Blue Economy and the Digital Transformation of Micro Small Medium Enterprises

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ABSTRACT

Entrepreneurs engaged in the MSME sector have a strategic role in economic growth in Indonesia. During the Covid-19 pandemic, the blue economy sector including MSMEs engaged in digitalization strategies, given the limited face-to-face interactions. Henceforth a plethora of research on MSME digitalization emerges during and post Covid-19. Many studies look at the digitalization of MSMEs processes within various industries. This study aimed to develop a systematic literature review on digitalization, digitization, and digital transformation of MSME in the blue economy, focusing on publications during Covid-19, between the years 2019 – 2022. Furthermore, the study hopes to contribute to developing a model of internal factors (inhibitors and supporters) for entrepreneurial efforts in digitizing and digitalization.

Keywords: Blue Economy, MSMEs, Digital Transformation, Digitalization, Indonesia.

1. INTRODUCTION

Entrepreneurs engaged in the MSME sector have a strategic role in economic growth in Indonesia. An estimate of 14.5 million cooperatives and SMEs is recorded in 2022 so far, and 65 million are projected in 2024 [1]. In Indonesia's vast landscape, the blue economy in Indonesia, contributes a large portion of the GDP, including creating 7 million jobs and providing the country with over 50% of its animal-based protein needs [2]. The fisheries sector is one of the sectors that support the growth and development of the Indonesian economy. The fisheries sector has a chain effect that can move other sectors, for example, trade, tourism, and others. In addition, the fisheries sector is being pursued towards an IT-based industrialization process to increase positive economic growth. This demands innovation and creativity from many stakeholders such as the government, community, academics, and other parties to contribute to advancing MSMEs, especially in the blue economy.

However, only 9.4 million MSME actors have carried out digital transactions and marketing [3].

Digitalization has become an important marker of the Covid-19 pandemic disruption, transforming consumer buying behavior and how businesses are conducted [4]–[7]. The Covid-19 pandemic that has hit many countries in the world, including Indonesia, has pushed many MSMEs to carry out digitalization strategies, abandoning the conventional way of transactions. Henceforth, research interest in digital transformation topics increases and a plethora of research on MSME digitalization emerge during and post Covid-19.

MSMEs in Indonesia can be categorized based on the National Law *(Undang - Undang)* number 20 of 2008 concerning Micro, Small, and Medium Enterprises, according to their net worth and annual sales[8]. Micro-enterprises are business entities with a maximum net worth of IDR 50,000,000 excluding land and buildings, and a maximum annual sale of IDR 300,000,000.00. Meanwhile, small businesses n a net worth of more than Rp. 50,000,000.00 to Rp. 500,000,000.00 excluding land and buildings, and a maximum annual sale of IDR 300,000,000.00 to IDR 2,500,000,000.00. Then, medium-sized businesses have a net worth of Rp 500,000,000.00

to Rp 10,000,000,000.00 excluding land and buildings and annual sales proceeds of more than IDR 2,500,000,000.00 to IDR 50,000,000,000.00.

Typically, many studies looked into the digitalization of MSMEs in general within various industries. In the digital transformation process of MSMEs, digital technology serves as the key to capturing new business opportunities by transforming existing businesses. During the Covid-19 pandemic, entrepreneurs are encouraged to adopt digital technology for their businesses to increase sales[9]. Competitive pressures serve as important factors in driving digitization[10]. The adoption and success of digital platforms in B2B are based on stakeholder theory, network theory, technology acceptance model, etc. customer-oriented and customer loyalty[11]. In the transformation process, there is a digitization process, converting analog information into digital information, while digitization is the process of how digital technology can be used to change existing business processes[12]. Barriers to the transformation process can be attributed to uncoordinated stakeholders, non-transparent data, and many transactions and documentation processes that are still paper-based[13]. However, the government also influences the digital transformation of microbusinesses by building digital platforms, promoting digital payments, providing digital training, and building a digital collaboration ecosystem[14]. The Indonesian government has made a full effort to urge the digitalization and internalization of local MSME products, such as the Go International Movement [15].

