JIAK
Jurnal Ilmiah Akuntansi dan Keuangan

The Role of *Eco-Intellectual Capital* for MSME Sustainability

Nurul Badriyah[1], Kamaliah[2], Aunurrafiq[3]
[1,2,3] Universitas Riau
email: nurul.badriyah@lecturer.unri.ac.id [1*]

ABSTRACT

The purpose of this finding is to analyze the influence of eco-intellectual capital which is divided into green human capital, green structural capital and green relational capital on the sustainability performance of MSMEs. The study sample consisted of 155 MSMEs in Bangko District, Rokan Hilir Regency, Riau Province. The study used quantitative method which employs a questionnaire-based data collection method, with questionnaires handed out to respondents without intermediaries. The study uses linear regression to analyze data. The research results show that green human capital and green structural capital significantly influences MSMEs' sustainability performance Theoretically, the findings provide new evidence to the empirical record on the impact of green human capital, green structural capital and green relational capital on MSMEs' sustainability performance. Practically, the study is highly beneficial for MSME actors, emphasizing the importance of green human capital and green structural capital in enhancing their sustainability.

Keywords: Eco-Intellectual Capital, Green Human Capital, Green Structural Capital, Green Relational Capital, Sustainable Performance of MSMEs

ABSTRAK

Tujuan dari temuan ini adalah untuk menganalisis pengaruh eco-intellectual capital yang terdiri dari green human capital, green structural capital, dan green relational capital terhadap kinerja keberlanjutan UMKM. Sampel penelitian terdiri dari 155 UMKM yang berada di Kecamatan Bangko, Kabupaten Rokan Hilir, Provinsi Riau. Penelitian ini menggunakan metode kuantitatif dengan teknik pengumpulan data melalui kuesioner, yang dibagikan langsung kepada responden tanpa perantara. Analisis data dilakukan dengan menggunakan regresi linear. Hasil penelitian menunjukkan bahwa green human capital dan green structural capital berpengaruh signifikan terhadap kinerja keberlanjutan UMKM. Secara teoritis, temuan ini memberikan bukti baru dalam catatan empiris mengenai pengaruh green human capital, green structural capital, dan green relational capital terhadap kinerja keberlanjutan UMKM. Secara praktis, penelitian ini sangat bermanfaat bagi pelaku UMKM, dengan menekankan pentingnya green human capital dan green structural capital dalam meningkatkan keberlanjutan usaha mereka.

Kata kunci: *Eco-Intellectual Capital, Green Human Capital, Green Structural Capital, Green Relational Capital, Kinerja Keberlanjutan UMKM*

INTRODUCTION

The contribution of Micro, Small, and Medium Enterprises (MSMEs) has been widely recognized worldwide. MSMEs serve as engines of economic growth through poverty alleviation, employment generation, enhanced productivity, export promotion, and substantial GDP contributions. (Teka, 2022). In Indonesia, MSMEs play a significant role in driving the economy (Anantadjaya et al., 2023). According to the Indonesian Chamber of Commerce and Industry, MSMEs have a vital role in Indonesia's economy, contributing 60.5% to GDP annually and absorbing 97% of the national workforce (Indonesia, 2022). Many governments, including Indonesia, are increasingly aware of and acknowledge the critical role of MSMEs in the economy (Teka, 2022). The sustainable performance of MSMEs needs to be considered so that this sector can become an engine of economic growth as well as a solution to unemployment problems.

In Rokan Hilir Regency, the potential of MSMEs is quite significant, especially in Bangko District. This is evidenced by the substantial number of MSMEs, totaling 14,297. With this number, MSMEs have become the most crucial pillar in the economic growth of Rokan Hilir Regency (Dahmudi, 2022). Therefore, the sustainable performance of MSMEs in Rokan Hilir Regency is extremely important. However, in their efforts to maintain sustainable performance, MSME practitioners face various challenges and issues, including licensing problems, product marketing, high business competition, lack of human resources, and environmental issues related to natural disasters (Afrizal, 2022; Redaksi, 2023a, 2023b; Rohil, 2023). Regarding natural disasters, flooding still frequently occurs in several locations in the capital city of Bagansiapiapi (Redaksi, 2023a). This will certainly hinder MSME business activities. Therefore, in their business operations, MSMEs must not only focus on increasing profitability but also protect and preserve the natural environment to prevent disasters such as floods from recurring. To minimize the ecological footprint of their operations, MSMEs must develop environmental awareness and integrate sustainable practices into core business processes. (Ray & Grannis, 2015).

