

# Territorial assets and sustainable development: A study of competitiveness in Central Java's Regencies

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## Abstract

This research investigates the role of Regional Capital in shaping competitiveness and development in the districts of Blora, Rembang, Jepara, Kudus and Pati, located in Central Java, Indonesia. The research focuses on the diversity of economic, social, cultural and natural assets in each region, and analyses their impact on regional competitiveness. The research methodology is based on qualitative description with secondary data collection from the publication Mapping Regional Competitiveness of Central Java Province 2018-2023. The research findings show that effective integration of these assets, within the Regional Capital framework, has significant positive implications for competitiveness and development in the five districts. These insights provide a clearer understanding of the dynamics of regional development in Central Java Province. Therefore, local governments can use these findings to formulate more specific and relevant policies that are tailored to the unique characteristics of each region. This research makes a significant contribution in understanding the potential and challenges of development in Blora, Rembang, Jepara, Kudus and Pati districts. The results of this study are expected to guide policy makers in optimising resources and improving sustainable welfare in these regions.

## Keywords

Territorial assets, Sustainable development, Competitiveness

## Introduction

The dynamic interaction between Territorial Capital (TC) [1][2][3][4] and regional development is at the center of scientific research attention, especially in the context of the diversity of each region. This research explores the unique landscape of five districts in Central Java, Indonesia, namely Blora regency, Rembang regency, Jepara regency, Kudus regency and Pati regency. TC, which includes economic, social, cultural and natural assets, is recognised as a critical factor influencing competitiveness [5][6][7] and

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sustainable development [8][9][10] in these regions. This can be seen through four key macro indicators, namely the Human Development Index (HDI) [11][12], economic growth [13][14], open unemployment rate [15][16], and poverty rate [17][18].

Effective integration of TC can contribute to the improvement of the HDI in each of the municipalities. By understanding and utilizing the potential of TC, aspects such as education, health and living standards can be improved, which in turn can support an increase in the HDI. Strategic interaction with TC can drive regional economic growth. Through optimization of economic assets and empowerment of local resources, each district can achieve sustainable economic growth, making a positive contribution to macroeconomic growth. A deep understanding of TC can help identify local economic [19][20] opportunities and skills training [21][22], which can reduce open unemployment rates. Effective integration can create new jobs and support the economic sustainability [23][24] of the region. Development strategies that focus on TC can have a direct impact on poverty levels. Poverty levels are expected to be reduced by strengthening local economic sectors and improving the quality of life through the integration of social and cultural assets.

The unfamiliarity and diversity of resources in each district raises a profound need to understand and utilize the potential of TC. The multi-faceted tapestry of Central Java Province offers an interesting case study, providing insights into the strategic integration of assets and their implications for local competitiveness. In the context of global discussions on sustainable development, this research aims to provide empirical evidence and diverse perspectives. Amidst global challenges and the need for local solutions, exploring the role of TC in shaping development strategies [25][26] is crucial. By examining the economic, social, cultural, and environmental aspects of these five districts, this research aims to reveal the complex dynamics behind the competitiveness and resilience of these regions in the face of a changing regional and global landscape. The findings of this research are expected to provide valuable information for policymakers and practitioners in designing interventions that suit the unique characteristics of each regency, promoting a more sustainable and competitive development [7][27] trajectory for the entire Central Java Province.

## Methods

This study applies a qualitative method [28][29] with a multi-pillar analysis approach to evaluate the competitiveness of five regencies in Central Java, namely Blora regency, Rembang regency, Jepara Regency, Kudus regency, and Pati regency, especially between 2018-2023. Secondary data sources were obtained from the publication Regional Competitiveness Mapping of Central Java Province. The critical pillars [7][30] analyzed involve business dynamics, innovation capacity, technological readiness, institutions, infrastructure, regional economy, health, education and skills, product market efficiency, employment, access to finance, and market size. By combining the

findings from the qualitative analysis of each pillar, the study aims to provide a holistic picture of the factors affecting regional competitiveness over the period under study.

