

A Literature Review and Bibliometric Analysis on Intrapreneurial Intensity

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Abstract: This study investigated earlier research on "intrapreneurial intensity" and demonstrates where the area stands in terms of current research. The Bibliometric analysis was used to analyze the 367 documents on "intrapreneurial intensity" from the Scopus database between 2009 and 2023. The information obtained was then investigated in terms of publishing periods, nations, journals, authors, and affiliations with organizations. The "VOSviewer" tool was used to display the trends that could be observed in the research area. In this study, the significant articles and research areas on "intrapreneurial intensity" are highlighted, and bibliometric analysis has been performed to investigate the way in which the field has developed over time. This article provides a "visualization analysis" of recently reported publications to evaluate the present state of the research on intrapreneurial intensity. The figures show that the number of published papers has been steadily increasing over the past 15 years. The United States is the largest contributor to this research field, followed by the United Kingdom and Spain. This research report provides an up to date assessment of this rapidly growing field through the use of bibliometric analysis, which might also guide corporate executives to recognize the latest advances when trying to formulate strategies to deal with the increasing demands for intrapreneurship in addition to the potential future hubs of study in this area.

Key Words: Bibliometric analysis, intrapreneurial intensity, intrapreneurship, entrepreneurial orientation, VOSviewer

1. Introduction

Considering that it offers a potential way of restoring long-established business, "intrapreneurship" is considered an important organizational and economic development component (Antoncic & Hisrich, 2001). There is an increasing consensus for successful companies to sustain in dynamic environments, entrepreneurship should be fostered all through the facets of business. In this regard, various scholars have seen the strategy of "corporate entrepreneurship" which will help organizations to refine their business idea, adapt to shift customer expectations and desires, and improvement of position in the marketplace. Especially, at times of higher economic uncertainty and more inventive, flexible, entrepreneurial management approaches are made essential, intrapreneurial behaviour has been discovered as an important factor in organizational effectiveness (Davis, 1999).

In recent times, researchers and academics have attempted to develop an empirical link between "intrapreneurship" and "business revitalization, product innovation, competitiveness, profitability, product and organizational growth", and corporate sustainability as well (Gawke, Gorgievski, & Bakker, 2017; Agca, Topal, & Kaya, 2012; Alpkan, Bulut, Gunday, Ulusoy, & Kilic, 2010; Burgelman, 1983; Phan, Wright, Ucbasaran, & Tan, 2009; Ribeiro Soriano, Augusto Felício, Rodrigues, & Caldeirinha, 2012; Stokvik, Adriaenssen, & Johannessen, 2016; Yang, Narayanan, & Zahra, 2009; Zahra, 1991).

The need to assess the entrepreneurial orientation of firms by assessing the entrepreneurial activities of corporate organizations using empirical methodologies has been emphasized by earlier intrapreneurship investigations (Covin & Slevin, 1991). There is a proposal that as intrapreneurship is a character of varying degrees and strengths, "intrapreneurial intensity" is quantified. The frequency and severity with which intrapreneurship is pursued ought to be tracked and acknowledged within organizations. Unless measurements are developed to track the performance variables of the organization, this cannot be accomplished. It is essential to evaluate this organizational quality at all layers, including the "structural, cultural, and individual personality" thresholds.

It has long been understood that "intrapreneurship," especially in large firms, is essential to an organization's growth, development, prosperity, and rejuvenation. To avoid immobility, employee turnover, or decline, several various types of firms are eager to engage in intrapreneurial activities by integrating people teams, according to Monanavarian & Ashena (2009). According to Daft (2007), the unique qualities of modern organizations often include "volatility and complexity" rather than "security and consistency". Due to modern high-tech businesses, research shows that, in contrast to previous generations, "market changes, innovations, and developments" appear to be more frequent (Kuratko & Hodgetts, 2007). Intrapreneurial organizations actively engage in venture development, are innovative, regularly rejuvenate themselves, and appear to be progressive (Antoncic and Hisrich, 2001).

According to Hill (2003) and Kuratko & Hodgetts (2007), an intrapreneurial organization should evaluate, update, or generate an intrapreneurial ideology that confronts traditions in pursuit of improved standards and processes, as well as establish a fresh culture with new values. Businesses should implement entrepreneurial tactics to promote "corporate entrepreneurship" in a market that's also changing rapidly and competing. This strategy demands the firms build venturing squads, develop an innovative vision, spur innovation, create an "intrapreneurial climate," and

suitably identify professionals for "corporate entrepreneurship" (Kuratko and Hodgetts, 2007). To encourage creativity, Mokaya (2012) encourages businesses to recognize creative employees who look outside the box, approach laterally about issues, and interact with others who have multiple viewpoints.

