

Bibliographic and Visualization Analysis of Knowledge Mapping from an Entrepreneurial Orientation Perspective

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Abstract

Entrepreneurial orientation is an efficient approach of entrepreneurship that can assist start-ups in overcome resource constraints and achieving growth. However, empirical research in the field of entrepreneurship orientation needs to be systematically organized. Based on the Web of Science Core database, this study creates a knowledge map using a literature review and quantitative analysis to comprehensively classify the current state and future research directions of entrepreneurship orientation research worldwide. The study found that a core group of countries, institutions, and authors in the field of entrepreneurship orientation has not yet formed, but a relatively stable cooperative group has been formed. The latest research frontier in the field of entrepreneurship orientation mainly focuses on themes such as micro-enterprises, performance, and service innovation, and has entered a rapid development phase. Future research should strengthen the research on the measurement methods of entrepreneurship orientation, the study of the influencing factors of entrepreneurship orientation, the performance evaluation research of entrepreneurship orientation, and the study of the relationship between entrepreneurship orientation and start-up micro-enterprises.

Keywords: Knowledge mapping, entrepreneurial orientation, bibliographic analysis.

1. INTRODUCTION

Since the beginning of the 21st century, Entrepreneurial orientation has gradually become a focal point for researchers as an important concept that influences the sustainable development of enterprises. Since 2015, Entrepreneurial orientation has garnered significant attention from researchers. However, a comprehensive review of entrepreneurial orientation research reveals that, despite the abundant achievements in this field, the research literature on entrepreneurial orientation is vast and fragmented, lacking a unified understanding of the research hotspots and development background of Entrepreneurial Orientation. Instead, most research has been limited to theoretical retrospectives on Entrepreneurial Orientation, such as Wales, Wales, W. J. (2015) "Entrepreneurial orientation: A review and synthesis of promising research directions" published in the International Small Business Journal. Therefore, in order to provide a more in-depth analysis of the theoretical and practical guidance of Entrepreneurial Orientation, this article uses bibliometric methods and the CiteSpace visualization tool to conduct a visual analysis of Entrepreneurial Orientation research in the Web of Science core database from 2015 to 2022. This includes comprehensive literature year statistics,

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institution, author and country collaborative networks, co-cited literature, keyword co-occurrence, and timeline charts. The aim is to explore the frontier of entrepreneurial orientation in recent years, how the research trajectory of international scholars in the field of entrepreneurial orientation has evolved, and the research development of international authors, countries, and institutions. Few international researchers have systematically examined these challenges. Reviewing international literature, it is evident that no scholars have performed a visual analysis of entrepreneurial orientation hotspots from a bibliometric perspective. Jing Zhang and Zaidong Qin (2021) believe that quantitative research can sort and reveal the hotspots and evolution of a research area, objectively reflecting the overall research situation and grasping the overall research trend. Meanwhile, visual expression can help audiences more intuitively and quickly understand a large amount of information.

2. DATA SOURCES AND RESEARCH METHODS

2.1 Data Source

Web of Science is an important database platform for accessing global academic information. It includes various authoritative and highly influential international academic journals, covering multiple disciplines such as natural sciences, engineering technology, social sciences, arts, and humanities (Kai Li et al., 2017). The Web of Science Core Collection is a multidisciplinary academic literature abstract and indexing database with worldwide influence. Therefore, the data selected for this study comes from the Web of Science Core Collection, with TI=("Entrepreneurial orientation") as the search condition, and the indexing date limited to January 1, 2012 - December 31, 2022, and the publication year limited to 2012-2022. The document type is limited to articles. The search was conducted on June 10, 2023, and a total of 1856 relevant documents were retrieved and saved in the "full record + cited literature" record content format.

2.2 Research Methodology

Professor Chen Chaomei (2016) 's CiteSpace software, developed in 2006, can visually reveal the hotspots and future research trends of knowledge in a research field, and is a method of knowledge management. Since its release in 2004, CiteSpace has been widely used by the scientific metrology community and researchers, playing an important role in literature mining, and has been confirmed (Meiqin Wu et al., 2020). Based on this, this study mainly uses Professor Chen Chaomei's CiteSpace software as a research tool to visualize information such as the year distribution, core authors, institutions, countries, and keywords of the retrieved data, which can intuitively analyze the current international research hotspots, trends, and popular research fields in entrepreneurship direction.

Before running CiteSpace, the corresponding parameters were set as follows: the time span was set to 2015-2022, the Years Per Slice was set to 1, and the node types were set to author, institution and country, reference, and keyword. The threshold standard was set to g-index=25, and all other parameters were set to the system's default initial parameters.

3. ANALYSIS AND RESULTS

3.1 Analysis of the Yearly Distribution of Papers

The change in the number of papers can intuitively reflect the changes in research trends of a certain discipline during a specific time period. This is an important indicator for measuring the development of the discipline during that time period, and it has significant implications for analyzing development dynamics and predicting future trends.