## Results and Discussion

The Jekutibanglor Development Area (DA) [31], as part of the Central Java Provincial DA System, covers Blora regency, Rembang regency, Jepara Regency, Kudus regency, and Pati regency. The region was formed through the merger of two DAs, namely Wanarakuti DA and Banglor DA. The significant challenges faced by the Jekutibanglor DA are mainly in the education, economic, and environmental sectors, resulting in high levels of poverty in line with economic growth below the average of Central Java Province. The education challenge requires efforts to improve access to and quality of education in the region, while the economic aspect requires strategies to stimulate economic growth in line with provincial targets. In addition, environmental issues must be addressed through sustainable policies to mitigate negative environmental impacts. Despite these challenges, the Jekutibanglor DA also has potential that can be optimized, especially in the trade and services sector, electricity and gas supply, water supply, accommodation provision, and quarrying and mining activities. Strategic areas in the region, such as the Rembang Industrial Area, the Semarang - Karimunjawa tourism destination, the Rembang - Lasem Tourism Strategic Area, and the Blora - Cepu Tourism DA, are opportunities to become key drivers in improving regional development performance. Therefore, there is a need for holistic policy integration to overcome challenges and stimulate the potential of Jekutibanglor DA to achieve sustainable and inclusive development.

The Jekutibanglor DA, located in the north of Central Java, has potential that can be optimized in several key sectors. For example, trade and services, electricity and gas supply, water supply, accommodation provision, and quarrying and mining activities are areas that could be developed more optimally. The strategic areas in this DA include the Rembang Industrial Estate, the Semarang-Karimunjawa tourism destination and its surroundings, the Rembang-Lasem Tourism Strategic Area, and the Blora-Cepu Tourism DA and its surroundings. These four areas are considered key drivers for improving the region's overall development performance [32][33][34]. The Rembang Industrial Estate can be an economic motor with its potential in the industrial sector. Meanwhile, tourism destinations such as Semarang-Karimunjawa, Rembang-Lasem, and Blora-Cepu have unique attractions that can support the tourism sector [35]. By effectively utilizing these potentials, the Jekutibanglor DA can achieve better regional development performance, increase economic growth, and positively contribute to the welfare of the local community [36][37]. Coordination among stakeholders and appropriate policy implementation [38][39][40] are required to stimulate positive development in these sectors.

**Table 1.** The Regional Competitiveness Index of Jekutibanglor DA Region for 2018-2023

Regional	Index Score					
	2018	2019	2020	2021	2022	2023
Blora	3.1920	4.3295	3.1089	3.1359	2.9170	2.996
Rembang	4.6090	7.0487	3.3104	3.5716	3.6190	3.635
Jepara	4.0620	3.5736	3.1248	3.2313	3.1960	3.317
Kudus	3.4620	5.5537	3.1712	3.4515	3.3850	3.040
Pati	3.9130	6.7577	3.6118	3.5718	3.2380	3.430

Source: BRIDA Central Java Province, 2023

The Regional Competitiveness Index [7][30] values for Blora regency, Rembang regency, Jepara regency, Kudus regency, and Pati regency from 2018 to 2023 reveal distinct trends (Table 1). Blora experienced an initial increase in 2019 followed by a steady decline until 2023, maintaining a relatively stable development level. Rembang exhibited significant growth in 2019, sustaining consistent development above three until 2023. Jepara regency faced a decline in 2019 but gradually improved, reaching an index above three by 2023. Kudus regency showed a notable increase in 2019, followed by a stable decrease, yet maintaining a relatively good development level above 3 in 2023. Pati regency demonstrated substantial growth in 2019, with subsequent fluctuations but maintained a stable development level above three. These variations emphasize the unique developmental trajectories of each region, providing valuable insights for policymakers to tailor effective strategies for accelerated and sustainable development in each area.

The Regional Competitiveness Index derived from the pillars of regional competitiveness, as shown in Table 2, provides an overview of the scores for a number of development pillars in several Regencys in Central Java Province. Business dynamics show significant differences, with Pati regency achieving the highest score and Kudus regency the lowest. The same is true for innovation capacity [41][42], where Rembang regency stands out with the highest score, while Kudus shows challenges with the lowest score. Differences in technological [43][44] readiness between districts are also quite striking, with Rembang regency standing out as the most technologically ready. In general, institutions are strong in all Regencies, but infrastructure shows a significant imbalance, with Kudus regency scoring highest and Blora regency scoring lowest. Meanwhile, in the regional economy, differences between Regencies are relatively small, but variability is seen in the health and education sectors. Pati regency achieved the highest score in the health sector [45][46], while Kudus regency had the lowest. Education and skills also show variation, with Rembang regency being the leading district and Blora being the lagging one. Product market [47][48] efficiency shows considerable non-uniformity, with Rembang regency standing out and Kudus regency scoring the lowest. Similar variability is seen in the labour sector, where Rembang regency again excels and Kudus regency ranks the lowest. Access to finance also shows significant differences, with Rembang regency standing out as having the most access and Kudus regency as having the least. Although market size [49][50] shows a relatively high degree of variation, the comparison between regencies confirms that each region

