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.

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 methology 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., Forliano 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.
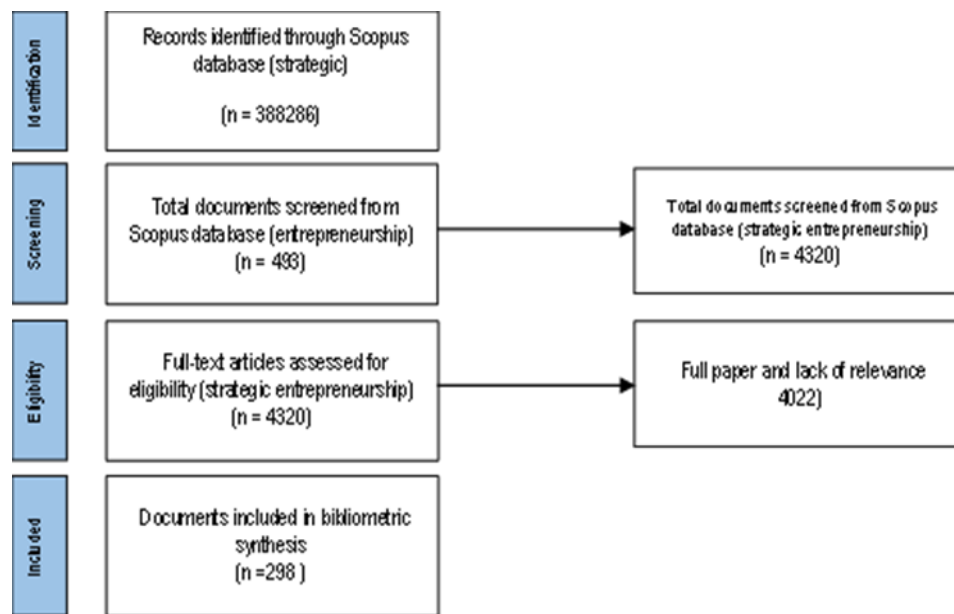

Figure 1: The PRISMA diagram that we used to find, screen, and select article in our bibliometric review

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.
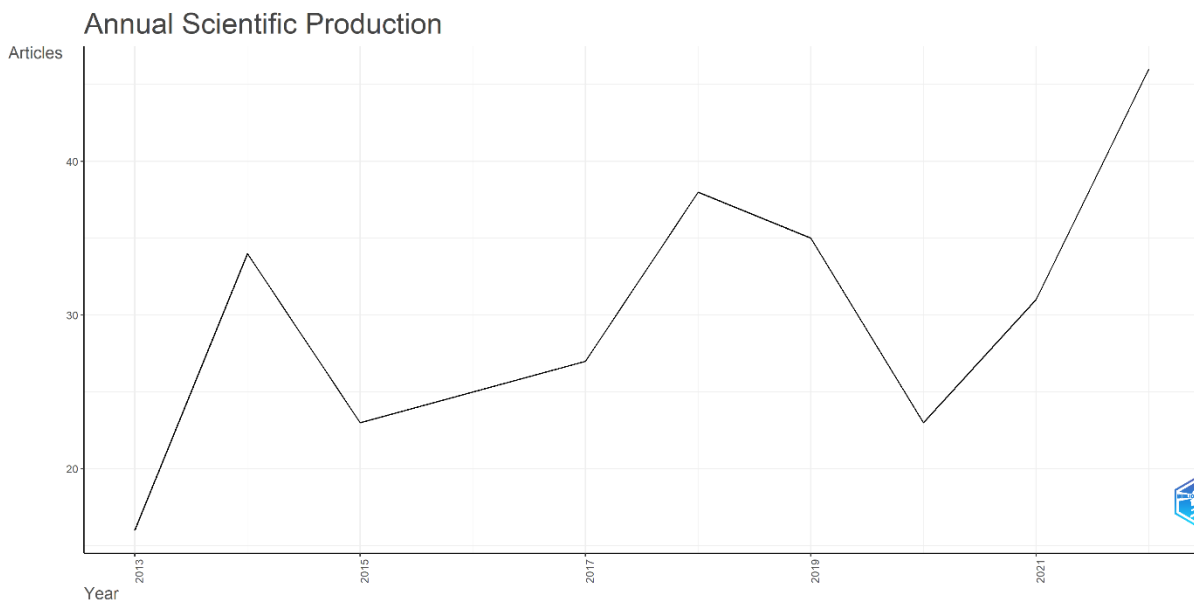