Beyond merely pursuing profits, companies must also lessen waste, restore, and Regenerate limited resources to enhance financial performance in sustaining their viability (Chen, 2022; Costello, 2021). A sustainable enterprise delivers financial returns to investors while simultaneously protecting ecosystems and enhancing the quality of life for surrounding communities or those interacting with the business (Teka, 2022). The sustainability of MSMEs is determined by the innovations they implement, effective management of employees and customers, and their ability to optimally recoup initial capital (Kusuma et al., 2022). In addition to ensuring returns on invested capital or profitability, MSME sustainability can also be achieved by maintaining and preserving the surrounding environmental conditions (Gharib et al., 2023). According to Holland et al., (2012), the fundamental reason behind a company's success lies not only in its skills and experiences but also in its ability to manage/generate knowledge within the organization where knowledge serves as the intellectual capital embedded in human resources as an element of human capital. Similarly, for MSMEs, intellectual capital is crucial for business development and ultimately influences their long-term sustainability. Observing the state of MSMEs in Indonesia, the significance of knowledge-based approaches for maximizing intellectual capital remains underrecognized by most enterprises, despite the high expectations for MSMEs to drive economic growth and enhance competitiveness. There is a growing recognition of intellectual capital as a strategic and essential asset for companies to increase value and achieve sustainable profitability (Amin & Aslam, 2017; Jordão & Novas, 2017; Matos et al., 2018).

As the concept of sustainable environmental practices persists in evolving to prevent ecological damage and global warming, companies kept generating more eco-friendly innovations. Not only companies, but consumers also consider environmental sustainability when selecting products (Gharib et al., 2023). This growing awareness of environmental importance has led to the emergence of eco-intellectual capital. Recent studies, in particular, demonstrate that eco-intellectual capital is essential for the sustainability performance of MSMEs (Antwi-Boateng et al., 2023; Gharib et al., 2023; Jiao et al., 2023; Buhaya & Metwally, 2024).

Eco-intellectual capital possesses the propensity and capacity for optimizing an organization's operational excellence in achieving and fulfilling sustainable development goals as mandated by international bodies (United Nations), to transform products into more environmentally friendly alternatives that better meet customer needs while achieving comparative advantage (Yusoff et al., 2019). In this study, eco-intellectual

capital comprises three main components, which are green human capital, green structural capital, and green relational capital (Antwi-Boateng et al., 2023). Research by Yusliza et al., (2020) found that eco-intellectual capital positively influences an organization's economic, environmental, and social performance. Similarly, Antwi-Boateng et al., (2023) demonstrated that eco-intellectual capital significantly affects business sustainability performance. On the other hand, there exists a gap in various findings. For instance, Yusoff et al. (2019) and Gharib et al. (2023) found no meaningful correlation between eco-intellectual capital and business sustainability performance. The contradictary findings on the eco-intellectual capital-sustainability performance nexus suggest the underlying association between these constructs demands further examination.

Previous research on eco-intellectual capital and business sustainability performance has predominantly centered on large corporations, with limited studies conducted on MSMEs (Passaro et al., 2023). However, the sustainability performance of MSMEs is crucial, given their significant contribution to economic development and growth. This study aims to examine the impact of green human capital, green structural capital, and green relational capital on the environmental performance of MSMEs.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Natural Resource-Based View (NRBV) Theory
This research is grounded in the Natural Resource-Based View (NRBV) theory, originally introduced by Hart (1995) in response to the identified constraints of the Resource-Based View (RBV; Barney, 1991), which narrowly emphasizes optimized resource utilization to secure competitive advantage and performance enhancement. Meanwhile, NRBV incorporates environmental aspects into RBV (Barney et al., 2010). The NRBV posits that companies should not disregard ecological integrity to achieve operational efficiency (Hart, 1995); instead, firms must integrate environmental elements into strategic formulation and executive action, which ultimately yields results and helps achieve both operational efficiency and market leadership (Rehman et al., 2021). The incorporation of ecological elements into organizational strategies and policies may be achieved through preventive pollution approaches, waste reduction initiatives, sustainable product development, and environmentally-focused management system. These measures enhance a firm's resource productivity and enable environmentally oriented operations that are difficult for competitors to replicate (Barney et al., 2010). In a broader sense, a firm's business sustainability can be achieved when it possesses economic capabilities, social orientation, and environmental commitment in managing its resources (Suki et al., 2023). This theory forms the foundation for the role of eco-intellectual capital, comprising green human capital, green structural capital, and green relational capital, in influencing the sustainability performance of MSMEs.

