

Research Paper

# Green Intellectual Capital and Sustainable Performance of Hotels in Malaysia

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## ABSTRACT

Green practices have been widely accepted and supported universally, particularly in today's highly environmentally conscious era. Since the world was hit by the deadly Covid-19 virus, which spread rapidly through the unhygienic environment, going green or protecting the environment is becoming popular among industries. Tourism nowadays is no longer a conservative industry that merely provides tourism activities, and it is now also associated with sustainable practices. As widely known, intellectual capital (IC) is crucial in a firm, and efficiently utilizing it will improve its performance. Human Capital (HC), Structural Capital (SC), and Relational Capital (RC) are the three components of intellectual capital. HC is the knowledge and skills owned by the employees. SC is the supportive infrastructure, strategies and know-how that belongs to the organisation. RC is the relationship between the firm and its stakeholders. This study examines the relationship between Green Intellectual Capital (GIC) and the sustainable performance of hotels in Malaysia. GIC embeds the elements of green practices and environmental awareness knowledge. Survey instruments were distributed to the managers of hotels that applied green practices in Malaysia according to the trip advisor listing. 91 respondents participated in the survey. The study found that GIC has a significant positive relationship with sustainable performance. The result portrays that GIC is a significant business asset of hotels in Malaysia which enhances the performance of hotels in Malaysia. It was proven that GIC is not only crucial for the performance of manufacturing organizations, but the application of GIC is also a competitive advantage in servicing and hospitality industries like hotels and resorts.

## HIGHLIGHTS

- This study proves that Green Intellectual Capital is a crucial firm's resource to enhance the hotel's sustainable performance.

**Keywords:** Green Intellectual Capital, Green Practices, Sustainable Performance

In today's modern era, environmental cautiousness or green practices have been widely accepted and supported by people around the globe. Customers' awareness of eco-friendly products worldwide is increasing (Arshad *et al.* 2014). This upward trend is believed to be due to the worries customers face

regarding the threats of conventionally produced products manufactured with additives that damage

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the environment and trigger health problems in the long term consumption (Suki *et al.* 2016). Concerns about global warming are also a reason for the consumers' awareness of the goods and services with adverse environmental effects (Moise *et al.* 2021). One of the drives for consumer awareness of environmentally friendly products is known as "green consumerism" (Chang & Chen, 2012), which is being widely accepted in advanced countries including Asia such as Malaysia and Singapore (Alamsyah *et al.* 2021). According to Sachdeva *et al.* (2015), green consumerism is an approachable method to participate in pro-environmental, sustainable behavior. Green consumerism is a list of behaviors that promote positive environmental effects (Sachdeva *et al.* 2015). Hence, there are abundant supplies of eco-friendly products in the market nowadays, which are believed to reduce environmental threats and achieve a sustainable ecosystem.

### **Problem Statement**

Hotels are regarded as the most crucial sector in the tourism industry as every tourist visiting a destination will need accommodation. Malaysia is one of the top five most popular destinations for tourists in Southeast Asia. Due to the Covid-19 pandemic, hotels in the tourism industry were among the most affected sector. In the United States, employment in hospitality and leisure dropped by 47 percent or 7.7 million USD (Frank, 2020) during the pandemic period. In Malaysia, 4880 hotels, including budget hotels, are registered with the Tourism, Art, and Culture Ministry. According to a survey by the Malaysian Association 26 of Hotels (MAH), 15 percent of the hotels may have to close permanently, while 50 percent are considering stopping their operations due to the Covid-19 pandemic (Teoh Pei Ying, 2020).

Due to this, the hospitality industry must be more innovative. Hence, applying green concepts, environmental awareness, and deploying different resources is needed to sustain. According to Wu (2021), the concept of green hotels started in the 1980s by a German green-label organization. The high volume of resources consumed by hotels' daily 20 operations negatively impacts the environment; hence environmental sustainability has developed as an essential issue in their marketing strategies

(Moise *et al.* 2021) where green hotels have become a new industrial trend (Wu, 2021). Due to the increased awareness of environmental degradation, the green aspect of brand equity attracts environmentally conscious guests in the tourism industry (Shanti & Joshi, 2022). In regards to this, applying green concepts in hotels is said to be one of the methods for achieving the sustainability goal (Shanti & Joshi, 2022).