Figure 2: Annual Scientific Production (Total published articles from 2013-2022)

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.
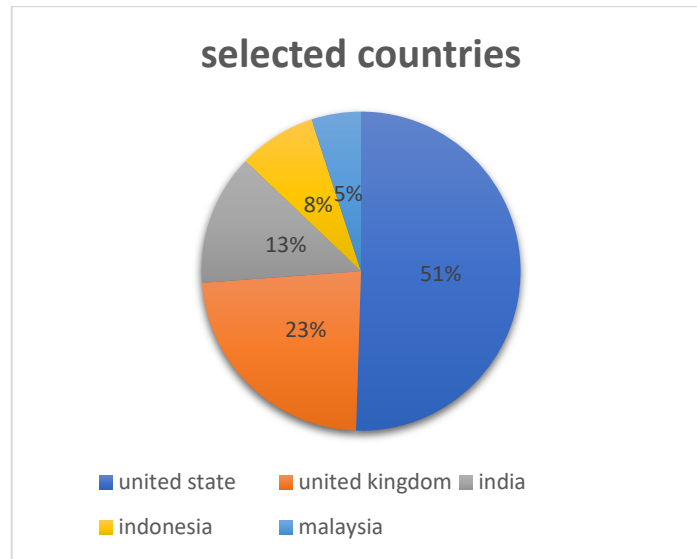
Figure 3: Highest publications by country

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
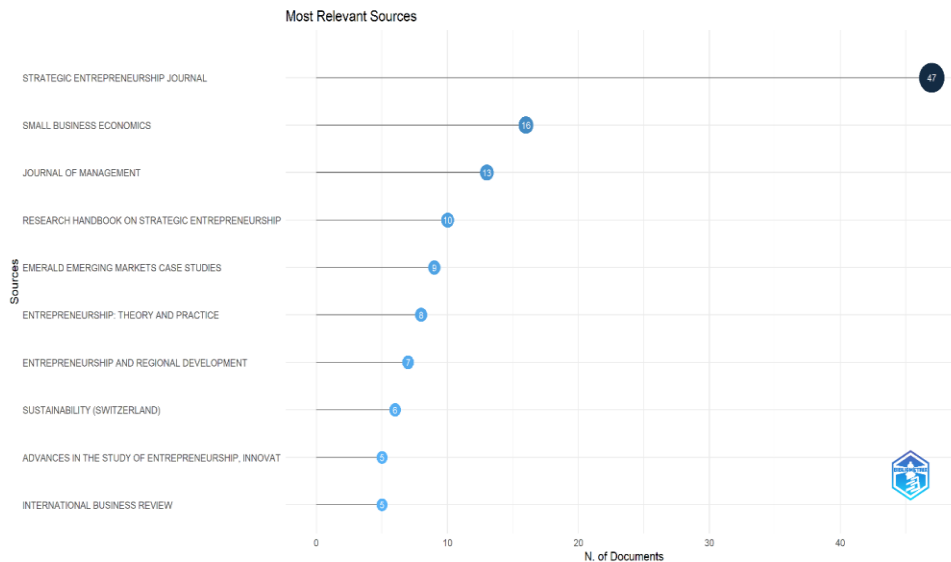
Figure 4: The most relevant sources