Green Human Capital and MSME Sustainability Performance
Corporate sustainability demands a management model that enables companies to comprehend and align with sustainability principles (social, environmental, and economic) to evaluate their performance and track progress. Among the many crucial factors that play a role in corporate sustainability are intangible resources (Tonial et al., 2018). Intellectual capital, as one form of intangible resource, emerges as a potential solution to drive corporate sustainability (Cavicchi & Vagnoni, 2017; Yusoff et al., 2019).

Eco-intellectual capital represents the integration of diverse intangible competencies, expertise, knowledge, and competencies. It is termed "green" (eco) when incorporating environmental elements that transform overall intelligence toward ecological or environmentally friendly practices (Suki et al., 2023). Eco-intellectual capital can also be defined as intellectual capital that integrates awareness and concern regarding environmental pollution and ecological well-being (Jiao et al., 2023).

Eco-intellectual capital is green human capital, green structural capital, and green relational capital. Human capital is characterized as the intrinsic knowledge of individuals, encompassing employees' abilities, skills, experience, creativity, and innovation (Suki et al., 2023). In this context, companies, including MSMEs, that have developed their human capital will be better equipped to identify and exploit advantageous business opportunities through optimal acceleration (Tonial et al., 2018). Meanwhile, green human capital is defined as human assets, including expertise, knowledge, skills, abilities, and experience, that incorporate environmental awareness and enable companies, including MSMEs, to operate in an eco-

friendly manner. As human capital drives organizational performance, green human capital serves as a critical factor in helping companies, including MSMEs, achieve business sustainability (Suki et al., 2023).

Viewed through the framework of management control and a sustainability perspective, green human capital plays a crucial role in endorsing various knowledge and experiences across persons within a company, including MSMEs. This is anticipated to enable knowledge sharing concerning environmental considerations and the competencies required to attain sustainable performance results (Buhaya & Metwally, 2024). A company, including MSMEs, that wants to enhance its sustainability performance needs to improve its human resources through training that aligns with the organization's targets and goals (Suki et al., 2023).

H₁: Green human capital influences the sustainability performance of MSMEs

Green Structural Capital and MSME Sustainability Performance
The second dimension of eco-intellectual capital is green structural capital. Structural capital represents the institutionalization of employee expertise into company resources via systematic improvement processes and the exchange of innovative ideas and experience. Therefore, such knowledge requires systematic structuring aided by information technology, databases, anddocumented procedures to preserve workforce knowledge within organizations, including MSMEs (Tonial et al., 2018). Structural capital pertains to the inherent capability of an organization within a company, facilitating the transformation of ideas and innovations generated by employees, including those in MSMEs, into concrete and implementable resources that can be accessed and integrated into the company's framework (Buhaya & Metwally, 2024). This can be interpreted as the accumulated knowledge obtained through day-to-day operations, collaborative knowledge exchange between employees, and interactions with external entities such as customers or suppliers (Barbery & Torres, 2019).

Meanwhile, green structural capital is defined as non-human assets owned by companies, including MSMEs, which are intangible and encompass strategies, policies, databases, capabilities, and commitments that align with environmental concerns and thus influence the organization to act in an environmentally friendly manner (Suki et al., 2023). Green structural capital consists of a set of company capabilities, including MSMEs, that cover systems, protocols, databases, and patents focused on environmental preservation and compliance with green principles owned and utilized by the company (Buhaya & Metwally, 2024). This green structural capital plays a crucial role in facilitating initiatives to protect the environment by providing essential infrastructure support for such efforts (Yusoff et al., 2019). Additionally, green structural capital can aid management efforts in shifting the dominant organizational culture toward one that is more environmentally conscious and caring (Buhaya & Metwally, 2024). The influence of this green structural capital extends further by guiding employees toward optimal environmental practices, providing support, and directing environmental programs within the organizational framework to enhance the company's sustainability performance (Benevene et al., 2021).

H₂: Green structural capital influences the sustainability performance of MSMEs

Green Relational Capital and MSME Sustainability Performance
A company's relational capital, including MSMEs, has the potential to surpass all other intangible assets in terms of value, due to its relation to sustainable relationships with the individuals and organizations that are the company's customers. From this perspective, customer relationships are regarded as the cornerstone of relational capital, compelling firms to transition from a product-centric approach to one that prioritizes customer orientation. Therefore, relational capital signifies a company's relationships, including SMEs, with their stakeholders and the means to leverage the exchange of knowledge among them, which aims to develop long-term relationships based on partnerships (Tonial et al., 2018).

