

UNDERSTANDING SUSTAINABLE ENTREPRENEURSHIP STUDY THROUGH BIBLIOMETRIC ANALYSIS (GROUNDED THEORY)

Kartika Nuringsih^{1*}, Nuryasman M. N.², Haris Maupa³, Otto R. Payangan³

¹Student of Doctoral Program of Management Science, Universitas Tarumanagara, Jakarta - 11440, Indonesia

^{1,2}Faculty of Economics and Business, Universitas Tarumanagara, Jakarta – 11470, Indonesia

³Departement of Management Science, Faculty of Economics and Business, Universitas Hasanuddin, Makasar, Indonesia

*Email: kartikan@fe.untar.ac.id

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ABSTRACT

To harmonize sustainable development in the entrepreneurship sector, a study was carried out to get an overview of knowledge mapping and current issues on sustainable entrepreneurship. Qualitative research was conducted through bibliometric analysis using VosViewer on Scopus metadata for exploring a grounded theory. The density of visualization shows that the yellow color gradation on sustainable entrepreneurship is opaquer than the entrepreneurship's color, so it is new to be developed as a novelty. The visualization overlay captures the linked topics of entrepreneurial studies since 2008. It is looked at some issues e.g., innovation, sustainability and development which are the gradating color of light green that has been published since 2014-2015. Conversely, other topics e.g., sustainable business models, social capital performance, business venture, and social entrepreneur are detected as current issues. On sustainable entrepreneurship, the overlay of visualization depicts the linked among specific topics e.g., entrepreneurial intention, higher education, business model, and SMEs which has been published since 2012. The further study will improve the topic of sustainable entrepreneurial intention by involving the social domain as a novelty. The bibliometric analysis results in science mapping as the basis for building a state of the art so that researchers can elaborate on ontology issues, and build epistemology and axiology in this study.

Keywords: *bibliometric analysis, entrepreneurial intention, sustainable entrepreneurship, VosViewer*

1. INTRODUCTION

Aligning with the achievement of the Sustainable Development Goals (SDGs) requires alignment between entrepreneurship development programs with aspects of sustainability or known as “sustainable entrepreneurship”. The changing of the global community environment shifts entrepreneurial orientation towards sustainability issues. Previously, this thought was highlighted by many researchers, including Dean & McMullen [1] in the Journal of Business Venturing, mentioning it as an effort to deal with market imperfections. Moreover, Cohen & Winn [2] improved that entrepreneurship examines opportunities and realizes them into products and services in harmony with the environment. An entrepreneur is oriented to a double or triple bottom line [3]. The idea is an adaptation of business behavior to changes in the global environment with the aim to prevent environmental damage. These goals are a commitment to the Millennium Development Goals (MDGs) in 2000 including ensuring a sustainable environment so as to present the new idea of “ecopreneurship” e.g., [4]–[7] at Greener Management International (GMI). In facing these environmental changes, the orientation of entrepreneurial management must adjust to the SDGs agenda.

Historically, there have been approximately four momentums for entrepreneurial transformation. In 1934 sparked by an idea of "creative destruction" [8]. Aligning with the theory of economic growth, Schumpeter explained that to achieve rapid economic growth, it

must be supported by entrepreneurs who have high innovation so that the existence of entrepreneurs is required to be creative and innovate according to environmental changes. This idea places human creativity as one of the assets to realize economic growth.

Further moment, the United Nations World Commission of Environmental Development (UNWCED) was held in 1987 in Norway known as the Brundtland Commission with the results of defining the notion of "sustainability as development that meets the need of the present without compromising the ability of future generations to meet their own needs". Starting from the event, definition of sustainable development was formed. It is used as a basis for understanding until now. For this reason, entrepreneurs must take opportunities on the sustainable development [9] including the involvement of incumbents and new entrants [10], formation of intentions on the sustainability entrepreneurship [11], and generating wealth for the future [12]. Their works provide a guarantee of the importance of sustainability for future generations.

Some events were run to prevent global environmental problems including the Earth Summit in Rio de Janeiro in 1992 and the Kyoto Protocol in 1997 where the event continued in 2012 (Rio+20) and to be Paris Protocol as a UNFCCC (United Nations Framework Convention on Climate Change) in 2015. This event gave birth to the idea of a green economy so the model for sector development entrepreneurship needs to be transformed into an eco-friendly business with the aim of compensating or suppressing the effects of climate change. The low-carbon economic development model is expected to maintain environmental sustainability for future generations so that this view gives insight into some new icons of entrepreneurship namely ecological [13], social [14], green [15], or ethical [16]. Far priorly, [17] introduced the thought of environmental entrepreneurship which was supported through environmental commitment.

