

DIGITAL ECOSYSTEM AND PENTAHHELIX SYNERGY IN BUILDING UMKM SUSTAINABILITY IN MALANG CITY

Mulyaningtyas¹, Ditya Wardana²

^{1,2}Faculty of Economics and Business, Institut Teknologi dan Bisnis ASIA Malang Jl.
Ir. Soekarno – Hatta Rembeksari 1A Malang, East Java, Indonesia
mulyaningtyas.74@gmail.com

ABSTRACT

This research aims to analyze the Sustainability of MSMEs in Malang City. The data from the analysis is then used to describe the condition of the digital ecosystem and pentahelix synergy in building sustainability for Malang City MSMEs. This research was conducted using a quantitative descriptive method to formulate the role of the digital ecosystem and pentahelix. Data was obtained using questionnaire distribution techniques, observation and documentation. The data was organized into value score categories, then averaged the scores of each variable and analyzed the score weights so that the research results showed that the widespread adoption of digital technology improves business operational efficiency through the use of social media for marketing, digital technology in transactions, and paid digital marketing. However, there are challenges in collaboration with academics and government support that still need to be strengthened to maximize the potential of Pentahelix collaboration.

Keywords: Digital Ecosystem, Pentahelix Synergy, Sustainability, MSMEs

INTRODUCTION

The role of MSMEs in Indonesia's economic growth is undeniable. Based on BPS data in 2023, MSME business actors reached around 66 million and have penetrated 99% of all business units. MSMEs are a contributor to Indonesia's Gross Domestic Product (GDP) as much as 61% or equivalent to Rp. 9,580 trillion. MSMEs have also absorbed a workforce of 117 million or 97% of the total workforce. Kadin Indonesia together with the government seeks to encourage the growth of national MSME performance through digitalization implementation strategies to increase competitiveness, become global players and exportoriented.

In Malang City, there are approximately 29,058 MSME players with a number of MSME industry centers that are featured, among others: Tempe chips, fashion, painting, ceramics, rattan, sanitary ware, pottery, furniture, etc. As a form of concern for MSMEs, the Malang city government through the Disoperindag supports MSMEs to export their products with several facilities such as MSME clinics for product development and legality. The government also encourages MSMEs to take part in the government's goods and services procurement program in 2024.

The role of MSMEs that can currently be taken into account in Indonesia's economic development is certainly inseparable from the policies launched by stakeholders and partnerships that support the development of MSMEs. Collaboration is very important by cooperating with the 5 main pillars (pentahelix), namely business actors / practitioners, communities, academics, government and media (Hidayatullah et al., 2022).

MSMEs often have quality product ideas and innovations with the synergy of pentahelix, but are often constrained when it comes to integrating their business with digital technology. By integrating digital technology, it can open market access for MSMEs, which has been one of the problems they face in marketing their products (Senyo et al., 2019).

In previous research, many have discussed the synergy of the pentahelix in encouraging the sustainability of MSMEs, but there are also those who have the opposite opinion, who say that the role of digital technology will have more influence on MSMEs to gain wider

marketing access (Juwita et al., 2022). MSMEs will have a greater chance of success if they use digital platforms (Naude & Liebrechts, 2020).

This research was conducted to analyze and prove that the digital ecosystem and pentahelix synergy have an impact on MSME Sustainability. The pentahelix scheme which is then assisted by the digital ecosystem will help faster in realizing sustainability for MSMEs.

LITERATURE REVIEW

Samas Adimisa Mishbah Habibie, et al(2023)

Research by Adimisa Mishbah Habibie, et al on the synergy of the five stars for the revival of the nation's economy through the sustainability of small and medium industries in the era of society conducted at IKM Kampung Tempe Sanan. This research is phenomenological qualitative research, because it examines the phenomenology that occurs in the Industrial Center of Tempe Village Sanan. The sustainability of a business or business in the current era is not only about requiring businesspeople or businesses to focus only on profits. But businesspeople must also fulfill the social and environmental responsibilities of the business being run. Like stakeholder theory and the tri bottom line concept, that businesspeople have responsibilities not only for profits. They are also socially responsible such as to workers (employees), communities around their environment, consumer satisfaction and rights to be responsible for preserving the environment. In the industrial era, the environment has been polluted and damaged due to the production activities of factories and other industries, including household waste. Therefore, the concept of the tri bottom line is now starting to be applied to create a balance of current and future life. Of course, for business people as well in order to realize the sustainability of their business.

