

## The Development of MSMEs in India: A Bibliometric Analysis

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### Abstract

*This paper aims to evaluate the structure and evolutionary trend of research on development in MSMEs in India using a bibliometric examination. An analysis of academic research from 2008 to 2022 was conducted using bibliometric methods, searching for the terms used in emergent technologies. The research is intended to assess the development of micro, small, and medium companies and understand how far this topic has been achieved. Several research methods were applied, including the network method, thematic maps, and coefficients of approaching or intellectual tools. The result of this work can be helpful for new scholars and current trends, based on the study trends to achieve sustainable development goals against poverty, micro MSMEs (Micro Small Medium Enterprises), and unemployment. The highlight of the report stresses on the key issues where researchers are giving more focus which includes innovation and supply chain strategies. The findings from the study serve to enhance our understanding about areas within the extant research literature where less is known, particularly when it comes to advances and barriers that impact Micro, small-and medium enterprises (MSMEs). The present study will imbibe researchers and the experts from industry to have a profound insight into intellectual domains surrounding certain technologies that can facilitate growth of MSMEs in India, as well provide above detailed unattended research scope. The research concerning MSMEs has undoubtedly provided many facts about the growth and development of these enterprises, applicable particularly in India. To describe the research and intellectual progress on the Manufacturing industry, a bibliometric approach was used in this study. A comprehensive literature review and meta-analysis were employed to get trustworthy results.*

**Keywords:** Sustainable Development, Small and Medium-Sized Enterprises, Economic Development, Economic and Social Effects, Business Development, MSME.

JEL Classification: B21, D04, O12, J10, L53.

### Introduction

Micro, small, and medium-sized enterprises play a crucial role in the economy by creating jobs and fostering the expansion and development of large-scale industries. Micro and small-scale manufacturing units are extensively dispersed throughout several economic sectors, generating diverse and comprehensive products and services that satisfy domestic and international market demands. MSMEs account for 80% of global economic growth and contribute substantially to the economic development of both developed and developing countries. According to CII (2019) and Rajamani et al. (2022), the MSME sector in India accounts for 6.1% of the country's manufacturing G.D.P., 24.63% of its services G.D.P., 33.4% of manufacturing output, and 34% of all exports of a wide variety of commodities. However, MSME businesses must overcome several obstacles to expand their area of quality emphasis, including a lack of knowledge, resources, skills, and acceptance of quality management programs (Sharma et al., 2019).

Many indicators indicate the need for more formalization among MSMEs, a financial crunch, outdated technology, and extensive government approval (Prakash et al., 2021). Much of the body of research to date concentrates on solutions for such problems, offering social assistance, tax breaks, working capital expansion, and loan restructuring as means of supporting MSME players and helping them get back into business (Hardiningsih et al., 2022). More of these initiatives are needed in India, especially in light of the present situation. Over the next ten years, India will transition from a developing to a mature economic power, and MSMEs will play a critical role in this process. Micro, small, and medium-sized businesses are India's economic development engine.

Researchers have identified that very few studies focus on the key development areas in micro, small, and medium enterprises (Bongomin et al., 2020). Enterprises are essential to the way the economy functions.

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Thus, they must concentrate their efforts on fostering social development by producing social and environmental value and the final product's financial and commercial worth (Palacio et al., 2021). The government is using this industry's size by streamlining online MSME registration and eliminating paper processes.

On the other hand, due to its intricate organizational structure, a major corporation requires a specialist. On the other hand, a small firm may handle itself without needing an outside expert. The owner is free to exercise self-control. Then, it may function independently. With MSME, the Prime Minister of India's "Make in India" initiative has become easier to implement. It is thought to be the framework that will make this vision a reality. Furthermore, the government has directed financial institutions to increase loans to MSME-sector businesses. Digital technology is having a bigger impact on MSMEs as they operate their businesses. MSME managers may operate their businesses more sustainably through digitization, supporting the green economy (Astadi et al., 2022).

## Literature Review

The micro, small, and medium enterprise (MSME) sector plays a crucial role in various socio-economic objectives such as economic growth, employment, entrepreneurship, and exports (Zanjurne, 2018). Governments can support increased access to financial services for MSMEs through policy frameworks based on empirical evidence and practices (Malhotra et al., 2007). The impact of digitization on the Indian economy, particularly on the services sector and MSME segments, has been significant, contributing to inclusive growth (Maiti et al., 2017). Saxena et al. (2015) argue for a separate governance framework for the MSME sector, emphasizing the unique contributions of MSMEs to economic and social development, the systemic nature of their challenges, and the need for a distinct governance model. The model of articulation of governance for the MSME sector (MAG\_MSME) developed in the article highlights the importance of sharing costs and responsibilities among participants and addresses firm-level antecedents of governance (Saxena et al., 2015). The COVID-19 pandemic has had a significant impact on the Indian economy, including the MSME sector. Sahoo (2020) assesses the effects of COVID-19 on growth, manufacturing, trade, and the MSME sector, highlighting potential declines in various sectors. Redjeki et al. (2021) discuss the utilization of digital marketing by MSME players as a value creation strategy for customers during the pandemic, emphasizing the importance of adapting to digital platforms for business continuity. Overall, the literature emphasizes the importance of supporting MSMEs through financial access, governance frameworks, and digital transformation to navigate challenges such as the COVID-19 pandemic and contribute to economic development (Gibb, 2006; Prameswari et al., 2017; Hurley, 2018; Marlinah, 2020).

The literature on bibliometric analysis has been steadily growing in recent years, with researchers utilizing this powerful tool to quantitatively analyze various disciplines. Jia et al. (2013) conducted a comprehensive exploration of urban health through bibliometric analysis, providing an overview of health issues related to urbanization. Similarly, Ramos et al. (2013) performed a bibliometric analysis of leishmaniasis research, highlighting the importance of publications as a measure of research success. In the context of entrepreneurship and innovation, Sharma (2019) conducted a bibliometric survey to study the trends and progress of academic research in India. The study focused on identifying key articles, journals, authors, and institutions contributing to innovation and entrepreneurship research. Additionally, sugaraj (2014) based their study on data collected from the Fourth All India Census on MSME, emphasizing the importance of data availability as a limitation. Sahu et al. (2020) examined the current trends of Library and Information Science (LIS) publications in India from 2014 to 2018, highlighting contributions from both academics and professionals in the field. Furthermore, Sukhwani et al. (2020) explored the role of Smart Cities in optimizing the water-energy-food nexus, focusing on the opportunities in Nagpur, India. Overall, the literature review on bibliometric analysis showcases the diverse applications of this methodology across different research areas, providing valuable insights into research trends, publication patterns, and the impact of scholarly work (Mansoor et al., 2024).

A bibliometric analysis of Micro, Small, and Medium Enterprises (MSMEs) in India highlights the significant role they play in the economy, contributing substantially to employment, GDP, and exports. MSMEs are integral to fostering entrepreneurship, innovation, and balanced regional development by offering employment opportunities to a large segment of the population, including marginalized groups (Das, 2017; Kumar, 2019; Sharma & Goyal, 2020). Despite their importance, MSMEs face multiple challenges, such as limited access to finance, technological barriers, and regulatory issues (Sinha & Agarwal, 2019; Chakraborty, 2020). Financial constraints remain a major hurdle, with many enterprises finding it difficult to secure credit from formal financial institutions, while infrastructural deficiencies and a shortage of skilled labor further impede their growth (Gupta, Sharma & Goyal, 2018).

To address these issues, the Indian government has implemented several policies and schemes, including the Micro Units Development and Refinance Agency (MUDRA) and the Make in India initiative, which aim to improve financial access, enhance market linkages, and create a supportive environment for MSME growth (Patel & Patel, 2017; Singh, 2019). Digitalization has also played a crucial role in enhancing MSME competitiveness by enabling access to broader markets and improving operational efficiency, although the digital divide poses significant challenges, particularly for rural enterprises (Verma, Gupta & Kaur, 2021; Mehta & Kaur, 2020).

Bibliometric analyses reveal a significant increase in research on MSMEs in India over the past decade, reflecting growing academic interest in the sector. The primary research areas include financial challenges, technology adoption, policy impacts, and sustainability (Pandey & Sharma, 2021; Joshi & Khandekar, 2022). Notably, studies on access to finance highlight the persistent financial difficulties faced by MSMEs and the impact of various financial schemes (Rana & Dewan, 2020). Research on technology adoption focuses on the role of digital tools in boosting productivity and competitiveness (Sarkar & Sarkar, 2021), while policy analysis examines the effectiveness of government initiatives in fostering MSME growth (Patel, Sharma & Singh, 2021). Furthermore, sustainability has emerged as a key theme, with studies exploring the long-term viability of MSMEs through sustainable practices (Das & Sahoo, 2019).