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

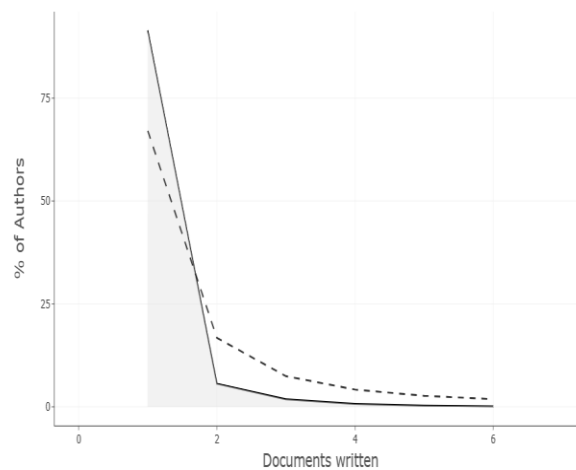| Documents written	N. of Authors	Proportion of Authors
1	651	0.914
2	40	0.058
3	13	0.018

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 (Rusydiana & 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 n2 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).
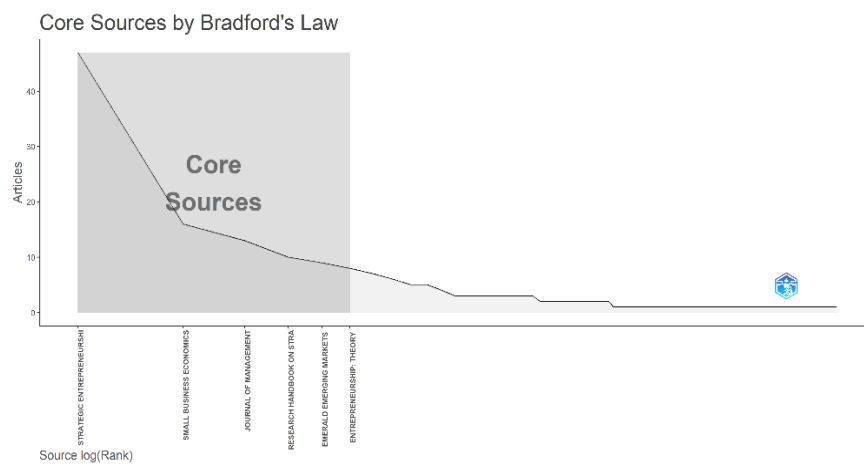
Figure 6: Bradford's Law

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 envolved 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.
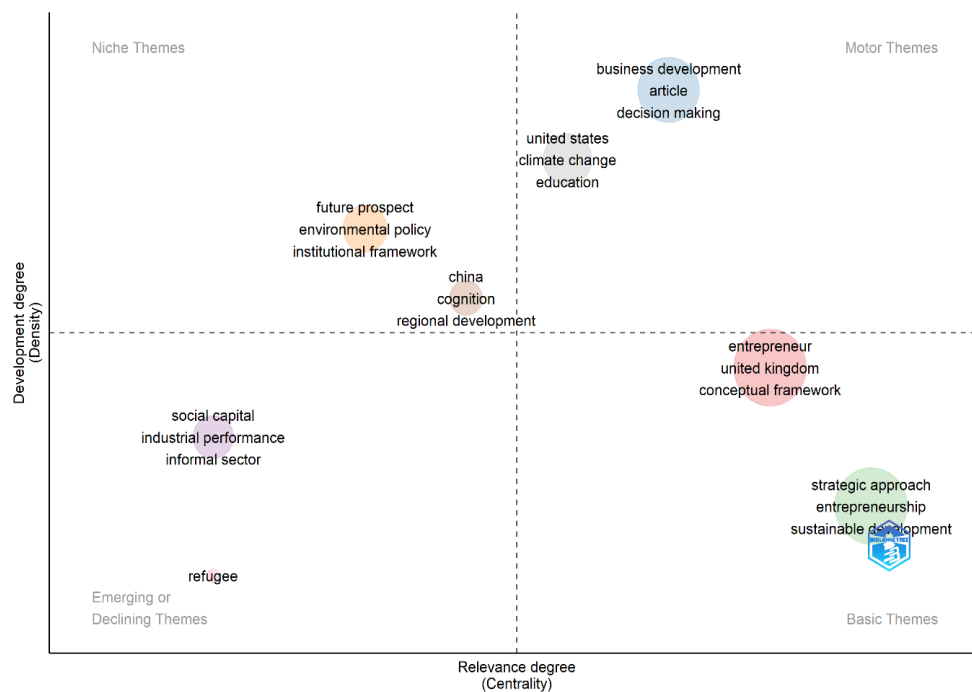