Relational capital plays an important role in facilitating access to scarce resources, information and knowledge that is unavailable or difficult to obtain, and ultimately influential expertise through collaborative exchanges with related parties (Xu et al., 2019). Meanwhile, green relational capital indicates the correlation of companies, including MSMEs, with key stakeholders in matters related to the environment and its management. Green relational capital serves as a source of information regarding corporate social responsibility practices and plans (Buhaya & Metwally, 2024). This will grow trust between stakeholders and organizational management (AL-Khatib & Shuhaiber, 2022).

The development of green relational capital by companies, including MSMEs, leads to widespread sharing of environmental information among stakeholders, thereby reducing waste and improving operational efficiency (Buhaya & Metwally, 2024). Green relational capital also helps companies, including MSMEs, to learn and improve themselves to remain competitive in the market, where this green relational capital has a rebound effect on company performance, particularly in environmental and eco-friendly aspects (Suki et al., 2023). Additionally, companies, including MSMEs, also benefit from green relational capital by enhancing learning, training, and access to knowledge capabilities (Benevene et al., 2021). The improvement of these capabilities will increase knowledge within the company, which then leads to the emergence of new green innovations that will ultimately enhance the sustainability performance of companies, including MSMEs (Rehman et al., 2021).

H₃: Green relational capital influences the sustainability performance of MSMEs

METHOD

A six-month research study, running from April to September 2024, conducted in Bangko District, Rokan Hilir Regency, Riau Province. This location was chosen due to its rapidly growing MSME ecosystem, supported by strong economic potential and a conducive investment climate. Additionally, the Bakar Tongkang Festival, which resumed in 2023 after a three-year hiatus due to the pandemic, successfully attracted tens of thousands of local and international tourists to Bagansiapiapi City, boosting the region's economic appeal (Redaksi, 2023c). This is also expected to encourage MSMEs to continue growing and sustaining their performance, as the event was accompanied by a Creative Economy Festival and an MSME Bazaar (Fernando, 2023).

All MSMEs in Bangko District, Rokan Hilir Regency, Riau Province, became the research population. There are 2,152 MSMEs located in the Bangko District area, Rokan Hilir Regency, according to the Department of Cooperatives, MSMEs of Rokan Hilir Regency. The Yamane formula is the sampling strategy used in this study (Sugiyono, 2018). This study involved 337 MSMEs as samples, which were obtained through calculations using a certain formula. The data utilized is categorized into primary data and secondary data. Primary data was collected through questionnaires that measured respondents' responses to the factors studied in MSMEs in Bangko District, Rokan Hilir Regency, Riau Province. Meanwhile, secondary data was obtained from the Department of Cooperatives and MSMEs of Rokan Hilir Regency.

The variables used are classified into two, namely the independent variable, which is eco-intellectual capital consisting of three components: green human capital, green structural capital, and green relational capital; and the dependent variable, which is MSME sustainability. All variables are measured using instruments employed in previous studies by answering questions on a Likert scale from 1 to 5. The operational definitions and variable measurement indicators can be seen in Table 1.

Table 1. Operational Definition and Variable Measurement Indicators

Variable	Operational Definition	Indicators
MSME Sustainability	A profit-oriented strategic corporate response to the environmental and social issues resulting from the organization's primary and secondary activities (Afdal et al., 2021).	1. Economic potential, 2. Product quality improvement, 3. Business environment conditions (Hariyono & Narsa, 2024)
Green Human Capital	The collective knowledge, incorporating the skills, abilities, experiences, attitudes, wisdom, creativity, and commitment of employees, as it pertains to environmental protection or green innovation ((Huang &	1. Employees' awareness of environmental issues. 2. Participation in environmental training programs. 3. Involvement in eco-friendly initiatives (Huang & Kung,

	Kung, 2011); (Astuti et al., 2023)).	2011; Antwi-Boateng et al., 2023).
Green Structural Capital	The defined roles, empowerment, and supporting infrastructure related to environmental protection or the formulation of a sustainability strategy ((Huang & Kung, 2011); (Astuti et al., 2023)).	1. Implementation of environmental management systems. 2. Existence of eco-friendly policies and procedures. 3. Investment in green technologies and innovations (Huang & Kung, 2011; Antwi-Boateng et al., 2023).
Green Relational Capital	A collaborative relationship between organizations and their customers, suppliers, network members, and partners concerning environmental management and green innovation initiatives ((Huang & Kung, 2011); (Astuti et al., 2023)).	1. Collaboration with environmentally conscious suppliers and partners. 2. Engagement in community environmental programs. 3. Communication of environmental commitments to customers (Huang & Kung, 2011); Antwi-Boateng et al., 2023).

