Small Medium Enterprises in Indonesia:  
A Retrospective of the Research Journey

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Abstract

Research on small medium enterprises (SMEs) in Indonesia continues to develop but is limited to one field or one year with the entrepreneurial spirit. From a bibliometric retrospective, this study aims to visually research mapping and research trends in the field of small medium enterprises in Indonesia with a global perspective. This study used bibliometric techniques with secondary data from Scopus. Analyze and visualize VOSViewer is used to see data program, as well as the analysis of search results, function on Scopus. This study analyzed 1,695 scientific documents published from 1998 to 2020. According to the research, the Diponegoro University, and Susanty, A. had the most active affiliated institutions and individual scientists of small medium enterprises research in Indonesia. Business, Management and Accounting; and IOP Conference Series Materials Science and Engineering were the most studied and disseminated outlets of small medium enterprises research in Indonesia. There were four category maps of collaborative researchers. Based on the identification of a collection of knowledge generated from over twenty-two years of publication, this research proposes a grouping of small medium enterprises research themes: industrial management, industrial engineering, information management, business, entrepreneurship, and energy as IIIBEE research themes.

Keywords

Entrepreneurship, Indonesia, Research themes, Research mapping, and Small medium enterprises.

1. Introduction

Small medium enterprises or small and medium-sized enterprises or small and medium-sized businesses (SMEs) engage in broad open innovation entrepreneurship activities and are doing so at a growing rate (Farid & Day, 2019). SMEs are businesses with revenues, personnel, or assets, that fall below a particular threshold (Liberto, 2020). SMEs can be defined as entrepreneurial units with assets ranging from 50 million IDR to 500 million IDR, which does not include land and buildings for entrepreneurship. SMEs also have a sales turnover of 300 million IDR to 50 billion IDR (Republic of Indonesia, 2008). Small and medium-sized businesses (SMEs) play a crucial role in the economy in the economics of every country on the planet. These institutions serve as the foundation for the growing national and
international economy. SMEs seem to be a very essential role. In addition, this supply chain addresses all three areas of sustainable development: commercial, social, and environmental (Kot, 2018). The Indonesian government recognizes the important role that SMEs play in the growth of the country's digital economy (Adiwibowo et al., 2019) in the society 5.0 era (A Purnomo et al., 2021). SMEs in Indonesia have reached more than 64 million units (Micro Enterprises and Industry, 2021) out of 240 million Indonesians in 2020 (Midayanti, 2021). One of the things that can support the success and maximum results of SMEs is using technology with the help of the internet. Indonesia's success is fueled by SMEs. Only 18 percent of people have intermediate internet skills, such as utilizing the web or social media (Yuniarty et al., 2019). Small and Medium Enterprises (SMEs), which account for 99.9% of Indonesia's economic activity, are followed by major corporations, which account for only 0.01 percent (Hartono et al., 2019). It is still challenging for SMEs in Indonesia to use websites or e-commerce to sell their products. SME wants to increase the quality of its products but is hampered by financial constraints. As a result of these constraints, SMEs have shifted their priority to product quantity. SMEs in Indonesia must take a more proactive approach to market expansion and product sampling. Proactive marketing can be done with the use of an e-commerce or website, allowing SMEs to improve sales and profit (Hartono et al., 2019). Small and medium-sized enterprises as a result are frequently plagued by issues such as a lack of human resources, technical obsolescence, a lack of financial capital, and a loss of risk-absorption capability. Significant expenditures are required for an SME to become Industry 4.0 ready. Infrastructure, hardware, and applications all need to be updated. Implementing Industry 4.0 in a small business is difficult (Adesta et al., 2019). Government policy should focus on improving human and technological capabilities, providing market knowledge, improving internet accessibility, facilitating financial access, and facilitating information systems among SMEs (Yuniarty et al., 2019).