## **LITERATURE REVIEW**

### **Green Tourism Industry**

Recently in Malaysia, many green hotels and resorts have been surfacing. The green hospitality industry started in the middle of the 1990s with few numbers of leading individuals and chain-affiliated hotels and resorts (Deraman *et al.* 2017). The green hospitality industry started to become popular due to the changing behavior of tourists towards sustainable tourism and the financial advantages (Bhat, 1999). Hotels or resorts practicing green initiatives or sustainable practices can save significantly on the energy and water used and the waste they produce. For example, a study by Ivankovič *et al.* (2010) found that Hilton International saved \$2.5 million in energy costs in 2000. Since consumers' preferences have shifted to a more eco-friendly product, as cited by Yusof and Jamaludin (2013), Etzel and Woodside (1982) revealed that long-distance travelers strongly prefer cultural and natural heritage. Apart from the impacts on the natural environment, the competitiveness of hotels applying green practices can improve profitability in the long term by reducing expenses. Being green adds value to the hotels in the marketplace (Yusof & Jamaludin, 2013). According to Yusof and Jamaludin (2013), the Hotel Melia manager confronted that customers and visitors are very concerned about the environment; they enjoy travelling to eco destinations and staying at a green hotel. Therefore, if a hotel fails to apply eco-friendly practices, it may not be the only one losing potential customers; the other green operators will lose customers, too (Butler, 2008).

### **Green Intellectual Capital**

Throughout the years, various explanations and definitions of the term 'intellectual capital' (IC) have been used. Abeysekera (2006) and Choong (2008)

considered defining assets as the starting point in describing IC. Whereby, Liu *et al.* (2022) define IC as intangible elements such as an employee's knowledge and skills, process routines, and networking relations between an organization and its business partners.

Agreeing to the Resource-based theory, IC is a concept that encompasses the know-how intangible assets of a firm (Kehelwalatenna, 2016) that can lead to the creation of unique characteristics and value-added for organizations (Nazari & Herremans, 2007; Odat & Bsoul, 2022; Alhothali, 2022; Ratnawati *et al.* 2022). The IC itself is intangible, making it unique and able to prevent competitors from imitating it (Ray *et al.* 2004). IC is considered one of the important assets in an organization to promote a firm's performance as it can create a competitive advantage (Mondal & Ghosh, 2012).

Intellectual capital is a multidimensional concept that verifies it as a non-monetary and non-physical resource of organizations based on practical competencies, experience, and knowledge to build the entity's value (Allameh, 2018). Knowledge exists in different forms inside the organization, for example, the organization's databases, business process, system, individuals, and the relationship with internal and external parties (Yong *et al.* 2019).

Green intellectual capital (GIC) combines intellectual capital, environmental knowledge, and awareness. Chen (2008) defined GIC as the summation of all types of intangible assets, knowledge, capabilities, relationships, etc., about ecosystem protection or green innovation both at the individual and organizational levels within a business entity. While Maria *et al.* (2011) suggested that GIC is the accumulation of all knowledge an organization can influence in directing environmental management to gain a competitive advantage. (Allameh, 2018), on the other hand, defined GIC as the incorporation of green and environmental knowledge sources and the knowing ability of companies to improve competitive advantage. In other words, GIC is the summation of intangible skills and capabilities in an organization and exploiting it with environmental protection in mind in the quest to achieve competitive advantage.

Human Capital (HC), Structural Capital (SC), and Relational Capital (RC) are the three components

of intellectual capital. Human capital is regarded as the most essential intangible asset and results in higher company performance and higher employee satisfaction (Allameh, 2018). Green human capital (GHC) allows organization to acknowledge its intangible assets (skills, knowledge, and capabilities) and can help to apply green strategies in a competitive environment to improve performance (Yusliza *et al.* 2020).

Structural capital includes the mechanisms and structures of the firm that are utilized to assist the employees in enhancing intellectual and firm performance (Bontis, 1998). SC is the element that can be differentiated from the human capital in an organization. It is basically the non-human knowledge that the organization owns, which stays in the organization even when the employees leave (Abdulaali, 2018). Jabbour, Jugend, Jabbour, Gunasekaran, and Latan (2015) also emphasized that the organizational support that green structural capital (GSC) supplies is vital to establish the essential management procedures and systems with the purpose of leading the environmental technological knowledge of the firm and it is also critical for the development and integration of environmental initiatives throughout the organization.