MSMEs are critical to India's economic development, but overcoming financial, technological, and regulatory challenges is essential for their sustained growth. Continued research and comprehensive policy interventions are necessary to support the sector's resilience and development. This paper aims to present a bibliometric review to explore the evolution and conceptual structure of research on the developments of MSMEs in India. The research questions of the present research are,

**RQ1. What is the current state and patterns of research on MSMEs development in India in the past several years?**

**RQ2. What research areas and gaps exist in the present body of work?**

**RQ3. What is the conceptual structure of the knowledge base for MSMEs in India?**

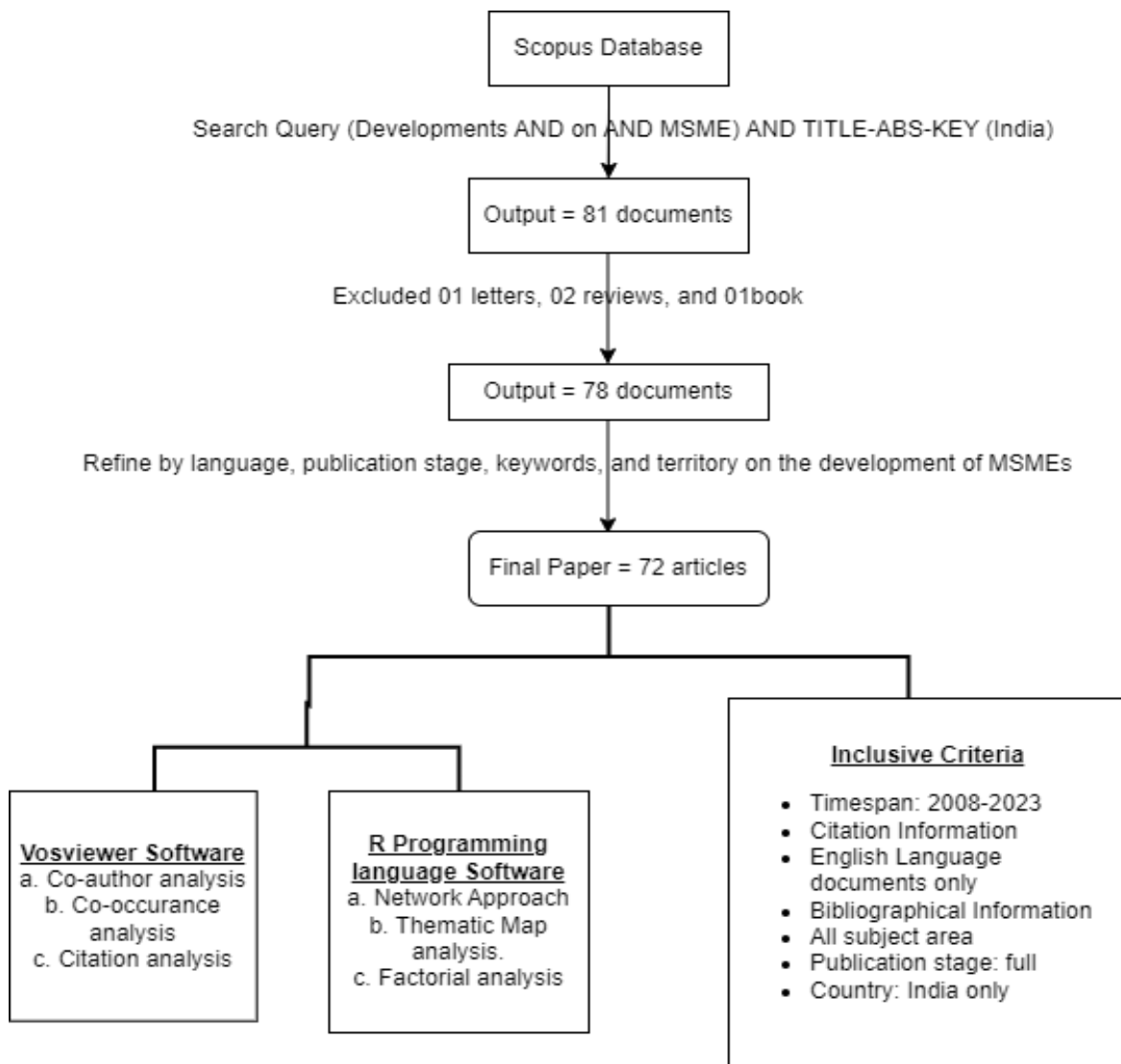
## Methods

The study presents a bibliometric analysis of MSMEs' developments in India, a country that has been underrepresented in previous research. With the use of visualization networks and maps, the bibliometric review and visualization seek to accomplish predetermined goals by giving scholars and stakeholders in the construction industry a thorough grasp of the composition and research trends in emerging MSMEs in India.

Bibliometrics is a quantitative technique that involves the visual and logical examination of publications by analyzing, mapping, and discovering structural patterns in a research subject. It does this by using mathematical models, visualization clusters, and algorithms. (Serenko, 2021).

The bibliometric analysis has been applied to multi-disciplinary subjects like information technology (Khan, 2016), knowledge management (Serenko, 2013), construction conflict (Liu *et al.*, 2022), financial literacy

(Baker et al., 2020), and digital economy (Kushadiani *et al.*, 2021); as well as other scientific approaches such as semantic analysis reviews (Liu et al., 2020), Donthu *et al.* (2021), and Xu *et al.* (2018).



**Figure 1.** Flowchart of the Data Collection

For this study, the Scopus database was used as the data source. However, due to their extensive coverage of publications from other areas and their availability in a multitude of digital databases (Alvarado, 2016), the procedure was modified to meet the particular needs of this investigation. (Ebrahim, 2021). Well-executed bibliometric research can lay the groundwork for unique and significant advances in a discipline. Scholars can use it, for instance, to (1) obtain a comprehensive understanding, (2) pinpoint knowledge gaps, (3) generate fresh research ideas, and (4) articulate their intended contributions to the area (Donthu et al., 2021).

Publications on the growth of MSMEs in India were found in the Scopus database by using certain keywords, such as (TITLE-ABS-KEY (Developments AND on AND MSME) AND TITLE-ABS-KEY (India)), without any restrictions on the number of years.

A total of 78 books were chosen from the available literature after 01 letters, 02 reviews, and 01 book series were removed from the data set in order to filter the result. Ten book chapters, ten conference papers, and fifty-five research articles were taken into consideration for the study (Dwivedi, 2016). They maintained

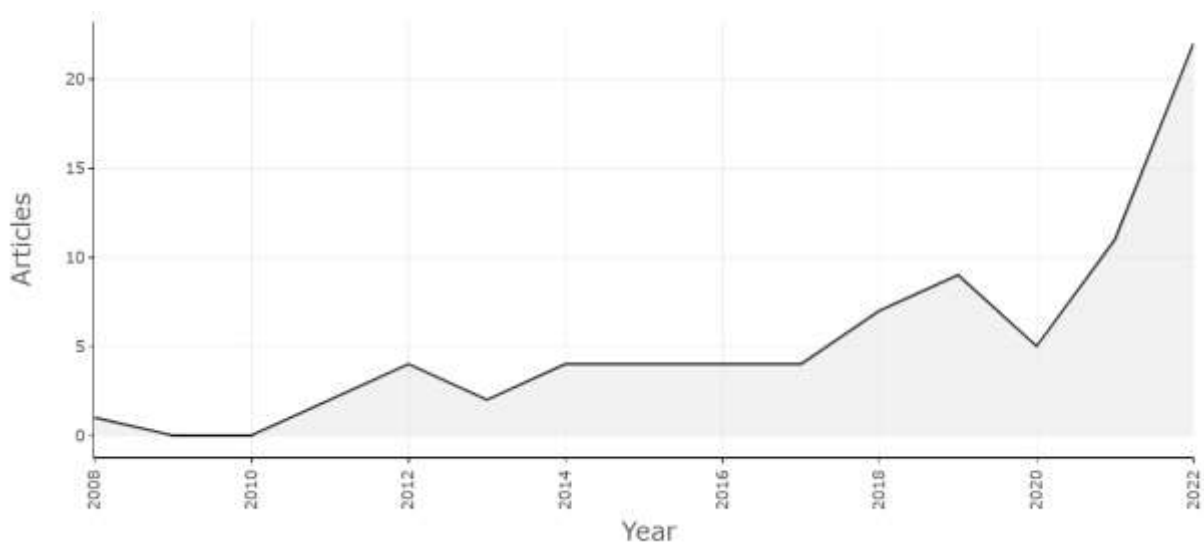
that, compared to other sources, journals and conference papers are seen as more trustworthy sources for literature reviews and offer extensive information. Based on the filter criteria, 72 articles were picked for the initial evaluation. The advantage of using a limited number of documents for the study is that the results might be compromised by publications unrelated to the investigation's topic and goal (Sweileh et al., 2017).