Modern organizations must engage in a significant level of intrapreneurship to gain a competitive advantage in an environment of intense competition. The antecedents will enable the firm to effectively adjust its environment for having a beneficial influence on the level of intrapreneurship. To increase their competence in the market, firms therefore must examine the environmental factors that affect "intrapreneurship intensity".

2. Literature review

According to Sharma and Christman (1999), intrapreneurship is "the initiative of employees within a company to try new things; innovations are created by employees without any prompting, suggestion, or approval by management." Although there is not much research in the area of intrapreneurship, there is increasing evidence supporting the concept of intrapreneurship. Most of the research in this area focuses on "entrepreneurship and small business development." But, entrepreneurship researchers have recently begun to recognize the potential for entrepreneurial behavior to occur in large sized firms (Adams, Wortman, & Spann, 1988; de Chambeau & Mackenzie, 1986; Morris, Avila, & Allen, 1993). Brandt (1986) believes that businesses of all sizes can benefit from entrepreneurship.

Although a relatively new term, intrapreneurship has considerable scholarly support as a subset of entrepreneurship (Antoncic & Hisrich, 2003). Since Pinchot published *Intrapreneurship* in 1985, the term has gained increasing acceptance in the academic community. Extensive research has focused on the development of intrapreneurship assessment tools, but other studies (Covin & Slevin, 1989; Kuratko et al., 1990; Zahra, 1991; Knight, 1997; Antoncic & Hisrich, 2001; Hill, 2003) have attempted to better understand the concept of "intrapreneurship" (Lumpkin & Dess, 1996; Meng & Roberts, 1996; Eesley & Longenecker, 2006). Nadler, Tushman, Tushman, and Nadler (1997) identified four important components in their framework that influence the "inner strength of a firm": "task, people, formal organizational structure, and informal organizational structure." The model of Nadler, Tushman, Tushman, and Nadler (1997) was modified by Hill (2003), who created six factors instead of the original four: "mission, culture, people, policies, leadership, and structure." His design for empirically assessing the "intrapreneurial intensity" of existing organizations builds on these factors.

The term intrapreneurial intensity refers to the level of innovation, energy, and creativity of a company. Each of these characteristics can be measured. "Intrapreneurial intensity" is the degree to which entrepreneurial activities are conducted within an existing company to develop innovative capabilities, including "the deployment of new products, services, equipment, strategies, and competencies" (Lumpkin & Dess, 2005; Ireland, Covin & Kuratko, 2009; Scheepers, 2012).

"Innovation, initiative, new business creation, risk taking, organizational self-renewal, autonomy, and competitive aggressiveness" are the seven characteristics of intrapreneurship identified by Jordon (2008). Neessenet et al. (2019) identified "innovation, proactiveness, risk-taking, opportunity recognition, and external connections" as important behavioral attributes of

“intrapreneurship.” In this regard, “intrapreneurial organizations” exhibit higher levels of “intrapreneurial intensity,” meaning that the organization’s leadership and employees actively engage in “innovative thinking, proactive behavior, and risk-taking.”

When assessing “intrapreneurial intensity,” the company’s internal entrepreneurial activities are taken into account. Hill’s (2003) findings are supported by Olutuase et al. (2019), who found that intrapreneurial indicators including “policies, individual employees, culture, and leadership” were effective in predicting “intrapreneurial intensity” in most unstudied organizations. A multidimensional measurement method can be used to characterize the level of intrapreneurship in a company to predict “intrapreneurial intensity.”

In addition, ‘politics and culture’ were found to have a greater impact on ‘corporate intensity’. “Job autonomy or discretion” was found to have a detrimental effect on the level of internal corporate performance (Ruba, R.M.E.T. In contrast to empirical studies, there is a negative relationship between “discretion/autonomy at work” and “intensity of internal activities” in firms (Isachenkova et Mickiewicz, 2005; Gupta, 2008; Gunasekar et Sarkar 2014; Filatotchev , Manroop, 2015; Witell, et al., 2015). “Organizational boundaries, incentives, and rewards” have a significant and positive effect on “firm internal strength” (Kuratko et al., 2014: Ruba, R.M.E.T.A. The degree of “intrapreneurial intensity” in a company largely depends on culture and politics, and perceptions of the index can be negatively affected by bureaucracy (Olutuase, Samuel and Chekwubegwu, Pamela, 2019).

