

THE DEVELOPMENT OF GREEN INTELLECTUAL CAPITAL IN INDONESIA: SCOPING REVIEW

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Abstract: Environmental issues that have become a global priority have led to pressure from both regulations and public environmental awareness for companies to implement more environmentally friendly strategies. Scientific research has explained that the implementation of Green intellectual capital not only aims to reduce environmental impacts, but also provides a competitive advantage for organizations through cost reduction and improved company performance. The study aims to map the development of green intellectual capital in Indonesia through the results of previous studies with the scoping review method. The method is conducted with a systematic search of research database sources, which then from the studies obtained will be carried out data extraction, analysis, and discussion related to the findings in each study. The results of research in Indonesia show that green intellectual capital has a positive impact such as company performance, company sustainability, and competitive competition as well as several other topics. Through this research, companies can see the urgency of implementing green intellectual capital and can implement strategies that move towards sustainability and create a greater positive impact in the business environment and society as a whole.

Keywords: Green intellectual capital, Scoping Review, Sustainability

Abstrak: Isu lingkungan yang menjadi prioritas global melatarbelakangi tekanan baik dari regulasi maupun kesadaran lingkungan masyarakat kepada perusahaan untuk menerapkan strategi yang lebih ramah lingkungan. Penelitian ilmiah telah menjelaskan implementasi Green intellectual capital tidak hanya bertujuan untuk mengurangi dampak lingkungan, melainkan juga memberikan keunggulan kompetitif bagi organisasi melalui pengurangan biaya serta meningkatkan kinerja perusahaan. Penelitian bertujuan untuk memetakan perkembangan green intellectual capital di Indonesia melalui hasil penelitian-penelitian terdahulu dengan metode scoping review. Metode dilakukan dengan pencarian sistematis dari sumber basis data penelitian, yang kemudian dari penelitian-penelitian yang didapatkan akan dilakukan ekstraksi data, analisis, dan pembahasan terkait temuan dalam setiap penelitian. Hasil penelitian di Indonesia menunjukkan bahwa green intellectual capital memberikan dampak positif seperti kinerja perusahaan, keberlanjutan perusahaan, dan persaingan kompetitif serta beberapa topik lainnya. Melalui penelitian ini, perusahaan dapat melihat urgensi penerapan green intellectual capital dan dapat menerapkan strategi yang bergerak menuju keberlanjutan dan menciptakan dampak positif yang lebih besar dalam lingkungan bisnis dan masyarakat secara keseluruhan.

Kata Kunci: Green intellectual capital, Scoping Review, Keberlanjutan

1. INTRODUCTION

Environmental issues have become a global priority issue today due to their damaging impact on environmental quality, human health, and ecosystem sustainability. A study conducted by Gong et al. (2018) indicates that there is a lot of environmental damage occurring, with an estimate that about 60% of ecosystems around the world have been degraded. Accelerated development and economic growth have had a significant impact on the environment. This is in line with the explanation of Sullivan et al. (2018) which states that while the economic benefits of business activities have contributed to improving prosperity and living conditions globally, the impacts also include environmental damage and social inequality, both directly and indirectly. Industrial activities, rapid urbanization, intensive agriculture, and overconsumption have led to ecosystem degradation, air and water pollution, habitat loss, and increasingly extreme climate change, and ultimately contributed to environmental degradation.

Along with the increasing reports on environmental issues, companies are required to comply with environmental and natural protection responsibilities (Yusliza et al., 2020). Companies are starting to feel pressure from society, customers, and regulators to consider more than just profit in their operations. Chen (2008) also explains that two pressures can encourage companies to engage in environmental management including international regulations on environmental protection, such as the Montreal Convention and the Kyoto Protocol, as well as environmental awareness from consumers. The increasing concern for the environment around the world has encouraged companies to adopt higher levels of environmental practices (Yong et al., 2019). This concept has influenced the way companies and organizations operate and report their performance. Companies are beginning to move towards sustainability which encourages companies to conduct their business in a way that meets the needs of the present without compromising the ability of future generations to meet their needs. Due to the popularity of the environmental movement, green management is now one of the important agendas in corporate management (Chang & Chen, 2012).