Figure 8: The thematic evolution

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

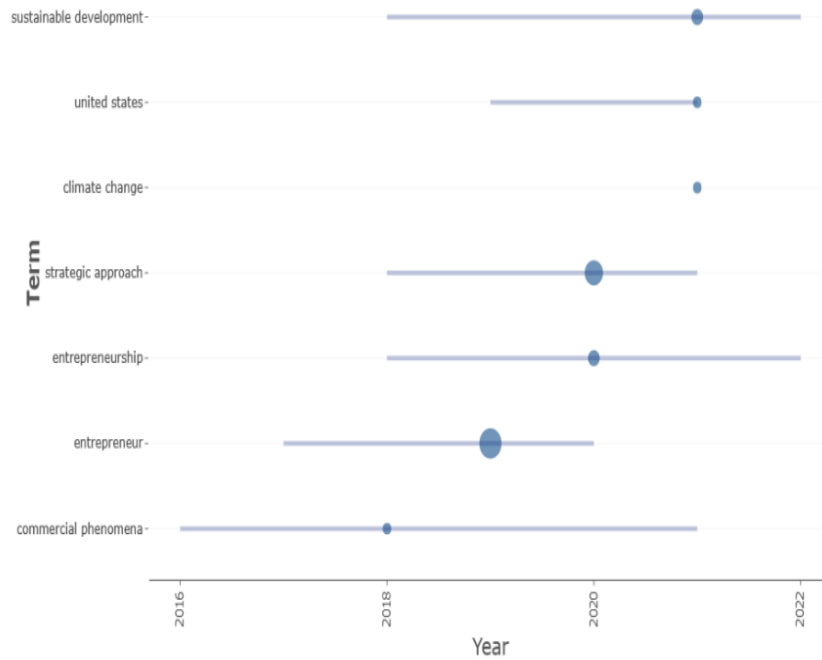| Trend Topic	Frequency	%	Year_q1	Year_med	Year_q3
Entrepreneur	22	34.92	2017	2019	2020
Strategic approach	14	22.22	2018	2019	2020
Entrepreneurship	6	9.52	2018	2020	2022
sustainable development	6	9.52	2018	2021	2022
Climate change	5	7.93	2021	2021	2021
United states	5	7.93	2019	2021	2021
Commercial phenomena	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.
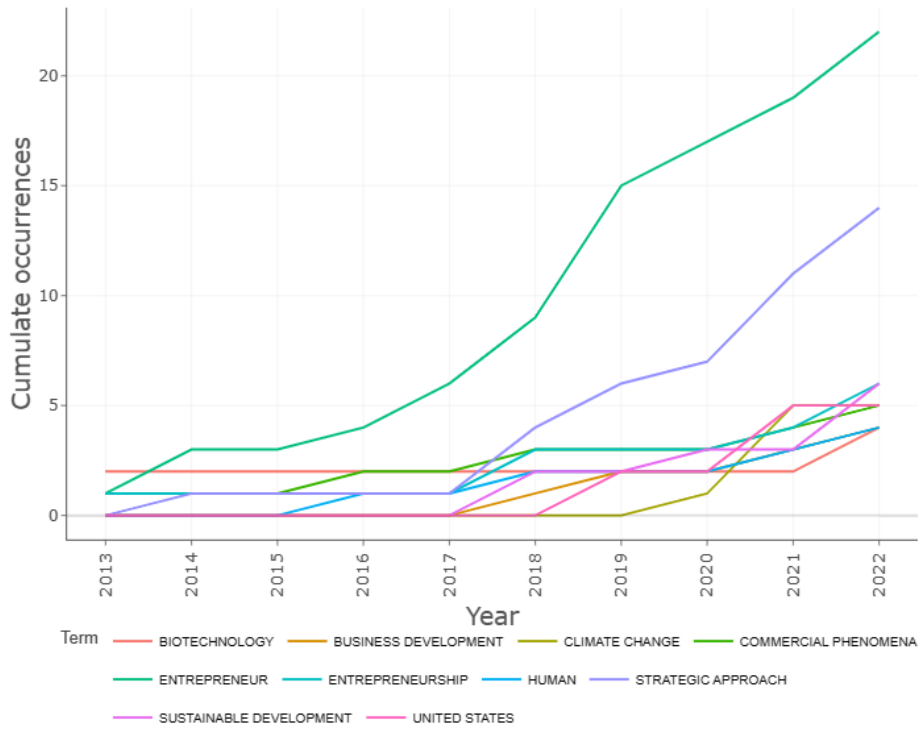
Figure 10: The world dynamic (2013-2022)