Therefore, it was decided that a review of previous studies would be useful in determining the most appropriate strategy for future research in this important and emerging field. Based on the above data, the main objective of this study is to provide a bibliometric analysis of the literature produced in the field of “Strength in Business” between 2009 and 2023. The following objectives were also set for the current study:

- To describe the kinetics of the production of research literature
- To explore the most productive and well-known authors in the domain of expertise
- To find out the study's most significant work of literature
- To analyze the patterns of author and country partnership
- To analyze the intellectual framework and periodical progression of this research on “Intrapreneurial Intensity”

3. Method

This study used data published in the Scopus database. While Scopus' search features are sometimes even more limited than those of other databases, it also contains publications of a scholarly caliber that are not available in Google Scholar (Harzing and Alakangas, 2016) which are open-access sources of information. The Scopus database is a recognized index that provides reliable data and has a huge selection of peer-reviewed publications. The title, abstract, and keywords were verified for the published data from 2009 to 2023. Once the data had been screened, only journals that focused on business, management, and accounting were included. Based on the countries, journals, subjects of study, authors, and organizational affiliations, each report published within the specified period was segregated and meticulously analyzed. Also, network research on "intrapreneurial intensity" was conducted after the article's keyword frequency was examined. The entire data was extracted from Scopus and then imported into

VOSviewer. The relationships between authors, countries, citations, and frequently used phrases in the paper were examined using VOSviewer.

3.1 Main information regarding the collection

367 articles related to "Intrapreneurial Intensity" from 341 researchers, covering a range of disciplines including business, management, and accounting, published in 142 reputable peer-reviewed journals were considered for the research. Since 136 scholars co-authored the research papers, author collaboration is showing an increasing trend. Authors per document were scored as 0.93, while documents per author were scored as 1.076. VOSviewer, a free R-package tool, was especially used to conduct the bibliometric analysis (Aria & Cuccurullo, 2017).

4. Bibliometric analysis

"Bibliometric analysis" entails the usage of quantitative techniques and mathematics to analyze and forecast the current state and potential future paths of study (Yu et al. 2017,2018). Hence, bibliometrics can be applied to "Intrapreneurial Intensity" to provide predictive validity. A collection of techniques collectively known as "bibliometrics" are used to analyze published data in terms of the content and information about the "author, affiliation, co-citation, citations, and keywords used" (Norton, 2001).

4.1 VOSviewer

For generating and displaying "bibliometric maps," a computer program named "VOSviewer" was developed which is freely available to the research community. Using the information on "co-citation" and "co-occurrence," this program generates maps of authors and publications based on keywords.

5. Analysis of data and discussion

5.1 Based on the annual document count

This graph depicts total number of publications done in the field of "Intrapreneurial Intensity" from the year from 2009 to 2023 with an average citation of 31.88.

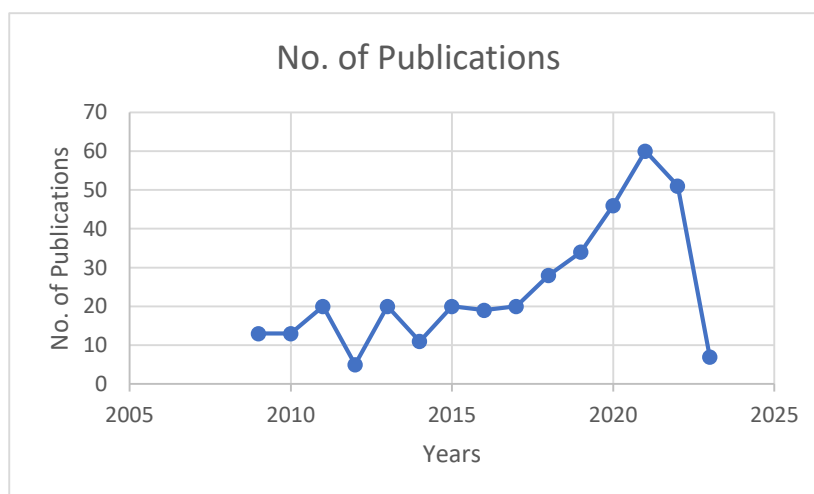


Figure 1 Details of publications in each year

5.2 Based on Authors, affiliations and countries

By taking into account variables including "citable documents, citations per document, and overall citations", databases exist that rank universities and countries based on their total research output. These metrics assist in determining which institutions and countries generate the most and/or the best quantity of actual research. On the topic of " Intrapreneurial Intensity," David Urbano generated a total of 9 documents with an average citation score of 35.33. Maribel Guerrero ranked second with an average citation score of 33.43 followed by Andreu Turro, David Bruce Audretsch and Matthias Menter.

