



## GREEN STRATEGIES AND COMPETITIVE ADVANTAGE: THE MODERATING ROLE OF ENTREPRENEURIAL ORIENTATION

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### ABSTRACT

*This study examines the effects of Green Intellectual Capital (GIC), Green Leadership (GL), and Strategic Leadership Capabilities (SLC) on Competitive Advantage (CA), and whether Entrepreneurial Orientation (EO) strengthens these effects. Data were collected through an online structured questionnaire from 163 professionals in environmentally oriented organizations using purposive sampling. The proposed model was tested using partial least squares structural equation modeling with reliability and validity checks, followed by hypothesis and interaction-effect testing. The results indicate that GIC, GL, and SLC have significant positive effect on CA. EO also significantly strengthens the effects of GIC, GL, and SLC on CA, suggesting that firms with stronger entrepreneurial orientation gain greater competitive returns from green intangible resources and leadership capabilities. This study offers managerial implications for enhancing competitiveness through targeted investments in green capabilities and entrepreneurial culture. Limitations include the single-country setting and cross-sectional survey design; therefore, future research should adopt longitudinal and multi-country designs, incorporate multi-source data, and explore additional mediating or moderating variables to provide deeper insights into the dynamic mechanisms linking green capabilities to competitive advantage.*

**Keywords:** competitive advantage, entrepreneurial orientation, green intellectual capital, green leadership

## INTRODUCTION

Intellectual capital has long been recognized as a strategic asset that enables firms to compete through knowledge, skills, and organizational routines embedded in human, structural, and relational resources (Abualoush et al., 2018). Intellectual capital provides a defensible basis for differentiation because it is difficult to imitate and can be recombined to create new value (Obeidat et al., 2021). As a further step, it is central to empower the resources-for-manufacturing to become commodities of substantial value and thus contribute to the rise in the net worth of the firm (Kanaan et al., 2020). A business can only be said to fully benefit from market outlets only if there are available valuable intangible resources and notable capabilities (Obeidat et al., 2021), which helps in attaining and maintaining a competitive advantage (Alkitbi et al., 2021). The significance of intellectual capital as a fundamental element to pursue competitive advantage in knowledge-based organizations is widely acknowledged among academic and business circles (Kanaan et al., 2020).

According to (Mubarik & Bontis, 2021), organizational efficacy is closely linked to leadership integrity, whereby success is achieved when leaders resonate with and reinforce the organization's desired values and behaviors through exemplary conduct. A leader who is willing to do this type of conversation is based on the principles that revolve around several decisions that are constantly implemented and affect the organization's past, current, and future. Such a leader helps to create and develop mental, skill, and social organizational links and organizational strengths that are not just reactive to but also proactively involved in the threats and opportunities. This exchange involves assisting learners in grasping the complex and dynamic

characteristics of the surrounding environment as well as illuminating the endogenous and adaptive processes of human social systems and individuals' innovative capacities (Syed et al., 2020). CEOs who practice strategic leadership are known to be those that do not squander the potential of the lesser seen and intangible resources of the company, referred to as the firm's intellectual capital. By so doing a sustained advantage over other organizations is achieved. (Syed et al., 2020) note that mental dignity serves as not only an external shock absorber but also a dynamic mechanism for market alignment which is the difficult way of quantifying the development process.

Leadership serves as a vital human resource element that drives competitive advantage (Juniarti et al., 2024). During the time frame, a business is identifying and nurturing multiple competitive advantage sources in the market and highlighting its distinct characteristics when coming up with the proper positioning (Juniarti et al., 2024). However, studies on the relationship between leadership and competitive advantage have yielded varied results. Research in the Americas by (Juniarti et al., 2024) illustrates a close relationship between strategic leadership and competitive advantage within the forestry sector. Correspondingly, these authors point to the beneficial effects of strategic and transformational leadership on the competitive advantage of African railroad and insurance companies. On the other hand, (Augustine, 2019) in Asian firms, no significant correlation between leadership and competitive advantage was found. These results, taken together, underline the importance of transformational and strategic leadership styles in the formation of competitive advantage.

To further elaborate on the role of leadership in shaping competitive advantage, it is important to examine the specific characteristics that define strategic leadership. Strategy leadership traits comprise the cognitive, relational, and behavioral abilities that allow top managers to understand, change and coordinate the external environment with the help of intellectual, human, and structural resources and facilitate innovation and strategy renewal. These attributes encompass analytical and comprehension abilities for ever-changing environments, the skill of creating organizational vision, the potential for mobilizing resources across the firm, and the capability of integrating intangible asset utilization into strategic transformation (Chummun & Nleya, 2021; Mistarihi, 2021). Strategic leadership firms with more advanced leadership skills can better leverage intellectual capital and other intangible resources to create, sustain, and renew competitive advantage. Previously, research has also emphasized the significance of well-functioning management systems and leadership practices in the creation of long-term organizational value. This serves as an argument for the existence of strategic leadership performance synergy with responsible management, which results in better performance and long-term competitiveness (Karina, Lestari, & Ivone, 2023; Yopie & Oktavia, 2023).