### Results

The results obtained from this study can be attributed to the growing recognition of the importance of MSMEs in driving economic growth and the need to address the challenges they face. Table 2 presents an overview of the main discoveries made throughout the database collection. The average document stands at 3.38, average citations per documents 1.654 and number of authors published during the time span of 2008:2022 was 197.

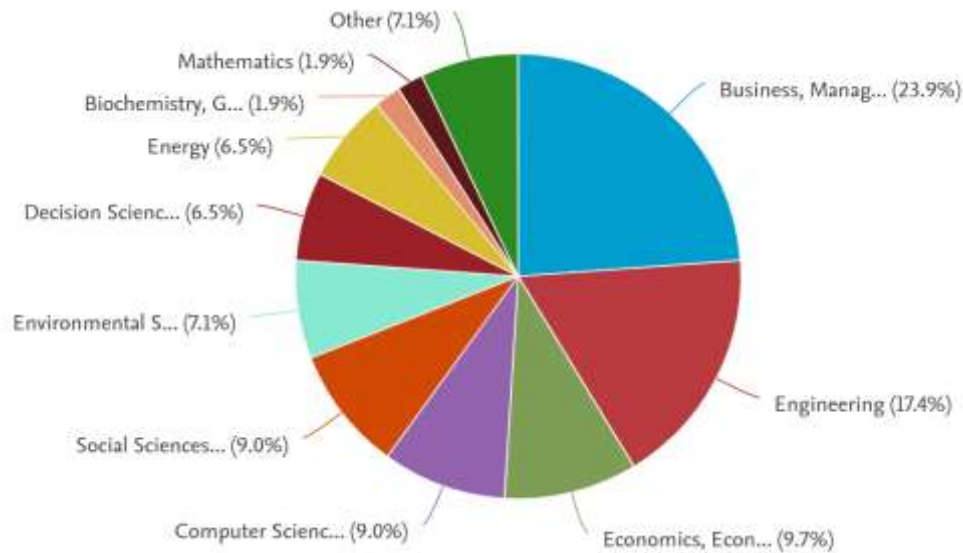
**Table 2.** Primary Information from the Scopus Database

Description	Results	Description	Results
<b>Main Information</b>		Authors of single-authored documents	11
Timespan	2008:2022	AUTHORS COLLABORATION	Nil
Sources (Journals, Books, etc)	72	Single-authored articles	14
Documents	81	Co-Authors per articles	2.58
Annual Growth Rate:	0	International co-authorships:	7.407
Document Average Age	3.38	<b>Document Types</b>	
Average citations per document	1.654	article	55
References	2745	book	1
<b>Document Contents</b>		book chapter	10
Keywords Plus (ID)	249	conference paper	10
Author's Keywords (DE)	301	conference review	2
<b>Authors</b>		letter	1
Authors	197	review	2



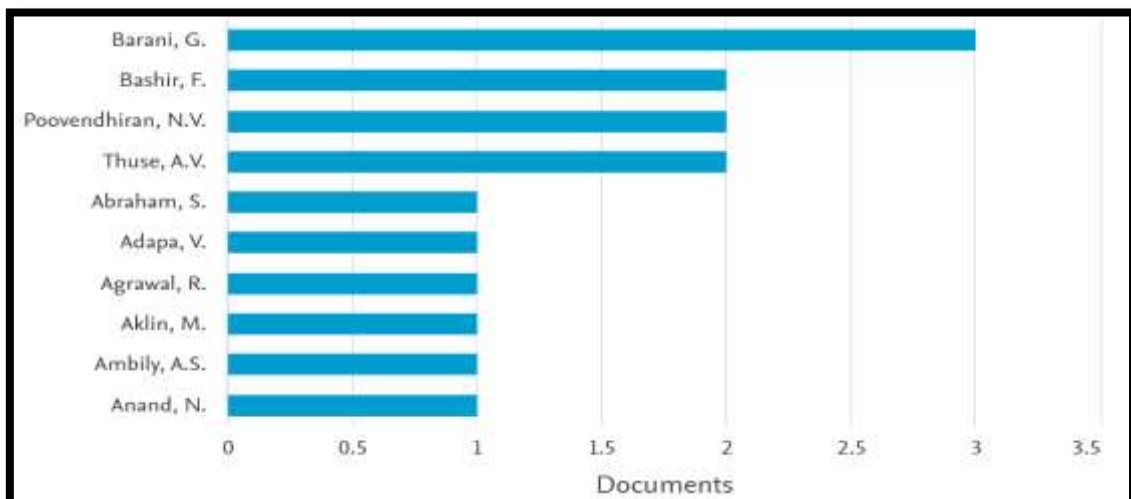
**Figure 2.** Annual Scientific Production

A concise summary of the annual research output is shown in Fig. 2. There was a significant variance in paper publishing in different journals across different sectors in 2022, with 2022 exhibiting the most notable peak. There is a clear increase, with 17 publications in 2020 instead of just 3 in 2019. According to India's yearly production research, MSMEs' growth rate was 0% yearly.



**Figure 3.** Authors' Contribution Towards MSME Research

Many authors have contributed to MSMEs in various fields of study. The highest contribution is that business and management researchers contributed 37 articles, engineering researchers contributed 27 articles and then went to economics, econometrics, and finance.

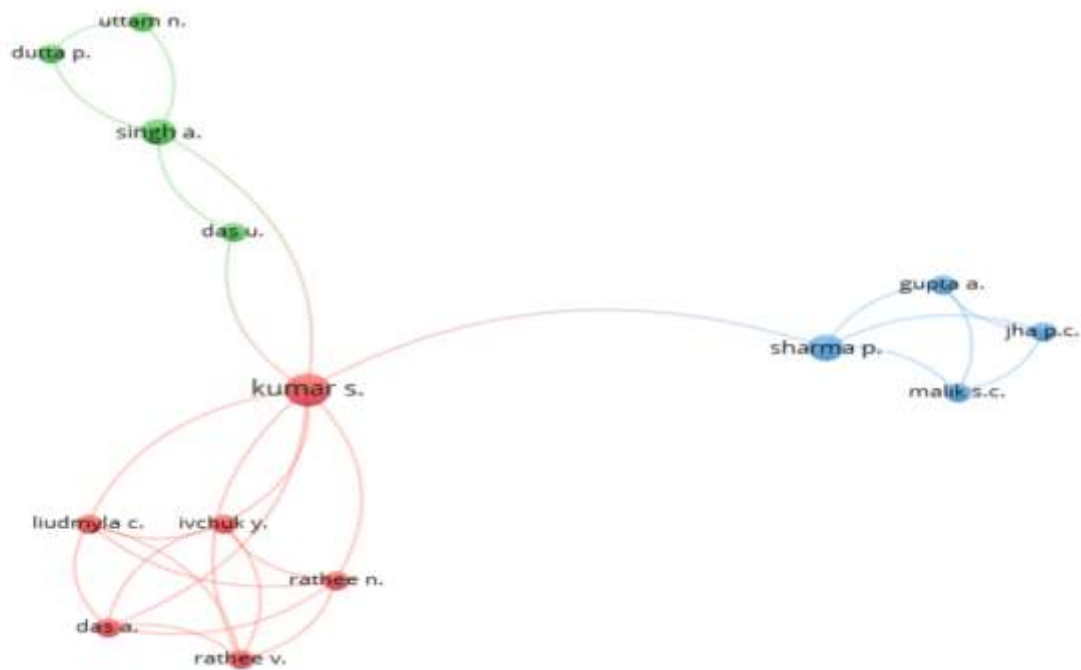


**Figure 4.** Name and Number of Articles Published

Figure 4 shows how many publications scholars have authored about MSMEs in India. The highest contribution is from Barani G., three paper publications, followed by Bashir F., Poovendhiran N.V., etc. They are the leading authors who contributed to the study.

