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The Role of Green Intellectual Capital for Sustainable SMEs – A Systematic Literature Review

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Abstract. *The aim of this study is to systematically review previous literature on the role of green intellectual capital for sustainable SMEs so that it can can generate hypotheses to be proven in future research empirically. The type of study used is systematic literature review. The results of the study show that conceptually green intellectual capital plays a vital role in supporting the sustainability of SMEs. The three elements of green intellectual capital are interconnected to create an innovation that can increase the competitive advantage to support the sustainability of SMEs in the long term. Optimizing the role of intangible assets green intellectual capital by SMEs as an effort to support the achievement of the goals of Sustainable Development Goals, which is to become a responsible producer by balancing economic, environmental, and social development.*

Keywords: *Green Intellectual Capital, Sustainable SMEs, Sustainable Development Goal*

1. INTRODUCTION

The Sustainable Development Goals (SDGs) by the United Nations are set as a sustainable global development agenda until 2030 for human welfare and environmental protection. The SDGs were formed to maintain the economic welfare of the community in a sustainable manner, maintain the sustainability of the community's social life, quality of the environment and development that guarantees justice and the implementation of governance that is able to maintain an increase in the quality of life from one generation to the next. In achieving the goal of sustainable development through business activities, namely business continuity, it must be able to contribute to the welfare of society and nature today without reducing the welfare of society and nature in the future (Salimzadeh et al., 2013).

SDGs are closely related to sustainable national economic growth for the long term. Sustainable national economic development can be strengthened through the empowerment of Small and Medium Enterprises (SMEs). SMEs contribute significantly to the SDGs because they have a strategic role in maintaining the stability of the country's economy (Endris & Kassegn, 2022). SMEs business operations in achieving business sustainability must also pay attention to achieving long-term success by meeting environmental, social, and economic demands.

Business activities that support the achievement of SDGs goals must focus on achieving long-term success by applying the principles of economic welfare, social justice and environmental preservation. The obligation to balance development in the economic, environmental and social fields is the responsibility of producers and consumers (Dos Santos et al., 2013; Govindan et al., 2013, 2016; Matinaro et al., 2019).

In supporting the SDGs goals, SME production activities must be economically, socially, and environmentally responsible. The current activities of business organizations including SMEs have contributed to environmental damage that has an impact on social welfare. Environmental impacts caused by business operations including SMEs on the natural environment include problems such as pollution, depletion, and decreased biodiversity. Thus, SMEs can overcome problems that occur in the ecological dimension by avoiding business operations that hurt the preservation of the natural environment.

The important role of SMEs in the development of the national economy is because SMEs are able to absorb quite a lot of resources which if exploited proportionally and wisely will encourage regional development and a significant expansion of employment opportunities. The dynamic capabilities of SMEs in coping with a rapidly changing environment will drive social, environmental and economic performance (Eikelenboom & de Jong, 2019). Measuring business performance is not only from the economic (financial) aspect, but also takes into account the impact on environmental and social aspects (Elkington, 1998). The concept is called the Triple Bottom Line.

The triple bottom line is realizing sustainable economic development can be defined as the design of policies or programs that will be implemented in business activities to improve or maintain the performance that contributes to economic, social, and environmental aspects in the long term (Hammer & Pivo, 2017). The TBL emphasizes the balance between environmental conditions, economic well-being, and equality among members of society (Glavas & Mish, 2015). Company use of natural resources such as land, water and energy in carrying out its operations is related to environmental performance. Likewise, the by-products generated from its operations such as air emissions, waste, and chemical residues. Meanwhile, those related to social performance are the impact of the company's operating activities and its suppliers on the surrounding community where the company operates (Elkington, 2004; Hubbard, 2009; Żak, 2015). SMEs that can apply the TBL concept will be able to better protect natural resources, utilize natural resources efficiently for the production process, and minimize the formation of waste, to protect environmental sustainability.