Among companies today, green intellectual capital has emerged as the key requirement for the generation of new value and consistent performance. It is fundamentally concerned with how businesses use green information, green knowledge, and green networking to achieve sustainability from a competitive advantage perspective. Being sustainable at the stage of intellectual capital management allows companies to do more than merely reflect sustainability

principles throughout operational and strategic realms, thereby attaining the status of operational and strategic (Paramastri & Adi, 2025). Empirical studies indicate that such innovation can enhance firm value (Sanjaya & Lestari, 2025; Yuniarti, Soewarno, & Isnalita, 2022). Leaders that prioritize sustainability as the apex of the enterprise ensure full integration into company culture, operations and governance, thereby enhancing sustainability and long-term competitiveness (Itan et al., 2025). The interplay of green intellectual capital, strategic leadership, and an entrepreneurial mindset as a triple-helix is reckoned in knowledge-intensive enterprises for harnessing and sustaining high performance levels.

Entrepreneurial orientation (EO) is the strategic position of business characterized by the traits of proactiveness, innovativeness, and risk-taking willingness to use the market's exposed opportunities for lifelong development. Entrepreneurial orientation (EO) provides the leaders with the energy and the know-how to turn the marketplace threats into profitable opportunities. The latter, in turn, strengthens the connections between behavioral capabilities, human knowledge, and competitive advantage (Hu & Tresirichod, 2024). By integrating entrepreneurship with environmental saving, EO facilitates positive interactions between corporate growth and environmental protection, thus supporting a green-friendly economy to prosper (Astuti, Datrini, & Chariri, 2023; Taleb & Pheniqi, 2023).

This study plans to investigate how green intellectual capital, green leadership, and strategic leadership competencies affect competitive advantage (CA), based on the above research. Moreover, it intends to uncover if an entrepreneurial attitude might strengthen the link between these traits

and competitive advantage for creating long-term organizational value.

## LITERATURE REVIEW

### Resource Based View (RBV)

The resource-based view (RBV) suggests that a business can maintain its competitive advantage by utilizing its tangible and intangible resources in the most efficient manner. These include not only tangible and financial resources, but also intangible ones such as employee skills, innovation, and corporate reputation. Such resources need to be valuable, rare, difficult to imitate, and non-substitutable in order to create long-term value (Ana, Paramita, & Cahyaningati, 2023; Pan, Oh, & Wang, 2021). Accordingly, RBV highlights the necessity for enterprises to develop unique internal capabilities that enable long-term plans and sustain strong performance within a competitive market (Rahayu, Warsono, Kurniati, & Purnaweni, 2023; Shahbaz & Malik, 2025).

Through the lens of RBV, GIC related intangible assets such as employee experience, organizational knowledge, and environment-friendly processes precondition for better leadership and a competitive edge (Shahbaz & Malik, 2025). Besides that, GIC comprises GHC, GSC, and GRC, and is quite instrumental in leaders' setting strategic goals and aligning firm resources towards eco-friendly performance (Sahoo, Kumar, & Upadhyay, 2023). The RBV highlight that these environmentally friendly actions serve as a source of sustainable competitive advantage and result in improved environmental performance by showing the strategic importance of unique internal resources for achieving sustainability and long-term success (Shahbaz & Malik, 2025). With GIC, companies can build synergies that increase the capacity to come up with

green innovative ideas. This corresponds to the RBV concept of using unique resources for gaining a competitive advantage (Alnajem, Garza-Reyes, & ElMelegy, 2019).