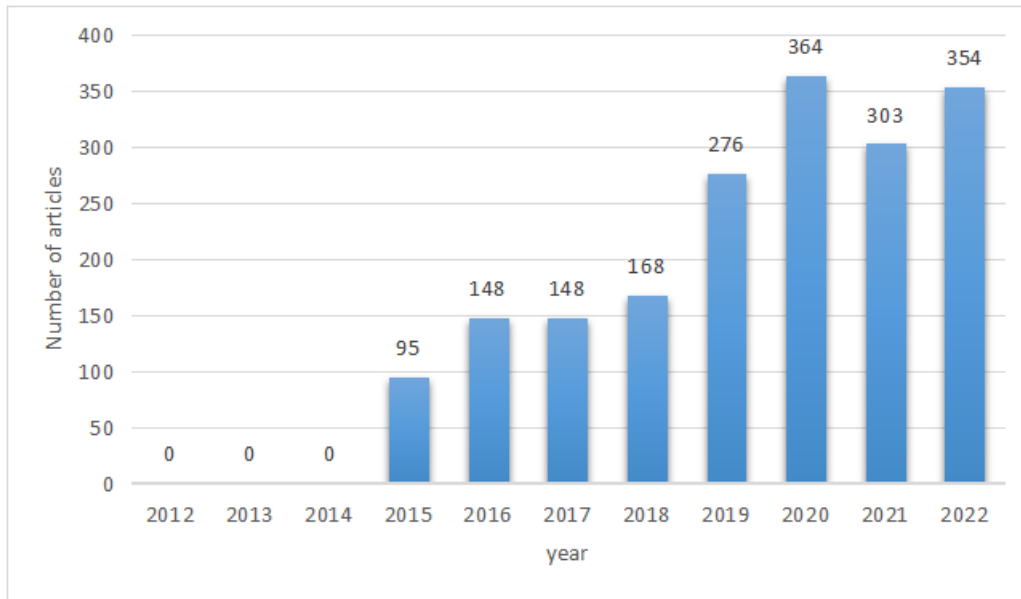


Figure 1. Number of entrepreneurship-oriented paper publications (2021-2022)

According to Figure 1, between the years 2012 and 2022, a total of 1856 papers related to entrepreneurial orientation were published in the Web of Science core collection. Looking at the trend over time, no papers related to entrepreneurial orientation were published between 2012 and 2014. However, since 2015, the number of researchers' studies on entrepreneurship orientation has increased rapidly, reaching the peak (364 papers) in 2020. The study found that the main reason for this result is that there has been a trend of entrepreneurship around the world since 2015. According to the statistical analysis of GEM (2015), There were 58.2 million start-ups worldwide in 2015, heralding the official arrival of the global start-up boom. Especially in Silicon Valley, some start-up companies such as Uber, Airbnb and other emerging enterprises have begun to rise. These start-up companies have attracted the attention of researchers, and researchers begin to pay attention to the entrepreneurial orientation factors and try to find out the main reasons for their success. In addition, governments around the world have begun to attach importance to the development of entrepreneurial industries, providing more entrepreneurial support and policy support. To a certain extent, the attention and support of governments have also prompted academia to conduct more in-depth research on entrepreneurial orientation. Therefore, since 2015, the number of papers related to entrepreneurial orientation has been increasing linearly. Although the number of publications in 2021 has slightly declined, the number of research papers in this field has rebounded again in 2022. The main reason is that the decline in 2021 may have been caused by factors such as the COVID-19 pandemic, while the rebound in 2022 may be due to the gradual recovery of the economy and the increasing interest in entrepreneurship. In summary, current global academic research is paying increasing attention to the field of entrepreneurial orientation, and this trend will continue to grow in the future.

3.2 Cooperative Network Analysis

3.2.1 Analysis of Institutional Collaboration

In the SiteSpace interface, select the node type "Institution" to perform a visual analysis of 1856 papers, resulting in the identification of 319 source publications and the creation of the visualization graph shown in Figure 2.

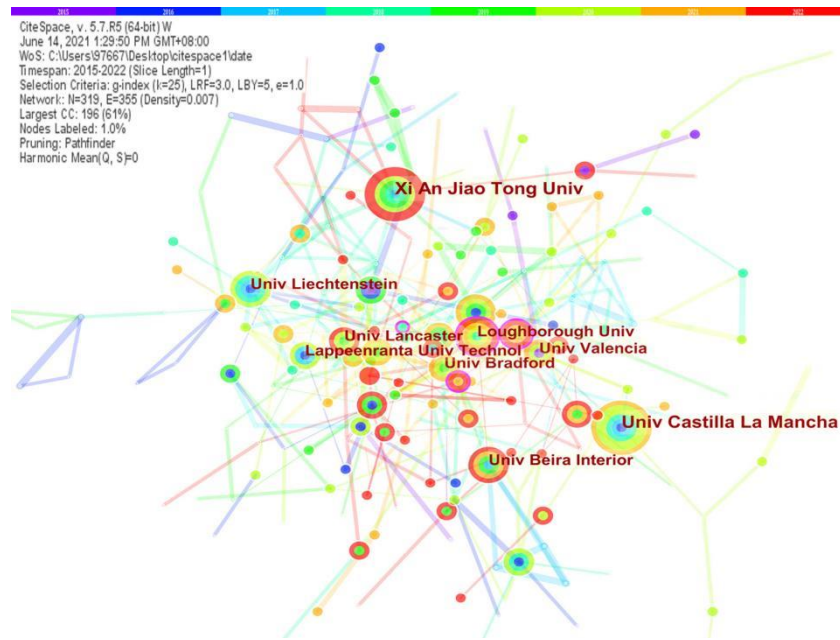


Figure 2. Collaboration network of entrepreneurship-oriented research institutions (2015-2022)