The technique for data analysis is descriptive statistics (Sugiyono, 2018). This analysis aims to describe the variables through frequency distribution tables. Meanwhile, data analysis is carried out using a regression approach to reveal the relationships between variables.

RESULT AND DISCUSSION

Out of 337 questionnaires distributed according to the sample size, a total of 155 questionnaires, or 46%, were returned, completed in full, and ready for analysis. Gudono & Mardiyah (2000) indicated that this response rate is relatively good, as the average response rate in Indonesia is below 20%. The analysis technique used is descriptive statistics, which are attached as follows:

Table 2. Descriptive Statistics Result

	N	Minimum	Maximum	Mean	Std. Deviation
MSME Sustainability	155	20	25	23,28	1,352
Green Human Capital	155	19	25	23,78	1,580
Green Structural Capital	155	32	40	37,74	1,944
Green Relational Capital	155	19	25	23,61	1,597
Valid N (listwise)	155				

Source: Processed Data (2024)

From Table 2 on descriptive statistical data, it is clearly shown that the mean value of all variables is greater than the standard deviation. This indicates a low level of variance and suggests a relatively small degree of data deviation, which implies that the data distribution in this study is unbiased and normal (Ghozali, 2021).

Table 3. Results of the Coefficient of Determination Test (R^2)

	Adjusted R Square
R^2 Test	0.223

Source: Processed Data (2024)

According to Table 3, the adjusted R square value of 0.223 indicates that MSME sustainability performance is influenced by green human capital, green structural capital, and green relational capital by 22.3%. Meanwhile, the remaining 77.7% is influenced by other factors.

Table 4. Multiple Linear Regression Test Results

Variable	B	*p-value*	t hitung	t tabel	Result
Green Human Capital	0,206	0,002	3,168	1.976	Contribute Significantly
Green Structural Capital	0,245	0,000	4,707	1.976	Contribute Significantly
Green Relational Capital	0,023	0,717	0,364	1.976	No Contribution

Source: Processed Data (2024)

According to Table 4, the test of the impact of green human capital on MSME sustainability performance shows a significant result. With a p-value of 0.002 (<0.05) and a t-value of 3.168, which exceeds the t-table value, the first hypothesis is accepted, confirming that green human capital has an impact on MSME sustainability. Furthermore, the test results for the impact of green structural capital on MSME sustainability performance in Table 4 show a p-value of 0.000 or <0.05 and a t-value of 4.707, which is greater than the t-table value, which means that the second hypothesis that green structural capital impacts MSME sustainability performance is accepted. The test in Table 4 also shows that green relational capital has no substantial impact on MSME sustainability performance. This is evident from the p-value of 0.717 (greater than 0.05) and a t-value of 0.364, which is lower than the t-table value. Therefore, the third hypothesis is not accepted.

The human resources in MSMEs already possess expertise, knowledge, skills, capabilities, and experience and environmental awareness in managing their businesses. Thus, in their business activities, these human resources not only aim to achieve operational goals such as maximizing profit but also pay attention to environmental sustainability for the continuity of the MSMEs. This is in line with the NRBV theory, which emphasizes that a company should not pursue operational excellence at the cost of environmental sustainability (Hart, 1995); instead, companies must integrate environmental elements into strategic planning and decision-making, which will ultimately yield positive outcomes and help the company achieve both operational and competitive advantages (Rehman et al., 2021). Therefore, green human capital has an influence on MSME sustainability. These findings are consistent with those of Yusoff et al., (2019), Antwi-Boateng et al., (2023), Gharib et al., (2023), Jiao et al., (2023), and Buhaya & Metwally (2024).

Green structural capital refers to the assets owned by MSMEs, which incorporates strategies, policies, and commitments that not only aim to achieve operational excellence or profit but also demonstrate concern for the environment, thereby influencing how MSMEs operate in an ecologically conscious way (Suki et al., 2023). This green structural capital guides MSME employees in their operational activities toward environmentally friendly practices, which consequently increase MSME sustainability performance. This is in line with the Natural Resource-Based View (NRBV) theory, which integrates environmental components into a company's strategies and policies by including pollution prevention, waste minimization, and management policies. Ultimately, this directs MSMEs to adopt environmentally oriented operations, thereby improving sustainability. Therefore, green structural capital has an impact on MSME sustainability. The findings of this study support previous research conducted by Yusoff et al., (2019), Antwi-Boateng et al., (2023), Gharib et al., (2023), Jiao et al., (2023), and Buhaya & Metwally (2024).