### Hypothesis Development

Drawing on the Resource-Based View (RBV) and the Natural Resource-Based View (NRBV), this study views green intellectual capital, green leadership, and strategic leadership capabilities as strategic internal resources that can enhance competitive advantage. However, the effectiveness of these resources may depend on the firm's entrepreneurial orientation, which influences how proactively and innovatively they are deployed. Accordingly, this study examines the direct effects of these capabilities on competitive advantage and the moderating role of entrepreneurial orientation

### The Effect of Green Intellectual Capital on Competitive Advantage

As a result of the worldwide concern for environmental sustainability, GIC has become a very significant managerial resource for organizational management. Latest studies highlight GIC as a distinctive capability through which firms can differentiate from competitors and achieve long-lasting competitive advantage (Atalla et al., 2024; Bombiak, 2023). GIC stands for the sum of a company's environmentally friendly knowledge and skills which include GHC, GSC, and GRC. These lead to more efficient operations and more innovations (Anwar, Clauss, & Issah, 2022; Wang & Juo, 2021). Companies that succeed in building and integrating these GIC elements effectively create competitive barriers that are difficult for rivals' firms to imitate, thereby strengthening market position. Furthermore, robust green relational networks, especially those that promote environmental collaboration and

innovation, attract stakeholder support and resource sharing, thus, making the organization more competitive (Anwar et al., 2022).

H<sub>1</sub>: Green Intellectual Capital (GIC) has a positive impact on Competitive Advantage (CA)

### **The Effect of Green Leadership on Competitive Advantage**

Green leadership is a management style that makes the environment the primary concern in the decision-making and actions of the organization (Juniarti et al., 2024). This type of leadership in IT firms is psychologically linked with traits such as self-improvement, openness to change, strong morals, and environmental concern (Bessy & Yenny, 2024). Green leadership framework believes that organizations can gain competition advantage by implementing leadership style which concentrates on environmental practices and considers ecological factors as part of strategic decisions (Juniarti et al., 2024). As diverse and creative teams become encouraged, more advanced ideas emerge, enabling the company to differentiate itself from competitors and enhance its competitive position (Cizmaş et al., 2020). Supporting this, research showed that adopting green leadership style could be a significant lever to achieve competitive advantage (Suparna et al., 2021). This green leadership style according to studies significantly contributes to the competitive advantage of the company.

H<sub>2</sub>: Green Leadership (GL) has a positive impact on Competitive Advantage (CA)

### **The Effect of Strategic Leadership Capabilities on Competitive Advantage**

The argument suggests that strategic leaders often retain most of the positive characteristics of visionary leaders while also possessing the managerial skills necessary for effective strategic

leadership, such as the ability to utilize and maintain the organization's core competencies. (Pitelis & Wagner, 2019) findings confirm that the adoption of strategic and transformational leadership styles can facilitate and motivate the development of entrepreneurial behaviors in organizations.

If the elements of strategic leadership capabilities are utilized properly, the strategic leadership activities within an organization can give it a competitive advantage over other companies. When a company makes good use of its core elements of strategic leadership strategies, a competitive advantage over competitors may be achieved. Furthermore, strategic leadership that supports the company in building its skills and competencies is the one that enables it to be ahead of the competition (Mahdi & Nassar, 2021). Strategic leadership capabilities can greatly influence the competitive advantage of an organization in a positive manner. With the help of strategic leadership, the conversion of organizational resources, such as human and social capital, into tangible competences or capabilities can be done through efficient resource management (Hamadamin & Atan, 2019; Hitka et al., 2019). Moreover, the organization becomes more valuable and it is easier for it to get a competitive advantage by the improvement of human and social capital (Sazly, Al Rasyid, & Indah, 2025; Bessy & Yenny, 2024). As a matter of fact, strategic leadership does not only promote sustainable competitive advantage but also uplift overall organizational performance, according to recent research (Abdeen et al., 2025; Mubarik & Bontis, 2021).

H<sub>3</sub>: Strategic Leadership Capabilities (SLC) has a positive impact on Competitive Advantage (CA)

### **The Moderating Role of Entrepreneurial Orientation in the Relationship between Green Intellectual Capital and Competitive Advantage**

Entrepreneurial orientation (EO) is widely recognized as a firm-level strategic posture that reflects how organizations identify and exploit opportunities through strategic practices, managerial philosophies, and entrepreneurial behaviours (Alshahrani, Yaqub, & Alabdali, 2024). EO captures the extent to which firms are willing to accept risk, encourage innovation, and proactively introduce new products, services, or methods to respond to or shape market dynamics (Anwar et al., 2022). In this sense, EO is not merely an individual trait but a collective strategic approach that guides how organizational resources and capabilities are mobilized to create value.

EO can play a critical role in determining whether and how the components of green intellectual capital (GIC) are effectively leveraged to build competitive advantage. Firms with a strong EO are more likely to experiment with eco-innovative solutions, reconfigure green knowledge and routines, and proactively translate environmental knowledge base into distinctive green products, processes, or business models. Conversely, in firms with low EO, even a rich stock of GIC may remain underutilized, being confined to compliance or incremental improvements that do not generate a meaningful competitive edge. Therefore, EO is expected to strengthen the positive effect of GIC on competitive advantage by shaping the way green knowledge and capabilities are deployed, combined, and exploited for strategic differentiation and superior performance. When EO is high, the link between GIC and competitive advantage should be stronger because firms are more willing and able to convert

green knowledge into innovative market offerings and strategic positions.