has its own unique characteristics. Understanding these differences is key in designing development policies [51][52] that are more specific and responsive to the needs of local communities [53][54]. Thus, this score analysis can serve as a foundation for more informed decision-making in advancing development in the Central Java region.

**Table 2.** Regional Competitiveness Pillars of the Jekutibanglor Regional Region in 2023

Pilar	Blora	Rembang	Jepara	Kudus	Pati
Business Dynamics	3.00	4.08	4.17	2.80	4.42
Innovation Capacity	2.38	3.30	2.67	2.03	2.62
Technology Readiness	3.25	4.75	2.75	2.75	2.75
Institutional	4.17	4.33	4.33	4.58	4.33
Infrastructure	2.83	3.75	3.67	5.00	4.00
Regional Economy	3.12	3.16	3.88	3.24	3.19
Health	3.25	3.25	3.38	2.50	4.25
Education and Skills	2.23	2.66	2.36	2.43	2.43
Product Market Efficiency	2.75	4.00	4.00	2.13	3.00
Labor	3.89	4.33	3.00	4.11	3.28
Access to Finance	2.33	3.83	1.67	1.00	2.50
Market Size	3.00	3.00	4.33	4.33	4.33

Source: BRIDA Central Java Province, 2023

Analyses of the development score tables across different regencies in Central Java reveal significant variations in key aspects of development [7]. Pati regency stands out in business dynamism, reflecting the high level of economic activity in the region, while Kudus regency shows a hand with a lower level of business [55][56] dynamism. Rembang regency, with the highest score in innovation capacity, indicates great potential for the development of ideas and innovation at the local level. The high technological readiness of Rembang regency provides a positive signal for technological advancement in the region, providing a good foundation for sustainable development. All Regencies show success in building and maintaining effective institutions [57], which can be a strong foundation for sustainable development. The stark difference in infrastructure between Kudus regency and Blora regency highlights the imbalance in the availability and quality of public [58][59] facilities.

While differences in the regional economy [7][18][60] are relatively small, diversity in health and education represent challenges that need to be addressed. With high levels of employment and product market efficiency in Rembang regency, as well as better access to finance, the region has the potential to empower a quality workforce and drive economic growth. The prominent market size in Jepara regency, Kudus regency, and Pati regency districts offers opportunities to develop a wider range of economic sectors in the region. Through an in-depth understanding of the characteristics of each district, authorities can design more focused policies, capitalize on existing advantages, and improve on weaknesses. With this approach, it is hoped that development in Central Java can achieve a better balance and provide sustainable benefits to local communities.



## Conclusion

An analysis of the development scores of Blora regency, Rembang regency, Jepara regency, Kudus regency, and Pati regency in Central Java Province shows differences in regional conditions. Pati regency leads in business dynamics, while Kudus regency faces challenges. Strong institutions in all districts support sustainable development. Rembang regency excels in innovation, and the high employment rate indicates the potential for quality labour. While Kudus regency excels in infrastructure, Blora regency faces challenges in this sector. Differences in economic scores are relatively small, but significant variations are seen in health and education, with Pati regency excelling in health and Rembang regency in education. Product market efficiency is Rembang regency strong point, and good access to finance supports sustainable economic growth. With prominent markets in Jepara regency, Kudus regency and Pati regency, there are opportunities for wider economic sector development. This analysis provides guidance for decision-makers in designing more targeted policies for each district in Central Java Province.