In the knowledge economy era, a company's intellectual capital is often greater than its financial capital (Chen, 2008). Masoulas (1998) defines intellectual capital as the entire stock of intangible assets, knowledge, and skills of a company that has the potential to generate value or competitive advantage, to achieve goals effectively. Green intellectual capital is a concept related to intellectual assets and knowledge related to sustainable practices, the environment, and environmental protection. It emphasizes the importance of knowledge, skills, experience, and other intellectual resources in developing sustainable solutions to current environmental challenges. Green intellectual capital not only aims to reduce environmental impacts but also provides a competitive advantage for organizations through cost reduction (Yusoff et al., 2019). Research by Yusliza et al. (2020) found that the three components of green intellectual capital, namely economic performance, environmental performance, and social performance, have a positive relationship with sustainable performance. Green

intellectual capital is found to be an important dimension in environment-related issues (Yusliza et al., 2020). Another study by Wang & Juo (2021) confirmed green intellectual capital is an important factor in corporate economic performance and green performance. Concerning business strategy through green intellectual capital, companies can create greater added value and develop sustainable competitive advantages. This is in line with Chen's research (2008) which found that the three components of green intellectual capital, including green human capital, green structural capital, and green relational capital have a positive effect on the company's competitive advantage. Another study by Firmansyah (2017) also found that green structural capital and green relational capital have a significant positive effect on green competitive advantage. By implementing green intellectual capital, companies can respond to environmental changes more responsively, reduce operational risks, and build a positive reputation in the eyes of customers and other stakeholders.

Environmental issues in Indonesia that have recently taken public attention such as pollution and poor air quality, as well as rising temperatures felt in various regions in Indonesia should make people more aware of the importance of the concept of sustainability. Awareness about the need for sustainable innovation and environmental responsibility has been increasing in society. People increasingly understand that protecting the environment is not only the responsibility of the government or the business sector but also a collective task to create positive change. To support this growing understanding, this research will focus on integrating existing views specifically related to green intellectual capital. Therefore, a scoping review approach is used in this research to explain the extent to which the concept of green intellectual capital has been applied across different sectors and industries in Indonesia. This research will thus provide a deeper understanding of the concept at the local level and contribute to efforts to create more sustainable business practices in Indonesia. The results of this study are expected to contribute both in literature and practical terms related to companies' efforts to achieve balanced sustainability in terms of environmental, social, and economic aspects in the context of green intellectual capital.

2. LITERATURE REVIEW

2.1 Green intellectual capital

The concept of "green" intellectual capital was first proposed by Chen (2008), which corresponds to the flow of strict international environmental regulations and popular environmental awareness among consumers around the world. The definition of green intellectual capital in Chen's (2008) research includes the total value of various types of intangible assets, knowledge, skills, and relationships, all of which are related to environmental protection or green innovation, both at the individual level and on an organizational scale within a company. Chen (2008) classified the components of green intellectual capital into 1) green human capital, 2) green structural capital, and 3) green relational capital.

2.1.1 Green Human Capital

Green human capital is defined as the collection of employees' knowledge, skills, abilities, experience, attitudes, wisdom, creativity, commitment, etc., regarding environmental protection or green innovation (Chen, 2008). This concept is embedded in the employee, not in the organization. If companies effectively implement GHC, employees will have sufficient understanding to address environmental issues. One of the main factors affecting GHC is the quality of employee knowledge in terms of environmental sustainability (Wang & Juo, 2021).

2.1.2 Green Structural Capital

Green structural capital is the stock of organizational capabilities, organizational commitment, knowledge management systems, reward systems, information technology systems, databases, management institutions, operational processes, management views, organizational culture, corporate reputation, patents, copyrights, trademarks, and similar things, which are related to environmental protection or green innovation within an enterprise, have the potential to contribute to the enterprise in achieving competitive advantage (Chen, 2008). Green structural capital is embedded in the values of the organization's green culture, which reflects the company's external environmental priorities as well as its commitment to sustainable and future-oriented economic performance. Companies with strong GSC will effectively realize the strategic potential of their environment and foster a culture that encourages the creation and utilization of knowledge to improve their economic performance (Wang & Juo, 2021).

2.1.3 Green Relational Capital

Chen's (2008) definition of green structural capital is the firm's accumulative interactive relationships with customers, suppliers, and partners about the firm's environmental management and green innovation can help the firm gain a competitive advantage. Kohtamäki et al. (2012) explain that frequent mutual interactions with external partners can encourage companies and their partners to exchange more resources and build stronger relationships. These stronger relationships can generate positive externalities that can improve economic performance (Wang & Juo).

Therefore, if high-tech firms allocate significant investments in GICs through employee environmental knowledge, as well as green organizational culture and other partnerships, they can leverage GIC strategies to support the achievement of consistent economic performance (McDowell et al., 2018).

The underlying assumption is that the GIC concept has significant relevance in improving the understanding of environmental protection efforts and green innovation at the organizational level. This implies that the key elements in GIC, namely green human capital, green structural capital, and green relational capital, have a strong role in creating added value for companies in the context of environmental sustainability and competitive advantage. This assumption creates a foundation for the

development of the GIC concept as a means to achieve balanced corporate goals in environmental, social, and economic terms.