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.
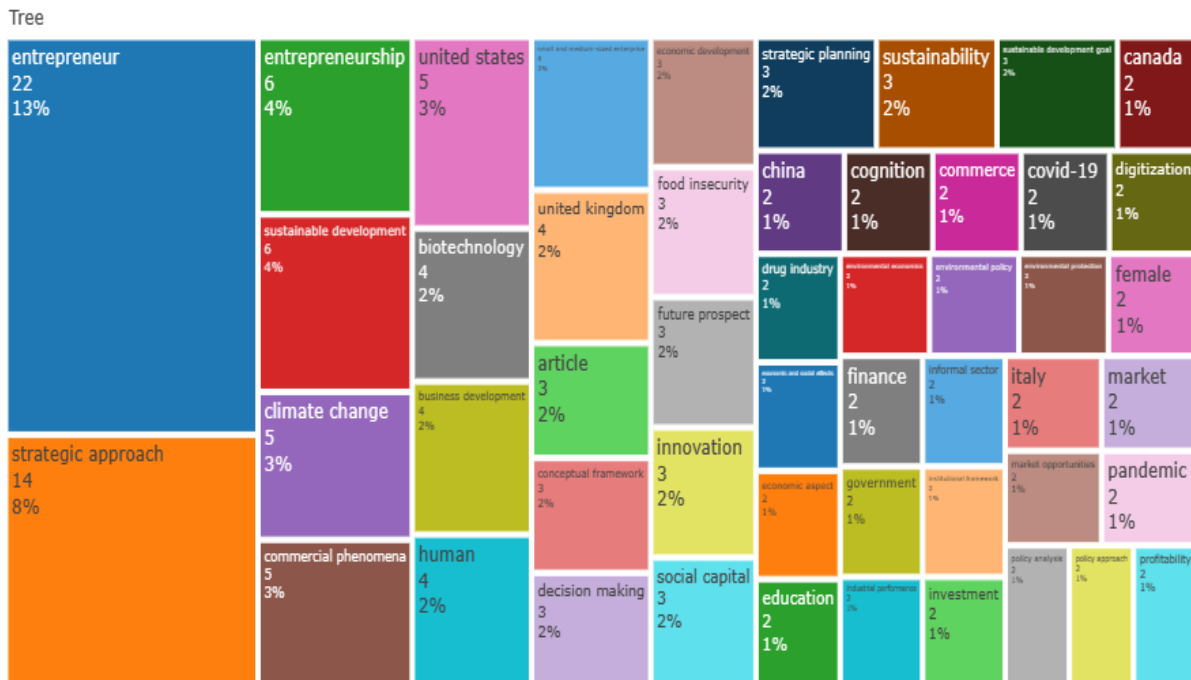

Figure 12: The tree map

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.

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