Journal of Advanced Zoology

*ISSN: 0253-7214*

*Volume* ***44*** *Issue* ***03 Year 2023*** *Page* ***484:497***

# How Green Practices Enhance Competitive Advantage: Evidence from the Hospitality Industry

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***Article History***

Received: 06 June 2023
Revised: 05 Sept 2023
Accepted: 12 Oct 2023



***Abstract***

*The growth of tourism in Indonesia demonstrates favorable progress; however, Indonesia's competitive position in the tourism sector remains below that of Singapore, Malaysia, and Thailand. Empirical research findings reveal a crucial fact: the presence of shifting travel preferences and the rise of green tourism. The objective of this study is to analyze the factors contributing to the attainment of Green Competitive Advantage within the Hotel Industry in the Nusa Dua region. This study employs a quantitative approach. Primary data is collected through the use of questionnaires and interviews, and data analysis employs Structural Equation Modeling-Partial Least Squares (SEM-PLS). The research results indicate that Dynamic Managerial Capabilities (DMC) have a positive influence on Environmental Capabilities (EC). DMC also has a positive impact on Green Innovation Capabilities (GIC), yet DMC does not have a direct positive effect on Green Competitive Advantage (GCA). Indirectly, DMC does not significantly and positively affect GCA through GIC. A similar pattern emerges regarding the indirect influence of DMC on GCA through EC. The combined indirect effect of DMC on GCA through EC and GIC does not yield a significant positive impact. However, in terms of overall impact, DMC has a positive and significant influence on GCA. EC has a positive and significant impact on GIC, yet EC's direct and indirect impact on GCA is not positive. Similarly, GIC does not exhibit a significant positive impact on GCA, aligning with the obtained findings.*

**Keywords:** *Dynamic Managerial Capabilities, Environmental Capabilities, Green Competitive Advantage, Green Innovation Capabilities, SEM-PLS*

## 1. Introduction

The tourism industry is one of the fastest-growing sectors globally, contributing 10.4% to the global GDP and providing employment for 319 million individuals (10% of the total workforce in 2018). This growth trend is projected to continue, evidenced by the recorded 1.4 billion international tourist arrivals in 2018 (47% increase from the 950.8 million in the 2010s), with an anticipated rise to 1.8 billion by 2030. Among the key contributors to this industry, hotels play a significant role (Herre et al, 2018).

Bank Indonesia (BI) underscores the pivotal role of the tourism sector in Indonesia's economy, ranking as the second-highest foreign exchange earner after palm oil (Anggit, 2019). It should be noted that the tourism sector is projected to generate foreign exchange revenue of US$ 24 billion, surpassing the projected revenue of the oil and gas, coal, and palm oil sectors. Although not exceeding palm oil, the tourism sector yielded US$ 19.2 billion in foreign exchange revenue in 2018. Deputy for Institutional Development in Tourism, Prof. Dr. H.M. Ahman Sya (2017), affirms that Indonesia's tourism sector exhibits a growth rate of over 10%, surpassing the national economic growth average of 5.2%

(Ristekdikti, 2019). The pandemic resulted in a decrease of over 50% in tourism sector foreign exchange earnings in 2020.

In 2018, Indonesia's travel and tourism industry experienced a growth rate of 7.8%, double the global average of 3.9%, and surpassing the country's economic growth rate of 5.1% from the previous year (WWTC, 2019). Travel and tourism contributed IDR 890.42 trillion (equivalent to USD $62.6 billion) and created nearly 13 million jobs. Despite this positive growth, Indonesia's competitive position in the tourism sector has remained below that of Singapore, Malaysia, and Thailand since 2008. Each year, Indonesia has shown improvement in its competitive ranking, progressing from 80th place in 2008 to 74th in 2011, 70th in 2013, 50th in 2015, 42nd in 2017, and 40th in both 2019 and 2021. Nonetheless, these improvements have not yet surpassed the competitive position of Singapore, Malaysia, and Thailand.