3. RESEARCH METHODS

The method used in this research is a scoping review. A scoping review is a method used to conduct a comprehensive and in-depth identification of the literature relevant to the research topic, resulting in a thorough understanding of the research topic under study (Arksey & O'Malley, 2005). The purpose of the scoping review is to describe and present a broad coverage of the literature relevant to the research topic, using various sources of similar research articles, and then group and make conclusions. The data collection technique used in this research is to conduct a systematic literature search through various sources, including electronic databases, scientific journals, and research reports.

In this research, the steps taken in the scoping review include: 1) Defining the research question and scope, 2) inclusion and exclusion, 3) systematic search strategy, 4) research selection, 5) data extraction, 6) data analysis and synthesis, and 7) reporting research results. Determining the scope starts from the source of the research database that will be used. Furthermore, a systematic search was conducted using the Publish or Perish application to collect previous studies. The search process starts by selecting the research database, and then determining the title words and keywords as well as the publication name if needed. From the results of this search, the author will conduct further selection, to decide which research will be included in the research that is considered relevant to the research objectives and in accordance with the specified criteria. Then the author will extract data to collect data from each article that has been selected, such as information on the research object sector, methodology, variables used, discussion analysis, and conclusions and suggestions for further research. Next, analyze the data that has been taken from the included articles, then synthesize the information to identify patterns, trends, and general findings. The last stage will be a discussion to answer the formulation of the problem that has been set.

4. RESULTS AND DISCUSSION

Before selecting articles from the search results, the author first determines the inclusive and exclusive criteria that refer to the criteria used to select or exclude samples or data to be used in the analysis of this study. The author determines the criteria in table 1 as follows:

Table 1. Search Criteria

Inclusive	Exclusive
Journals published from 2018 to 2023	Journals published before 2018
Title screening	Duplication of title
Quantification method	Qualitative method
Research in Indonesia	Research other than in Indonesia
Abstracts and titles that contain green intellectual capital keywords	Abstracts and titles that do not contain green intellectual capital keywords
	Article in the form of a thesis

These criteria were used to maintain the quality scope of the research and provide a structured framework for article selection. Determining the criteria was an important stage in the research process to ensure that the articles to be selected had the right focus and relevance to the research questions.

Then the next step is to collect research articles. Initially, this research used the Scopus database to collect research to ensure the quality of the articles to be analyzed. After getting search results with the Scopus database using the title words "Green intellectual capital" and keywords "Indonesia" which were limited to 7 articles, the author decided to expand the database by adding the Google Scholar database in collecting research. The second search with the Google Scholar database through the Publish or Perish application was carried out using the publication name "Jurnal", title words "Green intellectual capital", and keywords "Indonesia". The third search was conducted using the title words "Green intellectual capital Indonesia". The articles obtained were the results of the last search conducted on July 30, 2023. The following table shows the results of the systematic search conducted.

Table 2. Systematic Search Results

Search Categories	Basis Data	Number of Articles
title words: "Green intellectual capital"; keywords: "Indonesia"	Scopus	7
publication name: "Jurnal"; title words: "Green intellectual capital"; keywords: "Indonesia"	Google Scholar	18
title words: "Green Intellectual Capital Indonesia"	Google Scholar	21

Based on the table above, from the results of filtering and selecting articles based on predetermined criteria, this study used 27 articles from a total of 46 articles from the initial search results.

