as indicated in a dark blue bar chart compared to the bars for the other journals. This is so because the journal has a bearing on the subject matter covered. There are eight journals designated in bright blue for the journals with the fewest publications (2nd lowest place). This indicates that the inflation rate and COVID-19 topic are still lacking in both quantity and relevance. As the most relevant data sources, a total of 10 journals are listed.

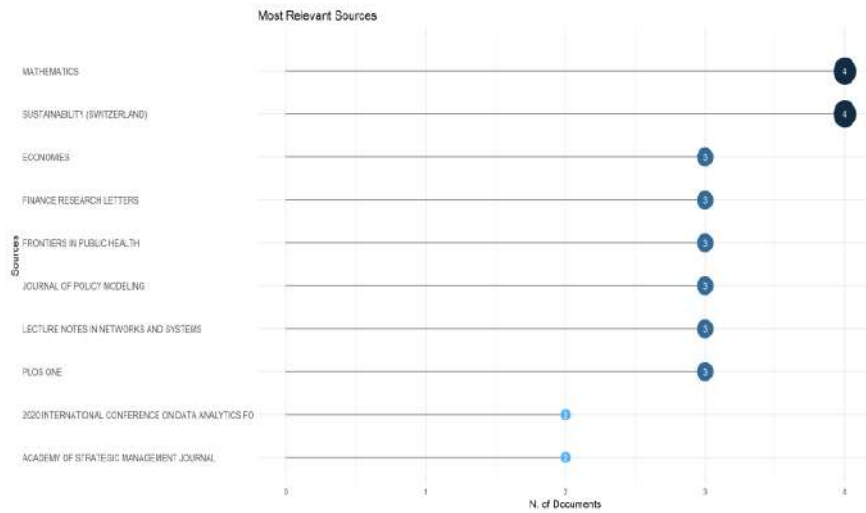


Figure 5: Most Relevant Sources

Following **Figure 6**, we can see that the top ten countries and categories of papers relating to the inflation rate and COVID-19 are highlighted. Whereas the USA (with 109 citations), China (with 68 citations), and Ghana (with 40 citations) are the top three countries that are the most cited in this field. Even though most publications are in the form of articles and review papers, there are many other types of documents that are published as well. Overall, the inflation rate and COVID-19 are topics that are actively discussed in the USA, while conferences are popular places for discussing and exchanging ideas.

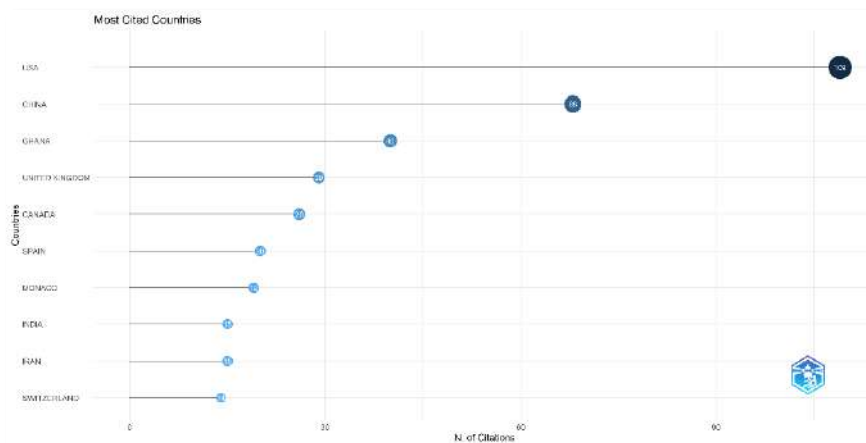


Figure 6: Most Cited Countries

RQ3: What are the most impactful articles, authors, and sources on the Inflation rate and COVID-19?

Highly cited documents

With Web of Science citation records ranked in the top 1% in their field, this coveted ranking honours the brightest researchers in the world. You are a successful and significant academic if your work appears on the list of most referenced articles. Additionally, when more people hear about the researchers' links with larger institutions, the exposure and possible reputation of such associations grow significantly (Martínez et al., 2015). However, a number of external variables that don't seem to be directly connected to the "quality" of the article's content affect the total number of citations an article obtains. (Fahimifar et al., 2022). **Figure 7** lists the 10 papers and documents that have received the most citations worldwide in the fields of COVID-19 and inflation. The most prominent are Pelletier JH (2021), which has 62 total citations, and Binder C (2020), which has 84 total citations. Total citations in other articles ranged from 16 to 36. In contrast, the subjects presented are rather diverse and not especially connected to inflation rates and COVID-19.

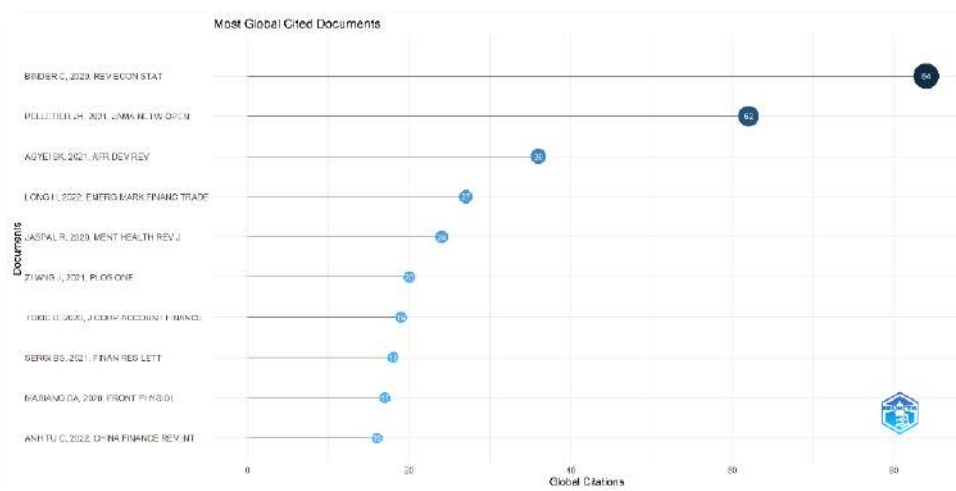


Figure 7: Most Global Cited Documents

Figure 8 displays the 10 articles on the field inflation rate and COVID-19 that have received the greatest local citations. Among the most noteworthy is Seiler P (2020), who has a total of 5 citations. Other works, with a total of 1 to 3 citations, are not very relevant to the topic of inflation rates and COVID-19.

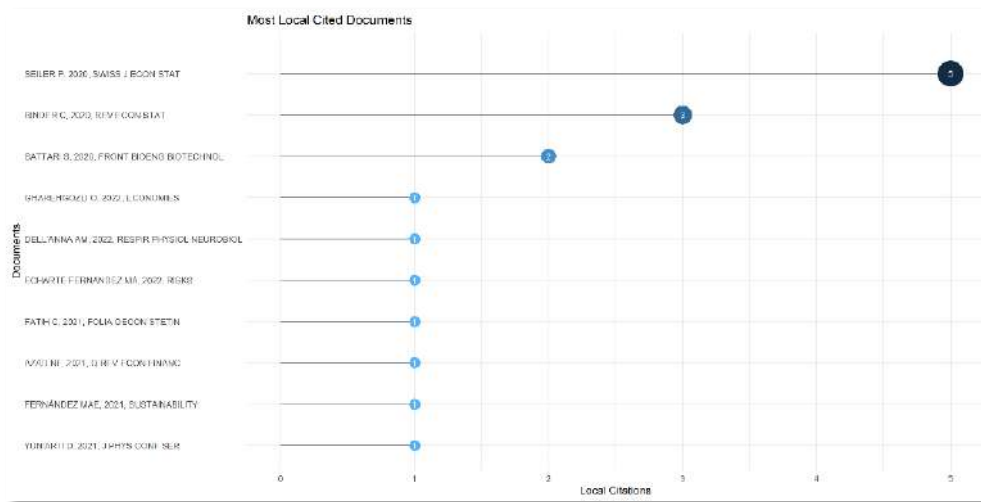


Figure 8: Most Local Cited Documents

Author's Local Impact

Authors who have had their articles published can also be classified according to the h-index of the effect. The range of our h-index values is 0 to 3. On the bar chart, the size of the impact is indicated in dark blue. In contrast, **Figure 9** below demonstrates that Eskandari M., the author with the highest h-Index, is indicated with a dark blue bar chart colour, which denotes the most influence followed by Mariano CA and Sattari S, both having h-Index values of 3. The remaining authors obtained a low h-Index of 2 and a lower level of impact.

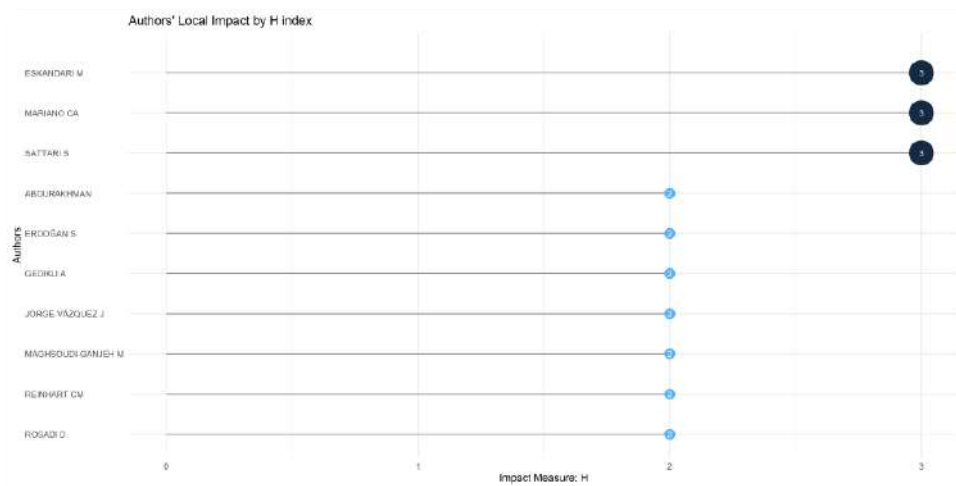


Figure 9: Authors' Local Impact

Lotka's Law

Often referred to as the "inverse square rule of scientific invention," Lotka's Law has gained widespread recognition in recent decades. In its most basic form, it states that there is a constant ratio between the proportion of writers who publish many publications and those who publish just one. (Friedman, 2015). In other words, it provides information on how often authors on a certain subject publish their works (Maz-Machado et al., 2017). Since then, several academics from other fields have examined author productivity and publications using Lotka's Law (Friedman, 2015). The distributions of the observed and fitted Lotka's are shown in **Figure 10**. A total of 1 to 5 papers have been published. **Figure 10** below shows unequivocally that as the number of articles published rises, fewer authors participate.

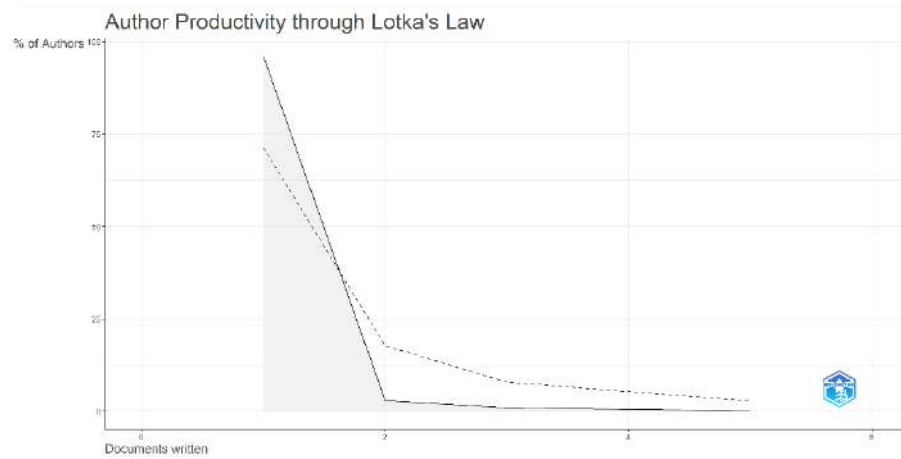


Figure 10: Lotka's Law

Calculations for journals are not just dependent on total production or content relevancy. The influence of each journal that publishes a paper on the topic of the inflation rate and COVID-19 is also examined in this study by calculating the publication's h-index, which is shown in a blue bar chart. **Figure 11**, in addition to displaying the h-index number, also highlights the influence the magazine has on the world through the use of blue. The larger the influence the magazine will have, the darker the blue on the diagram.

Sustainability (Switzerland), which is highlighted in dark blue in **Figure 11**, is in the top spot with an h-index of 3. Six journals with h-index values of 2 are in the second position. Three journals are identified in bright blue on the figure as having an h-index of 1, which denotes a journal with a low impact.

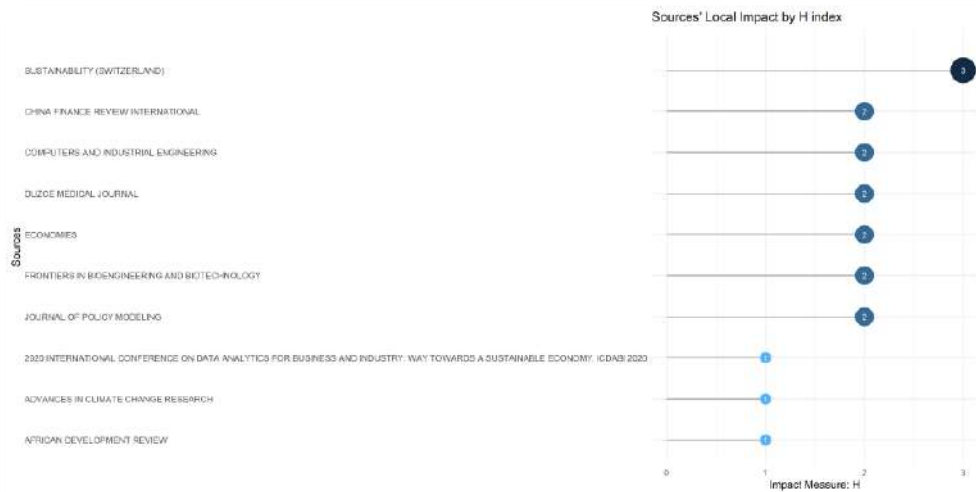


Figure 11: Sources' Local Impact

Bradford's Law

Bradford's rule indicates that the number of journals in the second and third zones will be n and n^2 times bigger than that in the first zone, therefore if the numbers for the core and middle zones are known, the total number of journals carrying articles on a topic should be predictable (Fairthorne, 2005; Garfield, 1980). Once the whole number of articles is known, it should be possible to determine how much crucial data is being withheld due to the inadequate search. Since doing a systematic review requires much time and effort, it would be useful if Bradford's law properly predicted the amount (and, if possible, quality) of the literature (Friedman, 2015).

The classification of journals into core, intermediate, and wide groups is depicted in the image below, which is based on Bradford's law. The important journal categories include colour and annotations. This group of periodicals comprises those that produced the most studies on inflation and COVID-19 at a certain point in time. The 29 most pertinent sources for information on the inflation rate and Covid-19 are displayed in **Figure 12**. The most notable publication in this field is Mathematics (4 articles), followed by Sustainability (4 papers) and Economies (3 papers). Since peer review is a part of the publishing process for these journals, it helps to ensure their correctness and value to their respective professions.

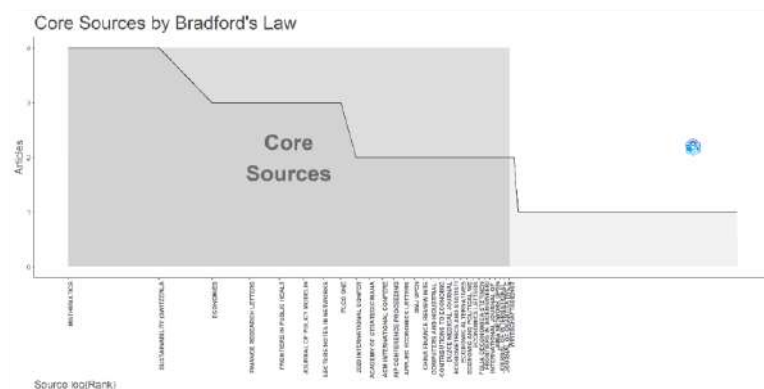


Figure 12: Bradford's Law

Co-occurrence network

A co-occurrence network, also known as a semantic network, is a text analysis technique that shows potential connections between people, organisations, ideas, bacteria, and other biological entities (Segev, 2021). Co-occurrence network building and visualisation are made feasible by text that has been saved electronically and is text-mining compatible. Co-occurrence analysis may be defined as simply counting matched data inside a collection unit (Cohen et al., 2005; van Eck & Waltman, 2021). The high-frequency keywords with a close co-occurrence relationship to the topics of the inflation rate and COVID-19 are shown in **Figure 13**. Three significant clusters have been created as shown in **Figure 13**. Cluster 1 is made up of the terms "COVID-19", "Monetary policy", "Pandemic", "Inflation", "Financial crisis", "Fiscal policy", "Unemployment", "Economic crisis", "Investments", and "Interest rate". The terms "Corona disease 2019", "United States", "Article", "Male", "Adult", "Female", "Middle-aged", "Artificial ventilation", and "Controlled study" make up Cluster 2. Cluster 3 contains the networks "Human", "Humans", "Sar-cov-2", "Pandemic", and "Epidemiology", among others.

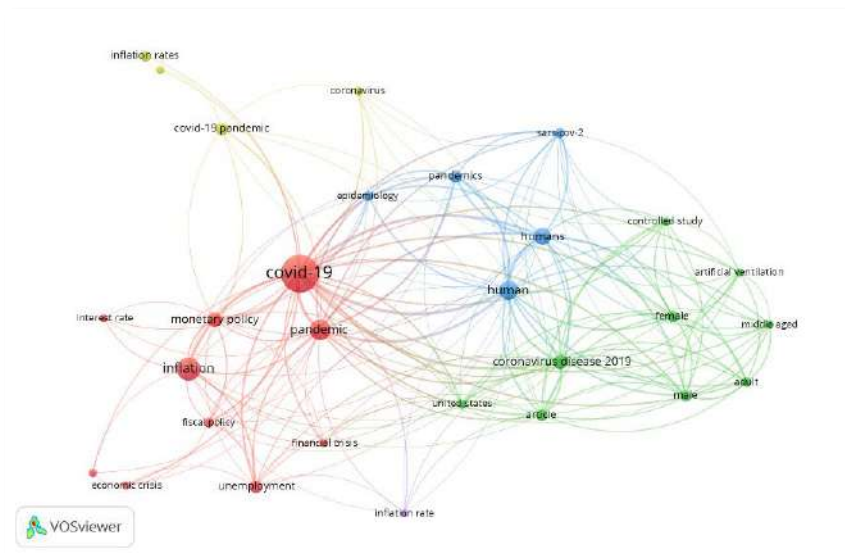


Figure 13: Co-occurrence Network

RQ4: How has the subject of the publication coverage of the Inflation rate and COVID-19 evolved?

The method combines performance analysis with scientific mapping to discover and visualise conceptual subdomains, then quantify and visually represent the theme evolution of the study subject (Cobo et al., 2011). In this study, a number of analyses were conducted, including the thematic map, trend topics, Word's Frequency Over Time, Wordcloud, and Treemap.

Thematic Map

A thematic analysis of evolution. The network of connections between scientific fields, articles, and authors is graphically represented in science mapping, often referred to as bibliometric

mapping (Rashid et al., 2021). It has been applied in many domains to reveal subjects and other previously undiscovered concepts (Chen et al., 2019). The study also separated thematic maps into 4 quadrants in **Figure 14** based on density and centrality. All references to the research subject were reviewed by a semi-automatic system, which also added more keywords. to find differences. It's necessary to design and explore a driving or motor theme that is densely concentrated in the top right quadrant. This quadrant's major topic is "COVID-19". The bottom left quadrant also exhibits motifs that are developing and waning with a modest degree of development, as seen by its low centrality. Topics in this quadrant include "macroeconomics". Furthermore, there are recurring motifs with great centrality in the lower-right quadrant (i.e., basic themes). The sole major topic in this quadrant is "inflation rates".

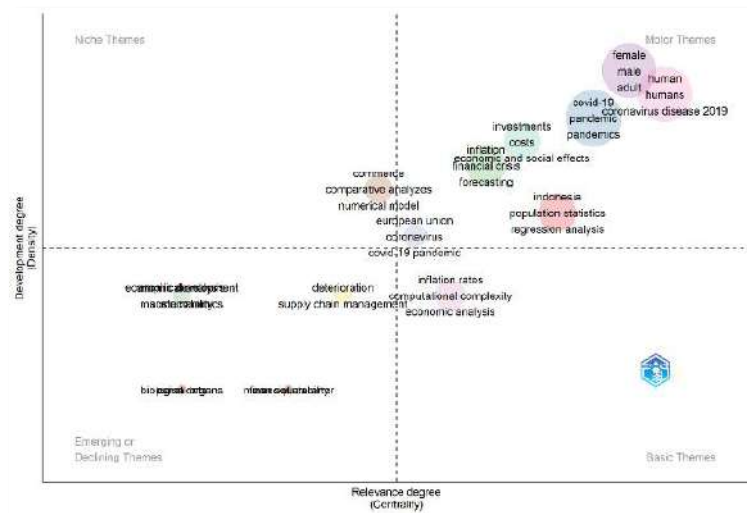


Figure 14: Thematic Map

Trend topics

The trends in the field are also examined in this study, and the following table provides a snapshot of the evolution of the term along with the accompanying year. In order to distinguish between themes that have been used for a long time and those that have only recently (Bolaños, 2022; Yardibi et al., 2021). The term is used more frequently and more lately further to the right as it rises in the list. The topic's development began to considerably accelerate in 2021, as seen in **Figure 15** and **Table 4**. As stated in the data's description below, the subject has been used since 2021, especially in talks on inflation and COVID-19 (F=39), human (F=25), human (F=20), pandemic (F=17), and United States and inflation (F=9 and 7, respectively). Even though time has passed, the frequency of the issue inflation is still minimal. From 2021 to 2022, "COVID-19" is the subject that receives the most discussion compared to other subjects in years q1, q2, and q3. This information also explains why the inflation rate and COVID-19 topics have recently gained popularity.

Table 4: Trend Topics (year)

item	freq	year_q1	year_med	year_q3
pandemic	17	2021	2021	2022
united states	9	2021	2021	2022
inflation	7	2021	2021	2022
COVID-19	39	2021	2022	2022
human	25	2021	2022	2022
humans	20	2021	2022	2022



Figure 15: Trend Topics

Word's Frequency Over Time

The data set indicates that the frequency of words across time is a reliable measure of the evolution of language. In addition to the author's keywords, title, and abstract, a tally of the most frequently used keywords is one method of presenting selection. Both approaches count the total annual occurrences as their basis. **Figure 16** shows, based on annual totals, how the most popular terms in the area of inflation rate and COVID-19 study grow from 2020 to 2022. **Figures 16** and **17** demonstrate that there was a discernible uptick in the use of many significant keywords beginning in 2009. Data from "Word's Frequency over Time" for the years 2020 and 2022 reveals an increase in the usage of frequently used keywords like "COVID-19". A number of other analyses, including the "Trend Topics" and "WordCloud" investigations, show similar patterns, thus we may feel confident in this finding. This discovery further clarifies why certain phrases were selected as timely and important.

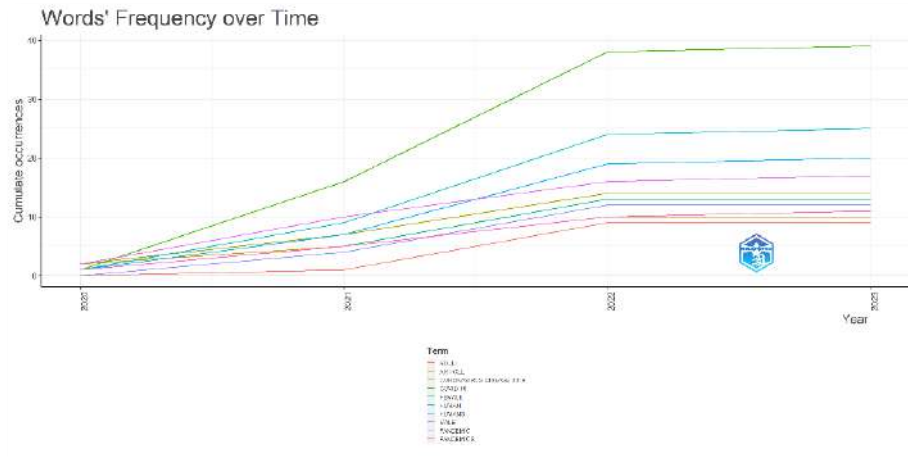


Figure 16: Words' frequency over time

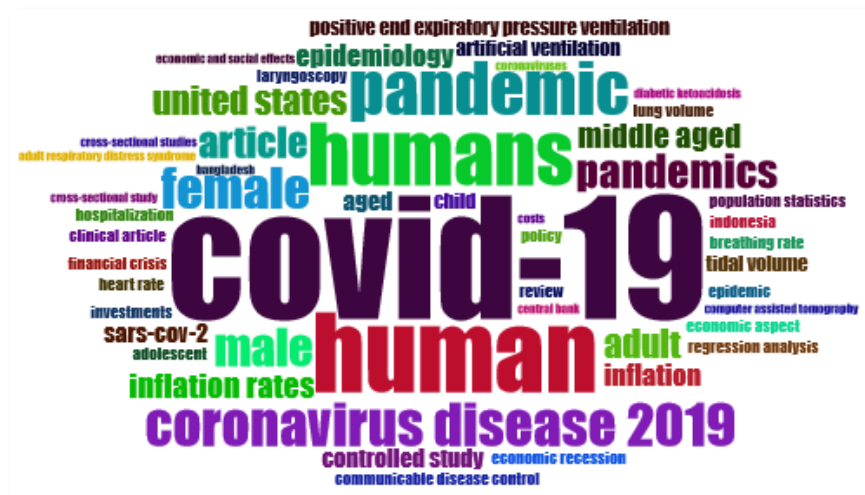


Figure 17: Word cloud

Tree Map

Tree maps are a graphical representation of hierarchical data in which nodes are represented by stacked rectangles (Lockhart, 2015). They are composed of several stacked, suitably sized rectangles. A wide rectangle in a data tree represents a branch, whereas smaller rectangles show the size of each node inside that branch. **Figure 18** shows the top 50 phrases based on keyword plus, the author's keywords, the title (bigrams), and the abstract (trigrams) in different tree maps. According to the tree map data, "COVID-19" has the highest percentage (11%) followed by "humans" (7%) and "humans", both of which have 6%. Other elements, such as "inflation", "inflation rates", and "economic and social repercussions", only contribute a modest percentage, ranging from 1% to 3%.

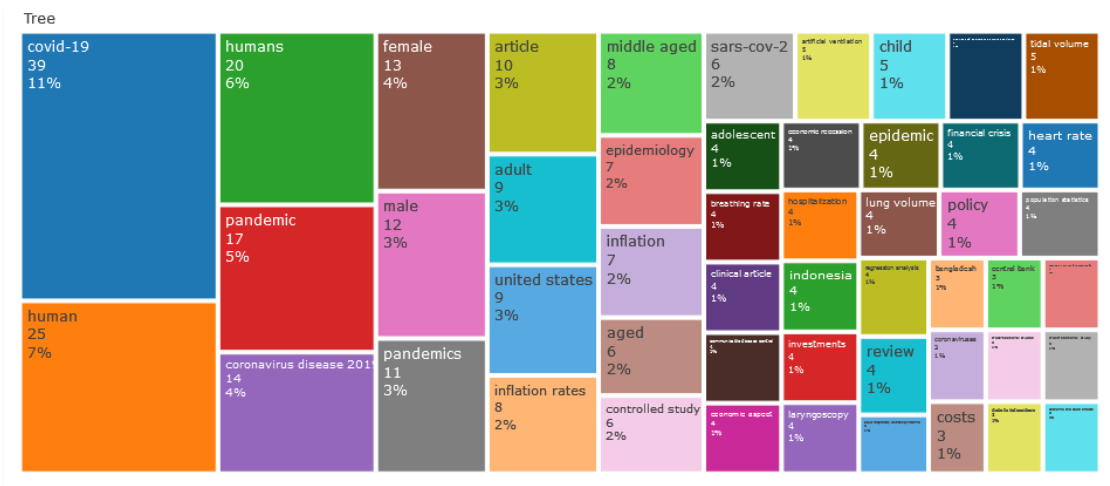


Figure 18: TreeMap

CONCLUSION

The goal of this research is to examine the connection between inflation and COVID-19 studies in the years 2020-2023. The 205 documents consulted for this study show that the amount of research on the topic of inflation has grown yearly. For example, throughout the research period, the authors Amlus MH, Eskandari M, Mariano CA, Rashid IMA, Samah IHA, and Sattari S often researched the topic of inflation and COVID-19. COVID-19 is a keyword that is frequently used in TSR research. As a result, research into the inflation rate approach is advancing and becoming inextricably linked to COVID-19. Given that there is currently a dearth of economic and financial studies that thoroughly tackle the issue of inflation, this research on the topic has to be continually updated.

REFERENCES

- Andrea De Mauro, M. G. (2016). A formal definition of Big Data based on its essential features. *Library Review*, 65(3), 122–135. <https://doi.org/10.1108/LR-06-2015-0061>
- Aravik, H., Hamzani, A. I., & Khasanah, N. (2021). the Role of the State in the Islamic Economic System: a Review of Abbas Mirakhor'S Thought. *Islamic Banking : Jurnal Pemikiran Dan Pengembangan Perbankan Syariah*, 7(1), 1–22. <https://doi.org/10.36908/isbank.v7i1.271>
- Azid, T. (2010). Anthology of Islamic Economics: Review of Some Basic Issues. *Review of Islamic Economics*, 13(2), 165–194.
- Bello, H. S., Ahmad, N., & Galadima, I. S. (2018). Islamic economy as an alternative solution to managing economic crisis: Some fashionable case studies of Iran, Malaysia Saudi Arabia. *Financial Markets, Institutions and Risks*, 2(3), 43–51. [https://doi.org/10.21272/fmir.2\(3\).43-51.2018](https://doi.org/10.21272/fmir.2(3).43-51.2018)
- Bolaños, F. (2022). Mapping the Trending Topics of Bibliometric-enhanced Information Retrieval. *CEUR Workshop Proceedings*, 3230, 61–70.
- Brescia, V., Sa'ad, A. A., Hassan, R. B., Alhabshi, S. M. B. S. J., & Lanzalonga, F. (2021).

- Exploring sustainability from the Islamic finance perspective. *European Journal of Islamic Finance*, 19(December), 45–53. <https://doi.org/10.13135/2421-2172/6107>
- Chen, X., Lun, Y., Yan, J., Hao, T., & Weng, H. (2019). Discovering thematic change and evolution of utilizing social media for healthcare research. *BMC Medical Informatics and Decision Making*, 19(Suppl 2). <https://doi.org/10.1186/s12911-019-0757-4>
- Cohen, A. M., Hersh, W. R., Dubay, C., & Spackman, K. (2005). Using co-occurrence network structure to extract synonymous gene and protein names from MEDLINE abstracts. *BMC Bioinformatics*, 6, 1–15. <https://doi.org/10.1186/1471-2105-6-103>
- Criado, J. P. (2020). The art of writing literature review: What do we know and what do we need to know? *International Business Review*, 29(4), 101717. <https://doi.org/10.1016/j.ibusrev.2020.101717>.
- Çuruk, S. A., & Kaynar, Z. (2021). Bibliometric Analysis of Islamic Finance Literature. *International Journal of Business & Economic Studies*, 3(1), 27–42. <https://orcid.org/0000-0001-8966-4011>
- Dahani, K., & Aboulaich, R. (2018). Dynamic stochastic general equilibrium model for the islamic economy. *Investment Management and Financial Innovations*, 15(3), 370–382. [https://doi.org/10.21511/imfi.15\(3\).2018.30](https://doi.org/10.21511/imfi.15(3).2018.30)
- Dezember, R. (2021, July 14). Lumber Prices Are Way Down—but Don’t Expect New Houses to Cost Less. Retrieved from The Wall Street Journal: <https://www.wsj.com/articles/lumber-prices-are-way-down-but-dont-expect-new-houses-to-cost-less-11626260401>
- De Mauro, A., Greco, M., & Grimaldi, M. (2016). A formal definition of Big Data based on its essential features. *Library Review*, 65(3), 122–135. <https://doi.org/10.1108/LR-06-2015-0061>
- Egghe, L. (2006). Theory and practise of the g-index. *Scientometrics*, 69(1), 131–152. <https://doi.org/10.1007/s11192-006-0144-7>
- Fahimifar, S., Mousavi, K., Mozaffari, F., & Ausloos, M. (2022). Identification of the most important external features of highly cited scholarly papers through 3 (i.e., Ridge, Lasso, and Boruta) feature selection data mining methods: Identification of the most important external features of highly cited scholarly pape. *Quality and Quantity*, 3(0123456789). <https://doi.org/10.1007/s11135-022-01480-z>
- Federal Reserve Bank of Cleveland. (n.d.). Consumer Price Data. Retrieved from <https://www.clevelandfed.org/center-for-inflation-research/consumer-price-data>
- Firmansyah, E. A., & Faisal, Y. A. (2020). Bibliometric Analysis of Islamic Economics and Finance Journals in Indonesia. *Al-Muzara’Ah*, 7(2), 17–26. <https://doi.org/10.29244/jam.7.2.17-26>
- Friedman, A. (2015). The Power of Lotka’s Law Through the Eyes of R. *Romanian Statistical Review*, 2, 69–77.
- Ghafar Ismail, A., & Shaikh, S. A. (2017). Role of Islamic Economics and Finance in Sustainable Development Goals Innovative Islamic Finance Proposals for an Egalitarian Financial System View project Fiscal Federalism View project. *Islamic Economic Studies and Thoughts Centre*, 5(April), 1–16. <https://doi.org/10.13140/RG.2.2.14806.09288>
- Handoko, L. H. (2020). Bibliometric analysis and visualization of islamic economics and finance articles indexed in scopus by Indonesian authors. *Science Editing*, 7(2), 169–176. <https://doi.org/10.6087/KCSE.213>
- Hussain, M. (1994). A comprehensive macroeconomic income determination model for an Islamic economy. In *Pakistan Development Review* (Vol. 33, Issue 4, pp. 1301–1314). <https://doi.org/10.30541/v33i4iipp.1301-1314>
- Laila, N., Rusydiana, A. S., Irfany, M. I., Imron, H. R., Srisusilawati, P., & Taqi, M. (2021).

- Energy economics in Islamic countries: A bibliometric review. *International Journal of Energy Economics and Policy*, 11(2), 88–95. <https://doi.org/10.32479/ijeep.10763>
- Martín Harding, J. L. (2022). Understanding Post-COVID Inflation Dynamics. Bank of Canada.
- Martínez, M. A., Herrera, M., Contreras, E., Ruíz, A., & Herrera-Viedma, E. (2015). Characterizing highly cited papers in Social Work through H-Classics. *Scientometrics*, 102(2), 1713–1729. <https://doi.org/10.1007/s11192-014-1460-y>
- Maz-Machado, A., Madrid, M. J., Jiménez-Fanjul, N., & León-Mantero, C. (2017). Empirical examination of lotka's law for information science and library science. *Pakistan Journal of Information Management and Libraries*, 19, 37–51. <https://doi.org/10.47657/2017191106>
- Moosa, M. (2019). EXPLORING THE BENEFITS OF ISLAMIC ECONOMY. *Research*, 21(2), 259–268.
- Muhamad, A., Syihab, A. H., & Achour, M. (2019). Quranic Messages on Environmental Sustainability: An Expository Study of Its Relevance. *AlBayan*, 17(1), 38–59. <https://doi.org/10.1163/22321969-12340069>
- Nouh, M. (2012). Sustainable development in a Muslim context. *Faith Values and Education for Sustainable Development*, 39.
- Okte, M. K. S. (2010). Fundamentals of Islamic Economy and Finance: Theory and PracticeİslaEkonomisi VeFinansininTemelleri:Teori Ve Uygulama. *Electronic Journal of Social Sciences*, 31(9), 180–208. www.esosder.org
- Patmawati, I., Asmak, A. R., & Siti Arni, B. (2011). Sustainable economic development : Concept , principles and management from Islamic perspective. *European Journal of Social Sciences*, 24(3).
- Paul, J., & Criado, A. R. (2020). The art of writing literature review: What do we know and what do we need to know? *International Business Review*, 29(4), 101717. <https://doi.org/10.1016/j.ibusrev.2020.101717>
- Philipp, T. (1990). The Idea of Islamic Economics. *Die Welt Des Islams*, 30(1/4), 117–139. <https://doi.org/10.2307/1571048>
- Piccarozzi, M., Silvestri, C., & Morganti, P. (2021). Covid-19 in management studies: A systematic literature review. *Sustainability (Switzerland)*, 13(7). <https://doi.org/10.3390/su13073791>
- Rashid, S., Rehman, S. U., Ashiq, M., & Khattak, A. (2021). A scientometric analysis of forty-three years of research in social support in education (1977–2020). *Education Sciences*, 11(4). <https://doi.org/10.3390/educsci11040149>
- Robani, A., & Salih, K. (2018). Positioning islamic gift economy for sustainable development at the local level. *Humanities and Social Sciences Reviews*, 6(2), 111–120. <https://doi.org/10.18510/hssr.2018.6214>
- Rusydiana, A. S., & As-Salafiyah, A. (2021). Islamic Moral Economy: A Scientometric Using R. *Library Philosophy and Practice*, 2021.
- Rusydiana, A. S., & Assalafiyah, A. (2021). *Islamic moral economy: A scientometric using R*.
- Salameh, J. P., Bossuyt, P. M., McGrath, T. A., Thombs, B. D., Hyde, C. J., MacAskill, P., Deeks, J. J., Leeftang, M., Korevaar, D. A., Whiting, P., Takwoingi, Y., Reitsma, J. B., Cohen, J. F., Frank, R. A., Hunt, H. A., Hooft, L., Rutjes, A. W. S., Willis, B. H., Gatsonis, C., ... McInnes, M. D. F. (2020). Preferred reporting items for systematic review and meta-analysis of diagnostic test accuracy studies (PRISMA-DTA): Explanation, elaboration, and checklist. *The BMJ*, 370(12). <https://doi.org/10.1136/bmj.m2632>
- Sarkawi, A. A., Abdullah, A., & Dali, N. M. (2016). Reviewing the concept of sustainability from the Islamic perspectives. *Kuala Lumpur International Islamic Studies and Civilisations (KLISC) 2016*, 9(5), 398–403. <http://irep.iium.edu.my/51927/>

- Shaikh, S. A., & Ismail, A. G. (2017). Role of Zakat in Sustainable Development Goals. *International Journal of Zakat*, 2(2), 1–9.
- Shaikh, S. A., Ismail, M. A., Ismail, A. G., Shahimi, S., & Muhammad, M. H. (2017). Towards an integrative framework for understanding Muslim consumption behaviour. *Humanomics*, 33(2), 133–149. <https://doi.org/10.1108/H-01-2017-0005>
- Tahir, S. (2017). Islamic economics and prospects for theoretical and empirical research. *Journal of King Abdulaziz University, Islamic Economics*, 30(1), 3–20. <https://doi.org/10.4197/Islec.30-1.1>
- van Eck, N. J., & Waltman, L. (2021). Manual de VOSviewer. *Univeriteit Leiden*, July. http://www.vosviewer.com/documentation/Manual_VOSviewer_1.6.1.pdf
- Visser, M., van Eck, N. J., & Waltman, L. (2021). Large-scale comparison of bibliographic data sources: Scopus, web of science, dimensions, crossref, and microsoft academic. *Quantitative Science Studies*, 2(1), 20–41. https://doi.org/10.1162/qss_a_00112
- Weinstock, L. R. (2020). Personal Income Growth During the COVID19 Pandemic. Congressional Research Service.
- Weinstock, L. R. (2023). Introduction to U.S. Economy: Inflation. Congressional Research Service (CRS).
- Weinstock, M. L. (2021). Inflation in the Wake of COVID-19. Congressional Research Service.
- Yardibi, F., Firat, M. Z., & Çetin Teke, E. (2021). Trend topics in animal science: A bibliometric analysis using CiteSpace. *Turkish Journal of Veterinary and Animal Sciences*, 45(5), 833–840. <https://doi.org/10.3906/VET-2001-103>
- Yurtseven, M., Bayram, K., & Azrak, T. (2021). *Islamic Finance System as a Catalyst for Sustainability in the Economy BT - Islamic Finance and Sustainable Development : A Sustainable Economic Framework for Muslim and Non-Muslim Countries* (M. K. Hassan, M. Saraç, & A. Khan (eds.); pp. 285–303). Springer International Publishing. https://doi.org/10.1007/978-3-030-76016-8_12

Ecotourism and Sustainability: A Bibliometric Analysis Using R

By

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ABSTRACT

Sustainability development in ecotourism is a benchmark for this study which may change over time. This research aims to analyse the relationship between ecotourism and sustainability using a literature review and bibliometric analysis. The research conducted in this paper focused on intellectual structure, volume, knowledge development, the author and source impact. In this research, we will use Microsoft Excel, VOS Viewer Software, and R Studio to analyse databases and gather more information from Scopus. This study uses subjective measures to examine the connections between a resource, community, and tourism to evaluate the sustainability of ecotourism. We identify an increase in the volume of articles on ecotourism published in the last three years. Moreover, Ecotourism has recently grown at a rapid pace. The bibliometric study uses R to identify the subject's most influential journals, authors, and papers. This study also provides a key and crucial element of ecotourism and sustainability into a single concept.

Keywords: ecotourism, sustainability, bibliometric analysis

INTRODUCTION

Existing knowledge of ecotourism

Ecotourism is now defined as "responsible travel to natural areas that protect the environment, promotes the well-being of local citizens, and includes analysis and education" (Titisari, 2022). Ecotourism combines conservation, community, and environmentally friendly travel. This means that those who implement, participate in, and market ecotourism activities should adhere to ecotourism principles. Minimizing physical, social, behavioural, and psychological impacts, providing positive

experiences for both visitors and hosts, increasing environmental and cultural awareness, and providing direct financial benefits to conservation are all principles of ecotourism. Ecotourism has long been viewed as ensuring that tourism contributes to biodiversity and natural heritage conservation while economically assisting local communities with important ecosystems, landscapes, and species. The links between tourism and natural areas, on the other hand, date back to the establishment of national parks and the delicate balance between conservation and visitors that remains unresolved. Thus, ecotourism is arguably a new wrinkle in the long-standing problem of ensuring a sustainable relationship between tourism and nature. However, the term "ecotourism" has come to refer to a wide range of products, market segments, commodified nature, branding, operators, and seemingly anything with an ecological component (Colin, 2020).

Limitations and gaps

Ecotourism occurs when tourists, visitors, and locals are ethically aware and generally concerned about the surroundings, nature, and civilizations of the areas they visit. It usually focuses on preventing things like polluting the environment, affecting flora and fauna's natural life, causing damage to the areas visited, and making locals' lives more challenging (Mahmoud Ramadan Al-Azab, 2019). Ecotourism's goal is thus to provide positive experiences for both tourists and hosts. However, there are numerous problems with ecotourism. This study investigates the issues and the connection between ecotourism and sustainability. As a result, we believe that reviewing previous research on the ecotourism field is a useful way to better understand the current state of ecotourism and its sustainability as a long-term solution to our global floral and fauna problems (Daminda Sumanapala & Isabelle D. Wolf, 2019). As a result, this study aims to analyse and evaluate prior findings on ecotourism and sustainability. Evaluating the current state and publishing trend, the most prominent contributors (authors, articles, and sources), and how the publication's theme in Ecotourism and Sustainability has evolved.

Research Questions

The research questions (RQ) listed below demonstrate the review activities and process using bibliometric, text-mining, and visualization tools (i.e., R studio).

Table 1: Research Questions (RQ)

No.	RQ	Analysis Procedure
1	What is the current state and trend of publication in Ecotourism and Sustainability	• Document Type • Source type • Total number of contributors • Number of publications by year/ country • Annual growth rate.
2	What are the most influential contributors to Ecotourism and Sustainability	• Most influential authors • Most relevant sources • Most influential countries • Most influential source title

3	What is the most influential article, authors and sources on Ecotourism and Sustainability	• Highly cited documents • Author Impact • Lotka's Law • Source Impact • Bradford's Law • Co-occurrence network
4	How the theme of the publication has evolved in Ecotourism and Sustainability	• Thematic evolution • Trend Topic • Word Dynamic • Word Cloud • Tree Map

This article moves on to a more in-depth discussion and analysis after briefly reviewing essential definitions for Ecotourism and Sustainability. The methodology section of the paper describes the methods used in this investigation, including the data searching process, data collection, extraction, and analysis. The research findings were explained in the section that followed. This paper's discussion and conclusions section highlights the study's findings, describing in detail the key findings and their implications and explaining the study's limitations and future directions.