Related research in SMEs in Indonesia has been conducted and developed at an international level over the past few years. The implementation of proper SMEs tactics is a special kind of strategy crucial endeavor to further the development of SMEs in today's complicated and competitive business climate (Kot, 2018). SMEs frequently suffer resource constraints when dealing with the consequences of risk event occurrences (Surisno et al., 2019). However, just a few studies have looked into the innovation of SMEs in Indonesia. The relationship between technological skills, innovation, and firm performance as a major strategy for organizations can achieve higher performance, according to this research (Lestari & Ardianti, 2019). However, previous research into the subject of small medium enterprises in Indonesia has usually been limited to one field or one year in particular. Not much has been reported about the small medium enterprises in Indonesia, although it provides a large picture map that is visualized on a global scale after year using data from many published studies. There are no publications available that directly discuss the impact of scientific investigations and the significant favorable interaction between scholars. One of the methods used to view research, in general, is the bibliometric method. Bibliometrics is a method for measuring and analyzing scientific references with a combination of mathematical and statistical methods. Bibliometrics is a statistical technique for analyzing bibliometric publication journal articles that have been peer-reviewed, reports, reviews, books, periodicals, conference proceedings, and related publications. Bibliometric methods have been widely used to present the relationship between quantitative methods and the research domain (IGI Global, 2021). This study proposes research questions, what is the mapping and trend of small medium enterprises research in Indonesia using visual bibliometric analysis? From a bibliometric retrospective, this study's purpose aims to visually study mapping and research trends on the terrain of small medium enterprises in Indonesia with a global perspective.

This scientific article is organized into several sections. The first part of the introduction discusses the background, questions, and objectives of the study. The second part of the method describes the scientific approach used in the research. The third section results and discussion explains the research findings. The fourth section summarizes the essence of the research. Finally, followed by acknowledgments, and references.

2. Research Methods

This study has used bibliometric analysis in a comprehensive literature database. The results of this survey have revealed relevant keywords related to the small medium enterprises study in Indonesia to look for and find items that are connected in the global Scopus database. Researchers have used the Scopus database as the main source of information because it is considered a reliable source of scientific publications by academics. This research has used the keyword "small medium enterprise" in the title, abstract, and author keywords to get the necessary data from the Scopus database. Data mining was limited to annual data to obtain fully published data for twelve months each year. Data mining uses the following search query option (TITLE-ABS-KEY ("small medium enterprise**) OR "small and medium-sized enterprise"** OR "small and medium enterprise**" OR "small and medium-
sized business*" OR "small and mid-size enterprise*" OR "SMEs") AND AFFILCOUNTRY (Indonesia)) AND PUBYEAR < 2021 as of March 2021. In this step, we have found 1,695 publications over the last 22 years from 1998 to 2020. In the study at this point, the Scopus result metadata has been extracted in the CSV dataset (Agung Purnomo & Afia, 2021).

The Scopus website provides an analyze search results function that displays bibliometric information from selected publications. We have used this service to analyze and visualize the publication productivity of researchers, institutions, and countries. Besides, this feature was to measure the number of annual publications and publication citations, as well as the proportion of subject areas and source documents (Agung Purnomo, Susanti, et al., 2020), (Agung Purnomo, Sari, et al., 2020).

In the next stage, the researcher analyzed the collected documents using the VOSviewer ver. 1.6.16 for co-occurrence and co-authorship analysis. This study has applied co-authorship analysis with the author's analysis unit and the full computation systematic technique using VOSViewer to obtain a research network of international collaborative researchers. This study performs an in-depth co-occurrence analysis with keyword relationship study as well as a fully systematic computation technique using VOSViewer to generate a network of keyword maps for research themes (Ranjbar-Sahraei & Negenborn, 2017), (van Eck & Waltman, 2010). Simple statistics and tables have been calculated and tabulated using Microsoft Excel. Then, the research results were synthesized and triangulated.

3. Result and Discussion

This section describes the growing results of data based on the most common organizational affiliation, nations, individual studies, the largest frequency of subject areas, yearly source documents, annual documents and cited papers, publication of the map, and networks of authorship in the field of the small medium enterprises (SMEs) in Indonesia.

3.1 Most Productive Organizational Affiliations in SMEs Research in Indonesia

There 2,639 affiliated organizations have researched small medium enterprises in Indonesia. The higher education that researches in small medium enterprises publications in Indonesia was Universitas Diponegoro, Semarang (n = 105). Then followed by Bina Nusantara University, Jakarta (n = 97); Universitas Indonesia, Jakarta (n = 95); Institut Teknologi Bandung, Bandung (n = 90); Brawijaya University, Malang (n = 76); Universitas Padjadjaran, Bandung (n = 51); Universitas Gadjah Mada, Yogyakarta (n = 49); Universitas Islam Indonesia, Yogyakarta (n = 44); Telkom University, Bandung (n = 44); and Universitas Sumatera Utara, Medan (n = 43).