H4: Entrepreneurial Orientation moderates the relationship between Green Intellectual Capital (GIC) and Competitive Advantage (CA)

### **The Moderating Role of Entrepreneurial Orientation in the Relationship between Green Leadership and Competitive Advantage**

According to (Verma & Kumar, 2022), without efficient leadership, the individuals cannot fully understand how to manage productivity, efficiency, and competitiveness within organizations and therefore, may experience organizational failure. It also represents a significant improvement in enhancing business performance. In this study, entrepreneurship was viewed at the organizational level, focusing on organizational growth (OG). As a result, numerous organizational factors impact entrepreneurial activities as well as organizational performance and growth. These include elements such as organizational culture, structure, strategic policies, leadership, entrepreneurial behaviours, and individual personalities. According to (Harrison & Roomi, 2018), distinguished leadership is regarded as a fundamental component that fosters entrepreneurial initiatives. However, only a limited number of researchers have explicitly linked leadership to green business ventures (Felix, Aparicio, & Urbano, 2019; Petrovskaya & Mirakyan, 2018). In the current situation, sustainable development has become an important standard, which has increased pressure on organizations to implement eco-friendly methods to gain a lasting edge over competitors (Demir et al., 2025). According to the natural resource-based view (NRBV) theory, leaders are believed to encourage and inspire staff to create important strategic resources that

are difficult for other firms to replicate thus helping to reach a long-term competitive advantage (Sun et al., 2022).

H<sub>5</sub>: Entrepreneurial Orientation moderates the relationship between Green Leadership (GL) and Competitive Advantage (CA)

### **The Moderating Role of Entrepreneurial Orientation in the Relationship between Strategic Leadership Capabilities and Competitive Advantage**

An abundance of research has established the importance of entrepreneurial trends. (Shamaileh et al., 2023) emphasizes the significance of implementing entrepreneurial performance practices and leveraging to embrace the entrepreneurial concept, thereby enabling organizations to adapt to environmental changes and bridge the substantial gap with global counterparts. Entrepreneurial orientation (EO) is a key factor that leads to better organizational performance by making employees more skilled, motivated, and efficient. Creativity, risk-taking, and proactiveness as traits of a firm can be used by the organization to get a competitive advantage. This, in turn, enhances organizational sustainability and improves overall performance. The concept of achieving strategic leadership success goes beyond these two definitions and includes the degree to which organizations allocate cognitive resources for knowledge transfer, acquisition, and effective application in practice (Al-Hawary & Al-Rasheedy, 2019; Al-Hawary et al., 2020; Alnemrat et al., 2023; Salamzadeh, Badaki, & Vahidi, 2018). The match and harmony between an organization's vision and mission, supported by a strong leadership strategy, make going to long-term goals easier and help strategic leadership being successful

(Boudlaie et al., 2022; Mukhlis et al., 2022).

H<sub>6</sub>: Entrepreneurial Orientation moderates the relationship between Strategic Leadership Capabilities (SLC) and Competitive Advantage (CA)

## **METHODS**

This research used a quantitative survey method via the use of purposely arranged questionnaires to gather information from respondents; thus, the findings could be generalized to a larger population. This method was chosen as it allows researchers to reach a large number of respondents quite fast, while the cost of data collection remains relatively low (Appiah et al., 2023). The research collected primary data from the employees of companies listed on the Indonesia Stock Exchange (IDX) and representing such sectors as energy, real estate, healthcare, logistics, basic materials, and technology. Through purposive sampling, 163 valid responses were collected from managers, executives, and professionals who were involved in sustainability, human resource management, and corporate strategy. In accordance with the criteria proposed by (Appiah et al., 2023), The minimum sample size should be no less than five times the number of indicators, and the most suitable range is between 100 and 200 respondents. All variables were taken from previously validated studies and were assessed using a five-point Likert scale, where 1 indicated strong disagreement and 5 strong agreement (Abdelwahed et al., 2022; Anser et al., 2024; Atalla et al., 2024; Shaikh et al., 2024). SmartPLS software was used to analyze the processed data through the PLS-SEM method. The approach uses Partial Least Square (PLS) for Structural Equation Modeling (SEM) which is very effective, especially when applied in

studies, such as subjects who may have had little theoretical or practical familiarity with the research field, yet sufficiently high prediction and model evaluation scores are obtained (Appiah et al., 2023).