According to the research findings of Hong et al. (2012), the global trend among tourists towards Green Tourism is substantial. This 2012 study has been validated by Kemperman (2021), yielding congruent results. Survey results from Simon-Kucher (2022) also indicate that young, affluent, urban consumers are willing to spend more on vacations. In fact, 61% of respondents stated their willingness to pay extra for environmentally friendly vacations, maintaining this inclination from the previous year despite the higher costs. It can be asserted that eco-friendly travel has evolved beyond a mere trend and has now become an enduring consideration.

Ecotourism, cultural ecotourism, medical tourism, and dark tourism stand as several existing branches of the tourism industry alongside the hospitality sector. Across all these forms of tourism, a majority of travelers exhibit environmentally conscious behavior. The hospitality business supports tourism by providing essential facilities for all types of travel, which are fundamental prerequisites in the conduct of tourism operations (Petrevska et al., 2016). The presence of hotels is indispensable for sustaining tourism infrastructure, thereby facilitating the growth of the industry (Cater, 1993; Clancy, 2011). Consequently, it can be inferred that stakeholders in the tourism sector need to attain Green Competitive Advantage (GCA) to revitalize their enterprises. The objective of this research is to analyze the factors contributing to the acquisition of Green Competitive Advantage in the Indonesian hospitality industry.

## 2. Materials And Methods

This study was conducted in the Nusa Dua and surrounding areas, Surabaya, and Yogyakarta regions, during the year 2023. The distribution of questionnaires commenced in March 2023 and the culmination of data collection took place at the end of July 2023. Data processing was carried out in early August 2023. Research data were derived from primary sources through questionnaire surveys, interviews, or discussions with experts/key individuals, as well as secondary data from literature studies, online searches, and information retrieval from institutions such as the Central Statistics Agency (Badan Pusat Statistik or BPS). In accordance with Suharjo and Suwarno (2002), the sample size that yields sufficiently stable results typically ranges from 50 to 80 respondents within the population, based on the minimum sample size required for SEM-PLS analysis as prescribed by Hair et al. (1998). For situational and qualitative descriptive analysis, this study engaged in-depth interviews and Focus Group Discussions (FGD) involving four key informants who are inspectors and experts within the tourism industry. The research adopts a quantitative approach, utilizing the Structural Equation Modelling-Partial Least Square (SEM-PLS) analysis as a statistical methodology to examine the factors contributing to the achievement of Green Competitive Advantage (GCA).

## 3. Results and Discussion

### *Convergent Validity*

There are four exogenous latent variables: Dynamic Managerial Capabilities (DMC), comprising three indicators, namely Managerial Cognition (MC), Managerial Human Capital (MHC), and Management Social Capital (MSC). Additionally, there are the variables Environmental Capabilities (EC), Green Innovation Capabilities (GIC), and Green Competitive Advantage (GCA). The MC indicator consists of 11 items, similar to MHC and MSC indicators. The EC variable comprises 12 indicators, while GIC comprises seven indicators, and GCA comprises four indicators. The initial exploratory analysis results in the selection of valid indicators and items to measure the variables, adhering to the criterion of loading factors > 0.5.