Figure 1. Flow chart of the article selection process

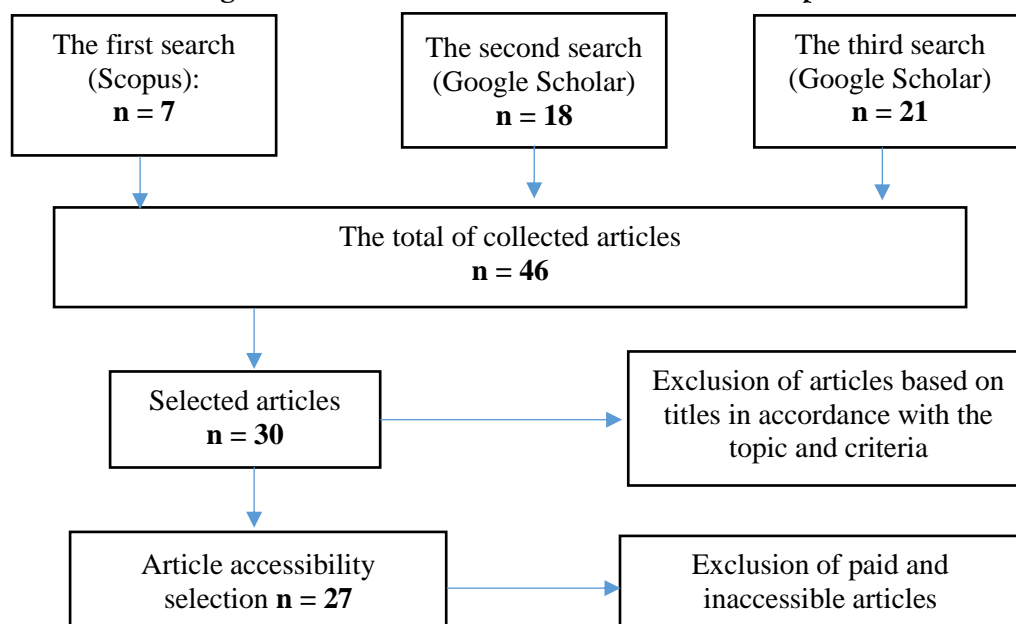


Table 3. Mapping research approaches

	Quantitative	Qualitative	Combined
Research Approach	26	0	1
Total	27		

The table above shows that out of a total of 27 articles, 26 used a quantitative approach, and 1 used a combined method. From the selected studies, codification was carried out based on the selection of the research object sector, year of publication, data collection techniques, and variables used. Based on the distribution by year, most of the journals were published in 2022 and 2023. Based on research trends, the number of green intellectual capital (GIC) topics is a research topic that interests researchers to be further researched and developed. Many researchers think that intellectual capital is something that needs to be considered by companies to improve the image and performance of the company. In addition, the implementation of GIC is also a strategy for corporate sustainability in open market competition.

To provide more in-depth research results, researchers tend to select specific sectors as their research sample. A specific research sample will provide results that better reflect the conditions in the field by eliminating bias due to the special conditions of each sample sector. Some researchers take a sample of all sectors for which data is available because the researchers want to look at a problem on a large scale to provide an overview and suggestions that can be implemented by all sectors. The manufacturing and mining sectors are the most studied sectors because they demand high intellectual capital in their business processes.

To provide novelty in each study, researchers try to expand and deepen each variable used to find the relationship between variables. In this topic, GIC as an independent variable will be sought for the impact of the application of GIC on the dependent variable determined by the researcher. GIC has three components, namely green human capital (GHC), green structural capital (GSC), and green relationship capital (GRC). Most researchers will use components as independent variables to describe the GIC relationship at the component level. While the dependent variable, most researchers choose financial performance to determine the impact of implementing GIC.

The next codification is data collection techniques that only use quantitative methods. Based on the results of descriptive analysis, there are two ways to collect data, namely using secondary data available on the internet or using questionnaires/surveys to respondents. Most of the data collection techniques use secondary data that is young to obtain. With secondary data, data validation and availability facilitate data collection in research. In addition, more data samples can also be taken from the sample population.

4.1 Research Findings

The discussion of the results will be grouped based on the variables used in the study which can be divided into company performance, sustainability, competitive advantage, as well as some other findings.

4.1.1 Company Performance

Based on research results from reference journals, GIC as a whole has a positive effect on company performance. The measurement of the performance of companies used by researchers is quite diverse, mostly using Return on Asset (ROA). According to Anggaraini and Dewi (2021) ROA is a profitability ratio that describes the accounting profit results from the business process of using assets. Management of intellectual capital consisting of employees, relationships with consumers, suppliers, and partners can provide benefits for companies in their business operations. Companies are considered to be able to maximize human resources by paying attention to their welfare (Tonay and Murwaningsari, 2022); management of systems, procedures, and routine processes of the company (Suhariyanto, 2022); and relationships (social contracts) with all parties in maximizing company performance (Golo & Astuti, 2023); (Erinos & Yurniwati, 2018). The research results of Yulianingsih and Wahyuni (2023); Suhariyanto (2022) in accordance with stakeholder theory state that the management of existing resources, especially in efforts to create value (value creation), means that management has fulfilled ethical elements. In addition to the relationship between GIC and company performance, based on the research results of Anggriani & Dewi (2021) and Chandra and Augustine (2019) simultaneously GIC, Corporate Social Responsibility costs, and Company Size affect company performance. Business strategy moderates the relationship between green accounting and intellectual capital on firm value (Gantino et al., 2023). Lastanti and Augustine's research (2022) which included the moderating variable of good corporate governance (GCG), showed that GCG could not moderate GIC on company performance. Furthermore, Sukirman and Dianawati (2023) conducted research using qualitative and quantitative methods on secondary company data obtained from the Indonesia Stock Exchange during the 2019-2021 period in the mining sector and the basic chemical industry sector. The results of this study concluded that GIC has no direct influence on the company's financial performance, but the relationship between GIC and the company's financial performance can be strengthened by the moderating variable, namely family ownership. This study still has limitations that can be an opportunity for further research because it has not tested all company sectors (except the banking sector) listed on the Indonesia Stock Exchange so GIC disclosure is still limited to companies that have a level of influence or sensitivity to the environment. Research conducted by Yadiati et. al. (2019) measured intellectual capital in the form of green human capital, green social capital, and green relational capital in testing its impact on the company's environmental performance. Unlike seeing ecological policies as a barrier to the improvement of the company's future, the findings of this study