Relational capital emphasized acquiring and preserving superior connections with individuals, groups, or organizations that influence its market position (Sulistyo & Siyamtinah, 2016). This underlines the importance of acceptance and understanding between an organization and the stakeholders' interests. By integrating quality and green management, supplier and customer influence is crucial for positive relational capital, innovation enhancement, and operational and environmental performance (Wu *et al.* 2022).

### **Green Intellectual Capital and Sustainable Performance**

As IC has been proven to improve firms' performance, IC is also influential in developing sustainability. de Matos Pedro *et al.* (2020) verified that IC directly and positively impacted sustainability and performance when they studied the relationship between IC of higher education institutions and sustainable development practices. Furthermore, Ooi *et al.* (2017) concluded that the diversity of human and

social capital in a firm is crucial to reducing crises' negative effects. This implies that IC is also a tool that can be used to deal with crises.

In line with green production practices, it was found that there is increased attention toward sustainable performance, and research has been starting to focus on the relationship with green IC (Zaid *et al.* 2018). Besides, applying cleaner production practices organizations can reduce environmental impacts. Concerning this, (Yusoff *et al.* 2019) concluded that green IC influenced business sustainability in Malaysian small and medium manufacturing enterprises (SMEs). The findings of Yusoff *et al.* (2019) were consistent with the findings of (Cavicchi, 2017), whereby they agreed that intellectual capital encourages sustainable development as well as practitioners also recognize the linkage between intellectual capital and sustainability (Dal Mas, 2019).

From the resource-based perspective, the efficient use and exploitation of resources can generate valuable competitive advantage, which is a vital determinant for achieving sustainable performance. Thus, utilizing green IC directs the hotels to attain sustainable performance. Furthermore, according to Alraja *et al.* (2022), the resource-based view suggests that green innovation facilitates competitive advantage and achieves sustainable performance. While applying RBV to the green knowledge asset – performance link, Alraja *et al.* (2022) consider that knowledge assets are critical resources similar to any other firm's resources where it targets to develop, motivate, and coordinate operations to exhibit superior organizational strategy for firm's sustained competitive advantage and superior performance. We argue that green IC satisfies the above criteria of the RBV for generating and supporting sustainable performance and competitive advantage, as green IC is usually embedded in a firm's multifaceted operation (Alraja *et al.* 2022; Yusliza *et al.* 2020; Hu & Lee, 2022; Ogunjobi *et al.* 2022).

Therefore, we proposed that:

**H1:** *There is a positive relationship between GIC and sustainable performance.*

Yusliza *et al.* (2020) claimed that the organization's triple-bottom-line performance could be improved using human capital. This has also been proven by Chen (2008), Yong *et al.* (2019), and Yusoff *et al.* (2019),

where they have found that green human capital contributes to the performance and sustainability of the business. Human capital is the leading fundamental resource of a firm that contributes to the firm's sustainability (Yusoff *et al.* 2019). In a study done by Wu *et al.* (2016), they claimed that employees' green ability, environmental knowledge, and skills are significant factors contributing to the hotel's green ability, which will then influence the hotel's performance. He then suggested that being aware of the problem does not allow one to solve it; therefore, hotels need to utilize their resources to train and educate their employees on applying green operations (Wu *et al.* 2016). Though a study by Yusoff *et al.* (2019) did not find any proof that green human capital influences business sustainability, Massaro *et al.* (2018) highlighted that green human capital is essential in attaining sustainability.

The pandemic has adversely affected businesses, especially hotels (Eugene Mahalingam, 2020; Fauzi *et al.* 2022; Lai & Wong, 2020; Nathan Seitzman *et al.* 2020) and has underlined the importance of sustainable performance (Alraja *et al.* 2022). Thus, adopting sustainable practices is the only solution to achieving sustainable performance (Alraja *et al.* 2022). Organizations adopt various sustainable green practices, namely, green human resource management to deal with environmental issues and achieve sustainable performance as it comprises the environmental practices that make an organization more sustainable (Alraja *et al.* 2022; Khan *et al.* 2021). With this, past studies have proven that adopting green human capital positively affects sustainable performance (Alraja *et al.* 2022; Khan *et al.* 2021).