Previous research shows that several factors slow down the development of MSMEs in Indonesia, such as the lack of knowledge resources, communication and information technology facilities, market developments, etc. Moreover, the challenges for MSMEs in 2020 are not only due to the Covid 19 outbreak but also to the increasingly widespread digital economy. The digital economy requires MSMEs to be "literate" in technology, especially those related to the internet. Many MSMEs are not familiar with the internet, so the MSME products or services that are marketed sometimes cannot reach markets outside the region and other places. In relation to the blue economy, there are still a few marine and fisheries MSMEs that are connected to digital marketing platforms. Several problems include technological constraints, ignorance, and lack of courage among marine and fisheries MSME

business actors [16][17].

This study aimed to develop a systematic literature review on digitalization and digitization of MSME in the blue economy, focusing on publication during Covid-19, between the years 2019 – 2022. This will then develop a model of internal factors (inhibitors and supporters) for entrepreneurial efforts in digitizing and digitalization. Furthermore, this study seeks to contribute to further research as a guide for future researchers in the topic areas of MSME Digitalization in the blue economy.

2. METHODS

This study takes a systematic literature review approach to determine the research topics and keywords and develops knowledge-based guidance for researchers on the digitalization of MSME in the blue economy. Following the process of identifying, screening, eligibility, and data extraction and analysis of information for literature review (Figure 1).
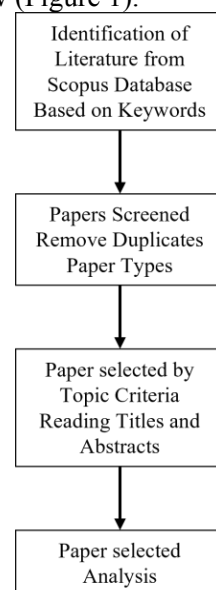

Figure 1 Research Approach

The research was narrowed to Scopus indexed publications under the topic of digitalization of SMEs spanning from 2019 to 2022, specific attention was paid to SMEs that are related to blue economy segments. The focus was on this period to ensure the relevance of the research studies done within the period of Covid-19. The main databases used for collecting the articles were Scopus. Scopus is a reputable database that was downloaded and manually sorted and evaluated using Microsoft Excel.

These databases are multidisciplinary and well-established research platforms containing a wide

variety of journals with updated information. The search for papers was restricted to the main research keywords are taking for selection of research papers are digitalization, digitization, digital transformation, technology adoption, blue economy, MSMEs, and SMEs.

Publication databases extracted are then screened based on certain selection criteria. Selected papers only included the type of article or conference paper. All papers selected must also be published in English and have already been assumed to undergo a rigorous peer-review process before their Scopus publications. All duplications were removed. The titles of the papers were also screened to ensure the relevance of the literature to the topic of this study. After the filtration and quality assessment, 486 papers (Table 1).

Table 1. Paper Elimination

Original Extraction	Articles & Conference Papers	Duplicates Eliminated	Non-Relevant Topic Eliminated	Final Total Papers
1680	1440	65	889	486

Table 2. Paper Types and Year of Publication

Year	Article	Conference Papers	Total
2019	84	57	141
2020	123	43	166
2021	109	33	142
2022	32	5	37

Some of the mapping studies exclude irrelevant items and include relevant studies to determine the categories for exclusion and inclusion criteria of articles. In other words, it is only appropriate to check for relevant articles. The authors used the following criteria in this study to exclude and include articles (Table 1). The papers are then classified and selected based on a set of criteria determined according to the purpose of the study [18] (Table 1).

The papers selected also compromises 348 articles and 138 conference papers. Each year differs in the number of articles and conference papers (Table 2). In this process, papers that did not fit within the topic of the digitalization of SMEs are excluded.