By analyzing the publishing institutions, it is possible to understand the composition of researchers in the field and the distribution of academic resources, thereby gaining insight into the social groups that are truly concerned with entrepreneurship-oriented research. As shown in Figure 2, the visualization graph indicates that the "Univ Castilla La Mancha" has the largest font size, which not only indicates the highest frequency of occurrence among the 319 data, but also more importantly demonstrates its authoritative status and influence in the field of entrepreneurship-oriented research.

In order to present the important related research institutions more clearly, Table 1 was drawn with relevant data from CiteSpace, listing the top 5 institutions with the highest number of published articles.

Table 1. Frequency statistics of Top5 research institutions

No.	Count	Centrality	Year	Institutions
1	32	0.04	2016	Univ Castilla La Mancha
2	26	0.08	2016	Xi An Jiao Tong Univ
3	20	0.14	2018	Loughborough Univ
4	19	0.04	2015	Univ Valencia
5	17	0.04	2016	Univ Liechtenstein

According to Table 1, the top 5 most influential institutions are all universities, with Univ Castilla La Mancha in Spain contributing the most in this field with 32 publications, followed by Xi'an Jiaotong University in China with 26 publications. This phenomenon reflects the current state of research oriented towards entrepreneurship, mainly due to the fact that academic reputation and ranking are important factors in competition within the academic and research institution sectors. Publishing high-quality academic articles can enhance a university's reputation and ranking, attracting more attention from outstanding researchers and funds, and thus promoting the research status of related fields.

3.2.2 Author Collaboration Analysis

In the SiteSpace operating interface, select the node type as "Author" to conduct visual analysis of 1856 articles, resulting in 318 researchers and obtaining the visualization map in Figure 3.

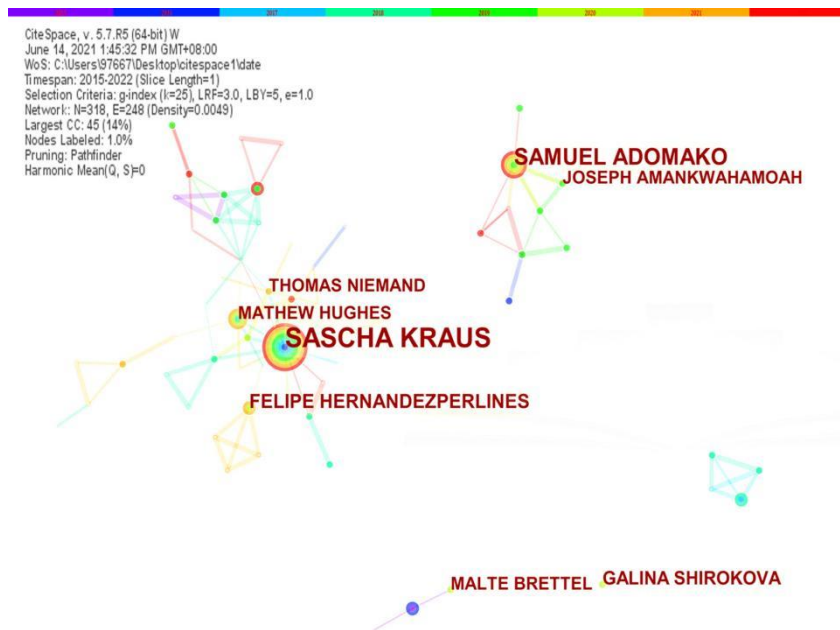


Figure 3. Co-authorship network of entrepreneurship orientation research papers (2015-2022)

A co-authorship network analysis involving 318 nodes and 248 connections was conducted. As shown in Figure 3, the co-authorship network was relatively sparse, with the primary network consisting of the research collaboration between SASCHA KRAUS and SAMUEL ADOMAKO. Overall, the researchers were dispersed, and no clear collaboration network was formed.

To more clearly demonstrate the important related researchers, this study used relevant data from Citespace to generate Table 2, which lists the top 5 researchers with the highest number of published articles.