These terms indicate that it is time for the process of capturing market opportunities to consider wisdom with environmental sustainability so that entrepreneurial behavior is driven by psychological factors such as green value [18], social value [19], environmental responsibility [20], or sustainability [4], and even eco-innovation have an impact on the market performance [21]. In its development, the social domain was implemented as corporate social sustainability (CSR) based on the theory of pyramid of CRS from Archie B. Carroll in 1991 which stated that corporate responsibility formed four levels of the pyramid consisting of economic, legal, ethical, and philanthropic [22]. On the pick level, philanthropy is the essence of social value so it forms the social domain which is one of the pillars for sustainable development.

Furthermore, when preparing transition from MDGs to SDGs conceptually, more entrepreneurial studies lead to sustainability issues e.g., [23]–[29]. Quantitative research is developed to analyze the interest of entrepreneurs and prospective entrepreneurs in this model. In Southeast Asia, research in Malaysia is relatively early in examining sustainability issues e.g., [30]–[32] as well as other authors from various countries with publications in "Sustainability", "Journal Cleaner of Production" and others. Basically, the essence of business activities are not limited to profit orientation but must be concerned with environmental conservation and promote a sense of humanity as previously stated by Elkington in the 1990s with the term triple bottom line (TBL). By Kessler was noted that these domains were adopted in creating a balance of 3Ps covering people, planet, and the profit or prosperity [22].

Along with these issues, sustainable entrepreneurship study has become a research roadmap including self-study (e.g., [33]–[43]). Therefore, to create a further novelty in this topic, it is necessary to know how far to place the topic on sustainable entrepreneurship intention in indexed international publications. Based on these reasons, a study was conducted through bibliometric analysis of Scopus metadata to find scientific articles as well as identify research opportunities on similar themes in Indonesia. Basically, data can be extracted from various publication metadata bases e.g., Scopus, Cross-reference, Web of Science, or Google Scholar.

Nowadays, progressing of studies shows a shift toward new themes related to sustainability, especially in the transition of the MDGs to SDGs in 2015-2022. During this period observation, analysis approach was made based on bibliometrical to obtain information about density and overlay visualization among specific themes of sustainable entrepreneurship. It was used in studies e.g., [44], [45] when examining current issues. The results of the analysis are the basis for building a state of art and novelty so that researchers can explain ontology issues, and build epistemology and axiology in Indonesian' case.

2. METHODS

The research design qualitatively uses VosViewer software which is a computer program to visualize and explore knowledge maps regarding "bibliometrics" [46]. Clusters generated via VosViewer are automatically displayed in color on the map. The clustering algorithm operates with the parameter that can be changed to get more or fewer clusters. Likewise, the density and color of the cluster can be displayed by VosViewer. This application uses text mining functions to identify relevant noun phrase combinations with integrated mapping and clustering to examine co-citation data and co-occurrence networks. Using VosViewer results in network visualization or science mapping.

Furthermore, referring to the study of Ruiz-Real [45], the stage of bibliometric analysis is as follows: (1) searching criteria keywords e.g., sustainable entrepreneurship, (2) taking databases e.g., Scopus, Web of Science, or others, (3) research refining about how many documents or articles can be taken from the database, (4) exporting final data, and (5) analyzing data and discussing results. These stages are as guidance for researchers in exploring databases related to their interest topics. In this study is pointed in the research progress in sustainable entrepreneurship, specifically in identifying how many cluster can be shaped.

3. RESULT AND DISCUSSION

The term of entrepreneurship is not a new theme, so a bibliometric analysis is carried out to obtain a mapping of knowledge and literature on sustainable entrepreneurship as a development study of entrepreneurship by considering important dimensions in sustainable development. Based on some keywords such as entrepreneurship, sustainability, innovation, small medium enterprises (SMEs), sustainable development, and other words result the visualization of density as follows.

Moreover, the density visualization is shown in Fig. 1. It depicts the gradations of some color namely dark blue, light green to yellow with the most contrasting colors on the topic of entrepreneurship. This picture illustrates there are many publications on the theme. While the yellow color gradation on sustainable entrepreneurship tends to be blurry, so this theme is relatively new. This is in line with the preparations for the transition from the MDGs to the

SDGs in September 2015 so that the orientation of world researchers has led to collaboration between the business and entrepreneurship sectors with sustainable development.