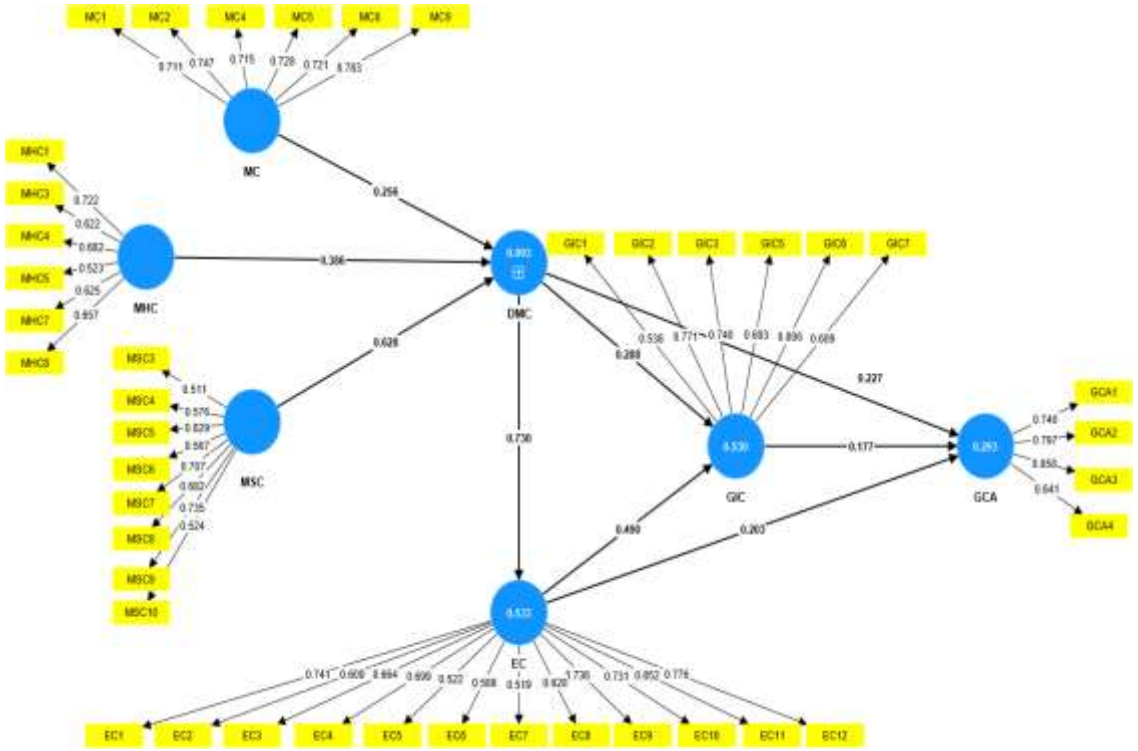


**Figure 1** Output SEM-PLS

The subsequent analysis process involves discarding invalid indicators and items, removing them from the model. Subsequent iterations of analysis are conducted until all indicators and items with valid loadings (> 0.5) are obtained. A loading factor value of 0.50 or higher is considered to possess sufficiently strong validation for explaining latent constructs (Hair et al., 1998). This assertion is further supported by Yamin and Kurniawan (2011), suggesting that indicators with loading factor values ranging from 0.5 to 0.6 can be accepted.

**Formative Model Measurement**

The measurement of a formative model requires testing for multicollinearity among the variables within a formative block. The presence of multicollinearity among indicators within a formative block is assessed using the Variance Inflation Factor (VIF) values. If the VIF value is > 10, multicollinearity exists among the indicators within that formative block. Thus, the VIF value should be below 10 to indicate the absence of multicollinearity issues.

**Evaluation of the Inner Model (Structural Model)**

The purpose of conducting the inner model assessment is to determine whether the relationships among latent variables, both exogenous and endogenous constructs, provide answers to the hypothesized interrelationships between these latent variables. The inner model assessment, also referred to as the structural test, is evaluated through three key values obtained from the earlier data analysis in SmartPLS. These values include R-Square, Predictive Relevance ($Q^2$), and Goodness of Fit (GoF). Below are the results of the inner model assessment for R-Square. (Table 1).

**Table 1** R-square Value

| Variable | R-square | R-square adjusted |
|---|---|---|
| DMC | 0.993 | 0.992 |
| EC | 0.533 | 0.525 |
| GCA | 0.293 | 0.255 |
| GIC | 0.530 | 0.513 |

The Adjusted R-Square values for each variable have exceeded 0.2, which is considered high within the discipline. Subsequently, the R-Square values are compared to the square root of Average Variance Extracted (AVE) values, as presented in the Fornell-Larcker Table 2 below.