Each element of economic, environmental, and social measurement varies in context and over time. In addition, the tangible assets currently in use cannot be too flexible to apply the sustainability criteria because tangible assets require a large investment. Thus, sustainable organizational development can use intangible assets as a source of investment (Govindan et al., 2016). For companies, intangible assets can be used to create innovation, increase competitive advantage, and ensure the survival of the company (Ali et al., 2021; Berezinets et al., 2016; Mehmood & Hanaysha, 2022).

The survival of firms in the current business environment is largely driven by environmental strategies that ensure the protection of the natural environment (Agyabeng-Mensah & Tang, 2021). The concept of green intellectual capital (GIC) refers to new forms of innovation and approaches taken by business organizations to understand and solve the problem of environmental damage. The high concern of SMEs on environmental issues can motivate SMEs in implementing green strategies that are environmentally friendly in their business activities (Jardon & Dasilva, 2017;

Yusoff et al., 2019). Business sustainability by optimizing the role of GIC aims to encourage balance in achieving economic, social, and environmental goals.

An important aspect of sustainable business development is the existence and influence of all elements of GIC which include green human capital (GHC), green relational capital (GRC), and green structural capital (GSC) (H. Ullah, Wang, Bashir, et al., 2021). Knowledge of which elements of GIC have the greatest role in the company's sustainable development can be taken into consideration in maximizing the elements of intellectual capital that have the most influence on business sustainability. This knowledge can be utilized in formulating SME strategies to achieve business sustainability.

GIC is not only a factor in increasing economic performance in organizations but also has an impact on organizational performance in the aspect of environmental concern. GIC is a company's overall resources used to innovate with regard to environmental protection (Chen, 2008). GIC offers a significant framework for promoting sustainability in organizations (Benevene et al., 2021). GIC fulfills not only environmental management but also a competitive advantage. Better GIC management by SMEs will be the beginning of increased performance, better competitive advantage, increased innovation and the realization of sustainable SMEs (Asiaei et al., 2022; Benevene et al., 2021; Marco-Lajara, Zaragoza-Sáez, Martínez-Falcó, & Ruiz-Fernández, 2022; Marco-Lajara, Zaragoza-Sáez, Martínez-Falcó, & Sánchez-García, 2022; Mehmood & Hanaysha, 2022; S. Ullah et al., 2022).

Companies by implementing green activities can achieve a competitive advantage by aligning business strategies with the environment (Malik et al., 2020). In the face of changing environmental trends, business organizations are required to create innovative business strategies that are environmentally friendly and can be applied to support business sustainability. However, for SMEs to integrate sustainability into business practices poses many challenges, due to limited resources (Jämsä et al., 2011). SMEs that can exploit the potential of internal resources contained in GIC are expected to be able to formulate corporate strategies aimed at achieving economic, social, and environmental targets.

2. LITERATURE REVIEW

1.1 Triple Bottom Line Theory (TBL)

The triple bottom line approach is to transfer strategic ideas simply. Through business management and environmental and social impact management in stages, the company can increase short-term and long-term values, minimize risks and maximize opportunities. The triple bottom line is realizing sustainable economic development can be defined as the design of policies or programs that will be implemented in business activities to improve or maintain the performance that contributes to economic, social, and environmental aspects in the long term (Hammer & Pivo, 2017).

Economic, human welfare, and environmental sustainability need to be considered in designing and evaluating an economic system as a sustainable development effort. TBL is included in the concept of sustainable development which refers to the economic, social and environmental value of an investment (Elkington, 1998). The TBL concept emphasizes that corporate responsibility is not only limited to stakeholders related to economic performance such as in generating profits and producing products and services that can provide satisfaction to customers, but companies have broader responsibilities related to social and environmental performance. The TBL emphasizes the balance between environmental conditions, economic well-being, and equality among members of society (Glavas & Mish, 2015). Company use of natural resources

such as land, water and energy in carrying out its operations is related to environmental performance. Likewise, the by-products generated from its operations such as air emissions, waste, and chemical residues. Meanwhile, those related to social performance are the impact of the company's operating activities and its suppliers on the surrounding community where the company operates (Elkington, 2004; Hubbard, 2009; Żak, 2015). The triple bottom line concept is the company's strength based on applications in the economic, social, and environmental fields.