LITERATURE REVIEW

Ecotourism and sustainability

Ecotourism has been discussed in academic circles since the late 1980s, It is a type of nature-based tourist industry that preserves the local society's well-being. In addition, it also protects the environment and provides tourists with an enjoyable natural landscape and satisfaction. Furthermore, ecotourism entails traveling responsibly to fragile, immaculate, and mainly secured zones. This occurs for various reasons, including helping to educate travellers, cultivating tolerance for various cultures, and supporting the financial and political autonomy of surrounding communities (Garana, 2008). With unrestrained extra emphasis on the natural ecosystem and the enhancement of environmental consciousness, ecotourism has become increasingly popular, and tourist industry demand is growing yearly (CREST, 2019). This rise, however, brings with it a slew of environmental, cultural, and economic crises for the growth of ecotourism. For instance, the development of foreign visitors can stifle natives' flexibility of cultural expression, making some feel threatened. Furthermore, most natives are viewed as side tourist guides, resulting in them feeling stereotyped and encouraging stigmas. In addition, interaction among visitors and locals may result in a general transition throughout lifestyle.

Previous study reveals that there is a significant relationship among tourism and sustainability. However, how much the topic involvement in commercial organizations should have in sustainable development efforts is still up for debate. At the same time, despite numerous discussions and studies on the ecotourism and sustainability, the fundamental issues remain unresolved. Ecotourism is facing several ongoing issues that need to be addressed. Furthermore, some previous studies believe that Ecotourism has a lot of potential to promote long-term sustainable development by reducing

environmental impacts during ecotourism adventures. Furthermore, Eco-tourists and travellers should choose organizations or programmes that educate and predominantly aim to improve the environment. As a result, at this time, it is appropriate to discuss the extent to which previous academics have studied this topic. Table 2 depicts some previous studies on ecotourism that require additional research to understand the relationship between ecotourism and sustainability fully.

Table 2: Summary of previous studies in ecotourism and sustainability

Author	Domain/Search Strategy/ Title	Data Source & Scope	TDE	Bibliometric Attributes Examined
(Titisari P.W., Elfis, Chahyana I., Janna N., Nurdila H., Widari R.S., 2022)	Management Strategies of Mangrove Biodiversity and the Role of Sustainable Ecotourism in Achieving Development Goals	Scopus	100	Type of publication Publications per year Highest citation Author, institution, country, Source and co-occurrence Keywords trends Bibliographic coupling
(Rahman A.A., Zainol N., Ramli A., Manzoor H., 2020)	Challenges in Creating Ecotourism in Rural Area: A Case of RK Eco Farm Business Venturing	Scopus	723	Type of publication Publications per year Frequency of paper Co-occurrence of keywords Citations documents Co-Citation relationships Bibliographic coupling
(Cardinali P., Varani N., Migliorini L., 2020)	Sustainable tourism attitude and preference in Italian adults: Value orientation and psychological need satisfaction	Scopus	240	Most Relevant Words Word Cloud Trend Topics Productive journals Authors productivity Keywords trends Publication trend
(Vantola R., Luoma E., Parviainen T., Lehtikainen A., 2021)	Sustainability manifesting as a multi-material and -sited network effect: How boat-sourced sewage management facilities serve as governance artifact advancing sustainability in nautical tourism	Scopus	58	Document Types Three Fields Plot Authors Impact Publication trend Highest citation Productive journals
(Khanra S., Dhir A., Kaur P., Mäntymäki M., 2021)	Bibliometric analysis and literature review of ecotourism: Toward sustainable development	Scopus	192	Bibliographic coupling Citation analysis Prestige analysis Cocword analysis
(Hasana U., Swain S.K., George B., 2022)	A bibliometric analysis of ecotourism: A safeguard strategy in protected areas	Scopus	102	Productivity of journals and authors Number of publications Documents and author citation Co-occurrence analysis Co-authorship analysis Co-citation analysis Bibliographic coupling

TDE=Total documents examined

METHODOLOGY

Searching strategy

A search strategy is a list of search terms that are well-organised. For accurate and comprehensive results, the search strategy will incorporate keyword search principles (Piccarozzi et al., 2021; Salameh et al., 2020). This study used PRISMA (Preferred Reporting Items for Systematic Reviews) and bibliometric analyses (see Figure 1). This method thoroughly examines the knowledge gained over time (Visser et al., 2021). Bibliometric procedures, such as finding relevant articles in a database, are commonly used to filter and refine bibliographic data (such as Scopus). At this point, the data is displayed using the VOSviewer programme. Bibliometric analysis can identify and forecast future research topics (Paul & Criado, 2020). Scopus, an Elsevier database, contains over 50 million entries from over 5,000 publications (De Mauro et al., 2016). At the same time, our university purchased the Scopus database. The Scopus database was chosen as our primary data source for this reason.

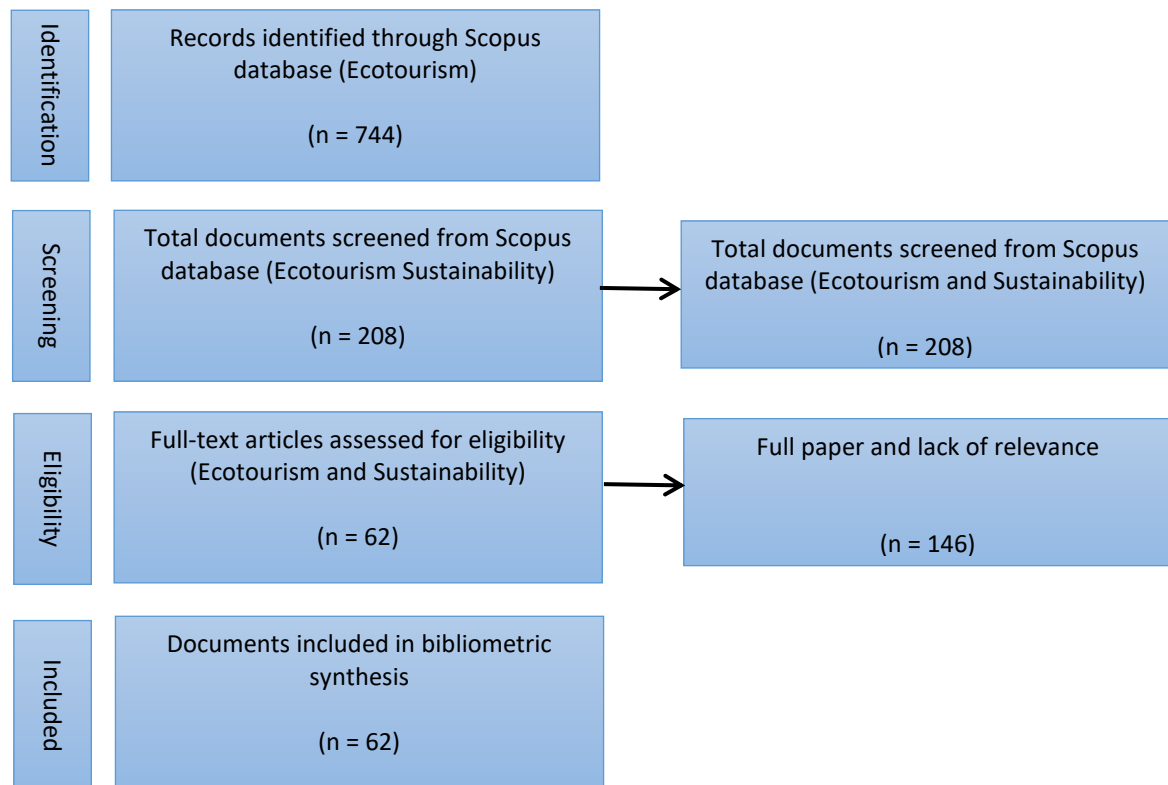


Figure 1: The PRISMA diagram that we used to find, screen, and select articles in our bibliometric review

Inclusion and exclusion criteria

At the beginning of the search, all search results are examined for titles and abstracts following previously established criteria (refer to Table 3). They then examined and summarized all publications that had passed the initial selection procedure. Every piece

of research is based on its volume of publication; most prominent journals and authors; research themes that were frequently discussed. As there was so much literature on ecotourism and sustainability, we constructed a final database of 62 papers from 2020 to 2022. These are journal articles that give writers the option to publish their work in an open-access format.

Table 3: Search criteria

Scopus Category	Searching criteria.	No of article
Topic 1	"Ecotourism"	744
Topic 2	"Ecotourism AND Sustainability"	208
Research years	2020–2022	62
Document Type	All types of publication	62
Language	English	62
Author name	All	62

Extraction techniques

62 journal articles were exported in a format that was compatible with applications, as shown in Table 3. To increase study accuracy, a thorough analysis of the downloaded database was conducted. The extraction process begins by looking for the keywords "Ecotourism" and "Ecotourism AND Sustainability," respectively. We utilized VOSviewer and Excel (.csv) for this study. Bibliometric academic researchers can view bibliometric maps graphically with the free VOSviewer software. The most helpful article title, author, keyword, and citation information, including all references, can be found in the final Scopus database. Analysis of bibliometric data is beneficial because it can identify and foresee potential areas of future research (Paul & Criado, 2020).

Choice of synthesis method (Analysis)

Descriptive analysis was part of the preliminary investigation process. We created a series of graphs in Excel to chart the evolution of publications on ecotourism and sustainability principles over time. Meanwhile, the bibliometric analysis technique was used in the following step. This technique employs citations to identify the most influential papers and researchers on a given topic. Other indicators of academic prominence include the H-index, total citations, and citations per publication. Depending on the results, co-citation analysis may concentrate on the journal, author, keyword co-citations, and so on. We were able to create "network maps" based on article linkages by viewing our sample database with VOSviewer and R studio.

RESULTS

Document profiles

The articles that were found spanned the years 2020 to 2022. Only after 2020 did publications start to become more organised, and they also started to increase gradually and consistently in number. Based on the total of 62 documents (Table 4) considered, there is 43.92% annual growth and the average citation per document is 13.45, while

the total number of references involved is 4576. Furthermore, most of the work in this area is published as articles (95.16 per cent), followed by reviews (4.84 per cent).

Table 4: Document profiles

Description	Results
Main Information About Data	
Time span	2020:2022
Sources (Journals, Books, etc)	62
Documents	62
Annual Growth Rate %	43.92 %
Document Average Age	1.76
Average citations per doc	13.45
References	4576
Document Contents	
Keywords Plus (ID)	191
Author's Keywords (DE)	287
Authors	
Authors	215
Authors of single-authored docs	9
Authors Collaboration	
Single-authored docs	9
Co-Authors per Doc	3.6
International co-authorships %	35.48 %
Document Types	
Article	59 (95.16%)
Review	3 (4.84%)

RQ1: What is the current state and trend of publication in Ecotourism and Sustainability

As seen in Figure 2, there have been more papers published over time that relate to the ideas of ecotourism and sustainability. According to the volume of papers produced, earlier research has paid a significant amount of attention to the topic and scope of the study on ecotourism and sustainability. According to preliminary data from the Scopus database, despite the relatively few publications on the issue at the time, the topic of ecotourism started to get increasing attention in the early 1990s. The trend has been rising since 2002.

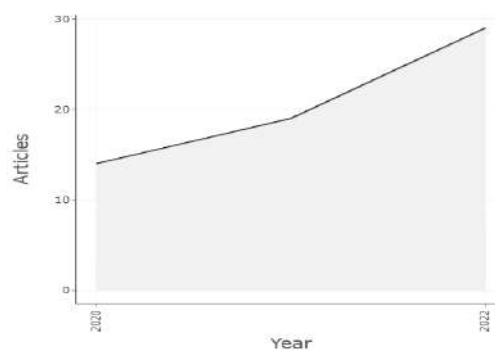


Figure 2: Annual Scientific Production (Total published articles from 2000-2022)

According to the data presented in Figure 2, 33 out of 62 publications were successfully published between 2020 and 2021. These many articles demonstrate how popular this subject is in discussions in the media. Researchers have been introduced to numerous studies by the ecotourism sector and academics who understand the importance of ecotourism from a wider perspective. Furthermore, from 2021 to 2022, the number of articles keeps rising.

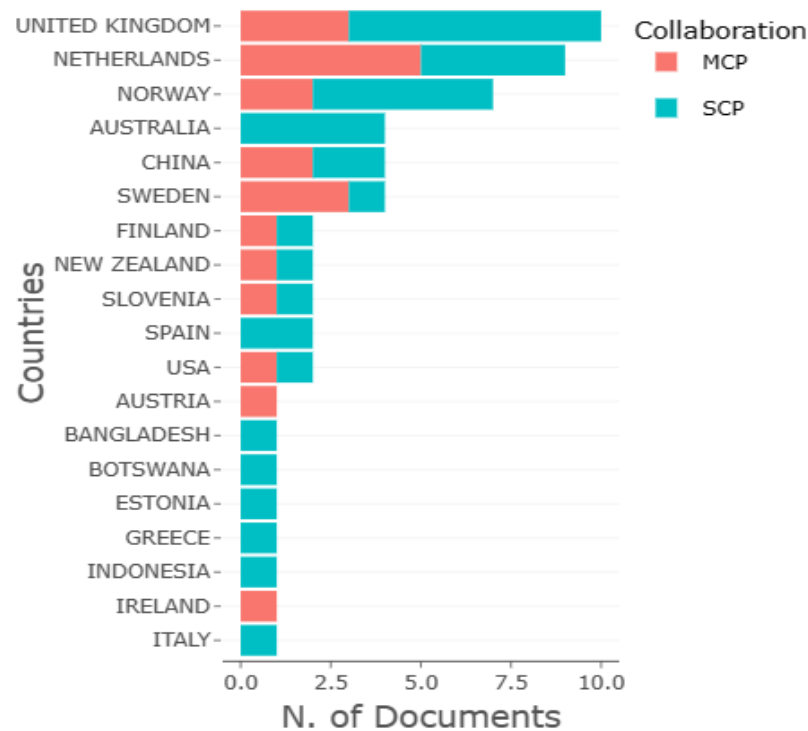


Figure 3: Top 10 highest publications by country

Following Figures 2 and 3, we can see that the top ten countries and categories of papers relating to ecotourism and sustainability are highlighted. Whereas United Kingdom (with 10 articles), Netherlands (with 9 articles), and Norway (with 7 articles) are the top three countries that publish the most articles in this field. Even though most publications are in the form of articles (95.16%) and review papers (4.84%). Overall, Ecotourism and sustainability is a topic that is actively discussed in United Kingdom, while conferences are popular places for discussing and exchanging ideas.

RQ2: What are the most influential contributors to Ecotourism and Sustainability

The study focuses on the most influential countries and institutions, the most influential source titles, the most prominent authors, the writers' production over time, and the second research topic, which is about ecotourism and sustainability. Table 5 showed that the most significant authors and publications were present in the sample database. There are often five authors who have a lot of influence: Ioannides D (2020), Mika JP (2021, 2022), Higgins-desbiolles F (2021, 2022), Dolnicar S (2020, 2022), and Fredman P. (2021). The author with the most citations overall is Ioannides D, with 264,

followed by Mika JP, with 34. Aall C 2022, a new author, also contributes to the publication of ecotourism and sustainability at the same time. The four articles with the most citations are shown in Table 3. With a total of 237 citations, the article with the highest number of citations is the covid-19 problem as an opportunity for abandoning the unsustainable global tourist course. Next, with a total of 27 citations, is "Making do" in rural tourism: the resourcing behaviour of tourism micro-firms. 20 years of Nordic nature-based tourist research: a review and future research agenda, and indigenous tourism and the sustainable development goals, with a total of 21 and 16 citations, respectively.

Table 5: The most influential authors

Author's Name	Title	Journal	TC	AF	TCpY	PY
Aall C	Serious gaming to stimulate participatory urban tourism planning	Journal of sustainable tourism	6	0.13	3.000	2022
Adiyia B	Post-apartheid local sustainable development through tourism: an analysis of policy perceptions among 'responsible' tourism stakeholders around pilanesberg national park, south Africa	Journal of sustainable tourism	12	0.25	3.000	2020
Dolnicar S	Habit drives sustainable tourist behaviour	Annals of tourism research	9	0.67	4.500	2022
Dolnicar S	Carbon labels on restaurant menus: do people pay attention to them?	Journal of sustainable tourism	15	0.67	3.750	2020
Fredman P	The wildlife watching experiences cape: the case of musk ox safaris at dovrefjell-sunndalsfjella national park, Norway	Scandinavian journal of hospitality and tourism	7	1.00	2.333	2021
Fredman P	20 years of Nordic nature-based tourism research: a review and future research agenda	Scandinavian journal of hospitality and tourism	16	1.00	5.333	2021
Higgins-desbiolles F	The ongoingness of imperialism: the problem of tourism dependency and the promise of radical equality	Annals of tourism research	3	1.17	1.500	2022
Higgins-desbiolles F	Indigenous tourism and the sustainable development goals	Annals of tourism research	22	1.17	7.333	2021
Ioannides D	"Making do" in rural tourism: the resourcing behaviour of tourism micro-firms	Journal of sustainable tourism	27	1.00	6.750	2020
Ioannides D	The covid-19 crisis as an opportunity for escaping the unsustainable global tourism path	Tourism geographies	237	1.00	59.250	2020
Koens K	Identifying stakeholder perspectives and worldviews on sustainable urban tourism	Current issues in tourism	15	0.33	5.000	2021

	development using a q-sort methodology							
Koens K	Serious gaming to stimulate participatory urban tourism planning	Journal of sustainable tourism	6	0.33	3.000	2022		
Mayer I	Identifying stakeholder perspectives and worldviews on sustainable urban tourism development using a q-sort methodology	Current issues in tourism	15	0.33	5.000	2021		
Mayer I	Serious gaming to stimulate participatory urban tourism planning	Journal of sustainable tourism	6	0.33	3.000	2022		
Melissen F	Identifying stakeholder perspectives and worldviews on sustainable urban tourism development using a q-sort methodology	Current issues in tourism	15	0.33	5.000	2021		
Melissen F	Serious gaming to stimulate participatory urban tourism planning	Journal of sustainable tourism	6	0.33	3.000	2022		
Mika JP	Indigenous tourism and the sustainable development goals	Annals of tourism research	22	0.67	7.333	2021		
Mika JP	Te awa tupua: peace, justice, and sustainability through indigenous tourism	Journal of sustainable tourism	12	0.67	6.000	2022		

Notes: TC=total citations; AF=articles fractionalized; PY=publication year; TCpY=total citation per year



Figure 4: The most relevant sources

The most prestigious academic journals are peer-reviewed, which means that each contribution is evaluated before publication by academics with expertise in the same field as the author and editor. They should make that the researcher used the proper methods, that the work contributes to the field, and that new material is presented in the

context of what is already known. The 10 most pertinent sources for information on ecotourism and sustainability are shown in Figure 4. The Journal of Sustainable Tourism is the most prominent publication in this discipline, followed by Scandinavian Journal of Hospitality and Tourism, Annals of Tourism Research, Journal of Ecotourism, Tourism Management, Journal of Travel Research, Current Issues in Tourism, Pertanika Journal of Social Sciences and Humanity. Next, Tourism Geographies and Tourism Planning and Development. Peer review is a crucial part of this journal's publishing process, which ensures its accuracy and value to the sectors in which it is published.

RQ3: What are the most influential articles and sources on Ecotourism and Sustainability Highly Cited Documents/ Papers

This renowned rating honours the top scientists in the world whose Web of Science citation records are rated in the top 1% of their respective fields. Being listed among the works that have been most frequently mentioned is a sign of a distinguished and successful academic career. Additionally, the number of times a researcher's works are cited significantly raises the exposure and potential reputation of their affiliations with larger universities (Martnez et al., 2015). However, several outside factors that don't appear to be directly related to the "quality" of the article's content affect the total number of citations an article receives (Fahimifar et al., 2022). Table 6 lists the 10 articles and papers on ecotourism and sustainability that have been cited the most.

Table 6: Most cited documents/papers

Paper	Total Citations	% Cited	TC per Year	% TCpY	Normalized TC	% NTC
Ioannides D, 2020, tour geogr	237	42.32	59.25	37.84	6.72	23.50
Mihalic T, 2020, ann tour res	61	10.89	15.25	9.74	1.73	6.05
Khanra S, 2021, tour manage perspect	49	8.75	16.33	10.43	4.17	14.59
Xu F, 2020, j sustainable tour	46	8.21	11.50	7.34	1.30	4.55
Wu J, 2021, j travel res	44	7.86	14.67	9.37	3.75	13.12
Gössling S, 2022, j sustainable tour	28	5	14.00	8.94	6.94	24.27
Breiby Ma, 2020, scand j hosp tour	27	4.82	6.75	4.31	0.77	2.69
Yachin Jm, 2020, j sustainable tour	27	4.82	6.75	4.31	0.77	2.69
Scheyvens R, 2021, ann tour res	22	3.93	7.33	4.68	1.87	6.54
Hambro Dybsand Hn, 2020, tour manage	19	3.92	4.75	3.03	0.54	1.89

Notes: PY=publication year; TC=total citations

Author impact

Based on the h-Index, authors whose papers have been published can also be ordered based on the ensuing impact (Hirsch, 2005). The most used index is the H-index (an author has an h-index of h if they have at least h works that have been referenced h times). The G-Index is comprised of the G articles with the most citations (Egghe, 2006). Meanwhile, M-Index is calculated by dividing the H-index by the number of years a

scientist has been active. Based on Table 7 shows that the authors with the highest h-Index and G-index obtained by Dolnicar S, Fredman P, Higgins-desbiolles F, Ioannides D, Koens K, Mayer I, Melissen F and Mika JP with the achievement of a total 2 h-index that describer significant impact. Then followed by 2 authors Aall C, and Adiyia B with an h-Index and g-index value of 1 with a fairly good impact. Besides, the most active authors are Fredman P, Higgins-desbiolles F, Koens K, Mayer I, Melissen F, and Mika JP with a value of m-Index of 0.667. Finally, the most significant contributor with the highest citation (i.e., TC) is Ioannides D with a total of 264 (55.93%) citations, followed by four authors Mika JP, Higgins-desbiolles F, Dolnicar S, and Fredman P with a total citation of 34 (7.20%). All this information was produced around the year 2020 to 2022.

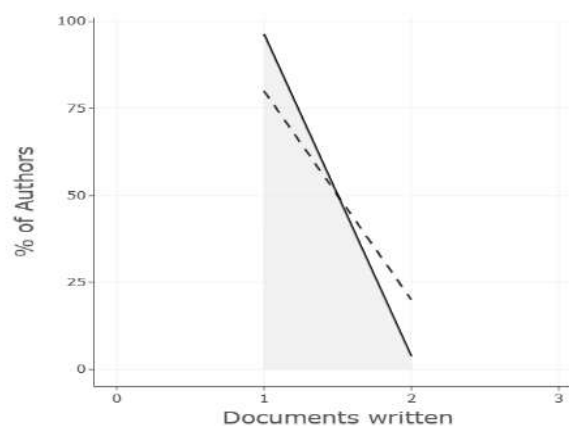
Table 7: The 10 most impactful author

Author (s)	h_index	g_index	m_index	TC	% TC	NP	PY_start
Dolnicar S	2	2	0.500	24	5.08	2	2020
Fredman P	2	2	0.667	23	4.87	3	2021
Higgins-desbiolles F	2	2	0.667	25	5.30	2	2021
Ioannides D	2	2	0.500	264	55.93	3	2020
Koens K	2	2	0.667	21	4.45	2	2021
Mayer I	2	2	0.667	21	4.45	2	2021
Melissen F	2	2	0.667	21	4.45	2	2021
Mika JP	2	2	0.667	34	7.20	2	2021
Aall C	1	1	0.500	6	1.27	1	2022
Adiyia B	1	1	0.250	12	2.54	1	2020

Notes: PY=publication year; TC=total citations; NP=number of publications; h=h-index; m=m index; and g=g-index.

Documents written	N. of Authors	Proportion of Authors
1	207	0.963
2	8	0.037

Figure 5: Lotka's Law



Lotka's Law

The well-known "inverse square law of scientific creation" is Lotka's Law. It contends that the ratio of authors who publish a certain number of papers to those who only publish one article stays constant (Friedman, 2015). In other words, it describes how often authors publish in a particular topic (Maz-Machado et al., 2017). Since then, numerous researchers from various fields have examined author production and publications using Lotka's Law (Friedman, 2015). The observed and fitted Lotka's distributions are shown in Figure 5. There have been 1 and 2 papers published. The relationship between the number of contributing authors and the number of published papers is clearly shown in Figure 5 above.

Source impact

The h-index, g-index, m index, and total citation of each journal that publishes a paper about ecotourism and sustainability are also taken into consideration in this study. The Journal of Sustainable Tourism tops the rankings in Table 8's data, with a h Index of 8, g Index of 14, m Index of 2.000, and 228 total citations. As a result, the study of ecotourism and sustainability is most impacted by the Journal of Sustainable Tourism. In contrast, Tourism Management, Annals of Tourism Research, Journal of Travel Research, and Scandinavian Journal of Hospitality and Tourism hold the second, third, fourth, and fifth spots, respectively, with h Index values of 4 and 3. Their total number of citations varied from 39 to 95. Concerning journals with h-Index 1, there are 5 journals with a total number of citations ranging from 1 to 19, which shows the journal has a minimal impact.

Table 8: The 10 most impactful sources

Source	h_index	g_index	m_index	TC	% TC	NP	PY_start
Journal of sustainable tourism	8	14	2.000	228	43.68	23	2020
Tourism management	4	4	1.000	39	7.47	4	2020
Annals of tourism research	3	5	0.750	95	18.20	5	2020
Journal of travel research	3	3	1.000	62	11.88	3	2021
Scandinavian journal of hospitality and tourism	3	6	0.750	56	10.73	6	2020
Current issues in tourism	2	2	0.667	19	3.64	2	2021
Academic journal of interdisciplinary studies	1	1	0.333	3	0.57	1	2021
International journal of tourism research	1	1	0.500	1	0.19	1	2022
Journal of destination marketing and management	1	1	0.250	13	2.49	1	2020
Journal of ecotourism	1	2	0.333	6	1.15	4	2021

Bradford's Law

If the core and middle zone numbers are known, Bradford's formula should be able to anticipate the total number of journals carrying articles on a subject because it predicts

that the number of journals in the second and third zones will be n and n^2 times higher than the first zone (Fairthorne, 2005; Garfield, 1980). It should be able to calculate how much essential information is missing from an incomplete search once the whole number of articles is known. It would be helpful for such research if Bradford's law accurately anticipated the number (and, if feasible, quality) of the literature given the time-consuming and significant work required to find sources on a topic for a systematic review (Friedman, 2015).

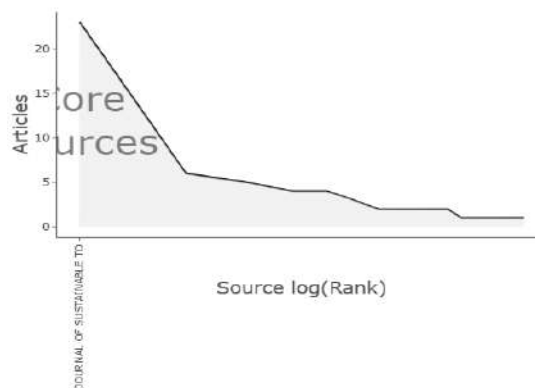


Figure 6: Bradford's Law

The classification of journals into core, intermediate, and wide groups is shown in the graphic above and is based on the Bradford law. The important journal groups are highlighted in colour and annotated. This group of periodicals comprises those that produced the most ecotourism research within a particular period. Figure 6 lists the 10 sources that are the most pertinent to the discussion of ecotourism and sustainability. Journal of sustainable tourism (23 papers) is the most prominent publication in this discipline, followed by the Scandinavian journal of hospitality and tourism (6 papers) and annals of tourism research (5 papers). This journal is very significant since its publishing procedure involves peer review, which serves to assure its accuracy and contribution to its respective fields.

Co-occurrence network

A co-occurrence network, sometimes called a semantic network, is a way to analyse text that visualizes probable links between individuals, organizations, ideas, and biological creatures like bacteria, and other things (Segev, 2021). Text mining-compliant electronically stored text makes co-occurrence network construction and visualization possible. The simplest definition of co-occurrence analysis is the counting of matched data inside a collection unit (Cohen et al., 2005; van Eck & Waltman, 2021). Figure 7 displays the high-frequency keywords having a tight co-occurrence connection in the subject of ecotourism and sustainability. Based on Figure 7, five major clusters have been generated. "ecotourism", "tourism development", and "tourist destination" constitute Cluster 1. Cluster 2 consists of the keywords "tourism management", "tourist behaviour", and "stakeholder". There are two networks in Cluster 3 and two networks in cluster 4, including "perception", "south Africa", "tourism", "policy

implementation”. Meanwhile, there are three networks in cluster 5, which are “Norway”, “social media”, and “wildlife management”.

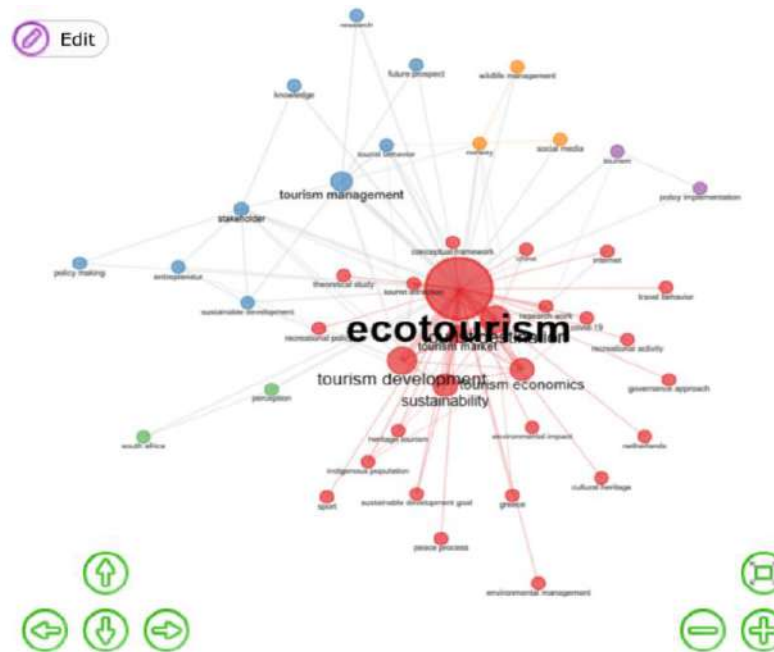


Figure 7: Co-occurrence network

RQ4: How the theme of the publication has evolved in Ecotourism and Sustainability

The approach combines performance analysis and scientific mapping for conceptual subdomain recognition and visualisation to measure and illustrate the research area's thematic evolution (Cobo et al., 2011). This study included a number of analyses, such as theme evolution, trend topic, word dynamic, combination of words, and tree map.

Thematic evolution

Thematic analysis of evolutionary processes is a graphical representation of the network connections between scientific fields, papers, and authors is called science mapping, often referred to as bibliometric mapping (Rashid et al., 2021). It has been applied in numerous domains to unearth obscure notions and themes. 2019 (Chen et al.). The study also separated thematic maps into 4 quadrants in Figure 8 based on density and centrality. All references to the research topic were reviewed by a semi-automatic algorithm, which also added more keywords. to find differences. A driving or motor motif that is very dense and centrally located in the upper right quadrant must be created and further investigated. “Tourist destination, tourist economics, and tourism market” is the main subject in this quadrant. In addition, the top left quadrant demonstrates a niche theme with a high degree of growth, as indicated by high density but low centrality. This quadrant's topics include "tourism management, Norway, and Future

prospect". Furthermore, In the lower-left quadrant are long-used themes with low centrality (i.e., emerging, or declining themes). "Knowledge and Tourist behaviour" is the distinct subject in this quadrant. Finally, the bottom right quadrant has a simple motif with strong centrality but low density. These themes are vital to include in the study since they are generic issues that are often utilized, such as the theme of "sustainability, ecotourism and tourism development".

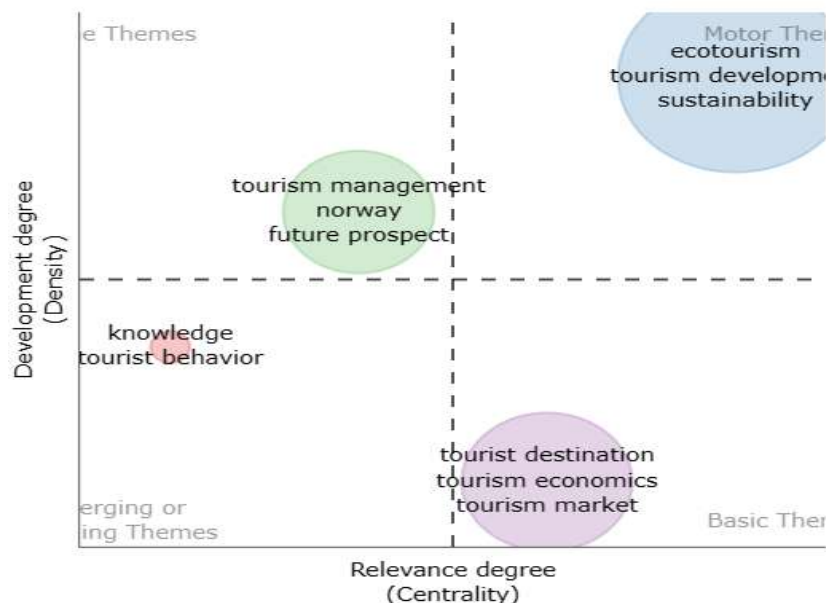


Figure 8: The thematic evolution

Trend topic

This study also looks at trends in the field; the graphic below gives an overview of how the word has changed over time and by year. To distinguish between themes that have been used for a long time and those that have only lately (Bolaos, 2022; Yardibi et al., 2021) The word is used more frequently and more lately further to the right as it rises in the list. Figure 9 and Table 9 show that the topic's development started to significantly increase in 2021. As indicated in the data's description below, the topic has been utilized since 2020, particularly in ecotourism studies' (F=46), tourism development and tourist destination (F=15), Sustainability (F=12), Tourist behaviour (F=6), and Research work (F=5). With the highest frequency compared to other themes in years q1, q2, and q3, the topics that are frequently discussed from 2020 to 2022 include "Ecotourism," "Tourism development," and "Tourist destination". This information also explains why the three subjects are currently popular in the ecotourism and sustainability industries.

Table 9: The trend topic year

Trend Topic	Frequency (F)	%	year_q1	year_med	year_q3
Tourism development	15	26.4	2020	2021	2022
Tourist destination	15	9.3	2020	2021	2022
Sustainability	12	8.5	2021	2021	2022
Ecotourism	46	7.8	2020	2022	2022
Tourist behaviour	6	6.2	2021	2022	2022
Research work	5	5.4	2021	2022	2022

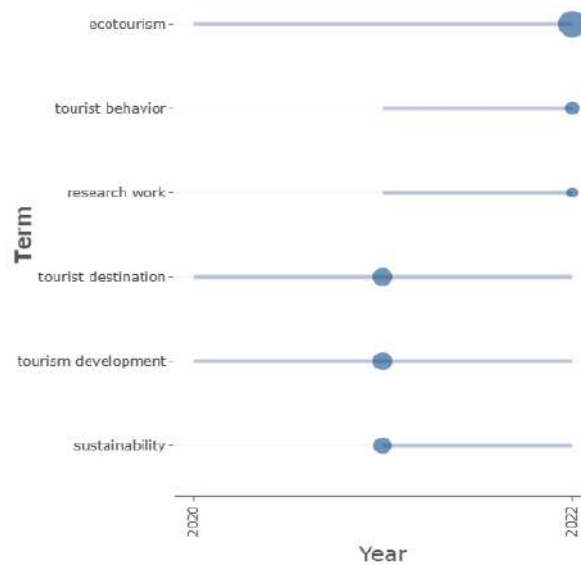


Figure 9: The trend topic

Word dynamic

The word dynamic illustrates how words change over time, as seen by the datasets. A cumulative count of the leading keywords along with the author's keywords, title, or abstract can also be used to select the presentation. Both methods are based on the total number of occurrences per year. Figure 10 shows the rise of the top keywords in the field of ecotourism and sustainability research from 2020 to 2022 based on the total number of occurrences per year. According to the figures in Figures 10 and 11, a number of important keywords started to show a noticeable increase in 2021 and have since continued to do so. From 2021 to 2022, "Word Dynamic" data analysis clearly demonstrates a rise in the use of dynamic keywords such as "ecotourism," "tourism development," and "sustainability". These findings align with the findings of other analyses, including "Trend Topic" and "Word Cloud" analyses. This result also explains why the phrases were selected as trending and significant over time.

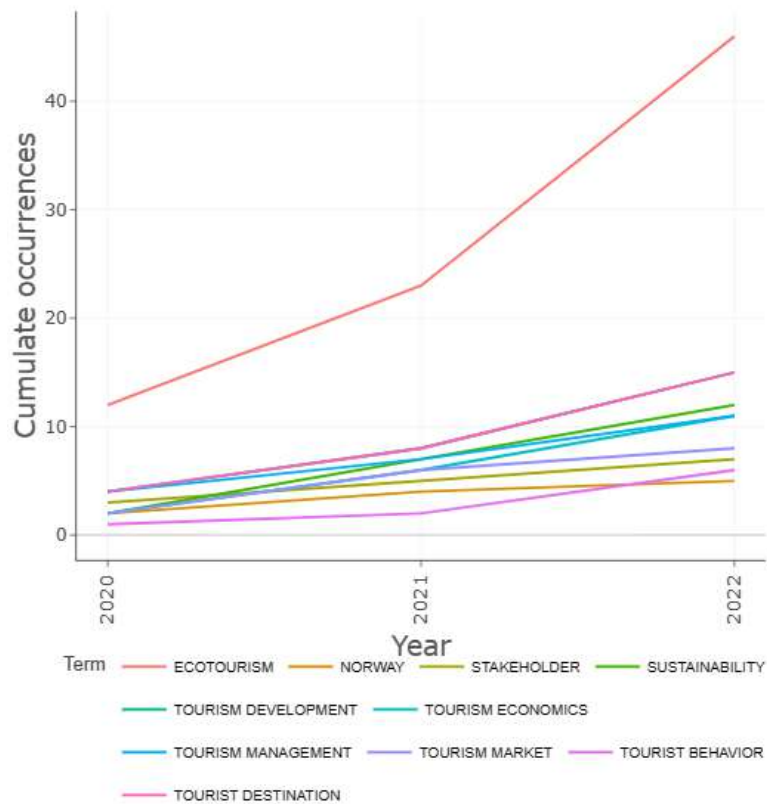


Figure 10: The Word Dynamic (2020-2022)



Figure 11: The word cloud

Tree map

The nodes of a tree diagram are displayed as layered rectangles in tree maps, which are a graphical representation of hierarchical data (Lockhart, 2015). They are made up of several stacked, proportionately sized rectangles. In a data tree, a large rectangle denotes a branch, and smaller rectangles display the size of each node within that branch. Figure 12 displays several tree maps of the top 50 words based on the author's keywords, keyword plus, title (bigrams), and abstract (trigrams), in that order. Based on the tree map data, "Ecotourism" has the highest percentage of 20% followed by "tourism development and tourist destination (7%)" and "Sustainability, tourism economy, and tourism management" at 5%. While other keywords only contribute a low percentage which is between 1% to 4% only. This result deviates greatly from the results of the "word cloud" research, which indicate that "tourism development" is the most often used term when referring to ecotourism and sustainability.



Figure 12: The tree map

CONCLUSION

The current paper provides a thorough analysis of previous ecotourism studies. Because it offers a framework for performing environment and economics properly, ecotourism academy is essential to today's sustainability problems. The study sheds light on some issues that don't appear to have received enough attention in the literature. The most widely used keywords in this area, according to several findings, are ecotourism and tourism development. Ecotourism is currently receiving recognition on a global scale as a growing industry. This will draw people interested in ethics, comparative studies, business, environmental development, and climate change. This conclusion is derived from the results of a series of methods that make up a bibliometric study methodology.

Overall, ecotourism and sustainability are prominent topics in United Kingdom. Seven notable authors are Ioannides D (2020), Fredman P (2021), Higgins-desbiolles F (2021), Higgins-desbiolles F (2020), Mayer I (2021), Melissen F (2021), and Mika JP (2021). Ioannides D has the highest citations which is 264 and Mika JP has 34. The Journal of Sustainable Tourism is the top journal in this study, followed by Tourism Management, Annals of Tourism Research, Journal of Travel Research, and Scandinavian Journal of Hospitality and Tourism. The Co-occurrence network has five main clusters. Cluster 1 includes “ecotourism”, “tourism development”, and “tourist destination”. Cluster 2 covers “tourism management”, “tourist behaviour”, and “stakeholder”. Cluster 3 and cluster 4, including “perception”, “south Africa”, “tourism”, “policy implementation”. Meanwhile, there are three networks in cluster 5, which are “Norway”, “social media”, and “wildlife management”. Several analyses were performed to analyse the theme evolution using thematic evolution, trend topic, word dynamic, word cloud, and tree map. The discovery of four crucial thematic areas related to ecotourism, knowledge, tourism management, and tourist destination was a notable conclusion of the current study. From 2016 to 2022, discussions about sustainability and ecotourism will be ongoing. This study explains why these topics are popular in ecotourism and sustainability. This varies from the “word cloud” analysis, which shows “tourism development” appears more when addressing ecotourism and sustainability.

In a conclusion, ecotourism needs environmental and social development to survive into the future. The researcher was able to discover potential study areas for follow-up research with the help of the data collected from this study and the ability of Bibliometrics analysis to anticipate future investigations. Consequently, the rigorous approach offers a wide range of study options. The analysis reveals significant gaps in the literature. Future studies should consider the "Ecotourism Development," as other researchers may use the study's findings to investigate the literature's stated best practiced for ecotourism. Future research may also include documents from a bigger database to alleviate this intrinsic constraint. Emerging and specialized journals, for instance, like the Journal of Sustainable Tourism and Tourism Management, where current views on ecotourism and sustainability are presented. The influence of ecotourism and sustainability in general should also be examined in future research, along with other knowledge streams including the economic, environmental, and sociological perspectives. As a result, including papers from these journals may enhance the research by adding knowledge about recent developments in ecotourism and sustainability research. However, the current study may serve as a guide for future academics looking to develop their ecotourism studies.