Citation analysis is not the same as co-citation analysis, a semantic similarity metric for papers that leverage citation connections. According to Small (1973), it is the frequency with which two papers are quoted together in other texts. We consider a document to be co-cited when at least one other refers to two papers.

A co-authorship analysis describes a publication written by two authors who are nationals of the same country. Software called V.O.S. viewer is employed in group mapping analysis. Indian authors who worked together to write a single essay on a certain subject are shown in Figure 5. The publication's nation is defined by the initial author's country of publication. For the study, the "full-counting method" is used. According to the study, Kumar S coauthored with citations from Sharma P and Ratte. A network of co-authors has been created as a consequence.



**Figure No. 5.** Co-Author Analysis. Source: Authors' Research

Through citation analysis, one may determine the degree of influence a certain piece or author has had by examining which other authors have referenced the work in their works. The effect (or "quality") of an article is determined by how frequently it appears in the research of other writers. Citation analysis is a method used to quantify the influence of a publication or author by counting the instances in which other publications cite an article. Citation analysis based on author count is displayed in figure 6 above.

The analysis indicates that a document can have a maximum of ten writers. The threshold limit for the minimum number of publications and citations is three. Sixty-six authors out of the total of 82 reach the cutoff. The strength of each reference link to other writers for the 25 authors will be ascertained. Sixty-six writers with the strongest overall links will be chosen. The yearly average of articles is used to calculate visualization scores. Other authors cite Bharani G., Kumar S., and Raghuvamshi J. more frequently.

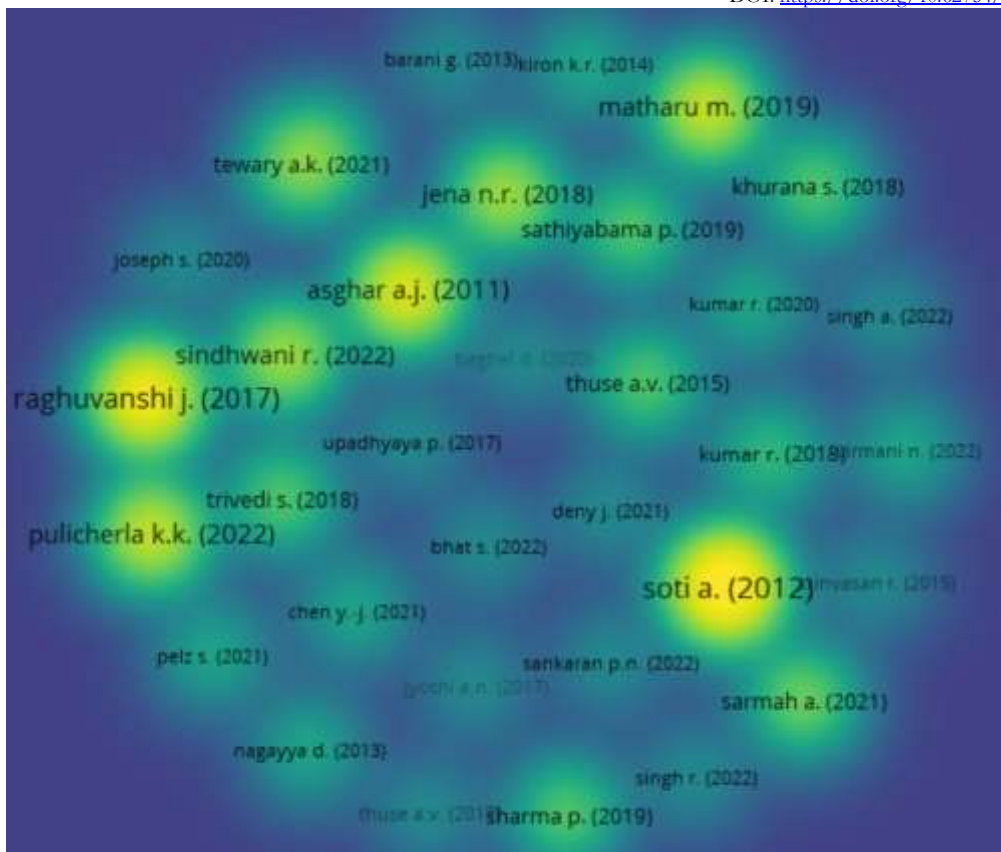


Figure 6. Citation Network. Source: Authors' Research

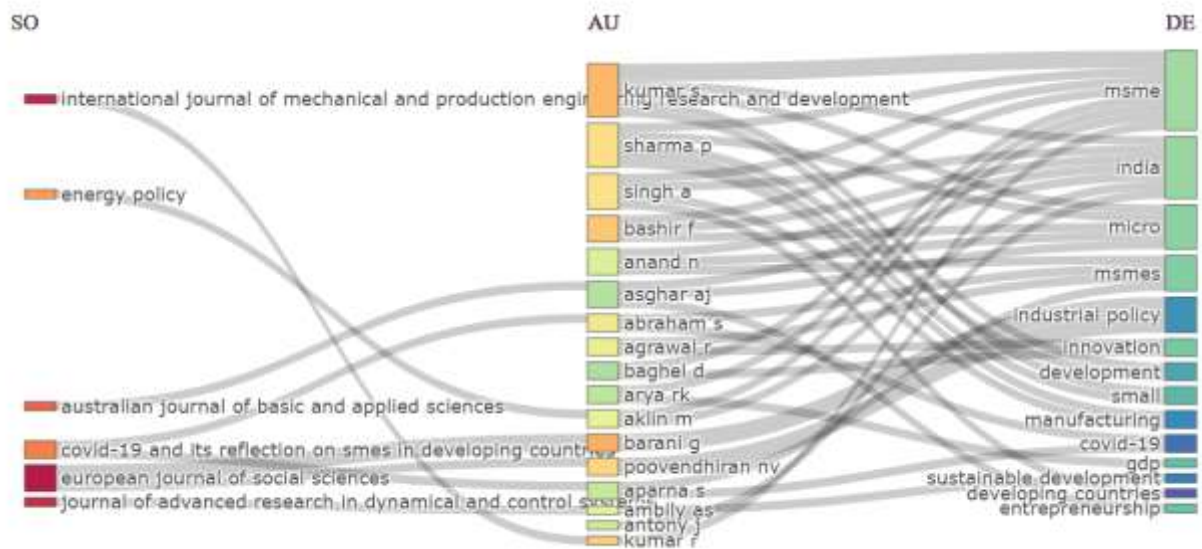


Figure 7. Three-Field Plot Diagram. (Source: Authors' Representation).

Use a Sankey diagram to visually represent the key components of three fields (authors, keywords, and journals) and their relationships. It is a data matrix where the variables correspond to the Field Tag in the original SCOPUS, and the cases relate to manuscripts. Figure 7 highlights the top researchers who used common keywords in their respective publications and articles. It indicates the fields to analyze using the SCOPUS field tags. Default is fielded = c ("A.U.", "D.E.", "SO"). Authors such as Bhagel, Arya RK, and



Aklin .M are focused on MSME published in the International Journal of Mechanical and Production Engineering.

The graphic demonstrates the node size about the proportions of the frequency used by the authors (A.U.) Kumar S., Singh A., Bashir F., Anand N., and Kumar R. Publishing in journals or sources indicates (So), as shown by the author's keywords (D.E.) India. More authors from the diagram are published in the European Journal of Social Sciences.