The results of this study demonstrate that green relational capital does not have an influence on MSME sustainability. Green relational capital relates to a company's relationships with external stakeholders, such as customers, suppliers, and business partners, in the context of environmental sustainability. In MSMEs, external relationships are often limited in scope and tend to lack the capacity or motivation to focus on green or environmental sustainability compared to larger companies. The limited development of environmentally sustainable external relationships may be one of the factors contributing to the insignificant influence of green relational capital on MSME sustainability. Additionally, most MSMEs may not yet have the resources or capacity to leverage external relationships that focus on environmental sustainability. MSME practitioners may prioritize more urgent financial and operational aspects rather than establishing sustainable relationships with external parties concerning environmental issues. These findings are in line with the research conducted by (Gharib et al., 2023).

CONCLUSION

This study affirms that green human capital and green structural capital play a role in enhancing MSME sustainability performance. Theoretically, this research enriches the empirical literature on the relationship between these factors and green relational capital. Practically, MSMEs can leverage these findings to strengthen their business sustainability. With green human and structural capital, MSMEs not only gain added value but also position it as a key strategy for sustainable innovation and environmentally friendly business efficiency.

This study has limitations, with a coefficient of determination (R^2) of 0.223, indicating that 77.7% of the variance in MSME sustainability performance is influenced by other factors. Meanwhile, green human capital, green structural capital, and green relational capital only explain 22.3% of the variance in MSME sustainability performance. It is suggested that future research incorporate additional variables such as working capital (Rosyadah et al., 2022), entrepreneurial financial literacy (Meressa, 2023), and environmental accounting strategies (Latifah & Soewarno, 2023)

REFERENCES

Afdal, Z., Siwi, M. K., Kurniawati, T., & Marwan. (2021). MSMEs Business Sustainability: A Literature Review. *Proceedings of the Seventh Padang International Conference on Economics Education, Economics, Business and Management, Accounting and Entrepreneurship*, *192*, 317–322. https://www.atlantis-press.com/proceedings/piceeba-21/125964006

Afrizal, A. (2022). *Bupati Afrizal Sintong Buka Bazar UMKM di Bagansiapiapi*. Available at: https://www.halloriau.com/read-rohil-1416466-2022-01-05-bupati-afrizal-sintong-buka-bazar-umkm-di-bagansiapiapi.html

AL-Khatib, A. wael, & Shuhaiber, A. (2022). Green Intellectual Capital and Green Supply Chain Performance: Does Big Data Analytics Capabilities Matter? *Sustainability (Switzerland)*, *14*(16), 1–34. https://doi.org/10.3390/su141610054

Amin, S., & Aslam, S. (2017). Intellectual Capital, Innovation and Firm Performance of Pharmaceuticals: A Study of the London Stock Exchange. *Journal of Information & Knowledge Management*, *16*. https://doi.org/10.1142/S0219649217500174

Anantadjaya, S. P. D., Irma M. Nawangwulan, Candra, E., Rahmatya Widyaswati, & Achmad Choerudin. (2023). Pengaruh Financial Capabilities, Networking Terhadap Kinerja Usaha UMKM di Kota Sukabumi Melalui Intellectual Capital. *Jurnal Bisnisman: Riset Bisnis Dan Manajemen*, *5*(1), 16–32. https://doi.org/10.52005/bisnisman.v5i1.131

Antwi-Boateng, C., Mensah, H. K., & Asumah, S. (2023). Eco-intellectual capital and sustainability performance of SMEs: The moderating effect of eco-dynamic capability. *Cogent Business and Management*, *10*(3). https://doi.org/10.1080/23311975.2023.2258614

Astuti, P. D., Datrini, L. K., & Chariri, A. (2023). an Empirical Investigation of the Relationship Between Green Intellectual Capital and Corporate Sustainable Development. *Corporate and Business Strategy Review*, *4*(2), 48–58. https://doi.org/10.22495/cbsrv4i2art5

Barbery-Montoya, D., & Torres Briones, C. (2019). *The Importance of Leadership, Corporate Climate, Use of Resources and Strategic Planning in Family Business* (pp. 212–230). https://doi.org/10.4018/978-1-5225-8012-6.ch011