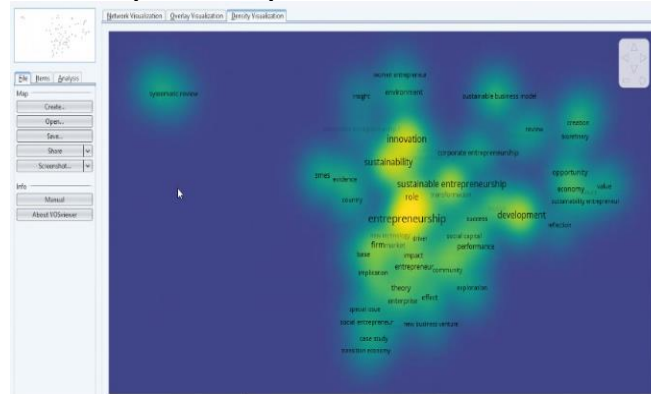


Figure 1. Density Visualization

Fig. 2 shows the overlay of visualization which captures the links among topics related to entrepreneurial studies. It looked at some clusters e.g., innovation, sustainability, and development which resulting the gradation color of light green. It indicates that these topics have published since 2014-2015 in international journals indexed by Scopus. Conversely, other topics such as women entrepreneurs, sustainable business models, corporate entrepreneurship, social capital performance, business venture, and social entrepreneur are current issues with the smallest symbol of bullets among networking visualization. The color light green indicates these topics able to be improved the novelty in the next studies.

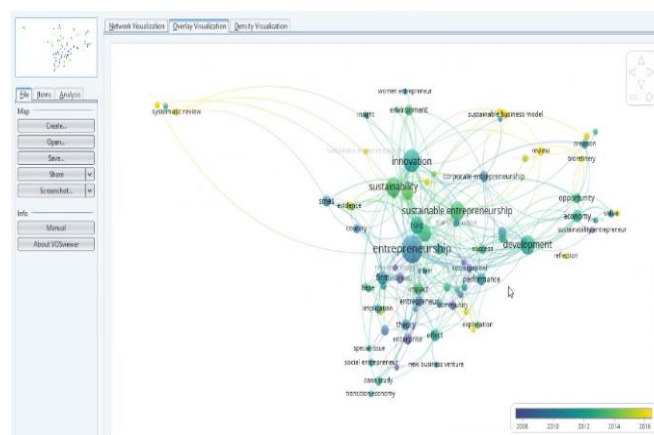


Figure 2. Overlay Visualization

Fig. 2 indicates the closed relationship in the circle among these topics. Therefore, it needs to match entrepreneurship, sustainability, and others to create novelty. The general topic of entrepreneurship has been detected published since 2008 e.g., [47], and [48] which exposed an instrument for measuring entrepreneurial intention. It is as benchmarking in constructing indicators on entrepreneurial intention, so Linan's publication is as momentum in developing study at the entrepreneurship field with adopting on theory of planned behavior.

In Indonesian studies, the research problems related to the performance of SMEs, intention, motivation, or competence of entrepreneurs while the majority of these studies have not connected to sustainability issues. These papers have not been published that indexed by Scopus. Hence, through this method, a researcher can explore more information and new issues related to worldwide studies. It helps upgrade novelty for further research.

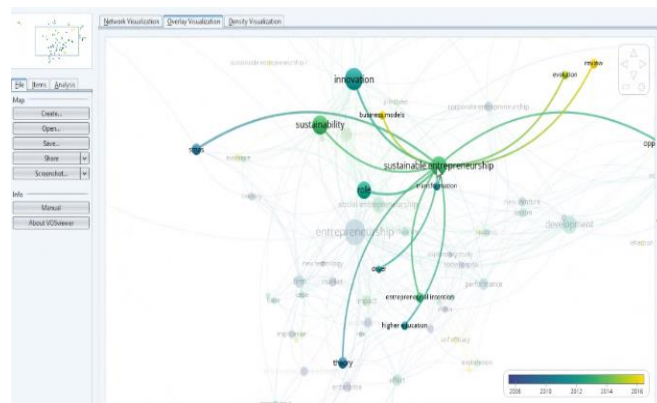


Figure 3. Overlay Visualization on Sustainability

Followed by analysis on the cluster of sustainable entrepreneurship with the result in Fig. 3. The overlay visualization depicts linked some specific topics including entrepreneurial intention, higher education, business model, and SMEs which the publication since 2012. It shows that researchers' interest in sustainability issues has emerged in the past 10 years. At the corporate level, these aspects have been running well, but problems occur at the level of entrepreneurs or SMEs. For these reasons, an approach is needed to encourage business actors, including through CSR mechanisms carried out by established companies for SMEs. The further study could develop sustainable entrepreneurial intention issues involving students or business owners as the respondent is still relevant. Moreover, Indonesia is known for its diversity of culture, sub-culture, ethnicity, local wisdom, and biodiversity which can be highlighted as interesting topics for entrepreneurial studies. These issues need to be followed through some studies in giving information to stakeholders for creating regulation, prototyping, and preparing entrepreneurs.