The organization's resource-based view (RBV) suggests that the production of competitive advantage hinge on how the organization leverages its strategic resources that are rare, valuable, and difficult to imitate (Barney, 1991). Underpinning the RBV theory, Alraja *et al.* (2022) suggest that human capital is a strategic resource that firms should exploit to shape and implement green practices, influencing sustainability. While applying RBV to the green human capital-sustainable performance link, we suggest that employees are as critical as any other organizational resource that should be valued. Therefore, we hypothesize that:

**H1a.** *There is a positive relationship between green human capital and sustainable performance.*

Bansal, (2002) emphasized that a company's policies and structure are crucial in sustaining economic, environmental, and social performance. He also states that sustainable development must be embedded in the regulations, norms, and beliefs of the people (Bansal, 2002). Furthermore, Massaro *et al.* (2018) found that structural capital is seen as a tool to improve transparency and social sustainability. Besides boosting the firm's productivity, applying green structural capital facilitates firms to reduce expenses and avoid environmental violations (Huang & Kung, 2011). Green structural capital embedded in an organization is seen to strengthen the organization's structure, which will then improve the firm's value. Validating this statement, Susandya *et al.* (2019) argue that "the good structural capital" of a company increases the ability to operate effectively and produces efficient outputs that increase the organization's competitive advantage. Moreover, due to the rapid environmental consciousness among the public, firms are pressured to prioritize environmental safeguarding and environmental sustainability while drafting the policies (Sheikh, 2021).

According to Widyastuti *et al.* (2021), RBV is developed to analyze an organization's competitive advantage, focusing on the advantages of a knowledge economy or an economy that relies on intangible assets. To explain this research, RBV supports that when an organization optimally manages its physical assets, employees and structural capital, added value will be produced, affecting the organization's financial growth and market value (Widyastuti *et al.* 2021). From the stakeholder's theory standpoint, however, the main aim is to increase the value from the outcome of the organization's operation and minimize losses born by stakeholders. Hence, whatever strategy the organization adopts in their operation must be in the best interest of its stakeholders. Thus, by instilling the appropriate structural capital, sustainable performance is attainable by organizations (Sheikh, 2021). In line with this, using both RBV and stakeholder theory as the base of this research, we hypothesize that:

**H1b.** *There is a positive relationship between green structural capital and sustainable performance.*

According to Yusliza *et al.* (2020), to strengthen customer relationship, firms must be dedicated

to increasing customer loyalty and satisfaction by investing in green products and services to boost income. Apart from that, firms must ensure the quality of green products and services offered by their suppliers and preserve good connections with suppliers to increase supplier alliances (Yusliza *et al.* 2020). Massaro *et al.* (2018) claim that firms must use their relational capital and create shared dialogues within their entire value chain to produce greener products and reduce environmental impact. Although a study (Sheikh, 2021) shows that green relational capital does not affect social innovation, and the study of Susandya *et al.* (2019) shows that green relational capital does not affect the competitive advantages of financial institutions, Mansoor, Jahan, and Riaz, (2021) and Yusliza *et al.* (2020) highlights that green relational capital affects the green performance of manufacturing organizations. Mansoor, Jahan, and Riaz (2021) have empirically proven that the firm's environmental performance highly relies on the greener aspect of intellectual capital. In line with this, Huang and Kung (2011) stated in their findings that investment in social and environmental responsibility is part of investing in intellectual capital, where investment in intellectual capital has been proven to positively affect an organization's competitive advantage.

Through the perspective of both stakeholder theory and RBV theory, hotels must uphold good relationships with every party; employees, customers, vendors, regulators, and community, i.e., stakeholders, to attain strategic competitive advantage, generating sustainable performance. The relationship that an organization has with its stakeholders must be unique and sustainable to have added value. In a manner that respects the current and future stakeholders' interests by incorporating green practices to not jeopardize the ecosystem for our future generation. Thus, we hypothesize that:

**H1c.** *There is a positive relationship between green relational capital and sustainable performance.*

## RESEARCH METHODS

The target population for this study is Malaysia's hotels that practice green initiatives in their operation. This is because the hotel sector is one of the most severely affected sectors due to the Covid-19 pandemic (Stephany *et al.* 2020), and the

tourism industry in Malaysia is heavily dependent on hotel services (Abdulaali *et al.* 2019). The green practices in hotels attract many tourists since the green cautiousness has risen due to the pandemic, which aligns with the SDG agendas. The population is extracted from the TripAdvisor website, as TripAdvisor is considered the best predictor and reference for hotel performance. The survey questionnaire was distributed to all the hotels listed on TripAdvisor. Each hotel was requested to provide at least three representatives to complete the survey. The final total sample of completed questionnaires received was 91. Each hotel provides representatives from various departments: human resources, housekeeping, food and beverages, quality control, etc.