Tri Wahyu Lestari, et al(2023)

Tri Wahyuni Lestari et al's research on the Strategy for strengthening MSMEs through the Pentahelix model in Purworejo Regency, which is focused on the sugar cluster, aims to analyze exporting MSMEs in Purworejo Regency engaged in the sugar cluster, specifically the Srikandi Women's Cooperative and the Karmatera Cooperative. The data from the analysis is then used as a reference material to formulate strategic steps in the form of designing a model for increasing the competitiveness of MSMEs through pentahelix collaboration. Synergy between interested parties provides export space for MSMEs to be competitive in surviving and increasing exports of MSME products. This research was conducted with a qualitative approach to formulate the design of a model to improve the competitiveness of MSMEs. Data were obtained from interviews, field notes and documentation, by organizing data into categories, breaking it down into units, synthesizing, compiling into patterns, selecting what is important and what will be studied, and making conclusions. The results showed that collaboration between stakeholders is expected to be a model for increasing the competitiveness of MSMEs in the international (export) market.

Rachmawati et al., n.d.(2022)

Research Rachmawati, et al This research is motivated by the unique development of MSMEs, such as surviving in times of crisis, development continues to increase, being able to absorb labor and workers with low education and others. This development is not only the efforts of SMEs alone to survive, especially creative SMEs, but also requires collaboration from the government, academics, communities, media and business actors themselves who are members of the pentaheliks. In addition, to implement it requires how the existing organization, interpretation (implementation activities) and application are needed, these three things are included in Jones' implementation model theory).

This study uses a qualitative method descriptive method, the research location in Dusun Lopawon Kebobang Malang Regency, the informants used are Poktan (Farmer Group) and

KWT (Farmer Group) managers, the data used are primary data (direct interviews) and using secondary data literature. others relevant to this research. Analysis techniques by looking at the implementation of Jones and Pentahelix theory applied so far in SMEs, especially creative SMEs in the research location. The results of the implementation of Jones Organization theory, interpretation (implementation activities) and applications that have been running the development of SMEs, especially the existing creative economy, as well as the implementation of the existing Pentahelix, all have been running with their respective roles in the characteristics of Pentahelix. However, to accelerate and accelerate the development of the existing creative economy and still need to be improved, the application of Jones theory and Pentahelix is sustainable and not just temporary or tentative activities, and the assistance provided should be tailored assistance that can solve problems for creative SMEs such as marketing, production, personnel and financial problems so that the role and assistance and interventions that exist will be more targeted and effective for SMEs, especially existing creative SMEs.

Juwita et al., (2022)

Juwita, et al's research on digital platforms as a means of developing MSMEs, shows that in addition to the use of e-commerce for digital marketing, the rapid use of digital technology today has created many new opportunities for organizations in all industrial fields. Digital transformation has a positive impact on innovation and Company performance based on resource-based view theory. The growth of SMEs and their relatively high role in the community's economy is also accompanied by several problems that arise in the face of the current era of digitalization. The main challenges in the digitalization process for SMEs are limited financial resources, limited knowledge resources, and limited technological awareness. Ecosystem-based digital platforms enable SMEs to strategically integrate knowledge resources while configuring internal and external resources to respond to dynamic and volatile environments.

Senyo et al., (2019)

Digital innovation has radically changed the way organizations collaborate and compete. These changes are also accompanied by new collaborative value creation networks such as digital business ecosystems (DBEs). DBEs are socio-technical networks made up of individuals, organizations and technologies that collectively create value. Since the emergence of DBEs more than a decade ago, there has been limited effort to critically review and synthesize the body of knowledge presented over the years. Therefore, the purpose of this paper is to fill the gap in DBE research by: (1) developing a comprehensive framework that synthesizes and provides overall DBE research direction; (2) pointing out gaps in the DBE literature; and (3) providing future research directions. To achieve these objectives, we systematically analyzed 101 research articles on DBE. The findings provide an in-depth understanding to address some of the limitations in current DBE research. Therefore, this study makes an important contribution and serves as a useful resource for future DBE research and practice.

METHODS

This type of research is descriptive quantitative, which aims to describe an objective situation using numbers, starting from data collection, interpretation of the data and the appearance and results. The data collection technique used is through distributing questionnaires to respondents who are Malang City MSMEs with sample selection criteria using a random method of 402 MSMEs from a total population of 29,058 MSMEs, which is the result of determining using the Slovin formula.

The variables used are the digital ecosystem and pentahelix synergy (Industry, Government, community, media), profitability and sustainability of MSMEs which are analyzed by determining the average score of the score range data from the data processing of respondents' answers. The definition of the score for each variable is as

follows (Table 1). Based on the definition of the score, it is described in the relationship pattern of the MSME sustainability building.