REFERENCES

- Bolaños, F. (2022). Mapping the Trending Topics of Bibliometric-enhanced Information Retrieval. CEUR Workshop Proceedings, 3230, 61–70.
- Cardinali, P., Varani, N., & Migliorini, L. (2020). Sustainable tourism attitude and preference in Italian adults: Value orientation and psychological need satisfaction. doi:10.3390/su122410517

- Chen, X., Lun, Y., Yan, J., Hao, T., & Weng, H. (2019). Discovering thematic change and evolution of utilizing social media for healthcare research. *BMC Medical Informatics and Decision Making*, 19(Suppl 2). doi:10.1186/s12911-019-0757-4
- Cohen, A. M., Hersh, W. R., Dubay, C., & Spackman, K. (2005). Using co-occurrence network structure to extract synonymous gene and protein names from MEDLINE abstracts. *BMC Bioinformatics*, 6, 1–15. doi:10.1186/1471-2105-6-103
- Colin, M. H. (2020). “Sustainability.” *Sustainability | Special Issue: Ecotourism for Sustainability*. Retrieved from www.mdpi.com/journal/sustainability/special_issues/Ecotourism_Sustainability
- CREST. (2019). The Case for Responsible Travel: Trends & statistics 2019. Retrieved from <https://www.responsibletravel.org/wp-content/uploads/sites/213/2021/03/trends-and-statistics-2019.pdf>
- Daminda Sumanapala and Isabelle D. Wolf. (2019). *Recreational Ecology: A Review of Research and Gap Analysis*. Retrieved from <https://ro.uow.edu.au/cgi/viewcontent.cgi?article=5596&context=sspapers>
- De Mauro, A., Greco, M., & Grimaldi, M. (2016). A formal definition of Big Data based on its essential features. *Library Review*, 65(3), 122–135. doi:10.1108/LR-06-2015-0061
- Eddyono, F., Darusman, D., Sumarwan, U., & Sunarminto, F. (2021). Optimization model: the innovation and future of e-ecotourism for sustainability. *Journal of Tourism Futures*, Vol. ahead-of-print No. ahead-of-print. doi:10.1108/JTF-03-2021-0067
- Egghe, L. (2006). Theory and practise of the g-index. *Scientometrics*, 69(1), 131–152. doi:10.1007/s11192-006-0144-7
- Fahimifar, S., Mousavi, K., Mozaffari, F., & Ausloos, M. (2022). Identification of the most important external features of highly cited scholarly papers through 3 (i.e., Ridge, Lasso, and Boruta) feature selection data mining methods: Identification of the most important external features of highly cited scholarly pape. *Quality and Quantity*, 3(0123456789). doi:10.1007/s11135-022-01480-z
- Friedman, A. (2015). The Power of Lotka’s Law Through the Eyes of R. *Romanian Statistical Review*, 2, 69–77.
- Hasana, U., Swain, S.K., & George, B. (2022). A bibliometric analysis of ecotourism: A safeguard strategy in protected areas. doi:10.1016/j.regsus.2022.03.001
- Khanra, S., Dhir, A., Kaur, P., & Mäntymäki, M. (2021). Bibliometric analysis and literature review of ecotourism: Toward sustainable development. doi:10.1016/j.tmp.2020.100777
- Martínez, M. A., Herrera, M., Contreras, E., Ruíz, A., & Herrera-Viedma, E. (2015). Characterizing highly cited papers in Social Work through H-Classics. *Scientometrics*, 102(2), 1713–1729. doi:10.1007/s11192-014-1460-y
- Maz-Machado, A., Madrid, M. J., Jiménez-Fanjul, N., & León-Mantero, C. (2017). Empirical examination of Lotka’s law for information science and library science. *Pakistan Journal of Information Management and Libraries*, 19, 37–51. doi:10.47657/2017191106
- Paul, J., & Criado, A. R. (2020). The art of writing literature review: What do we know and what do we need to know? *International Business Review*, 29(4), 101717. doi:10.1016/j.ibusrev.2020.101717
- Piccarozzi, M., Silvestri, C., & Morganti, P. (2021). Covid-19 in management studies: A systematic literature review. *Sustainability (Switzerland)*, 13(7). doi:10.3390/su13073791

- Rahman, A.A., Zainol, N., Ramli, A., & Manzoor, H. (2020). Challenges in Creating Ecotourism in Rural Area: A Case of RK Eco Farm Business Venturing. doi:10.1088/1755-1315/596/1/012050
- Rashid, S., Rehman, S. U., Ashiq, M., & Khattak, A. (2021). A scientometric analysis of forty-three years of research in social support in education (1977–2020). *Education Sciences*, 11(4). doi:10.3390/educsci11040149
- Titisari, P.W., Elfis, Chahyana, I., Janna, N., Nurdila, H., & Widari, R.S. (2022). Management Strategies of Mangrove Biodiversity and the Role of Sustainable Ecotourism in Achieving Development Goals. doi:10.22146/jtbb.72243
- Vantola, R., Luoma, E., Parviainen, T., & Lehtikoinen, A. (2021). Sustainability manifesting as a multi-material and -sited network effect: How boat-sourced sewage management facilities serve as governance artefacts advancing sustainability in nautical tourism. doi:10.1016/j.marpolbul.2021.113114
- Visser, M., van Eck, N. J., & Waltman, L. (2021). Large-scale comparison of bibliographic data sources: Scopus, web of science, dimensions, crossref, and microsoft academic. *Quantitative Science Studies*, 2(1), 20–41. doi:10.1162/qss_a_00112

Corporate Social Responsibility in Brand Development: A Bibliometric Analysis Using R

By

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ABSTRACT

Using a literature review and bibliometric analysis, the purpose of this research is to analyze the relationship between Corporate Social Responsibility (CSR) and Brand Development. There is strong evidence in the literature that CSR plays an important role in increasing the value of the company, especially in ensuring the brand development of the processed product remains strong. Therefore, this research aims to develop a specific focus as well as examine the broad progression of ideas behind the concept through its origins towards brand image based on the implementation of practices and literature that has been available from previous research. Using applications such as R Studio and Microsoft Excel, all information was compiled and analyzed starting from the Scopus database. A total of 292 relevant articles on CSR were collected from researchers, spanning from 1997 to 2022. The bibliometric study using R also focuses on the most influential journals, authors, and articles. This study expresses how the most important aspects of corporate social responsibility in brand development can be combined into a single concept that opens up new areas of research for both the general field of CSR and the newer field of brand development.

Keywords: corporate social responsibility, brand development, bibliometric analysis

INTRODUCTION

Existing knowledge of the corporate social responsibility

Corporate social responsibility (CSR) is a business model in which companies make joint efforts to improve the performance of the company. In other words, CSR helps a company regulate itself by being socially responsible to the company, stakeholders inside and outside the company, and society. CSR is usually a strategy implemented by large companies. By implementing corporate social responsibility, the company becomes more sensitive to the impact it has on all aspects that affect the company, such as society, social, economic, and environmental (Fernando, 2022). A corporation has a larger need to set moral business standards for its competitors and its sector the more successful it becomes.

In general, CSR consists of four categories, ethical responsibility, financial responsibility, philanthropic efforts, and environmental impact (Al-Marri et al., 2019; Ullah et al., 2021). CSR enables a company to identify its impact on stakeholders and society, including economic, social and environmental issues. This directly contributes to becoming a socially responsible company and helps the company's image and brand (Kim et al., 2017). This shows that the social relationship between companies and brand development has a positive relationship. This is because brand development gives users a sense of the company's offerings in terms of products and services. It is created in the minds of users based on their experiences and interactions, as well as their perception of the company's mission and values (Pahwa, 2022). Therefore, to develop sustainable and ethical products, a company must integrate social responsibility into the framework and metrics of its product development processes (Mireles, 2021). Thus, a firm can help itself and society through CSR initiatives, philanthropy, and volunteerism, which has a beneficial effect on the growth of its brand.

Limitations and gaps

Although corporate social responsibility has been extensively researched, primarily in academic and practical forums, many questions remain about its actual practice and success. This is because there are still many companies that do not make their social relations with companies transparent (Grigoris, 2016). The lack of transparency is seen as the most important challenge in maintaining the company's performance and image. Furthermore, one major deterrent to engage in CSR according to Ae-Li Yu (2021) is financial commitment. Indeed, CSR cannot be implemented due to problems such as lack of commitment from management and lack of interest from investors together with lack of economic resources and lack of efficiency of employees (Alwyia, 2020). Therefore, the researcher contends that revisiting earlier research on the implementation of CSR into brand development provides substantial context for understanding the current state of CSR. This retrospective analysis is a useful tool for developing a deeper understanding of the part that CSR plays in providing a long-term solution to the problems that the business continues to come across.

Research questions

The following research questions (RQ) are used to illustrate the review activities and process through the use of bibliometric, text mining, and visualisation tools (e.g., R-Studio).

Table 1: Research Questions (RQ)

No.	RQ	Analysis Procedure
1	What is the current state and trend of publication in Corporate Social Responsibility in Brand Development	• Document Type • Source type • Total number of contributors • Number of publications by year/ country • Annual growth rate.

2	What are the most influential contributors to Corporate Social Responsibility in Brand Development	• Most influential authors • Most relevant sources • Most influential countries • Most influential source title
3	What are the most influential article, authors and sources on Corporate Social Responsibility in Brand Development	• Highly cited documents • Author Impact • Lotka's Law • Source Impact • Bradford's Law • Co-occurrence network
4	How the theme of the publication has evolved in Corporate Social Responsibility in Brand Development	• Thematic evolution • Trend Topic • Word Dynamic • Word Cloud • Tree Map

After discussing the definition required for corporate social responsibility in brand development, this article will focus on the analysis and discussion of the methods used in the research. For example, the process of data search, data collection, data extraction, and analysis will be explained based on the methodology of the paper. After that, the discussion will turn to the results of the study. Meanwhile, the conclusion of this paper will lead to the results of the study, explaining in detail the main findings of the study and their implications, as well as the limitations of the study and future directions.

LITERATURE REVIEW

Corporate social responsibility in brand development

CSR plays an important role in the perception of the company's brand, retention of talent, and attractiveness to customers, employees, and investors, which contribute to the overall success of the company (Nadia, 2022). In addition, CSR includes the actions that the company takes to improve its impact on the environment and society, which includes the use of fair and ethical business practices. CSR initiatives can range from philanthropy to operational changes to changing the entire strategy or business model. In fact, there are researchers who suggest that commitment to CSR can have a positive impact on company finances and employee morale (Edmonson, 2022).

CSR is a crucial endeavour for businesses, as seen by the connection between such activity and brand growth. In order to draw customers, many firms concentrate on regional, national, and even international charitable endeavours, therefore social responsibility is a potential path for brand growth. This shows that CSR is very helpful for a company internally. According to a research by Verizon and Campbell Soup Company, CSR may enhance employee satisfaction by up to 7.5 percent while reducing turnover by up to 50 percent. It can also increase team productivity by up to 13 percent (Chhatwal, 2022). Thus, given the research carried out by previous researchers, there is a valid reason for having a discussion regarding this particular topic. Table 2 shows some previous studies on CSR that are needed for a clearer and deeper

understanding of the relationship between corporate social responsibility and brand development.

Table 2: Summary of previous studies in CSR in Brand Development

Author	Domain/Search Strategy/ Title	Data Source & Scope	TDE	Bibliometric Attributes Examined
(Thomas G, 2022)	Corporate Social Responsibility as a Sustainable Business Practice: A Study among Generation Z Customers of Indian Luxury	Scopus	14	Type of publication; Citations documents; Topi Dendogram; Trend Topics; Most Relevant Words; Keywords Trend
(Rasul T, Lim WM, Dowling M, Kumar S & Rather RA, 2022)	Advertising Expenditure and Stock Performance: A Bibliometric Analysis	Scopus	50	Type of Publication; Author, Frequency of paper; Trends Topic; Productive Journals; Map
(Zhang Q, OO BL & LIM BTH, 2022)	Linking Corporate Social Responsibility (CSR) Practices and Organizational Performance the Construction Industry: A Resource Collaboration Network	Scopus	31	Co-occurrence of keywords; Publications per year; Most Relevant Words; Trend Topics; Keyword Trends
(Wul L & Jin S, 2022)	Corporate Social Responsibility and Sustainability: From a Corporate Governance Perspective	Scopus	45	Document Types; Publications per year; Productive Journals; Cooccurrence; Author Impact; Highest citation

Author	Domain/Search Strategy/ Title	Data Source & Scope	TDE	Bibliometric Attributes Examined
(Zhang JM & Wang YJ, 2022)	Effectiveness of Corporate Social Responsibility Activities in the Covid-19 Pandemic	Scopus	21	Author productivity; Highest citation; Bibliographic coupling; Publications per year; Document Types
(Majerova J, Nadanyiova M & Bednarcik Z)	The Real Added Value of Corporate Social Responsibility of Automotive Brands and Its Implications for Marketing Management	Scopus	26	Keywords Trend; Document Types; Authors Impact; Frequency of Paper; Conceptual Structure; Productive Journals

TDE=Total documents examined

METHODOLOGY

Searching strategy

A structured set of terms is called a search strategy, and it is used to search databases. In order to get relevant results, the search strategy mixes keywords and search questions (Jonathan, 2015). As shown in Figure 1, PRISMA (Preferred Reporting Items for Systematic Reviews) and bibliometric analysis were used to support this study. PRISMA is used to identify and extract data for bibliometric review purposes (Dorin, 2022). By looking for publications linked to the Scopus database, bibliometric processes are employed to improve and filter the bibliographic data. In this step, the VOSviewer program is used for data retrieval. Scopus not only finds pertinent and reputable research, but also gives users access to trustworthy metrics, data, and analytical tools (Burnham, 2006). This is the main reason why the researcher chose the Scopus database as the main data source.

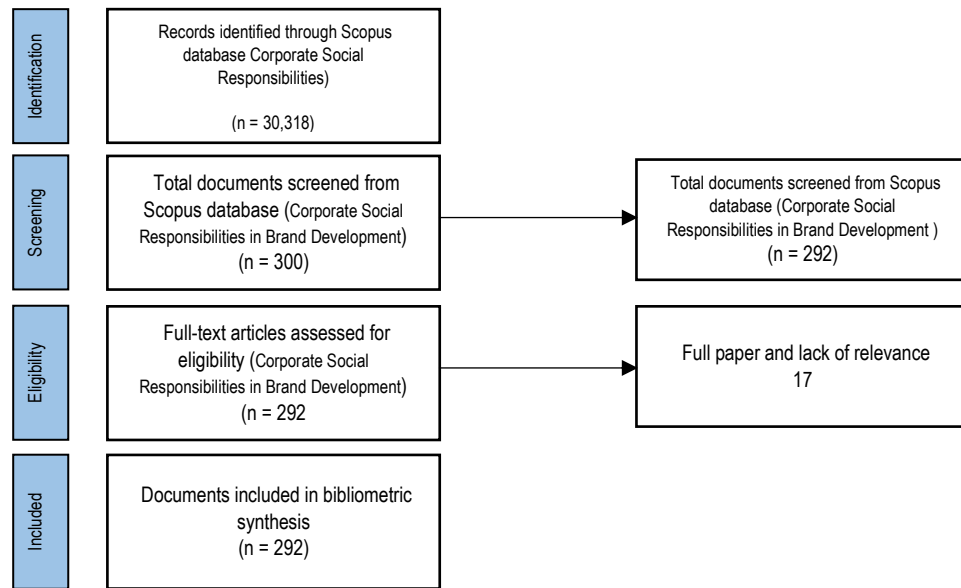


Figure 1: The PRISMA diagram that researcher used to find, screen, and select articles in researcher bibliometric review

Inclusion and exclusion criteria

All search results such as titles and abstracts according to the criteria listed in Table 3 are thoroughly reviewed at the beginning of the search. Then, the researcher reviews and summarizes all publications that have passed the initial selection process. Each study is based on the number of publications, the most famous journal and author, and the research topic that is frequently discussed. The researcher decided to create a final database with a total of 292 papers containing literature on the relationship between corporate social responsibility and brand development.

Table 3: Search criteria

Scopus Category	Searching criteria.	No of article
Topic 1	“Corporate AND social AND responsibilities”	30,318
Topic 2	“Corporate AND social AND responsibility AND brand A ND development	300
Topic 3	“Corporate AND social AND responsibilities AND in AND brand AN D development”	294
Research years	1997–2022	67
Document Type	All types of publication	67
Language	English	67
Author name	All	67

Extraction techniques

Table 1 above shows 292 journal articles exported in a format compatible with the application. To improve the accuracy of the search, the downloaded database was systematically analyzed. For the purpose of conducting this study, the researcher used Excel (csv) and VOSviewer, a programme for building and displaying bibliometric networks. The extraction technique starts by searching for the keywords "corporate AND social AND responsibilities", followed by the keywords "corporate AND social AND responsibility AND brand AND development" and the last keyword "corporate AND social AND in AND brand and development". The final Scopus database contains several elements such as article title, authors, keywords and citation information including all references used. Bibliometric data analysis helps in managing collections for inventory control and collection development through data-driven reports (Nancy, 2007).

Choice of synthesis method (Analysis)

Descriptive analysis is one of the first research procedures that are carried out. In this regard, the researcher created a series of charts in Excel to determine the evolution of the publication on corporate social responsibility in brand development. In the next step, the researcher applies bibliometric analysis techniques. In this technique, citations are used to find the most influential papers and researchers on a particular topic. Other indicators such as the H-index, number of citations, and citations per publication help researchers obtain in-depth information about the field under study. To enable researchers to create network maps, the database is displayed using applications such as VOSviewer and R.

RESULTS

Document profiles

The articles obtained through the search results are from 1997 to 2022, and the information on the studied topic gradually increases as the number of years increases. Based on the 292 total documents listed in Table 4 below, there is an annual growth of 9.19% and 16.28% in citations per document. Meanwhile, the number of citations is 15416. Moreover, the majority of papers in this field are published in the form of articles (65.06%), followed by reviews, which account for only 4.45%.

Table 4: Document profiles

Description	Results
Main Information About Data	
Timespan	1997:2022
Sources (Journals, Books, etc)	195
Documents	292
Annual Growth Rate %	9.19
Document Average Age	6.54
Average citations per doc	16.28
References	15416

Document Contents	
Keywords Plus (ID)	747
Author's Keywords (DE)	814
Authors	
Authors	180
Authors of single-authored docs	21
Authors Collaboration	
Single-authored docs	81
Co-Authors per Doc	2.42
International co-authorships %	20.89
Documents Types	
Article	190 (65.06 %)
Book	7 (2.41 %)
Book Chapter	42 (14.38 %)
Conference Paper	28 (9.58 %)
Conference Review	7 (2.39 %)
Editorial	1 (0.34 %)
Note	1 (0.34 %)
Retracted	1 (0.34 %)
Review	13 (4.45 %)
Short survey	2 (0.68 %)

RQ1: What is the current state and trend of publication in Corporate Social Responsibility in Brand Development.

As shown in Figure 2, the number of publications on the topic of corporate social responsibility in brand development has increased over the years. The topic and scope of research on corporate social responsibility in brand development has received considerable attention in previous studies, as evidenced by the number of publications. Based on preliminary data from the Scopus database, the topic of corporate social responsibilities in brand development gained attention in the late 1990s, beginning in 1997, despite the relatively small number of publications on the topic at that time. The rise began in 2011 and continues today.

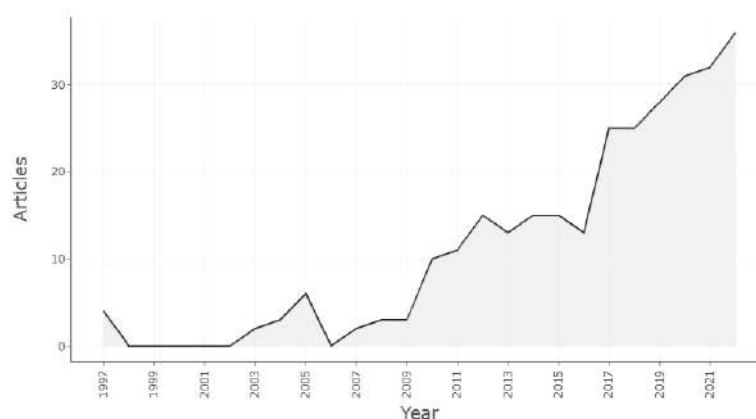


Figure 2: Annual Scientific Production (Total published articles from 1997-2022)

Figure 2 shows that the individual publications increase from year to year. For example, at the beginning, there were only 20 publications on CSR that appeared between 1997 and 2008. Then, from 2009 to 2012, there was an increase of 39 publications that highlighted the topic in the context of the study began to attract the attention of writers. From 2013 to 2016, 56 publications followed, showing an increase in the number of publications with a variety of topics related to corporate social responsibility, although there was a slight decrease in 2013. Although there was a slight decrease in the number of publications in 2017, it can be seen that the drastic increase occurred around the year 2017 to 2022 with a total of 177 publications with the highest number on the topic of CSR in brand development.

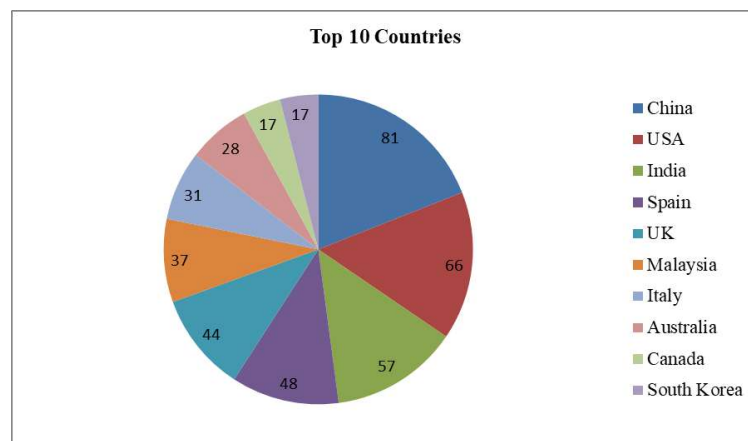


Figure 3: Top 10 highest publications by country

Figure 3 shows the top ten countries and categories of papers related to CSR in brand development. China is the country that writes the most articles on this topic, with a total of 81 articles. This is followed by the U.S. with 66 articles, India with 57 articles, Spain with 48 articles, the UK with 44 articles, Malaysia with 37 articles, Italy with 31 articles and Australia with 28 articles. Canada and South Korea recorded the same number of articles, 17. Obviously, CSR in brand development is a topic that is very actively discussed in China.

RQ2: What are the most influential contributors to Corporate Social Responsibility in Brand Development.

For this second research question, the study focuses on the most influential authors, the author's production over time, the most influential institutions and countries, and the most influential source titles in Corporate Relationship in Brand Development. Table 5 lists the most influential authors and articles on the studied topic. The six most influential authors include Amatulli C (2019; 2018; 2017), Dea Angelis M (2019; 2017), Anh J (2022), Kim S (2022; 2022), Kim I (2022), and Isa SM (2022) ; 2020). In this regard, Amatulli C and Dea Angelis M have the most citations with 80 each, followed by Isa SM with a total of 6 citations. After all, 3 authors, namely Anh J, Kim S and Kim I, contributed 1 citation each on the topic of corporate social responsibility in brand development.

Table 5: The most influential authors

Author's Name	Title	Journal	TC	AF	TCpY	PY
Amatulli C	Responsible Luxury Development: A Study on Luxury Companies' CSR, Circular Economy and Entrepreneurship	Environmental Footprints and Eco-design of Product and Processes	3	0.83	0.600	2019
De Angelis M	Responsible Luxury Development: A study on Luxury Companies' CSR, Circular Economy and Entrepreneurship	Environmental Footprints and Eco-design of Product and Processes	3	0.83	0.600	2019
Amatulli C	Consumers' Perceptions of Luxury Brands' CSR Initiatives: An Investigation of The role of Status and Conspicuous Consumption	Journal of Cleaner Production	70	-	11.667	2018
De Angelis M	Consumers' Perceptions of Luxury Brands' CSR Initiatives: An Investigation of The role of Status and Conspicuous Consumption	Journal of Cleaner Production	70	-	11.667	2018
Amatulli C	Luxury Sustainability, and Corporate Social Responsibility: Insights from Fashion Luxury Case Studies and Consumers' Perceptions	Environmental Footprints and Eco-Design of Products and Processes	7	-	1.000	2017
De Angelis M	Luxury Sustainability, and Corporate Social Responsibility: Insights from Fashion Luxury Case Studies and Consumers' Perceptions	Environmental Footprints and Eco-Design of Products and Processes	7	-	1.000	2017
Anh J	Exploring the Role of Intrinsic and Extrinsic CSR Attributes for Customers' Positive Behavioural Intention in the Hotel Industry	Social Responsibility Journal	1	1.50	0.500	2022
Kim S	Advertising role of CSR and Strategic Investment	Journal of Current Issues and Research in Advertising	0	0.67	0.000	2022

	in R&D: Evidence from the Biohelath Industry								
Isa SM	Corporate Social Responsibility and Customer Loyalty: Exploring the Roles of Customer Satisfaction and Brand Image of Company	Global Journal Al-Thaqafah	0	1.00	0.00	2022			
Kim S	The Role of Passengers' Involvement in Cause Related Marketing: Moderated Mediation Effects of Brand Attitude and Brand Consciousness in the Airline Industry	International Journal of Sustainable Transportation	1	-	0.500	2022			
Kim I	The Role of Passengers' Involvement in Cause Related Marketing: Moderated Mediation Effects of Brand Attitude and Brand Consciousness in the Airline Industry	Journal of Islamic Marketing	1	0.83	0.500	2022			
Isa SM	Islamic Branding Insights From a Conceptual Perspective	Journal of Sustainable Tourism	6	-	1.500	2020			

Notes: TC=total citations; AF=articles fractionalized; PY=publication year; TCpY=total citation per year

Table 6 shows that the sample database contains the most influential journals. It can be seen that Sustainability (Switzerland) Journal dominates the publication of Corporate Social Responsibilities in Brand Development with 20 papers, 3 h-index and 3 citations. This is due to the fact that the production of the journal has increased from 2017 to 2022 compared to other journals. The journal CSR, Sustainability, Ethics and Governance is listed next, with 9 working articles, 3 h-indexes, and 3 citations. Meanwhile, the journal Development in Marketing Science recorded 8 working papers, 2 h index and 2 citations. The journal has shown that this study has attracted interest from the authors, stating that corporate social responsibility in brand development is an important element to be studied because it is significant in the corporate world.

Table 6: The most influential source

No.	Journal	PY	TC	NP	<i>h</i> index	<i>g</i> index	<i>m</i> index
1	Sustainability (Switzerland)	2017	20	3	3	3	0.429
2	CSR, Sustainability, Ethics and Governance	2017	9	3	3	3	0.429
3	Development in Marketing Science: Proceedings of the Academy of Marketing Science	2011	8	2	2	2	0.154
4	Journal of Cleaner Production	2011	7	2	2	2	0.154
5	Corporate Social Responsibility and Environmental Management	2020	6	2	2	2	0.500
6	Social Responsibility Journal	2018	6	2	2	2	0.333
7	Corporate Reputation Review	2017	5	2	2	2	0.286
8	Strategic Direction	2012	5	2		2	0.167
9	Business Strategy and the Environment	2014	4	2	2	2	0.200
10	Journal of Fashion Marketing and Management	2017	4	2	2	2	0.286

Notes: PY=publication year; TC=total citations; NP=number of publications; h=h-index; m=m index; and g=g-index.

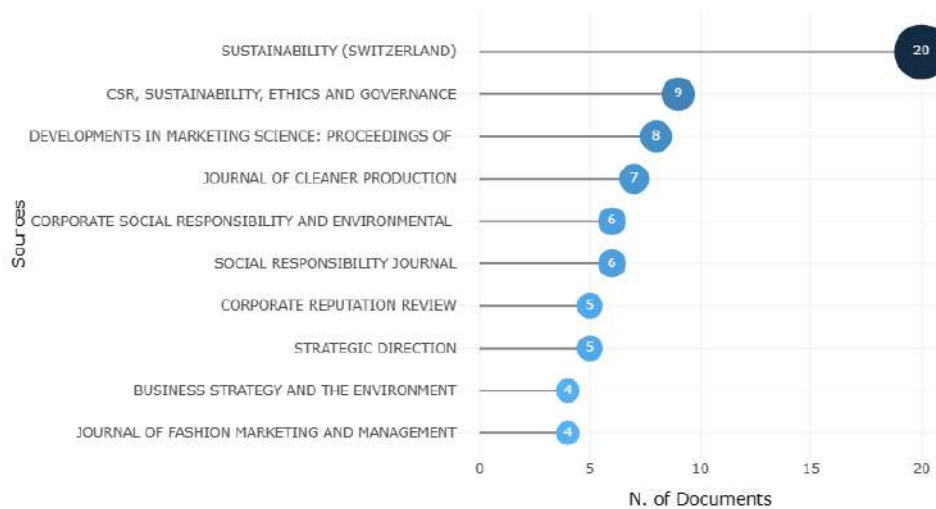


Figure 4: The most relevant sources

Typically, relevant sources help the researcher to obtain accurate and detailed information that will help him to deepen the study. It is a source whose information helps answer all research questions. Therefore, relevance, purpose, and bias must be clear. In fact, all aspects of the evaluation must be considered to determine relevance (Horkoff, 2015). Figure 4 lists 10 relevant sources. Among them are Sustainability (Switzerland), CSR, Sustainability, Ethics and Governance, Developments in Marketing Science, and Journal of Cleaner Production. All of these journals are very important because their publication involves peer review to ensure the accuracy and precision of the topics and areas studied.

RQ3: What are the most influential articles and sources on Corporate Social Responsibility in Brand Development.

Highly cited documents/papers

When compared to other papers in the same subject or year of publication, highly cited papers are those that were published during the past ten years and have had the most citations (1%) (Malea, 2017). This explains that papers that are highly cited in journals or scientific fields were and are considered more important because they address the most important topics. In fact, the author assumes that the paper produced has the greatest impact on the audience, the research is considered a standard of scientific excellence that allows other researchers to use the information as a guide for their research. Therefore, Table 7 shows the 10 most cited documents and papers in the field of corporate social responsibility in brand development. Nicholass A (2005) has 400 (22.6%) total citations, which is one of the most. Followed by Awaysheh A (2010) which has 354 (20.0%) total citations. In third place is Fombrun CJ (2005) with 255 (14.4%) total citations. The topic covered is quite broad and includes elements of corporate social responsibility.

Table 7: Most cited documents/papers

Paper	Total Citations	% Cited	TC per Year	% TCpY	Normalized TC	% NTC
Nicholass A, 2005, fair Trade: Mark-Driven Ethical Consum	400	22.6	21.05	15.1	3.64	8.7
Awaysheh A, 2010, Int J Oper Prod Manage	354	20.0	25.29	18.2	6.94	16.6
Fombrun CJ, 2005, Corp Reputation Rev	255	14.4	13.42	9.6	2.32	5.5
Gilberthorpee E, 2012, Resour Policy	178	10.0	14.83	10.6	5.15	12.3
Rueda X, 2017, J Clran Prod	114	6.4	16.29	11.7	7.27	17.4
Ramesh K, 2019, Corp Soc Responsib Environ Manage	101	5.7	20.20	14.5	5.84	14.0
Balmer JMT, 2011, J Bus Ethics	97	5.4	7.46	5.3	2.88	6.9
Brunk KH, 2012, J Bus Ethics	93	5.2	7.75	5.5	2.69	6.4
Gill DL, 2008, J Comm Manage	89	5.0	5.56	4.0	2.62	6.2
Hayhurst LMC, 2011, Third World Q	88	4.9	6.77	4.8	2.61	6.2

Notes: PY=publication year; TC=total citations

Author Impact

The frequency with which academic publications are cited by other researchers is traditionally used to measure an author's influence on a field or discipline. The factor is also used to calculate the scientific value of a particular researcher or author (RK Pak, 2014). Table 8 shows that the author with the highest h-index was achieved by Amatulli C and De Angelis M with a total of 3h-index and 3g-index, respectively. This is followed by 8 authors, namely Ardvissio A, Balmer M, Li Y, Liu Z, Lopez Perez Me, Maon F, Martinez P, and Melero I, each with a total index of 2 h-index and 2 g-index. The most active author is Li Y with an m-index of 0.500. The main author with the highest citation frequency is Balmer JMT with a total of 162 citations, representing 19.1%. All information is compiled from 2011 to 2020.

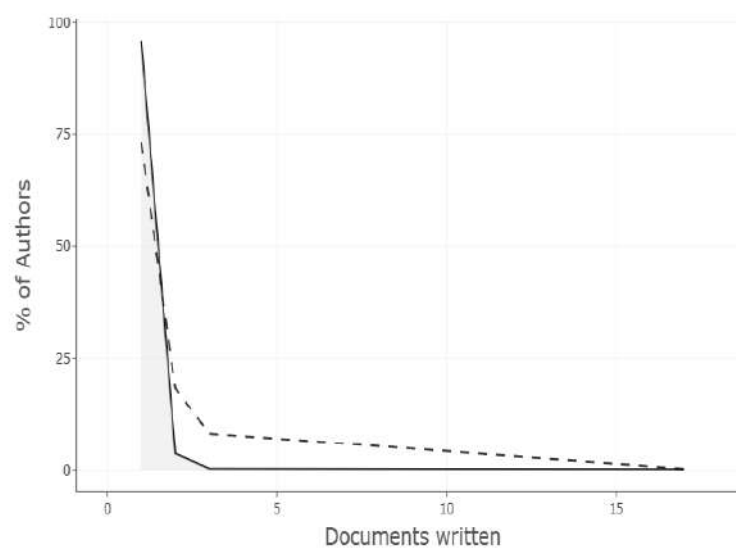
Table 8: The 10 most impactful author

Author (s)	h_index	g_index	m_index	TC	% TC	NP	PY_start
Amatulli C	3	3	0.429	80	9.4	3	2017
De Angelis M	3	3	0.429	80	9.4	3	2017
Ardvidsson A	2	2	0.154	110	13.0	3	2011
Balmer JMT	2	2	0.154	162	19.1	2	2011
Li Y	2	2	0.500	39	4.6	2	2020
Liu Z	2	2	0.333	25	2.9	2	2018
Lopez Perez Me	2	2	0.286	83	9.8	2	2017
Maon F	2	2	0.167	66	7.8	2	2012
Martinez P	2	2	0.200	118	13.9	2	2014
Melero I	2	2	0.286	83	9.8	2	2017

Notes: PY=publication year; TC=total citations; NP=number of publications; h=h-index; m=m index; and g=g-index

Documents written	N. of Authors	Proportion of Authors
1	636	0.959
2	24	0.036
3	1	0.003

Figure 5. Lotka's Law



Lotka's Law

A bibliometrics example is Lotka's law, which plots the total number of writers versus the total quantity of contributions made by each author on a logarithmic scale. The resulting points lie close together on a straight line with a slope of -2 (M. Kawamura, C. D. Thomas, A. Tsurumoto, H. Sasahara, Y. Kawaguchi, 2000). Moreover, According to Lotka's law, the proportion of authors who publish several publications to those who only publish one piece is fixed. Accordingly, Figure 5 shows the observed and fitted Lotka's distribution. Between 1 and 3 articles were published. It is clear from Figure 5 that the number of authors involved decreases as the number of articles published increases.

Source impact

In the conducted study, the h-index, g-index, m-index, and number of journal citations are utilised to determine the effect of each journal that publishes papers on corporate social responsibility in brand development. In addition, the source impact is used to evaluate the relative importance of a journal in its field and measure the average frequency of articles (Sharma M, Sarin A, Sachdeva S & Desai AV, 2014). According to the statistics in Table 9, Sustainability (Switzerland) ranked first with an h_index of 3, a g_index of 3, an m_index of 0.429, and a total number of 20 citations. This means that Sustainability (Switzerland) has the greatest influence in the study on Corporate Social Responsibilities in brand development. This compares to CSR, Sustainability, Ethics and Governance in second place, which have the same h_index of 3, the same g_index of 3 and the same m_index of 0.429 as Sustainability (Switzerland), but differ in the total number of citations of 9. In third and fourth place are Development in Marketing Science: Proceedings of the Academy of Marketing Science and Journal of Cleaner Production with 2 h_index and 2 g_index, respectively. Their total citations range from 7 to 8, indicating that the journal has minimal influence on the topic of this study.

Table 9: The 10 most impactful source

Source	h_index	g_index	m_index	TC	% TC	NP	PY_start
Sustainability (Switzerland)	3	3	0.429	20	27.0	3	2017
CSR, Sustainability, Ethics and Governance	3	3	0.429	9	12.1	3	2017
Development in Marketing Science: Proceedings of the Academy of Marketing Science	2	2	0.154	8	10.8	2	2011
Journal of Cleaner Production	2	2	0.154	7	9.4	2	2011
Corporate Social Responsibility and Environmental Management	2	2	0.500	6	8.1	2	2020
Social Responsibility Journal	2	2	0.333	6	8.1	2	2018
Corporate Reputation Review	2	2	0.286	5	6.7	2	2017
Strategic Direction		2	0.167	5	6.7	2	2012
Business Strategy and the Environment	2	2	0.200	4	5.4	2	2014
Journal of Fashion Marketing and Management	2	2	0.286	4	5.4	2	2017

Bradford's Law

According to Bradford's law, there should be n and n^2 times as many journals in the second and third zones as there are in the first, respectively. One can therefore forecast the total number of journals that contain papers on that topic once the number of journals in the core zone and the middle zone are known. If the total number of journals is known, it is also possible to estimate how much pertinent data would be left out of a search that isn't thorough (Med. J, 2012). Since identifying sources on the topic for an accurate review takes a lot of time, the literature from Bradford's Law is a useful aid for this study.

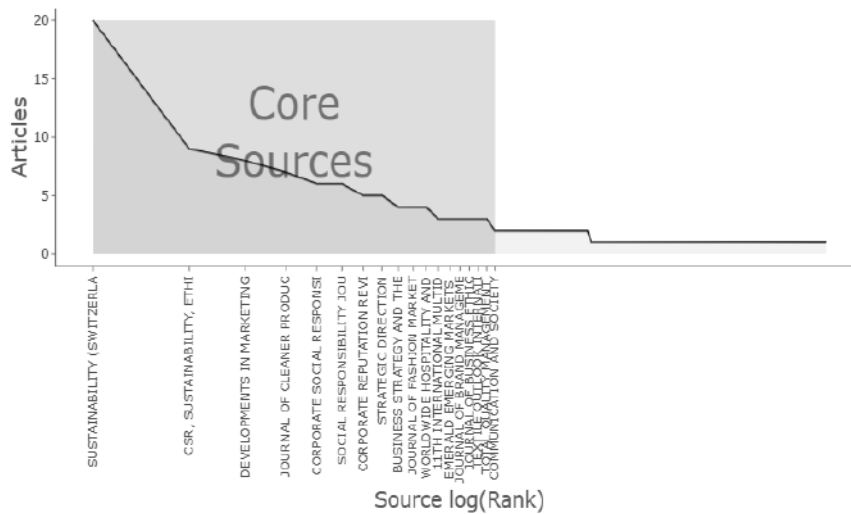


Figure 6: Bradford's Law

The figure above shows the categorization of journals based on Bradford's Law, which divides journals into core, intermediate, and broad groups according to their level of production. The core journal groups are highlighted in color and annotated. This category includes the journals that have the most research on corporate social responsibility at a given time. As shown in Figure 6, there are about 10 synonymous sources on the studied topic. Article Sustainability has the most publications with a total of 20 articles, followed by Article CSR, Sustainability, Ethics and Governance with a total of 10 articles. Article Development in Marketing Science has 8 articles. Strictly speaking, all of these journals are very important because their publication procedures include a peer review process designed to ensure their accuracy and contribution to the field of study.

Co-occurrence network

A co-occurrence network is a technique for text analysis that involves graphical representation of probable connections between individuals, groups, ideas, or other entities in textual content. With the introduction of electronically recorded texts, which corresponds to text mining, the building and visualisation of co-occurrence networks has become viable (A, Barberan, 2012). As shown in Figure 7, high-frequency keywords have a close relationship with the issue of corporate social responsibility in brand development. Three main clusters were formed, namely

"corporate social responsibility", "sustainable development" and "social responsibility". In this context, "corporate social responsibility," "perception," "sustainability," "economic development," and "environmental economics" are among the elements that make up cluster 1. Cluster 2 contains numerous keywords, including "sustainable development," "corporate social responsibility (CSR)," "marketing," "social aspects," and "brand loyalty." Cluster 3 contains the keywords "social responsibility," "article," "people," and "policy"

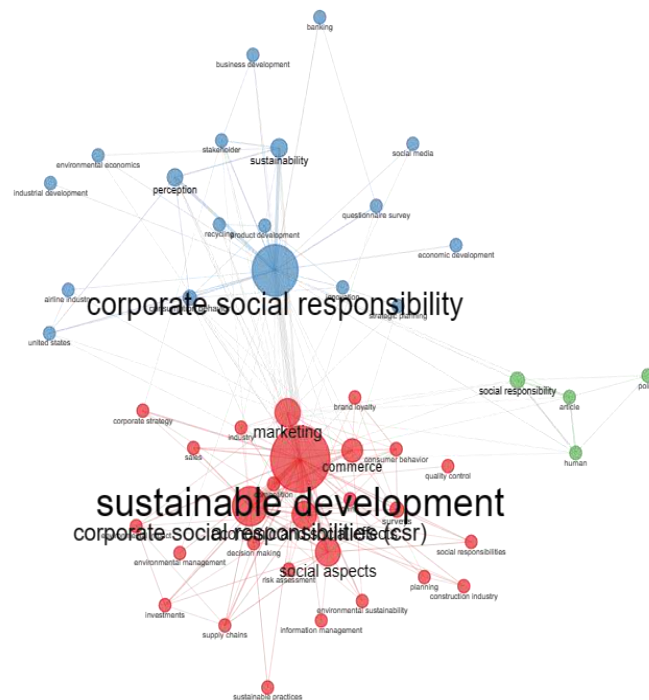


Figure 7. Co-occurrence network

RQ4: How the theme of the publication has evolved in Corporate Social Responsibility in Brand Development

Brand development is a method of combining performance analysis and scientific mapping to describe conceptual sub-areas to describe the thematic development of the study. The analyzes performed in this study include hematic development, trend theme, word dynamics, word cloud and treemap.

Thematic evolution

Figure 8 shows a study that divides the thematic map into 4 quadrants based on density and centralization. For the objective of detecting variation, all references to study topics and additions to additional keys were analysed. The upper right quadrant needs more exploration and study since it contains a driving or motor motif that is highly concentrated and central. "Corporate Social Responsibilities" is the main theme in this quadrant. In addition, the upper

right quadrant also includes "Quality Control," "Consumer Satisfaction," and "Social Responsibility." Furthermore, the upper left quadrant displays particular issues with high growth, as shown by high density but low centrality. Quadrant topics include In addition, the lower left quadrant shows long-standing topics with low centrality, which are also emerging or declining topics. Topics in this quadrant include "sustainable practise," "thermal insulation," "business strategy," "stakeholders," "organisational framework," and "environmental economics." Finally, the lower right quadrant has a simple motif with strong centrality but low density, namely "project management," "competition," "water treatment," "information management," and "social responsibility". In terms of the study's subject, all of these are technically connected topics.

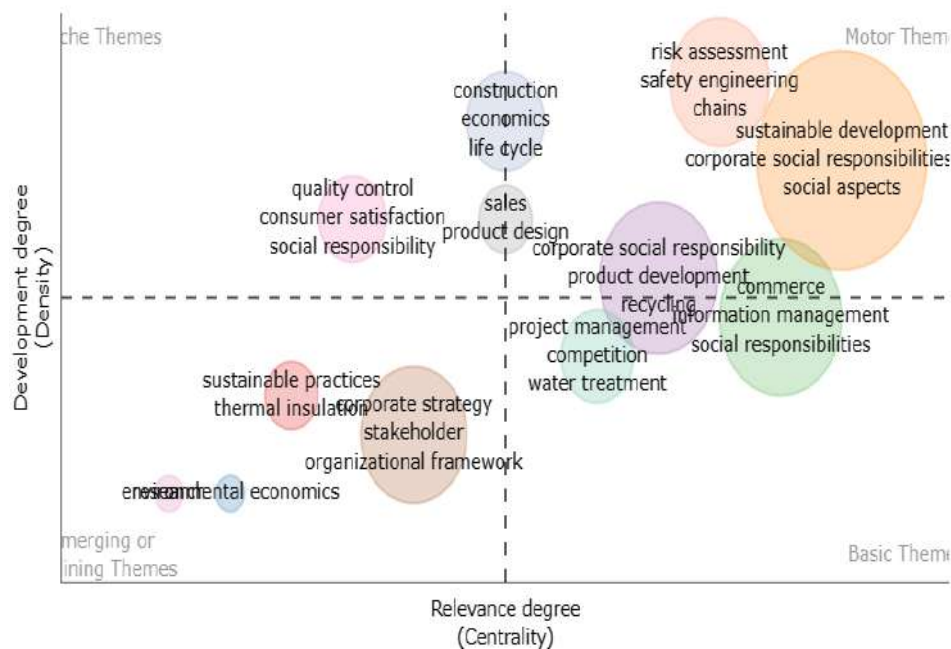


Figure 8: The thematic evolution

Trend topic

Topic trend is a topic that experiences a surge in popularity over a period of time, it is also a component used in this study. In addition, topic trends allow researchers to know the most common topics and have a long-term relationship to the topics studied. Referring to Figure 8 and Table 10, in 2004 the development of the topic started to increase significantly. As shown in the following data description, the topic has been used since 2004, especially in the discussion of the relationship between corporate social responsibility in brand development in relation to sustainable development ($F = 57$), corporate social responsibility ($F = 41$), corporate social responsibility (CSR) ($F = 29$), social aspects ($F = 18$) and the topic of marketing ($F = 17$). Furthermore, in 2014-2018, corporate strategy, economic and social impact, risk assessment and stakeholders have emerged as distinct but related themes in the subject under study. With the highest frequency compared to other topics in years q1, q2 and q3, frequently discussed topics from 2013 to 2022 include "Sustainable Development", "Corporate Social

Responsibility” and “Corporate Social Responsibility”. This data also explains that the three themes in corporate social responsibility in brand development have become trending.