Table 2. Frequency statistics of Top5 Authors

No.	Count	Centrality	Year	Authors
1	34	0.02	2016	SASCHA KRAUS
2	20	0.01	2019	SAMUEL ADOMAKO
3	12	0	2016	SAMUEL ADOMAKO
4	10	0	2019	GALINA SHIROKOVA
5	9	0	2015	MALTE BRETTEL

According to Table 2, the top 5 most influential authors are SASCHA KRAUS, SAMUEL ADOMAKO, SAMUEL ADOMAKO, GALINA SHIROKOVA, and MALTE BRETTEL. Notably, SASCHA KRAUS is the most influential author in the field of entrepreneurship, with 34 publications to their credit. It is worth noting that the combined number of publications (20 and 12, respectively) of SAMUEL ADOMAKO, who ranks second in terms of contribution, and SAMUEL ADOMAKO, who ranks third in terms of contribution, is 2 less than the number of publications by SASCHA KRAUS.

According to Price's Law, a famous law proposed by the father of scientometrics, Derek J. de Solla Price, the specific formula for which is $M=0.749\sqrt{N_{max}}$, where M represents the minimum number of publications by core authors in a field, and N_{max} represents the maximum publication value of authors in that field (Qin Jialiang & Yu Xuemei, 2023). Calculating the M value using the formula for this study, $0.749\sqrt{34}=24.466$, the minimum number of publications by core authors in the field of entrepreneurship research is 25. According to statistics, there is only one core author in the field of entrepreneurship research, namely SASCHA KRAUS. Therefore, the author's research in this field needs to be further developed in terms of breadth and depth.

3.2.3 Analysis of National Cooperation

By selecting the node type "country" in the SiteSpace operating interface, a visual analysis was conducted on 1856 papers, resulting in 424 countries and the visualization graph in Figure 4.

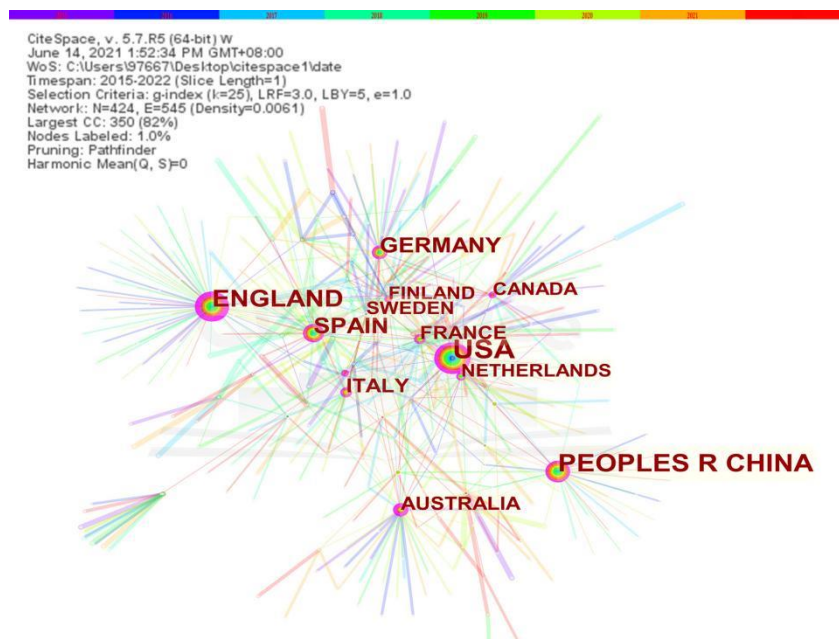


Figure 4. International cooperation network of entrepreneurship-oriented research papers (2015-2022).

The national cooperative network analysis has formed 424 nodes and 545 connections. As shown in Figure 4, the author's cooperative network is relatively concentrated, mainly forming the three largest research cooperative networks of the USA, Peoples Republic of China, and England. Overall, there is considerable cooperation between many countries, and the relationships between these countries are complex.

To more clearly demonstrate the important network of collaborations between countries, this article utilizes data from Citespace to create Table 3, which lists the top five countries with the highest number of published articles.

Table 3. Frequency statistics of Top5 Countries

No.	Count	Centrality	Year	Countries
1	329	0.25	2015	USA
2	213	0.17	2015	PEOPLES R CHINA
3	174	0.42	2015	ENGLAND
4	131	0.16	2015	SPAIN

According to Table 3, the top 5 most influential countries are USA, PEOPLES R CHINA, ENGLAND, SPAIN, and GERMANY. Among them, USA has the largest contribution and the highest number of publications with 329 articles, making it the most influential author in the field of entrepreneurship orientation. It is noteworthy that although PEOPLES R CHINA ranks second in terms of contribution, its number of publications is 116 less than that of the USA. It is evident that the research depth of USA in the field of entrepreneurship orientation far exceeds that of other countries.

3.3 Basic Knowledge Analysis

In the interface, the node type "Reference" was selected to visualize and analyze 1856 papers, resulting in the visualization graph shown in Figure 5.