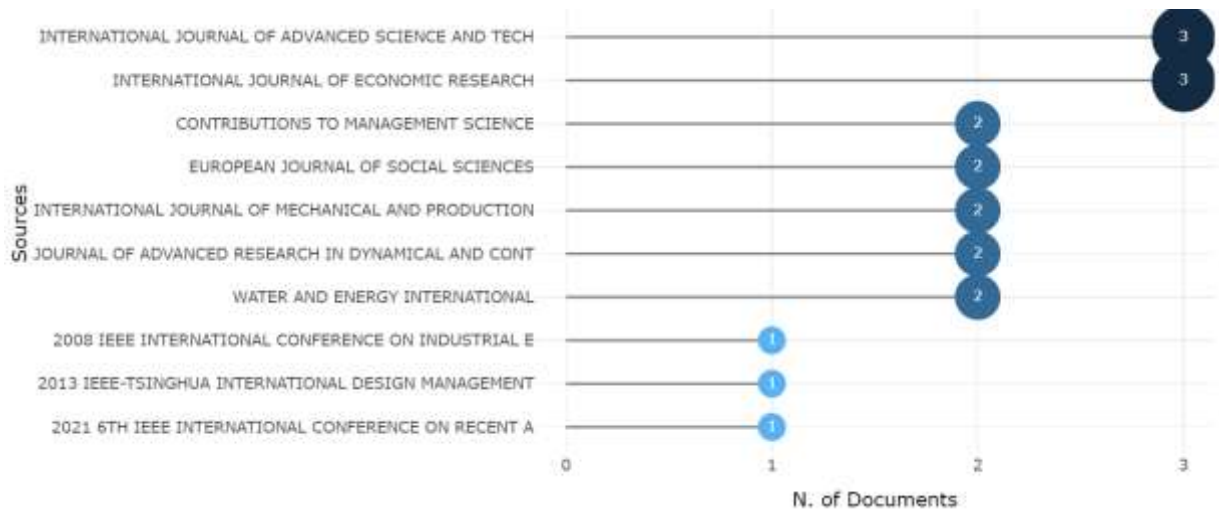


Figure No. 8 Most Significant Journals

Figure 8. shows, along with citations, the year-by-year distribution of the top 20 writers from 2011 to 2023. It can be viewed that authors have yet to contribute to the research on MSMEs in India constantly. Scholars such as Barani G wrote two articles entitled "Factors Influencing the Extent of Utility of Industrial Policy by Scale Entrepreneurs in Tamil Naidu Study, India" and "Role of Government in Bringing the Graduating Members to the MSME Movement to Reduce Poverty and Unemployment - a study on Salem, India" were the preliminary work.

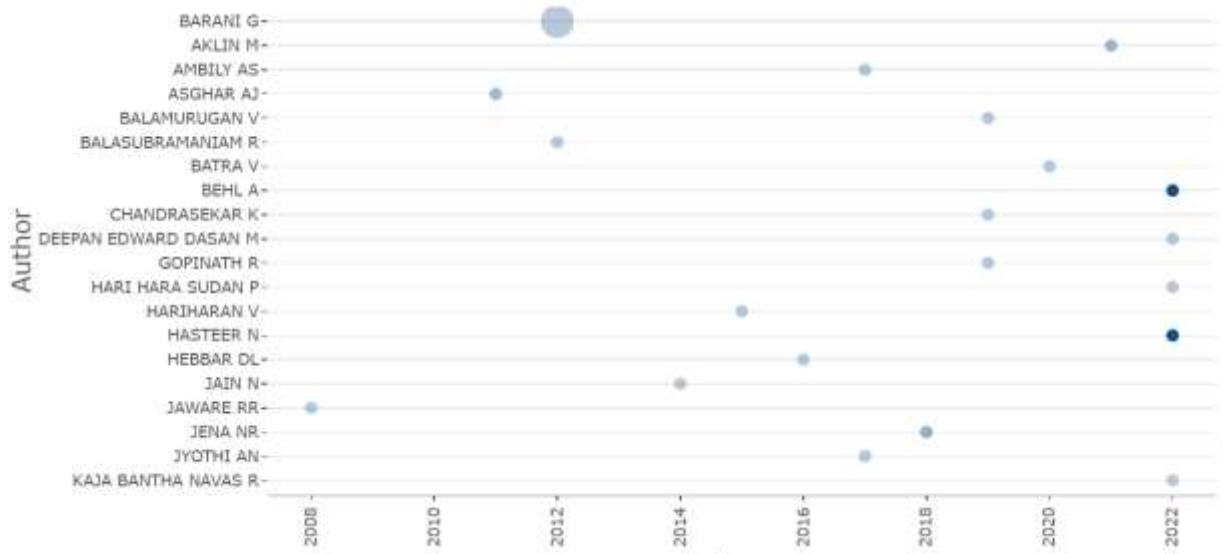


Figure No.9 Authors' Contribution Over Time. Source: Authors' Research

Table no. 3 Shows the Details of Leading Indian Authors' Articles in Their Respective Journals

Author	Year	Title	Source	T .C.	Tips
Kumar s	2022	Gender, technology, and innovation: the role of women in Indian micro, small and medium enterprises	World review of entrepreneurship, management, and sustainable development	1	1
Kumar s	2021	Adoption of cleaner production innovations by Micro, small and medium enterprises: Lessons from the clay-fired brick manufacturing sector in India	International journal of management and enterprise development	0	0
Barani g	2013	Impact of industrial policy on small scale industries: a cluster analysis	Life science journal	1	0.1
Barani g	2012	Factors influencing the extent of the utility of industrial policy by small-scale entrepreneurs in Tamil Nadu study, India	European journal of social sciences	0	0
Barani g	2012	Role of government in bringing the graduating SHG members to the MSME movement to reduce poverty and unemployment: a study on Salem, India	European journal of social sciences	0	0
Singh a	2022	Micro, small, and medium suppliers' perspectives on supply chain social sustainability: new evidence from India	Journal of Cleaner Production	0	0
Bashir f	2022	The impact of human resource management practices on affective commitment: an empirical study in Micro, small and medium enterprises using partial least squares structural equation modelling	South African journal of business management	0	0
Singh a	2022	Gender, technology, and innovation: the role of women in Indian micro, small and medium enterprises	world review of entrepreneurship, management, and sustainable development	1	1
Bashir f	2022	Impact of employee training on environmental performance: Empirical evidence from micro, small and medium enterprises	Journal of environmental protection and ecology	0	0
Sharma p	2021	Adoption of cleaner production innovations by Micro, small and medium enterprises: Lessons from the clay-fired brick manufacturing sector in India	International journal of management and enterprise development	0	0
Kumar r	2020	Relationship between dental fluorosis and IQ of school-going children aged 10–12 years in and around Nalgonda district-a cross-sectional study	Journal of Indian society of pedodontics and preventive dentistry	2	0.667
Sharma p	2019	Quality improvement in the manufacturing process through Six Sigma: A case study of Indian MSME firm	Yugoslav journal of operations research	4	1
Kumar r	2018	Stand up India programme “an address to financial problems of micro and small-scale manufacturing and production units	International journal of mechanical and production engineering	3	0.6

			research and development		
Thuse av	2017	Inclusive entrepreneurship for the micro, small, and medium enterprises: the economic perspective	Entrepreneurship: concepts, methodologies, tools, and applications	1	0.167
Poovendhiran nv	2013	Impact of industrial policy on small scale industries: a cluster analysis	Life science journal	1	0.1

Source: Authors own representation.

Note: T.C. indicates Total citation, and Tcpy indicates Total citation per year.