Table 10: The trend topic year

Trend Topic	Frequency (F)	%	year_q1	year_med	year_q3
Environmental impact	5	1.8	2004	2010	2014
Investments	5	1.8	2010	2010	2014
Industry	6	2.1	2010	2012	2017
Corporate Strategy	7	2.5	2011	2014	2018
Risk Assessment	5	1.8	2010	2015	2018
Corporate Social Responsibilities (CSR)	29	10.6	2013	2017	2019
Social Aspects	18	6.5	2010	2018	2019
Social Responsibility	10	3.6	2010	2019	2019
Stakeholder	7	2.5	2016	2017	2020
Sustainable Development	57	20.8	2013	2018	2020
Marketing	17	6.22	2004	2019	2020
Sales	7	2.5	2014	2019	2020
Economic and Social Effects	13	4.7	2010	2014	2021
Commerce	13	4.7	2014	2018	2021
Sustainability	12	4.3	2019	2020	2021
Perception	10	3.6	2020	2020	2021
Corporate Social Responsibility	41	15.0	2019	2020	2022
Construction Industry	5	1.8	2019	2021	2022
China	6	2.1	2020	2022	2022

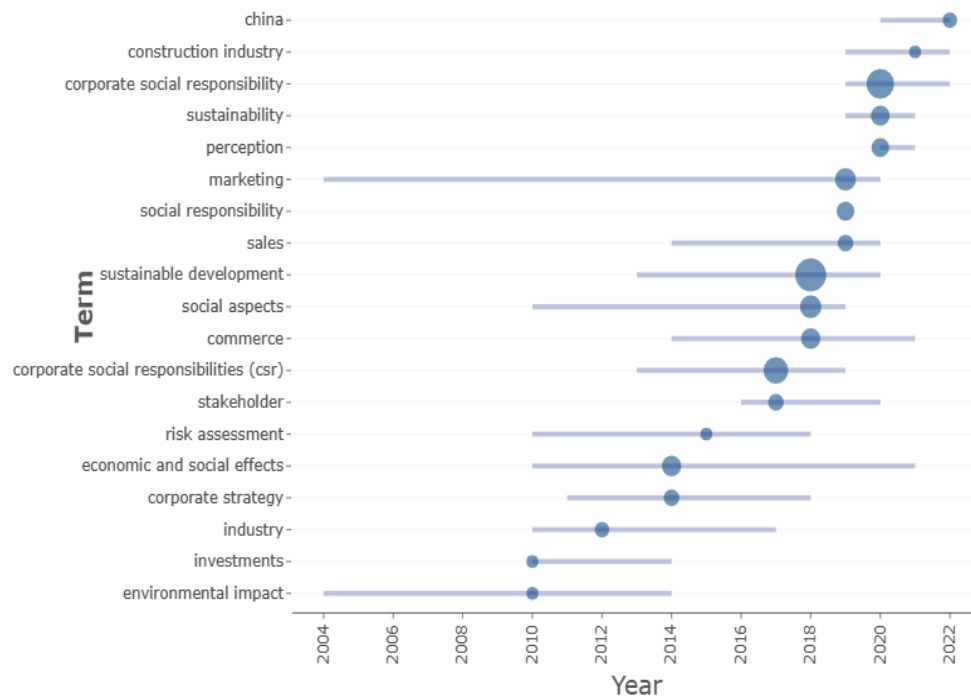


Figure 9: The trend topic

Word dynamic

Word dynamic makes use of data sets to demonstrate how words change throughout time. It is displayed by the total number of occurrences annually or by the total count of the primary keyword plus the author's keyword, title, or abstract. Figure 10 shows the growth of major keywords based on the total number of occurrences per year in the field of corporate social responsibility in brand development from 1997 to 2022. From the figure below, it can be seen that some major keywords showed a significant increase in 2015, which continued until 2022. From 2015 to 2022, the "word dynamics" data analysis clearly shows an increase in the use of dynamic keywords such as "corporate social responsibility," "corporate social responsibilities (CSR)," and "sustainable development". This result explains why the term was selected as trending and significant over time.

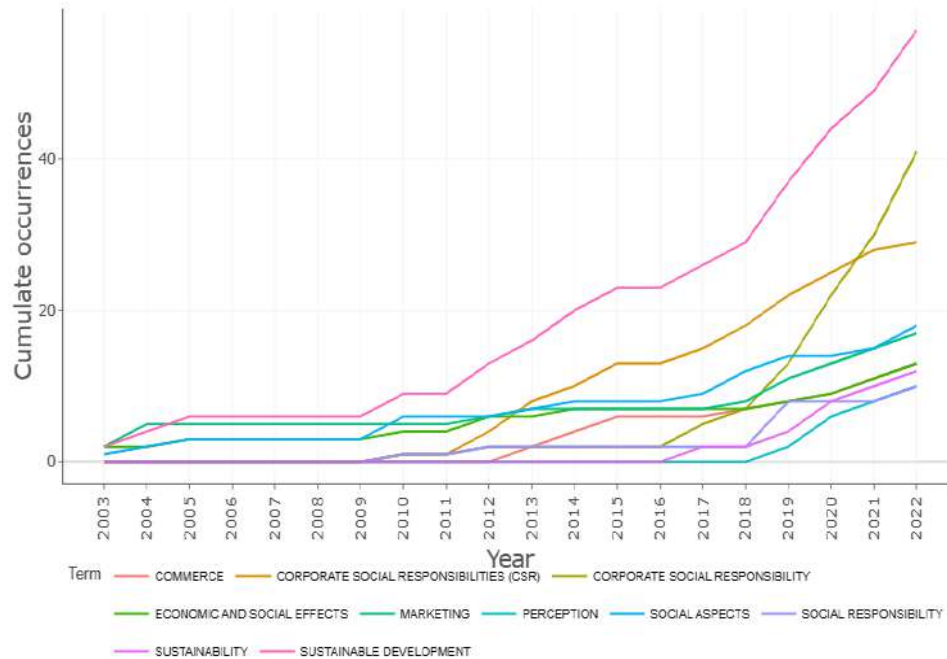


Figure 10: The word dynamic (1997-2022)

Word cloud

Word clouds, also known as tag cloud, are a visual representation of words in which words that occur more frequently are given greater prominence (Shah. R, 2021). Word clouds have become a groundbreaking visualization technique to understand and determine emerging patterns and trends. Figure 11 shows the words that occur most frequently in topics related to corporate social responsibility in brand development. The word with the highest number of occurrences and the greatest relevance to the research topic is the word "social aspects" with 18 uses, shown in maroon, indicating its relevance to the topic of corporate social responsibility in brand development. In second place comes the word "marketing", used 17 times with the orange sign. In third place, followed by the words "economic and social impact" and "trade", each of which has the same number of 13 times.



Figure 11: The word cloud

Tree Map

Treemaps are a visual representation of hierarchical data in which nested rectangles stand in for the tree diagram's branches. Each rectangle has an area proportional to the amount of data it represents (Lockhart, 2015). Treemaps are also commonly used when another type of diagram would better represent the data. Figure 12 shows several tree diagrams consisting of words related to the topic of this study. From the tree diagrams, it can be seen that the word "Sustainable Development" has the highest share with 13%, followed by "Corporate Social Responsibility" with 10% and "Corporate Social Responsibilities" with 7%. The other keywords have a share of only 4% to 1%. As can be seen, this result differs significantly from the results of the "word cloud", which shows that "social aspect" appears most frequently when it comes to the relationship between Corporate Social Responsibility and Brand Development.



Figure 12: The Tree Map

CONCLUSION

Generally, Corporate Social Responsibility is a business model that encourages companies to focus on the impact they will have on the community and the environment by having a positive impact on stakeholders, whether they are internal or external to the company. This study shows that there are many issues related to corporate social responsibility. Nevertheless, not all issues are related to brand development. Several findings show that sustainable development and corporate social responsibility are the most discussed buzzwords in this field. In this decade, corporate social responsibility has received extensive attention in order to achieve the set goals and mission and vision. After all, corporate social responsibility not only brings benefits to a company, but also contributes to employee engagement and customer loyalty.

Overall, corporate social responsibility is the most important topic that authors in China pay much attention to. The 6 well-known authors include Amatulli C (2019; 2018; 2017), Dea Angelis M (2019; 2017), Anh J (2022), Kim S (2022; 2022), Kim I (2022), and Isa SM (2022; 2020).). In addition, the author with the most citations is Balmer JMT with a total of 162

citations, while Martinez P has 118 citations. In addition, Sustainability Journal (Switzerland) is the leading journal in the field, followed by CSR, Sustainability, Ethics and Governance, and Development in Marketing Science: Proceeding of the Academy of Marketing Science. As for the Co-occurrence Network, there are three main clusters. Cluster 1 consists of "corporate social responsibility," "perception," "sustainability," "economic development," and "environmental economics." Cluster 2 consists of numerous keywords, including "sustainable development," "corporate social responsibility (CSR)," "marketing," "social issues," and "brand loyalty." Cluster 3 consists of the keywords "social responsibility," "article," "people," and "policy." In addition, several analyzes were conducted to analyze the thematic development using thematic development, trending theme, word dynamics, word cloud and treemap. Environmental impact, investors, and industry are trending topics that have been frequently discussed since 2014 to 2017 because they involve corporate social responsibility issues. This differs from the "word cloud" analysis, which shows that "social issues" appear more frequently when discussing Islamic business and sustainability.

In summary, CSR is considered one of the marketing expressions that influence brand development and able to contribute to improving various aspects of society as well as promoting a positive brand image of companies. This is because through this activity, companies can increase not only their reputation but also their equity. A brand that a company owns leads to a sustainable business. Empirical result of this research able to identified some literature gaps that will allow future researchers to be more sensitive to the information they seek. Future research needs to focus on more specific topics, as CSR encompasses many elements and should examine on the impact of CSR on brand development in various knowledge streams, whether the viewpoint is political, economic, or social.

REFERENCES

- Al-Marri, M., Pinnington, A.H., Karatas-Ozkan, M., and Nicolopoulou, K. (2019, April 29). The management of corporate social responsibility through projects: A more economically developed country perspective. *Business Strategy and Development*, 2(4): 358-371.
- Barberan, A. (2011, September 8). Using network analysis to explore co-occurrence patterns in soil microbial communities. *Nature*.
https://www.nature.com/articles/ismej2011119?error=cookies_not_supported&code=a5fb3ea3-62fc-41a9-87a0-8f323c6644ac
- Chhatwal, G. (2022, August 17). The role of CSR in your brand strategy— How defining a clear social purpose can benefit all types of organizations. *Kadence*.
<https://kadence.com/en-us/the-role-of-csr-in-your-brand-strategy/>
- Fernando, J. (2022, May 27). Corporate Social Responsibility (CSR) Explained With Examples. *Investopedia*. <https://www.investopedia.com/terms/c/corp-social-responsibility.asp>
- Horkoff, T. (2015, August 24). Chapter 7. Sources: Choosing the Right Ones – Writing for Success – 1st Canadian Edition. *Pressbooks*.
<https://opentextbc.ca/writingforsuccess/chapter/chapter-7-sources-choosing-the-right-ones/>
- Koffel, J. B. (2015, May 4). Use of Recommended Search Strategies in Systematic Reviews and the Impact of Librarian Involvement: A Cross-Sectional

- Survey of Recent Authors. PLOS ONE.
<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0125931>
- Lockhart, E. (2015, April 2). treemap. Enterprise Desktop.
<https://www.techtarget.com/searchenterprisedesktop/definition/treemap>
- Mireles, K. (2021, July 6). Integrating social responsibility into product development. Mind the Product. <https://www.mindtheproduct.com/social-responsibility-into-product/>
- Pahwa, A. (2022, February 28). What Is Brand Image? – Importance & Examples. Feedough. <https://www.feedough.com/brand-image-explanation-examples/>
- Pan, R. K. (2014, May 12). Author Impact Factor: tracking the dynamics of individual scientific impact. Nature.
https://www.nature.com/articles/srep04880?error=cookies_not_supported&code=a3dc2f68-0dd8-4029-8b1c-2f5936860c4f
- Shah, R. (2022, December 2). How to Build Word Cloud in Python? Analytics Vidhya.
<https://www.analyticsvidhya.com/blog/2021/05/how-to-build-word-cloud-in-python/>
- Ullah, Z., Arslan, A., and Puhakka, V. (2021, May 22). Corporate social responsibility strategy, sustainable product attributes, and export performance. *Corporate Social Responsibility and Environmental Management*, 28(6): 1840-1853.
- What Is Corporate Social Responsibility? (2022, July 14). The Balance.
<https://www.thebalancemoney.com/corporate-social-responsibility-csr-4772443>
- Zhao, Y. (2021, November 10). Exploring the Relationship Between Corporate Social Responsibility, Trust, Corporate Reputation, and Brand Equity. Frontiers.
<https://www.frontiersin.org/articles/10.3389/fpsyg.2021.766422/full>

Strategic Entrepreneurship: A Bibliometric Analysis Using R

By

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ABSTRACT

The purpose of this study is to examine the connection between the strategic Entrepreneurship and sustainability using a literature review and bibliometric analysis. The purpose of the study was to systematically record the intellectual structure, volume, trends in knowledge development, and significance of the author and source. Information is gathered and analyzed from Scopus databases using Microsoft Excel and R Studio. The most significant journals, writers, and publications on the subject are identified using the bibliometric analysis using R. By combining the most important aspects of sustainability and strategic economy into a single idea, this study shows how a new research topic can be developed. This opens up new research opportunities in both the broad field of Strategy Entrepreneur and the relatively new and hotly debated area of sustainability.

Keywords: strategy, strategic entrepreneurship, bibliometric analysis

INTRODUCTION

Existing knowledge of the strategic entrepreneurship

By fusing strategic and entrepreneurial thinking, strategic entrepreneurship is the process of identifying and seizing new company possibilities. This might entail finding new markets, developing fresh goods or services, or applying fresh technology to benefit stakeholders and customers. A bibliometric analysis is a research technique used to evaluate and quantify the body of knowledge in a certain area. In order to comprehend the present level of knowledge in the topic, this may entail recognizing important authors, publications, and research trends. Large data sets may be handled and analyzed using R, a programming language and software environment for statistical computation and graphics. "Strategic entrepreneurship: A bibliometric analysis using R" by Dörrenbächer and Harhoff is one instance of a research that employed bibliometric analysis to

analyse strategic entrepreneurship (2015). The study examined the strategic entrepreneurship literature from 1985 to 2012 using bibliometric methodologies. The authors discovered that the multidisciplinary nature of strategic entrepreneurship has expanded more rapidly in recent years. In addition, they identified significant researchers and publications in the area as well as patterns in research questions and techniques. This study offers insightful analyses into the state of knowledge in the domain of strategic entrepreneurship and serves as a useful resource for further study in this topic.

Limitations and gaps in strategic entrepreneurship

A growing corpus of study has also examined how outside variables, such the entrepreneurial ecosystem, might help or hinder a company's capacity to seize new possibilities. The contemporary literature on strategic entrepreneurship does, however, have several drawbacks and shortcomings. For instance, further study is required on the precise ways in which organizational skills and outside circumstances affect a firm's capacity to seize new possibilities. Additional empirical study is required to fully comprehend the intricate and dynamic processes involved in strategic entrepreneurship, particularly case studies and field studies. Strategic entrepreneurship is influenced by a variety of contextual factors, including industry dynamics, organizational culture, and external environments. Moreover, case studies and field studies allow researchers to delve into specific contexts, providing a nuanced understanding of how strategic entrepreneurship operates in different settings. Thus, the investigation of more variables will integrate the combination of the opportunity-driven and aspirational entrepreneurship variables that benefit entrepreneurial activities and their underlying motivations as entrepreneurs.

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Research Questions

Table 1: Research Questions (RQ)

No.	RQ	Analysis Procedure
1	What is the current state and trend of publication in strategic entrepreneurship?	· Document Type · Source type · Total number of contributors · Number of publications by year/ country

- Annual growth rate.

2	What are the most influential contributors to Strategy Entrepreneur and Sustainability	· Most relevant sources · Most influential countries · Most influential source title
3	What are the most influential article, authors and sources on strategic entrepreneurship	· Highly cited documents · Lotka's Law · Source Impact · Bradford's Law · Co-occurrence network
4	How the theme of the publication has evolved in strategic entrepreneurship	· Thematic evolution · Trend Topic · Word Dynamic · Word Cloud · Tree Map

This article carries on to a more in-depth discussion and analysis after briefly going over key definitions for strategic entrepreneurship. In the methodology portion of the study, the methodologies employed in this inquiry are detailed, along with the data searching procedure, data collecting, extraction, and analysis. The study results were discussed in the section that followed. This paper's discussion and conclusions section emphasizes the study's results, goes into detail about the major findings and their consequences, and explains the study's constraints and future directions.

LITERATURE REVIEW

Strategic entrepreneur and sustainability

The majority of the prior research on strategic entrepreneurship was on identifying and delineating the critical elements that contribute to the success of new businesses. The significance of sustainability in strategic entrepreneurship, however, is gaining attention. This is a result of the growing understanding that in order for businesses to survive and prosper over the long term, they must implement sustainable practices. The connection between strategic entrepreneurship and sustainability has been the subject of several research. For instance, according to some academics, companies that practice strategic entrepreneurship are more likely to embrace sustainable business practices (Madli et al., 2023). Others have discovered that more sustainable businesses are better equipped to spot and seize new possibilities. Previously, strategic entrepreneurship provided a framework for businesses to proactively engage in innovation. Companies can strategically align

entrepreneurial activities with sustainability goals, such as developing eco-friendly products, improving resource efficiency, or creating sustainable business models. There are still restrictions and gaps in our knowledge of the relationship between strategic entrepreneurship and sustainability, despite this expanding body of scholarship. To better understand how various sustainability strategies affect company performance, for instance, and how businesses may effectively integrate sustainable practices in the context of strategic entrepreneurship, additional study is needed.

Table 2: Summary of previous studies in strategic entrepreneurship

Author	Domain/search strategy/ title	Data source & scope	TDE	Bibliometric attributes examined
Gareth H. Thomas and Evan J. Douglas	A Systematic Bibliometric Review of the Strategic Entrepreneurship Domain	Scopus	143	Strategic management, Bibliometric, Literature review, Thematic analysis, Research trends, Strategic entrepreneurship, Research domain
Yangyang Yu, Yong Qin, Zeshui Xu	Bibliometric analysis of strategic entrepreneurship literature	Springer	79	strategy; entrepreneurship; bibliometric; strategic entrepreneurship
Hilka Pelizza Vier Machado, Carla Fabiana Cazella, Andreza Aparecida Saraiva Piekas, Carlos Eduardo Carvalho.	Entrepreneurship and Strategy: Analyzing Themes from Bibliometric Studies in the Light of the Concept of Strategic Entrepreneurship	Springer	62	strategy; entrepreneurship; bibliometric; strategic entrepreneurship

METHODOLOGY

Searching strategy

A well-organized set of search phrases is a search strategy. In order to get accurate and thorough results, the search strategy will use keyword search. This study used bibliometric and PRISMA (Preferred Reporting Items for Systematic Reviews) analysis (see Figure 1). This approach offers a thorough analysis of the knowledge accumulated through time. Bibliometric techniques, such as finding pertinent articles in a database, are frequently used to filter and enhance bibliographic data (such as Scopus). The data is now shown using the VOSviewer application. Using bibliometric analysis, future research ideas may be identified and predicted.

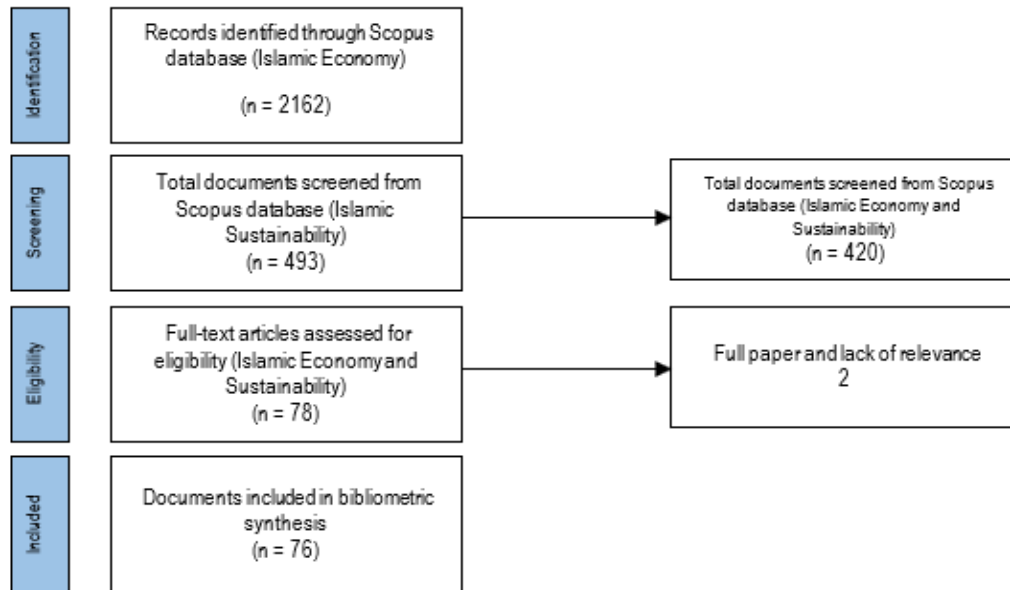


Figure 1: The PRISMA diagram that we used to find, screen, and select articles in our bibliometric review

Inclusion and exclusion criteria

Articles that fit the following criteria were considered for inclusion in this bibliometric analysis: they had to be published in English, be older than 15 years, have a focus on strategic entrepreneurship and sustainability, be published in academic journals, and be freely accessible online through databases. Articles that failed to fit the aforementioned requirements, such as those written in languages other than English, those unrelated to the subjects of strategic entrepreneurship and sustainability, and those whose entire texts were not accessible, were excluded.

Table 3: Search Criteria

Scopus category	Searching Criteria	No of article
Topic 1	“Strategy entrepreneurship”	4,325
Research years	2018-2022	1,951
Document Type	All types of publication	64
Language	English	64
Author name	All	64

Extraction techniques

A wide range of strategies for gathering and analyzing data can be included in extraction techniques for strategic entrepreneurship research. Utilizing bibliometric analysis, which is reviewing published materials on a certain topic in order to spot important trends and patterns, is one popular technique. Software like R, which enables the structuring and analysis of enormous volumes of data, may be used for this. The use of case studies, surveys, or interviews with industry professionals, as well as other quantitative or qualitative data analysis methods, are examples of other methodologies. The specific extraction methods chosen will depend on the study issue and the kind of data being examined, it is vital to remember.

Choice of synthesis method (Analysis)

The effectiveness of the study depends on the choice of synthesis methodology for reviewing the literature on strategic entrepreneurship and sustainability. A bibliometric analysis, which includes examining the patterns and trends in the literature using statistical methods, is one strategy that has been employed in prior studies. This strategy enables the discovery of important authors, publications, and articles in the area as well as the formation of fresh research subjects and trends. A qualitative content analysis is another strategy that may be applied, and it entails examining the literature's content using a framework like theme analysis or discourse analysis. This method enables a greater comprehension of the fundamental theories, notions, and viewpoints in the literature.

RESULTS

Document profiles

The publications discovered covered the time period from 2018 to 2022. Only after 2018 did publications begin to improve in organization and begin to steadily and gradually grow in quantity.

Table 4: Document profile

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2018:2022
Sources (Journals, Books, etc)	842
Documents	1951
Annual Growth Rate %	8.64
Document Average Age	2.84
Average citations per doc	7.321

References	111559
DOCUMENT CONTENTS	
Keywords Plus (ID)	2888
Author's Keywords (DE)	4978
AUTHORS	
Authors	4864
Authors of single-authored docs	318
AUTHORS	
COLLABORATION	
Single-authored docs	369
Co-Authors per Doc	2.83
International co-authorships %	23.07
DOCUMENT TYPES	
article	1412
article in press	1
book	35
book chapter	198
conference paper	200
conference review	15
editorial	7
erratum	6
letter	1
note	5
review	71

RQ1: What is the current state and trend of publication in Strategic entrepreneur and Sustainability.

As indicated in Figure 2, there have been more articles produced in recent years that relate to the ideas of sustainability and strategic entrepreneurship. According to the volume of papers produced, the topic and range of the study on strategic entrepreneurs and sustainability have attracted a lot of interest from earlier studies. According to preliminary data from the Scopus database, despite the relatively low number of publications on the issue at the time, the topic of strategy entrepreneurship started to receive greater attention in the early 2020s. Beginning in 2020, there has been an increase.

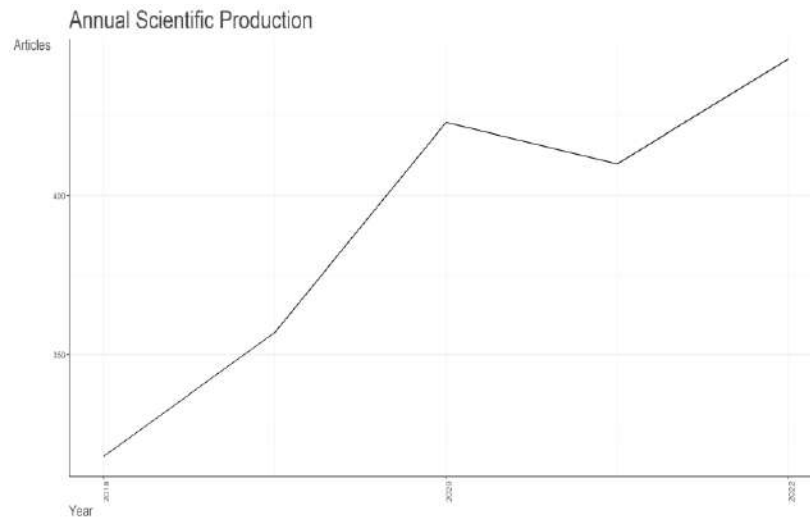


Figure 2: Annual Scientific Production (Total published articles from 2018-2022)

According to the information shown in Figure 2, debate has been suppressed because academics and members of the business are unable to comprehend the importance of the strategy of entrepreneurship in a wider framework. However, the quantity of articles started to increase from 2018 to 2020. After then, from 2020 to 2022, fewer publications were produced. The worldwide Covid-19 epidemic may have made this problem worse. However, the period from the beginning of 2018 to June 2020 saw the most publications produced. As many as 318 journals were published in 2018; from 2019 through 2022, there was a continuous increase, leading to the publication of 1633 journals in the following years and the total number of journals was published is 1,951.

RQ2: What are the most influential contributors to Strategic entrepreneur and Sustainability.

The study's focus in this second research question is on the most prominent authors, the writers' output over time, the most important nations and institutions, and the most influential source title in the field of strategy, entrepreneurship, and sustainability. Table 4 showed that the sample database included the most significant writers and articles.

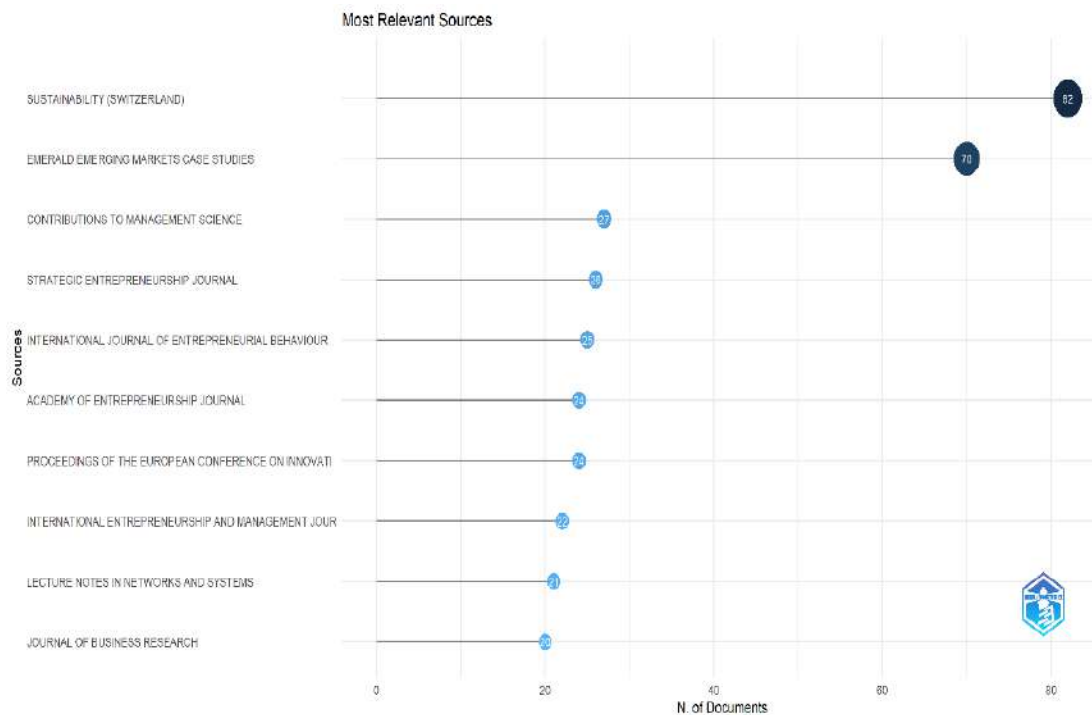


Figure 3: The most relevant sources

The most prestigious academic journals are peer-reviewed, which means that each contribution is evaluated before publication by academics with expertise in the same subject as the author and editor. They should make sure that the researcher used the proper methods, that the work contributes to the field, and that new material is presented in the context of what is already known. Figure 3 lists the sources that are the most pertinent to the discussion of strategy entrepreneur and sustainability. The International Journal of Social and Economic Studies, International Journal of Strategy Entrepreneur and Middle Eastern Studies, and The Sustainability Journal are the three most well-known journals in this field. Peer review is a crucial component of this journal publishing process since it ensures accuracy and

RQ3: What are the most influential articles and sources on strategy of entrepreneurship and sustainability.

Highly cited documents/papers

The top 1% of each discipline's researchers, as determined by Web of Science citation records, are recognized in this renowned list as the best in the world. You are a successful and significant academic if your work is listed among the most referenced works. Additionally, when more of the researchers' papers are highlighted, the exposure and possible reputation of their connections with larger universities grows significantly. However, a number of outside factors that don't appear to be directly related to the "quality" of the content of the article have an impact on how many

citations an article obtains overall. However, a number of outside factors that don't appear to be directly related to the "quality" of the article's content affect the overall number of citations an article obtains. Table 5 lists the 10 articles and materials on Strategy Entrepreneur economics and sustainability that have received the most citations. Among the most prominent is Goldsby Mg (2018), who has 31 total citations, followed by Repnikova VM (2019), who has 30 total citations. Total citations from other works range from 9 to 17.

Table 5: The most cited documents/paper

Paper	DOI	Total Citations	TC per Year	Normalized TC
GOLDSBY MG, 2018, J SMALL BUS STRATEGY		31	5.17	2.03
REPNIKOVA VM, 2019, INT J ENG ADV TECHNOL		30	6.00	2.76
RIJAL S, 2019, INT J SCI TECHNOL RES		17	3.40	1.57
HERVÉ A, 2020, TECHNOLOG INNOV MANAG REV		15	3.75	1.89
KURILOVA A, 2019, J ENTERP EDUC		14	2.80	1.29
IBIDUNNI AS, 2018, J ENTERP EDUC		13	2.17	0.85
ABU-RUMMAN A, 2019, ACAD ENTREP J		12	2.40	1.11
TARAN NV, 2020, INT J ADV SCI TECHNOL		10	2.50	1.26
RAMÍREZ B, 2020, REV CIENC SOC		9	2.25	1.13
ALMEIDA F, 2019, DIGIT EDUC REV		9	1.80	0.83

Author impact

Authors with published articles may also be ranked according to the influence they had using the h-Index (Hirsch, 2005). The H-index is the most often utilized index (an author has an h-index of h if they have at least h works that have been referenced h times). By dividing the H-index by the number of years a scientist has been active, the M-Index is then determined. Based on Table 6, it can be shown that Guerrero M, Kraus S, Ferrera jj, JR, are the writers who achieved the greatest h-Index, with a total of 5-6 h-index describing considerable influence.

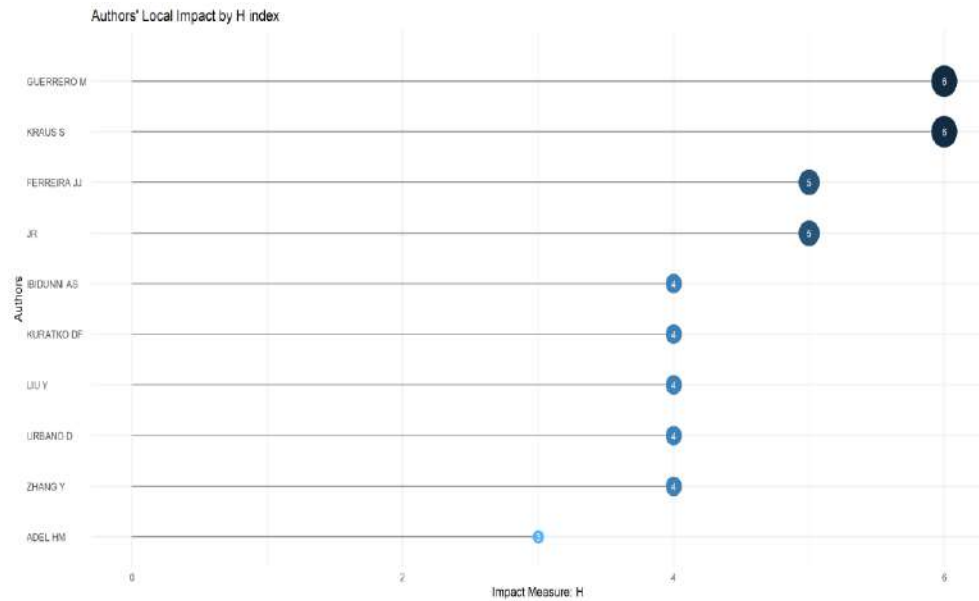


Figure 4: The 10 most impactful author

Lotka's law

The well-known "inverse square law of scientific creativity" is Lotka's Law. It contends that the ratio of authors who publish a certain number of papers to those who only publish one article stays constant. In other words, it describes how often authors publish in a certain topic. Since then, several academics from other fields have examined author productivity and publications using Lotka's Law. The observed and fitted Lotka's distributions are shown in Figure 4. There have been between 1 and 3 articles published. The relationship between the number of participating authors and the number of papers published is clearly shown in Figure 5 below.

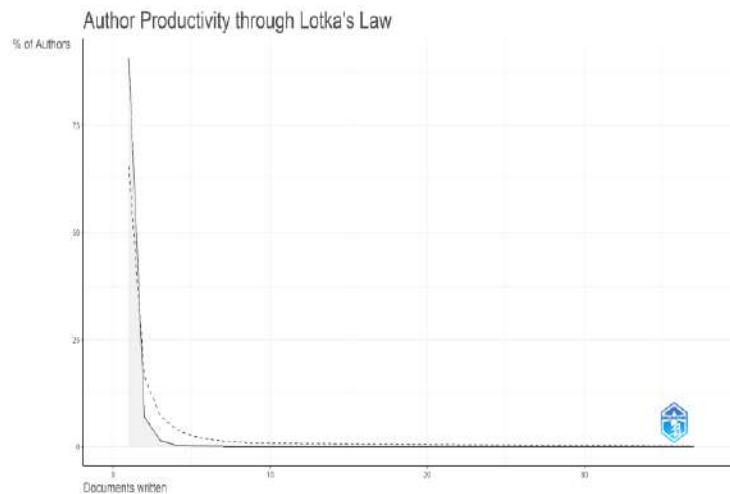


Figure 5: Lotka's law

Source impact

Journal evaluations are based on many factors than merely the volume of work done or its relevance. The h-index, g-index, m index, and total citation of each journal that publishes a paper on the subject of Strategy of entrepreneurship and sustainability are also taken into consideration in this study. The International Journal of entrepreneurial Behaviour and Research is ranked first by the data in Table 6 with a h Index of 12, g Index of 19, m Index of 2.0, and 387 total citations. As a result, the study of strategy entrepreneurship and sustainability is impacted most by the International Journal of Business Research. Sustainability, Strategic entrepreneurship Journal, and Sustainability (Switzerland) are in second, third, and fourth place, respectively, with 11 -12 h Index.

Table 6: The 10 most impactful source

Element	h_index	g_index	m_index	TC	NP	PY_start
GUERRERO M	6	7	1.2	267	7	2019
KRAUS S	6	7	1	206	7	2018
FERREIRA JJ	5	5	0.833	120	5	2018
JR	5	7	0.833	199	7	2018
IBIDUNNI AS	4	4	0.667	47	4	2018
KURATKO DF	4	5	0.667	76	5	2018
LIU Y	4	4	1	135	4	2020
URBANO D	4	5	0.8	234	5	2019
ZHANG Y	4	5	0.667	115	5	2018
ADEL HM	3	3	0.75	25	3	2020

Bradford's Law

If the core and middle zone numbers are known, Bradford's Law should be able to anticipate the total number of journals holding articles on a subject since it predicts that the number of journals in the second and third zones will be n and n^2 times higher than the first zone. It should be able to calculate how much essential information is missing from an incomplete search once the whole number of articles is known. It would be helpful for such research if Bradford's law accurately anticipated the number and, if practicable, quality of the literature given the time-consuming and significant labor required to find sources on a topic for a systematic review.

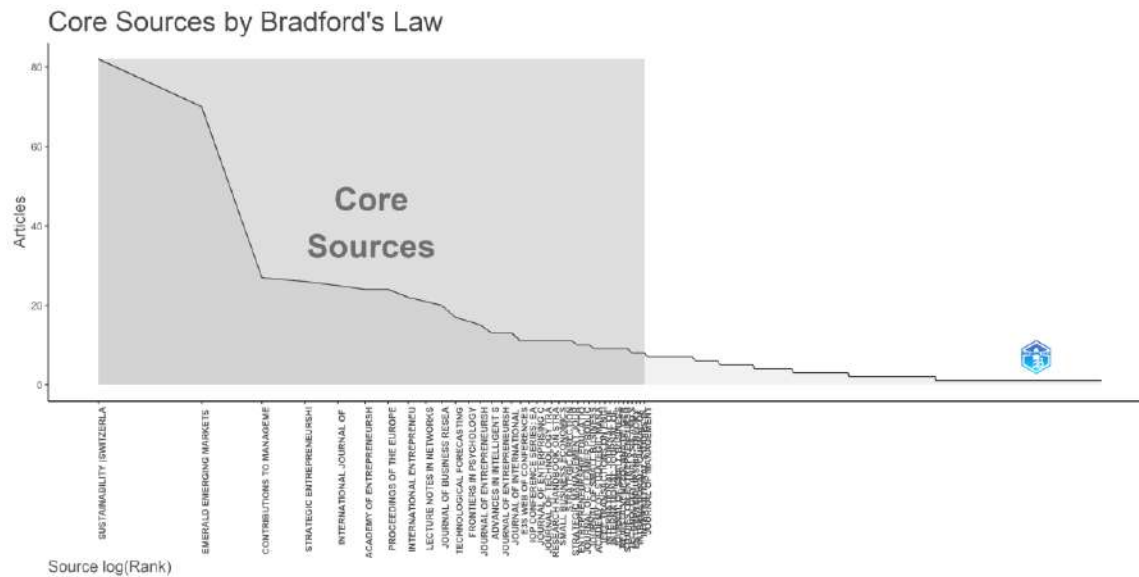


Figure 6: The Bradford's law

The classification of journals into core, intermediate, and wide groups is shown in the graphic above and is based on the Bradford law. The important journal groups are highlighted in color and annotated. The journals in this category produced the most research on the Strategy Entrepreneur at a certain moment. Figure 6 lists the sources that are the most pertinent to the discussion of Strategy Entrepreneur and sustainability. The Sustainability (Switzerland) (80 articles), the Emerald Emerging Markets and Contributions to Management, and Strategic entrepreneurship are the three most significant journals in this field. Peer review is a crucial part of this journal's publishing process, which ensures its correctness and value to its appropriate field.

Co-occurrence network

A co-occurrence network, also known as a semantic network, is a text analysis technique that shows potential connections between people, organizations, ideas, bacteria, and other biological entities. Co-occurrence network building and visualization are made feasible by text that has been saved electronically and is text mining compatible. Co-occurrence analysis may be defined as simply counting matched data inside a collection unit. Figure 7 shows the high-frequency terms related to Strategic entrepreneur and sustainability that often appear together.

Three significant clusters have been created as shown in Figure 7. Cluster 1 is made up of "Entrepreneur," "Innovation," "Strategic Approach," and "Sustainable." "entrepreneurship" makeup Cluster 2. Cluster 3 includes the networks "Sustainability," "Industrial management," "Risk management," and "corporate entrepreneurship," among others.

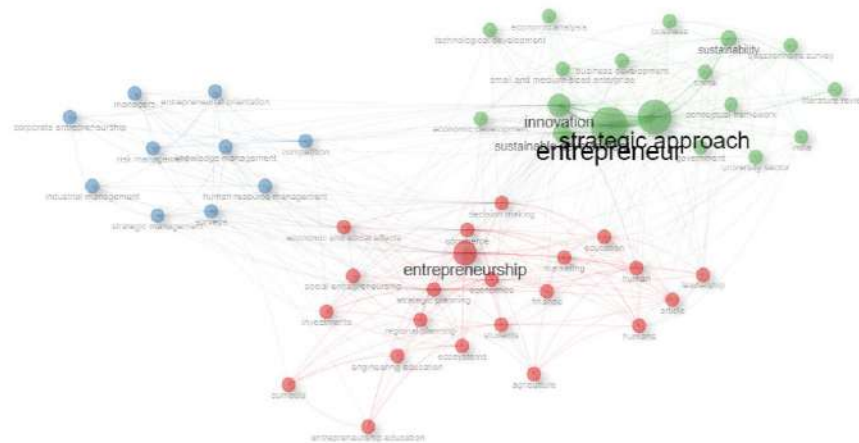


Figure 7: Co-occurrence network

RQ4: How the theme of the publication has evolved in strategy of the entrepreneurship and Sustainability.

Thematic evolution

Thematic analysis of evolutionary processes. A graphical representation of the network of connections between scientific fields, articles, and authors is called science mapping, often referred to as bibliometric mapping (Rashid et al., 2021). It has been applied in several domains to unearth obscure notions and themes (Chen et al., 2019). The study also separated thematic maps into 4 quadrants in Figure 8 based on density and centrality. All references to the research subject were reviewed by a semi-automatic system, which also added more keywords. to find differences. A driving or motor motif that is very dense and centrally located in the upper right quadrant has to be created and further investigated. In this quadrant, "sustainability development" is the key topic. Additionally, the high density but low centrality in the upper left quadrant illustrates a specialized theme with a high degree of expansion. Topics in this area include "economic growth." Furthermore, there are recurring motifs with low centrality in the lower-left quadrant (i.e. emerging or declining themes). The sole separate topic in this quadrant is "Entrepreneurship human marketing." Finally, a straightforward theme with high centrality and low density may be seen in the bottom right quadrant. These topics must be covered since they are general concerns that are often used, such as the topic of "sustainability."