1.2 Green Intellectual Capital (GIC)

Intellectual Capital (IC) in the company is in the form of assets and resources, data, information, knowledge, and company policies that can add value to products or services to create competitive advantages (Kannan & Aulbur, 2004; Stewart, 1997). IC is defined as all intangible resources that add value or competitive advantage for the company to achieve goals such as knowledge, skills, attitudes, and experience of employees (Masoulas, 1998). IC can also be interpreted as a form of knowledge that combines human, organizational, and organizational relations that are used to achieve organizational success and goals (Jordão & Novas, 2017). The objectives achieved are not only seeking profit to satisfy stakeholders both internal and external to the company but also paying attention to the impact on the natural environment. Every business activity will have an impact on the natural environment and the surrounding community, both positive and negative impacts.

The company's strategic activities in managing IC will affect the company's performance in competing. IC is a factor that affects the competitiveness and sustainability of companies, especially SMEs (Jordão & Novas, 2017). IC makes it possible for SMEs to compete in achieving competitive advantage and business development because IC is able to become a driving force for SMEs in sustainable business growth and development. The increase in intellectual capital in the company can be observed through improving innovation, competitiveness, performance, sustainability, and increasing organizational value.

IC concept development with intensive use of intangible assets in an increasingly competitive market aims to increase the company's competency capacity and also to gain a strategic advantage (Todericiu & Stanit, 2015). The company's intangible assets which include human resources, technological mastery, and corporate image can create a sustainable competitive advantage to support the long-term sustainability of the company (Famiola & Wulansari, 2019).

IC includes: human capital (HC), structural capital (SC), and relational capital (RC), (Bozbura, 2004; Harris, 2000; Sharabati et al., 2010; Stewart, 1997; Todericiu & Stanit, 2015) . The linkage between the three elements of IC is the basis of the knowledge creation process, namely HC creates SC and SC creates RC (González-Loureiro & Dorrego, 2012; Jardon & Martos, 2012). Employee training will improve employee professionalism at work. Professional employees who are supported by access to qualified technology resources and a professional management system will build good relationships with customers, suppliers, and other social agents so that they can generate relational capital for SMEs.

The causal relationship of the three elements of IC can maximize an organization's potential to create value. There is a significant positive relationship between the three IC elements which include HC, RC, and SC (Astuti et al., 2019). Management or management of IC is an important aspect of achieving more product innovation (Carmona-Lavado et al., 2010). IC is an important resource for companies to innovate which will have an impact on increasing market value and company financial performance (Nimtrakoon, 2015; Sardo & Serrasqueiro, 2017).

IC is an important resource for SMEs in achieving business sustainability which must meet economic, environmental, and social dimensions. The negative impacts resulting from SME business operations on the environment must be overcome. SME

performance for sustainability is not only focused on economic achievement but also on its positive impact on the ecological and social environment. Therefore, SMEs began to direct their resources to be based on the environment.

IC which has been considered important for a company's competitive advantage must be directed to environmental insight or better known as GIC. GIC is a company's overall resources used to innovate with regard to environmental protection (Chen, 2008). GIC fulfills not only environmental management but also a competitive advantage. Elements in GIC are divided into green human capital (GHC), green relational capital (GRC), and green structural capital (GSC).

Implementation and development of proactive environmental management that relies on sustainable human, structural, and relational capital. Extending environmental management into the company's product and service life cycle and achieving a strong supplier-customer orientation will help companies increase their capacity to engage in proactive environmental practices (López-Gamero et al., 2011). The management of GIC which consists of GHC, GSC, and GRC on an ongoing basis can produce the latest innovations for companies that can become a competitive advantage to achieve business sustainability.