Table 3 Inclusion and Exclusion Criteria

Inclusion	Exclusion
• Research that focuses on the main topic of digitalization, digital transformation, technology, and digital adoption, of MSMEs. • English Language • Only journal and conference papers • Peer-reviewed Papered	• Paper that does not discuss the main topic. • Languages other than English • Thesis, Books Chapters, Reviews, Editorial notes. • Document not reviewed previously by peer

The analysis approach is then done through simple systematic mapping studies. The systematic mapping study maps selected papers according to topics, abstracts, sources, and year to provide a summary research area instead of a detailed analysis of the researched questions [19]. The study then uses VOS Viewer 1.6.18 to analyze a visualization of key occurrences of keywords in titles and abstracts.

3. RESULTS AND DISCUSSIONS

The results were compiled and organized according to keywords, research focus, year, and sources. Based on the keywords and research focuses, the results see an increase in the research topic from 2019 to 2020.
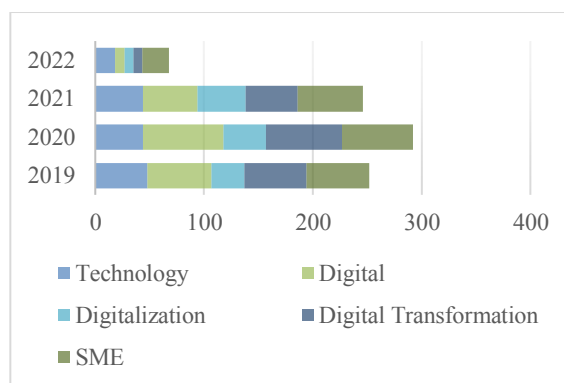

Figure 2 Main Publication Topic

The study also categorized sub-keywords in the titles and research topic which often include keywords such as innovation, Covid19, Literature review, entrepreneurship, digitization, etc. (Table 4). Unfortunately, the digitalization of MSME and or SME in the blue economy segment was very sparse. Most research is in other industries such as manufacturing goods, fashion, food, banking, etc.

The study then also looks into the main sources of the publications (Figure 2). Results show a total of 268 sources consisting of 75 conference papers and 193 journals.

Table 4 Title Keywords and Sub Keywords

	2019	2020	2021	2022	Total
SME	58	65	60	25	208
Digital	59	74	50	9	192
Digital Transformation	57	70	48	8	183
Technology	48	44	44	18	154
Digitalization	30	39	44	8	121
Innovation	19	14	14	5	52
Literature Review	8	7	9	1	25
Covid19	0	10	10	3	23
MSME	2	7	3	3	15
Blue Economy	0	1	3	1	5
Marketing	4	5	4	1	14
Tech adoption	5	2	7	2	16
Digitization	2	7	5	0	14
Entrepreneurship	2	5	6	2	15

Table 5 Sources of Conference Papers (total > 4 papers)

No.	Sources	Total
1	Advances in Intelligent Systems and Computing	8
2	Procedia CIRP	7
3	IFAC-PapersOnLine	6
4	IOP Conference Series: Earth and Environmental Science	6
5	IOP Conference Series: Materials Science and Engineering	6
6	Journal of Physics: Conference Series	6
7	Procedia Computer Science	6
8	IFIP Advances in Information and Communication Technology	4
9	Procedia Manufacturing	4
10	Proceedings of the 33rd International Business Information Management Association Conference, IBIMA 2019: Education Excellence and Innovation Management through Vision 2020	4
11	Proceedings of the Annual Hawaii International Conference on System Sciences	4
12	Smart Innovation, Systems, and Technologies	4

The highest number of conference papers sourced were 8 papers from Advances in

Intelligent Systems and Computing (Table 5). Meanwhile, a higher number of selected papers are sourced from several journals including Technological Forecasting and Social Change, Sustainability (Switzerland), Journal of Business Research, California Management Review, etc. (Table 6).

Table 6 Sources of Journal Articles (total > 4 papers)

No.	Sources	Total
1	Technological Forecasting and Social Change	18
2	Sustainability (Switzerland)	16
3	Journal of Business Research	12
4	California Management Review	6
5	Business Horizons	5
6	International Journal of Information Management	5
7	Journal of Manufacturing Technology Management	5
8	Technology in Society	5
9	Uncertain Supply Chain Management	5
10	Applied Sciences (Switzerland)	4
11	Benchmarking	4
12	Entrepreneurship and Sustainability Issues	4
13	European Journal of Information Systems	4
14	Information (Switzerland)	4
15	Information Systems Journal	4
16	Journal of Asian Finance, Economics, and Business	4
17	Production Planning and Control	4

This research supports the premise that there is still growing attention on digitalization and digital transformation research topic since 2019. Many articles were published in peer-reviewed journals and conferences indexed by Scopus, in various areas from a business perspective, information systems, management, entrepreneurship and sustainability, and applied sciences.