Based on the development score analysis, recommendations for Blora regency include improving infrastructure. Kudus regency needs to adopt innovative approaches in strengthening business dynamics. Jepara regency can optimize tourism potential as a key driver of economic growth. Rembang regency and Pati regency are advised to focus on sustainable development in the education and health sectors. Encouraging inter-district cooperation can enhance positive synergies, while Kudus regency can strengthen employment through skills training. Pati regency can develop a health business cluster, and Rembang regency and Kudus regency need to improve access to finance to support local business initiatives. These recommendations are expected to guide decision-makers in designing more targeted and effective development policies in each district.

## References

- [1] F. Orsi, C. Cavaco, and J. Gil, "From territorial capital to regional design: A multidimensional model for territorial analysis and scenario evaluation," *Planning Practice and Research*, 2022, doi: 10.1080/02697459.2022.2120490.
- [2] V. Morretta, "Territorial capital in local economic endogenous development," *Regional Science Policy and Practice*, vol. 13, no. 1, 2021, doi: 10.1111/rsp3.12317.
- [3] U. Fratesi and G. Perucca, "EU regional development policy and territorial capital: A systemic approach," *Papers in Regional Science*, vol. 98, no. 1, 2019, doi: 10.1111/pirs.12360.
- [4] M. Getzner and S. Moroz, "The economic development of regions in Ukraine: with tests on the territorial capital approach," *Empirica*, vol. 49, no. 1, 2022, doi: 10.1007/s10663-021-09521-w.
- [5] A. Gao, Y. Lin, and Y. Zhou, "Does an innovative climate help to sustain competitiveness? The moderating effect of government support and market competition," *Sustainability (Switzerland)*, vol. 12, no. 5, 2020, doi: 10.3390/su12052029.
- [6] U. Fratesi, "Regional innovation and competitiveness in a dynamic representation," *J Evol Econ*, vol. 20, no. 4, pp. 515–552, 2010, doi: 10.1007/s00191-009-0169-1.
- [7] A. Prasetyo and H. Sipahutar, "Impact of Policy and Economy on Market Aspects in Regional Competitiveness in Central Java," *The 4th International Conference on Regional Development Rural Development in Urban Age: Do Rural-Urban Linkages Matter?*, 2020.