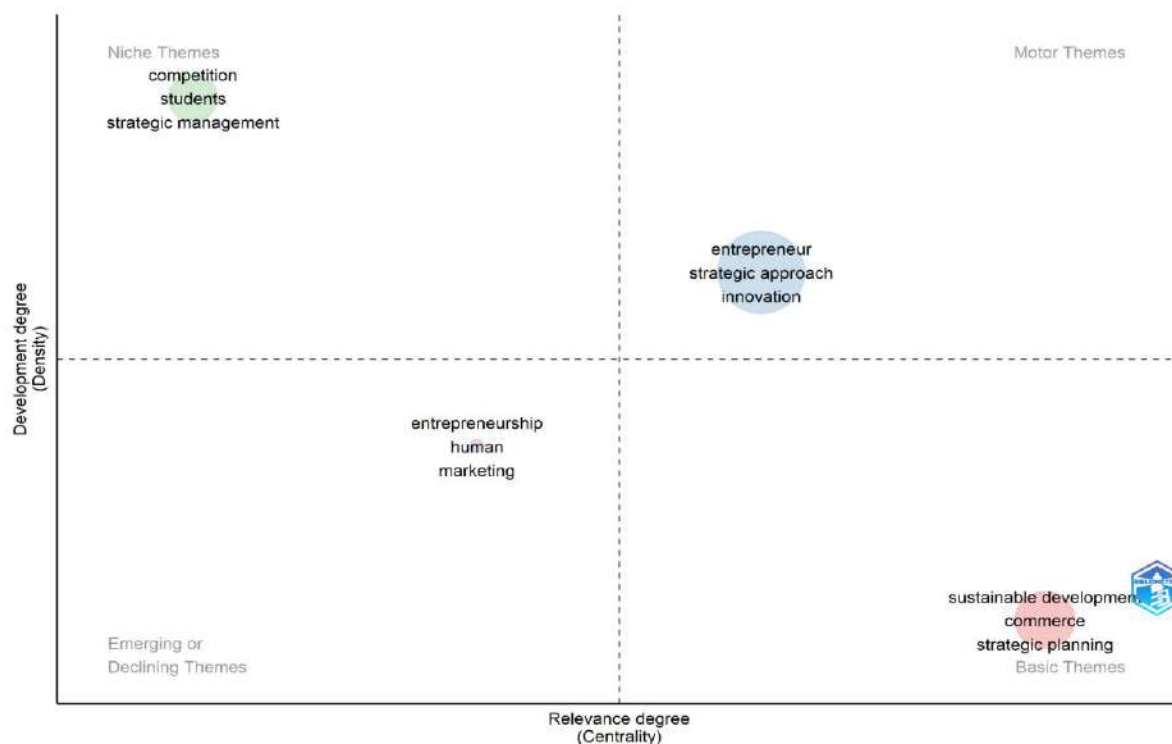


Figure 8: The thematic evolution

Trend topic

This study also looks at trends in the field the graphic below gives an overview of how the word has changed over time and by year. In order to distinguish between themes that have been used for a long time and those that have only lately. The word is used more frequently and more lately further to the right as it rises in the list. Figure 9 and Table 7 demonstrate that the topic's growth began to noticeably accelerate in 2014. The issue has been used since 2018, namely in talks of Entrepreneur (F=146), Strategic approach (F=124), entrepreneurship (F=94), Innovation (F=69), and Sustainable development (F=58) topics in Strategy entrepreneurship research, as noted in the data's description below. Additionally, the 2018–2022 period saw the birth of the different but linked issues of finance, global business, finance, and the economy. Despite the passage of time, the frequency of the subjects that have appeared since 2018 is still modest. In comparison to other themes in years q1 and q3, "Entrepreneur," "Strategic approach," and "entrepreneurship" are mentioned the most frequently from 2018 to 2022. This information also explains why the three subjects are currently popular in the fields of Strategy entrepreneurship.

Table 7: The trend topic year

item	freq	year_q1	year_med	year_q3
Uncertainty analysis	6	2018	2018	2020
Innovation management	5	2018	2018	2021
Economics	36	2019	2019	2020
Strategic management	23	2019	2019	2021
Ecosystems	21	2019	2019	2020
Entrepreneur	146	2019	2020	2021
Entrepreneurship	94	2018	2020	2021
Sustainable development	58	2019	2020	2021
Strategic approach	124	2020	2021	2021
Innovation	69	2019	2021	2022

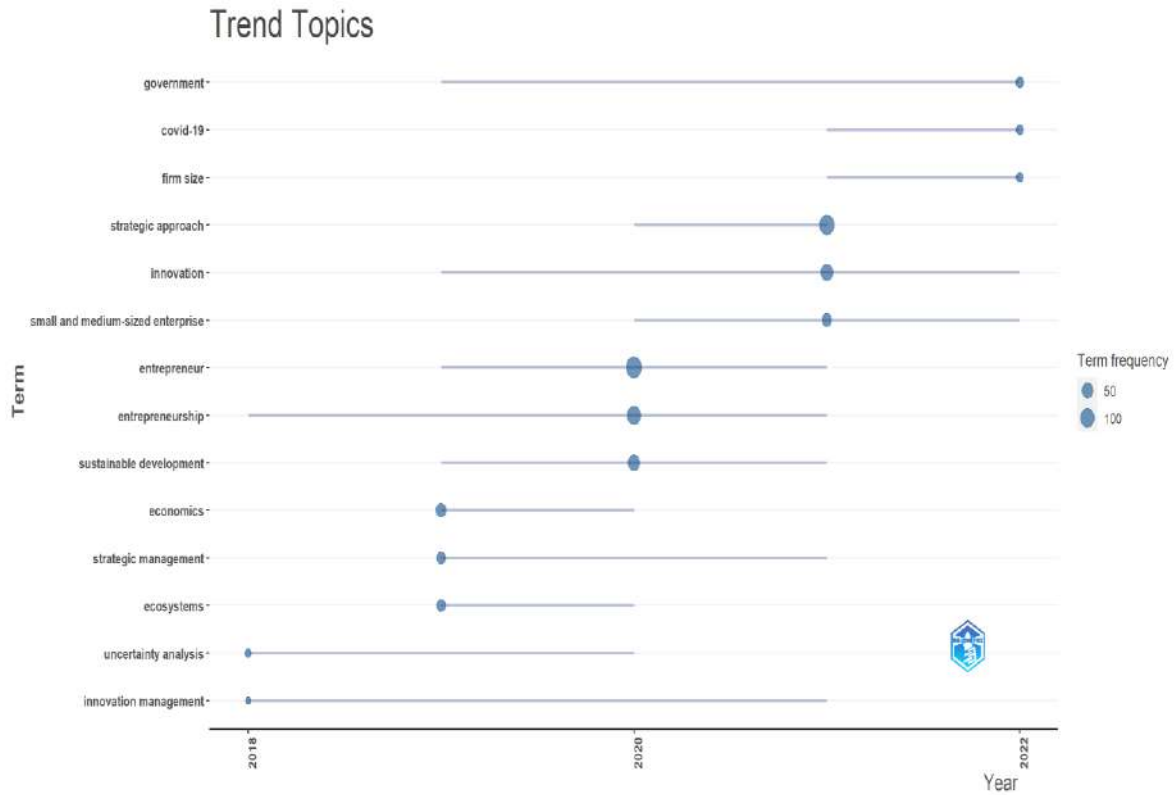


Figure 9: The trend topic

Word dynamic

According to the dataset, word dynamic shows how words change over time. A cumulative count of the leading keywords together with the author's keywords, title, or abstract may also be used to select the presentation. Both methods are based on the total number of occurrences each year. Figure 10 depicts the development of the top search terms from 2018 to 2022 based on the total number of occurrences per year in the Strategy Entrepreneur & sustainability study topic. According to the figures shown in Figures 10 and 11, a number of important keywords started to show a noticeable spike in 2020 and have done so ever since. The examination of "Word Dynamic" data shows a notable increase in the usage of dynamic keywords between 2009 and 2022, including "commerce," "Decision making," and "Economics." These results concur with those of several analyses, such as the "Trend Topic" and "Word Cloud" analysis. This finding also explains why some terms were chosen as relevant and trending over time.

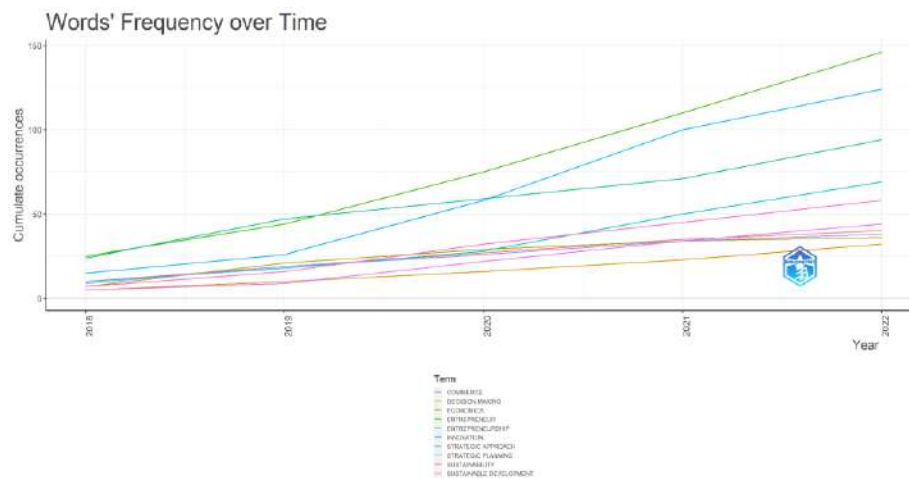


Figure 10: The word dynamic (2018-2022)



Figure 11: The world cloud

Tree map

The nodes of a tree diagram are displayed as stacked rectangles in tree maps, which are a graphical representation of hierarchical data. They are made up of many stacked, proportionally sized rectangles. In a data tree, a large rectangle denotes a branch, while smaller rectangles display the size of each node inside that branch. The top 50 terms based on keyword plus, the author's keywords, the title (bigrams), and the abstract (trigrams) are represented in various tree maps in Figure 12 correspondingly. In accordance with the data from the tree map, "entrepreneur" has the largest proportion (10%), followed by "Strategic approach" (9%) and "entrepreneurship" (7%). While other search terms only make up a tiny fraction between 1% and 3% of the total. This result deviates greatly from the results of the "word cloud" research, which indicate that "Entrepreneurship" is the term that is used most frequently when referring to Strategy entrepreneur and sustainability.

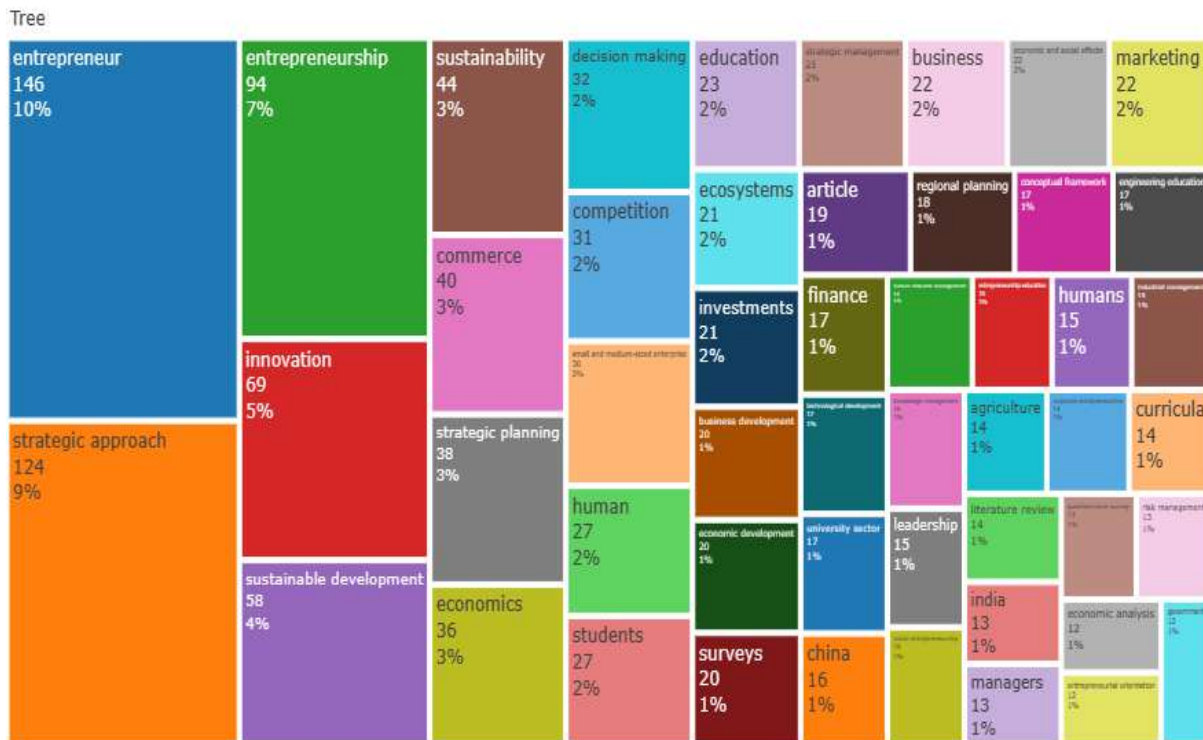


Figure 12: The tree map

CONCLUSION

The significance of strategic entrepreneurship is gaining attention. In order for businesses to survive and prosper over the long term, they must implement sustainable practices. There are still restrictions and gaps in our knowledge of the relationship between strategic entrepreneurship. More study is needed to better understand how various strategies affect company performance. The top 1% of each discipline's researchers, as determined by Web of Science citation records, are recognized in this renowned list as the best in the world. Table 5 lists the 10 articles and materials on Strategy Entrepreneur that have received the most citations. Among the most prominent is Goldsby (2018), who has 31 total citations, followed by Repnikova (2019), who has 30 total citations. This is a result of the growing understanding that in order for businesses to survive and prosper over the long term, they must implement practices. The connection between strategic entrepreneurship has been the subject of several research. For instance, according to some academics, companies that practice strategic entrepreneurship are more likely to embrace business practices. To better understand how various strategies affect company performance, for instance, and how businesses may effectively integrate practices in the context of strategic entrepreneurship, additional study is needed. The nodes of a tree diagram are displayed as stacked rectangles in tree maps, which are a graphical representation of hierarchical data (Lockhart, 2015). They are made up of many stacked, proportionally sized rectangles. In a data tree, a large rectangle denotes a branch, while smaller rectangles display the size of each node inside that branch. The top 50 terms based on keyword plus, the author's keywords, the title (bigrams), and the abstract (trigrams) are represented in various tree maps in Figure 12 correspondingly. In accordance with the data from the tree map, "entrepreneur" has the largest proportion (10%), followed by "Strategic approach" (9%) and "entrepreneurship" (7%). While other search terms only make up a tiny fraction between 1% and 3% of the total. This result deviates greatly from the results of the "word cloud" research, which indicate that "Entrepreneurship" is the term that is used most frequently when referring to Strategy entrepreneur.

In conclusion, economic expansion uses natural resources to an appropriate degree for human well-being from the perspective of entrepreneurial strategy. We were able to recommend research areas for future studies with the use of the data from this study and the ability of Bibliometric analysis to predict future investigations. Consequently, the rigorous approach offers a wide range of study options. The analysis reveals significant gaps in the literature. As shown by the top right quadrant (i.e. driving or motor theme) in thematic evolution analysis, which needs to be developed and further explored, future research should take into consideration the Strategy entrepreneurship and the monetary theory underlying the entrepreneurship economy.

REFERENCES

- Covin, J. G., & Slevin, D. P. (1989). Strategic management of small firms in hostile and benign environments. *Strategic management journal*, 10(1), 75-87.

- Duane Ireland, R., & Webb, J. W. (2007, January). Strategic entrepreneurship: Creating competitive advantage through streams of innovation. *Business Horizons*, 50(1), 49–59. <https://doi.org/10.1016/j.bushor.2006.06.002>
- Guerra Fernandes, J. A., Marques, C. S., Silva, R., & Martins, H. (2022, May 30). Ethnic entrepreneurship: A bibliometric review and future research agenda. *Strategic Change*, 31(4), 397–413. <https://doi.org/10.1002/jsc.2516>
- Hitt, M. A., Ireland, R. D., Camp, S. M., & Sexton, D. L. (2001). Strategic entrepreneurship: entrepreneurial strategies for wealth creation. *Strategic Management Journal*, 22(6–7), 479–491. <https://doi.org/10.1002/smj.196>
- Hitt, M. A., Ireland, R. D., Camp, S. M., & Sexton, D. L. (2017, October 18). Strategic Entrepreneurship: Integrating Entrepreneurial and Strategic Management Perspectives. *Strategic Entrepreneurship*, 1–16. <https://doi.org/10.1002/9781405164085.ch1>
- Hitt, M. A., Ireland, R. D., Sirmon, D. G., & Trahms, C. A. (2011, May). Strategic Entrepreneurship: Creating Value for Individuals, Organizations, and Society. *Academy of Management Perspectives*, 25(2), 57–75. <https://doi.org/10.5465/amp.25.2.57>
- Ireland, R. (2003, December). A Model of Strategic Entrepreneurship: The Construct and its Dimensions. *Journal of Management*, 29(6), 963–989. [https://doi.org/10.1016/s0149-2063\(03\)00086-2](https://doi.org/10.1016/s0149-2063(03)00086-2)
- Madli, F. B., Janin, Y., Gulabdin, S. B., Yun, W. S., Yong, K., & Abdullah, D. N. C. (2023). Technology and Entrepreneurship Development: The Perspective of Malaysia. In *Handbook of Research on Designing Sustainable Strategies to Develop Entrepreneurial Intention* (pp. 443-464). IGI Global.
- Mazzei, M. J. (2018, April 13). Strategic entrepreneurship: Content, process, context, and outcomes. *International Entrepreneurship and Management Journal*, 14(3), 657–670. <https://doi.org/10.1007/s11365-018-0512-9>
- Patzelt, H., & Shepherd, D. A. (2009, January). Strategic Entrepreneurship at Universities: Academic Entrepreneurs' Assessment of Policy Programs. *Entrepreneurship Theory and Practice*, 33(1), 319–340. <https://doi.org/10.1111/j.1540-6520.2008.00291.x>
- Racine, Jeffrey S. "RStudio: a platform-independent IDE for R and Sweave." (2012): 167-172.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of management review*, 25(1), 217-226.
- Webb, J. W., Ketchen, D. J., & Ireland, R. D. (2010, June). Strategic entrepreneurship within family-controlled firms: Opportunities and challenges. *Journal of Family Business Strategy*, 1(2), 67–77. <https://doi.org/10.1016/j.jfbs.2010.04.002>
- Wegner, D., Thomas, E., Teixeira, E. K., & Maehler, A. E. (2019, November 5). University entrepreneurial push strategy and students' entrepreneurial intention. *International Journal of Entrepreneurial Behavior & Research*, 26(2), 307–325. <https://doi.org/10.1108/ijebr-10-2018-0648>
- Zahra, S. A., & Covin, J. G. (1995). Contextual influences on the corporate entrepreneurship-performance relationship: A longitudinal analysis. *Journal of business venturing*, 10(1), 43-58.

Strategic Entrepreneurship: A Bibliometric Analysis Using R

By

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ABSTRACT

The purpose of this study is to analyse strategic entrepreneurship using a literature review and bibliometric analysis. The purpose of the study was to systematically record the intellectual structure, volume, trends in knowledge development, and significance of the author and source. Data was collected and analysed using Scopus databases using Microsoft Excel and R Studio. Based on a substantial body of literature, we compiled a searchable database of the 298 most pertinent papers from the last ten years. According to preliminary data, there may have been a rise in the number of books authored on strategic entrepreneurship between 2013 and 2022. The most significant journals, writers, and papers on the subject are identified using the bibliometric analysis using R. This study indicates that a new research topic can be developed by distilling the most important aspects of strategic entrepreneurship into a single idea, opening up new research directions for the discipline as a whole.

Keywords: entrepreneurship, bibliometric analysis, strategic entrepreneurship

INTRODUCTION

Existing knowledge of the strategic entrepreneurship

Strategic entrepreneurship refers to organizationally significant innovations in already-existing organisations that combine or integrate advantage- and opportunity-seeking behaviours (SE). In prior decades, both academics and practitioners have shown a great deal of interest in SE, a concept that focuses on the transformation of businesses through innovation. This article attempts to pinpoint existing research problems and SE limits using the numerous contributions that have already been made on the topic as a basis. In diagnosis current conceptualizations of SE by careful

examination of its content, methodology, context, and pertinent outcomes, and stimulate further research by appropriating a framework from the literature on change management. A review of the existing literature reveals that there is still much that scholars can do to assist in accurately defining SE, comprehending precisely how SE manifests in organisations, identifying pertinent internal and external environments for SE to permeate, and pinpointing relevant consequences and results from successful SE.

Limitations and gaps

In today's fiercely competitive business environment, entrepreneurs encounter numerous obstacles; thankfully, modern times have also given entrepreneurs more resources than ever before for overcoming those obstacles. The difficulties include managing financial flow, recruiting staff, allocating tasks, time management, marketing strategy, and self-doubt. The competitive landscape of the twenty-first century has changed significantly, creating a worldwide marketplace as well as tremendous complexity and unpredictability for businesses. Businesses find it difficult to forecast the future in this unpredictably climate. One of the factors influencing the disparities in entrepreneurship rates between nations is culture. For instance, the conflict between individuality and collectivism is crucial for entrepreneurship; research demonstrates that when collectivism is stressed, entrepreneurship falls.

Research questions

Using bibliometric, text-mining, and visualisation technologies, the following research question (RQ) is utilised to illustrate the review process and activities (i.e. R studio).

Table 1: Research Questions (RQ)

No.	RQ	Analysis Procedure
1	What is the current state and trend of publication in Strategic Entrepreneurship	• Document Type • Source type • Total number of contributors • Number of publications by year/ country • Annual growth rate
2	What are the most influential contributors to Strategic Entrepreneurship	• Most influential authors • Most relevant sources • Most influential countries • Most influential sources title

3	What are the most influential article, authors and sources Strategic Entrepreneurship	• Highly cited documents • Author Impact • Lotka's Law • Sources Impact • Bradford's Law • Co- occurrence network
4	How the theme of the publication has evolved in Strategy Entrepreneurship	• Thematic evolution • Trend Topic • World Dynamic • World Cloud • Tree Map

This article begins with a quick review of the prerequisites for strategic entrepreneurship before moving on to a more in-depth discussion and analysis. The methodology section of the paper provides a description of the procedures employed in this investigation, including the data searching, data gathering, extraction, and analysis. The research findings were explained in the section that followed. The study's findings are highlighted in the discussion and conclusions portion of this paper, which also explains the study's limitations and suggested future research directions.

LITERATURE REVIEW

Strategic entrepreneurship

Entrepreneurship (identifying possibilities through innovation) and Strategic Management (managing the firm's resources/innovation activities) are two disciplines that are integrated in strategic entrepreneurship. Therefore, we can characterise strategic entrepreneurship as an organization's efforts to capitalise on its competitive advantages now while searching for the innovations that will serve as the cornerstone of its competitive advantages tomorrow. The entrepreneurial component of strategic entrepreneurship focuses on finding opportunities to take advantage of through innovation, while the strategic component considers the best method to manage the firm's innovation initiatives. The word "entrepreneur," which comes from the French, means "one who undertakes," and entrepreneurial qualities are prerequisites for the introduction of new products and services to fill market gaps. Due to the competitive imperfections in markets and among the factors of production, as well as their creation and the unequal distribution of knowledge about these faults among individuals, these possibilities arise. Entrepreneurship is a process that results in the creative destruction of old items or techniques of production in favour of new products and methods (Madli et al., 2023).

Table 2: Summary of previous studies in Strategic Entrepreneurship

Author	Domain/Search Strategy/ Title	Data Source & Scope	Bibliometric Attributes Examined
Kaurav R.P.S., Gupta P.	Trends in Multidiscipline Management Research: Past, Present and Future of FIIB Business Review	Scopus (2022)	FIIB Business Review
Yu Y., Qin Y., Xu Z., Škare M.	Bibliometric analysis of strategic entrepreneurship literature	Scopus (2022)	International Entrepreneurship and Management Journal
Rocha R., Marques C.S.E., Galvão A.R.	Embeddedness in internationalization: Knowledge map and research agenda proposal	Scopus (2022)	Journal of General Management
De Bernardi P., Bertello A., Forlano C., Orlandi L.B.	Beyond the “ivory tower”. Comparing academic and non-academic knowledge on social entrepreneurship	Scopus (2022)	International Entrepreneurship and Management Journal
Flamini G., Pellegrini M.M., Fakhar Manesh M., Caputo A.	Entrepreneurial approach for open innovation: opening new	Scopus (2022)	International Journal of Entrepreneurial Behaviour and Research
Hermiatin F.R., Handayati Y., Perdana T., Wardhana D.	Creating Food Value Chain Transformations through Regional Food Hubs: A Review Article	Scopus (2022)	Sustainability (Switzerland)

"Innovation is the distinctive duty of entrepreneurship, whether in an established firm, a public service institution, or a new initiative launched by a lone individual," according to Peter Ducker. Additionally, it is the process through which the entrepreneur either develops new resources that produce wealth or leverages current resources to do so. The main result that businesses try to achieve through entrepreneurship is innovation, which is frequently the source of competitive success in the fast-paced economy. Entrepreneurship success depends on new ideas being accepted by the market. Innovation is the process of turning an invention into a for-profit product that introduces something novel into existence or into usage. A company might engage in strategic entrepreneurship for a variety of objectives, such as boosting organisational profitability, strengthening its competitive position, or revitalising existing enterprises. Corporate entrepreneurs

are people who take risks within large, well-established organisations. The idea of using innovation and entrepreneurship within well-established organisations is known as corporate entrepreneurship. Corporate entrepreneurship, a significant aspect of entrepreneurship, is increasingly believed to be connected to the survival and profitability of established organisations. Table 2 shows several earlier studies on entrepreneurship that still require additional research to completely understand the connection between Strategic Entrepreneurship.

METHODOLOGY

Searching Strategy

A well-organized set of search phrases is a search strategy. In order to get accurate and thorough results, the search strategy will incorporate keyword search techniques (Piccarozzi et al., 2021; Salameh et al., 2020). This study used bibliometric and PRISMA (Preferred Reporting Items for Systematic Reviews) analysis (see Figure 1). This approach offers a thorough analysis of the knowledge accumulated through time (Visser et al., 2021). Bibliometric techniques, such as finding pertinent articles in a database, are frequently used to filter and refine bibliographic data (such as Scopus). At this stage, the data are shown using the VOSviewer application. Using bibliometric analysis, future research ideas can be identified and predicted (Paul & Criado, 2020). Over 5,000 papers make up the more than 50 million entries in Scopus, an Elsevier database (De Mauro et al., 2016). At the same time, our university also purchased the Scopus database. This is the main justification behind our decision to use the Scopus database as our main data source.

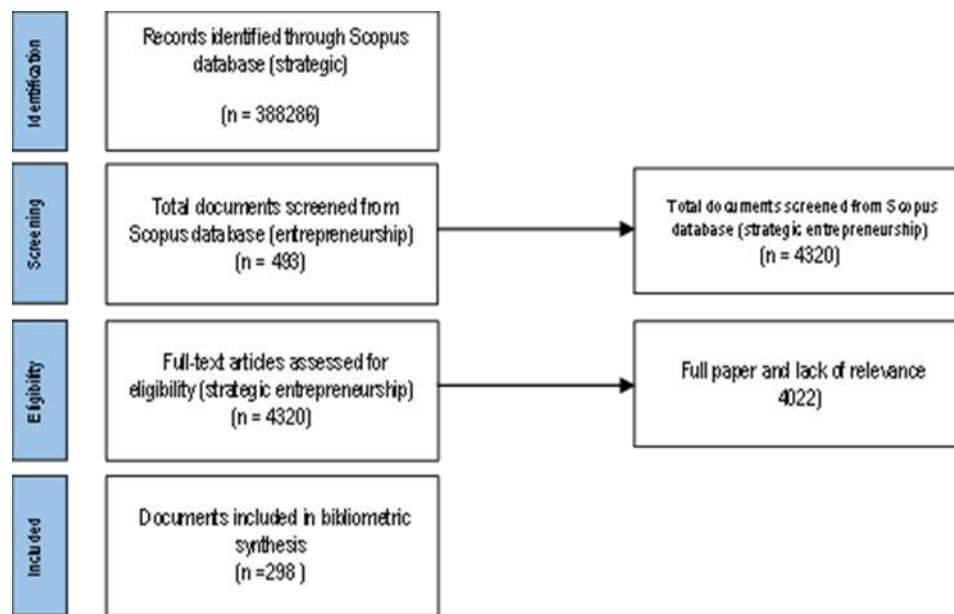


Figure 1: The PRISMA diagram that we used to find, screen, and select article in our bibliometric review

Inclusion and exclusion criteria

All search results are initially reviewed for titles and abstracts using previously set criteria (refer to Table 3). All papers that had made it beyond the initial screening process were then scrutinised and summarised. Each piece of study is evaluated based on its number of publications, the most illustrious journals and authors, and the most popular research themes. We chose to create a final database of 298 papers from 2013 to 2022 because there was so much literature on the strategic entrepreneurship.

Table 3: Search criteria

Scopus Category	Searching criteria	No of article
Topic 1	Strategic Entrepreneurship	4325
Research years	2013-2022	3063
Document types	All types of publication	3030
Research country/ territory	5 countries	831
Subject area	4 documents	298
Language	English	298
Author name	All	298

Extraction techniques

Table 3 reveals that 298 journal articles were exported in a format that was compatible with the applications. To increase study accuracy, a thorough analysis of the downloaded database was conducted. For this study, we used Excel (.csv) and VOSviewer. The extraction technique begins by looking for the terms "Strategic Entrepreneurship." Bibliometric academic researchers can view bibliometric maps graphically with the free VOSviewer software. The most helpful article title, author, keyword, and citation information, including all references, can be found in the final Scopus database. Analysis of bibliometric data is beneficial because it can identify and foresee potential areas of future research (Paul & Criado, 2020).

Choice of synthesis method (Analysis)

Descriptive analysis was part of the first investigating phase. To chart the evolution of publications on Strategic Entrepreneurship principles through time, we created a number of graphs in Excel. In the meantime, the bibliometric analysis method was applied in the next stage. This method uses citations to identify the most significant publications and researchers on a particular subject. Academic importance may also be reflected by other metrics like the H-index, total citations, and citations per article. Co-citation analysis may concentrate on the journal, author, keyword co-citations, etc. depending on the results. With the use of VOSviewer and R studio, we were able to construct "network maps" based on article links using our sample database.

RESULT

Document Profiles

The articles were written between 2000 and 2022. Only after 2013 did publications start to become more constant, and their numbers started to rise gradually and steadily. Based on the 298 documents considered in total (Table 4), there is a 12.45% yearly growth, an average of 4,325 citations per document, and a total of 23741 references. Furthermore, 193 articles, followed by 9 reviews, constitute the majority of publications in this discipline.

Table 4: Document profiles

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2013:2022
Sources (Journals, Books, etc)	148
Documents	298
Annual Growth Rate %	12.45
Documents Average Age	5.01
Average citations per doc	26.05
References	23741
DOCUMENT CONTENTS	
Keywords Plus (ID)	321
Author's Keywords (DE)	864
AUTHORS	
Authors	712
Authors of single-authored docs	60
AUTHORS COLLABORATION	
Single-authored docs	64
Co- Authors per Doc	2.7
International co-authorships %	41.28
DOCUMENT TYPES	
Article	193
Book	29
Book chapter	66
Conference paper	1
Review	9

RQ1: What is the current state and trend of publication in Strategic Entrepreneurship

Figure 2 depicts the fluctuating number of articles that have been written about the idea of strategic entrepreneurship over time. According to the volume of articles created, the topic and area of study on strategic entrepreneurship have gotten a lot of attention from prior studies. According to preliminary statistics from the Scopus database, despite the relatively low number of publications on the issue at the time, strategic entrepreneurship started to receive increasing attention in early 2013. Since 2013 up until now, there has been an increase.

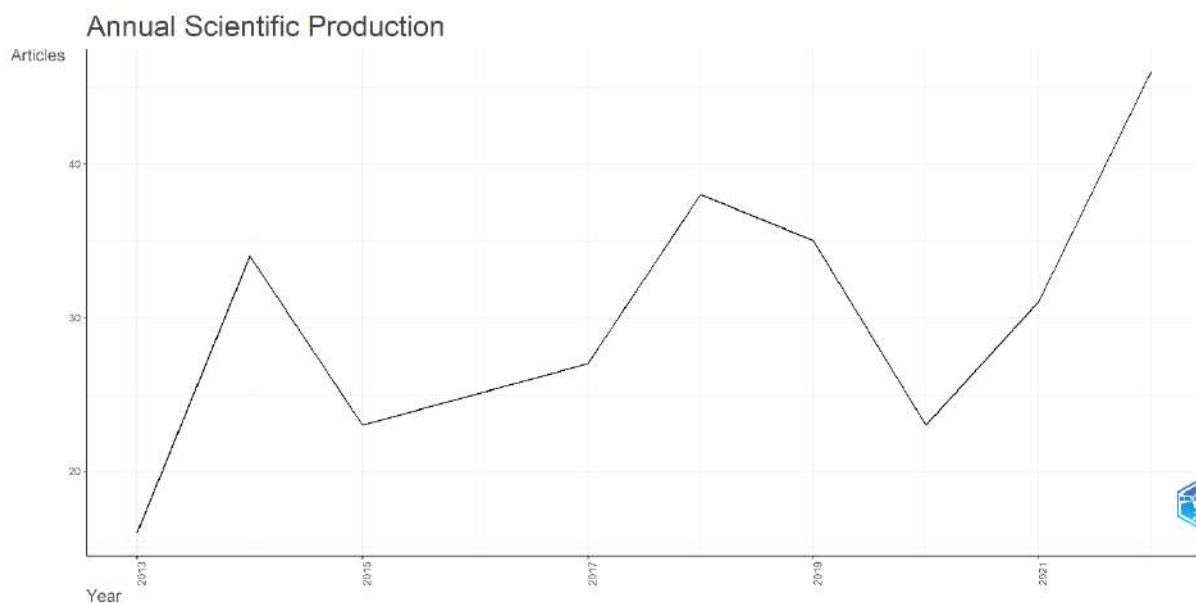


Figure 2: Annual Scientific Production (Total published articles from 2013-2022)

According to the data shown in figure 2 above, there was an upward trend of 8 publications between 2013 and 2014, increasing the number of articles from 16 to 34 in 2014. The number was 23 in 2015, indicating a downward tendency, but over the following three years, it increased by 25 in 2016, 27 in 2017, and 38 in 2018. The popularity of the subject in conversations in the mainstream media is probably to blame for this surge. Then it dropped once more to 35 in 2019 and kept falling until it reached 31. It grew to 31 in 2021, and it increased once more to 46 in 2022.

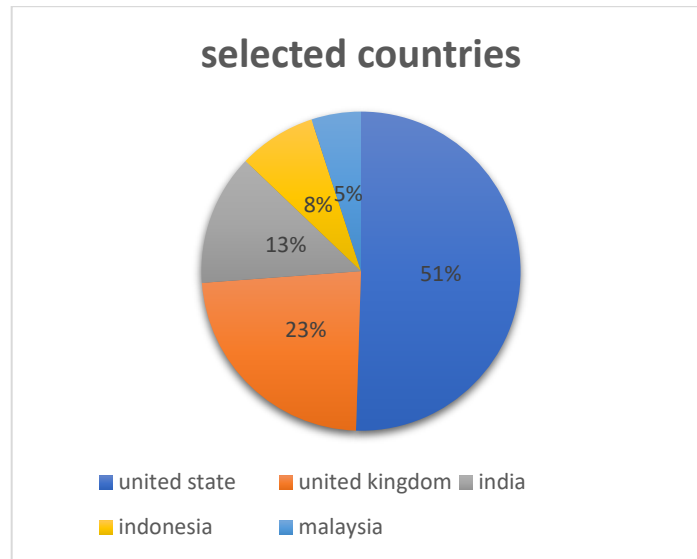


Figure 3: Highest publications by country

Figure 3 shows that the chosen regions and paper categories are related to strategic entrepreneurship. 51% of the articles published in this category come from the United States, one of the top publishing nations. 23% of the articles are for the United Kingdom. India is the next nation, coming in third with 13% of the articles. Up to 8% of the articles come from Indonesia, and the final 5% come from Malaysia. In general, the topic of strategic entrepreneurship is one that is regularly debated and is a favourite venue for discussion and idea exchange.

RQ 2: What are the most influential contributors to Strategic Entrepreneurship

The study focuses on the most influential writers, the author's production through time, the most important nations and institutions, and the most influential source titles in the strategic area of entrepreneurship in the second research question. Table 3 shows which authors and publications are the most well-known in the sample database. Generally speaking, Sheprherd Da (2014, 2016, 2021), Wright M (2019, 2022), and Kuratko Df are the three most significant authors (2021). Wright M simultaneously made contributions to the most important entrepreneurship journals. The two articles with the most citations are shown in Table 5. Do they count among them or not? Home country embeddedness, returnee entrepreneurship, and starting new businesses: reviews and research afenda, with 43 and 42, respectively.

Table 5: The most influential authors

Author's name	Title	Journal	TC	TCpY	PY
Sheprherd Da	CREATING NEW VENTURES: A REVIEW AND RESEARCH AGENDA	Journal of Management	42	14.9	2021
Sheprherd Da	STRATEGIC ENTREPRENEURSHIP AT UNIVERSITIES: ACADEMIC ENTREPRENEURS' ASSESSMENT OF POLICY PROGRAMS	Decision making in entrepreneurship: Selected joint papers of dean A. Shepherd	2	0.2	2016
Sheprherd Da	STRATEGIC ENTREPRENEURSHIP AT UNIVERSITIES: ACADEMIC ENTREPRENEURS' ASSESSMENT OF POLICY PROGRAMS	A psychological approach to entrepreneurship: selected essay of dean A. Shepherd	0	0.0	2014
Sheprherd Da	ERRATIC STRATEGIC DECISIONS: WHEN AND WHY MANAGERS ARE INCONSISTENT IN STRATEGIC DECISION MAKING	A psychological approach to entrepreneurship: selected essay of dean A. Shepherd	0	0.0	2014
Sheprherd Da	ERRATIC STRATEGIC DECISIONS: WHEN AND WHY MANAGERS ARE INCONSISTENT IN STRATEGIC DECISION MAKING	A psychological approach to entrepreneurship: selected essays of dean A. Shepherd	1	0.1	2014
Sheprherd Da	STRATEGIC ENTREPRENEURSHIP AT UNIVERSITIES: ACADEMIC ENTREPRENEURS' ASSESSMENT OF POLICY PROGRAMS	A psychological approach to entrepreneurship: selected essays of dean A. Shepherd	0	0.0	2014
Wright M	CORPORATE ENTREPRENEURSHIP: A SYSTEMATIC LITERATURE REVIEW AND FUTURE RESEARCH AGENDA	Small business economics	4	2.0	2022
Kuratko Df	CORPORATE ENTREPRENEURSHIP STRATEGY: EXTENDING OUR KNOWLEDGE BOUNDARIES THROUGH CONFIGURATION THEORY	Small business economics	27	9.0	2021
Kuratko Df	INTERNAL CORPORATE VENTURE PLANNING AUTONOMY, STRATEGIC EVOLUTION, AND VENTURE PERFORMANCE	Small business economics	7	2.33	2021
Wright M	FORGOTTEN OR NOT? HOME COUNTRY EMBEDDEDNESS AND RETURNEE ENTREPRENEURSHIP	Journal of world business	43	8.6	2019

Table 6 shows which journals are the most influential in the sample database. In general, articles on strategic entrepreneurship have been dominated by business and economics journals. The Journal of Strategic Entrepreneurship is the most published journal, with 47 pieces, a 27 hour index, and 2448 citations. The fact that the journal has been published since 2013 contributes to this predicament. There are thirteen and sixteen citations for the Journal of Management and entrepreneurship and regional development, respectively. The journal entrepreneurship: theory and practise, the international business review, and advancements in the study of entrepreneurship, innovation, and economic growth are also displayed in this study, with corresponding citations of (8), (5), and 5 for each, respectively.

Table 6: The most influential sources

No	Journal	PY	TC	NP	h index	g index	m index
1	Strategic Entrepreneurship Journal	2013	2448	47	27	47	2.448
2	Journal of Management	2013	1936	13	12	13	1.091
3	Small Business Economics	2013	1092	16	12	16	1.091
4	Entrepreneurship and Regional Development	2017	309	7	5	7	0.714
5	Entrepreneurship: Theory and Practice	2015	254	8	5	8	0.556
6	International Business Review	2014	269	5	5	5	0.500
7	Advances in the Study of Entrepreneurship, Innovation, And Economic Growth	2018	20	5	3	4	0.500
8	Journal of Business Ethics	2013	136	3	3	3	0.273
9	Journal Of Enterprising Communities	2018	47	3	3	3	0.500
10	Journal of Social Entrepreneurship	2014	43	3	3	3	0.300

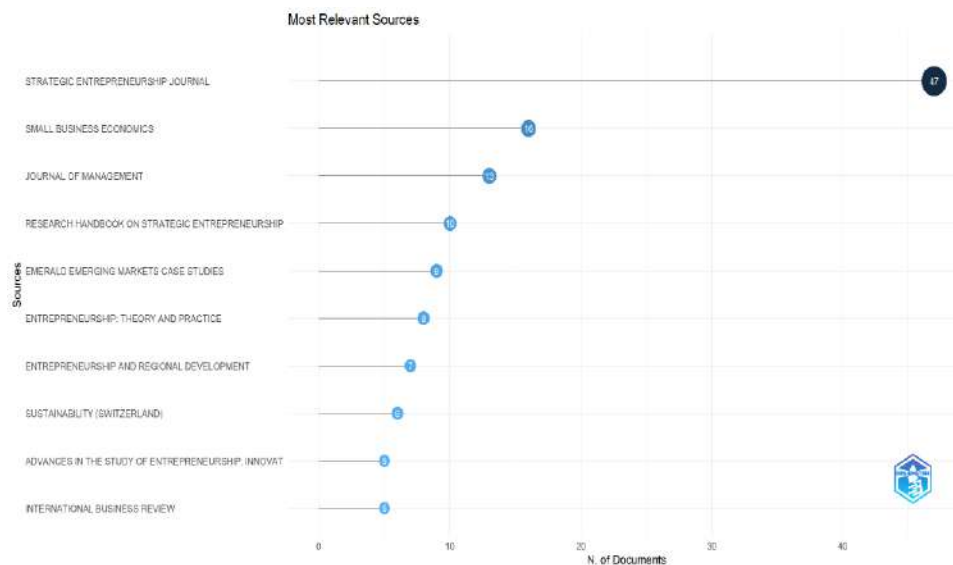


Figure 4: The most relevant sources

RQ 3: What are the most influential articles and sources on Strategic Entrepreneurship

Highly cited documents/ papers

This renowned rating honours the top scientists in the world whose Web of Science citation records are rated in the top 1% of their respective fields. Being listed among the works that have been most frequently mentioned is a sign of a distinguished and successful academic career. Additionally, the number of times a researcher's works are cited significantly raises the exposure and potential reputation of their affiliations with larger universities (Martnez et al., 2015). However, a number of outside factors that don't appear to be directly related to the "quality" of the article's content affect the total number of citations an article receives (Fahimifar et al., 2022). The 10 articles and papers on the topic of strategic entrepreneurship that have received the most citations are listed in Table 7, Among the most prominent is Belal Ar (2015), who has 68 (33.7%) total citations, followed by Ali Bja (2021), who has 22 (10.9%) total citations. Total citations in other papers range from 11 to 17. In contrast, the topics covered are extremely diverse and not really connected to strategic entrepreneurship.

Table 7: Most cited documents/papers

Paper	Total Citations	% Cited	TC per Year	% TCpY	Normalized TC	% NTC
Abdelnaeim SM, 2021, Emerald Emerg Mark Case Stud	1	0.15	0.33	0.35	0.14	0.79
Acar Oa, 2019, J Manage	103	16.22	20.60	22.01	5.23	29.5
Acquaah M, 2016, Family Businesses In Sub-Saharan Africa: Behavioral And Strategic Perspectives	7	1.10	0.88	0.94	0.34	1.91
Acs Zj, 2017, Small Bus Econ	421	66.29	60.14	64.25	10.30	58.12
Adams P, 2017, Strateg Entrepreneurship J	12	1.88	1.71	1.82	0.29	1.63
Adewuyi M, 2018 Adv In Bus and Manag	0	0	0.00	0.00	0.00	0.00
Agarwal R, 2015, Strateg Entrepreneurship J	15	2.36	1.67	1.78	0.25	1.41
Agarwal R, 2017, Strateg Entrepreneurship J	26	4.09	3.71	3.96	0.64	3.61
Agarwal R, 2021, A Journey Toward Influential Scholarsh: Insight From Lead Management Scholar	0	0	0.00	0.00	0.00	0.00
Aguinis H, 2013, J Manage	50	7.87	4.55	4.86	0.53	2.99

Author impact

Authors whose papers have been published can also be ranked according to the effect they have on the h-Index (Hirsch, 2005). The H index is the most popular index (an author has an h index of h if they have at least h works that have been referenced h times). The G articles with the greatest

citations make up the G index (Egghe, 2006). By dividing the H index by the number of years a scientist has been active, the M-Index is then determined. Based on Table 8, it can be shown that Covin J.G., Hornsby, Jr., Ketchen, D.J., Kuratko, and Wright, who achieved a total of 4 h-indexes that describe significant impacts, are the authors with the highest h-Index. Then, three authors (Aguinis H, Bruton Gd, Caputo A, and Dimitratos P) with an h-Index value of 3 and a reasonably significant impact were listed. Additionally, Kuratko Df and Wright M have the greatest values for the g index. Jr. is the author who is the most active, with an index score of 0.571. The author Ketchen Dj comes second with a total of 403 (14.96%) citations, making Aguinis H the most significant contributor with the biggest number of citations (i.e. TC). All of this data was generated between 2013 and 2019.