Table 1. Definition Criteria Score

Average score	Digital ecosystem and Pentahelix	Profitability and Sustainability
1	Very Unhelpful	Very unsustainable
1,01 - 2	Unhelpful	Unsustainable
2,01 - 3	Needs Improvement	Needs Improvement
3,01 - 4	Moderately Helpful	Fairly good and sustainable
4,01 - 5	Very Helpful	Very good and sustainable

RESULTS

Research Results

Based on the research data, the average variable score is obtained as follows (Table 2).

Table 2. Average score of each variable

Variable	Average Score
Digital Ecosystem	4,10
Pentahelix Synergy: Academia	3,28
Pentahelix Synergy: Industry	3,71
Pentahelix Synergy: Government	3,10
Pentahelix Synergy: Society/Community	3,96
Pentahelix Synergy: Media	3,91
Profitability	3,65
Sustainability	4,05

Source: Data Processing (2024)

Based on the table above, it can be concluded that: 1) Digital ecosystem with an average score of 4.10. This result shows that digital technology is considered very helpful in improving operational efficiency and facilitating various aspects of the business; 2) Pentahelix synergy consists of MSME collaboration with academia, industry, government, society/community, and media. Academia: The average score of 3.28 indicates that collaboration with academia still needs to be improved, despite the recognition that academia's contribution to business development is significant. Industry: The average score of 3.71 indicates that collaboration between industries is strong, with many businesses sharing knowledge and resources to improve business performance. Government: The average score of 3.10 indicates that support from the government needs to be improved to be more effective in assisting business development. Community/Local Communities: The average score of 3.96 indicates that support from the local community is considered important and contributes significantly to the success of the business. Media: The average score of 3.91 indicates that the media plays an important role in supporting marketing strategies and business reputation; 3) Profitability with an average score of 3.65 indicates that the business has improved in terms of sales and profits, and has successfully implemented operational efficiency strategies to increase profits; 4) Sustainability with an average score of 4.05 indicates that businesses pay close attention to sustainability aspects, including environmentally friendly practices, sustainable economic growth, employee welfare and waste management.

Discussion Digital Ecosystem

The results show that digital technology plays a major role in improving the business operational efficiency of Malang city's MSMEs. This includes the use of social media for marketing, the application of digital technology in transactions, and paid digital marketing.

Digital marketing makes it easier for businesses to monitor and provide all the needs and desires of potential customers and can reach all people wherever they are without space and time restrictions (Dewi & Mulyaningtyas, 2021). These results emphasize the importance of digital technology adoption in achieving operational efficiency and effectiveness, as well as in increasing business competitiveness. Ecosystem-based digital platforms enable MSMEs to integrate knowledge sources while configuring internal and external resources to respond to dynamic and volatile environments (Juwita et al., 2022). By building a digital ecosystem, communication with customers is more effective and efficient, the transaction process is easier and cheaper, and the sales reach is wider because it uses online media (Ma'rifah et al., 2022). The many benefits provided by the digital ecosystem can also provide a competitive advantage for MSMEs.

Pentahelix Synergy

Collaboration between the various elements of the pentahelix has varying impacts. In the category of collaboration between Malang City MSMEs and academics, while the contribution of academics in business development is recognized, the relatively low scores indicate a need to strengthen relationships and collaboration with academic institutions. This could involve more structured research, internship or training partnerships. In the Industry category, collaboration between industries was rated quite positively, especially in sharing knowledge and resources. This suggests that synergies between companies can increase innovation and efficiency and promote mutual growth.

On collaboration with the Government, government support is considered less than optimal by respondents. This indicates the need to increase the role of the government in providing facilities, policies and programs that support business development more effectively. On collaboration with Local Communities, it shows that support from local communities is highly valued, community involvement can improve the image and success of the business. This emphasizes the importance of building strong relationships with local communities through CSR activities and partnership programs. Collaboration with the media also plays an important role in marketing strategies and building business reputation. These results show that cooperation with the media can assist businesses in reaching a wider audience and strengthening market presence.

The collaboration between various elements of the pentahelix in MSME development shows the importance of cross-sectoral cooperation to achieve efficiency and growth. Of course, this collaboration also requires an active role from MSME actors in initiating and utilizing these collaboration opportunities. As stated by Habibie & Sari (2023) that the impact obtained by the role of academics, government, local communities, and the media can realize the sustainability of MSMEs.

Profitability

Profitability is an important factor that must be considered by every business actor, because this determines the survival of the company. Profitability refers to a company's ability to generate profits, which is a key indicator of business performance and durability (Yusuf et al., 2022). The results indicate that although Malang city's MSME businesses experienced an increase in sales and profits, there is still room for improvement. Efficiency in managing operational costs and the implementation of effective operational strategies have been shown to increase profits, but businesses need to continue to look for ways to optimize their processes to achieve better results.