**Table 2** Fornell-Larcker Criterion Value

| Variable | DMC | EC | GCA | GIC | MC | MHC | MSC |
|---|---|---|---|---|---|---|---|
| **DMC** | 0.486 | | | | | | |
| **EC** | 0.730 | 0.679 | | | | | |
| **GCA** | 0.489 | 0.493 | 0.763 | | | | |
| **GIC** | 0.646 | 0.701 | 0.466 | 0.699 | | | |
| **MC** | 0.482 | 0.234 | 0.240 | 0.127 | 0.735 | | |
| **MHC** | 0.760 | 0.596 | 0.422 | 0.521 | 0.105 | 0.641 | |
| **MSC** | 0.917 | 0.673 | 0.398 | 0.653 | 0.295 | 0.553 | 0.650 |

The f2 measure is employed to assess the strength of influence of exogenous latent variables on endogenous latent variables. An f2 value of 0.02 indicates a small effect, 0.15 signifies a moderate effect, while a value of 0.35 implies a substantial effect of the exogenous latent variable on the endogenous latent variable (Ghozali and Latan, 2015). The output results of the f2 measure are presented in Table 3.

**Table 3** *f square value*

| Variable | DMC | EC | GCA | GIC | MC | MHC | MSC |
|---|---|---|---|---|---|---|---|
| DMC | | 1.143 | 0.031 | 0.082 | | | |
| EC | | | 0.022 | 0.239 | | | |
| GCA | | | | | | | |
| GIC | | | 0.021 | | | | |
| MC | 8.250 | | | | | | |
| MHC | 14.225 | | | | | | |
| MSC | 34.744 | | | | | | |

***Predictive Revelance* ($Q^2$)**

$Q^2$, also known as the Stone-Geisser criterion, is intended to elucidate the predictive capability of a model. It signifies the model's ability to predict and explain outcomes, and a value above 0 is considered indicative of a satisfactory predictive model. The calculation of $Q^2$ is defined by the following formula (Hussein, 2015):

$Q^2 = 1-(1-R1^2)(1-R2^2)...(1-Rp^2)$

$R1^2$, $R2^2$, ..., $Rp^2$ represent the R-squared values of exogenous variables in the equation model. When $Q^2 > 0$, it indicates that the model possesses predictive relevance, while if $Q^2 < 0$, it suggests that the model lacks predictive relevance (Ghozali and Latan, 2015). Based on the formula provided, the calculation for $Q^2$ is 1 - (1 - 0.533)(1 - 0.293)(1 - 0.530), resulting in a value of 0.845. Therefore, it can be concluded that the model exhibits predictive relevance. This statement also signifies that the exogenous latent variables effectively explain the variability of the endogenous variable within the model.

***Goodness of Fit Index* (GoF)**

The GoF (Goodness of Fit) index is a single measure used to validate the combined performance of both the measurement and structural models. Criteria with a value of 0.10 indicate a small Goodness of Fit (GoF), a value of 0.25 indicates a medium GoF, and a GoF value of 0.36 is classified as a large GoF, as defined by Ghozali and Latan (2015). The Goodness of Fit test was conducted using Microsoft Excel, yielding a result of 0.36, thus indicating a significant Goodness of Fit.

**Model Fit Test**

The obtained values were derived from the examination of SmartPLS estimation outputs concerning the Standardized Root Mean Square Residual (SRMR). The SRMR is an average of residual covariances, computed based on the transformation of the sample covariance matrix and the predicted

covariance matrix into a relationship matrix. According to Henseler et al. (2014), if the obtained value is less than 0.10, it is considered acceptable. The resulting output is presented as follows:

**Table 4** Model Fit Test Results

| Variable | Saturated model | Estimated model |
|---|---|---|
| **SRMR** | 0.163 | 0.164 |
| **d_ULS** | 55.138 | 55.984 |
| **d_G** | n/a | n/a |
| **Chi-square** | infinite | infinite |
| **NFI** | n/a | n/a |

**Profile Variable**

The intended profile of variables encompasses information regarding the significance (strength) of indicators and the average score values of variables, with indicators (items) reflecting empirical conditions in the field. A higher loading value indicates a stronger measurement of the variable by the corresponding indicator (item), signifying greater importance. Indicators (items) deemed significant but exhibiting low average score values will take precedence for improvement, whereas indicators (items) considered important with already high average score values will necessitate efforts to maintain their integrity.