VOS Viewer mapping visualization of 486 papers was also generated from mapping text-based data of the titles and abstracts of the selected papers (Figure 3).
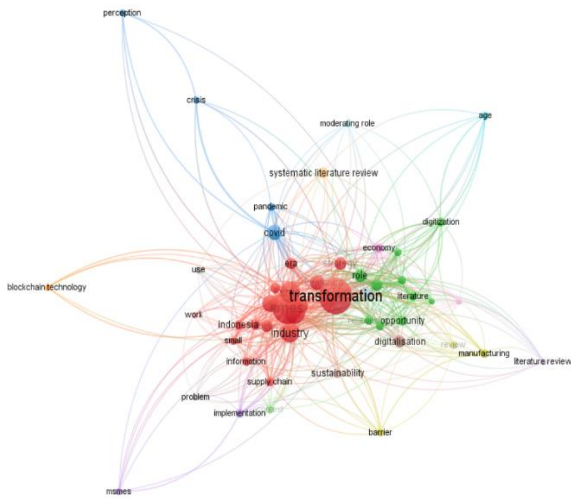
Figure 3 Text Network Visualization

Network of connection shows relations between transformation to industry, information, supply chain, and opportunities, digitization and age, and a moderating role.
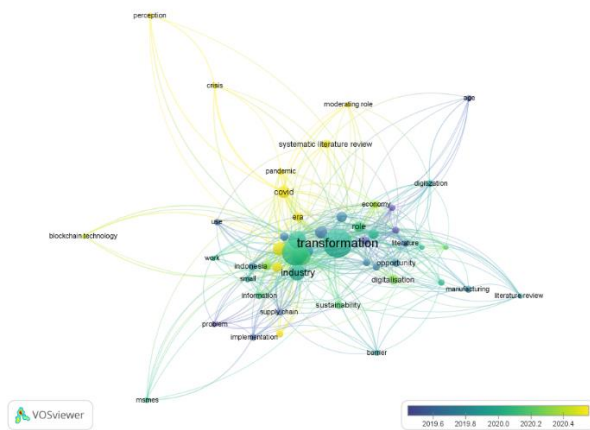

Figure 4 Text Overlay Visualization

Based on the VOS Viewer visualization, there is an advancement of topics under digitalization. Moving towards 2020 studies start to be a concern on Covid19, sustainability, and blockchain technology.

4. CONCLUSION

The purpose of this article is to review studies on the blue economy digital transformation of MSMEs. The review indicates increasing interest and advancements sub research topics related to technology adoption and transformation. However, there is still a huge lack of research in specifically blue economy segment MSMEs in Indonesia. Furthermore, the study finds very few Asian studies and in Indonesia context of MSME showing a substantial research gap.

The study has several shortcomings, including no in-depth research questions analysis being conducted. In addition, there was limited access to databases resulting in a possible publication not being included. However, the results of this study provide a concise overview, and are very appropriate to direct future research in developing countries like Indonesia which is still in the process of digitalization. A focal point of development for future studies could include a larger and more in-depth analysis of databases within the topic of research.

AUTHORS' CONTRIBUTIONS

Chrisanty V. Layman formulated the idea of the research, worked out the development of the research design and the technical aspects of the research, collected the data and literature analysis, concluded discussions, and prepared the draft for published work.

Sabrina O. Sihombing devised the idea of the research, the main conceptual, and proposal outline, contributed to the management of research activities, and secured the grant funding support.

Liza Handoko contributed to the formulation of research goals and aims, management of research activities, and coordination responsibilities of research execution.

ACKNOWLEDGMENTS

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