- [8] M. F. Hassan and Z. Shareefdeen, "Recent Developments in Sustainable Management of Healthcare Waste and Treatment Technologies," *Journal of Sustainable Development of Energy, Water and Environment Systems*, vol. 10, no. 2, pp. 1–21, 2022, doi: 10.13044/j.sdewes.dg.0384.
- [9] A. Kasztelan, "Green growth, green economy and sustainable development: Terminological and relational discourse," *Prague Economic Papers*, vol. 26, no. 4, pp. 487–499, 2017, doi: 10.18267/j.pep.626.
- [10] J. Fernandez-Guadaño, M. Lopez-Millan, and J. Sarria-Pedroza, "Cooperative entrepreneurship model for sustainable development," *Sustainability (Switzerland)*, vol. 12, no. 13, 2020, doi: 10.3390/su12135462.
- [11] C. V. C. Palamim, M. N. Boschiero, F. E. Valencise, and F. A. L. Marson, "Human Development Index Is Associated with COVID-19 Case Fatality Rate in Brazil: An Ecological Study," *Int J Environ Res Public Health*, vol. 19, no. 9, 2022, doi: 10.3390/ijerph19095306.
- [12] G. Resce, "Wealth-adjusted Human Development Index," *J Clean Prod*, vol. 318, 2021, doi: 10.1016/j.jclepro.2021.128587.
- [13] E. Fukase and W. Martin, "Economic growth, convergence, and world food demand and supply," *World Dev*, vol. 132, 2020, doi: 10.1016/j.worlddev.2020.104954.
- [14] B. Surya, F. Menne, H. Sabhan, S. Suriani, H. Abubakar, and M. Idris, "Economic growth, increasing productivity of smes, and open innovation," *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 7, no. 1, pp. 1–37, 2021, doi: 10.3390/joitmc7010020.
- [15] A. R. D. Prayitno and D. Kusumawardani, "Open Unemployment Rate in The Province of East Java," *The Winners*, vol. 23, no. 1, 2022, doi: 10.21512/tw.v23i1.7047.
- [16] R. Putra, S. Wahyuning Tyas, and M. G. Fadhlurrahman, "Geographically Weighted Regression with The Best Kernel Function on Open Unemployment Rate Data in East Java Province," *Enthusiastic : International Journal of Applied Statistics and Data Science*, 2022, doi: 10.20885/enthusiastic.vol2.iss1.art4.
- [17] V. Deby Alsya, N. Triwahyuningtyas, and S. Murtatik, "Analysis of Factors Affecting Poverty Level In Java Island," *International Journal of Social Service and Research*, vol. 1, no. 2, 2021, doi: 10.46799/ijssr.v1i2.29.
- [18] A. Prasetyo and D. Gartika, "Spatial Economy Approach to Assess the Effectiveness of Poverty Treatment Policy Models and Regional Economic Impacts," in *IOP Conference Series: Earth and Environmental Science*, IOP Publishing Ltd, Nov. 2021. doi: 10.1088/1755-1315/887/1/012019.
- [19] M. Dehghanimadvar, R. Egan, and N. L. Chang, "Economic assessment of local solar module assembly in a global market," *Cell Rep Phys Sci*, vol. 3, no. 2, 2022, doi: 10.1016/j.xcrp.2022.100747.
- [20] D. H. E. Wilson, B. A. M. Johnson, E. Stokan, and M. Overton, "Institutional Collective Action During COVID-19: Lessons in Local Economic Development," *Public Adm Rev*, vol. 80, no. 5, pp. 862–865, Sep. 2020, doi: 10.1111/puar.13234.
- [21] K. V. Kingsley and K. Kingsley, "A case study for teaching information literacy skills," *BMC Med Educ*, vol. 9, no. 1, 2009, doi: 10.1186/1472-6920-9-7.
- [22] A. Qazi et al., "Gender differences in information and communication technology use & skills: a systematic review and meta-analysis," vol. 27, no. 3. 2022. doi: 10.1007/s10639-021-10775-x.
- [23] H. Hernita, B. Surya, I. Perwira, H. Abubakar, and M. Idris, "Economic business sustainability and strengthening human resource capacity based on increasing the productivity of small and medium enterprises (SMES) in Makassar city, Indonesia," *Sustainability (Switzerland)*, vol. 13, no. 6, 2021, doi: 10.3390/su13063177.
- [24] S. Girdzijauskas, D. Streimikiene, I. Griesiene, A. Mikalauskiene, and G. L. Kyriakopoulos, "New Approach to Inflation Phenomena to Ensure Sustainable Economic Growth," *Sustainability (Switzerland)*, vol. 14, no. 1, 2022, doi: 10.3390/su14010518.
- [25] S. Jewel, J. Hong, and C. Im, "Innovation Strategies for Textile Companies in Bangladesh: Development Using Quadrant Analysis Based on a Productivity Index †," *Sustainability (Switzerland)*, vol. 14, no. 24, 2022, doi: 10.3390/su142416329.
- [26] N. M. Rukmana and M. Marliyah, "Analysis of Poverty and Unemployment Reduction Strategies in the Highlands of North Sumatra by the North Sumatra Regional Development Planning Agency (Bappedasu)," *Jurnal Fokus Manajemen*, vol. 2, no. 1, 2022, doi: 10.37676/jfm.v2i1.2157.
- [27] W. Banmairuroy, T. Kritjaroen, and W. Homsombat, "The effect of knowledge-oriented leadership and human resource development on sustainable competitive advantage through organizational innovation's component factors: Evidence from Thailand 's new S- curve industries," *Asia Pacific Management Review*, vol. 27, no. 3, pp. 200–209, 2021, doi: 10.1016/j.apmr.2021.09.001.
- [28] M. B. Miles and M. A. Huberman, *Qualitative Data Analysis: A Sourcebook on New Methods*. 2012.