Figure 1. Affiliation with an institution annual publication count of SMEs in Indonesia

The results of the study in Figure 1 show that the most productive universities in SMEs research in Indonesia come from the island of Java (n = 9) especially from the cities of Jakarta (n = 2), Bandung (n = 3), and Yogyakarta (n = 2). This is because some of these universities are world-class universities from Indonesia with an ecosystem that supports development and research (Top Universities, 2021), including in the field of SMEs. SMEs research in Indonesia is not dominated by specific organizational affiliations.
3.2 Most Individual Researcher in Small Medium Enterprises Research in Indonesia

There was 3,660 Indonesian individual researcher that has researched small medium enterprises. It is an most productive on the subject of small medium enterprises in Indonesia in the majority of writings was Susanty, A. from Universitas Diponegoro (n = 19). And, then Muafi from Universitas Islam Indonesia (n = 14); Sudirman, I. from Institut Teknologi Bandung (n = 13); Hidayanto, A.N. from Universitas Indonesia and Bina Nusantara University (n = 12); Ushada, M. from Universitas Gadjah Mada (n = 12); Siswanto, J. from Institut Teknologi Bandung (n = 11); Tambunan, T.T.H. from Trisakti University (n = 11); Wiratmadja, I.I. from Institut Teknologi Bandung (n = 11); and Liquiddanu, E. from Sebelas Maret University (n =10), Samadhi, T.M.A.A from Institut Teknologi Bandung (n =10), Saptadi, S. from Universitas Diponegoro (n = 10) and Shiddiq Yunus, A.M. from Politeknik Negeri Ujung Pandang (n = 10).

![Figure 2. Most individual small medium enterprises publication researchers in Indonesia](image)

Figure 2 shows that the most productive individual researcher in the small medium enterprises studies mostly comes from a most productive organization in the small medium enterprises research, Institut Teknologi Bandung (n = 4) and Universitas Diponegoro (n = 2). This is because Institut Teknologi Bandung and Universitas Diponegoro are world-class universities from Indonesia with an ecosystem that supports development and research. Aries Susanty has an h-index of 12 (Google Scholar, 2021a). Muafi has an h-index of 7 (Google Scholar, 2021c). And Mirwan Ushada has h-index of 10 (Google Scholar, 2021b).

3.3 The Subject Area with the Highest Frequency of SMEs Research in Indonesia

Research on small medium enterprises in Indonesia has been researched in a variety of subject areas. Business, management, and accounting (n = 686 or 19.8 percent) in the field in which there are the most worldwide publications small medium enterprises studies. This was followed by engineering with (n = 512 or 14.8 percent), computer science with (n = 402 or 11.6 percent), economics, econometrics and finance with (n = 356 or 10.3 percent), social science (n = 344 or 9.9 percent), environmental science (n = 194 or 5.6 percent), decision sciences (n = 182 or 5.3 percent). Small medium enterprises are a synergy between business, management and accounting, engineering, computer science, and economics, econometrics, and finance. This is partly why the subject area of business, management, and accounting dominates small medium enterprises research in Indonesia.
3.4 Publication Sources for Small Medium Enterprises Documents by Year

The number of publications in a publication source shows the relevance and influence of the publication source on a field of study. There are 132 publication sources that have published small medium enterprises research. The number of articles per source with the highest number of publications in the sources small medium enterprises research was “IOP Conference Series Materials Science and Engineering”, SJR 0 (n = 122); “IOP Conference Series Earth and Environmental Science”, SJR 0.18 (n = 98); “IOP Journal of Physics Conference Series”, SJR 0.21 (n = 56); “International Journal of Innovation Creativity and Change”, SJR 0 (n = 50); “International Journal of Applied Business and Economic Research”, SJR 0 (n = 42); and “International Journal of Scientific and Technology Research”, SJR 0 (n = 41).