**Table 5** DMC Variable Profile

| Indicator | Loading / Weight (Standardize) | p-value | Average Score | |
|---|---|---|---|---|
| Indicator MC | | | | |
| MC1 | 0,711 | 0,000 | 3,297 | The father possesses a higher education degree, equivalent to at least a bachelor's degree or higher. |
| MC2 | 0,747 | 0,000 | 3,188 | The mother holds a higher education degree, attaining a level comparable to a bachelor's degree or higher. |
| MC4 | 0,715 | 0,000 | 3,422 | Received primary education predominantly in private educational institutions. |
| MC5 | 0,728 | 0,000 | 3,219 | Received primary education predominantly in private educational institutions. |
| MC6 | 0,721 | 0,000 | 3,234 | Pursued education beyond secondary level predominantly in private educational institutions. |
| MC9 | 0,783 | 0,000 | 3,062 | Consistently affiliated with the social and economic elite class. |
| MC | 0,256 | | 3,327 | |
| MHC | | | | |
| MHC1 | 0,722 | 0.000 | 3.953 | Consistently invests in additional training to acquire new knowledge. |
| MHC3 | 0,622 | 0.000 | 3.875 | In the past two years, pursued supplementary training in different fields compared to others. |
| MHC4 | 0,682 | 0.000 | 3.219 | Within this company, consistently afforded opportunities to hold various different positions. |

| | | | | |
|---|---|---|---|---|
| MHC5 | 0,523 | 0.000 | 3.125 | Has previously worked in another company, holding a position identical to the present one. |
| MHC7 | 0,625 | 0.000 | 4.25 | Consistently learns novel insights from interactions with assisting colleagues. |
| MHC8 | 0,657 | 0.000 | 3.906 | Demonstrates extensive experience with the products and services offered by the managed company. |
| MHC | 0,386 | 0,000 | 3,72 | |
| | | MSC | | |
| MSC3 | 0,565 | 0.000 | 3.969 | Maintains consistent family connections. |
| MSC4 | 0,576 | 0.000 | 3.828 | Oversees a substantial number of subordinates providing assistance. |
| MSC5 | 0,829 | 0.000 | 3.984 | Maintains numerous professional associations within professional groups. |
| MSC6 | 0,567 | 0.000 | 3.906 | Maintains multiple professional connections within professional groups. |
| MSC7 | 0,707 | 0.000 | 4.188 | Employees consistently foster close relationships, whether they are direct subordinates or not. |
| MSC8 | 0,682 | 0.000 | 4.188 | Recognizes the existence of mutual trust among team members. |
| | | MC | | |
| MSC9 | 0,735 | 0.000 | 4.422 | Collaborating with external partners always proves beneficial. |
| MSC10 | 0,524 | 0.000 | 4.094 | Subordinates consistently contribute to improving professional aspects. |
| MSC | 0,63 | 0.000 | 4,07 | |
| | DMC | | 3,73 | |

Table 6 reveals that the most significant indicator of the DMC variable is MSC (average score = 4.07, signifying a good level), followed by MHC (average score = 3.72, indicating an approaching good level). For the MC indicator, item MC9 stands out as the most critical with a loading value of 0.783. Similarly, for the MHC indicator, the most crucial item is MHC1 (0.722), and within the MSC indicator, the pivotal item is MSC5. On the whole, the DMC variable has an average score of 3.73, which places it in the proximity of a good condition. Thus, it is imperative to both maintain and enhance the DMC variable to an excellent level, with priority given to improving the performance of the MSC indicator and specifically item MSC5 (Possessing numerous professional associations within professional groups).