3. RESEARCH METHODS/METHODOLOGY

This study uses a systematic literature review to review and discuss the role of green intellectual capital in supporting sustainable SMEs. Data were obtained from various literatures from previous studies that were relevant to the research objectives. Data processing was carried out in stages, beginning with determining research objectives, collecting research articles, reducing data by selecting appropriate articles, analyzing research article literature, presenting research results in narrative form and then making conclusions to be considered in future research (Miles & Huberman, 1994).

4. RESULTS AND DISCUSSION

4.1 The Role of Green Human Capital (GHC) for Sustainable SMEs

Human capital refer to the unique value of each individual who is considered an asset to an organization. HC includes the knowledge, skills, and professional competencies of employees that have the potential to create creativity and company innovation. The role of HC in innovation is important both at the enterprise level and at the aggregate level (OECD, 2005). HC refer to the value generated by employees in the form of competence and communication skills so that they become the company's investment assets to obtain a sustainable competitive advantage (Kannan & Aulbur, 2004; Todericiu & Stanit, 2015). Employees who are committed to carrying out their duties and responsibilities have professional performance and affect the growth and development of SMEs (Jain et al., 2017).

The most important asset in an organization is HC because it is a source of creativity that will allow the creation of organizational value so that it affects the company's performance. Therefore, it can be claimed that HC has a direct relationship with company performance (Bozbura, 2004; Maditinos et al., 2011; Nimtrakoon, 2015). Human capital includes several dimensions such as motivation, satisfaction, employee knowledge, skills and creativity, and employee social skills (Dabić et al., 2018).

Human capital associated with the environment is known as GHC. GHC means employee assets such as skills, knowledge, commitment, and creativity towards environmental protection (Ali et al., 2021; Chen, 2008). Companies that are proactive in environmental management through sustainable HC management are when the company is committed to preserving the environment by providing training to employees related to environmental management, providing information to increase awareness of protecting the environment to employees, and attending seminars and workshops to gain new knowledge related to the environment (López-Gamero et al., 2011).

GHC which includes knowledge, skills, competencies, and experiences of employees on environmental protection can be the main driver of the company's growth and innovation in the future. GHC is a human resource who has knowledge and competence in preserving the environment, besides that it can also be seen from the attitudes, skills, experience and creativity of employees in green innovation for environmental sustainability (Ali et al., 2021; H. Ullah, Wang, Mohsin, et al., 2021). Therefore, employees who are capable enough to ensure environmental sustainability in SME operations tend to encourage business sustainability. Improved knowledge, competence and skills of employees on environmental sustainability can increase employee productivity in achieving economic and environmental goals as well as corporate social goals. Increasing employee productivity towards the environment is able to contribute to sustainable SMEs.

The development of GHC in realizing the sustainable SMEs needs to be supported by the development of adequate information technology (Baghirov et al., 2022). The development of information technology in SMEs will support GHC in making innovations that can be a source of competitive advantage so that business sustainability will be realized.

Sustainable SMEs must be able to balance financial, social and environmental performance. GHC is proven to have a significant influence on the financial performance of SMEs. However, GHC has no significant effect on social performance and green competitiveness. Therefore, GHC influences the successful implementation of green logistics practices, which results in stronger green competitiveness and better social and financial performance (Agyabeng-Mensah & Tang, 2021). SMEs can start investing in GHC through training sessions, skills enhancement, and career advancement opportunities for employees. This training program is needed to instill environmental knowledge into the organization to take advantage of opportunities in the business market and meet customer demands (Fitri et al., 2022).

4.2 The Role of Green Structural Capital (GSC) for Sustainable SMEs

Structural capital is organizational ownership in the form of intangible assets such as inventions, inventions, technology, data, and processes that are copyrighted, patented, or protected by trade secret laws. Structural capital is the entire process of company activities, trademarks, intellectual property rights, and other intangible assets owned by the company including the company's ability to adapt to market needs (Todericiu & Stanit, 2015). Structural capital includes several dimensions such as organizational structure, organizational learning, organizational culture, and strategic culture (Dabić et al., 2018). The element of structural capital underscores the extent to which organizational systems can help increase employee productivity (González-Loureiro & Dorrego, 2012).