Barney, J. B. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, *17*(1), 99–120. https://doi.org/https://doi.org/10.1177/014920639101700108

Barney, J. B., Ketchen, D. J., Wright, M., Hart, S. L., & Dowell, G. (2010). Invited Editorial: A Natural-Resource-Based View of the Firm: Fifteen Years After. *Journal of Management*, *37*(5), 1464–1479. https://doi.org/10.1177/0149206310390219

Benevene, P., Buonomo, I., Kong, E., Pansini, M., & Farnese, M. L. (2021). Management of green intellectual capital: Evidence-based literature review and future directions. *Sustainability (Switzerland)*, *13*(15). https://doi.org/10.3390/su13158349

Buhaya, M. I., & Metwally, A. B. M. (2024). Green intellectual capital and green supply chain performance: do external pressures matter? *Cogent Business and Management*, *11*(1). https://doi.org/10.1080/23311975.2024.2349276

Cavicchi, C., & Vagnoni, E. (2017). Does intellectual capital promote the shift of healthcare organizations towards sustainable development? Evidence from Italy. *Journal of Cleaner Production*, *153*, 275–286. https://doi.org/https://doi.org/10.1016/j.jclepro.2017.03.175

Chen, C.-L. (2022). Strategic sustainable service design for creative-cultural hotels: a multi-level and multi-domain view. *Local Environment*, *27*(1), 46–79. https://doi.org/10.1080/13549839.2021.2001796

Costello, K. W. (2021). What is the social responsibility of companies? *The Electricity Journal*, *34*(8), 107008. https://doi.org/https://doi.org/10.1016/j.tej.2021.107008

Dahmudi, D. (2022). *Wabup Rohil: UMKM pilar penting penggerak ekonomi daerah*. https://riau.antaranews.com/berita/311333/wabup-rohil-umkm-pilar-penting-penggerak-ekonomi-daerah

Fernando. (2023). *Festival Bakar Tongkang 2023, Perayaan Tradisi Tionghoa yang Mengesankan dan Unik dari Riau yang Mendunia*.

Gharib, M., Alam, M. S., Hawaldar, I. T., Murshed, M., Khan, U., Alvarado, R., & Rehman, I. U. (2023). Roles of green intellectual capital facets on environmental sustainability in Oman. *Economic Research-Ekonomska Istrazivanja*, *36*(3). https://doi.org/10.1080/1331677X.2022.2149591

Ghozali, I. (2021). *Aplikasi Analisis Multivariate Dengan Program IBM SPSS 26*. Semarang: Badan Penerbit Universitas Diponegoro.

Gudono, M., & Mardiyah, A. A. (2000). The effect of task uncertainty, decentralization, and management accounting characteristics on managers' performance. *Journal Research Akuntansi Indonesia*, *4*(1), 1–20.

Hariyono, A., & Narsa, I. M. (2024). The value of intellectual capital in improving MSMEs' competitiveness, financial performance, and business sustainability. *Cogent Economics and Finance*, *12*(1). https://doi.org/10.1080/23322039.2024.2325834

Hart, S. L. (1995). A Natural-Resource-Based View of the Firm. *The Academy of Management Review*, *20*(4), 986–1014. https://doi.org/10.2307/258963

Holland, J., Henningsson, J., Johanson, U., Koga, C., & Sakakibara, S. (2012). Use of IC information in Japanese financial firms. *Journal of Intellectual Capital*, *13*(4), 562–581. https://doi.org/10.1108/14691931211276133

Huang, C., & Kung, F. (2011). Environmental consciousness and intellectual capital management. *Management Decision*, *49*(9), 1405–1425. https://doi.org/10.1108/00251741111173916

Jiao, X., Zhang, P., He, L., & Li, Z. (2023). Business sustainability for competitive advantage: identifying the role of green intellectual capital, environmental management accounting

and energy efficiency. *Economic Research-Ekonomska Istrazivanja*, *36*(2). https://doi.org/10.1080/1331677X.2022.2125035

Jordão, R. V. D., & Novas, J. C. (2017). Knowledge management and intellectual capital in networks of small- and medium-sized enterprises. *Journal of Intellectual Capital*, *18*(3), 667–692. https://doi.org/10.1108/JIC-11-2016-0120