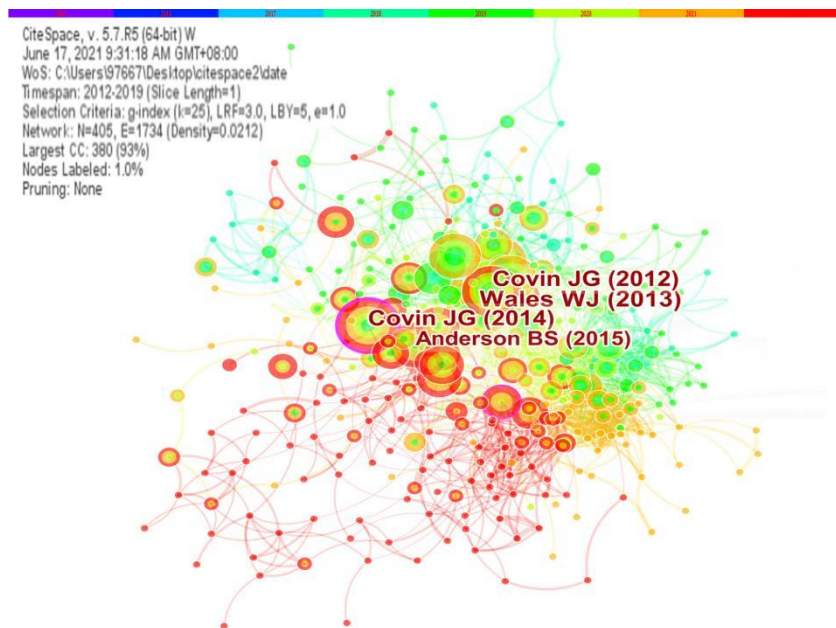


Figure 5. Citation network of entrepreneurship-oriented references (2015-2022).

In the citation analysis data obtained through Citespace, a total of 405 nodes and 1734 connections were formed, which serve as the basis for identifying classic literature in the research field of entrepreneurship orientation. Classic literature refers to highly cited and widely recognized literature in the field, which contains important research results and findings. Therefore, identifying these classic literature is crucial for conducting valuable research and evaluating the research process. In order to present the important reference literature more clearly, this paper uses the relevant data in Citespace to draw Table 4, which lists the top 5 reference literature with the highest quantity.

Table 4. Frequency statistics of Top5 Countries

No.	Count	Centrality	Year	Cited References
1	67	0.09	2013	Wales WJ, 2013, INT SMALL BUS J, V31, P357, DOI 10.1177/0266242611418261
2	58	0.23	2014	Covin JG, 2014, ENTREP THEORY PRACT, V38, P11, DOI 10.1111/etap.12027

3	55	0.04	2012	Covin JG, 2012, <i>ENTREP THEORY PRACT</i> , V36, P677, DOI 10.1111/j.1540-6520.2010.00432.x
4	43	0.09	2015	Anderson BS, 2015, <i>STRATEGIC MANAGE J</i> , V36, P1579, DOI 10.1002/smj.2298
5	41	0.01	2011	Covin JG, 2011, <i>ENTREP THEORY PRACT</i> , V35, P855, DOI 10.1111/j.1540-6520.2011.00482.x

As shown in Table 4, the five classic references in the citation analysis data have high citation frequency and influence in the field of entrepreneurial orientation research. These references mainly investigate the characteristics and behavior of entrepreneurs, as well as the challenges and opportunities faced during the entrepreneurial process. Furthermore, these references also explore how to use resources and innovation to gain competitive advantages, and how to deal with uncertainty and risk.

The theme of these five articles is all about entrepreneurship research. Wales WJ's (2013) article published mainly discussed the relationship between entrepreneurial personality, entrepreneurial behavior and entrepreneurial organization, and how to improve organizational performance through entrepreneurial innovation and entrepreneurial behavior. Covin JG's papers published in 2011, 2012 and 2014 all explored how entrepreneurs use innovation resources to gain competitive advantages in the market, and how they deal with uncertainty and risk. Anderson BS also studied how entrepreneurs use resources and innovation to gain competitive advantages in their 2015 paper, and also analyzed how to cope with changes in the external environment.

These articles all have something very important in common, which is that they all focus on the characteristics and behaviors of entrepreneurs in the field of entrepreneurial-oriented research, the challenges and opportunities faced in the process of starting a business, and the sense of innovation and risk management that industrialists show when facing these challenges and opportunities - they are all very good at using existing resources and innovative methods to gain competitive advantages, and how to deal with uncertainty and risk. These studies not only provide useful reference for entrepreneurs and entrepreneurial organizations, but also provide theoretical basis for researchers in the field of entrepreneurial orientation research.

All in all, the high number of citations of these five classic literatures truly reflects their importance and influence in the field of entrepreneurial-oriented research. Their research content is crucial both for researchers to conduct valuable research and to evaluate the research process.

3.4 Research Hotspot Analysis

As a summary of the main idea of the article and the core vocabulary that expresses the content of the article, keywords gradually evolve into representative terms and hot topics in a research field. When keywords appear repeatedly in multiple documents, i.e. co-occur, this indicates that the keyword is frequently cited and the higher the frequency of co-occurrence, the more attention it receives. By analyzing the high-frequency keywords that co-occur, we can preliminarily identify the vocabulary with higher research heat in the entrepreneurial orientation field. Therefore, on the SiteSpace operation interface, the node type was selected as "Keyword" to visually analyze 1856 papers and obtain the visualization graph in Figure 6.