This study measured each variable through scales derived from established frameworks that have been validated by previous research. The assessment of CA was adapted from (Zhang, Chen, & Tang, 2024), the eco-friendly store manages its competitiveness by means of responsible environmental practices, products of high quality, good governance, and initiatives that deal with potential customers' needs also in a pro-green way. GIC was adapted from (Obeidat et al., 2021), indicative of an organization's collective knowledge, skills, and abilities in environmental management which are the sources of its competitive advantage. GL was adapted from (Mubarik & Bontis, 2021), reflecting a leader's ability to invigorate eco-friendly activities, integrate sustainability concepts in the company's strategy, and motivate people to do things that are beneficial for both the environment and the organization. Meanwhile SLC was adapted from (Hunitie, 2018), reflecting a leader's capacity to discern and carry out strategic decisions, align the firm's vision and resources, and adapt to the changes in the surroundings for organizational competitiveness and sustainability in the long run. Lastly, EO was adapted from (Mostafiz, Hughes, & Sambasivan, 2022), incorporating the characteristics of innovativeness, proactiveness, and risk-taking is the primary focus of a firm's strategic stance. The attributes work together to assist the company in new opportunity discovery, innovation, and raising organizational performance.

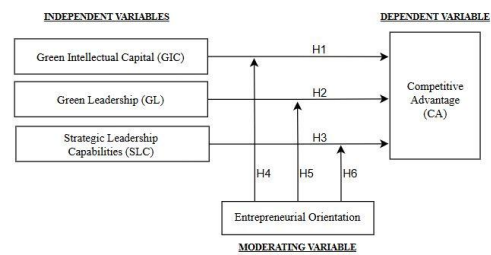


Figure 1. Research Model  
Source: Author's Own Elaboration (2025)

## RESULTS

The survey respondents were 163 people, all of whom were employees in non-financial industries listed on the Indonesia Stock Exchange. The sample consisted of more women than men, with the percentage of women being 71.8% and that of men 28.2%. Most of the respondents were in the age bracket of 20-40 years, which indicates that the workforce is younger and more receptive to new ideas and sustainable practices. The participants mostly represented the workers who had finished bachelor studies and who could demonstrate the capacity to comprehend business plans and the depths of sustainability challenges. The employees held the leading positions primarily in the service and production departments, which were equally considered to be the places where one had the chance to understand the implementation of the business strategy very well. Respondents were largely new to the field of work, most only having working experiences of between one and five years, thus representing a relatively young and diverse group. The congruent positions of the respondents make it possible for the data to maintain diversity in different views and ideas on sustainability practices as well as the ways companies would want to do the improvement.

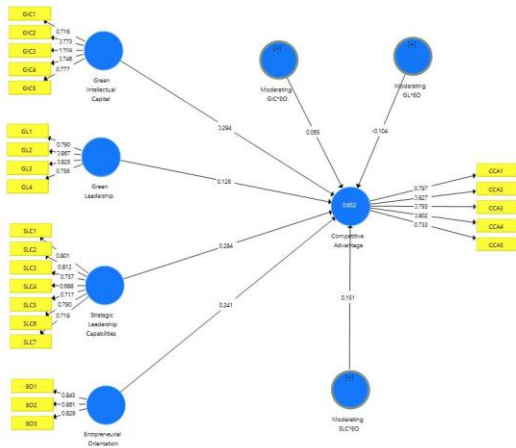


Table 2. SEM – PLS Results  
 Source: Data Processed Using SmartPLS (2025)

The Variance Inflation Factor (VIF) is used to detect multicollinearity among the items representing the same construct. The data demonstrates that the VIF values are all in the range of 0.688 to 1.441, significantly less than 5, indicating no multicollinearity problems. So, it is clear from this result that the existence of multicollinearity is irrelevant. A VIF value lower than 5 connotes an acceptable value of the collinearity hence one can be happy with having no collinearity (Din et al., 2024). The use of AVE and the computation of the average variance extracted (AVE) were carried out to check the latent convergent variables' stability and to ensure the convergence. It is shown in the data that the majority of the indicators have outer loading coefficients greater than 0.70 which indicates a reliable measurement on the constructs tested. An outer loading equal or higher than 0.70 is desirable for indicators upon estimation (Edelsbrunner, Simonsmeier, & Schneider, 2025). The reliability of the constructs was identified through the employment of Cronbach's Alpha and Composite Reliability (CR) for examining the literature. The values of both Cronbach's Alpha and CR being above

0.7 for all the constructs qualify the internal consistency of the five elements. Though SLC has a CR value of 0.903, GIC, the lowest, still has the acceptable CR value at 0.861. This signifies that the reliability of all the constructs is verified, and, therefore, the constructs can be utilized to prove the structural model.