Table 8: The 10 most impactful author

Authors	h_index	g_index	m_index	TC	%TC	NP	PY_start
Covin Jg	4	4	0.400	129	4.79	4	2014
Hornsby	4	4	0.444	215	7.98	4	2015
Jr	4	4	0.571	255	9.46	4	2017
Ketchen Dj	4	4	0.400	403	14.96	4	2014
Kuratko Df	4	5	0.444	176	6.53	5	2015
Wright M	4	5	0.364	263	9.76	5	2013
Aguinis H	3	3	0.273	642	23.83	3	2013
Bruton Gd	3	3	0.273	332	12.32	3	2013
Caputo A	3	3	0.600	12	0.44	3	2019
Dimitratos P	3	3	0.300	266	9.87	3	2014

Documents written	N. of Authors	Proportion of Authors
1	651	0.914
2	40	0.058
3	13	0.018

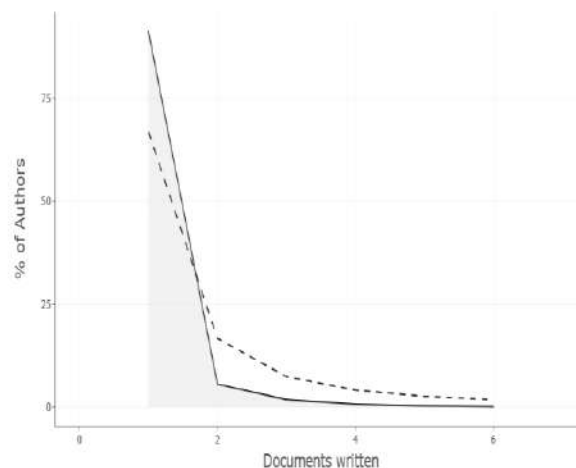


Figure 5: Lotka's Law

Lotka's Law

The well-known "inverse square law of scientific creation" is Lotka's Law. It contends that the ratio of authors who publish a certain number of papers to those who only publish one article stays constant (Friedman, 2015). In other words, it describes how often authors publish in a particular topic (Maz-Machado et al., 2017). Since then, numerous academics from various fields have examined author productivity and publications using Lotka's Law (Friedman, 2015). The observed and fitted Lotka's distributions are shown in Figure 5. There have been between 1 and 3 papers published. The relationship between the number of participating authors and the number of papers published is clearly shown in Figure 5 above.

Source impact

Evaluation of journals is based on factors other than quantity and relevancy (Rusydia & As-Salafiyah, 2021). The h-index, g-index, m-index, and total number of citations for each publication that published articles on the subject of strategic entrepreneurship were nevertheless also taken into consideration in this study. Strategic Entrepreneurship Journal is ranked first by the statistics in Table 9, with a h Index of 27, a g Index of 47, a m Index of 0, and a total of 2448 citations. As a result, the Strategic Entrepreneurship Journal has the biggest influence on the field. For comparison, the Journal of Management and Small Business Economics, both with 12 h Index, come in second and third. Their citation count ranges from 1936 to 1092. Regarding journals with an h-Index of 5, there are 3 journals with citation counts between 254 and 309, indicating that the journal has little influence.

Table 9: The 10 most impactful sources

Sources	h_index	g_index	m_index	TC	%TC	NP	PY_start
Strategic Entrepreneurship Journal	27	47	2.455	2448	37.35	47	2013
Journal of Management	12	13	1.091	1936	29.53	13	2013
Small business economics	12	16	1.091	1092	16.66	16	2013
Entrepreneurship and Regional Development	5	7	0.714	309	4.71	7	2017
Entrepreneurship : Theory and Practice	5	8	0.556	254	3.80	8	2015
International Business Review	5	5	0.500	269	4.10	5	2014
Advances in The Study of Entrepreneurship, Innovation, and Economic Growth	3	4	0.500	20	0.30	5	2018
Journal of Business Ethics	3	3	0.273	136	2.07	3	2013
Journal of Enterprising Communities	3	3	0.500	47	0.71	3	2018
Journal of Social Entrepreneurship	3	3	0.300	43	0.65	3	2014

Bradford's Law

If the core and middle zone numbers are known, Bradford's formula should be able to anticipate the total number of journals carrying articles on a subject because it predicts that the number of journals in the second and third zones will be n and n^2 times higher than the first zone (Fairthorne, 2005; Garfield, 1980). It should be able to calculate how much essential information is missing from an incomplete search once the whole number of articles is known. It would be helpful for such research if Bradford's law accurately anticipated the number (and, if feasible, quality) of the literature given the time-consuming and significant work required to find sources on a topic for a systematic review (Friedman, 2015).

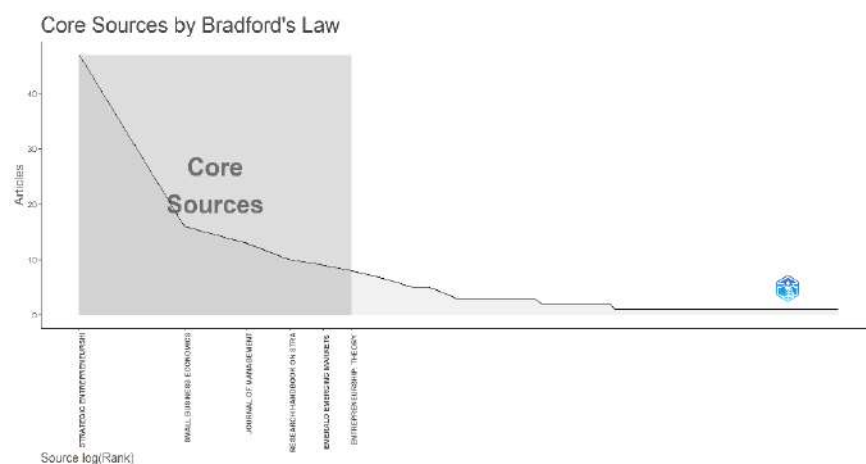


Figure 6: Bradford's Law

The classification of journals according to Bradford's law, which classifies journals by output level into core, intermediate, and wide groupings, is shown in the graphic above. The main journal groups are highlighted in colour and annotated. This group of periodicals comprises those with the most recent findings in strategic entrepreneurship study. The 10 most pertinent sources on the strategic topic of entrepreneurship are shown in Figure 6. The most well-known journal in this field is the strategic entrepreneurship journal, which publishes 47 papers, followed by the small business economics journal (16 papers) and the management journal (13 papers). Peer review is a crucial part of this journal's publication process because it ensures accuracy and contributions to the domains in which it is published.

Co- occurrence network

A co-occurrence network, also known as a semantic network, is a method of text analysis that describes potential connections between people, groups, ideas, and living things like bacteria and other organisms (Segev, 2021). Co-occurrence networks can be built and visualised using text that has been electronically stored and complies with text mining. The calculation of matched data

within the collection unit is the most basic definition of co-occurrence analysis (Cohen et al., 2005; van Eck & Waltman, 2021). Figure 7 shows highly frequent terms that are closely related to one another when it comes to strategic entrepreneurship. Figure 7 shows the six primary clusters that were generated. Entrepreneurship and business-related phenomena make up Cluster 1. The words "entrepreneur" and "strategic approach" make up Cluster 2. Cluster 3 consists of two networks, including strategic planning and sustainable development. Cluster 4 is concerned with business and market prospects, Cluster 5 is concerned with environmental protection, and Cluster 6 is concerned with environmental policy and policy-making.

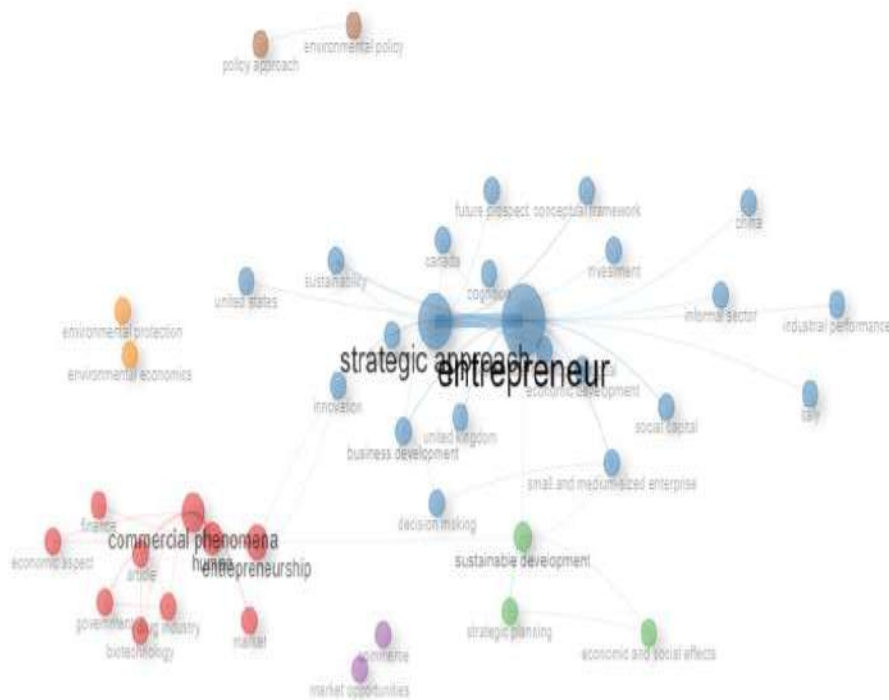


Figure 7: Co-occurrence network

RQ 4: How the theme of the publication has evolved in Strategic Entrepreneurship

This approach to theme creation combines performance analysis and scientific mapping to pinpoint and define conceptual subdomains as a way to gauge and analyse the research area's thematic evolution (Cobo et al., 2011). In this study, a number of analyses were carried out, including word clouds, tree maps, word dynamics, trend themes, and thematic evolution.

Thematic evolution

Examine evolution from a thematic perspective. A graphical representation of the network of connections between scientific subjects, papers, and authors is called science mapping, also known

as bibliometric mapping (Rashid et al., 2021). It has been utilised in several fields to uncover obscure concepts like the one discussed before (Chen et al., 2019). The study also separated the thematic map into 4 quadrants in Figure 8 based on density and centralization. All references to the research topic are checked by a semi-automatic system, which also adds more keywords. to find the difference. The driving or motor motif in the upper right quadrant has to be expanded and further investigated because of its considerable density and centrality. Making decisions articles the primary topics in this quadrant in the United States are corporate development and education on climate change. In addition, the high density but low centrality in the upper left quadrant points to a specific theme with a high level of growth. The development of China's cognitive region is included in this topic's quadrant, along with "the essential institutional structure of the future prospect environment." Furthermore, a long-used motif with low centrality (i.e., a developing or diminishing theme) may be seen in the lower left quadrant. Different topics in this quadrant include "Social Performance of the Informal Sector Capital Industry and Refugees." Finally, a straightforward theme with high centrality and low density may be seen in the lower right quadrant. This theme should be covered in the study because it is a common one. For example, the theme "conceptual framework of United Kingdom entrepreneurs and strategic approach to entrepreneurship sustainable development" is crucial to cover.

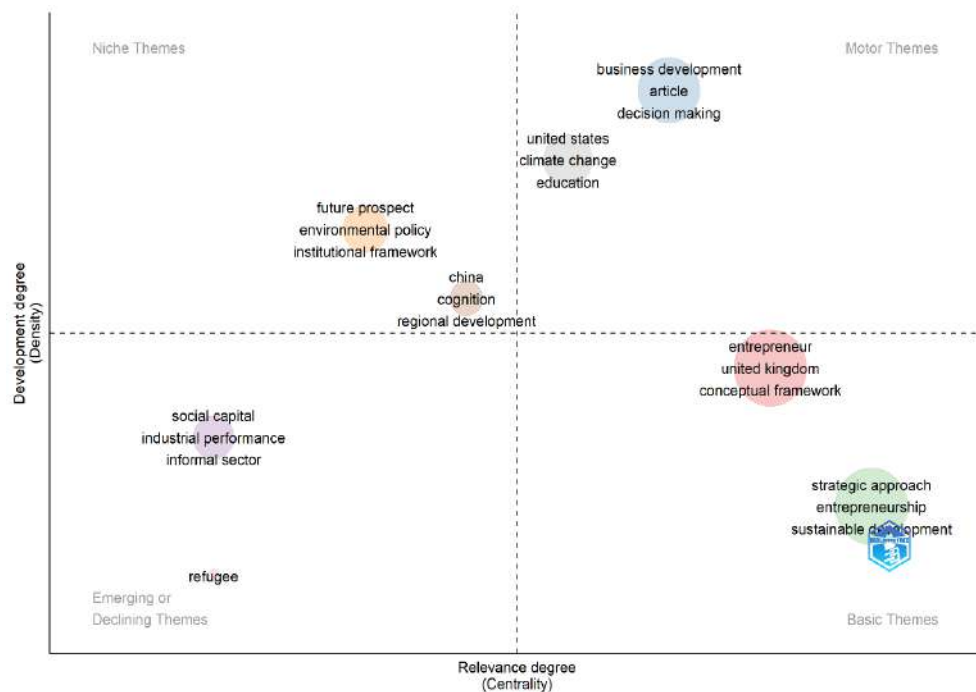


Figure 8: The thematic evolution

Trend topic

This study also looks at topical trends, and the graphic below gives a general summary of how terms have changed over time and by year. To distinguish between themes that have been utilised for a long time and those that have only lately (Bolaos, 2022; Yardibi et al., 2021). The word has recently started to be used more to the right and is used more frequently the higher up. Figure 9 and Table 8 demonstrate that in 2017, a major uptick in the topic's development started. The topic has been discussed since 2017, as seen in the data description below, particularly when talking about research regarding entrepreneurs (F=22), (F=14), strategic approach, (F=6) entrepreneurship, and (F=6) sustainable development. Additionally, the United States, business phenomena that are distinct but connected, and climate change all occurred between 2016 and 2021. Despite the passage of time, the frequency of subjects appearing since 2016 is still modest. Entrepreneur and strategic approach are among the subjects that will be addressed most frequently from 2017 to 2020 when compared to other themes in the first, second, and third quarters of each year. Additionally, this information explains why the two subjects are currently popular in strategic entrepreneurship.

Table 10: The trend topic year

Trend Topic	Frequency	%	Year_q1	Year_med	Year_q3
Entrepreneur	22	34.92	2017	2019	2020
Strategic approach	14	22.22	2018	2019	2020
Entrepreneurship	6	9.52	2018	2020	2022
sustainable development	6	9.52	2018	2021	2022
Climate change	5	7.93	2021	2021	2021
United states	5	7.93	2019	2021	2021
Commercial phenomena	5	7.93	2016	2018	2021

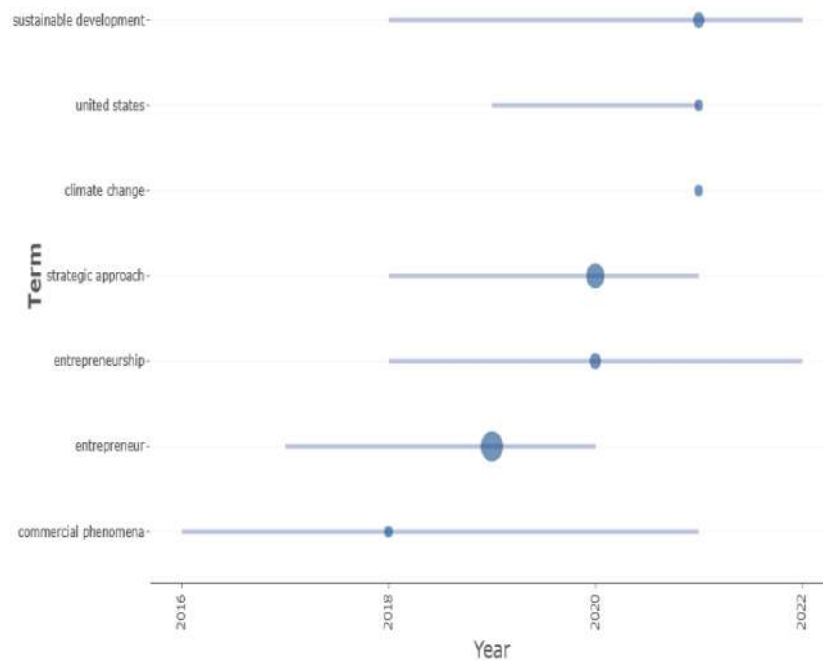


Figure 9: The trend topic

Word dynamic

The data set illustrates how words change over time, which is referred to as word dynamics. A cumulative count of the major keywords along with author, title, or abstract keywords can be used to select presentation, or it can be based on the total number of occurrences per year. Figure 10 shows the growth of the top keywords in the strategic field of entrepreneurship from 2013 to 2022 based on the total number of occurrences per year. According to Figures 10 and 11, statistics demonstrate that some crucial keywords started to significantly increase in 2009 and have continued to do so ever since. The examination of "Word Dynamic" data from 2009 to 2022 demonstrates a notable rise in the usage of dynamic keywords including "entrepreneur," "strategic approach," and "entrepreneurship." This result is consistent with those of other analyses, such as "Topic Trend analysis" and "Word Cloud." These findings also provide an explanation for why the phrase was selected as significant and trending over time.

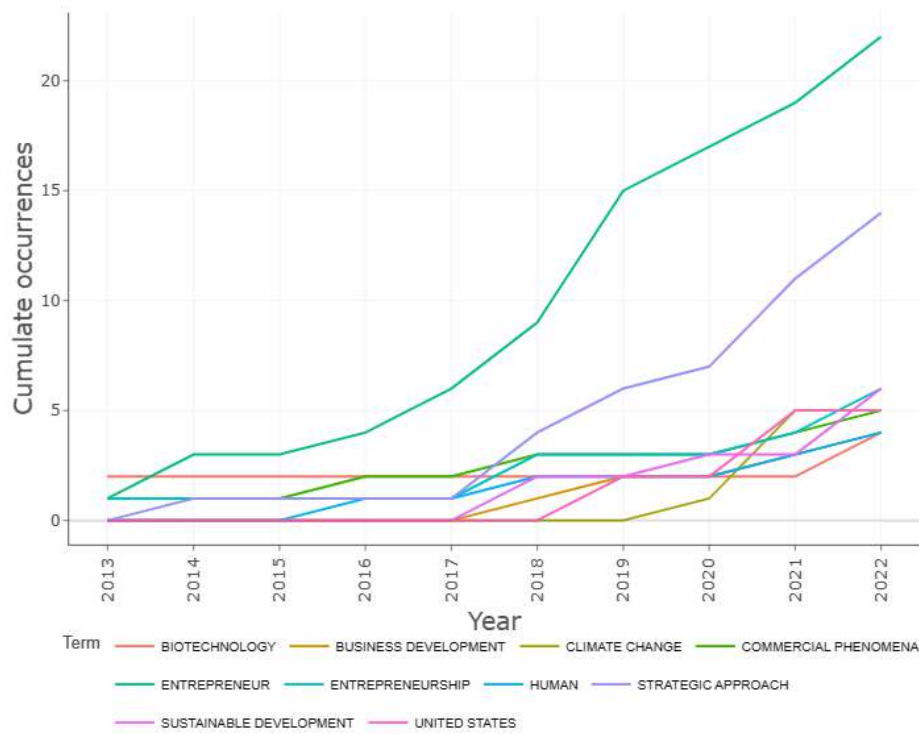


Figure 10: The world dynamic (2013-2022)



Figure 11: The world cloud

Tree Map

The nodes of a tree diagram are represented graphically as layered rectangles in a tree map, which is a visual representation of hierarchical data (Lockhart, 2015). It is made up of a number of stacked, proportionately sized rectangles. The data tree's branches are represented by large rectangles, while the size of each node within a branch is represented by smaller rectangles. According to the plus keyword, author keyword, title (bigram), and abstract (trigram), Figure 12 displays several tree maps of the top 50 terms. According to the data from the tree map, the percentage for "Entrepreneur" is the greatest at 13%, followed by "entrepreneurship" (4%) and "Sustainability development" (4%). While other search terms only make up a tiny fraction—between 1% and 3%—of the total. This outcome is very different from the "word cloud" analysis's findings, which indicate that the word "entrepreneur" is used most frequently when talking about strategic entrepreneurship.

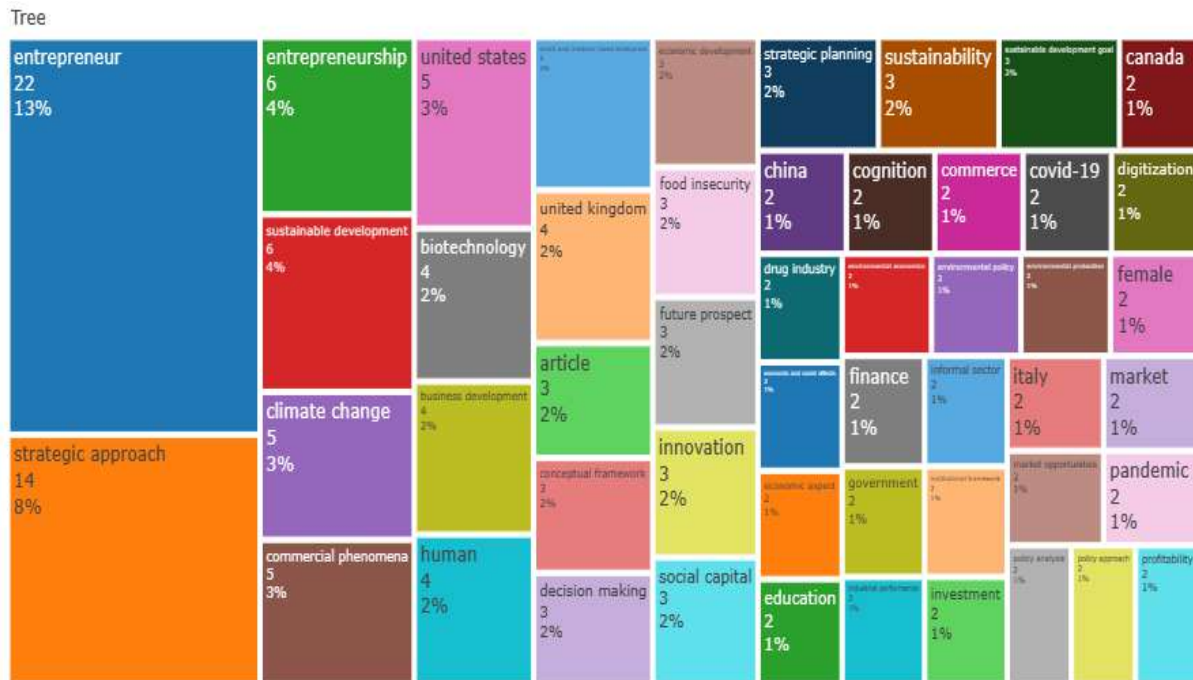


Figure 12: The tree map

CONCLUSION

This research was done to find out how, between 2013 and 2022, the field of strategic entrepreneurship would develop. The study's utilisation of 298 documents demonstrates how the amount of research on strategic entrepreneurship has grown annually. For the author, Sherpherd Da, who frequently studies strategic entrepreneurship during the research era, he persistently investigates this subject. While strategic entrepreneurship is a term that is frequently used in study.

So much so that it is advancing and cannot be separated from strategic entrepreneurship research in the development of entrepreneurship method research. Since there are still few studies that deal with this issue comprehensively in strategic entrepreneurship research, research on the strategic theme of entrepreneurship needs to be improved constantly.

REFERENCES

- Bolaños, F. (2022). Mapping the Trending Topics of Bibliometric-enhanced Informational Retrieval. *CEUR Workshop Proceedings*, 3230, 61-70
- Chen, X., Lun, Y., Yan, J., Hao, T., & Weng, H. (2019). Discovering thematic change and evolution of utilizing social media for healthcare research. *BMC Medical Informatics and Decision Making*, 19(Suppl 2). <https://doi.org/10.1186/s12911-019-0757-4>
- Cohen, A. M., Hersh, W. R., Dubay, C., & Spackman, K. (2005). Using co-occurrence network structure to extract synonymous gene and protein names from MEDLINE abstracts. *BMC Bioinformatics*, 6, 1–15. <https://doi.org/10.1186/1471-2105-6-103>
- De Mauro, A., Greco, M., & Grimaldi, M. (2016). A formal definition of Big Data based on its essential features. *Library Review*, 65(3), 122–135. <https://doi.org/10.1108/LR-06-2015-0061>
- Egghe, L. (2006). Theory and practise of the g-index. *Scientometrics*, 69(1), 131–152. <https://doi.org/10.1007/s11192-006-0144-7>
- Fahimifar, S., Mousavi, K., Mozaffari, F., & Ausloos, M. (2022). Identification of the most important external features of highly cited scholarly papers through 3 (i.e., Ridge, Lasso, and Boruta) feature selection data mining methods: Identification of the most important external features of highly cited scholarly paper. *Quality and Quantity*. <https://doi.org/10.1007/s11135-022-01480-z>
- Friedman, A. (2015). The Power of Lotka's Law Through the Eyes of R. *Romanian Statistical Review*, 2, 69–77. [https://link.springer.com/article/10.1007/s11365-018-0512-9#:~:text=Strategic%20entrepreneurship%20\(SE\)%20is%20typically,%2D%20and%20a dvantage%2Dseeking%20behaviors.](https://link.springer.com/article/10.1007/s11365-018-0512-9#:~:text=Strategic%20entrepreneurship%20(SE)%20is%20typically,%2D%20and%20a dvantage%2Dseeking%20behaviors.)
- Justin Stoltzfus. (2020). What is Media? Retrieved January 13, 2023 from <https://www.techopedia.com/definition/1098/media>
- Lianda Dadlana. (2021). The Growing Opportunities (and Challenges) of Social Commerce. Retrieved January 13, 2023 from <https://www.plytix.com/blog/the-opportunities-and-challenges-of-social-commerce>
- Madli, F. B., Janin, Y., Gulabdin, S. B., Yun, W. S., Yong, K., & Abdullah, D. N. C. (2023). Technology and Entrepreneurship Development: The Perspective of Malaysia. In *Handbook of Research on Designing Sustainable Strategies to Develop Entrepreneurial Intention* (pp. 443-464). IGI Global.
- Martínez, M. A., Herrera, M., Contreras, E., Ruíz, A., & Herrera-Viedma, E. (2015). Characterizing highly cited papers in Social Work through H-Classics. *Scientometrics*, 102(2), 1713–1729. <https://doi.org/10.1007/s11192-014-1460-y>
- Matthew J. M. (2018). Strategic Entrepreneurship: Content, process, context, and outcomes

- Maz-Machado, A., Madrid, M. J., Jiménez-Fanjul, N., & León-Mantero, C. (2017). Empirical examination of lotka's law for information science and library science. *Pakistan Journal of Information Management and Libraries*, 19, 37–51. <https://doi.org/10.47657/2017191106>
- Paul, J., & Criado, A. R. (2020). The art of writing literature review: What do we know and what do we need to know? *International Business Review*, 29(4), 101717. <https://doi.org/10.1016/j.ibusrev.2020.101717>
- Piccarozzi, M., Silvestri, C., & Morganti, P. (2021). Covid-19 in management studies: A systematic literature review. *Sustainability (Switzerland)*, 13(7). <https://doi.org/10.3390/su13073791>
- Rashid, S., Rehman, S. U., Ashiq, M., & Khattak, A. (2021). A scientometric analysis of forty-three years of research in social support in education (1977–2020). *Education Sciences*, 11(4). <https://doi.org/10.3390/educsci11040149>
- Rusydiana, A. S., & As-Salafiyah, A. (2021). *Islamic Moral Economy: A Scientometric Using R. Library Philosophy and Practice*, 2021.
- Salameh, J. P., Bossuyt, P. M., McGrath, T. A., Thombs, B. D., Hyde, C. J., MacAskill, P., Deeks, J. J., Leeftang, M., Korevaar, D. A., Whiting, P., Takwoingi, Y., Reitsma, J. B., Cohen, J. F., Frank, R. A., Hunt, H. A., Hooft, L., Rutjes, A. W. S., Willis, B. H., Gatsonis, C., ... McInnes, M. D. F. (2020). Preferred reporting items for systematic review and meta-analysis of diagnostic test accuracy studies (PRISMA-DTA): Explanation, elaboration, and checklist. *The BMJ*, 370(12). <https://doi.org/10.1136/bmj.m2632>
- Van Eck, N. J., & Waltman, L. (2021). *Manual de VOSviewer*. Univeriteit Leiden, July. http://www.vosviewer.com/documentation/Manual_VOSviewer_1.6.1.pdf
- Visser, M., van Eck, N. J., & Waltman, L. (2021). Large-scale comparison of bibliographic data sources: Scopus, web of science, dimensions, crossref, and microsoft academic. *Quantitative Science Studies*, 2(1), 20–41. https://doi.org/10.1162/qss_a_00112
- Yardibi, F., Firat, M. Z., & Çetin Teke, E. (2021). Trend topics in animal science: A bibliometric analysis using CiteSpace. *Turkish Journal of Veterinary and Animal Sciences*, 45(5), 833–840. <https://doi.org/10.3906/VET-2001-103>

Marketing planning: A Bibliometric Analysis Using R

By

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ABSTRACT

The purpose of this study is to access marketing planning by employing a systematic literature review and bibliometric analysis, with a specific focus on the intellectual structure, volume, knowledge-development tendencies, and significance of the authors and sources. Data is collected from Scopus databases and analysed using Microsoft Excel and R Studio. By drawing upon an extensive amount of academic literature, we have created a searchable database comprising the 326 most relevant articles published within the last decade. Preliminary data indicates there has been a significant rise in the number of publications on marketing planning published in the previous ten years, from 2013 to 2022, as compared to the years before 2012. The bibliometric study identifies the most important journals, authors, and articles in the field. This research revealed the majority of journals and articles were analysed from Social Marketing Quarterly, a peer-reviewed academic journal focusing on social marketing research. A new research topic may arise, offering new research opportunities in both the broad fields of marketing planning and social marketing.

Keywords: marketing planning, systematic review, bibliometric analysis

INTRODUCTION

Existing knowledge of marketing planning

Marketing planning is the process of identifying tasks that will support business objectives and developing a timeline for when those tasks will be completed. Because it serves as the "why" and keeps the team focused on the ideas that will have the biggest impact, your marketing strategy should serve as the basis for the discussion. The output of the planning exercise can be viewed as specifying the "when and what" of the work the marketing team will carry out to acquire, cultivate, and retain customers (Kotler & Armstrong, 2010). Marketing planning serves as the team's guide as they work to produce significant results that support both marketing initiatives and the main business goal. Additionally, it informs and unifies the

company so that all customer-facing teams are coordinated (Hair, Sarstedt, Ringle & Mena, 2012). Marketing is any activity a company carries out to persuade a target audience to buy its products or services. Marketing aims to provide stand-alone value for prospects and consumers through content to illustrate product value, foster brand loyalty, and ultimately increase sales (Kotler & Lee, 1980). Marketing's objective is to create interest in the products or services that your company provides. Researching the market and discovering your ideal client's interests make this possible. Marketing encompasses all aspects of a business, including product development, sales, distribution plans, and advertising (Burton, 2015; Madli et al., 2023). Lamb, Hair and McDaniel (2012) assert that the main responsibility of management is planning, which involves determining in advance what needs to be done, when it needs to be done, how it should be done, and who will do it. The objectives of an organisation are determined intellectually, and various action plans are created to help the organisation achieve those objectives. It describes in detail how to achieve a particular objective.

Research questions

The following research questions (RQ) are used to demonstrate the review activities and process using bibliometric, text-mining, and visualization tools (i.e., R Studio).

Table 1: Research Questions (RQ)

No.	RQ	Analysis Procedure
1	What is the current state and trend of publication in marketing planning?	• Document Type • Source type • Total number of contributors • Number of publications by year/ country • Annual growth rate
2	What are the most influential contributors to marketing planning?	• Most influential authors • Most relevant sources • Most influential countries • Most influential source title.
3	What is the most influential article, authors and sources on marketing planning?	• Highly cited documents • Author Impact • Lotka's Law • Source Impact • Bradford's Law • Co-occurrence network
4	How the theme of the publication has evolved in marketing planning?	• Thematic evolution • Trend Topic • Word Dynamic • Word Cloud • Tree Map

This article begins with a brief review of key definitions for marketing planning before moving on to a more in-depth discussion and analysis. The methodology section of the paper includes a description of the methods used in this investigation, including the data searching procedure, data collection, extraction, and analysis. The research findings were described in the section that followed. The study's results are highlighted in the discussion and conclusions section of this paper, which also discusses the study's limitations and suggests future research directions.

LITERATURE REVIEW

Marketing planning is a vital step in the ongoing process of organizational planning. A methodical, logical way for readers to forecast the future is through marketing planning. As a means of innovative thinking and imaginative juggling of business variables, it examines the past, looks at the present, and attempts to project the future (Wilson, 2010). Even though it is well known that planning aids in an organization's survival, expansion, and success, planning has its own disadvantages. The fact that marketing planning has some drawbacks makes it a mixed blessing for the marketing organization. As a result, the marketing planner needs to be aware of the problems with this line of thinking (Lee & Kotler, 2015; Madli et al., 2019).

Prescriptive texts on marketing planning frequently ignore the context in which this process occurs and instead concentrate only on the process of marketing planning, describing it in terms of marketing audits, SWOT analyses, objective setting, etc. For instance, who oversees performing these tasks, as well as when, how often, and other specifics? Do they need to be carried out top-down or bottom-up? Which plan—the short-term or long-term one—comes first? And so forth. The company culture, size, internationalization, diversity, environmental instability, market growth rate, and technological advancement are just a few of the additional factors to take into account (Douglas & Craig, 2011).

One of the most common causes of poor marketing planning is the notion that marketing is something a marketing person "does" in their office. Hiring a marketing czar is frequently a last-ditch effort to put things right when all else has failed. The issue is that, regardless of the new hire's knowledge or abilities, they quickly learn that others hold all the sway, particularly when it comes to product development (the technical people), pricing (the accountants), customer service (the distribution department), and selling (the sales director). The promotional mix components are now available for the new employee to experiment with. The new executive quickly falls short as a result because she has no real power (Leppard & McDonald, 1987).

Table 2: Summary of previous studies in Marketing Planning

Source title	Authors	Title	Year
Information (Switzerland)	Kitsios, Mitsopoulou, Moustaka and Kamariotou	User-Generated Content in social media: A Twenty-Year Bibliometric Analysis in Hospitality	2022
Long Range Planning	Maucuer, Renaud, Ronteau and Muzellec	What can we learn from marketers? A bibliometric analysis of the marketing literature on business model research	2022

Sustainability (Switzerland)	Cano, Londoño-Pineda, Castro, Paz, Rodas and Arias	A Bibliometric Analysis and Systematic Review on E-Marketplaces, Open Innovation, and Sustainability	2022
Springer Proceedings in Business and Economics	Giroto, Moro and Irurita	Roles and Implications of Marketing Communications in Retail Settings: A Systematic Review	2022
Cuadernos de Gestion	Sustach, Baños-Pino and Valle	Research trends in technology in the context of smart destinations: a bibliometric analysis and network visualization [Tendencias de investigación en tecnología en el contexto de los destinos turísticos inteligentes: un análisis y visualización de red bibliométrica]	2022
Heliyon	Faruk, Rahman and Hasan	How digital marketing evolved over time: A bibliometric analysis on Scopus database	2021
Journal of Research in Marketing and Entrepreneurship	Lopes, Laurett, Antunes and Oliveira	Entrepreneurial marketing: a bibliometric analysis of the second decade of the 21st century and future agenda	2021
Marketing Intelligence and Planning	Donthu, Kumar and Pandey	A retrospective evaluation of Marketing Intelligence and Planning: 1983–2019	2021
Journal of Promotion Management	Kumar, Spais, Kumar and Sureka	A Bibliometric History of the Journal of Promotion Management (1992–2019)	2020

TDE = Total documents examined

METHODOLOGY

Bibliometric mapping is a research area in the discipline of bibliometrics (Borner, Chen & Boyack, 2003). Two distinct bibliometric features are how the bibliometric map is built and how it is represented graphically. In the bibliometrics literature, the production of bibliometric maps has attracted the most interest. According to research, various mapping methods were used to test the effects of variations in size similarity (Ahlgren, Jarneving & Rousseau, 2003; Boyack, Klavans & Borner, 2005).

Less attention was paid to the bibliometrics' graphical representation. Even though some researchers take issues with graphic representation seriously (Chen, Liu, Luo, Webber & Chen, 2016), most bibliometric literature articles rely on straightforward graphical output from computer programmes. This study draws on papers with the theme of research on marketing planning that were published in various scientific journals and other sources. A total of 172 articles were published because of the search.

PRISMA (Preferred Reporting Items for Systematic Reviews) and bibliometric analyses were used in this study (see Figure 1). This strategy provides a thorough analysis of the knowledge amassed over time (Visser, van Eck & Waltman, 2021). Bibliometric methods are frequently used to filter and improve bibliographic data, such as by locating pertinent articles in databases

(such as Scopus). The VOS viewer programme is now being used to display the data. Future research topics can be identified and forecast using bibliometric analysis (Paul & Criado, 2020). Scopus, an Elsevier database, contains more than 5,000 publications and more than 50 million entries (De Mauro, Greco & Grimaldi, 2016). Our university also acquired the Scopus database at the same time. This is the primary justification for our choice to make the Scopus database our primary source of data.

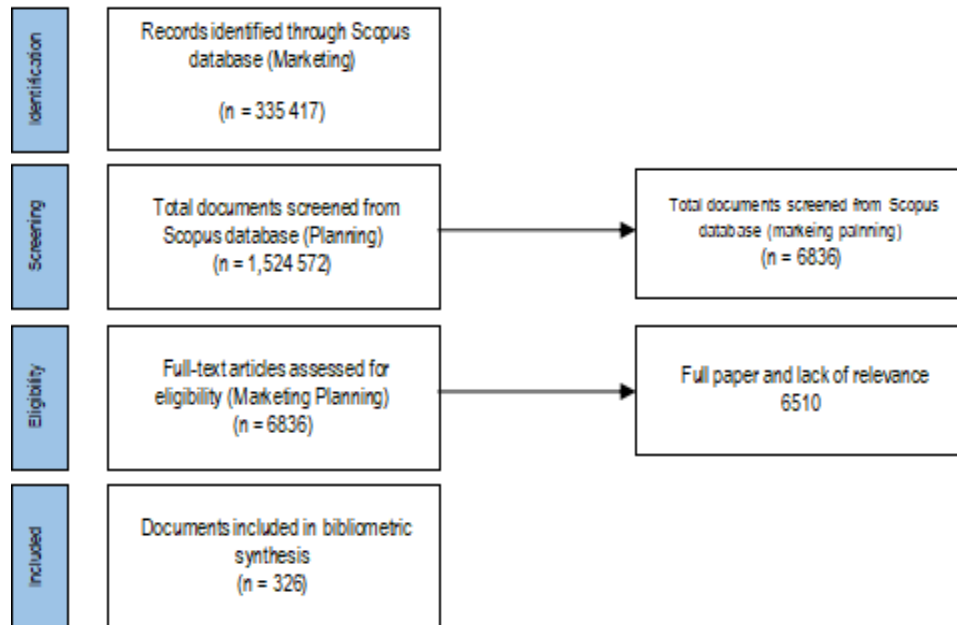


Figure 1: The PRISMA Diagram that We Used to Find, Screen, and Select Articles in Our Bibliometric Review

Inclusion and exclusion criteria

First, all search results are checked for titles and abstracts using predetermined standards (refer to Table 3). Then, a review and summary of every public process that had advanced past the initial selection process was conducted. Each research project is rated according to the number of publications, the prestigious journals and authors, and the most well-liked research topics. Because there was a wealth of literature on marketing planning, we made the decision to compile it into a final database of 326 papers covering the years 2013 to 2022.

Table 3: Search criteria

Scopus Category	Searching criteria	No of article
Topic 1	“Marketing”	335,417
Topic 2	“Planning”	1,524,572
Topic 3	“Marketing planning”	25,906
Research years	2013-2022	6836
Document Type	Article, Books Chapter, Review, Conference Paper, and Book	6557
Language	English	6295
Subject area	Nursing, Psychology, Health Professions, Chemistry, Dentistry	326
Author name	All	326

Extraction techniques

Table 3 reveals that 326 journal articles were exported in a format that was compatible with the applications. To increase research accuracy, a thorough analysis of the downloaded database was conducted. The extraction process begins by looking up the term "marketing planning" in a search engine. We applied VOS viewer and Excel (.csv) for this study. Bibliometric academic researchers can view bibliometric maps graphically using the free VOS viewer software. The most helpful article title, author, keyword, and citation information, including all references, can be found in the final Scopus database. Analysis of bibliometric data is beneficial because it can identify and foresee potential areas of future research (Paul & Criado, 2020).

Choice of Synthesis Method (Analysis)

Descriptive analysis was part of the initial investigative process. To chart the evolution of publications on marketing planning over time, we created several Excel graphs. In the meantime, the bibliometric analysis method was applied in the next step. This method uses citations to identify the most significant papers and researchers on a particular subject. Other metrics like the H-index, total citations, and citations per publication may also be indicators of academic prominence. Co-citation analysis may concentrate on the journal, author, keyword co-citations, etc., depending on the results. With the help of the VOS viewer and R Studio, we were able to create "network maps" based on article linkages using our sample database.

RESULTS

Document Profiles

The articles discovered covered the period from 2013 to 2022. Publications didn't start to become more organised or increase in quantity gradually and steadily until after 2012. Based on the 326 total documents considered (Table 3), there is a -2.17% annual growth rate, an average of 9.215 citations per document, and 2282 total references. Additionally, most of the research in this field is published as articles 172, followed by books 69 and chapters 74 of books.

Table 4: Document Profiles

Description	Results
Main information About Data	
Timespan	2013:2022
Source (Journals, Book, etc)	230
Documents	326
Annual Growth Rate %	-2.17
Document Average Age	5.85
Average citations per doc	9.215
References	22828
Document contents	
Keywords Plus (ID)	1225

Authors of single-authored docs	989
Authors Collaboration	
Single-authored docs	92
Co-authors per Doc	2.74
International co-authorships %	24.54
Document Types	
Articles	172
Book	69
Book chapter	74
Conference Paper	5
Review	6

RQ1: What is the current state and trend of publication in Marketing Planning?

Figure 2 shows the increase in publications addressing the concepts of marketing planning over time. Prior studies have given the subject and scope of the study on marketing planning significant attention, based on the quantity of publications produced. The subject of marketing planning began to receive more attention in the early 2013s, despite the relatively low number of publications on the topic at the time, according to preliminary data from the Scopus database. There has been an increase since 2013 up until the present.

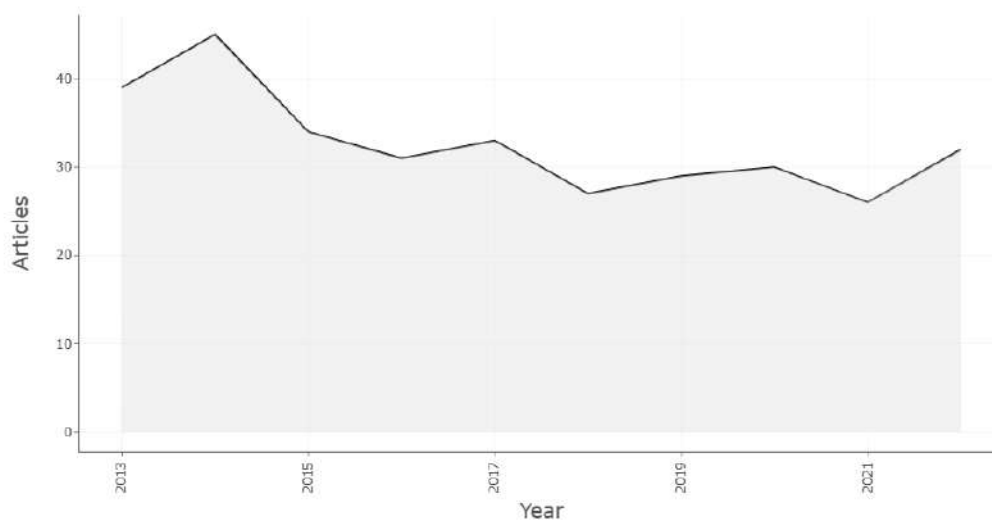


Figure 2: Annual scientific production (Total published articles from 2013-2022)

The information in Figure 2 above indicates that an increase of six publications in 2014 led to an increase of six articles, bringing the total number of articles from 39 to 45. There was a downward trend between 2015 and 2018, with 34 articles in 2015 and 27 articles in 2017. Due to the topic's limited media coverage, there may not have been as many articles. Later, with 29 articles published in 2019 and 30 articles published in 2022, there was a slight increase from the previous year. However, in 2021 and 2022, there were, respectively, 26 and 32 fewer articles. The year with the most articles published was 2014, with 45, followed by 2013 with 39, and 2015 with 34.