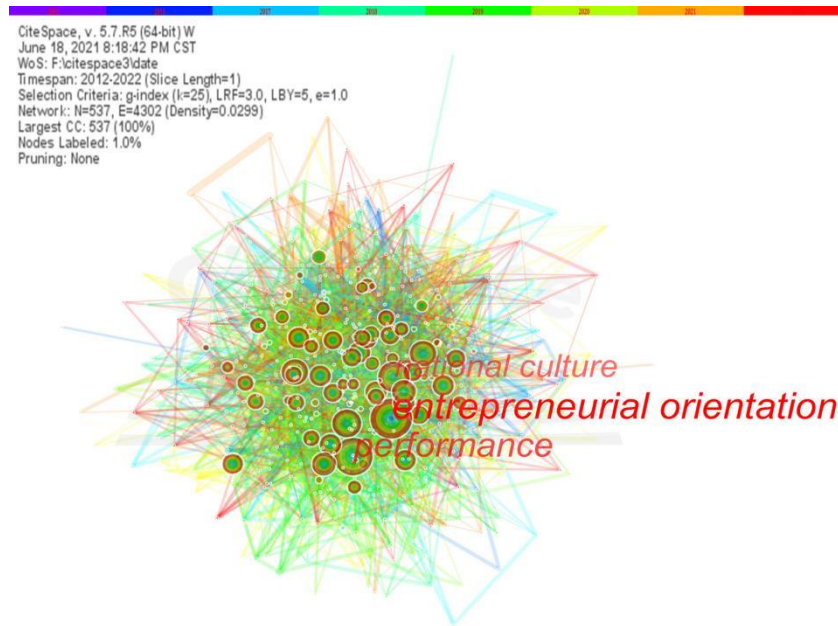


Figure 6. Co-occurrence map of entrepreneurial orientation keywords (2015-2022).

In the field of research, keyword co-occurrence analysis using Citespace is a commonly used method for revealing the relationships and frequencies between keywords in documents. The obtained keyword co-occurrence data in this study consists of 537 nodes and 4302 links, and it is a rich and valuable dataset.

By analyzing these nodes and connections, we can gain insights into the major themes and hot topics in entrepreneurship research. For example, we observe that "entrepreneurial orientation", "performance", and "national culture" are highly frequent nodes, which reflects the emphasis placed on these themes in entrepreneurship research, and these keywords represent the real-world issues that entrepreneurs and investors must confront.

To better illustrate the important keywords, this paper draws Table 5 with relevant data in Citespace, listing the top 5 most frequent keywords.

Table 5. Frequency statistics of Top5 Keyword

No.	Count	Centrality	Year	Keyword
1	1356	0.01	2015	entrepreneurial orientation
2	779	0.01	2015	performance
3	466	0.01	2015	national culture
4	426	0	2015	innovation
5	336	0.02	2015	moderating role

According to Table 5, the most frequently occurring keywords are entrepreneurial orientation, performance, national culture, innovation, and moderating effect. Entrepreneurial orientation is one of the most important research topics in entrepreneurship, referring to the behavior and mindset of entrepreneurs and how they respond to external environmental challenges. Performance focuses on the performance of firms in highly competitive markets, including revenue and market share. National culture generally refers to the values and beliefs of a country, which have a significant impact on the behavior and mindset of entrepreneurs. Innovation is one of the keys to entrepreneurial success, including innovation in new products, technologies, markets, and organizational forms. Moderating effect usually refers to the degree to which one variable

affects the relationship between another variable, playing an important role in entrepreneurship research and helping researchers better understand and interpret data.

Entrepreneurial orientation is the most popular keyword, appearing 1356 times. Performance and national culture are also hot topics, appearing 779 and 466 times, respectively. Innovation appears 426 times. However, the intermediary centrality is all below 0.1, indicating that the connections between most high-frequency keywords are not close, that is, the hot topics are relatively dispersed, and the related words also reflect that the development of entrepreneurial orientation faces many difficulties, challenges, and urgent problems. Overall, the above keywords can reflect to some extent the research hotspots and research directions in this field, but they are too general and vague and require further refinement research on the topics.

3.5 Analysis of Research Frontiers

For the cutting-edge fields of entrepreneurship-oriented research, the mutation detection algorithm of CiteSpace software can be used to track trends. By extracting keywords with extremely high frequency growth rates in a short period of time (emerging keywords) from the literature, it is possible to analyze and observe the prominent research hotspots of entrepreneurship-oriented research at different time periods. This can provide relevant researchers with a more intuitive research entry point to a certain extent (Wang Qiqi, 2021). Figure 7 shows the top 10 emerging keywords in this research field.