Discriminant validity was accomplished as the AVE values and outer loading results showed that each indicator had the highest loading on its respective concept. The R Square value of 0.675 for the construct of CA indicates that GIC, GL, SLC, and EO can account for 67.5% of the changes in CA. This R Square value ranges from moderate to strong, which means that the structural model can offer good predictions of the endogenous variable.

The validation of the measurement model was done. The Fornell and Larcker criteria stated that there was no statistical company between the constructs which were also supported by the indicator loading tests. In the measurement of Convergent validity, Cronbach's Alpha, Composite reliability, and Average Variance Extracted (AVE) were employed as the criteria (Din et al., 2024; Edelsbrunner et al., 2025). First off, it should be noted that the measurement model has both reliability and validity because the VIF is below 5. This means that the multicollinearity is not present in the model. All the three indicators correctly measure data, and the results indicate that the validity of the model is high and the reliability of the measures is always above 0.7. It was found, via the R-Squared value, that the model has 0,675 capability of predicting the CA attainment which is strong (Özgül & Zehir, 2023). Overall, these results support the robustness of the measurement constructs for further analysis.

Table 1. HTMT

	CA	EO	GIC	GL	SLC
Competitive Advantage					
Entrepreneurial Orientation	0,82 1				
Green Intellectual Capital	0,84 7	0,777			
Green Leadership	0,83 7	0,808	0,76 2		
Strategic leadership Capabilities	0,78 6	0,714	0,83 4	0,84 9	

Source: Data Processed Using SmartPLS (2025)

The job of the HTMT ratio benchmark was executed to attest if the measurement model by the PLS-SEM technique succeeded in discriminating validity or not. This procedure makes things clear that every latent construct embodies a unique theoretical concept and that it is uncorrelated with other constructs. Following the guideline proposed by (Rasoolimanesh, 2022), HTMT scores less than 0.90 indicate that therewith may probably be existing theoretically distinct constructs while figures under 0.85 reveal the presence of conceptually related frames' validity. These results affirm that all the constructs fulfilled the set requirements, hence, the relationship among the variables was not significant, and the separateness and validity of each construct in the model was guaranteed (Cheung et al., 2024; Guenther et al., 2025; Rasoolimanesh, 2022).

Table 2. Inner Model

X-Y	t-statistic	P-value	Result
EO -> CA	2,891	0,004	Significant Positive
GIC -> CA	2,877	0,004	Significant Positive
GL -> CA	1,213	0,226	Insignificant
SLC -> CA	0,593	0,554	Insignificant
Moderating (GIC×EO) -> CA	3,022	0,003	Significant Positive
Moderating (GL×EO) -> CA	1,602	0,110	Insignificant
Moderating (SLC×EO) -> CA	2,938	0,003	Significant Positive

Source: Data Processed Using SmartPLS (2025)

Table 3. GoF Index

AVE	Mean R Square Adjusted	GoF Index
0,765	0,675	0,720

Source: Data Processed Using SmartPLS (2025)

The model achieved an AVE value of 0.765 when PLS-SEM was implemented. Such a high score indicates that each concept is well represented by its indicators as it exceeds the standard threshold of 0.50 necessary to demonstrate convergent validity. According to (Hair et al., as cited in Sarstedt et al., 2020), when the AVE value is greater than 0.50, it signifies that the indicators in a construct can explain more than half of the variations in that construct. An adjusted R Square value of 0.675 was attained, indicating that the model has a high level of explanatory capability in depicting the relationships between variables. This serves to confirm the model's capacity to effectively capture the influence of independent constructs on dependent outcomes.

The model also yielded a Goodness of Fit (GoF) index of 0.720. In PLS-SEM, the GoF value above 0.36 is regarded as strong. Therefore, the GoF outcome from this study is considerably above the threshold for a good model fit. As a result, the entire model fits the real-world data perfectly and meets the criteria for quality and validity, hence, it is suitable for further exploration and practical applications.

## DISCUSSIONS

The impact of the path from Green Intellectual Capital (GIC) to Competitive

Advantage (CA) on the t-statistic is 2.877 and the p-value is 0.004. The results indicate that indeed GIC has a significant and positive effect on CA. People's knowledge, skills, and experience in green intellectual capital are the key contributors to the company's competitive advantages.

This result is consistent with the finding of (Rahayu et al., 2023; Wang & Juo, 2021), it was well demonstrated that GIC is a key factor in improving organizational performance and constitutes a good basis for sustainable competitive advantage. A firm can make use of green human, structural, and relational capital to turn it into a knowledge-intensive entity, create some flexibility, and finally reach long-term competitiveness.