This stage applies the primary data collection method by distributing a self-developed questionnaire, which contains nominal questions and self-assessment items measured on a 7 Likert scale- type ranging from 1 as “highly disagree” to 7 as “highly agree” to the green IC indicators. The survey questionnaire has three sections. Section A contains the demographic questions using the little questions. Here, the questions are targeted to inquire about both the background of the participants and the hotels, for example, years of working in the hotel industry, current position, etc. Section B are questions related to green intellectual capital practices and innovation capabilities where the questions asked about the practice of green human capital, green structural capital, and green relational capital that the hotels have been practicing together with their opinions on the adoption of innovation capabilities that are perceived to influence sustainable performance. On the other hand, Section C is related to sustainable performance, where the questions inquire about the participant’s perceptions of the practices that were earlier claimed to help improve the hotel’s performance socially, economically, and environmentally. The survey identified 14 indicators under structural capital, 17 indicators under human capital, and 9 indicators under relational capital.

## DATA ANALYSIS

### Demographical Information of the Respondents

The profile of the respondents was analyzed by the

researcher using the demographic characteristics in terms of the Participant’s background, gender, years of working, job ranking, job specification, and hotel’s background; hotel’s star rating, year of operation, number of rooms, number of staff, and whether the hotel applies green concept or not. Detailed analyses are presented in Table 1 below.

**Table 1:** Demographical Characteristics of the Respondents

Items	Options	Frequency	Percentage
<b>Participant’s Background</b>			
Gender	Female	47	51.6
	Male	44	48.4
Years of Working	Less than 5 years	37	40.7
	5 - 10 years	40	44
	More than 10 years	14	15.4
Job Ranking	Middle management level	47	51.6
	Senior management level	17	18.7
	Top management level	6	6.6
	Others	21	23.1
Job Specification	Human Resource	19	20.9
	Sales and Marketing	17	18.7
	Accounting and Finance	13	14.3
	Administration	9	9.9
	Others	33	36.3
<b>Hotel’s Background</b>			
Hotel’s Star Rating	3 stars and below	9	9.9
	4 stars	42	46.2
	5 stars	40	44
Year of operation	Less than 10 years	26	28.6
	11 years - 30 years	53	58.2
	31 years to 50 years	9	9.9
	Over 50 years	3	3.3

Source: Field survey (2022).

A reliability test was employed to verify the stability and consistency of the statements used in

the questionnaire. The questionnaire measured the hotel's employees' perception of the relationship between green intellectual capital and sustainable performance. As shown in Table 2, the highest Cronbach alpha value is for Green Human Capital at 0.973, followed by Sustainable Performance with a Cronbach alpha of 0.963, Innovation Capital at 0.937, Green Relational Capital at 0.930, and Green Structural Capital at 0.922. These findings indicate that the reliability of the statements in the questionnaire is very good since the values of Cronbach's alpha are all above 0.9.

**Table 2:** Reliability Test of the Consistency of the Questionnaire Statements

Variables	No. of items	Cronbach Alpha Value
Green Structural Capital	14	0.922
Green Human Capital	17	0.973
Green Relational Capital	9	0.930
Innovation Capital	12	0.937
Sustainable Performance	27	0.963

Another test to examine the problem of multicollinearity is the tolerance and Variance Inflation Factor (VIF). Tolerance could be explained as the variability of independent variables, which other independent variables cannot explain. On the other hand, VIF shows the degree of one independent variable explained by other independent variables (De Vaus, 2001). Multicollinearity exists when the tolerance value is less than 0.1, and the VIF is more than (Khan *et al.* 2021; Kline, 2010; Kocha *et al.* 2021; Chan & Zhang, 2022).

The study displays that all tolerance scores are greater than 0.1 and VIF scores are less than 10; thereby eliminating the problem of multicollinearity (Field, 2009; Huang & Kung, 2011).