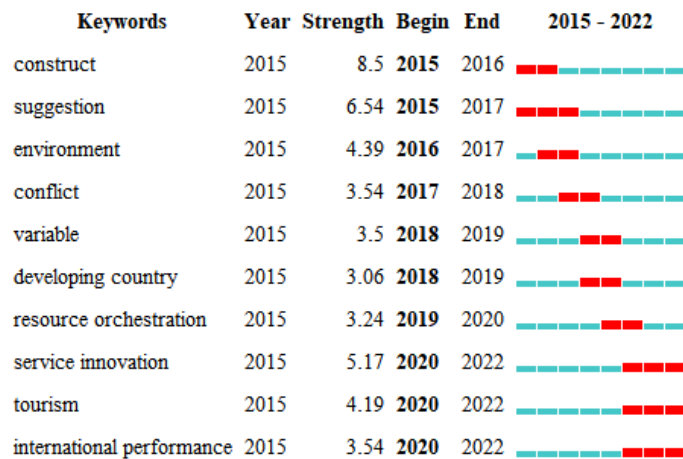


Figure 7. Top 10 Keywords with the Strongest Citation Bursts(2015-2022)

In terms of emergence intensity, they can be divided into two categories: steady and sudden increase. The steady emergence words include "conflict," "variable," "developing country," "resource orchestration," and "international performance," among others. Although the emergence rate of these words is relatively low, they are still the focus of research in this field. The sudden increase emergence words include "construct," "suggestion," "environment," "service innovation," "tourism," and others. The emergence rate of these words is relatively high, and they are usually triggered by influential real-world factors. The emergence rate of "construct" and "suggestion" is as high as 8.5 and 6.54, respectively, and their emergence time is the earliest. This indicates that researchers were keenly aware of the real problems and challenges of entrepreneurship-oriented research as early as 2015, and for a considerable period of time, they placed great emphasis on proposing suggestions as the focus of their research.

From the perspective of emergence time, most keywords have stopped mutating and are no longer at the forefront of entrepreneurial-oriented research. However, the three-word groups "service innovation," "tourism," and "international performance" have been mutating since 2020 and have not stopped, and they have a high rate of emergence. They

can be seen as the cutting-edge hotspots in the current entrepreneurial-oriented research, which are relatively mature and influential.

3.6 Trends Analysis

To explore the trend of entrepreneurship-oriented research, the time zone map generated by CiteSpace software can be utilized, which places hot keywords in a co-occurring time dimension. In Figure 8, the historical evolution of entrepreneurship-oriented research is presented through a correspondence between time and keywords.

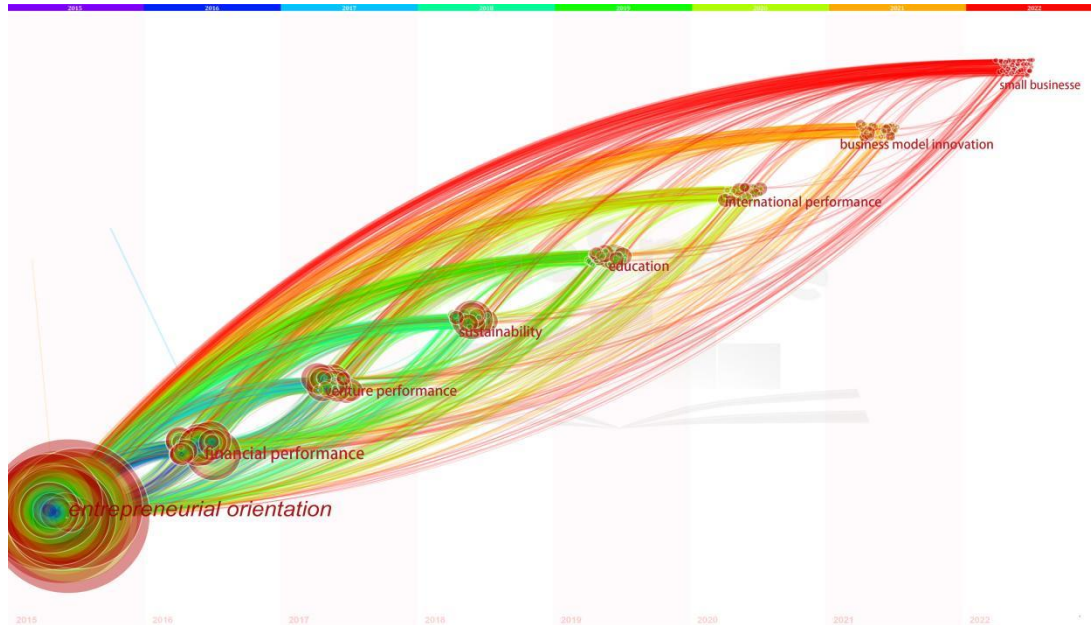


Figure 8. Time-zone map of entrepreneurial orientation keywords (2015-2022).

This study used CiteSpace to conduct a keyword temporal map analysis of the entrepreneurial orientation domain. The results showed that several new keywords emerged in this domain between 2015 and 2022. Among them, "entrepreneurial orientation" was the most frequently appearing term. In 2016, financial performance became the most frequent new word, while in 2017, venture performance took the top spot. In 2018, it was sustainability, and in 2019, it was education. In 2020, it changed to international performance. And in 2021, it is replaced by business model innovation. In 2022, small business took the No. 1 spot.