Discussion

By using the bibliometric analysis from VosViewer, we capture as many as 222 paper publications relevant to sustainable entrepreneurship. The oldest paper was written by Gartner in 1995 with the title “measuring entrepreneurship over time” in the *Journal of Business Venturing* which is a pioneer journal in introducing new issues of sustainability. The newest paper was written by [49] with pointing topic on the impact of Covid-19 on sustainability domains which publishing in the journal “Sustainable Production and Consumption”.

Entering the millennium era, similar topics gave insight about how to develop a business in aligning with TBL's issues in the reputation journal e.g., *Greener Management International*, *Technovation*, *Entrepreneurship Theory and Practice*, *Journal Cleaner of Production*, or *Sustainability*. The previous conceptual studies have enriched literation, so further authors should improve modeling and research method. One refinement topic is entrepreneurial intention related to sustainability issues with the underlying theory of intention was coined by Ajzen and using instrument was created by Linan [47], [48]. The kind of research modeling involves determinants of the theory of planned behavior including attitude, subjective norms, and perceived behavior control in predicting propensity as sustainable entrepreneur.

In fostering knowledge for the author is needs to be some papers on sustainable entrepreneurship intention which improvement in social responsibility scope. By searching in

Sustainability journal indexed Scopus 3 which is organized by MDPI is found some interesting topics as listed in the table below. It depicts current issues studies during 2016-2022 on some countries e.g., Indonesia, India, Iran, China, Ghana, Korea, Zambia, and others, which involved business owners and entrepreneurship students. These studies are as insight for improving the model for the next study.

Table 1 Theme of Sustainable Entrepreneurship Studies in MDPI Publisher

Citation Code	Authors and Year Publication	Theme
[50]	Choongo <i>et al.</i> . (2016)	Sustainable Opportunities
[51]	Hosseininia & Ramezani (2016)	Sustainable Entrep. Intention
[52]	Lee <i>et al.</i> , (2016)	CSR & Corporate Value
[53]	Soto-Acosta <i>et al.</i> , (2016)	Business Performance
[54]	Choongo (2017)	Firm Performance
[55]	Quiroz-Niño & Murga-Menoyo (2017)	SDGs & Community Development
[56]	Singh, Sethuraman, & Lam (2017)	CSR & Firm Value
[57]	Singh, Holvoet, & Pandey (2018)	CSR & Sustainability
[58]	Sung & Park (2018)	Entrepreneurship Orientation
[59]	Jayaratne, Mort, & D'Souza (2019)	Entrepreneurial Commitment
[60]	Rela <i>et al.</i> , (2020)	CSR & Community Resilience
[61]	Sargani <i>et al.</i> (2020)	TBL Measurement & Intention
[62]	Hussain <i>et al.</i> , (2021)	Sustainable Entrep. Intention
[63]	Tian <i>et al.</i> , (2021)	Stakeholders & CSR
[64]	Yasir <i>et al.</i> , (2021)	Sustainable Entrep. Intention
[65]	Amankwah & Sesen (2021)	Sustainable Entrep. Intention
[66]	Peng <i>et al.</i> , (2021)	Sustainable Entrep. Intention
[67]	Hussain <i>et al.</i> , (2021)	Sustainable Entrep. Intention
[68]	Shayan <i>et al.</i> , (2022)	SDGs & CSR
[69]	Fanea-Ivanovici & Baber (2022)	Sustainable Entrep. Intention
[70]	Pascucci <i>et al.</i> , (2022)	Sustainable Entrep. Intention

Aligning with the theory of TBL, it is a mechanism to foster sensitivity to sustainable entrepreneurship for business actors through supporting CSR. This insight is relevant to previous self-studies that takes consistently issues on sustainability since 2017. Based on Table 1 can be followed became a critical review involving the construct of CSR, sustainable entrepreneurship, and entrepreneurial intention whereas it is useful in preparing a state of the art of this study. Through this approach enriches literation for improving quality of prior studies.

4. CONCLUSION

By the results of science mapping through bibliometrics with Scopus metadata, it is concluded that the theme of sustainable entrepreneurship is loosely developed by novelty. The theme of sustainable entrepreneurial intention with the object of study on SMEs and higher education can still be developed in Indonesia. The novelty creation is relatively easy to be realized by the author. The results as a reference in the presentation of ontology issues, then are developed epistemologically in the theoretical background and are revealed to be axiological in research methods. As a grounded theory, bibliometric analysis produces science mapping as a knowledge in explaining the state of the art of the research concept. It is as footprint the study of sustainable entrepreneurship, so author understands the history of

transformation in the entrepreneurship field. As suggestion for developing studies can consider CSR mechanism to encourage business actors to recognize sustainable entrepreneurship so that at least there is an interest in this model.

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