Based on the value presented for skewness and kurtosis in Table 3, each of the research variable fall within the range of -2 to +2 as recommended by (Byrne (2010), George and Mallery (2010), Hair *et al.* (2010) and Kline (2010). This indicates that all variables are normally distributed. Green human capital, green relational capital, and sustainable are found to be negatively distributed at -0.537, -0.105, and -0.013, respectively. While green structural capital is positively distributed at 0.163.

**Table 3:** Results of Skewness and Kurtosis of Measured Variables

Constructs	Skewness	Standard Error	Kurtosis	Standard Error
Green Human Capital	-0.537	0.253	1.654	0.5
Green Structural Capital	0.163	0.253	-0.288	0.5
Green Relational Capital	-0.105	0.253	-0.854	0.5
Sustainable Performance	-0.013	0.253	-0.668	0.5

The correlation analysis shows that all the constructs of green intellectual capital have a strong positive correlation with sustainable performance. The correlation between sustainable performance and green structural capital is recorded at  $r = .736$ ,  $p < .001$ , sustainable performance with green human capital is recorded at  $r = .775$ ,  $p < .001$ , and sustainable performance and green relational capital is recorded at  $r = .767$ ,  $p < .001$ . This indicates that when there is more green intellectual capital being practiced in the hotels, a better chance that the hotel can achieve sustainable performance. Apart from that, the hotel ranking, which acts as a control variable, only had a positive significant correlation and association with green structural capital where  $r = .210$ ,  $p = 0.045$ , and sustainable performance where  $r = .217$ ,  $p = 0.039$ .

## Multiple Regression Analysis

**Table 4:** The Multiple Regression Models for Green Intellectual Capital and Constructs

Model	1			2		
Variables	Coefficient (Beta)	t-statistics	P-Value	Coefficient (Beta)	t-statistics	P-Value
Intercept		2.872	0.005		1.746	0.084
Hotel Ranking	0.084	1.542	0.127	0.116	2.153	0.034**
GIC	0.847	15.597	<.001***			
GHC				0.343	3.706	<.001***
GSC				0.159	1.734	0.086*
GRC				0.469	7.003	<.001***
R square	0.747			0.768		
Adjusted R square	0.741			0.758		

F-statistics	129.823	71.317
(P-value)	(<0.001)	(<0.001)
Df	2	4
N	91	91

Note: \*\*\* Significant at 0.01 level, \*\*Significant at 0.05 level, \*Significant at 0.1 level.

**Abbreviation**

SP = Sustainable performance, GIC = Green intellectual capital, GHC = Green human capital, GSC= Green structural capital, GRC= Green relational capital

**Research Models**

Model 1:  $SP = B_0 + B_1 \text{ Hotel Ranking} + B_2 \text{ GIC} + e$

Model 2:  $SP = B_0 + B_1 \text{ Hotel Ranking} + B_2 \text{ GHC} + B_3 \text{ GSC} + B_4 \text{ GRC} + e$

Based on the results in Table 4, Model 1 showed that the explanatory factors of sustainable performance were statistically significant with a *p*-value <0.001 significant level with adjusted *R*-squared of 74.1% (*F*- value = 129.823; *p*-value < 0.001). This indicates that a 74.1% variance in sustainable performance could be explained by the hotel ranking, the control variable, and the green intellectual capital (GIC) as a whole. Under this model, the hotel ranking has a positive but insignificant influence on sustainable performance. Model 1 signifies that Hypothesis 1 is accepted where there is a positive relationship between green intellectual capital and sustainable performance. The adjusted *R*-squared also summarized the model’s fit as it considered the number of variables in the model. The *b*-values illustrate how each predictor would affect sustainable performance, which may have either a positive or negative outcome when the effects of all other predictors remained constant (Field, 2009). It shows that the *b*-value of 0.847 and *t*-value of 15.597 for GIC are significant with *p* < 0.001. The results suggest that GIC has a positive significant influence on sustainable performance.