The changes of these emerging keywords reflect the research hotspots and trends in the field of entrepreneurial orientation. Among them, entrepreneurial orientation is the core word in the emerging vocabulary, indicating that entrepreneurial orientation has a fundamental key position in the research. The emergence of words such as financial performance, venture performance, sustainability and education reflects the attention of researchers on the financial performance of entrepreneurship, venture capital performance, sustainability and education and the development of research dynamics. The emergence of international performance and business model innovation shows that the researchers pay attention to the performance behavior and business model innovation of entrepreneurship in the international market. In the whole change process of keywords, More and more researchers focus on the fundamental and essential research of business.

It is worth noting that the new small business in 2022 shows that the current economic model is no longer based on monopolies and large enterprises. small business is also playing an important role in the economy. At the same time, it also indicates that more and more scholars are studying entrepreneurial orientation and small business together.

4. RESEARCH CONCLUSIONS AND PROSPECTS

4.1 Research conclusions

This study conducted statistical analysis on the entrepreneurship-oriented research literature in the core database of Web of Science. The study systematically reviewed the current research status and future research directions of entrepreneurial orientation, and drew the following conclusions: Firstly, there are many research hotspots, such as "service innovation", "tourism", and "international performance", which have become emerging issues. At the same time, the study that links "small businesses" and entrepreneurship orientation began to attract the attention of researchers in 2022 and has a trend of becoming the latest hotspot, as shown by the time zone map. Secondly, the research evolution can be divided into two stages: the first stage of rapid development (2015-2020) and the second stage of rapid development (2021-2022). The research characteristics of different development stages are different, but under the impetus of initial theoretical research, research in this field has risen to the study of the connections between variables in interdisciplinary fields and the contextualized practical application stage of hypothesis testing. Thirdly, the core national, institutional and author groups in the field of entrepreneurship orientation have not yet formed, but a relatively stable cooperative group has been formed. Overall, authors with a large number of published papers have close relationships with institutions that have published a large number of papers, and the cooperation of these groups has made important contributions to the development of the field of entrepreneurship orientation.

4.2 Research outlook

Entrepreneurial orientation has become a rapidly growing research topic in the field of entrepreneurship in recent years. Currently, there is a considerable amount of literature on entrepreneurial orientation. This literature mainly explores the concept of entrepreneurial orientation, measurement methods of entrepreneurial orientation, and the relationship between entrepreneurial orientation and entrepreneurial performance. With the continuous increase in entrepreneurial activities, entrepreneurial orientation has also become an indispensable part of enterprise development. Under the guidance of entrepreneurial orientation, enterprises can better analyze market dynamics, grasp market opportunities, adjust market strategies in time, improve innovation ability, and promote the steady development of enterprises. Although the research of entrepreneurial orientation has made great progress so far, it can be further improved and improved from the following aspects: under the guidance of entrepreneurial orientation, enterprises can better analyze market dynamics, grasp market opportunities, adjust market strategies in time, improve innovation ability, and promote the steady development of enterprises. Although entrepreneurial-oriented research has made great progress so far, it can be further improved and improved from the following aspects:

Firstly, research on the measurement of entrepreneurial orientation can be strengthened. Entrepreneurial orientation is an important entrepreneurial behavior. There is no unified standard for the measurement method of entrepreneurial orientation, and many researchers have their own opinions and propositions. For example, Covin JG and Slevin DP(1989) advocate a three-dimensional view: Innovation, risk taking, and initiative, while Lumpkin and Dess(1996) advocate a five-dimensional view. Six-dimensional and seven-dimensional viewpoints may also appear in future research, so the existing measurement methods need to be further improved and standardized. Researchers should return to the origin of the problem and clarify the standard use and measurement effect of measurement methods in essence. Future research can explore more effective measurement methods from multiple perspectives by using both qualitative and quantitative methods.

Secondly, we can strengthen the research on the influencing factors of entrepreneurial orientation. Entrepreneurship is a dynamic process, and the formation of entrepreneurial

orientation is affected by many factors, including individual factors of entrepreneurs, internal and external environment of organizations, etc. Future research can dig into the causes and mechanisms of entrepreneurial orientation formation from multiple perspectives.

Thirdly, research on performance evaluation of entrepreneurial orientation can be strengthened. Entrepreneurial orientation is an innovative entrepreneurial behavior, which has an important impact on the performance of enterprises. Future research can explore the influence mechanism of entrepreneurial orientation on enterprise performance from multiple perspectives, so as to provide theoretical support for enterprise innovation and entrepreneurship.

Finally, research on the relationship between entrepreneurial orientation and start-up micro-enterprises can be strengthened. With the end of the COVID-19 epidemic and the slow recovery of the global economy, many large enterprises have experienced heavy losses in strength under the effect of the economic cycle, and even die out and go bankrupt. Start-up micro enterprises have become an important group in the market. As a kind of entrepreneurial behavior, entrepreneurial orientation is becoming more and more common in the application of start-up micro enterprises. Future research can explore the role mechanism and influencing factors of entrepreneurial orientation in start-up micro enterprises through in-depth field research, so as to provide more effective support and guidance for the rapid development of start-up micro enterprises.

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