Table 1 Top Five Authors Contribution

S. No.	Name	Organization, Country	Publications	Citations	Citations Mean
1	David Urbano	Autonomous University of Barcelona, Spain	9	318	35.33
2	Maribel Guerrero	Universidad del Desarrollo, Chile	7	234	33.43
3	Andreu Turro	Autonomous University of Barcelona, Spain	5	118	23.6
4	David Bruce Audretsch	Indiana University Bloomington, United States	3	189	63
5	Matthias Menter	Friedrich Schiller University Jena, Germany	3	100	33.33

5.3 Based on Publications

The broad research topic "Intrapreneurial Intensity" includes many subtopics and its multidisciplinary research strengths are strong. The frequency with which a journal's articles are cited in other journals is used to rank them. The journals considered as top five in the fields of "business, management, and accounting" are listed in table 2. "Journal of International Entrepreneurship and Management" ranked first with 13 publications and is followed by "Small Business Economics", "Business Research Journals". In comparison with the alternative journals, "Review of Managerial Science" had the lowest ranking and the fewest counts.

Table 2 Top five contribution from publishers

S. No.	Name	Publications	Citations	Citations Mean
1	International Entrepreneurship and Management Journal	13	635	48.85
2	Small Business Economics	13	514	39.54
3	Journal of Business Research	10	67	6.7
4	Sustainability	10	268	26.8
5	Review of Managerial Science	9	66	7.33

5.4 Based on Organizations

Table 3 shows the top five contributing organizations in this field. The “Autonomous University of Barcelona” is the leading contributor in this research area with 11 documents published receiving 358 citations and average citations per document of 32.5 followed by “Indiana University Bloomington” with 9 documents and 1043 citations, “Queensland university of technology” (6 documents and 538 citations), “Northumbria University” (5 documents and 183 citations) and “Lappeenranta University of Technology” (5 documents and 75 citations). “Indiana University Bloomington” received the highest average citations per document (149).

Table 3 Top Five Contributing Organizations

S. No.	organization	documents	citations	Ave Citation per document
1	Autonomous University of Barcelona	11	358	32.5
2	Indiana University Bloomington	7	1043	149.0
3	Queensland university of technology	6	538	89.7
5	Northumbria University	5	183	36.6
5	Lappeenranta University of Technology	5	75	15.0

5.5 Analysis of Citations

Analysis of Citations determines the number of times a specific author, work, or publication has been cited in other pieces to assess its relative significance or impact. Construction of citation graph, which is a network or graph representation of the citations connecting texts, is the basis of this extensively used bibliometric technique.

5.5.1 Authors

The number of times a researcher's publications are referenced in other published studies is used to determine their ranking. Utilizing VOSviewer, the research of author citations was conducted with a minimum of 2 documents per author and 5 minimum citations per author where 52 authors out of 975 met the requirements and were grouped into eight clusters dependinh on the analysis of citations. Out of 8 items in cluster-1, which is indicated in red, Urbano, David recorded the maximum citations (318) with overall total link strength 52 and an average citation per document of 35.3. Out of 7 items in cluster-2, which is highlighted in green, Audretsch, David B. recorded the highest citations (189) with an entire link strength 22 and an average citation per document of 63. Out of 6 items in cluster-3, which is indicated in blue, Kuratko, Donald F. recorded the greatest number of citations (723) besides a total link strength 46 and an average citation per document of 241. Out of 5 items in cluster-4, which is indicated in yellow, Wales, William j. recorded the maximum citations (643) along a total link strength 3 and an average citation per document of 321.5. Out of 4 items in cluster-5, which is indicated in purple, Martín-rojas, Rodrigo recorded the highest citations (78) and a total link strength of 4 and an average citation per document of 11. Out of 3 items in cluster-6, which is indicated in pale green, Rego, Arménio recorded the greatest amount of citations (148) featuring a total link strength 3 and an average citation per document of

74. Out of 2 items in cluster-7, which is indicated in orange, Guerrero, Maribel recorded the highest citations (234) along a total link strength 15 and an average citation per document of 26. Out of 2 items in cluster-8, which is indicated in brown, Globocnik, Dietfried. recorded the maximum citations (93) apart from a total link strength 3 and an average citation per document of 46.5.