For model 2, the results revealed that the four predictor variables understudy positively influence the sustainable performance of hotels in Malaysia, as depicted by the positive *R* squared value of 0.768. This indicates that approximately 76.8% of the variance in sustainable performance was jointly explained by the 3 independent variables, namely

green human capital, green structural capital, and green relational capital, and 1 control variable i.e., hotel ranking and the overall degree of fit of an equation. The overall model 2 is significant with an *F*-value of 71.317 (*p*<0.001), indicating that the combined four variables have significantly explained 76.8% of the variance in sustainable performance. The analysis findings indicated that the model was a good fit and research Hypothesis 1a,1b, and 1c of the study are supported.

In addition, the model 2 findings showed that all four variables have a significant positive relationship with sustainable performance where hotel ranking is significant at *p* < 0.05, green human capital is significant at *p* < 0.01, green structural capital is significant at *p* < 0.1 and green relational capital is significant at *p* < 0.01. It shows that the *b*-value of 0.469 and the *t*-value of 7.003 for green relational capital are significant with *p* < 0.001. The results suggest that green relational capital positively influences sustainable performance, the major contributing variable in regression model 2. It indicates that Malaysian hotels are paying significant attention to strengthening the green relational capital of their organization. This model shows evidence of the relationship between independent and dependent variables after being statistically controlled by hotel ranking.

**DISCUSSION OF FINDINGS**

The empirical results illustrated that all three constructs of green intellectual capital consistently had a positive and significant impact on sustainable performance. Sustainable performance covers the broader business sustainability domain, including social performance, economic performance, and environmental performance (Okafor, 2013). This denotes that, in general, green intellectual capital, which consists of green human capital, green structural capital, and green relational capital, is perceived by the hotels’ personnel to influence the hotels’ sustainable performance in terms of economic and environmental as socially. Hotels with substantial green intellectual capital are believed to survive any crisis, sustain, and secure future performance, and may also be the leader in their industry. The findings provide support for Resource-based Theory which stresses that these intangible resources, such as the employees’

knowledge of environmental awareness, the policies regarding ecosystem protection, the good rapport of being ecosystem friendly, respective relationship with employees, customers, and community, and the ability to innovate and keep up with the current trend have the prospect to be the significant profit contributor.

Green human capital was found to be significant in explaining the rate of sustainable performance. The social, economic, and environmental performance rate will be greater if more green human capital concepts are applied in hotels. Green human capital initiatives include training employees on the importance of protecting our ecosystem, instilling knowledge of environmental awareness in them, and performing multitask jobs within the organization.

Unlike human capital, structural capital is knowledge rooted and embedded in organizations and cannot be moved or taken away by employees when they leave. As explained, green structural capital is the supportive infrastructure that enables the rest of an organization to function in a repeatable, scalable way by embedding the environmental awareness aspects. The result of this study suggested that, if a hotel has green elements in their organizational systems, for example, adopting green policies and green knowledge in their organization's strategies, they will be able to achieve better performance socially, environmentally, and economically compared hotels that do not adopt a green culture in their organization culture.

These findings indicate that social, economic, and environmental performance will be greater if a great amount of green relational capital concepts is applied in the hotels. Green relational capital includes interacting with stakeholders and maintaining their good image and reputation in the industry by engaging it with green elements. Some initiatives that embed green knowledge in their relational capital include supporting the community in purchasing organic products, doing business with green vendors, encouraging environmental awareness among the community by organizing environmental awareness events, etc.

## CONCLUSION

Malaysia, which is moving towards a green knowledge-based economy, requires focus from

investing in tangible assets to investing in intangible assets or green knowledge infrastructure especially (Kamaluddin, 2009). High-quality green intellectual capital is critical to converting to a developed nation and maintaining the developed status in this current green knowledge-based economy. To be the best in the industry, the organization and its workforce must be more knowledgeable, adaptable, and proficient (Kamaluddin, 2009). Many countries have acknowledged the crucial issue of sustainable development, and Malaysia is no exception. One of the National Green Technology Policy Strategic thrusts is to intensify human capital development in sustainable development (Jaafar *et al.* 2014).

The current study has taken consideration to test performance in terms of achieving sustainability. This study explored the sustainable performance of hotels based on perceptual measures. In studying the relationship between green intellectual capital and sustainable performance, future studies should also consider employing objective measures or accounting values in measuring green intellectual capital. This is to avoid prejudice problems in perceptual measures. A longitudinal method is recommended to measure green intellectual capital by using objective or accounting value measurement, a longitudinal method is recommended. Time series research may be relevant to understand the effects of green intellectual capital and sustainable performance.

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