The coefficient path between Green Leadership (GL) and Competitive Advantage (CA) produces a t-score of 1.213 and a p-value of 0.226. This study confirms that GL does affect CA. These observations reveal that Green Leadership (GL) is not significantly influential in the production of competitive advantage in firms. As a footnote, the management should take the initiative to use the green strategy and enact it as through the practices as it could truly cut down on waste if properly implemented.

However, the electronic media have produced ambiguous results that indicate Green Leadership is not only a relevant and useful factor in raising corporate social responsibility but also in making sustainability. Various research outputs have shown different findings, some suggesting that GL resulted in better customer and brand relations, waste reduction, and innovation sustainability (Sherlyna & Murwaningsari, 2023; Suparna et al., 2021). The survey showed that respondents did not fit this role properly and, therefore, this difference showed that the organization had not yet fully changed the strategy in a way that

leaders focus on environmental issues. The respondent, particularly the top management team, is less green-focused than strategy indicates. Even if there is a leader who has ventured into green issues, the result is still negligible without a strong strategic and institutional support.

The route coefficient analysis between Strategic Leadership Capabilities (SLC) and Competitive Advantage (CA) reveals a coefficient of 0.593, a t-statistic of 0.593, and a p-value of 0.554. The findings show that SLC bears no relation to CA. The result corroborates the earlier argument that despite its centrality to competitive advantage, the direct impact of strategic leadership on the latter is to a large extent fragile. Thus, it's indispensable that further strategic elements like the external environment and the organizational framework significantly fortify it (Juniarti et al., 2024; Probojakti et al., 2024; Verissimo et al., 2024).

Conversely, a number of scholars emphasize that the success of strategic leaders in not only promoting collaboration but also in abating such a move can lead to the generation of innovative ideas, a thing that is necessary for maintaining a competitive advantage in the long term (Mahdi & Nassar, 2021). The difference underscores the intricacy of the relationship and hints that the role of SLC in creating a competitive advantage may be dependent on the circumstance and influenced by other factors. In any case, enhancing strategic leadership capabilities is still crucial in equipping companies with the skills needed to comprehend changes in the environment and devise plans for strategy renewal which could be an indirect way of going ahead of the competition over time (Hamadamin & Atan, 2019).

As the chart indicates, this study conducted based on the relationship between Entrepreneurial Orientation

(EO), Green Intellectual Capital (GIC), and Competitive Advantage (CA) has a t-score of 3.022 and p-value of 0.003. This study provides confirmation that the EO intervention vastly affects the GIC-CA relationship. A firm applying an entrepreneurial mentality full of innovations, drive and risk appetite will see that the knowledge and skills embedded in GIC are the ones that become the non-marginal factors and strategic objectives to achieve. Within the context of green innovation and resource efficiency, corporate management enhances competitiveness and develops the capacity for long-term sustainability over time.

This result is consistent with the findings of (Liu, 2020) which concludes that organizations characterized by the presence of individuals with high entrepreneurial orientation, i.e. innovation, proactivity, and risk-taking, are capable of transforming knowledge into strategic value better. Being fired up by the discovery that EO is a key factor in harnessing a firm's GIC, skills, and organizational resources, the findings are translated into actionable practices. The latter will help the firm to remain fresh in the market by quickly responding to the dynamic business scenario prevailing. Over time, GIC and EO collaborating establish a strong ability to change, enhance company's flexibility and maintain a sustainable competitive advantage.

The path coefficient of the interaction Green Leadership (GL) and Entrepreneurial Orientation (EO) in relation to Competitive Advantage (CA) generates a t-statistic of 1.602 and a p-value of 0.110. These figures show that EO has minimal impact on the interaction between GL and CA. This study uncovers the fact that entrepreneurial orientation does not facilitate the influence of green leadership on competitive advantage.

While green leaders may be able to rally sustainability values and initiatives, such as these, may not necessarily be the direct source of competitive advantages if companies do not have a strong enough entrepreneurial attitude to be able to transform green visions into innovative activities.

This finding is in line with prior research results showing that sustainability-oriented leadership usually brings less than expected performance results if the supporting factors such as organizational culture, risk-taking, and proactive innovation behavior are not there (Nor-Aishah, Ahmad, & Thurasamy, 2020; Zhao & Huang, 2022). (Asad, 2024) it was also pointed out that environmentally aware leadership, however, without a strategic entrepreneurial mindset to make use of market opportunities, is not sufficient. Therefore, even if EO theoretically leads to more successful leadership, its moderating effect may not be strong if it is not consistently incorporated in strategic and operational frameworks.