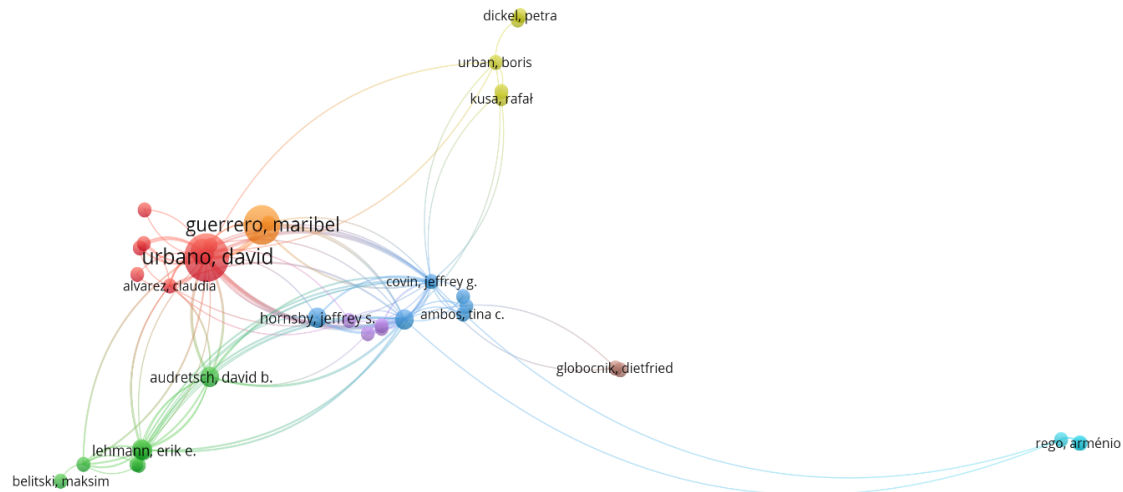


Figure 2 Citation of authors

5.5.2 Countries

The "citation analysis" was carried out using VOSviewer on countries where the lowest number of publications on behalf of a country was calculated as five and the lowest number of citations per country was found as zero. 26 of the 65 countries met the criteria. 26 countries were grouped into five clusters based on the citation analysis.

The United States has the highest number of citations (4011) from 59 articles in Cluster-1 (red) with 7 elements, a total link strength of 149 and an average citation strength per article of 68. With a total citation strength of 11 and an average citations per article of 26.8, Norway has the highest number of references (161) from 6 articles in Cluster-2 (green) with 6 elements. In Cluster-3, the United Kingdom has the highest number of citations (1566) from 51 articles. The articles in blue consist of 5 elements with a total link strength of 72 and an average citations per article of 30.7. Spain, with a total citation strength of 102 and an average citations per article of 33.2, has the highest number of citations (1328) from 40 articles in Cluster-4 (yellow) with 5 elements. Cluster-5 is purple and consists of 2 points. Austria had the highest number of citations (245) among the seven publications, with an average of 35 per document and a very low overall citation intensity of 1.

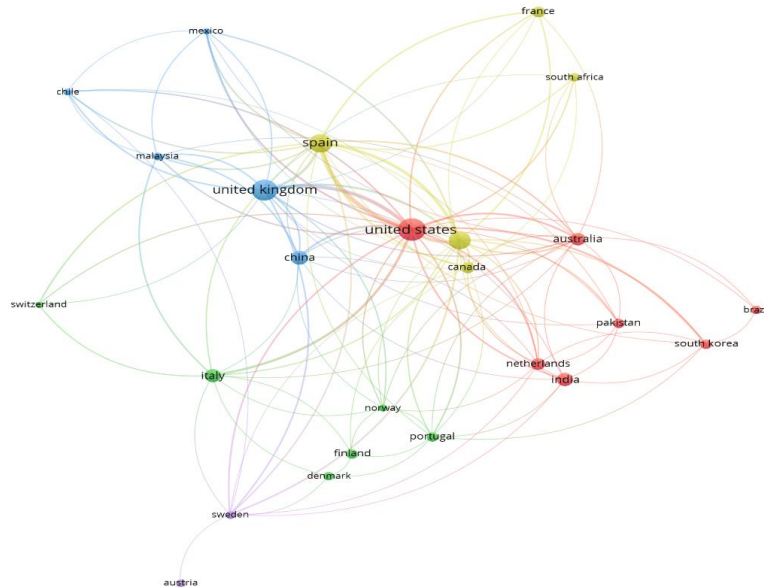


Figure 3 Citation of countries

5.6 Analysis of co-citation

"Co-citation" refers to the practice of citing two different publications within the same article. For example, if an article references both works B and C, it indicates that those works are co-cited along with article A. Co-citation analysis primarily investigates the citation patterns of these co-cited research articles to assess their impact (Tang et al., 2015). Researchers frequently cite multiple publications in a single article when those works are relevant to their topics, and co-citation analyses uncover the scholarly relationships between co-cited works (Small, 1973). This method not only highlights significant research and publications but also reflects the attributes of a specific field of study (Zhao & Strotmann, 2008; Chen, Ibekwe-SanJuan, & Hou, 2010; Kuo & Yang, 2012).