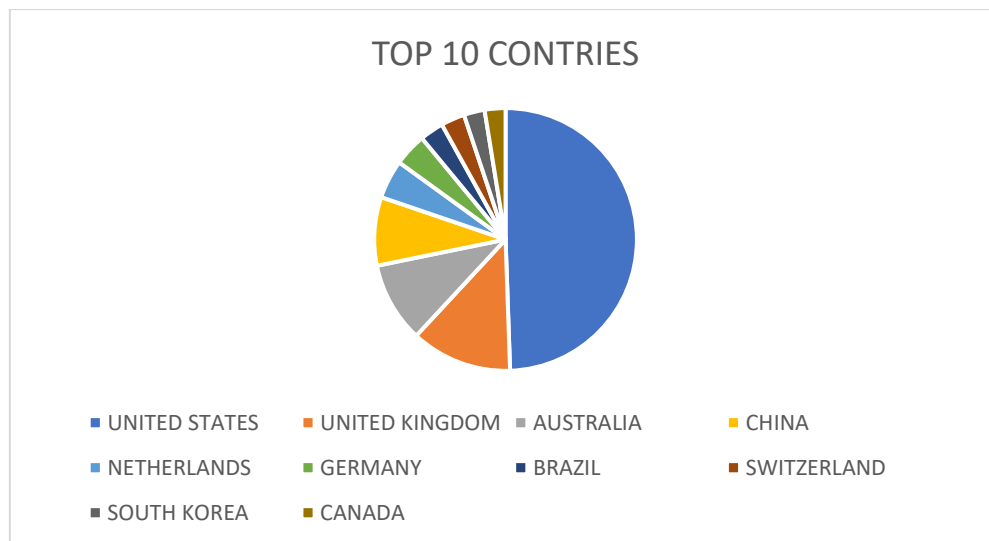


Figure 3: Top 10 highest publications by country

According to Figures 2 and 3, we can see the top ten countries and categories of papers related to marketing planning. The top three countries that publish the most articles in this field are the United States (135 articles) and the United Kingdom with 34 articles, followed by Australia with 27 articles. Overall, marketing planning is a topic that is actively discussed and is a popular place to discuss and exchange ideas.

RQ2: What are the most influential contributors to Marketing Planning?

For the second research question, the most influential authors, their output over time, the most influential nations and institutions, and the most influential source title in marketing planning are all examined. Table 5 showed that the most significant authors and articles were present in the sample database. Akbar, Garnelo-Gomez, Ndupu, Barnes and Foster (2022), Akbar, Foote, Soraghan, Millard and Spotswood (2021), Eagle, Czarnecka, Dahl and Liloyd (2020), Biroscak, Schneider, Tyson, Loi and Bryant (2018), Bryson and Daniels (2015) are the five most significant cited authors. The authors of Dwivedi, Khanna, Sharma and Susaeta (2016) have the most citations overall with 13, followed by Bryson and Daniels (2015) with 11 each. Two new authors (Akbar et al., 2022; Akbar et al., 2021) also contribute to the publication of marketing planning at the same time. The two articles with the most citations are shown in Table 3. Effectiveness of the Carbon and Bioenergy Market in Mitigating Carbon Emissions on Reforested Lands: A Case Study from the Southern United States and Handbook of Service Business: Management, Marketing, Innovation, and Internationalization are two of them, with a total of 13 and 11 citations, respectively.

Table 5: The most influential authors

Author	Year	Title	SO	TC	TCpY
Hassan & Sharma	2018	Tourism Events in Asia: Marketing and Development	Tourism Events in Asia: Marketing and Development	1	0.167

Dwivedi, Khanna, Sharma & Susaeta	2016	Efficacy of Carbon and Bioenergy Markets in Mitigating Carbon Emissions on Reforested Lands: A Case Study from Southern United States	Forest Policy and Economics	13	1.625
Akbar, Garmelo-Gomez, Ndupu, Barnes & Foster	2022	An Analysis of Social Marketing Practice: Factors Associated with Success	Health Marketing Quarterly	1	0.5
Akbar, Foote, Soraghan, Millard & Spotswood	2021	What Causes Social Marketing Programs to Fail? A Qualitative Study	Social Marketing Quarterly	5	1.667
Eagle, Czarnecka, Dahl & Lioyd	2020	Marketing Communications	Marketing Communications	3	0.75
Biroscak, Schneider, Tyson, Loi & Bryant	2018	Applying Tools from Human-Centered Design to Social Marketing Planning	Social Marketing Quarterly	6	1
Bryson & Daniels	2015	Handbook of Service Business: Management, Marketing, Innovation, and Internationalisation	Edward Elgar Publishing	11	1.222

The most influential journals were present in the sample database, as shown in Table 6. Business and economics journals have typically dominated publications on marketing planning. The most publications are in the social marketing quarterly, which has 4 papers, a 5 h-index, and 84 citations. This situation is partially caused by the journal's having been published since 2013. The American Journal of Pharmaceutical Education has three publications, while Appetite has 89 and 27 citations. This study also reveals other journals outside of marketing planning, with fifty-seven and twenty-five (25) citations, respectively, for technological forecasting, social change, and translational behaviour medicine.

Table 6: The Most Influential Source

No.	Journal	PY	TC	NP	<i>h</i> index	<i>g</i> index	<i>m</i> index
1	Social Marketing Quarterly	2013	84	12	5	9	0.455
2	American Journal of Pharmaceutical Education	2018	27	3	3	3	0.5
3	Appetite	2016	89	3	3	3	0.375
4	Decision Support Systems	2017	84	3	3	3	0.429
5	Evaluation And Program Planning	2013	17	4	3	4	0.273
6	International Journal of Production Economics	2015	262	4	3	4	0.333
7	Regulatory Rapporteur	2013	12	10	3	3	0.273
8	Resources, Conservation and Recycling	2014	71	3	3	3	0.3
9	Technological Forecasting and Social Change	2015	57	3	3	3	0.333

10	Translational Behavioral Medicine	2017	25	4	3	4	0.429
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Notes: PY=publication year; TC=total citations; NP=number of publications; h=h-index; m=m index; and g=g-index.

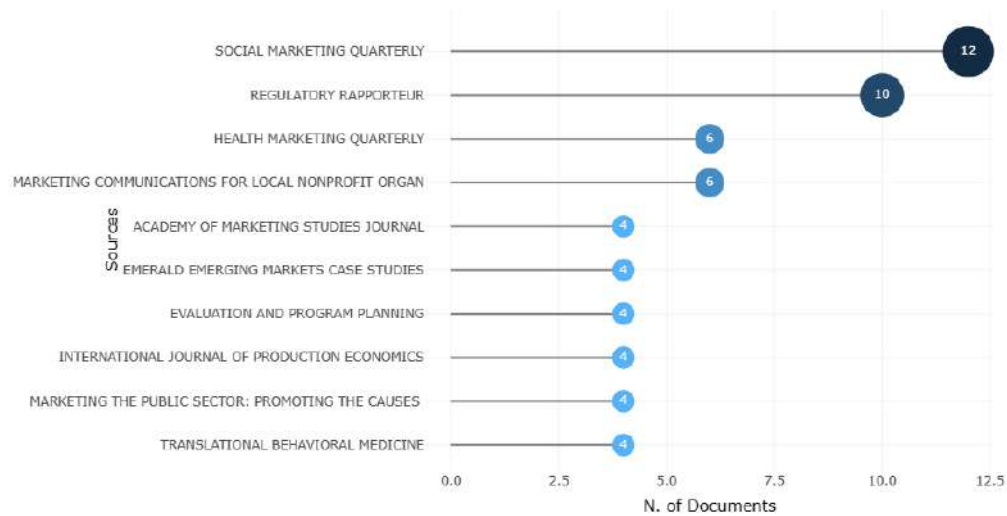


Figure 4: The Most Relevant Sources

Peer review refers to the process whereby academics with expertise in the same field as the author and editor evaluate each contribution before it is published in one of the most esteemed academic journals (Kelly, Sadeghieh & Adeli, 2014). They ought to confirm that the paper advances the field, that the researcher employed sound methods, and that the new data is presented considering what is already known. The ten most pertinent sources for marketing planning are shown in Figure 4. The most prominent publication in this discussion is the social marketing journal, which is followed by the Regulatory Rapporteur journal, the marketing communications journal for regional non-profit organisations, and the quarterly journal of health marketing. Peer review is a crucial part of this journal's publication process because it ensures accuracy and contributions to the fields in which it is published.

RQ3: What are the most influential articles and sources on marketing planning?

Highly cited documents/papers

The top researchers in the world are recognised in this prestigious ranking, which recognises those whose Web of Science citation records are rated in the top 1% of their respective fields. A distinguished and fruitful academic career is demonstrated by inclusion in the list of works that have received the most citations. Furthermore, the visibility and potential reputation of a researcher's affiliations with more prestigious institutions are significantly increased by the number of times their publications are cited (Martinez, Herrera, Contreras, Ruiz & Herrera-Viedma, 2015). The total number of citations an article receives, however, is influenced by several external factors that don't seem to be directly related to the "quality" of the content of the article (Fahimifar, Mousavi, Mozaffari & Ausloos 2022). Table 7 lists the ten papers and documents that have been cited the most in marketing planning. One of the most notable is Morisson (2013), who has 207 (17.22%) total citations, followed by Tyagi, Choudhary, Cai and Yang (2015), who have 189 (15.72%) total citations. Total citations in other papers range

from 180 to 54. In contrast, the topics covered are varied and not particularly pertinent to marketing planning.

Table 7: Most Cited Documents or Papers

Paper	Total Citations	% Cited	TC per Year	% TCpY	Normalized TC	% NTC
Morrison (2013)	207	17.22	18.82	11.30	12.90	13.13
Tyagi, Choudhary, Cai & Yang (2015)	189	15.72	21.00	12.61	12.36	12.50
Page & Getz (2016)	180	14.98	22.50	13.51	13.51	13.75
Huang & Rust (2021)	146	12.14	48.67	29.22	14.94	15.21
Cimperman, Brencic, Trkman & Stanonik (2013)	116	9.65	10.55	6.33	7.23	7.36
Kajackaite & Gneezy (2017)	103	8.57	14.71	8.83	12.14	12.36
Bruhn, Karlan & Schoar (2018)	79	6.57	13.17	7.91	9.88	10.06
Hall (2013)	65	5.41	5.91	3.55	4.05	4.12
McGonagle, Beatty & Joffe (2014)	63	5.24	6.30	3.78	7.88	8.02
Hsu, Lin & Chiang (2013)	54	4.49	4.91	2.95	3.36	3.42

Notes: PY=publication year; TC=total citations

Author Impact

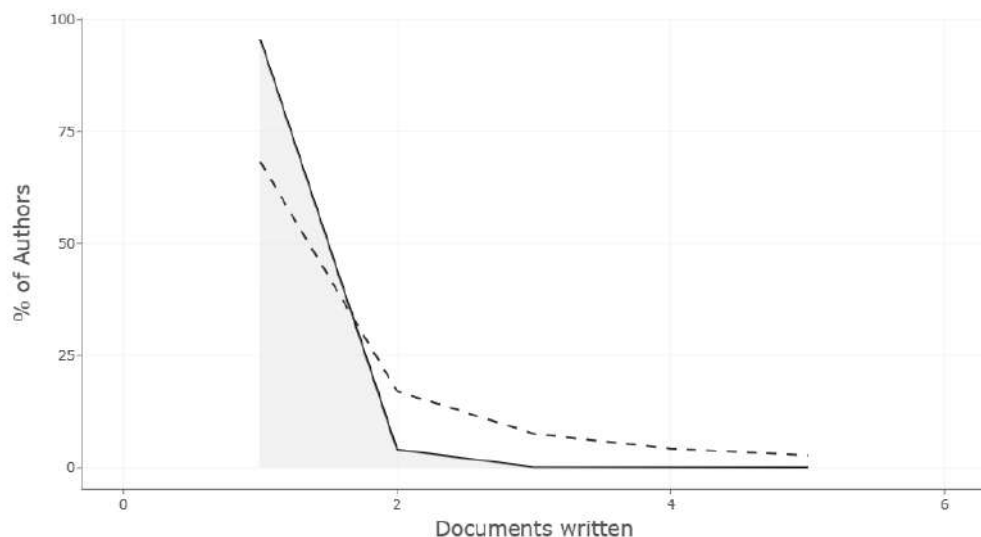
The h-index allows authors of papers that have been published to be ranked in terms of the influence they have had (Hirsch, 2005). The most widely used index is the H-index (an author has an h-index of h if they have at least h works that have been referenced h times). The G-index is composed of the G articles with the most citations (Egghe, 2006). The M-index is then calculated by dividing the H-index by the number of years a scientist has been working. According to Table 8, the authors who achieved the highest total of 2 h-indexes that describe significant impact were Bryant et al. (2014), Lai et al. (2021), Liu and Lopez (2016), Lloyd and Toogood (2014), Park (2015), Biroscak, Lefebvre, Schneider, Marshall, McDermott and Bryant (2014), and Weinstein (2013). Then came three authors with good impact who had an h-index value of 1: Khayame and Abdeljawad (2020), Adomaviciute (2016), and Agarwals, Ben-David and Yao (2017). The highest g-index values are also being displayed by Bryant et al. (2014), Lai et al. (2021), Liu and Lopez (2016), Lloyd and Toogood (2014), Park (2015), Biroscak et al. (2014), and Weinstein (2013). The authors with the highest levels of activity are Lai et al. (2021) with 0.667, Park (2015) with 0.222, Weinsteins (2013) with 0.182, and Agarwals et al. (2017) and Adomaviciute (2016) with 0.142 and 0.125 respectively. Liu and Lopez (2016), with a total of 61 (22.68%) citations, is the most significant contributor with the highest citation (i.e., TC), followed by Lai et al. (2021) with 58 (21.56) and Biroscak et al. (2014) with 33 (12.27). All these data were generated between 2013 and 2021.

Table 8: The 10 Most Impactful Author

Author's	h-index	g-index	m-index	TC	%	NP	PY-start
Bryant et al.	2	2	0.2	31	11.52	2	2014

Lai et al.	2	2	0.667	58	21.56	2	2021
Liu & Lopez	2	2	0.25	61	22.68	2	2016
Lloyd & Toogood	2	2	0.2	16	5.95	2	2014
Park	2	2	0.222	22	8.18	2	2015
Biroscak et al.	2	2	0.2	33	12.27	2	2014
Weinstein	2	2	0.182	25	9.29	2	2013
Khayame & Abdeljawad	1	1	0.25	4	1.49	1	2020
Adomaviciute	1	1	0.125	8	2.97	1	2016
Agarwal et al.	1	1	0.143	11	4.09	1	2017

Notes: PY=publication year; TC=total citations; NP=number of publications; h=h-index; m=m index; and g=g-index.



Documents written	Number of Authors	Proportion of Authors
1	813	0.956
2	34	0.040
3	1	0.001

Figure 5: Lotka's Law

Lotka's Law

Lotka's Law is the well-known "inverse square law of scientific creation." It asserts that there is a constant split between authors who publish a certain number of articles and those who only produce one article (Friedman, 2015). It describes how frequently authors publish in a specific field, in other words (Maz-Machado, Madrid, Jimenez-Fanjul & Leon-Mantero, 2017). Since then, a large number of academics from various fields have used Lotka's Law to examine author productivity and publications (Friedman, 2015). Figure 5 displays the observed and fitted Lotka's distributions. Between one and three papers have been published. Figure 5 above

clearly illustrates the connection between the number of participating authors and the number of papers published.

Source impact

Journal evaluations are based on more factors than just the volume of work produced or its relevance (Rusydiana & As-Salafiyah, 2021). The h-index, g-index, m-index, and total citation of each journal that publishes a paper about marketing planning, however, are also used in this study to determine their impact. The International Journal of Social Marketing Quarterly first by the statistics in Table 9, with a h-index of 5, g-index of 9, m-index of 0.455, and 84 total citations. As a result, the study of marketing planning is most significantly influenced by Social Marketing Quarterly. American Journal of Pharmaceutical Education, Appellate, Decision Support System, Evaluation and Program Planning, International Journal of Production Economic, Regulatory Rapporteur and until Translational Behavioural Medicine are respectively, with a 3 h-index. Their overall citation count ranged from 12 to 262.

Table 9: The 10 most impactful source

Element	h_ index	g_ index	m_ index	TC	%	NP	Py_ start
Social Marketing Quarterly	5	9	0.455	84	10.74	12	2013
American Journal of Pharmaceutical Education	3	3	0.5	27	3.71	3	2018
Appetite	3	3	0.375	89	12.23	3	2016
Decision Support Systems	3	3	0.429	84	11.54	3	2017
Evaluation and Program Planning	3	4	0.273	17	2.36	4	2013
International Journal of Production Economics	3	4	0.333	262	35.99	4	2015
Regulatory Rapporteur	3	3	0.273	12	1.65	10	2013
Resources, Conservation and Recycling	3	3	0.3	71	9.75	3	2014
Technological Forecasting and Social Change	3	3	0.333	57	7.83	3	2015
Translational Behavioral Medicine	3	4	0.429	25	3.43	4	2017

Bradford's Law

Bradford's rule predicts that the number of journals in the second and third zones will be n and n^2 times bigger than the first zone, so it should be able to forecast the total number of journals carrying articles on a subject if the numbers for the core and middle zones are known (Fairthorne, 2005; Garfield, 1980). Once the total number of articles is known, it should be able to calculate how much pertinent information is missing from an incomplete search. Given the time-consuming and significant work required to find sources on a topic for a systematic review, it would be helpful for such research if Bradford's law accurately predicted the amount (and, if feasible, quality) of the literature (Friedman, 2015).

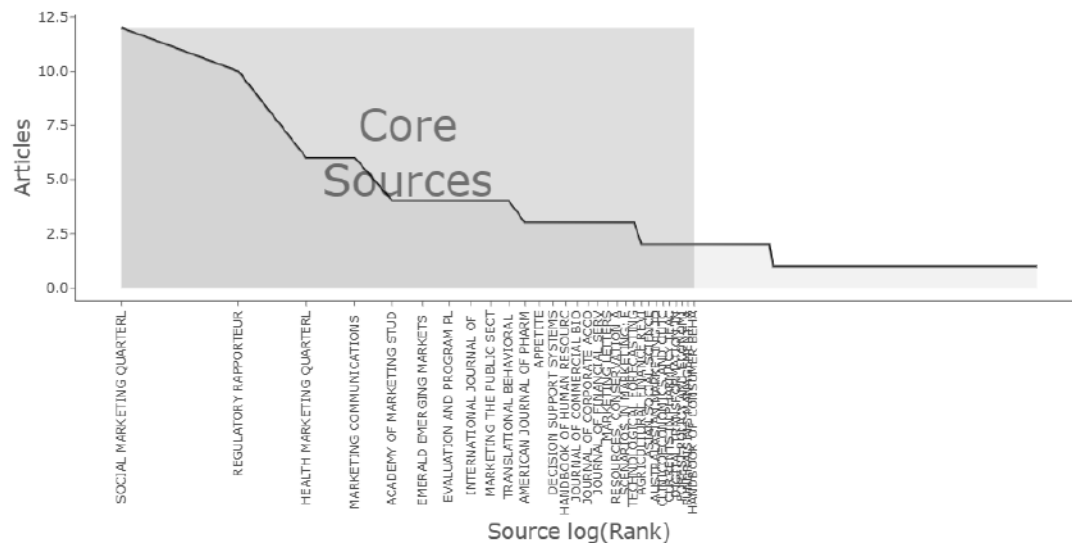


Figure 6: Bradford's Law

The classification of journals into core, intermediate, and wide groups is shown in the image above and is based on the Bradford law. The important journal groupings are highlighted in colour and annotated. The journals with the highest output of marketing planning research at a given time fall under this category. The ten most pertinent sources for marketing planning are shown in Figure 6. The most well-known journal in this field is the Social Marketing Quarterly (12 papers), which is followed in importance by the Regulatory Rapporteur (10 papers), the Health Marketing Quarterly, and Marketing Communications for local non-profit organisations targets and tools, both of which have 6 papers. Peer review is a crucial part of this journal's publishing process, which ensures its accuracy and value to the fields in which it is published.

Co-occurrence Network

A co-occurrence network, also known as a semantic network, is a text analysis technique that shows potential connections between people, organisations, ideas, bacteria, and other biological entities (Segev, 2021). Co-occurrence network construction and visualisation are made possible by text that has been stored electronically and is text mining-compliant. Co-occurrence analysis can be defined as simply counting matched data within a collection unit (Cohen et al., 2005; van Eck & Waltman, 2021). The high-frequency keywords with a close co-occurrence relationship in marketing planning are shown in Figure 7. Three significant clusters have been generated, as shown in Figure 7. Cluster 1 includes "Strategic Planning," "Commerce," "Planning," and "Drug Industry." The words "Marketing" and "Human" make up Cluster 2. Cluster 3 consists of five networks, including "Social Marketing," "Human," "Aged," and "Health Care Planning."

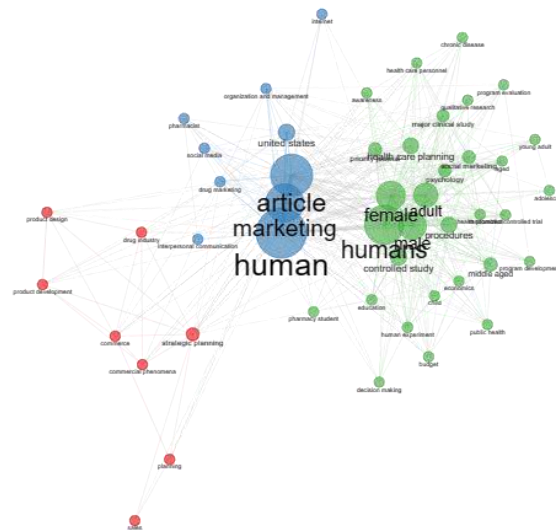


Figure 7: Co-occurrence Network

RQ4: How the theme of the publication has evolved in Marketing Planning?

The method combines performance analysis and scientific mapping to identify and visualise conceptual subdomains for the purpose of quantifying and visualising the thematic evolution of the research area (Cobo, López-Herrera, Herrera-Viedma & Herrera, 2011). Thematic evolution, trend topics, word dynamics, word clouds, and tree maps are just a few of the analyses that were included in this study.

Thematic Evolution

A thematic analysis of evolution A graphical representation of the network of connections between scientific fields, papers, and authors is called science mapping, also referred to as bibliometric mapping (Rashid, Rehman, Ashiq & Khattak, 2021). It has been applied in numerous fields to unearth obscure concepts like topics (He, Chen, Chen, Tang & Zou, 2019). The study also divided thematic maps into four quadrants in Figure 8 based on density and centrality. All references to the research topic were reviewed by a semi-automatic algorithm, which also added more keywords to find differences. A driving or motor theme that is very dense and centrally located in the top right quadrant needs to be developed and further investigated. In this quadrant, "marketing," "human," and "article" are the main topics. Additionally, the high density but low centrality in the top left quadrant illustrates a niche theme with a high degree of growth. This quadrant covers a variety of subjects, including biopharmacology, food and drug administration, and drug development. In addition, the lower-left quadrant contains recurrent themes with low centrality (i.e., emerging or declining themes). The primary subject in this quadrant is "Organization and Management," which is then "Financial Management." Finally, the bottom right quadrant displays a simple motif with high centrality and low density. Because they are broad topics that are frequently discussed, these themes—such as "commerce," "planning," and "product design"—are essential to include in the research.

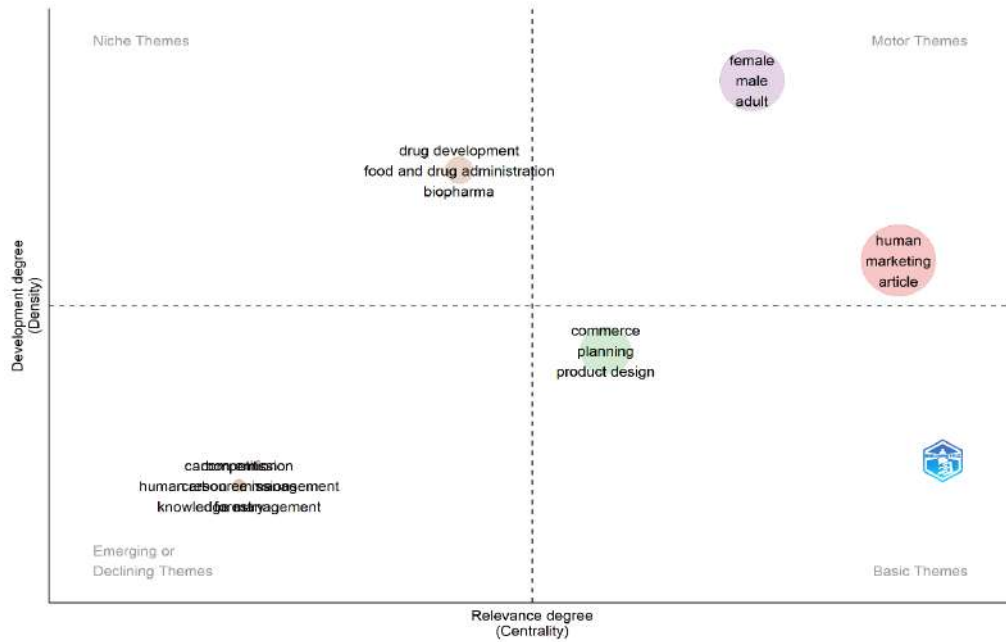


Figure 8: The Thematic Evolution

Trend topic

This study also looks at trends in the field; the figure below gives an overview of how the term has changed over time and by year. The word is used more frequently and more recently further to the right as it rises in the list, helping to distinguish between themes that have been used for a long time and those that have only recently (Bolarrios, 2022; Yardibi, Firat & Teke, 2021). Figure 9 and Table 10 show that the topic's development began to significantly pick up steam in 2014. The topic has been used since 2013, as shown in the data's description below, especially in marketing planning studies that discuss the United States ($F = 21$), commerce ($F = 14$), organisation and management ($F = 10$), planning ($F = 10$), and drug industry with a total frequency of 9. Additionally, the United States, the drug industry, product design, and public health all emerged as separate but related topics between 2014 and 2019. Despite the passage of time, the frequency of the subjects that have appeared since 2014 is still low. In comparison to other themes, "United States" and "Commerce" are the subjects that are frequently brought up from 2014 to 2019; the frequency of these topics is highest in the years q1, q2, and q3. The three topics have begun to gain popularity in the marketing planning sector, which is also explained by this information.

Table 10: The trend topic year

Trend Topic	Frequency (F)	%	year_q1	Year_med	year_q3
0	21	21.4	2014	2016	2019
Commerce	14	14.29	2015	2016	2018
Organization and Management	10	10.2	2014	2015	2017
Planning	10	10.2	2014	2016	2020
Drug Industry	9	9.18	2014	2014	2019

Program Evaluation	8	8.16	2014	2015	2018
Product Design	7	7.14	2015	2015	2018
Public Health	7	7.14	2014	2014	2016
Program Development	7	7.14	2013	2013	2016
Health Services Research	5	5.1	2013	2014	2015

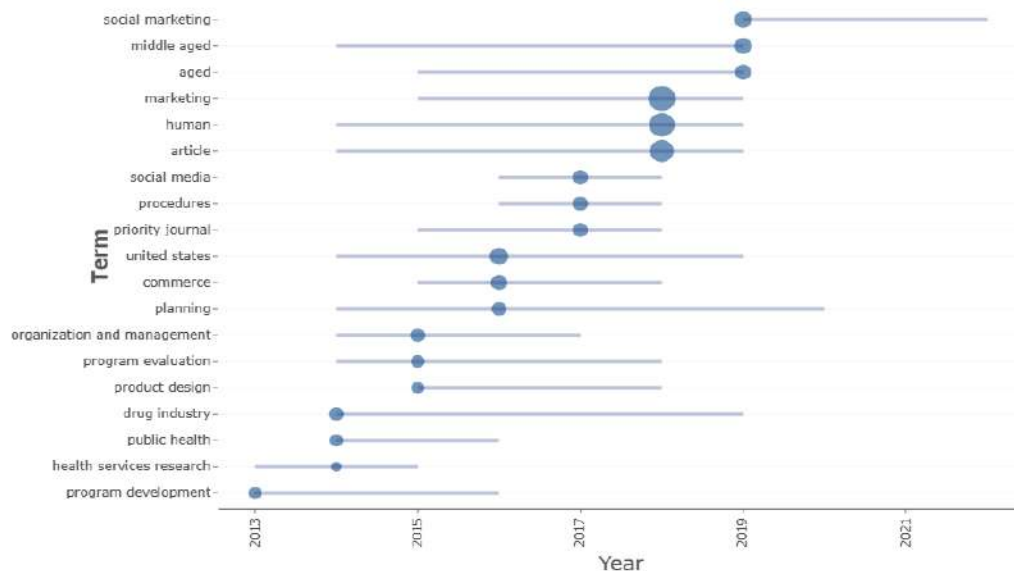


Figure 9: The Trend Topic

Word dynamic

The dataset claims that word dynamics demonstrate how words alter over time. The presentation can also be determined by adding up the leading keywords, the author's keywords, the title, or the abstract. Based on the total number of occurrences each year, both approaches are used. Figure 10 depicts the growth of the top keywords based on the total number of occurrences each year in the field of marketing planning research from 2013 through 2022. Statistics in Figures 10 and 11 demonstrate that several significant keywords began to noticeably increase in 2013 and have continued to do so ever since. The use of dynamic keywords like "marketing," "human," and "female" has clearly increased from 2013 to 2022, according to an analysis of "word dynamic" data. These findings are consistent with many other analyses, including the "trend topic" and "word cloud" analyses. This discovery also explains the selection of phrases as significant and time-trending.

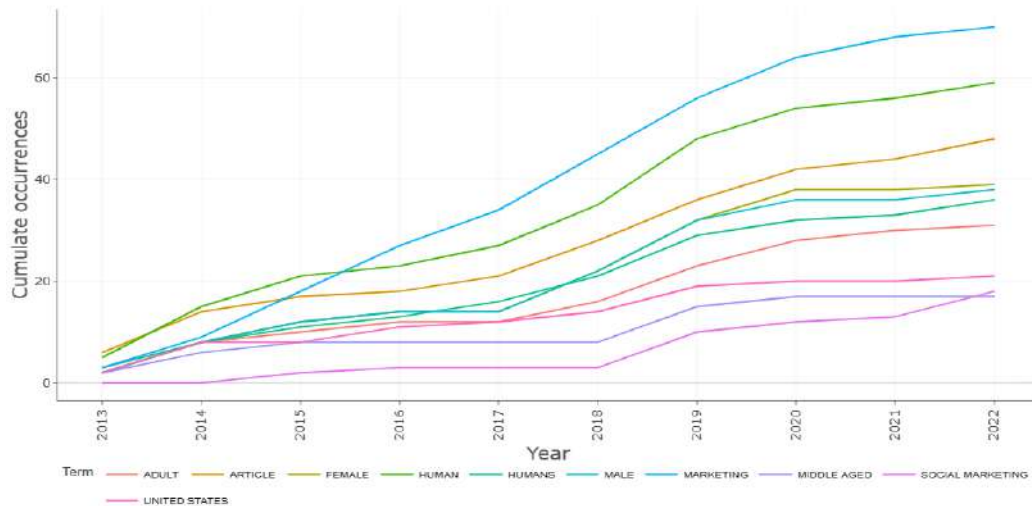


Figure 10: The word dynamic (2013-2022)



Figure 11: The word cloud

Tree map

The nodes of a tree diagram are displayed as layered rectangles in tree maps, which are a graphical representation of hierarchical data (Lockhart, 2021). They are made up of several stacked, proportionately sized rectangles. In a data tree, a large rectangle denotes a branch, and smaller rectangles display the size of each node within that branch. The top 50 words based on keyword plus, the author's keywords, the title (bigrams), and the abstract (trigrams) are represented in various tree maps in Figure 12 respectively. The nodes of a tree diagram are displayed as layered rectangles in tree maps, which are a graphical representation of hierarchical data (Lockhart, 2021). They are made up of several stacked, proportionately sized rectangles. In a data tree, a large rectangle denotes a branch, and smaller rectangles display the

size of each node within that branch. The top 50 words based on keyword plus, the author's keywords, the title (bigrams), and the abstract (trigrams) are represented in various tree maps in Figure 12 respectively.



Figure 12. The Tree Map

CONCLUSION

The goal of the study was to ascertain how marketing planning research would develop between 2013 and 2020. The 326 documents consulted for this study show a yearly increase in marketing planning-related research. Regarding the authors, Bryant et al. (2014), who frequently conduct research while planning a marketing strategy. They conducted continuous research in marketing planning because they have justified that marketing planning is critical for every business's success as it offers a road map for reaching organizations' goals and objectives. The marketing planning research must be continuously improved because there appears to be a lack of studies in marketing planning research due to rapid changes in the marketing landscape and organizations have practical challenges in studying planning processes (Kotler, Keller, Ang, Tan & Leong, 2018; Boone, Kurtz & Berston, 2019).

REFERENCES

- Adomavičiūtė, K. (2016). *The influence of consumer morality factors on consumer decision to donate to charity or to buy cause-related product* (Doctoral dissertation, Vilniaus universitetas).
- Agarwal, S., Ben-David, I., & Yao, V. (2017). Systematic mistakes in the mortgage market and lack of financial sophistication. *Journal of Financial Economics*, 123(1), 42-58.
- Ahlgren, P., Jarneving, B., & Rousseau, R. (2003). Requirements for a cocitation similarity

- measure, with special reference to Pearson's correlation coefficient. *Journal of the American Society for Information Science and Technology*, 54(6), 550-560.
- Akbar, M. B., Foote, L., Soraghan, C., Millard, R., & Spotswood, F. (2021). What causes social marketing programs to fail? A qualitative study. *Social Marketing Quarterly*, 27(2), 99-116.
- Akbar, M. B., Garnelo-Gomez, I., Ndupu, L., Barnes, E., & Foster, C. (2022). An analysis of social marketing practice: Factors associated with success. *Health marketing quarterly*, 39(4), 356-376.
- Biroscak, B. J., Schneider, T., Martinez Tyson, D., Aguado Loi, C. X., & Bryant, C. A. (2018). Applying tools from human-centered design to social marketing planning. *Social Marketing Quarterly*, 24(2), 63-73.
- Bolaños, F. (2022). Mapping the Trending Topics of Bibliometric-enhanced Information Retrieval. *CEUR Workshop Proceedings*, 3230, 61–70.
- Boone, L. E., Kurtz, D. L., & Berston, S. (2019). *Contemporary business*. John Wiley & Sons.
- Bolaños, F. (2022). Mapping the Trending Topics of Bibliometric-enhanced Information Retrieval. In *CEUR Workshop Proc* (Vol. 3230, pp. 61-70).
- Börner, K., Chen, C. M., & Boyack K. (2003). Visualizing Knowledge Domains. In: B. Cronin (Ed.), *Annual Review of Information Science & Technology*, 37, Medford, NJ: Information Today, Inc./American Society for Information Science and Technology, chapter 5, 179-255.
- Boyack, K. W., Klavans, R., & Börner, K. (2005). Mapping the backbone of science. *Scientometrics*, 64, 351-374.
- Bruhn, M., Karlan, D., & Schoar, A. (2018). The impact of consulting services on small and medium enterprises: Evidence from a randomized trial in Mexico. *Journal of Political Economy*, 126(2), 635-687.
- Bryant, C. A., Courtney, A. H., McDermott, R. J., Lindenberger, J. H., Swanson, M. A., Mayer, A. B., Panzera, A. D., Khaliq, M., Schneider, T., Wright, A. P., Lefebvre, R. C., & Biroscak, B. J. (2014). Community-based prevention marketing for policy development: A new planning framework for coalitions. *Social Marketing Quarterly*, 20(4), 219-246.
- Bryson, J. R., & Daniels, P. W. (Eds.). (2015). *Handbook of service business: Management, marketing, innovation and internationalisation*. Edward Elgar Publishing.
- Burton, S. (2015), *Marketing 9th Edition*, The Ultimate Resources of Marketing Professionals. Personal Higher Education AU.
- Cano, J. A., Londoño-Pineda, A., Castro, M. F., Paz, H. B., Rodas, C., & Arias, T. (2022). A Bibliometric Analysis and Systematic Review on E-Marketplaces, Open Innovation, and Sustainability. *Sustainability*, 14(9), 5456.
- Chen, D., Liu, Z., Luo, Z., Webber, M., & Chen, J. (2016). Bibliometric and visualized analysis of emergent research. *Ecological Engineering*, 90, 285-293.
- Chen, X., Lun, Y., Yan, J., Hao, T., & Weng, H. (2019). Discovering thematic change and evolution of utilizing social media for healthcare research. *BMC Medical Informatics and Decision Making*, 19(Suppl 2). <https://doi.org/10.1186/s12911-019-0757-4>
- Cimperman, M., Brenčič, M. M., Trkman, P., & Stanonik, M. D. L. (2013). Older adults' perceptions of home telehealth services. *Telemedicine and e-Health*, 19(10), 786-790.
- Cobo, M. J., López-Herrera, A. G., Herrera-Viedma, E., & Herrera, F. (2011). An approach for detecting, quantifying, and visualizing the evolution of a research field: A practical application to the Fuzzy Sets Theory field. *Journal of informetrics*, 5(1), 146-166.
- Cohen, A. M., Hersh, W. R., Dubay, C., & Spackman, K. (2005). Using co-occurrence network structure to extract synonymous gene and protein names from MEDLINE abstracts. *BMC Bioinformatics*, 6, 1–15. <https://doi.org/10.1186/1471-2105-6-103>
- De Mauro, A., Greco, M., & Grimaldi, M. (2016). A formal definition of Big Data based on its

- essential features. *Library Review*, 65(3), 122–135. <https://doi.org/10.1108/LR-06-2015-0061>
- Donthu, N., Kumar, S., & Pandey, N. (2021). A retrospective evaluation of Marketing Intelligence and Planning: 1983–2019. *Marketing Intelligence & Planning*, 39(1), 48-73.
- Douglas, S. P., & Craig, C. S. (2011). Convergence and divergence: Developing a semiglobal marketing strategy. *Journal of International Marketing*, 19(1), 82-101.
- Dr. Joe F. Hair Jr (2012) Marketing Research, Mc Graw Hill, 6th edition, University of South Alabama U.S.A
- Dwivedi, P., Khanna, M., Sharma, A., & Susaeta, A. (2016). Efficacy of carbon and bioenergy markets in mitigating carbon emissions on reforested lands: A case study from Southern United States. *Forest Policy and Economics*, 67, 1-9.
- Eagle, L., Czarnecka, B., Dahl, S., & Lloyd, J. (2020). *Marketing communications*. Routledge.
- Egghe, L. (2006). Theory and practise of the g-index. *Scientometrics*, 69(1), 131–152. <https://doi.org/10.1007/s11192-006-0144-7>
- Fahimifar, S., Mousavi, K., Mozaffari, F., & Ausloos, M. (2022). Identification of the most important external features of highly cited scholarly papers through 3 (i.e., Ridge, Lasso, and Boruta) feature selection data mining methods: Identification of the most important external features of highly cited scholarly pape. *Quality and Quantity*, 3(0123456789). <https://doi.org/10.1007/s11135-022-01480-z>
- Fairthorne, R. A. (2005). Empirical hyperbolic distributions (Bradford-Zipf-Mandelbrot) for bibliometric description and prediction. *Journal of documentation*, 61(2), 171-193.
- Faruk, M., Rahman, M., & Hasan, S. (2021). How digital marketing evolved over time: A bibliometric analysis on scopus database. *Heliyon*, 7(12).
- Friedman, A. (2015). The Power of Lotka’s Law Through the Eyes of R. *Romanian Statistical Review*, 2, 69–77.
- Garfield, E. (1980). Is information retrieval in the arts and humanities inherently different from that in science? The effect that ISI®'s citation index for the arts and humanities is expected to have on future scholarship. *The Library Quarterly*, 50(1), 40-57.
- Giroto, M., Moro, M., & Irurita, A. M. A. (2022). Roles and Implications of Marketing Communications in Retail Settings: A Systematic Review. *Advances in National Brand and Private Label Marketing*, 173-199.
- Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the Academy of Marketing Science*, 40, 414-433.
- Hall, C. M. (2013). *Wine, food, and tourism marketing*. Routledge.
- Hassan, A., & Sharma, A. (Eds.). (2018). *Tourism Events in Asia: Marketing and Development*. Routledge.
- He, J., Chen, H., Chen, Y., Tang, X., & Zou, Y. (2019). Diverse visualization techniques and methods of moving-object-trajectory data: A review. *ISPRS International Journal of Geo-Information*, 8(2), 63.
- Hirsch, J. E. (2005). An index to quantify an individual's scientific research output. *Proceedings of the National academy of Sciences*, 102(46), 16569-16572.
- Hsu, C. L., Lin, C. C. J., & Chiang, H. S. (2013). The effects of blogger recommendations on customers’ online shopping intentions. *Internet Research*, 23(1), 69-88.
- Huang, M. H., & Rust, R. T. (2021). A strategic framework for artificial intelligence in marketing. *Journal of the Academy of Marketing Science*, 49, 30-50.
- Industrial Goods in International Markets” Cranfield Institute of Technology PhD Kenneth R. Deans (2015) Marketing BSc. La Rochelle Business Scholl
- Kajackaite, A., & Gneezy, U. (2017). Incentives and cheating. *Games and Economic Behavior*, 102, 433-444.

- Kelly, J., Sadeghieh, T., & Adeli, K. (2014). Peer review in scientific publications: benefits, critiques, & a survival guide. *Ejifcc*, 25(3), 227.
- Khayame, H. A., & Abdeljawad, M. M. (2020). Systems thinking in upstream social marketing: Using soft systems methodology to improve midwifery policy in Jordan. *Social Marketing Quarterly*, 26(2), 167-183.
- Kitsios, F., Mitsopoulou, E., Moustaka, E., & Kamariotou, M. (2022). User-generated content in social media: A twenty-year bibliometric analysis in hospitality. *Information*, 13(12), 574.
- Kotler, P., Keller, K. L., Ang, S. H., Tan, C. T., & Leong, S. M. (2018). *Marketing management: an Asian perspective*. London: Pearson.
- Kotler, P., & Lee, N. (2008). *Social marketing: Influencing behaviors for good*. Sage.
- Kotler, P., & Armstrong, G. M. (2010). *Principles of marketing*. Pearson Education India.
- Kollatt D.T. et al (1972) "Strategic Marketing" Holt, Reinhart, and Winston
- Kumar, S., Spais, G. S., Kumar, D., & Sureka, R. (2020). A bibliometric history of the journal of promotion management (1992–2019). *Journal of Promotion Management*, 26(1), 97-120.
- Lai, K. H., Zha, D., Xu, J., Zhao, Y., Wang, G., & Hu, X. (2021, June). Revisiting time series outlier detection: Definitions and benchmarks. In *Thirty-fifth conference on neural information processing systems datasets and benchmarks track (round 1)*.
- Lamb, C. W., Hair, J. F., & McDaniel, C. (2012). *Marketing*. Cengage Learning.
- Lee, N. R., & Kotler, P. (2015). *Social marketing: Changing behaviors for good*. Sage Publications.
- Leppard, J., & McDonald, M. (1987). A re-appraisal of the role of marketing planning. *Journal of Marketing Management*, 3(2), 159-171.
- Liu, Y., & Lopez, R. A. (2016). The impact of social media conversations on consumer brand choices. *Marketing Letters*, 27, 1-13.
- Lockhart, L. (2021). Automating assessment of human embryo images and time-lapse sequences for IVF treatment.
- Lopes, J. M., Laurett, R., Antunes, H., & Oliveira, J. (2021). Entrepreneurial marketing: a bibliometric analysis of the second decade of the 21st century and future agenda. *Journal of Research in Marketing and Entrepreneurship*, 23(2), 295-317.
- Madli, F., Sondoh, S., Totu, A., Ramayah, T., Janin, Y., Annuar, S. N. S., & Cham, T. H. (2023). Modelling organ donation information adoption among Malaysian youth using the information adoption model (IAM). *International Journal of Pharmaceutical and Healthcare Marketing*, (ahead-of-print).
- Madli, F., Sondoh Jr, S. L., Totu, A., & Annuar, S. N. S. (2019). Exploring the impact of religious belief for organ donation promotion through social media platform: a critical review. *Malaysian Journal of Business and Economics (MJBE)*, (1).
- Martínez, M. A., Herrera, M., Contreras, E., Ruíz, A., & Herrera-Viedma, E. (2015). Characterizing highly cited papers in Social Work through H-Classics. *Scientometrics*, 102(2), 1713–1729. <https://doi.org/10.1007/s11192-014-1460-y>
- Maucuer, R., Renaud, A., Ronteau, S., & Muzellec, L. (2022). What can we learn from marketers? A bibliometric analysis of the marketing literature on business model research. *Long Range Planning*, 55(5), 102219.
- Maz-Machado, A., Madrid, M. J., Jiménez-Fanjul, N., & León-Mantero, C. (2017). Empirical examination of Lotka's law for information science and library science. *Pakistan Journal of Information Management & Libraries (PJIM&L)*, 19, 37-51.
- McGonagle, A. K., Beatty, J. E., & Joffe, R. (2014). Coaching for workers with chronic illness: evaluating an intervention. *Journal of Occupational Health Psychology*, 19(3), 385.
- Morrison, A. M. (2013). *Marketing and managing tourism destinations*. Routledge.