Table 1. Number sources of the small medium enterprises in Indonesia

<table>
<thead>
<tr>
<th>Scientific Publication Source</th>
<th>SJR</th>
<th>Article</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOP Conference Series Materials Science and Engineering</td>
<td>0</td>
<td>122</td>
</tr>
<tr>
<td>IOP Conference Series Earth and Environmental Science</td>
<td>0.18</td>
<td>98</td>
</tr>
<tr>
<td>Journal of Physics Conference Series</td>
<td>0.21</td>
<td>56</td>
</tr>
<tr>
<td>International Journal of Innovation Creativity and Change</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>International Journal of Applied Business and Economic Research</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>International Journal of Scientific and Technology Research</td>
<td>0</td>
<td>41</td>
</tr>
</tbody>
</table>

The SCImago Journal Rating (SJR) ranks journals according to their average prestige per article, and the subject area, quality, and reputation of journals by the value of a citation. The most productive journals that publish small medium enterprises research have SJR indicators, 0 – 0.21 (Lab, 2021).

3.5 Small Medium Enterprises Sector's Annual Publications

A growing trend has been seen last year in the number of articles published on small medium enterprises studies in Indonesia. This can be seen in Figure 5, with 431 papers, the highest publication peak in 2019. Since 1998, small medium enterprises in Indonesia have been the subject of inquiry. The number of documents per year for publication small medium enterprises studies was 430 documents in the year 2020, 303 documents in the year 2018, 199 documents in the year 2017, 114 documents in the year 2016, and 87 documents in the year 2015.
3.6 Small Medium Enterprises Publications Documents Cited

The number of citations can show the academic implications of small medium enterprises publication on the body of knowledge and practice.

Table 2. The document cited of small medium enterprises publication

<table>
<thead>
<tr>
<th>Publication topic</th>
<th>Author</th>
<th>Year</th>
<th>Source</th>
<th>Cited by</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMEs on a review of methods and development on energy storage</td>
<td>Mahlia, T.M.I., Saktisahdan, T.J., Jannifar, A., Hasan, M.H., Matseelar, H.S.C.</td>
<td>2014</td>
<td>Renewable and Sustainable Energy Reviews</td>
<td>388</td>
</tr>
<tr>
<td>SMEs on application to enhance the dynamic performance</td>
<td>Yunus, A.M.S., Masoum, M.A.S., Abu-Siada, A.</td>
<td>2012</td>
<td>IEEE Transactions on Applied Superconductivity</td>
<td>118</td>
</tr>
<tr>
<td>SMEs on critical success factors palm oil</td>
<td>Muda, I., Sihombing, M., Jumilawati, E., Dharsuky, A.</td>
<td>2016</td>
<td>International Journal of Economic Research</td>
<td>89</td>
</tr>
<tr>
<td>SMEs on value co-creation, entrepreneurial innovativeness, and relational capabilities</td>
<td>Indriastuti, D.</td>
<td>2019</td>
<td>Humanities and Social Sciences Reviews</td>
<td>75</td>
</tr>
<tr>
<td>SMEs on application of smart controllable for power system</td>
<td>Ali Nandar, C.S.</td>
<td>2013</td>
<td>Renewable Energy</td>
<td>72</td>
</tr>
</tbody>
</table>

The study “A review of available methods and development on energy storage; Technology update” by Mahlia, T.M.I., Saktisahdan, T.J., Jannifar, A., Hasan, M.H., Matseelar, H.S.C. was the highest documents based on the small medium enterprises cited. This SMEs publication was a collaboration of researchers from Indonesia, Malaysia, and Australia. Indonesian researchers were represented by Mahlia, T.M.I from Universitas Syah Kuala and Jannifar, A. from Politeknik Negeri Lhokseumawe. Malaysian researchers were represented by Saktisahdan, T. J. from Universiti Tenaga Nasional and Matseelar, H.S.C. from the University of Malaya. The Australian researcher was represented by Hasan, M. H. from the University of Technology Sydney.
3.7 Research Theme Map

The research theme map is a review that seeks to identify small medium enterprises research in Indonesia based on keyword linkages between publications. The VOS Viewer software was used to evaluate and visualize the construction process. Small medium enterprises for the keyword system SMEs of publication theme map. Four the minimum condition criteria number of keyword-related documents was nine repetitions. Therefore, 6,421 among the main words 168 the thresholds for keywords have been surpassed.