The interaction effect of Strategic Leadership Capabilities (SLC) and Entrepreneurial Orientation (EO) on Competitive Advantage (CA), as measured by the t-statistic and p-value, was 2.938 and 0.003 respectively, indicating the presence of a significant positive moderating effect. With the help of EO, the role of SLC in building competitive advantage is greatly boosted. When, additionally, to a strong strategic leadership, an equally strong entrepreneurial environment is brought in such that the latter carries forward with its proactivity, creativity, as well as risk-taking then the company's leadership skills can be sustainable competitive advantages. By doing a good job, social leaders are not only efficient in the use of resources within the organization, but also demonstrate strong capabilities in

identifying emerging opportunities, orchestrating changes when necessary, and implementing such changes effectively and swiftly.

The result echoes prior research asserting that the connection between leadership competence and entrepreneurial attitude is pivotal in eliciting dynamic traits. The characteristics that students are equipped with for the purpose being very innovative, adaptable, and continuously competitive in the market place (Mahdi & Nassar, 2021; Probojakti et al., 2024; Sazly et al., 2025). The presented results argue that entrepreneurial conduct must be promoted within leadership structures so that the organization may remain competitive and be able to renew strategically in a rapidly changing environment.

## CONCLUSIONS

The primary aim of this research was to elucidate the influence of Green Intellectual Capital (GIC), Green Leadership (GL), and Strategic Leadership Capabilities (SLC) on Corporate Advantage (CA), besides assessing the moderating effect of Entrepreneurial Orientation (EO). The data indicate that GIC is the main driver of CA as it positively influences CA, which in return means that knowledge and intellectual resources that are good for the environment are very helpful for making a business more competitive. On the contrary, GL and SLC did not reveal a substantial direct impact, implying that leadership-related factors may need more profound strategic integration to create a significant influence on competitive outcomes.

The findings reveal that entrepreneurial orientation (EO) strengthens the relationship of general intellectual capital (GIC) and strategic

leadership capital (SLC) with competitive advantage (CA), thus confirming that an entrepreneurial and proactive orientation helps to a great extent the use of intellectual capital and leadership for achieving sustained organizational advantage. However, EO did not have a significant effect on the relationship between GL and CA, therefore, indicating that more alignment between entrepreneurial mindset and leadership behaviors is required. In general, the findings indicate that on one hand, the promotion of EO and on the other, the implementation of strong green management practices should be considered as two inseparable factors which lead to the attainment of long-term competitive advantages. The current findings support previously reported empirical evidence showing that EO is one of the main factors that significantly influence the relationship between internal determinants of organizations and competitive advantage (Bambang, Kusumawati, & Nimran, 2021; Mostafiz et al., 2022; Tajeddini, Gamage, Tajdini, Qalati, & Siddiqui, 2023), aligned with the RBV framework, which accentuates the importance of firm-specific internal resources in securing long-term competitive advantage (Baquero, 2024; Liu, 2020).

This study significantly strengthens the green management aspect within the RBV theoretical framework by presenting that internal resources, namely GIC, GL, and SLC, are essential factors for creating and maintaining competitive advantage. The role of EO as a moderator not only recognizes it as a force multiplier for eco and strategic resources in generating sustainable organizational value but also shows the importance of the intertwining effect. This underpins the significance of infusing environmental and entrepreneurial values in the company's leadership practices, human resource development, and strategic capability-

building processes. Through these mechanisms, companies can benefit from the spread of technology, renew operations, and prepare for the changing business landscape.

## LIMITATIONS

This study is limited to the companies listed on the Indonesia Stock Exchange (IDX) and is based on quantitative data, which may not fully capture the complexity of green and strategic leadership practices. The results reveal that GIC has a positive effect on Corporate Advantage CA, whereas GL and SLC do not show considerable direct effects. EO supports the links between GIC and SLC with CA, but not between GL and CA, thus pointing to the need for contextual or organizational alignment. The results here are different from some of the previous studies and also consistent with others, which implies that further research can consider the inclusion of mediating or moderating variables such as innovation capability or green culture for deeper insights (Rundengan & Tjahjadi, 2023). Since almost all of the surveyed participants were at the operational levels, subsequent research might use a mixed-method approach or consider managerial respondents for additional insights and a better understanding of the role of sustainability-oriented resources in achieving long-term competitive advantage (Faeni et al., 2025; Rahayu et al., 2023). Furthermore, future research should expand the scope to different industries and countries and employ longitudinal designs to better understand the dynamic and causal relationships among green capabilities, leadership, entrepreneurial orientation, and competitive advantage.

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