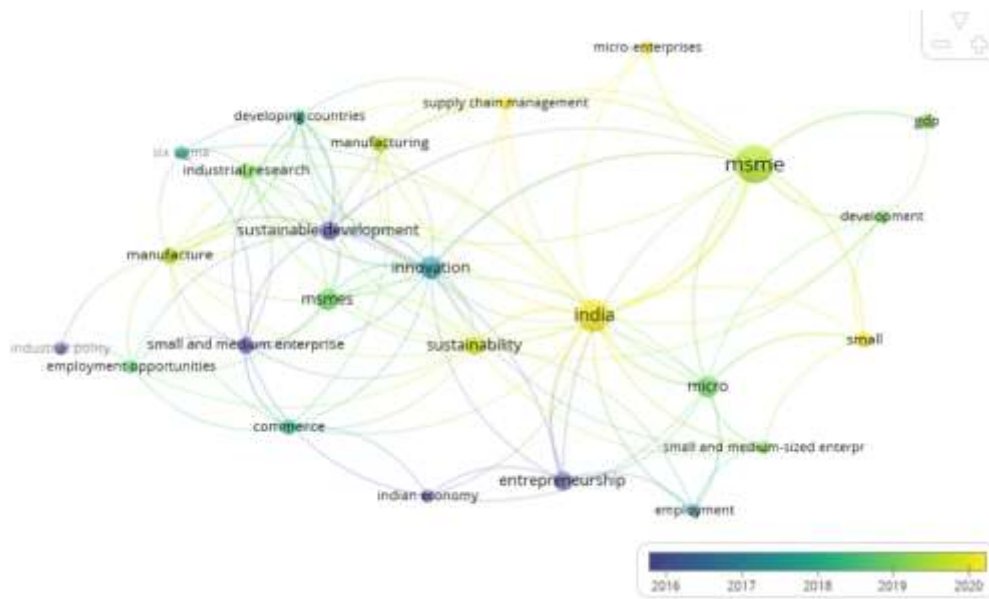
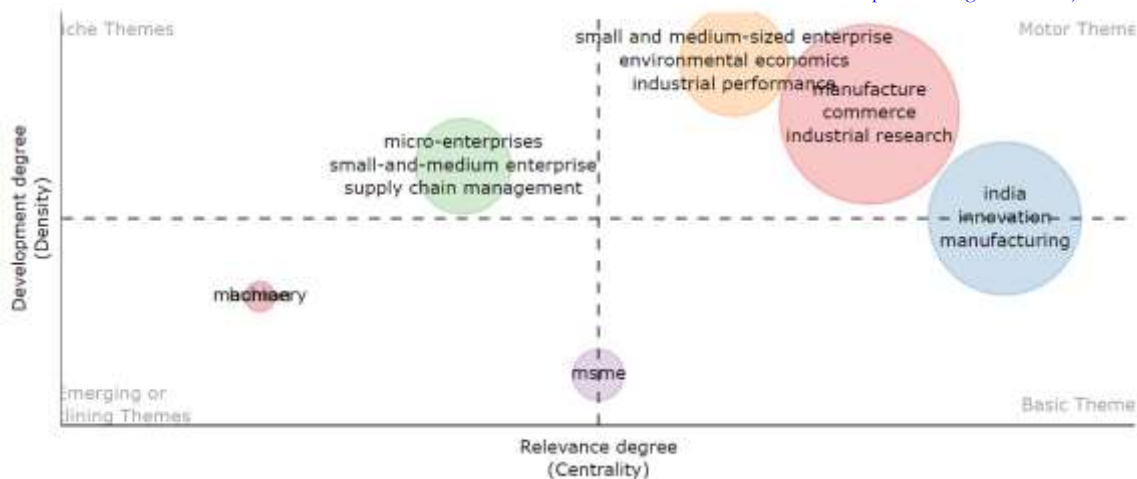


Figure No. 10 Co-Occurrence Network Analysis.

Source: Authors' Research

A co-occurrence network, also called a semantic network, is a method to analyze text that includes a graphic visualization of potential relationships between people, organizations, concepts, or other entities represented within written material. As observed in Figure, the area under study uses various keywords.

It was observed that the words "MSME," "Sustainability," "Commerce," "Innovation," etc. are at the centre of the network graph and have the highest co-occurrence index in the sample. This can be attributed to the nature of the search query used in this study. There are 13 clusters, and the total link strength is 154. The minimum number of keywords is 3; out of 497, 25 meet the threshold.



**Figure No. 11** Thematic Map Analysis.

Source: Authors' Research

A thematic map is a very insightful plot, and we can analyze themes according to the quadrant in which they are placed: Upper-right quadrant: motor-themes, lower-right quadrant: basic themes, lower-left quadrant: emerging or disappearing themes, and Upper-left quadrant: very specialized/ niche themes.

The themes found in the first quadrant are motor themes. Highly developed central themes. The following themes emerged as motor themes: The role of the small and medium scale enterprises, environmental economics, are the critical and highly developed theme, and The other motor theme investigates the role of the disposition effect and peculiar risk in explaining industrial performance and research.

Basic and transverse themes in the fourth quadrant are central to the research area but have yet to be highly developed. The following key themes emerged, Manufacturing and MSME intersect, emerging as another theme. The niche themes are found in the second quadrant and are highly developed themes outside the research area. Micro enterprises and Supply chain management emerged as minor niche themes.

Emerging and declining themes in the third quadrant are separate from the field of study and well-developed. Machinery and MSMEs are falling, or emerging themes are finding their feet and require further investigation.

However, the researchers steadily focus on small and medium enterprises, commerce, and machinery as an emerging theme. The cluster straddles between motor themes and highly developed isolated themes, with good centrality and high density. It indicates the most emerging themes the researchers focus on, such as innovation and supply chain management.

**Table No. 4** Shows the List of Authors, Articles Published and Journals

Authors	Title	Name of the Journal	Year	TC
Kumar R; Reddy Reddy N; Karthik T; Reddy M; Nagakishore	Relationship Between Dental Fluorosis And I.Q. Of School Going Children Aged 10-12 Years in And Around Nalgonda District-A Cross-Sectional Study	Journal Of Indian Society of Pedodontics and Preventive Dentistry	2020	2
Pulicherla Kk;Adapa V;Ghosh M;Ingle P	Current Efforts on Sustainable Green Growth in The Manufacturing Sector to Complement "Make In India" For Making "Self-Reliant India"	Environmental Research	2022	9

Pramila Devi M;Ramachandran S	Training And Skill Development Activities for MSMEs In India	International Journal of Pharmacy and Technology	2016	0
Barot S;Singh R;Chetwani Sh	Development Of Premium Efficiency Ie3 Class Induction Motors Using Same Stampings of High-Efficiency Ie2 Class Induction Motors	Water And Energy International	2019	0
Jaware R;Wani V;Pandey Mk	Fostering Entrepreneurship Through Technical Education for Sustainable Growth of Small and Medium Enterprises In India	IEEE International Conference On Industrial Engineering And Engineering Management, IEEM 2008	2008	0
Bhalla N;Sharma R;Kaur I	Effect Of Tax Knowledge and Technological Shift in Tax System on Business Performance: A Pls-Sem Analysis	Sustainability (Switzerland)	2022	0
Kalai Lakshmi Tr; Kaja Bantha Navas R; Sharmila Parveen S; Yogesh M; Deepan Edward Dasan M; Hari Hara Sudan P	An Empirical Study on Industry 4.0 Future Practices In Indian MSMEs	IEEE International Conference on Recent Advances and Innovations In Engineering, ICRAIE 2021	2022	0
Khurana S;Mannan B;Haleem A	A Comparative Study of Practices For Integration Of Sustainability With Innovation For Micro, Small & Medium Scale Manufacturing Enterprises (MSMEs) In India And In England	I.O.P. Conference Series: Materials Science and Engineering	2018	4
Kiron Kannan K	An Investigation on The Innovations in Steel Re-Rolling MSMEs Concerning Industries In Kerala State, India	Applied Mechanics and Materials	2014	2
Chen Y-J; Seshadri S; Sohoni Mg	A Demand Partitioning Framework to Reserve Production for Small Enterprises	Naval Research Logistics	2021	2

In this part, we exploit the conceptual structure function embedded in Bibliometrix to explore the conceptual structure landscape of the MSMEs in India research. According to Aria and Cuccurullo (2017), diverse dimensionality reduction techniques could be employed to achieve the identification of conceptual structure, including multidimensional scaling (M.D.S.), multiple correspondence analysis (M.C.A.) and correspondence analysis (C.A.). In this study, we adopt M.C.A., a generalization of C.A., using the top 50 frequency keywords in the literature. Thus, two clusters of documents communicating similar concepts are outlined and exhibited in the Figure below. As a supplementary instruction, Figure no. 12 gives a detailed presentation on the topic dendrogram of hierarchical cluster analysis within the top 50 high-frequency keywords, plus in the field of review on the development of MSMEs in India. In Figure, the first cluster (in red) contains four keywords, suggesting concerns about poverty, micro-enterprises, unemployment, and small and medium enterprises. The second cluster shows that ERP and supply chain management are indicated in blue. The factor maps allow the detection of classes or groups of individuals associated with descriptors. Unknown individuals can be quickly introduced into factor graphics and identified using a classification procedure. This is known as pattern recognition.