From Figure 6. There were six clusters in terms of international academic studies, theme groups are focused on study keywords. The naming of each cluster was given by the researcher based on the keywords that appear and dominate in the cluster. Publications of small medium enterprises were grouped into clusters of industrial management, industrial engineering, information management, business, entrepreneurship, and energy. Then, this cluster group was simplified as well as abbreviated as IIIIBEE research themes.

1. Industrial management cluster (green). We can locate themes in this cluster from keywords of creative industries, economics, engineering research, ergonomics, green manufacturing, industrial development, industrial management, industrial research, industry 4.0, production process, supply chains, systems engineering, and textile industry. Most of this industrial management cluster was related to keywords.
2. Industrial engineering cluster (purple). This cluster consists of engineering, industrial engineering, manufacture, and material science keywords.
3. Information management cluster (blue). We can locate hyperlocal news in this book’s topics cluster. This cluster was dominated by keywords that are relevant to information management such as big data, e-business, e-commerce, ERP, information management, information services, information systems, information technology, information use, internet, social media, and website.
4. Business cluster (yellow). This cluster consists of business, competitive strategy, decision making, efficiency, management, and sustainability keywords. Most of this business cluster was related to keywords.
5. Entrepreneurship cluster (red). Keywords of business performance, competitive advantage, entrepreneurial orientation, entrepreneurship, innovation, intellectual capital, knowledge management, small and medium enterprises, small business, and SMEs dominated this cluster.

6. Energy cluster (light blue). The keyword of energy cluster was electric energy storage, fuzzy logic, and superconducting magnet energy.

3.8 Authorship Network

Small medium enterprises studies have been researched by several research groups. The authorship network map was created using constructed using the VOSviewer software and the SMEs researcher system. One of the criteria for the author's minimum selection of publications was seventeen papers. As a result, 3,660 researchers were honored out of 86 who met the requirements.

![Figure 7. Map of Authorship Network](image)

There were four community collaboration networks between international researchers in small medium enterprises publications, as shown in Figure 7. The publication with the red cluster of small medium enterprises, which includes Susanty, A. from Universitas Diponegoro. Silalahi, R.L.R. from Brawijaya University. Sari, D.P. from Universitas Diponegoro. Mustanirroh, S.A. from Brawijaya University. The yellow cluster was Saptadi, S. from Universitas Diponegoro. Govindaraju, R. from Institut Teknologi Bandung. The green cluster was Sudirman, I. from Bandung Institute of Technology. Siswanto, J. from Bandung Institute of Technology. Aisha, A.N. The blue cluster was Samadhi, T.M.A.A. Wiratmadja, I.I. from Institut Teknologi Bandung. Rumanti, A.A. from Telkom University.

4. Conclusion

The number of international publications on small medium enterprises in Indonesia, as well as maps and visual trends, has been growing on an annual basis, according to the findings. The United States was the leading contributor to business intelligence research publications, with 325 articles. With 105 papers published in the SMEs publication in Indonesia, Universitas Diponegoro was the most involved research institution. In the SMEs publication, the person academic researcher who has published the most papers was Aries Susanty. It comes with 19 documents. With 686 documents (19.8 percent) the subject area that has been extensively researched and published in the SMEs publication were business, management, and accounting. The “IOP Conference Series Materials Science and Engineering” with 122 articles source insisted on the bulk of annual papers the SMEs. With 431 papers, the most productive academic publication in the SMEs studies was in 2019. Mahlia, T.M.I., Saktisahdan, T.J., Jannifar, A., Hasan, M.H., Matseelar, H.S.C. was the most widely referenced publication, in 2014 entitled “A review of available methods and development on energy storage; Technology update” with cited by 388. There were four researchers cooperation groups in relation to the publishing of SMEs papers in Indonesia.
The convergence axis is classified in this research, which includes publication in small medium enterprises in Indonesia, to categorize the body of knowledge produced over twenty-two years of academic publication in terms of knowledge contributions: industrial management, industrial engineering, information management, business, entrepreneurship, and energy, abbreviated as IIIBEE research themes. As a practical result of identifying key themes in the small medium enterprises field, practical studies are required to clarify general backgrounds and subjects, as well as study gaps, there is a clearer understanding of the need for them. All of this will assist in new research into the disciplines' lack of advanced expertise and analysis. The potential of small medium enterprises to contribute to entrepreneurs, startups, business owners, and economic growth are frequently studied themes.

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References


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