concentrate on finding the right valuation of intangible resources in making efficiency in the company's sustainable practices by evaluating their impact on environmental performance. The PLS-SEM results confirm that organizational reputation and GIC have a positive and significant effect on environmental performance. SEM modeling results state that a one-unit increase in GIC results in a 0.449-unit increase in the environmental performance of multinational companies in Indonesia.

4.1.2 Sustainability

Researchers have found a relationship between GIC and the sustainability of a company. Based on the results of research by Widyastuti et al. (2021) which examines all sectors, all GIC components have a positive effect on the sustainability of the company's business. In the GIC component, in the MSME sector, only GRC has a positive relationship with sustainability because the MSME sector still lacks an understanding of GIC (Fitri et. al, 2022; Zalfa and Novita, 2021). In contrast to previous research, in the consumer sector, only GHC is insignificant to sustainability, this is due to the COVID-19 pandemic creating major challenges in human resources such as training and HR development Kartikasari & Astuti (2023). In the manufacturing sector, only GHC and GRC influence sustainability because they can compete in the business world by not ignoring the welfare of the environment around which the company operates (Josephine et al., 2020)). Astuti et al. (2023) researched to examine the effect of GIC on Corporate Sustainability Development (CSD). The study used the SEM PLS method which resulted in the conclusion that there is a significant positive relationship between green human capital and green structural capital with each CSD dimension. This study also shows that green relational capital only has a significant positive relationship with Economic Development, while Social Development and Environmental Development have a positive but insignificant effect. The important contribution of this study is to provide a new conception of the role of GICs in building sustainable companies and can increase understanding of the important role of GICs and stimulate managers' interest in developing GICs to achieve sustainable results through strategic management of GICs.

4.1.3 Competitive advantage

The results of journal research discussing the relationship between GIC and competitive advantage are considered important because they are related to the competitiveness of companies in the business world as evidenced by Alhazami (2023) with a significant GIC relationship to competitive advantage. The results of Arie's research, 2019 revealed that GHC, GSC, and GRC influenced competitive advantage by 26.7% in BUMDesa. This is quite different from the research in the research of A'yuni and Muafi (2020) because green human resource management (GHRM) mediates the effect of GIC on the competitive advantage of Batik SMEs, while the effect of GIC is indirect on competitive advantage. Testing using moderation of environmental awareness results in the GIC component being insignificant to the competitive advantage of sustainability (Solihin et al., 2023). This is due to low

environmental awareness, investors are more concerned with the company's image, and policies that are less environmentally friendly. Meanwhile, Sidik et al. 2019 also conducted research related to the relationship between Energy Efficiency (EE), Environmental Management Accounting (EMA), and GIC on Corporate Environmental Performance and Competitive Advantage. The research was conducted in the manufacturing industry sector using the SEM PLS method to identify relationships between variables. The results show that EE, EMA, and GIC variables have a positive and significant effect on Corporate Environmental Performance and Competitive Advantage. Rahayu et al., 2023 also conducted similar research on companies in the public sector. The research was conducted using the SEM method with 116 respondents in Semarang. As a result, GIC, eco-innovation, and transformational leadership have a significant influence on green competitive advantage in the context of green city management. This research also suggests increasing capacity, sharing a common vision, facilitating communication between the parties involved, implementing sustainable management practices, nurturing human resources, and using a collaborative governance framework to achieve the goal of building a green city in Semarang, Indonesia.

Apart from these three topics, there are still three studies that are not included in the codification of the dependent variable above, namely the discussion of Management Letter disclosure (Rachmawati & Paskalis, 2022), Fraudulent Financial Statement (Allo & Rachmawati, 2022) and Future Stock Return. In the discussion use the management letter because it contains the attention of the company's leadership regarding intangible resources in this case the GIC. The results of the study, the order of the most disclosed GIC components are structural capital, human capital, relational capital, and environmental capital. Based on the sector, the disclosure of GIC in a row is the financial sector, mining, property, trade and investment, consumer goods industry, infrastructure, basic and chemical industries, various industries, and agriculture. Fraudulent financial statement research proves that GIC affects financial reporting errors. This is in accordance with agency theory which explains that agents have a lot of important information so that no information asymmetry can harm the company. While research using future stock returns, GIC has a significant effect on future stock returns.