- Page, S. J., & Getz, D. (2016). Event studies: Theory, research and policy for planned events.
- Park, T. (2015). Direct marketing and the structure of farm sales: An unconditional quantile regression approach. *Journal of Agricultural and Resource Economics*, 266-284.
- Paul, J., & Criado, A. R. (2020). The art of writing literature review: What do we know and what do we need to know? *International Business Review*, 29(4), 101717. <https://doi.org/10.1016/j.ibusrev.2020.101717>
- Rashid, S., Rehman, S. U., Ashiq, M., & Khattak, A. (2021). A scient metric analysis of forty-three years of research in social support in education (1977–2020). *Education Sciences*, 11(4). <https://doi.org/10.3390/educsci11040149>
- Rusydiana, A. S., & As-Salafiyah, A. (2021). Islamic Moral Economy: A Scientometric Using R. *Library Philosophy and Practice*, 2021.
- Sustacha, I., Baños-Pino, J. F., & del Valle, E. (2022). Research trends in technology in the context of smart destinations: a bibliometric analysis and network visualization. *Cuadernos de Gestión*, 22(1), 161-173.
- Tyagi, S., Choudhary, A., Cai, X., & Yang, K. (2015). Value stream mapping to reduce the lead-time of a product development process. *International Journal of Production Economics*, 160, 202-212.
- van Eck, N. J., & Waltman, L. (2021). Manual de VOSviewer. *Univeristeit Leiden*, July. http://www.vosviewer.com/documentation/Manual_VOSviewer_1.6.1.pdf
- Visser, M., van Eck, N. J., & Waltman, L. (2021). Large-scale comparison of bibliographic data sources: Scopus, web of science, dimensions, crossref, and microsoft academic. *Quantitative Science Studies*, 2(1), 20–41. https://doi.org/10.1162/qss_a_00112
- Weinstein, A. (2013). *Handbook of market segmentation: Strategic targeting for business and technology firms*. Routledge.
- Wilson, R. M. (2010). *Strategic marketing planning*. Routledge.
- Yardibi, F., Firat, M. Z., & Teke, C. E. (2021). Trend topics in animal science: A bibliometric analysis using CiteSpace. *Turkish Journal of Veterinary and Animal Sciences*, 45(5), 833–840. <https://doi.org/10.3906/VET-2001-103>

Organizational Reward System and Job Satisfaction among Non-Academic Staff at Universiti Malaysia Sabah

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ABSTRACT

The paper aims to investigate the relationship between intrinsic and extrinsic reward systems and job satisfaction among non-academic employees at the University of Malaysia Sabah. The researchers used survey questionnaires and secondary data to collect and gather information. The response rate was 51.4% (n=72), and the questionnaire was usable. The data were collected using a convenient sampling technique and analyzed using SPSS 23.0 and smart PLS (Partial Least Square) version 2.0. The result indicates that 0.615 (61.5%) of the variance in job satisfaction is explained by all the two constructs of intrinsic and extrinsic. There were three hypotheses tested. All hypotheses were strongly supported. The result shows that this organization's relationship between the reward system and job satisfaction is significant. The extrinsic reward system has the greatest influence on job satisfaction. Extrinsic rewards such as yearly bonuses can make the workers feel happy and motivate them to work harder in the future. Any organization should be more concerned with extrinsic reward systems such as salary, bonuses, and any outdoor activity that can show appreciation to the employees to boost their job satisfaction.

Keywords: Organizational Reward System, Extrinsic, Intrinsic, Job Satisfaction

INTRODUCTION

To improve employee satisfaction and productivity, an organizational reward system is vital in all business sectors nowadays, especially in public universities. Jehanzed and Bashir (2013) have mentioned that, for the organization to retain competent employees, the organization should highlight the satisfaction and retention of their employees. Most researchers investigate the relationship between intrinsic and extrinsic and highlight the influence on job satisfaction. For instance, a study conducted by Khairunadia (2015) among non-executive employees at

Kementerian Perdagangan Dalam Negeri Sarawak, Malaysia, shows that intrinsic and extrinsic reward systems are positively related to employee job satisfaction. Competitive business requires the employee to perform well in their job. Employees should understand the value of their benefits, but they are not competitive enough with similar organizations because they do not fully participate in reward development and initiative. A few types of research focus on the job satisfaction of university employees. According to Anantha Raj *et al.* (2013), universities are the centers for imparting higher learning education, an indispensable development cornerstone for any country and the world over. They are expected to seek new knowledge and provide the right kind of leadership in all works of life. Employees are the most important assets in organizations and greatly impact the organization's process and goal. Therefore, top management should be concerned about their job's needs and satisfaction. Job satisfaction may also build motivation and individual performance and reduce absenteeism and turnover. There are a lot of extrinsic factors that may affect job satisfaction. Studies by Harackiewicz and Manderlirk (1984) have shown that feedback alone can positively affect performance. However, other studies have shown that positive feedback can affect intrinsic motivation. Positive feedback, as a form of recognition, is found to be more effective during the task process than affect the task completion. Pritchard (1989) showed from their research results that better rewards such as monetary, recognition, or verbal feedback and satisfaction. The reward system is an ingredient of organizational productivity and success. Therefore, this paper investigates the influence of intrinsic and extrinsic reward systems on job satisfaction among non-academic employees at the University of Malaysia Sabah.

RESEARCH GAP

It is recognized that extrinsic factors ensure employees' satisfaction with their job. Bart Cambré Evelien Kippers Marc van, Veldhoven Hans De Witte (2012) proposes that from the perspective of human resources managers, there is also a positive relationship between status and job satisfaction. For instance, in the organization, the company gives the authority or empowerment to make decision-making. If the employees show good cooperation in their job, the manager feels a positive impact, including physical and psychological. A negative impact on this will lead to poor employee performance and high turnover. Employee performance will be reduced due to low job satisfaction. They will feel a lack of sense of belonging to the organization and reduce their motivation for the job. According to Mobley (1997), cited in Jehanzeb, Abu Bakar Abdul Hamid, & Rasheed (2015), employees who leave the organization are dissatisfied with their jobs compared to satisfied employees. A lack of budget will contribute to a poor reward system, especially for intrinsic rewards. Corruption may be one factor that impacts any country's reward system. It may lead to gender bias, self-serving bias, and fraud. Another review by Gomez-Mejia and Balkin (1992) contends that the old compensation model (with pay structures based on job analyses, descriptions, specifications, and classifications) is no longer effective in today's business environment. They conclude that modern organizations must align their reward system practices with their organizational strategy to achieve higher performance levels at both the individual and organizational levels. According to Sarwar and Abugre (2013), from 110 questionnaires, 104 respondents showed high employee dissatisfaction because of their pay and work.

LITERATURE REVIEW

A. Intrinsic Reward System

A reward system refers to the policies that provide guidelines on managing rewards, as they are practices that provide financial and non-financial rewards and processes concerned with evaluating the relative size of jobs and assessing individual performance (Chepkwony, 2014). She further stated that the reward system is concerned with formulating and implementing strategies and policies that reward people fairly and consistently following the organization's values. Intrinsic reward is one type of reward system that organizations should not overlook. An intrinsic reward does not involve direct payments and often arises from the work itself; for example, achievement, autonomy, the scope of use and development skills, training, career development opportunities, and high-quality leadership (Chepkwony, 2014). As stated by Mike (2001), an intrinsic reward is an award that is tangible or physically given to accomplish something. It is a tangible recognition of one's endeavor. According to Self-determination theory, intrinsic motivation is the prototype of autonomous motivation (Deci & Ryan, 1985). In general, a person is intrinsically motivated if she/he performs an activity for his/her benefit and obtains pleasure and satisfaction. Rewarding employees with such appreciation will boost their motivation and increase job satisfaction. Besides that, according to Stephan (2013), intrinsic rewards are based on employees getting a positive value experienced from doing their work. He also supported the idea that high intrinsic rewards may lessen the demand for more extrinsic rewards, reducing the organization's need to adjust salaries and benefits upwards to retain a quality workforce. A focus on an intrinsic reward highpoint that works can be its reward, contributing to a sense of growth, fulfillment, and empowerment. Therefore, an intrinsically motivated employee is working for his or her satisfaction and may value challenging work that he or she perceives to be meaningful to the organization (Molly, 2013).

B. Extrinsic Reward System

Extrinsic factors are important in employees' ability to compete and achieve organizational goals. Employees spend many hours in the workplace as they perform their jobs. It can be defined as external to the job and includes fringe benefits, pay, promotions, private office space, the social climate, and job security. Therefore, the organization must consider extrinsic factors to ensure employee job satisfaction. The employees should be satisfied with the salary they receive to increase their job satisfaction. Besides that, supervision also plays an important part in supervising each employee. The well-supervised employee will know their workflow as it helps to increase their motivation in doing those job tasks. This will eventually increase job satisfaction among them. The employee's status has become an important element that can affect job satisfaction among the employee. Status affects employee job satisfaction through the position in which it takes

part in the relationship of one person with another. Besides that, the employee should also be equipped with knowledge in their broad areas to ensure effectiveness in performing their job. Therefore, the organization should provide an effective development program for the employee in order to increase job satisfaction. Thus, effective salary management, excellent supervision, better employee development programs, and status are the factors that constantly affect employee job satisfaction, and how they can influence the level of job satisfaction among the employees should become an organization's most concerning issue.

C. Job Satisfaction

Bradley, Petrescu, and Simmons (2006) defined personal attitude toward work and a positive emotional situation as job satisfaction. This situation occurs when the employees meet their work and career expectations. Furthermore, Job satisfaction is the collection of feelings and beliefs people have about their current job. In addition to job satisfaction, people can also have attitudes about various aspects of their job, such as the kind of work they do, their coworkers, supervisors or subordinates, and their pay (George, 2008). Many empirical studies have shown that employee motivation and job satisfaction directly impact the job performed by employees at various organizational levels (Kiviniemi et al., 2011). Besides that, according to Lewis and Frank (2006), feeling good about the job performed, being in union with the organization's vision and mission, and having a state of mind is simplified as job satisfaction. Additionally, when a worker in a business organization brings together their needs, desires, and experiences, this will determine their missed expectations (Davis, 2005). Job satisfaction is a pleasurable feeling that results from the perception that one job fulfills or allows the fulfillment of one own job values (Steijin, 2002). Cavana, Delahaye, and Sekaran (2001) agree with this definition of job satisfaction. Job satisfaction is viewed as the pleasurable emotional state resulting from the perception of one job as the fulfillment of one important value, providing these values are compatible with one's needs. Other than that, organizational learning is also a vital element that can influence the satisfaction and performance of employees. As stated by Mojolou et al. (2022), organizational learning impacts employee performance in the airline industry of Malaysia. Many studies conducted on job satisfaction have shown a direct impact on the job performed by employees at various organizational levels. Job satisfaction is a pleasurable feeling resulting from the perception that one's job fulfills and allows the fulfillment of one's job values.

D. Conceptual Framework

The study considers the reward system as the independent variable. The Reward system includes intrinsic reward and extrinsic reward. Intrinsic rewards comprise praise, freedom of judgment, the chance to do something, a certificate of achievement, and positive feedback. At the same time, extrinsic rewards comprise salary, overtime pay, fringe benefits, career promotion, annual dinner, and outdoor activity. Job satisfaction is the dependent variable: working environment, enjoyment, strategic direction, and relationship with co-coworker.

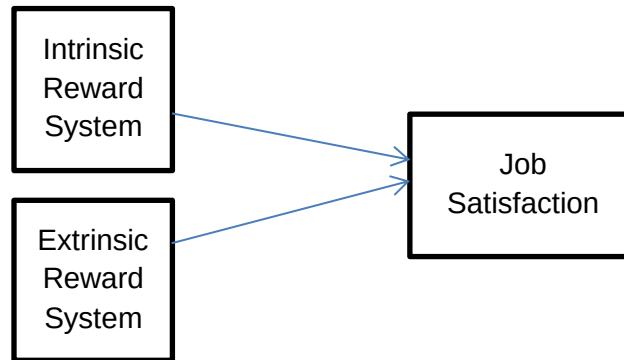


Figure 1: The relationship between the reward system and job satisfaction

RESEARCH METHODOLOGY

The study uses a descriptive research technique. Descriptive studies describe subject opinions, attitudes, and perceptions of people of interest to the researchers. Descriptive studies aim to obtain information from a representative population, and the researcher can generalize the findings to a larger population. The target respondents of the study are the non-academic staff at the University of Malaysia Sabah. The researchers used a questionnaire to collect the required data. The questionnaire includes demographic background, intrinsic and extrinsic reward system, and job satisfaction. A five-point Likert scale has been used in the instrument to measure reward systems and job satisfaction. The reward system's item is adapted from Payam, Akram, and Majid (2013) and job satisfaction by Khalizani, Hanisah, and Siew (2011). Sixty questionnaires and 80 online surveys were distributed in this university's selected departments: the Library Unit, Centre of Postgraduate Student, Centre for Research and Innovation, and Borneo Marine Research Institute of UMS. The response rate was 72 (51.4%), and all questionnaires returned were useable. The data were collected using a convenient sampling technique and analyzed using SPSS 23.0 and smart PLS (Partial Least Square) version 2.0 program. The researchers conduct reliability, factor analysis, Pearson correlation, and multiple regression analysis to answer all the research objectives. There were three hypotheses tested.

FINDING AND DISCUSSION

Normality and Reliability test

The researchers conduct a normality test by looking at the skewness and kurtosis values. The data was found to be normal according to the value suggested by Sekaran and Bougie (2013). No outlier was found in the data. The data was reliable based on Cronbach's alpha value. The Cronbach's alpha value for the extrinsic reward system was 0.75, the Intrinsic reward system was 0.89, and Job satisfaction was 0.88. All the values are reliable within the range Nunnally (1978) suggested.

Demographic Background

Table 1: Gender (n=72)

Gender	Frequency		Percentage
Male	44		61.1
Female	28		38.9
Total	72		100

Table 1 shows the gender of the respondents. Of the 72 respondents, 44 were male, and females represented 28. Male respondents are more than females.

Table 2: Job Status (n=72)

Job Status	Frequency	Percentage
Full Time	67	93.1
Part-Time	5	6.9
Total	72	100

Table 2 shows the job status of the respondents. Most respondents are full-time workers, 67 respondents, and only five are part-time.

Table 3: Working Experience (n=72)

Working Experience	Frequency	Percentage
Less than one year	10	13.9
2-5 years	23	31.9
6-10 years	25	34.7
11-20 years	10	13.9
More than 20 years	4	5.6

Table 3 shows the working experience of the respondents. The highest frequency is 6-10, 25 respondents, followed by 2-5, 23 respondents. Respondents with less than ten years and 11 to 20 years of experience account for about 13.9%, and only four have worked more than 20 years.

Table 4: The Influence of Reward System on Job Satisfaction

	Cronbach's Alpha	AVE	R Square
Extrinsic	0.745	0.494	
Intrinsic	0.885	0.591	
Job Satisfaction	0.883	0.591	0.615

H1: Reward System Significantly Influence Job Satisfaction.

Table 4 shows the influence of the reward system on job performance among non-academic staff at UMS. The result indicates that 0.615 (61.5%) of the variance in job satisfaction is explained by all the two constructs of intrinsic and extrinsic. Based on the result, H1 was supported. According to Lewis and Frank (2006), feeling good about the job performed, being in union with the organization's vision and mission, and a state of mind is simplified as job satisfaction. This result is supported by (Wang & Feng, 2003) stated that the higher the job satisfaction, the more likely worker would hold a positive attitude toward their jobs.

Table 5: Results of Direct Relationship

	Std. Beta	Std. Deviation	t- value	Result
Extrinsic-> Job Satisfaction	0.483	0.110	4.385**	Supported
Intrinsic -> Job Satisfaction	0.370	0.133	2.767**	Supported

H2: There is a Relationship between the Extrinsic Reward System and Job Satisfaction.

H3: There is a Relationship between the Intrinsic Reward System and Job Satisfaction.

The findings in Table 5 suggested that hypotheses 2 and 3 were supported. For H2, the relationship between the extrinsic reward system and job satisfaction was significant, with $\beta=0.483$ and $t=4.385$, indicating that the extrinsic reward system has a direct relationship with job satisfaction. For H3, the relationship between the intrinsic reward system and job satisfaction was significant, with $\beta=0.370$ and $t=2.767$. This result was supported by Nor Izwanilee (2015), who states that the reward system element that has a greater influence on employee job satisfaction is extrinsic reward. It encourages a positive attitude toward work and will generate more creative output and job satisfaction. According to Peggy Olsen (2012), extrinsic rewards are physical benefits to motivate employees and reinforce performance and behavior. She further stated that extrinsic rewards such as yearly bonuses can make the workers feel happy and motivate them to work harder. It is important to give workers extrinsic rewards such as bonuses, promotions, and good salaries to motivate them to perform their jobs. This will lead to better job satisfaction among the non-academic staff in this organization.

Table 6: Summary of Hypothesis Results

	Hypothesis	Result
H1	Reward systems significantly influence job satisfaction	Strongly Supported
H2	There is a relationship between extrinsic reward and job satisfaction	Strongly Supported
H3	There is a relationship between intrinsic reward and job satisfaction	Strongly Supported

RECOMMENDATIONS

This study will give any organization awareness that they should be more concerned with extrinsic reward systems such as salary, bonuses, and any outdoor activity that can motivate employees to boost their job satisfaction and increase their corporate profits. Top management should design an effective reward system that can give employees satisfaction because it will motivate them. A good reward system will motivate people to work harder and increase production. Employees should understand the value of their benefits and work harder to feel a sense of belonging to the organization. Giving the two reward systems more often is recommended to impact the organization positively.

For future research, this study should focus on academicians in universities because they hugely impact the learning process. The study also should look at the moderating or mediating factors such as gender or organizational culture. Finally, the study should be expanded to service industries such as banking, insurance, and transportation. It is recommended that future researchers adapt other related theories of reward systems, such as expectancy theory, equity theory, reinforcement theory, or two-factor theory, to learn better about this field.

CONCLUSION

In conclusion, this study found a significant relationship between the reward system and job satisfaction. Extrinsic and intrinsic reward systems prove that these variables greatly impact the employees, especially working productivity. Any organization in this country should apply the appropriate reward system to enhance their employee's job satisfaction. The reward system, such as salary and bonuses, is very suitable because the employees prefer a useful reward in their daily lives. They feel more motivated if given extrinsic rewards, which can directly increase their job performance. The organization's success depends on its worker's commitment and productivity. A reward system will be a good ingredient in helping the organization achieve its goal and mission.

REFERENCES

- Allen, S. R. and Kilmann, H. R. (2001). The Role of the Reward System for a Total Quality Management-based Strategy. *Journal of Organizational Change Management*, 14 (2): 110-131.
- Anantha Raj. A, Huam Hon Tat and Abdul Ghani Kanesan bin Abdullah (2013). The Effect of Reward System and Motivation on Job Satisfaction: Evidence from the Education Industry in Malaysia. *World Applied Science Journal*, 24 (12), 1597–1604.
- Bart Cambré Evelien Kippers Marc Van Veldhoven Hans De Witte. (2012). Jobs and Organizations, *Personnel Review*. 41 (2): 200 – 215.
- Bradley, S., A. Petrescu & Simmons, R. (2006). The Impact of Human Management Practices and Pay Inequality on Workers' Job Satisfaction. *Paper Presented at the Western Economic Association 9th Annual Conference Vancouver*.
- Cavana, R. B., Delahaye and Sekaran, U. (2001). *Applied Business Research*. Qualitative and Quantitative Methods. New York, NY: John Wiley and Sons.
- Chepkwony, C. C. (2014). The Relationship between Rewards Systems and Job Satisfaction: A Case Study at Teacher Service Commission-Kenya. *European Journal of Business and Social Science*, 3(1), 59-70
- Davis, G. F. (2005). Firm and Environments. N. Smelser, R. Swedberg. Eds. *Handbook of Economic Sociology*. 2nd ed. Russell Sage/ Princeton University Press, Princeton, NJ: pp. 478–502.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic Motivation and Self-determination in Human Behavior*. New York: Plenum.
- Garcia-Chas, R., Neira-Fontela, E. and Varela-Neira, C. (2016). High-Performance Work Systems and Job Satisfaction: A Multilevel Model. *Journal of Managerial Psychology*, 31 (2): 451-466.
- George, J. M. (2008). *Understanding and Managing Organizational Behaviour*. 5th ed, Pearson/Prentice Hall.
- Gomez-Mejia, L. R. and Balkin, D. B. (1992). *Compensation Organizational Strategy and Firm Performance*. Cincinnati: South-Western.
- Harackiewicz, J. M., and Manderlink, G. (1984). A Process Analysis of the Effects of Performance-Contingent Rewards on Intrinsic Motivation. *Journal of Experimental Social Psychology*, 20, 531-551.
- Jehanzeb, K., Abu Bakar Abdul Hamid, & Anwar Rasheed. (2015). What is the role of training and job satisfaction in turnover intentions? *International Business Research*, 8(3): 208–220.
- Kiviniemi, M. T., Snyder, M. and A. M. Omoto. (2011). Too Many of a Good Thing? The Effect of Multiple Motivation on Stress, Costs Fulfillment and Satisfaction. *Personality and Social Psychology Bulletin*, 28: 732-743.
- Lewis, G. B., & Frank, S. A. (2006). Who Wants to Work for the Government? *Public Administration Review*. 62 (4): 395-404.
- Mike, W. (2001). The Changing Distribution of Job Satisfaction. *The Journal of Human Resource*, p. 36.

- Mobley, W. H. (1997). Intermediate Linkages in the Relationship Between Job Satisfaction and Employee Turnover. *Journal of Applied Psychology*, 62: pp. 237–240.
- Molly, J. C. (2013). Models of Morality. *Trends in Cognitive Sciences*, 17 (8): 363–366.
- Nor Izwanilee Binti Mohd Izwan Lee. (2015). *Organizational Reward System as a Contributor to Employee's Job Satisfaction among Non-Executive Employees at Jabatan Kerja Raya, Kota Samarahan*. Universiti Teknologi Mara.
- Nunnally, J. C. (1978). *Psychometric Theory*. 2nd ed. New York: McGraw-Hill.
- Pritchard, R. D. (1989). *Enhancing Work Motivation Through Productivity Measurement and Feedback*. In U. Kleinbeck, H. Thierry, H. Hacker, and H. H. Quast (Eds). *Work Motivation*, pp. 119–132. Hillsdale, NJ: Lawrence Erlbaum.
- Sarwar, S. and Aburge, J. (2013). The Influence of Rewards and Job Satisfaction on Employees in the Service Industry. *The Business and Management Review*, 3 (2):23.
- Sejjaaka, K. S. and Kaawaase, K. T. (2014). Professionalism, Rewards, Job Satisfaction and Organizational Commitment amongst Accounting Professionals in Uganda. *Journal of Accounting in Emerging Economies*, 4 (2): 134-157.
- Sekaran, U. and Bougie, R. (2013). *Research Methods for Business: A Skill-Building Approach*. 6th ed, Wiley: New York.
- Serena Akhtar, Md. Zia Uddin and Muhammad Kamruzzaman Sachu (2013). The Impact of Reward on Job Satisfaction and Employee's Performance in Bangladesh: A Comparative Analysis between Pharmaceutical and Insurance Industry. *International Journal of Business and Management Invention*. 2 (8), 1–8.
- Siti Khairunadia Binti Ab Nasir. (2015). *Organizational Reward System as a Contributor to Employees Job Satisfaction among Non-Executives Employees at Kementerian Perdagangan Dalam Negeri, Koperasi dan Kepenggunaan in Kuching, Sarawak*. Universiti Teknologi Mara.
- Steijn, B. (2002). HRM and Job Satisfaction in the Dutch Public Sector. *Paper Presented at the EGPA Conference in Potsdam*, Study Group on Public Personnel Policies.
- Stephan, A. (2013). Employee and Change Initiative: Intrinsic Rewards and Feeling Valued. Retrieve from <http://www.60.homepage.villanova.edu/steve.stumpf/bio.ml>
- Wang, H.M. and Feng, W.W. (2003). "Review on Employee Job Satisfaction." *Commercial Research, China*, 9: 43-5.

Assessing Brand Switching Patterns of Malaysian Pepper Exports

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ABSTRACT

This study provides an analysis of the competitive dynamics of pepper exports, focusing on key rival exporting countries: Malaysia, Indonesia, and Vietnam. The research encompasses vital export markets, including China and the USA, employing a structured brand-switching framework to identify shifts in consumer preferences for analogous products and brands. The brand-switching study operates under the assumption of consistent market dimensions throughout the study, where every customer transaction involves exposure to the complete array of evaluated products with a uniform transaction quantity. The forthcoming analysis aims to explore brand competitiveness in specific market contexts, acknowledging the term ‘brand’ to encompass exporting countries, in line with international trade conventions regarding pepper products. The research delves into two distinct forms of pepper products sourced from the *Piper* genus: neither crushed nor ground pepper (HS090411) and crushed or ground pepper (HS090412). These types wield significant influence in global trade. Furthermore, it presents a comprehensive overview spanning the entire temporal span from 2001 to 2018, enhancing the depth of analytical insights. For Malaysia to maintain its global competitiveness, it is imperative to minimize brand switching. Achieving this necessitates the implementation of a robust marketing strategy for pepper products, encompassing assertive publicity efforts and active participation in international trade shows.

Keywords: brand-switching, pepper, competitive dynamics, export markets, international trade

INTRODUCTION

The historical association between Sarawak, a region within Borneo Island in Malaysia, and pepper cultivation spans over a century (Fischer, 2018). The cultivation of pepper in this locale has roots dating back to 1619 when it commenced in Langkawi. The

Chinese Teochew introduced pepper cultivation to Sarawak in 1852, and its systematic development occurred under the governance of Rajah Charles Brooke in 1875. In conjunction with paddy and rubber, the local populace of Sarawak embraced pepper cultivation, evolving it into a significant spice source within Malaysia. Presently, Sarawak maintains its leading position as the primary state for pepper production, contributing approximately 90% to the nation's overall output.

While Johor and Sabah engage in pepper cultivation to a limited extent, their production volumes remain relatively modest. Typically, smallholders in impoverished rural areas undertake pepper planting. In Sarawak, pepper stands as the primary cash crop, supporting around 74,710 households actively engaged in this sector, as reported by the Department of Agriculture in 2005. These pepper farmers have refined their cultivation practices over an extended period, predominantly relying on chemical inputs, as detailed by Khalid et al. (2009).

Malaysia has historically played a crucial role as a trading nation, involved in the import and export of commodities to global markets. Although agriculture no longer occupies a central role in the Malaysian economy compared to the manufacturing and service sectors, it remains a pivotal component, contributing significantly to the nation's Gross Domestic Product (GDP) with an annual contribution of 8%. Substantial quantities of agricultural products are exported to international markets, serving as a vital source of revenue for the country.

LITERATURE REVIEW

As delineated by the Cambridge Dictionary (2023), brand switching denotes the act of transitioning from purchasing one product brand to acquiring another. Sampaothong (2016) asserts that brand switching can be systematically analyzed through computer software, aiming to identify trends where: 1) the sales of one brand increase while those of another decrease over a specified number of consecutive periods, and 2) the sales variation between the two brands in each pair falls below a predetermined threshold value (Wakio et al., 2004).

Shinoj and Mathur (2008) characterize brand switching analysis as a quantitative technique to discern changes in the consumer base of products and brands within comparable product categories. This analytical approach emphasizes the detection of market share patterns to assess the competitive standing of various rivals in each sector (Michaelidou and Dibb, 2009). The principles outlined by Karani and Fraccastoro (2010) for brand-switching analysis mirror those mentioned earlier, underscoring its somewhat limited scope as a research method. Nevertheless, this approach proves insightful in uncovering product tastes and behavioral modifications within a specific set of consumers (Sonthaya, 2016).

The exploration of brand switching is frequently utilized to analyze consumer habits regarding a particular product. Bayus (1992), for instance, investigated brand loyalty and marketing strategy for four major home appliances. The findings demonstrated the efficacy of brand switching studies in determining a company's relative competitive position within primary customer markets. Cornelius et al. (2015) delved into switching rates within and between brand families, elucidating factors associated with brand and

brand style switching among smokers in the USA. Their study highlighted the significance of age, cost, and cigarette type in influencing brand switching. Indah and Elia (2018) examined the consumer behaviour of Generation Y smartphone users, revealing that lifestyle and a quest for variety could heighten brand switching tendencies. Furthermore, the study demonstrated that consumer confidence in a specific brand did not significantly reduce the inclination to switch, and advertising failed to significantly influence brand switching desires.

Beyond consumer behaviour, brand switching analysis proves valuable in scrutinizing export patterns, offering insights into market share and trade directions. Sampaothong et al. (2016) exemplified this utility by studying the brand switching dynamics of Thai and Vietnamese rice exports to China between 1995 and 2012. The investigation disclosed a decline in Thailand's market share of rice exports to China, contrasting with the stable market share of Vietnamese rice. Factors contributing to the latter's robust market share included increased output, lower production costs, farm support programs, competitive pricing, strategic marketing, and overseas rice storage.

This study employs Brand-Switching Analysis (BSA), extending its application from product items to countries viewed as product brands. The focus is on Malaysia and its competitor countries, conceptualized as brands exporting pepper to importing countries. The investigation of pepper as a commodity entails an examination of how brand switching in export destinations, such as China and the United States, could influence the competitiveness of Malaysian exports. The foundational principles guiding brand switching studies stipulate that market share remains constant throughout the analysis period, all consumers are exposed to all evaluated products each time they make a purchase, and each customer consistently acquires a fixed quantity of the product (Theil and Rey, 1966; Sampaothong, 2016).

MATERIALS AND METHODS

Source of Data

The present analysis utilizes secondary source data on pepper (HS060411 – Pepper of the genus *Piper*, neither crushed nor ground and HS090412 - Pepper of the genus *Piper*, crushed or ground) extracted from the UN COMTRADE database. Specifically, the focus was on export data concerning pepper from Malaysia, Indonesia, and Vietnam to China and the USA markets, covering the timeframe from 2001 to 2018.

Brand-Switching Analysis

Brand-switching analysis, introduced by Theil and Rey in 1966, is a methodological approach used to understand shifts in consumer preferences for products and brands within a similar product category (MM4XL, 2010). Identifying brand switching involves employing computer software to analyse patterns where over a specified number of consecutive periods, one brand's sales increase while another brand's sales decline. Additionally, the two brands in each identified pair must exhibit a sales difference below a predetermined threshold value (Wakio et al., 2004).

RESULTS AND DISCUSSION

Retention (Loyalty) and Switching Rates of HS090411 in China and the USA

The transitional probability matrix of exports from Malaysia, Indonesia, and Vietnam to the China market is presented in Table 1. *Diagonal values (retention or loyalty rates)* show that Others had the highest retention rate of 75.6% slightly greater than Malaysia which retained 72.1% followed by Indonesia's 64.2%. Vietnam retained 48% in the same period. *Row values (switch-to rates, outgoing sales)* show that Malaysia lost 17.9% to Indonesia, 10% to Vietnam and a zero percentage switching to Others. Most of Indonesia's share or 24.6% went to Malaysia, and zero percentage switching to Vietnam, however 11.2% went to Others. For Vietnam, 31.3% went to Malaysia but no percentage switched to Indonesia and 20.7% went to Others. Furthermore, 23.5% of Others went to Malaysia with zero percentage going to Indonesia nonetheless only 0.9% went to Vietnam's shares. Finally, *column values (switch-from rates, incoming sales)* display that Malaysia gained 24.6% from Indonesia, 31.3% from Vietnam and 23.5% from Others. Whereas Indonesia got its shares of 17.9% from Malaysia, and a zero percentage from both Vietnam and Others. Additionally, Vietnam received 10% from Malaysia, but a zero percentage from Indonesia though a very small percentage of 0.9% from Others. Lastly, zero percentage from Malaysia was acquired by Others, but 11.2% and 20.7% were gained from Indonesia and Vietnam, respectively.

As in Table 2, *Diagonal values (retention or loyalty rates)* show that Vietnam had the highest retention rate of 85.1% and Malaysia's retention rate was 29.5% the lowest among all exporters. Both Indonesia and Others had 58.2% and 64.1% retention rates, respectively. *Row values (switch-to-rates, outgoing sales)* show that Malaysia has lost 70.5% of its market share to Others but has no losses to Indonesia or Vietnam. Indonesia lost a small 2.4% to Malaysia, but 21.9% and 17.5% of its total export shares went respectively to Vietnam and Others. Meanwhile, Vietnam had no loss of shares to Malaysia and Indonesia, but 14.9% went to Others. Others had a zero percentage loss to both Malaysia and Vietnam however they lost 35.9% to Vietnam. *Column values (switch-from rates, incoming sales)* suggest that Malaysia had no percentage gain from Vietnam and Others, but only secured 2.4% from Indonesia. Most of the gains for Indonesia came from Others with 35.9% but it did not gain from both Malaysia and Vietnam. Vietnam did not receive from either Malaysia or Others but profited from Indonesia alone by 21.9%. Others also earned 70.5% mostly from Malaysia, followed by 17.5% from Indonesia and 14.9% from Vietnam.

Table 1: Matrix of pepper (HS090411) exports of Malaysia, Indonesia, and Vietnam into China market.

	Market Share (%) switched to:				
	Malaysia	Indonesia	Vietnam	Others	Total (%)
Malaysia	72.1	17.9	10.0	0.0	100.0
Indonesia	24.6	64.2	0.0	11.2	100.0
Vietnam	31.3	0.0	48.0	20.7	100.0
Others*	23.5	0.0	0.9	75.6	100.0

*Other exporting countries

Table 2: Matrix of pepper (HS090411) exports of Malaysia, Indonesia, and Vietnam into the USA market.

	Market Share (%) switched to:				Total (%)
	Malaysia	Indonesia	Vietnam	Others	
Malaysia	29.5	0.0	0.0	70.5	100
Indonesia	2.4	58.2	21.9	17.5	100
Vietnam	0.0	0.0	85.1	14.9	100
Others	0.0	35.9	0.0	64.1	100

Retention (Loyalty) and Switching Rates of HS090412 in China and the USA

Illustrated in Table 3, *Diagonal values (retention or loyalty rates)* show that Others had the highest retention rate at 83.6% followed by Vietnam at 42.2%, Indonesia at 40.8% and Malaysia at 34.6%. *Row values (switch-to-rates, outgoing sales)* display that Malaysia lost 14.3% to Indonesia and 51.1% to Others but zero percent to Vietnam. Indonesia's shares lost to Malaysia at 12.3% and 46.9% to Others but no losses to Vietnam. Regarding Vietnam, the only loss was 57.8% for Others with no loss to either Malaysia or Indonesia. Meanwhile, Others' shares lost to Malaysia at 5.6% and Indonesia at 3.3% as well as 7.5% to Vietnam. *Column values (switch-from rates, incoming sales)* suggest that Malaysia gained 12.3% from Indonesia and 5.6% from Others but zero percentage from Vietnam. For Indonesia, 14.3% of the gain came from Malaysia and 3.3% from Others but there was no gain from Vietnam. Meanwhile, just 7.5% of Vietnam's gain comes from Others and there is no gain from Malaysia or Indonesia. Finally, Others gained 51.1% from Malaysia, 46.9% from Indonesia and 57.8% from Vietnam.

As demonstrated in Table 4, *Diagonal values (retention or loyalty rates)* show that Vietnam had the highest retention rate at 92% followed by Others at 85.8% and Indonesia at 44.6%. Nonetheless, Malaysia had a zero retention rate. *Row values (switch-to-rates, outgoing sales)* show that Malaysia lost 100% of its market shares to Indonesia. In addition, Indonesia's market shares of 55.4% went to Others and zero percentage went to Malaysia and Vietnam. Besides, just 8% lost to Others in Vietnam and no loss to either Malaysia or Indonesia. Market shares of Others lost to Malaysia at 0.1%, Indonesia at 6% and Vietnam at 8.1%. *Column values (switch-from rates, incoming sales)* suggest that Malaysia gained only 0.1% from Others and a zero percentage gain from Indonesia and Vietnam. For Indonesia, 100% of the gain came from Malaysia and 6% from Others but there was no gain from Vietnam. Additionally, just 8.1% of Vietnam's gain comes from Others and there is no gain from Malaysia or Indonesia. Others gained 55.4% from Indonesia and 8% from Vietnam but zero percent from Malaysia.

Table 3: Matrix of pepper (HS090412) exports of Malaysia, Indonesia, and Vietnam into China market.

	Market Share (%) switched to:				Total (%)
	Malaysia	Indonesia	Vietnam	Others	

Malaysia	34.6	14.3	0.0	51.1	100
Indonesia	12.3	40.8	0.0	46.9	100
Vietnam	0.0	0.0	42.2	57.8	100
Others	5.6	3.3	7.5	83.6	100

Table 4: Matrix of pepper (HS090412) exports of Malaysia, Indonesia, and Vietnam into USA market.

	Market Share (%) switched to:				Total (%)
	Malaysia	Indonesia	Vietnam	Others	
Malaysia	0.0	100.0	0.0	0.0	100
Indonesia	0.0	44.6	0.0	55.4	100
Vietnam	0.0	0.0	92.0	8.0	100
Others	0.1	6.0	8.1	85.8	100

The research underscores Malaysia's robust performance in the Chinese market for product HS060411, securing a loyalty rate of 72.1%. Conversely, in the USA market, the retention rates for the same Malaysian product (HS090411) were markedly lower at 29.5%, trailing behind Indonesia (58.2%) and Vietnam (85.1%). For product HS090412, Malaysia's retention rates in China were lower, standing at a mere 34.6% compared to Indonesia (40.8%) and Vietnam (42.2%). Malaysia lost market shares to Indonesia (14.3%) and other exporting countries (51.1%). Notably, in the USA market, Malaysia recorded zero retention rates for HS090412, with Indonesia monopolizing all of Malaysia's market shares.

China has become a significant destination for Malaysia's pepper exports due to its strong trade relations with Malaysia and its large market size. The bilateral trade between the two nations rose to RM487.13 billion in 2022, a 15.6% increase from the previous year (PMO, 2023). China's large population and growing demand for pepper in its food-related industries and the pharmaceutical and cosmeceutical sectors provide a substantial market for Malaysian pepper exporters (Entebang, 2020).

On the other hand, Malaysian pepper exports underperformed in the USA market due to factors such as price fluctuations, supply-demand dynamics, product quality, trade policies, and market preferences. To improve competitiveness in the US market, the Malaysian Pepper Board (MPB) needs to implement strategies such as enhancing pepper quality, developing premium product branding, modernizing production technology, fostering R&D and innovation, expanding market opportunities, improving smallholder capabilities through modern technology, and enforcing regulations to ensure exported pepper products meet international standards.

CONCLUSION

In assessing the export performance of Malaysian pepper, we utilized the widely adopted marketing tool known as Brand-Switching Analysis (BSA). In our approach, we conceptualized exporting countries such as Malaysia, Indonesia, and Vietnam as

distinct brands, while viewing importing countries as customers and pepper as the product. The objective of this research was to scrutinize potential shifts in customer preferences for analogous products and brands. Utilizing the transitional probability matrix, our analysis spanning the period from 2001 to 2018 reveals noteworthy insights into brand loyalty.

During this study period, Malaysia, designated as the brand, exhibited the highest degree of loyalty for the pepper HS090411 product in the Chinese market, its most devoted customer. Conversely, for Vietnam, the USA emerged as the most steadfast customer for the same product. Additionally, concerning the retention rate for pepper HS090412, our findings indicate that Vietnam's most loyal customers were China and the USA, although these markets did not exhibit similar loyalty to Malaysia. Interestingly, Indonesia did not exhibit a single most loyal customer. This can be attributed to the dominance of Malaysia and Vietnam in every market destination, despite Indonesia maintaining a consistent market share in those markets.

Despite Malaysia's nearly two-century history in pepper cultivation, Vietnam, having entered the industry merely 15 to 20 years ago, has ascended to the position of the world's leading pepper producer. Thus, it is imperative for the Malaysian government to emulate Vietnam's strategy of inviting foreign investment in the pepper industry, including the provision of land for cultivation. This approach could potentially augment exports and stimulate local employment.

To maintain competitiveness in the global trade arena, it is incumbent upon Malaysia to address the issue of brand switching. This necessitates the deployment of potent marketing strategies for pepper products, which entails a proactive stance through promotional activities and active engagement in international trade exhibitions. Furthermore, the strategy of market matching is of paramount importance, ensuring congruence with authentic consumer preferences, thereby highlighting the crucial role of exhaustive market research. In the realm of regulatory supervision, Malaysian pepper exporters are required to consistently provide high-quality products while simultaneously establishing a competitive advantage for their products.

REFERENCES

- Bayus, B. (1992). Brand Loyalty and Marketing Strategy: An Application to Home Appliances. *Marketing Science*, 11(1), 21-38.
- Cambridge Dictionary (2023). Retrieved 11 November 2023, from <https://dictionary.cambridge.org/dictionary/english/brand-switching>.
- Cornelius, M., Cummings, K., Fong, G., Hyland, A., Driezen, P., Chaloupka, F.J., Hammond, D., O'Connor, R.J., and Bansal-Travers, M. (2015). The prevalence of brand switching among adult smokers in the USA, 2006–2011: Findings from the ITC US surveys. *Tobacco Control*, 24(6), 609-615.
- Entebang, H, Wong, S.K., and Zehnder, A-M. (2020). Development and Performance of the Pepper Industry in Malaysia: A Critical Review. *International Journal of Business and Society*. 20. 1402-1423.
- Fischer (2018), Cultivating Sarawak Pepper. Retrieved 6 August 2019, from <https://www.malaysia-insights.com/cultivating-sarawak-pepper/>.

- Indah Fintikasari and Elia Ardyan. (2018). Brand Switching Behaviour in The Generation Y: Empirical Studies on Smartphone Users. *Jurnal Manajemen Dan Wirausaha*, 20(1): 23-30.
- Karani, K.G. and K.A. Fraccastoro, (2010). Resistance to brand switching: The elderly consumer. *Journal of Business and Economics Research*, 8: 77-84.
- Khalid, A.B., Wong, S.K. and Audrey, L. (2009). Competitiveness with Sustainable Agriculture: Win, Lose or Draw? *International Journal of Economics and Management*, 3(1): 87-99.
- Michaelidou, N. and S. Dibb. (2009). Brand switching in clothing: The role of variety-seeking drive and product category-level characteristics. *International Journal of Consumer Studies*, 33: 322-326.
- MM4XL. (2010). Aptrio. Marketing Manager for Excel. Retrieved 14 November 2023, from <http://www.aptrio.com/Business/Spreadsheets/mmxl-marketing-manager-for-excel-full-edition-1478.html>.
- PMO. (2023). <https://www.pmo.gov.my/2023/03/china-is-an-important-trade-partner-for-malaysia-anwar/>. Retrieved 11 November 2023.
- Theil, H and Rey, G. (1966). A Quadratic Programming Approach to the Estimation of Transition Probabilities. *Management Science*, 12(9).
- Sampaothong, S., Zhou, Y., Han, J. and Pruetthichat, P. (2016). The Brand Switching Analysis of Thai Rice in China: A Comparison with Vietnam. *The International Journal of Business and Management*, Vol.4, Issue 1.
- Sampaothong, S. (2016). Factors Affecting Export Performance of Thai Rice Exporter in the Chinese Market. *Research Journal of Business Management*, 10: 74-85.
- Shinoj, P. and V.C. Mathur (2008). Comparative advantage of India in agricultural exports vis-a-vis Asia: A post-reforms analysis. *Agricultural Economics Research Review*, 21: 60-66.
- Wakio, K., Yoshibayashi, T. and Akaboshi, N. (2004). Early detection of changes using Event Sequence Extractor. *Fujitsu Scientific and Technical Journal*, 40(1): 54–60.