- [29] M. Szymkowiak and M. Rhodes-Reese, "Addressing the Gender Gap: Using Quantitative and Qualitative Methods to Illuminate Women's Fisheries Participation," *Front Mar Sci*, vol. 7, 2020, doi: 10.3389/fmars.2020.00299.
- [30] A. Prasetyo et al., "Comparison of Innovation Processes In The Perspective of Local Government Policy and Regional Competitiveness," *Riset Ekonomi Pembangunan*, vol. 5, no. 1, 2020, doi: 10.31002/rep.v5i1.
- [31] Bappeda Provinsi Jawa Tengah, Peraturan Gubernur Provinsi Jawa Tengah Nomor 55 Tahun 2023 Tentang Rencana Kerja Pemerintah Daerah Tahun 2024. 2023.
- [32] A. T. Nugraha, G. Prayitno, and L. A. Khoiriyah, "Land suitability and economic performance in the Pasuruan region for coffee development," *International Journal of Sustainable Development and Planning*, vol. 16, no. 2, pp. 229–236, 2021, doi: 10.18280/IJSDP.160203.
- [33] Z. A. K. Tanjung and S. Sudiarti, "Effectiveness of Employee Performance at the Medan City Regional Development Planning Agency," *Jurnal Ekonomi, Manajemen, Akuntansi dan Keuangan*, vol. 3, no. 2, 2022, doi: 10.53697/emak.v3i2.502.
- [34] R. M. Dangelico, L. Fraccascia, and A. Nastasi, "National culture's influence on environmental performance of countries: A study of direct and indirect effects," *Sustainable Development*, vol. 28, no. 6, pp. 1773–1786, Nov. 2020, doi: 10.1002/sd.2123.
- [35] Nofita Fachryandini, Shabrina Nur Imanina, Ayurveda Zaynabila Heriqbaldi, and Widati Fatmaningrum, "Level of knowledge regarding COVID-19 health protocols in the tourism sector in Taro village before and after counseling," *World Journal of Advanced Research and Reviews*, vol. 13, no. 1, pp. 086–091, Jan. 2022, doi: 10.30574/wjarr.2022.13.1.0762.
- [36] N. A. Bunyani, M. Roman, and J. Naisanu, "Utilization of Forest Plants as Local Food Sources for the Oben Village Community, Nekamese District, Kupang Regency," *Jurnal Biologi Tropis*, vol. 20, no. 3, 2020, doi: 10.29303/jbt.v20i3.2001.
- [37] J. M. Kotilainen, L. Peltonen, and K. Reinikainen, "Community Benefit Agreements in the Nordic mining context: Local opportunities for collaboration in Sodankylä, Finland," *Resources Policy*, vol. 79, 2022, doi: 10.1016/j.resourpol.2022.102973.
- [38] S. B. Eshetu, K. Yeshitela, and S. Sieber, "Urban green space planning, policy implementation, and challenges: The case of Addis Ababa," *Sustainability (Switzerland)*, vol. 13, no. 20, Oct. 2021, doi: 10.3390/su132011344.
- [39] A. Santiko, I. B. Susetyo, D. Agustina, E. Rofiyanti, and K. Razikin, "Local Wisdom And Regional Policy In The Implementation of Friendly Basic Service Covid 19," *Ilomata International Journal of Social Science (IJSS)*, vol. 2, no. 3, pp. 190–194, 2021.
- [40] A. Hakim, O. A. Saputra, and C. Saleh, "Policy determination in E-budgeting implementation by the government of DKI Jakarta - Indonesia," *Int J Criminol Sociol*, vol. 10, 2021, doi: 10.6000/1929-4409.2021.10.19.
- [41] [A. Prasetyo, D. Gartika, A. Hartopo, B. P. Harwijayanti, S. Sukamsi, and M. Fahlevi, "Capacity Development of Local Service Organizations Through Regional Innovation in Papua, Indonesia After the COVID-19 Pandemic," *Frontiers in Psychology*, vol. 13. Frontiers Media S.A., May 30, 2022. doi: 10.3389/fpsyg.2022.912692.
- [42] M. Orgill, B. Marchal, M. Shung-King, L. Sikuza, and L. Gilson, "Bottom-up innovation for health management capacity development: a qualitative case study in a South African health district," *BMC Public Health*, vol. 21, no. 1, pp. 1–19, 2021, doi: 10.1186/s12889-021-10546-w.
- [43] N. Islam, Q. Wang, Y. Marinakis, and S. Walsh, "Family enterprise and technological innovation," *J Bus Res*, vol. 147, 2022, doi: 10.1016/j.jbusres.2022.04.004.
- [44] M. Opazo-Basáez, F. Vendrell-Herrero, and O. F. Bustinza, "Digital service innovation: a paradigm shift in technological innovation," *Journal of Service Management*, vol. 33, no. 1, 2022, doi: 10.1108/JOSM-11-2020-0427.
- [45] S. Kikuchi, K. Kadama, and S. Sengoku, "Characteristics and classification of technology sector companies in digital health for diabetes," *Sustainability (Switzerland)*, vol. 13, no. 9, pp. 1–13, 2021, doi: 10.3390/su13094839.
- [46] K. L. Lepik and M. Krigul, "Expectations and needs of estonian health sector smes from living labs in an international context," *Sustainability (Switzerland)*, vol. 13, no. 5, pp. 1–13, 2021, doi: 10.3390/su13052887.
- [47] H. Lu, "Marketing Network of Marine Products under E-Commerce Mode," *J Coast Res*, vol. 106, no. sp1, 2020, doi: 10.2112/S1106-063.1.