The research findings covering the variables of firm performance, sustainability, and competitive advantage in the context of GICs have several theoretical implications. In terms of firm performance, the findings confirm that GIC as a whole has a positive effect on firm performance. This result supports the view that intellectual resource management that focuses on green and sustainable aspects can improve operational efficiency and corporate profits. In the context of sustainability, the findings suggest that GICs play a positive role in the sustainability of a firm's business, but the effect may vary depending on the sector and the GIC components used. Concerning competitive advantage, this study confirms that GICs have a positive impact on firms' competitive advantage. The concept of GIC needs to be a concern in business strategy

and corporate competitiveness. GIC can be considered as one of the strategic assets that can help companies maintain and improve their competitive position in an increasingly complex business environment.

In addition, findings that do not fall into the three main categories also provide insights into the influence of GICs on other variables such as management disclosure and financial fraud. This provides insight into theory development related to the role of GICs in a broader context, including agency theory and behavioral finance theory. Overall, the findings of this study make an important contribution to recognizing the role of GICs in different theoretical contexts and encourage further development of relevant theories and frameworks.

5. CONCLUSION

Environmental issues are increasingly urging companies to implement the concept of green intellectual capital (GIC). Awareness of the negative impact that business activities have on the environment has encouraged companies to change their business paradigm. By integrating sustainability and environmental protection aspects into operational strategies, companies seek to reduce their negative impacts and be more proactive in creating positive impacts. GICs provide an important foundation for companies to develop the knowledge, skills, and innovation needed to respond to complex environmental challenges. By understanding and adopting sustainable practices, companies are not only seeking financial returns but also taking responsibility for building a more sustainable future for the environment and society. skills, experience, and other intellectual resources in developing sustainable solutions to today's environmental challenges.

GICs have a significant impact on company performance by influencing various aspects of operations. By applying knowledge of sustainable practices, companies can improve operational efficiency, reduce production costs, and better manage environmental risks. In addition, sustainable practices endorsed by GICs can enhance a company's image, make a positive reputation a valuable asset in winning customers and investors, and provide a competitive advantage in an increasingly environmentally sensitive market.

This research uses the scoping review method, where this research uses research article data collected by collection methods including systematic search strategies, research selection, data extraction, data analysis, and synthesis. The articles used in this research are articles from various databases related to green intellectual capital in Indonesia that use both methods, sectors, and different research approaches. The results of this study are based on 27 articles used, there are several topics discussed in these articles including company performance, sustainability, competitive advantage, and several other topics. With the results of this study, it is hoped that companies in particular will move towards sustainability and create a greater positive impact on the business environment and society as a whole.

By understanding the importance of the concept of green intellectual capital in shaping sustainability and innovation in business, there is a need for more research

related to GIC in Indonesia. This will make a significant contribution to developing an understanding of how knowledge and intellectual assets related to sustainable practices can be implemented by companies in Indonesia. By increasing this research, companies in Indonesia will have stronger guidance in adopting sustainable practices that suit local conditions and environmental challenges in the country.