5.6.1 Cited Authors

Author-level co-citation analysis was carried out. An author must be cited ten times to be taken into account. The full counting method was used by VOSviewer to investigate co-citation patterns. 284 authors out of the 31510 authors met the prerequisite of 20 minimum citations. The authors (284) are classified into 4 clusters based on "co-citation analysis".

Cluster 1 has 93 items which are indicated in red color. Wright, Mike received the maximum number of citations (166) along a total link strength of 9817. Cluster 2 is recognized by the color green and has a total of 80 items. Podsakoff, Philip M. received the highest citations (105) including a total link about 4724 links. Cluster 3 is recognized by its blue marking and consists of 72 elements.

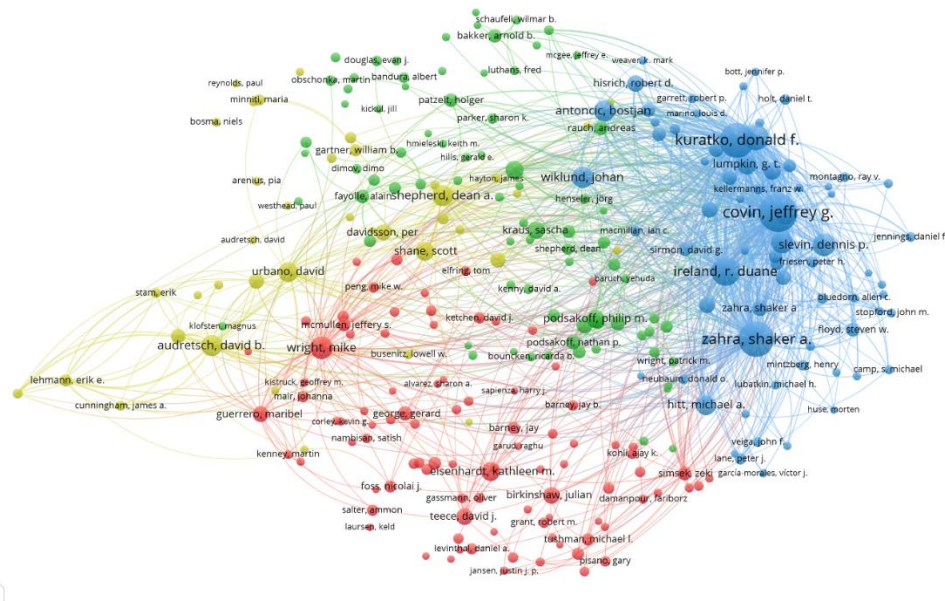


Figure 4 Co-Citation of authors

With a link strength of 31277, Covin, Jeffrey G. received the highest number of citations (478). Cluster-4, which has 39 items, is highlighted with a yellow color. Audretsch, David B. and Shepherd, Dean A. received the highest number of citations (143) and had 7700 and 9350 total links respectively.

5.6.2 Sources

A publication was required to have 50 citations to be evaluated. Only 91 sources out of 2779 sources met the criteria. The total strength of linkages between each of the 91 sources and other sources was determined. The sources with the strongest links were considered. Sources are categorized into five clusters based on "co-citation analysis".

There are 34 items in cluster-1, which is highlighted in red in which the highest number of citations (783) were made to the journal "Academy of Management Journal," with a total link strength of 52864. 33 items make up Cluster-2, which is indicated in green, where the journal "Strategic Management Journal" received the peak number of citations (1057) with total link 69370. There are 17 items in Cluster-3, which are indicated in blue.

The journal "Entrepreneurship Theory and Practice" received the top number of citations (1419) with overall link strength 86317. Cluster-4, which is highlighted in yellow, contains 7 items where the journal "journal of marketing" obtained the maximum citations (328) and 18280 links.