Sustainability

In Wardana (2018), sustainability is a measure of an organization's ability to fulfill its mission and serve stakeholders over time. Therefore, it is important for an organization to pay attention to the sustainability of its business. Strong sustainability will allow companies to achieve above-average profitability. The results of this study show the strong commitment of Malang City MSMEs to sustainable business practices. This includes aspects of environmental friendliness, sustainable economic growth, employee welfare

and waste management. Businesses that focus on sustainability tend to have a better reputation and stronger staying power in the long run.

CONCLUSION

The results confirm that the widespread adoption of digital technology improves business operational efficiency through the use of social media for marketing, digital technology in transactions, and paid digital marketing. However, there are challenges for Malang City MSMEs in collaboration with academia and government support that still need to be strengthened to maximize the potential of Pentahelix collaboration. Nonetheless, collaboration between industries and with local communities shows positive results that support mutual innovation and growth. Meanwhile, the focus on sustainability has positively impacted Malang City MSMEs in improving business reputation and long-term sustainability through environmentally friendly business practices and employee welfare. In conclusion, the adoption of digital technology and effective collaboration within Pentahelix, supported by a focus on sustainability, are key to improving business efficiency, innovation and profitability in the context of a sustainable ecosystem.

REFERENCES

- Dewi, M. P. & Mulyaningtyas. (2021). *Digital Marketing Sebagai Strategi Pemasaran Macaroni Ebol Dalam Meningkatkan Jumlah Konsumen*.
- Habibie, S. A. M., & Sari, R. P. (2023). Sinergi Lima Bintang Guna Kebangkitan Ekonomi Bangsa Melalui Sustainability Industri Kecil Menengah Di Era Society: Studi Kasus IKM Kampung Tempe Sanan Kota Malang. *Owner*, 7(2), 1342–1352. <https://doi.org/10.33395/owner.v7i2.1302>
- Ma'rifah, I., W, B. R. I., Rizqi, E. I., & Kustiningsih, N. (2022). Pengaruh Marketplace Dalam Meningkatkan Daya Saing Ekonomi Kreatif Pada Umkm D'elixir. *Jurnal Revenue: Jurnal Ilmiah Akuntansi*, 2(2), 349–356. <https://doi.org/10.46306/rev.v2i2.78>
- Wardana, D. (2018). Pengeluaran R&D Dan Financial Sustainability Serta Peran Marketing Performance, Gross Margin, Dan Technological Performance Sebagai Variabel Mediasi. *Jurnal Manajemen*, 22(2), 154. <https://doi.org/10.24912/jm.v22i2.357>
- Yusuf, M., Sutrisno, S., Putri, P. A. N., Asir, M., & Cakranegara, P. A. (2022). Prospek Penggunaan E-Commerce Terhadap Profitabilitas Dan Kemudahan Pelayanan Konsumen: Literature Review. *Jurnal Dharma Agung*, 30(3), 505. <https://doi.org/10.46930/ojsuda.v30i3.2268>
- Hidayatullah, S., Windhyastiti, I., Aristanto, E., Rachmawati, I. K., & Stella Alvianna. (2022). Creative Tourism Economic Development Strategy with the Penta Helix Collaboration of Batu City. *International Journal of Research in Engineering, Science and Management*, 5(4), 119–129.
- Juwita, O., Firdonsyah, A., Ali, M., Puji Widodo, A., & Rizal Isnanto, R. (2022). Studi Literatur Platform Digital Sebagai Sarana Dalam Mengembangkan UMKM. In *Informatics Journal* (Vol. 7, Issue 1).
- Naude, W., & Liebrechts, W. (2020). Digital Entrepreneurship Research: A Concise Introduction. *IZA - Institute of Labor Economics Is Collaborating with JSTOR to Digitize, Preserve and Extend Access to This Content*.
- Rachmawati, I. K., Bahri, S., Bukhori, M., & Hidayatullah, S. (n.d.). *Collaboration Of Pentahelix Model And Jones Policy Implementation Model In Creative Economic Development Of Malang District Study On (Kebobang Village, Lopawon District) Gunung Kawi, Malang Regency*. 1(1), 2021.
- Senyo, P. K., Liu, K., & Effah, J. (2019). Digital business ecosystem: Literature review and a framework for future research. *International Journal of Information Management*, 47, 52–64. <https://doi.org/10.1016/j.ijinfomgt.2019.01.00>