REFERENCES

- Alhazami, L. (2023). Pengaruh Green Innovation, Green Intellectual Capital, dan Organizational Environmental Management Terhadap Green Competitive Advantage (Studi Pada PT Batik Danar Hadi Surakarta). *Jurnal Manajemen Dan Bisnis Madani*, 5(2), 83–101. <https://journal.paramadina.ac.id/83>
- Allo, E. B. D. T., & Rachmawati, S. (2022). FINANCIAL STABILITY, EXTERNAL PRESSURE, FINANCIAL TARGET, DAN GREEN INTELLECTUAL CAPITAL YANG MEMPENGARUHI FRAUDULENT FINANCIAL STATEMENT. *Jurnal Ekonomi Trisakti*, 2(2), 1703–1714. <https://doi.org/10.25105/jet.v2i2.14755>
- Anggriani, L., & Dewi, N. P. (2021). Pengaruh green intellectual capital index, biaya corporate social responsibility, dan ukuran perusahaan terhadap kinerja keuangan pada perusahaan pertambangan yang terdaftar di bursa efek indonesia tahun 2014-2019. *Zona Keuangan: Program Studi Akuntansi (S1) Universitas Batam*, 11(3).
- Arie, A. A. P. G. B. (2019). GREEN INTELLECTUAL CAPITAL: STRATEGI KEUNGGULAN KOMPETITIF (Studi Kasus Pada Badan Usaha Milik Desa Adat Intaran-Sanur). *Jurnal Akses*, 11(1).
- Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology: Theory and Practice*, 8(1), 19–32. <https://doi.org/10.1080/1364557032000119616>
- 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>
- A'yuni, Q., & Muafi, M. (2020). Pengaruh Green Intellectual Capital Terhadap Keunggulan Kompetitif Dengan Pemediasi Green Human Resource Management. *JBTI: Jurnal Bisnis: Teori Dan Implementasi*, 11(2), 81–97. <https://journal.umy.ac.id/index.php/bti/index>
- Chandra, M., & Augustine, Y. (2019). PENGARUH GREEN INTELLECTUAL CAPITAL INDEX DAN PENGUNGKAPAN KEBERLANJUTAN TERHADAP KINERJA KEUANGAN DAN NON KEUANGAN PERUSAHAAN DENGAN TRANSPARANSI SEBAGAI VARIABEL MODERASI. *Jurnal Magister Akuntansi Trisakti*, 6(1), 45–70. <https://doi.org/10.25105/jmat.v6i1.5066>

- Chang, C. H., & Chen, Y. S. (2012). The determinants of green intellectual capital. *Management Decision*, 50(1), 74–94. <https://doi.org/10.1108/00251741211194886>
- Chen, Y. S. (2008). The positive effect of green intellectual capital on competitive advantages of firms. *Journal of Business Ethics*, 77(3), 271–286. <https://doi.org/10.1007/s10551-006-9349-1>
- Erinos, N. E., & Yurniwati. (2018). *Green Intellectual Capital and Financial Performance of Manufacturing Companies in Indonesia*.
- Firmansyah, A. (2017). Pengaruh Green Intellectual Capital Dan Manajemen Lingkungan Organisasi Terhadap Green Organizational Identity Dan Dampaknya Terhadap Green Competitive Advantage. *Substansi: Sumber Artikel Akuntansi Auditing Dan Keuangan Vokasi*, 1, 183–219.
- Fitri, A., Diamastuti, E., Romadhon, F., & Maharani, H. (2022). The Effect of Green Intellectual Capital on SMEs' Business Sustainability. *Jurnal Bisnis Dan Manajemen*, 9(1), 55–64. <https://doi.org/10.26905/jbm.v9i1.7476>
- Gantino, R., Ruswanti, E., & Widodo, A. M. (2023). Green Accounting And Intellectual Capital Effect On Firm Value Moderated By Business Strategy. *Jurnal Akuntansi*. <https://doi.org/10.24912/jm.v27i1.1118>
- Golo, A., & Astuti, C. D. (2023). Pengaruh Pengungkapan Green Intellectual Capital dan Sustainability Reporting Disclosure Terhadap Kinerja Perusahaan. *Jurnal Ilmiah Wahana Pendidikan*, Mei, 45–61. <https://doi.org/10.5281/zenodo.7938896>
- Gong, M., Simpson, A., Koh, L., & Tan, K. H. (2018). Inside out: The interrelationships of sustainable performance metrics and its effect on business decision making: Theory and practice. *Resources, Conservation and Recycling*, 128, 155–166. <https://doi.org/10.1016/j.resconrec.2016.11.001>
- Josephine, K., Ciptadi, B. A., & Aloysius, J. (2020). Pengaruh Green Intellectual Capital Terhadap Business Sustainability. *Jurnal Manajemen*. <https://ejournal.imperiuminstitute.org/index.php/JMSAB>
- Kartikasari, A. C., & Astuti, C. D. (2023). Pengaruh Green Intellectual Capital Dan Financial Non Distress Terhadap Sustainable Growth. *Jurnal Ilmiah Wahana Pendidikan*.
- Kohtamäki, M., Vesalainen, J., Henneberg, S., Naudé, P., & Ventresca, M. J. (2012). Enabling relationship structures and relationship performance improvement: The moderating role of relational capital. *Industrial Marketing Management*, 41(8), 1298–1309. <https://doi.org/10.1016/j.indmarman.2012.08.001>
- Lastanti, H. S., & Augustine, Y. (2022). THE STRENGTH OF GOOD CORPORATE GOVERNANCE IN MODERATING THE EFFECTS OF GREEN INTELLECTUAL CAPITAL ON GREEN COMPETITIVE ADVANTAGE AND FIRM PERFORMANCE. *Jurnal Akuntansi Trisakti*, 9(1), 85–98. <https://doi.org/10.25105/jat.v9i1.13353>