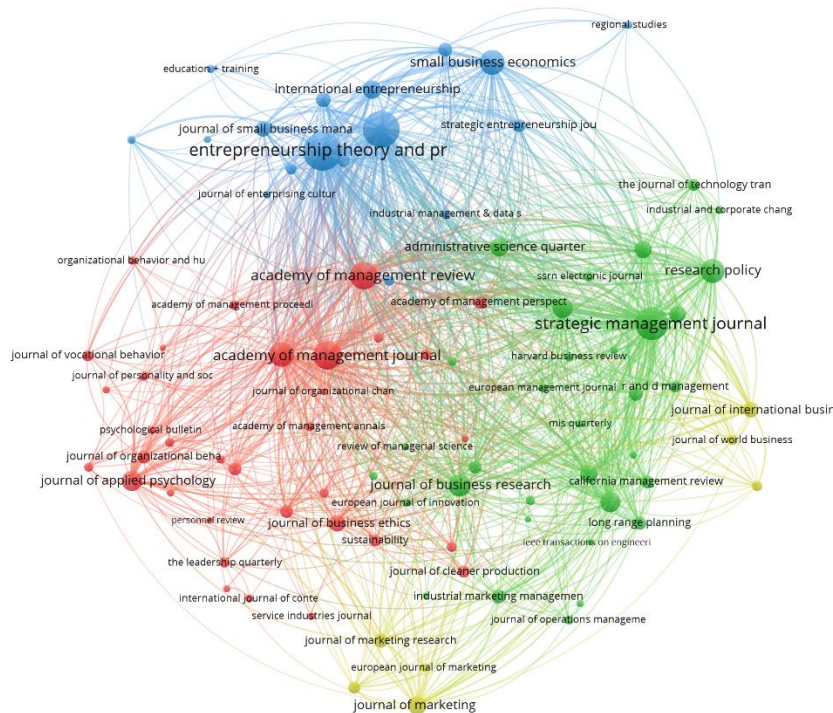


Figure 5 Co-citation of sources

5.6.3 Cited references

A cited reference must have at least 10 citations before it may be considered. 143 of the 20266 cited references met the criteria. The overall strength of the co-citation linkages with the other cited references will be computed for each of the 143 cited references. The references that have the most links overall will be selected.

Based on co-citation analysis, cited references (143 items) are divided into 4 clusters. The cluster-1 marked in red color comprises 51 items where Covin, JG, et al. (1991), *Entrepreneurship Theory and Practice*, recorded 61 citations and a total link strength of 1702. The cluster-2 marked in green color comprises 44 items whereas Podsakoff, PM, et al. (2003), *Journal of Applied Psychology*, recorded 54 citations with a total link strength of 489. The cluster-3 marked in blue color comprises 26 items where Antoncic, B, et al. (2001), *Business Venturing Journal*, recorded 57 citations having a sum of link strength 964. The cluster-4 marked in yellow color comprises of 44 items where Lumpkin, GT, et al. (1996), *Academy of Management Review*, recorded 16 citations with a total link strength of 252.

5.7 Bibliographic coupling

In 1963, Kessler proposed the idea of bibliographic linking. When two articles cite the same third work in their references, they are considered to be bibliographically connected.

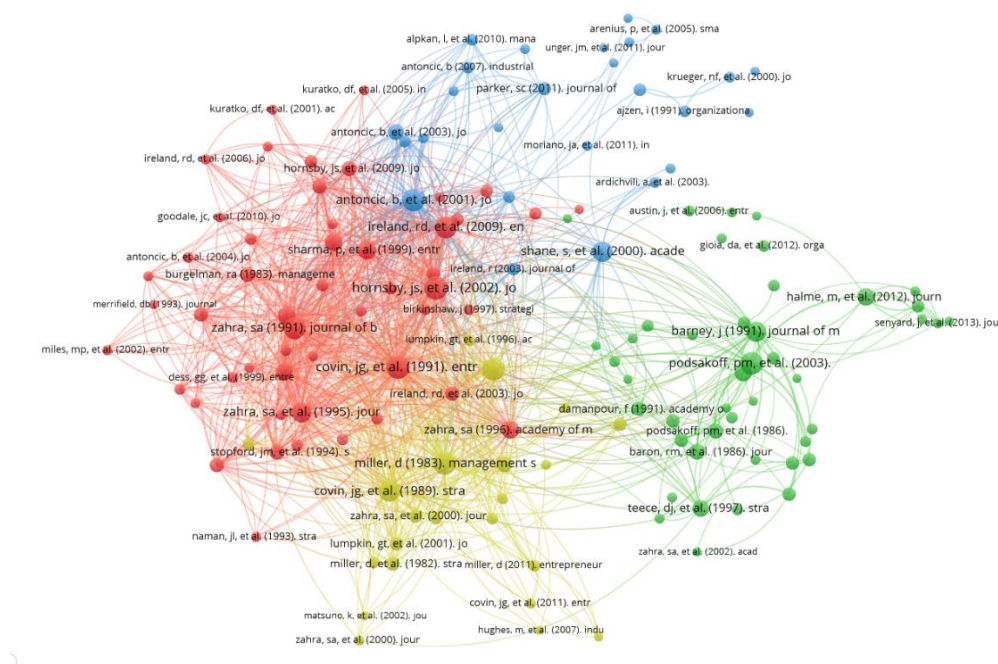


Figure 6 Co-citation of cited references

The amount of "bibliographic coupling" increases with the number of references that authors commonly mention in their bibliographies. "Bibliographic coupling" groups together documents that have a common theme.