Structural capital associated with the environment is known as GSC. GSC is an intangible asset that supports realizing environmental protection or green innovation in companies including databases, operating processes, organizational culture, organizational capabilities, corporate image, patents, copyrights, trademarks, organizational commitments, knowledge management systems, reward systems, systems information technology, managerial mechanisms, managerial philosophy and so on (Chen, 2008).

GSC refers to management philosophy, organizational culture, corporate commitment, corporate image, copyrights, trademarks, patents, environmental protection, and green innovation competencies (Ullah et al., 2021). There are still a few SMEs that can bring up Intellectual Property Rights in the form of patents, copyrights, trade secrets, and others (Jain et al., 2017; Styaningrum & Mustikarini, 2017). The majority of SMEs are more focused on innovating in products, namely by improving quality and developing product variations.

Sustainable structural capital that is proactive in environmental management, namely the company continues to innovate and improve its environmental technology portfolio consisting of the establishment of an environmental department, prevention practices, the appointment of management representatives, and the presence of environmental managers (López-Gamero et al., 2011). GSC which includes

organizational processes, organizational systems, organizational culture, and ownership of IPR (Intellectual Property Rights) regarding environmental protection supported by the development of information technology has a strategic role in creating value to realize business sustainability that balances economic, social, and environmental aspects.

4.3 The Role of Green Relational Capital (GRC) for Sustainable SMEs

Relational capital is all of the company's intangible resources in the form of harmonious relationships with external parties. The company's partners can include reliable suppliers, governments that support business activities, and the surrounding community. Rational capital revolves around the relationships that employees make with external and internal stakeholders (Bakshi, 2015; Bozbura, 2004; Dabić et al., 2018; Todericiu & Stanit, 2015). Relational capital can create value for the company in the form of a trademark, good image by the public, customer loyalty, and a smooth feedback system to customers and suppliers.

By improving product quality and collaboration processes with internal and external stakeholders, SMEs will be able to create new products to expand market share (Jain et al., 2017). Companies that can win customer trust will strengthen relationships with customers, meaning that long-term business continuity will be realized because the company is able to get the best potential resources in the market, namely customers.

Relational capital associated with the environment is known as GRC. GRS is a company's interactive and harmonious relationship with customers, suppliers, network members and business partners in terms of creating corporate green innovation and environmental management to gain competitive advantage and increase corporate value (Chen, 2008). Sustainable GRC that is proactive in environmental management reveals that the company's relationship with the environment is very relevant, namely the company's activities will have an impact on the environment. The primary sector related to the natural resource extraction industry and the secondary sector related to manufacturing in the environmental management process tends to involve suppliers, while in the service sector, customers are the agents most directly involved in business activities (López-Gamero et al. ., 2011). GRC which includes the company's relationship with the community around the place of production, customers, suppliers, and other partners regarding environmental management can support the creation of corporate value to ensure business continuity in the future. GRC development must be supported through a collaborative approach, namely by establishing dialogue with stakeholders to reduce environmental impacts and produce environmentally friendly products, thus leading to increased sustainability (Fitri et al., 2022).

CONCLUSION

Green human capital (GHC), green structural capital (GSC), and green relational capital (GRC) which are elements of GIC that are interrelated to support the realization of sustainable SMEs. GHC in the form of knowledge, skills, competencies, and experiences of employees regarding environmental management that will play a role in improving GSC. Furthermore, an organized GSC will encourage the creation of GRC. Optimizing the role of GIC by SMEs as an effort to support the achievement of the goals of the Sustainable Development Goals, which is to become a responsible producer by balancing economic, environmental, and social development. Further research can empirically prove that GIC can significantly influence sustainable business through innovation which is the driving force in creating competitive advantage.

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