- [48] F. Diallo, S. Legros, K. Diarra, and F. Feder, "Varying effects of organic waste products on yields of market garden crops in a 4-year field experiment under tropical conditions," *Agronomy*, vol. 12, no. 1, 2022, doi: 10.3390/agronomy12010032.
- [49] T. Msomi and O. Olarewaju, "Evaluation of access to finance, market and viability of small and medium-sized enterprises in South Africa," *Problems and Perspectives in Management*, vol. 19, no. 1, pp. 281–289, 2021, doi: 10.21511/ppm.19(1).2021.24.
- [50] H. Gundelach and M. W. Hansen, "The dynamics of entry mode choice in challenging business environments: an exploratory study of medium sized exporters' entry into Africa," *International Journal of Export Marketing*, vol. 3, no. 3, p. 174, 2020, doi: 10.1504/ijexportm.2020.107718.
- [51] N. Apostolopoulos et al., "Sustaining rural areas, rural tourism enterprises and EU development policies: A multi-layer conceptualisation of the obstacles in Greece," *Sustainability (Switzerland)*, vol. 12, no. 18, 2020, doi: 10.3390/su12187687.
- [52] S. A. Asongu and N. M. Odhiambo, "How enhancing gender inclusion affects inequality: Thresholds of complementary policies for sustainable development," *Sustainable Development*, vol. 28, no. 1, 2020, doi: 10.1002/sd.1977.
- [53] L. M. McKelvey, L. Whiteside-Mansell, R. H. Bradley, P. H. Casey, N. A. Connors-Burrow, and K. W. Barrett, "Growing Up in violent communities: Do family conflict and gender moderate impacts on adolescents' psychosocial development?," *J Abnorm Child Psychol*, vol. 39, no. 1, 2011, doi: 10.1007/s10802-010-9448-4.
- [54] C. Riedl and V. P. Seidelc, "Learning from mixed signals in online innovation communities," *Organization Science*, vol. 29, no. 6, pp. 1010–1032, 2019, doi: 10.1287/orsc.2018.1219.
- [55] M. Mkansi, *E-business adoption costs and strategies for retail micro businesses*, no. 0123456789. Springer US, 2021. doi: 10.1007/s10660-020-09448-7.
- [56] O. Mirzaei, E. T. Micheels, and A. Boecker, "Product and marketing innovation in farm-based businesses: The role of entrepreneurial orientation and market orientation," *International Food and Agribusiness Management Review*, vol. 19, no. 2, 2016.
- [57] S. Horak and Y. Suseno, "Informal Networks, Informal Institutions, and Social Exclusion in the Workplace: Insights from Subsidiaries of Multinational Corporations in Korea," *Journal of Business Ethics*, 2022, doi: 10.1007/s10551-022-05244-5.
- [58] J. Lee, S. Kim, and J. Lee, "Public vs. Public: Balancing the Competing Public Values of Participatory Budgeting," *Public Administration Quarterly*, vol. 46, no. 1, 2022, doi: 10.37808/paq.46.1.3.
- [59] F. Asplund, J. Björk, M. Magnusson, and A. J. Patrick, "The genesis of public-private innovation ecosystems: Bias and challenges☆," *Technol Forecast Soc Change*, vol. 162, no. September 2020, p. 120378, 2021, doi: 10.1016/j.techfore.2020.120378.
- [60] I. Rudskaya, D. Kryzhko, A. Shvediani, and M. Missler-Behr, "Regional Open Innovation Systems in a Transition Economy: A Two-Stage DEA Model to Estimate Effectiveness," *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 8, no. 1, Mar. 2022, doi: 10.3390/joitmc8010041.