5.7.1 Documents

126 studies were categorized into 4 groups in this research using "VOSviewer". The coupling of documents' bibliographies is shown in Figure 7. Here is a brief overview of the clusters. For this analysis, the lowest citations in favour of a document had been fixed as 20, only 126 of the 367 articles that were selected met this criterion. The cumulative strength of the "bibliographic coupling" connects between each of the 126 documents was determined, and the strongest link will be used to choose a document. Four clusters were established from the 126 documents based on "bibliographic coupling".

Messersmith (2010) recorded the maximum citations (80) along a total link strength 222 among the 39 items that comprise cluster -1, which is highlighted in red color. The 32 items in Cluster 2, which is indicated in green color comprise the maximum number of citations (158) from Ireland (2009) alongside a total link strength of 412. 28 items make up Cluster 3 (shown by the blue color), which contains the greatest number of citations (207) that Fuller (2009) documented, combined with a total link strength of 32. Muñoz (2017a) observed the largest number of citations (23) including a total link strength of 117 in the 11 elements that make up Cluster - 4, which is indicated by the blue color.

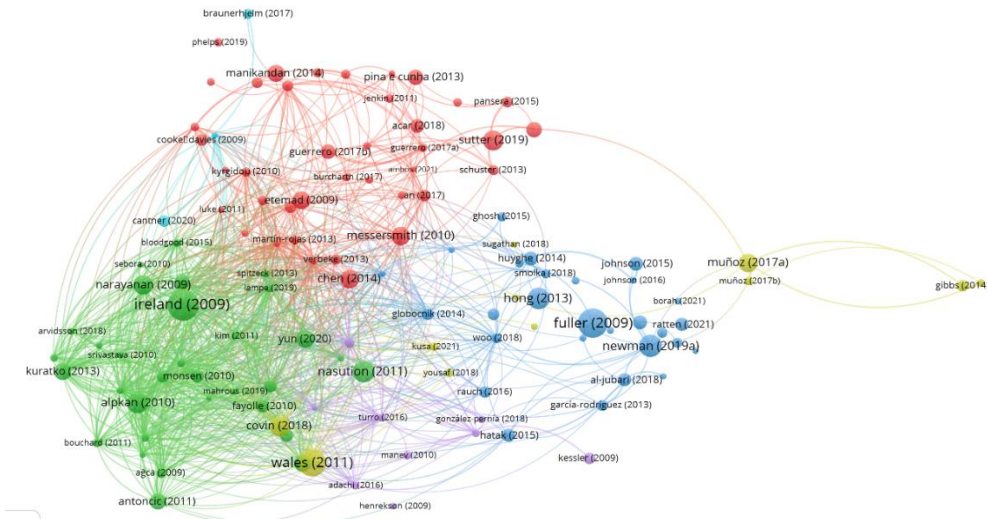


Figure 7 Bibliographic coupling of Documents

Cluster 5 consists of 9 items where Kessler (2009) received the maximum number of citations (260) inclusive of total link strength 27 which is highlighted in purple color. Cluster 6 consists of 3 items where Cantner (2020) received 37 citations with a total link of 62 indicated by the cyan colour.

6. Conclusion

This study showcases the results of a bibliometric analysis of publications on "Intrapreneurial Intensity" published between 2009 and 2023 and retrieved in the Scopus database. The trends, spatial distributions, top journals, organizations, and collaborations between the organizations and authors of "intrapreneurial intensity" were investigated in this research. Between 2009 and 2023, there were about 367 papers on "intrapreneurial intensity," or 25 papers approximately per year. Over time, there has been a growth in the number of authors and references. "David Urbano" is the principal author of this study, closely followed by "Maribel Guerrero". Yang (2018) garnered the most citations for his publications within the related field, however, Lampe (2019) holds the highest total link for his work in this field. The United States of America provides a maximum contributions in this area, succeeded by the United Kingdom as well as Spain. Also, the United States of America holds the maximum number of citations for its publications with the highest total link strength. The most productive journal in this area of study is "Journal for International Entrepreneurship and Management" while the most productive organization will be "The Autonomous University of Barcelona". Most popular keyword phrases used in the research paper are "intrapreneurship", "intrapreneurial intensity," and "intrapreneurial orientation". Either the title, abstract, or keywords use one or more of these keywords. This research could assist researchers to understand better the "intrapreneurial intensity" in the corporate from a broad perspective. In the future, we intend to review all article that has been published to identify recent trends and the advancement of innovations in this field. Future studies on "Intrapreneurial Intensity" may investigate the paper's authorship, including the impact the author has had on the field, in addition to the consequences of each issue and the concepts that have been adopted and made to use in the investigation.

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