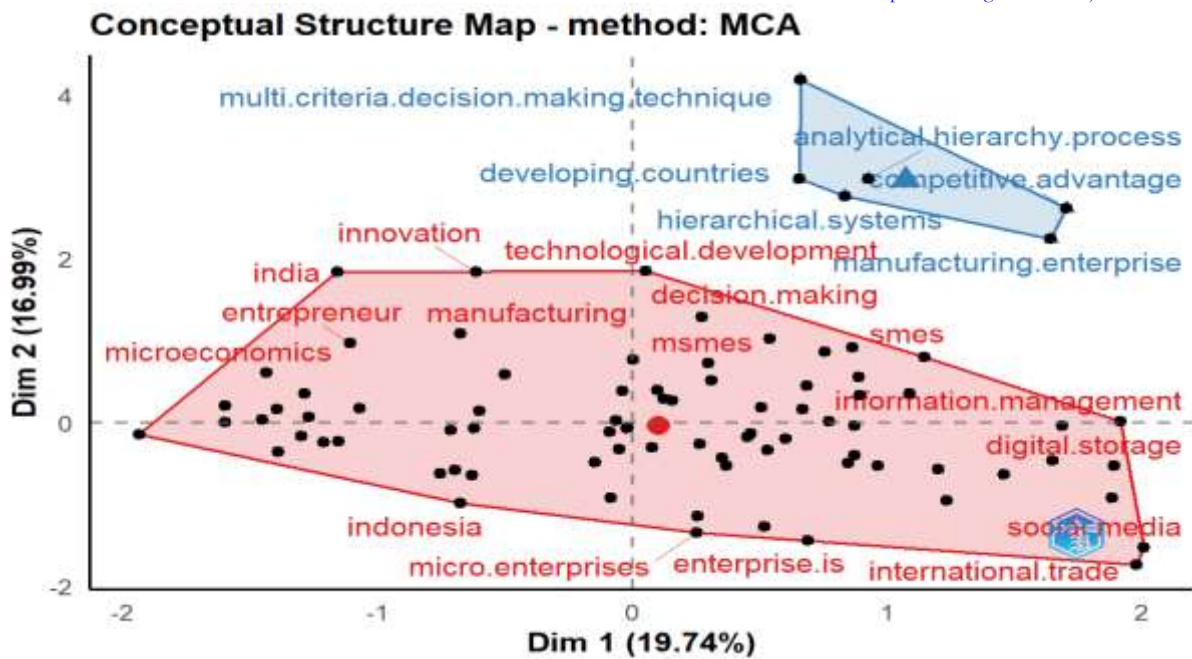
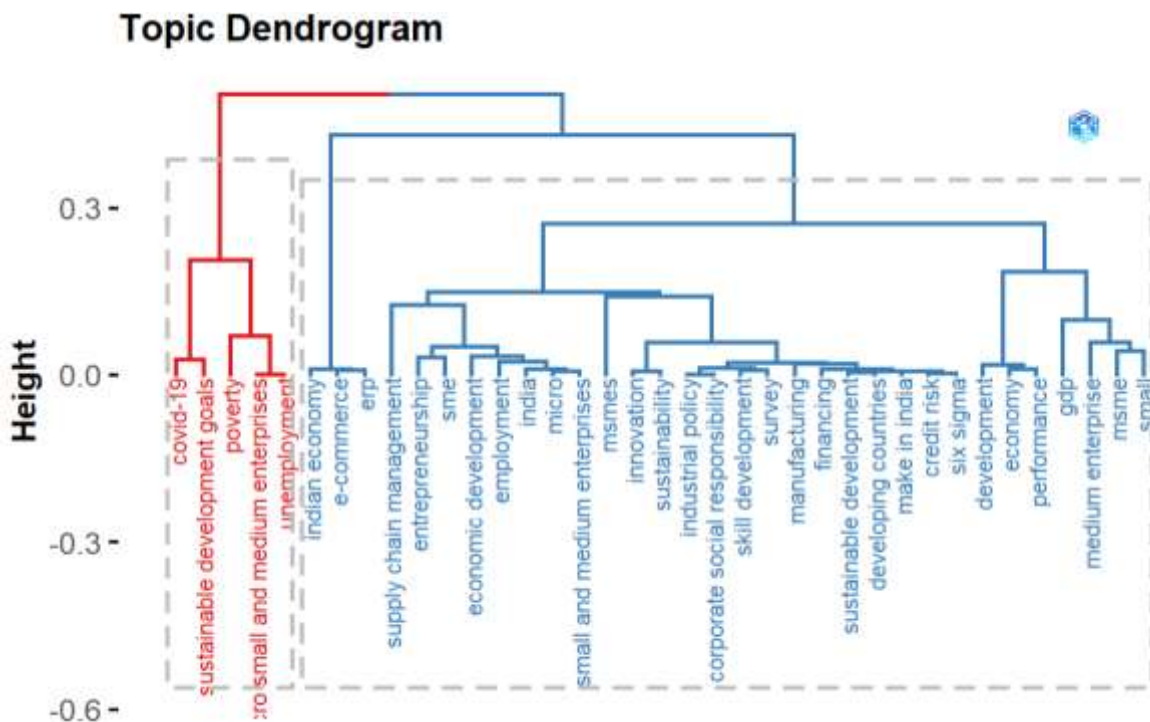


Figure No. 12 Conceptual Structure Map Analysis.

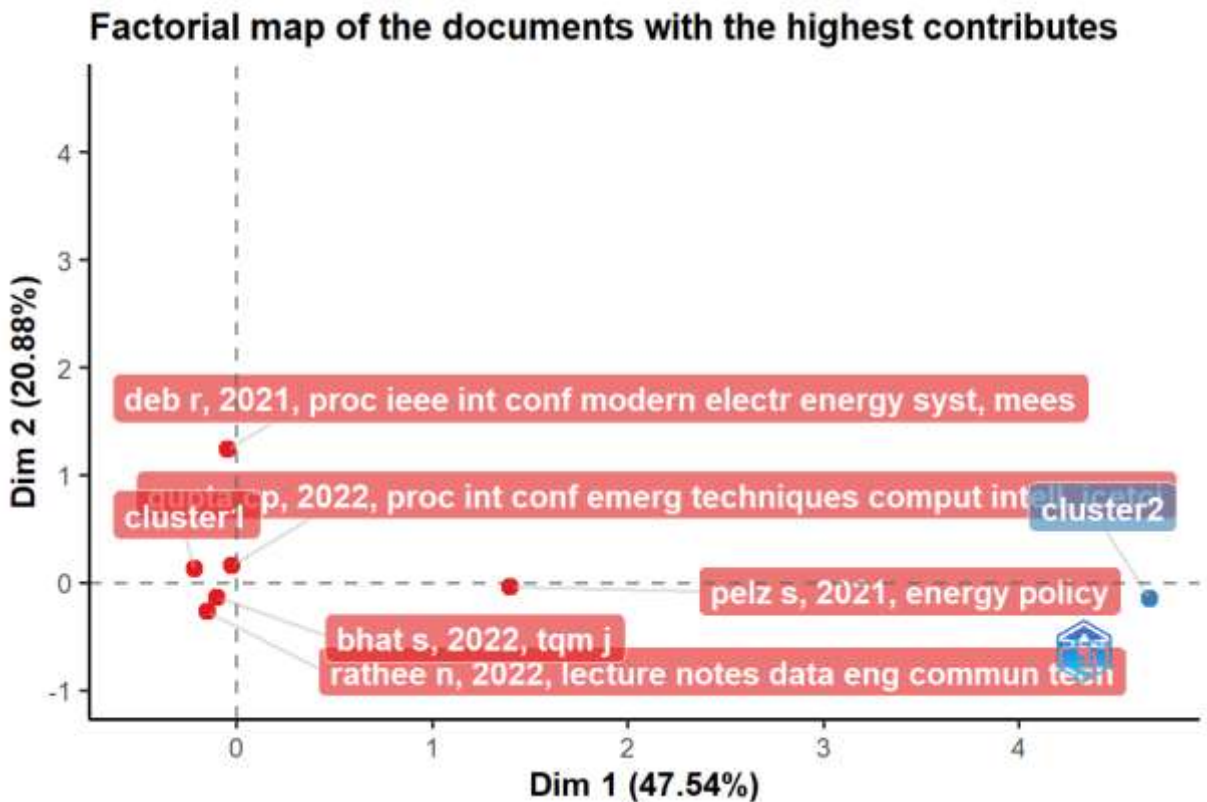
Source: Authors' Research

The factor maps enable the identification of classes or groups of people linked to descriptors. Unknown individuals can be added to factor graphics and identified by a classification process. Pattern recognition is the term used for this. The factors in the dataset  $y_1, y_2, \dots, y_p$  are thus represented by factor analysis as a linear combination of latent variables known as factors, denoted by  $f_1, f_2, \dots, f_m$  where  $m \leq p$ . The dimensions 1 has 19.74% and dimension 2 has 16.99%. The causes, however, are purely speculative because they cannot be seen or measured.