Kusuma, M., Narulitasari, D., & Nurohman, Y. A. (2022). Inklusi Keuangan Dan Literasi Keuangan Terhadap Kinerja Dan Keberlanjutan Umkm Disolo Raya. *Among Makarti*, *14*(2), 62–76. https://doi.org/10.52353/ama.v14i2.210

Matos, F., Vairinhos, V., Selig, P. M., & Edvinsson, L. (2018). Intellectual capital management as a driver of sustainability: Perspectives for organizations and society. *Intellectual Capital Management as a Driver of Sustainability: Perspectives for Organizations and Society*, 1–242. https://doi.org/10.1007/978-3-319-79051-0

Passaro, R., Quinto, I., Scandurra, G., & Thomas, A. (2023). The drivers of eco-innovations in small and medium-sized enterprises: A systematic literature review and research directions. *Business Strategy and the Environment*, *32*(4), 1432–1450. https://doi.org/10.1002/bse.3197

Ray, A. D., & Grannis, J. (2015). From Planning to Action: Implementation of State Climate Change Adaptation Plans. *Michigan Journal of Sustainability*, *3*(20181221). https://doi.org/10.3998/mjs.12333712.0003.001

Redaksi. (2023a). *BPBD Rohil Kerahkan Puluhan Petugas Atasi Persoalan Banjir di Bagansiapiapi*. https://www.gardaterkini.com/read-135629-2023-10-17-bpbd-rohil-kerahkan-puluhan-petugas-atasi-persoalan-banjir-di-bagansiapiapi-.html

Redaksi. (2023b). *Buka Pelatihan Kewirausahaan, Bupati Rohil Harap Produk UMKM Bisa Masuk Indomaret*. https://mediacenter.rohilkab.go.id/view/buka-pelatihan-kewirausahaan-bupati-rohil-harap-produk-umkm-bisa-masuk-indomaret

Redaksi. (2023c). *Festival Bakar Tongkang 2023 Sedot Puluhan Ribu Wisatawan*. https://www.riaueditor.com/detail/Senibudpar/festival-bakar-tongkang-2023-sedot-puluhan-ribu-wisatawan

Rehman, S. U., Kraus, S., Shah, S. A., Khanin, D., & Mahto, R. V. (2021). Analyzing the relationship between green innovation and environmental performance in large manufacturing firms. *Technological Forecasting and Social Change*, *163*, 120481. https://doi.org/https://doi.org/10.1016/j.techfore.2020.120481

Rohil, L. (2023). *Resmikan Umah Oleh-oleh Bagansiapiapi, PHR Angkat Produk Lokal dan Perekonomian Masyarakat*.

Sugiyono. (2018). *Metode Penelitian Bisnis* (Cetakan Ke). Alfabeta.

Suki, N. M., Suki, N. M., Sharif, A., Afshan, S., & Rexhepi, G. (2023). Importance of green innovation for business sustainability: Identifying the key role of green intellectual capital and green SCM. *Business Strategy and the Environment*, *32*(4), 1542–1558. https://doi.org/10.1002/bse.3204

Teka, B. M. (2022). Determinants of the sustainability and growth of micro and small enterprises (MSEs) in Ethiopia: literature review. *Journal of Innovation and Entrepreneurship*, *11*(1). https://doi.org/10.1186/s13731-022-00261-0

Tonial, G., Cassol, A., & Selig, P. M. (2018). Intellectual capital management as a driver of

sustainability: Perspectives for organizations and society. *Intellectual Capital Management as a Driver of Sustainability: Perspectives for Organizations and Society*, *January*, 1–242. https://doi.org/10.1007/978-3-319-79051-0

Xu, J., Shang, Y., Yu, W., & Liu, F. (2019). Intellectual capital, technological innovation and firm performance: Evidence from China's manufacturing sector. *Sustainability (Switzerland)*, *11*(19), 1–15. https://doi.org/10.3390/su11195328

Yusliza, M.-Y., Yong, J. Y., Tanveer, M. I., Ramayah, T., Noor Faezah, J., & Muhammad, Z. (2020). A structural model of the impact of green intellectual capital on sustainable performance. *Journal of Cleaner Production*, *249*, 119334. https://doi.org/https://doi.org/10.1016/j.jclepro.2019.119334

Yusoff, Y. M., Omar, M. K., Kamarul Zaman, M. D., & Samad, S. (2019). Do all elements of green intellectual capital contribute toward business sustainability? Evidence from the Malaysian context using the Partial Least Squares method. *Journal of Cleaner Production*, *234*, 626–637. https://doi.org/https://doi.org/10.1016/j.jclepro.2019.06.153