- Masoulas, V. (1998). Organizational requirements definition for intellectual capital management. In *Int. J. Technology Management* (Vol. 16, Issue 3).
- McDowell, W. C., Peake, W. O., Coder, L. A., & Harris, M. L. (2018). Building small firm performance through intellectual capital development: Exploring innovation as the “black box.” *Journal of Business Research*, 88, 321–327. <https://doi.org/10.1016/j.jbusres.2018.01.025>
- Rachmawati, D., & Paskalis, Y. (2022). PENGUNGKAPAN GREEN INTELLECTUAL CAPITAL: STUDI DESKRIPTIF. *JURNAL AKUNTANSI*, 22(2).
- Rahayu, H. G., Warsono, H., Kurniati, R., & Purnaweni, H. (2023). The Effect of Green Intellectual Capital on Green Competitive Advantage in Sustainable City Management. *International Journal of Energy Economics and Policy*, 13(3), 532–537. <https://doi.org/10.32479/ijeep.14434>
- Sidik, M. H. J., Yadiati, W., Lee, H., & Khalid, N. (2019). The dynamic association of energy, environmental management accounting and green intellectual capital with corporate environmental performance and competitive advantages. *International Journal of Energy Economics and Policy*, 9(5), 379–386. <https://doi.org/10.32479/ijeep.8283>
- Solihin, Harnovinsah, Tugiantoro, & Karsam. (2023). Green Intellectual Capital And Sustained Competitive Advantages In The Industrial Sector Of Indonesia. *Jurnal Reviu Akuntansi Dan Keuangan*, 13(1), 134–156. <https://doi.org/10.22219/jrak.v13i1.23865>
- Suhariyanto, S. (2022). Pengungkapan Green Intellectual Capital Pengaruhnya Terhadap Return On Assets (ROA) Pada Perbankan di Indonesia. *Journal Inovasi*, 25(1).
- Sukirman, A. S., & Dianawati, W. (2023). Green intellectual capital and financial performance: The moderate of family ownership. *Cogent Business and Management*, 10(1). <https://doi.org/10.1080/23311975.2023.2200498>
- Sullivan, K., Thomas, S., & Rosano, M. (2018). Using industrial ecology and strategic management concepts to pursue the Sustainable Development Goals. *Journal of Cleaner Production*, 174, 237–246. <https://doi.org/10.1016/j.jclepro.2017.10.201>
- Tonay, C., & Murwaningsari, E. (2022). PENGARUH GREEN INNOVATION DAN GREEN INTELLECTUAL CAPITAL TERHADAP NILAI PERUSAHAAN DENGAN UKURAN PERUSAHAAN SEBAGAI MODERASI (Vol. 24, Issue 2). <http://jurnaltsm.id/index.php/JBA>
- Wang, C. H., & Juo, W. J. (2021). An environmental policy of green intellectual capital: Green innovation strategy for performance sustainability. *Business Strategy and the Environment*, 30(7), 3241–3254. <https://doi.org/10.1002/bse.2800>
- Widyastuti, T., Parianom, R., Permana, E., & dan Bisnis Universitas Bhayangkara, F. (2021). GREEN INTELLECTUAL CAPITAL AND SUSTAINABILITY

- PERFORMANCE COMPANIES IN INDONESIA. In *Turkish Journal of Computer and Mathematics Education* (Vol. 12, Issue 14). www.idx.co.id
- Yadiati, W., Nissa, Paulus, S., Suharman, H., & Meiryani. (2019). The role of green intellectual capital and organizational reputation in influencing environmental performance. *International Journal of Energy Economics and Policy*, 9(3), 261–268. <https://doi.org/10.32479/ijeep.7752>
- Yong, J. Y., Yulsiza, M. Y., Ramayah, T., & Fawehinmi, O. (2019). Nexus between green intellectual capital and green human resource management. *Journal of Cleaner Production*, 215, 364–374. <https://doi.org/10.1016/j.jclepro.2018.12.306>
- Yulianingsih, N. M., & Wahyuni, A. (2023). Pengaruh Penerapan Green Accounting, Intellectual Capital, Kepemilikan Manajerial Dan Manajemen Laba Terhadap Kinerja Keuangan Pada Perusahaan Pertambangan. *Jurnal Akuntansi Profesi*. <https://doi.org/10.23887/jippg.v3i2>
- Yulsiza, 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. <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/10.1016/j.jclepro.2019.06.153>
- Zalfa, A. N., & Novita, N. (2021). Green Intellectual Capital dan Sustainable Performance. *InFestasi*, 17(2), 93–104.