**Figure No. 13** Topic Dendrogram of Hierarchical Cluster Analysis of Keywords Plus in Developing Msmes. Source: Authors' Research

In addition, the most contributing papers associated with cluster one could be investigated via Bibliometrix, as reported in Figure 12. For cluster one, five papers are detected. To name a few, Reflections Of Covid-19 On MSMEs In Developing Economies: A Case Of India (Chaudhary, Sodani and Das, 2020), Contribution Of MSMEs Concerning Entrepreneurship Development And Employment Generation In North-East India: A Critical Evaluation (Palacio et al., 2021).



**Figure No. 14** Factorial Map Analysis.

Source: Authors' Research

Factor analysis is a statistical method applied to the values of an initial set of input variables known to have mutual correlations to find a smaller group of factors that describe the underlying interrelationships and joint variability.

## Discussion

The study carried out a comprehensive bibliometric review of recent developments in MSMEs in India. The following paragraphs discuss the findings in brief. The study was initiated by importing the data by reverse keywords "develop" AND "MSME" AND "India" and found more than 82 articles from the Scopus database; the filter was refined and restricted to 76 articles by excluding irrelevant sources wisely and subject area-wise. Those documents are imported into CSV format. The period chosen for the study is from 2008-2023. Each article was reviewed using an abstract, research design, and methodology. With the help of Biblioshiny, bibliometric R programming language, and VOSviewer software, extract and analyze the article's data for visualization.

From Table 2. we found the primary information, such as the article's average age is 3.38, the average citation per article is 1.65, the authors' keywords are 301, the single-authored article is 14, etc. Fig. 2. In

2022, there was a massive fluctuation in paper publications in various journals in various sectors, and the year 2022 found the most prominent peak. The study reveals that steady research is needed in India. In Figure 3. many authors have contributed to MSMEs in various fields of study on different subjects. The study shows that more contributions are made in business and management. Researchers contributed 37 articles in Figure 4. Fig highlights the number of papers published by researchers in the field of MSMEs in India. More contributions are from Barani G., three paper publications, followed by Bashir F., Poovendhiran N.V., etc., considered leading authors in India. In Figure 5. Co-authors analyze evidence that only a few researchers are focusing on the research in the MSME subject domain, such as Kumar S, who co-authored with Sharma P. and with Ratte co-authorship citations. As a result, a network of co-authors and co-authors has been generated. For the development of MSMEs in India, the research study reveals that more scholars need to explore and show interest in addressing the issues and problems faced by MSMEs in India (Kumar, 2018).

In Figure 6. Shows the citation analysis authors' details, including who wrote the articles Bharani G, Kumar S, and Raghuvamshi J, and receives more citations from other writers. Hence, figure 2. Figure 5. Addresses the answer for the RQ1. What are the status and trends of research on developing MSMEs in India in recent years? Figure 7 highlights the top researchers who used common keywords in their respective publications and articles. It indicates the fields to analyze using the SCOPUS field tags. Default is fielded = c ("A.U.", "D.E.", "SO"). Authors such as Bhagel, Arya RK, and Aklin M are focused on MSME and published in the International Journal of Mechanical and Production Engineering.

In Figure 10. It observed that the words "MSME", "Sustainability", "commerce", "innovation", etc., are at the centre of the network graph and have the highest co-occurrence index in the sample. This can be attributed to the nature of the search query used in this study. In addition to Figure 11. Thematic map analysis reveals the research gap by identifying the variables for the budding researchers to explore more in the study. The study reveals that cluster straddles between motor themes and highly developed isolated themes, with good centrality and high density. It indicates the most emerging themes the researchers focus on, such as innovation and supply chain management. Figure 12., figure 13, figure 14. reveals the answer for R.Q. 2. by applying factorial complex analysis of the study. A line starts from each observation; then two clusters are combined, another two, and so on from Figure. 13 above. The first two merger lines fall under each group: Sustainability development goals, poverty, MSMEs, and unemployment, as revealed from topic dendrogram analysis. Figure 14. Depicts the number of articles and sources with the highest contribution to the study. Based on the review literature among 76 articles, the outcome measures are summarized in Table 5. Hence, Figures 13., 14., 15. And table 5. Addresses the answer for RQ3. What is the intellectual and conceptual structure of the knowledge base based on MSMEs in India?

**Table 5.** The Primary Outcomes Are Summarized in A Tabular Form as Follows

Paper title	Authors	Year	Outcomes measured
Micro-small-and-medium-enterprises-in-Goa-Growth-explorationInternational-Journal-of-Engineering-and-Advanced-Technology.	Sukhaji G Naik	2019	Tourism, agriculture, industry, mining, construction, banking, trade, and fishery are the mainstay of the Goan economy.
Adoption of cleaner production innovations by Micro, small and medium enterprises: Lessons from the clay-fired brick manufacturing sector in India	Sachin Kumar, Prateek Sharma	2021	• The key factors that influence the decision-making process of MSME entrepreneurs were identified. These factors were prioritized using the analytic hierarchy process
A Comparative Study of Practices for Integration of Sustainability with Innovation for Micro, Small, Medium Scale Manufacturing Enterprises (MSMEs) in India and England	S. Khurana, B. Mannan, A. Haleem	2018	firm attributes, sources of finance, and the life cycle of an MSME have a significant positive impact on its access to finance. In contrast, financial obstacles have a negative



			impact that prevents the growth of MSMEs and affects the nation's economic growth.
Access to Finance: Challenges Faced by Micro, Small, and Medium Enterprises in India	K. Rajamani, N. Akbar Jan, A. Subramani, A. Nirmal Raj	2022	<ul style="list-style-type: none"> <li>• access to finance</li> <li>• firm attributes</li> <li>• sources of finance</li> <li>• life cycle of an MSME</li> <li>• financial obstacles</li> </ul>
Training and skill development activities for MSMEs in India	Pramila Devi M.; Ramachandran S.	2016	Focus on the training activities of MSME – D.I.s and, from the angle of enterprise technology innovation, put forward enterprise training strategies that should be adopted in small and medium-sized enterprises.
Growth and problems of MSMEs in Karnataka with particular reference to Uttar Kannada District	Hebbar, D.L.	2016	growth aspects and the significant problems of the MSME Sector at the state and regional levels.

The authors offer suggestions for promising future research directions and identify the significant conceptual framework on which future research can be constructed. Future research would first resolve several epistemological issues related to financial competency.

The biggest challenge is how to initiate new strategies and enrich the knowledge of schemes of micro, small, and medium enterprises among people and facilities provided by government subsidies to start-up ventures in their expertise field. Hence, through the educational system and strengthening the policies of the government, which are facing challenges and overcoming the financial crunches. Based on the evidence from the study, MSMEs are stumbling in some sectors, and research contribution to MSMS, especially in India, is meagre. The annual growth rate of research on MSME is zero.

Researchers can also focus on other research topics like self-control, information decisions, debt literacy, etc., contributing more knowledge and insights on the subject area. The MSME sector can help achieve the target of the Nation Manufacturing Policy that manufacturing should contribute 25% to India's G.D.P. by 2024. Moreover, the effects of financial literacy on different measures of financial inclusion vary.

## Conclusions

The purpose of this study was to conduct a bibliometric analysis of recent developments in MSMEs in India, with the aim of identifying key trends, contributors, and thematic focuses within the research landscape. By analyzing 76 relevant documents from the Scopus database, the study provided a comprehensive overview of the current state of MSME research in India.

The obtained results highlight several important aspects of MSME research. First, the study revealed a significant increase in publications, particularly in recent years, indicating growing academic interest in the sector. Key contributors, such as Barani G. and Bashir F., were identified as leading authors in this field.

The analysis also showed a strong emphasis on sustainability and innovation, reflecting the critical areas where MSMEs are focusing their efforts.

Furthermore, thematic map analysis and factorial complex analysis identified emerging themes and research gaps, such as innovation and supply chain management, which are central to the development of MSMEs. The study underscored the importance of collaborative research efforts and highlighted the interconnectedness of various research clusters, including sustainability development goals, poverty, and unemployment.

In conclusion, the study provides valuable insights into the fundamental features, conceptual structure, and thematic evolution of MSME research in India. It underscores the need for continuous and focused research efforts to address the challenges and opportunities within the MSME sector. The findings suggest that future research should explore the impact of emerging technologies and further investigate the role of MSMEs in achieving sustainable development goals. This study contributes to a deeper understanding of MSME research and highlights its significance for India's economic development.

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