**Table 6** EC Variable Profile

| Indicator | Loading (Standardize) | p-value | Average Score | |
|---|---|---|---|---|
| EC1 | 0,741 | 0,000 | 3,859 | Consistently guides the company to focus on observing environmental impacts. |
| EC2 | 0,609 | 0,000 | 4,125 | Always encourages the company to engage in resource-saving developments. |
| EC3 | 0,664 | 0,000 | 3,812 | Consistently utilizes resources made from recycled materials. |
| EC4 | 0,699 | 0,000 | 3,719 | Always opts for environmentally friendly materials for the company's products/services. |

| | | | | |
|---|---|---|---|---|
| EC5 | 0,522 | 0,000 | 3,953 | Consistently selects suppliers who adhere to environmental preservation principles. |
| EC6 | 0,586 | 0,000 | 4,094 | Advocates for environmentally themed training for staff within the company. |
| EC7 | 0,519 | 0,000 | 4,094 | Consistently directs consumers to practice resource conservation. |
| EC8 | 0,628 | 0,000 | 4,141 | Guides consumers to use eco-friendly products. |
| EC10 | 0,731 | 0,000 | 3,906 | Encourages consumers to preserve the natural environment within their surroundings. |
| EC11 | **0,852** | 0,000 | 4,047 | Urges consumers to maintain the natural environment in their immediate vicinity. |
| EC12 | 0,776 | 0,000 | 4,25 | Continuously develops practices within the company to safeguard the natural environment. |
| | **Variable EC** | | 4 | |

Based on the Table 6, the most crucial indicator of the EC variable is EC11 with a loading value of 0.852. The average score value of the EC variable is 4.00, indicating a good condition. To sustain and enhance the EC variable, priority should be given to maintaining and improving indicator EC11 (encouraging consumers to preserve the natural environment in their immediate vicinity).

Table 7 **GIC Variable Profile**

| Indicator | Loading (Standardize) | p-value | Average Score | |
|---|---|---|---|---|
| GIC1 | 0,538 | 0.000 | 3.891 | The company consistently bases all packaging designs for hospitality products/services on environmentally friendly principles. |
| GIC2 | 0,771 | 0.000 | 4 | The company consistently strives to develop environmentally friendly products. |
| GIC3 | 0,740 | 0.000 | 4.078 | The company consistently leverages eco-friendly technology for resource utilization. |
| GIC5 | 0,693 | 0.000 | 3.703 | The company consistently employs recycled materials in its business processes. |
| GIC6 | 0,806 | 0.000 | 3.984 | The company consistently minimizes material usage. |
| GIC7 | 0,609 | 0.000 | 4.031 | The company consistently avoids emissions of hazardous substances. |
| Variable GIC | | | 3,95 | |

Based on Table 7, the most significant indicator of the GIC variable is GIC6, followed by GIC2 as the second most important. The average score value of the GIC variable is 3.95, indicating a condition close

to being good. To sustain and enhance the GIC variable, priority should be given to maintaining and improving indicator GIC6 (consistently minimizing internal resource usage) and GIC2.

Table 8 **GCA Variable Profile**

| Indicator | Loading (Standardize) | p-value | Average Score | |
|---|---|---|---|---|
| GCA1 | 0,740 | 0,000 | 3,531 | The company maintains lower costs in environmental management control compared to its competitors. |
| GCA2 | 0,797 | 0,000 | 3,781 | The quality of the company's products/services surpasses that of similar offerings from competitors. |
| GCA3 | 0,858 | 0,000 | 3,5 | The company possesses greater investment capabilities in environmental development compared to its competitors. |
| GCA4 | 0,641 | 0,000 | 3,516 | The company holds superior expertise in environmental management compared to its competitors. |
| Variable GCA | | | 3,61 | |

Table 8 illustrates that the most significant indicator of the GCA variable is GCA3, followed by GCA2 as the second most important. The average score value of the GCA variable is 3.61, indicating a moderate condition and moving towards improvement. To enhance the GCA variable, priority should be given to maintaining and improving indicators GCA3 and GCA2, as both indicators are currently in a moderate state and progressing towards improvement.

**Analyzing Factors for Obtaining GCA in the Hospitality Industry in the Nusa Dua Region**

Each relationship was tested using Bootstrap simulation method on the sample. This testing aims to mitigate issues of data disharmony within the research. The results of the Bootstrap testing for the PLS values are illustrated in Figure 2.

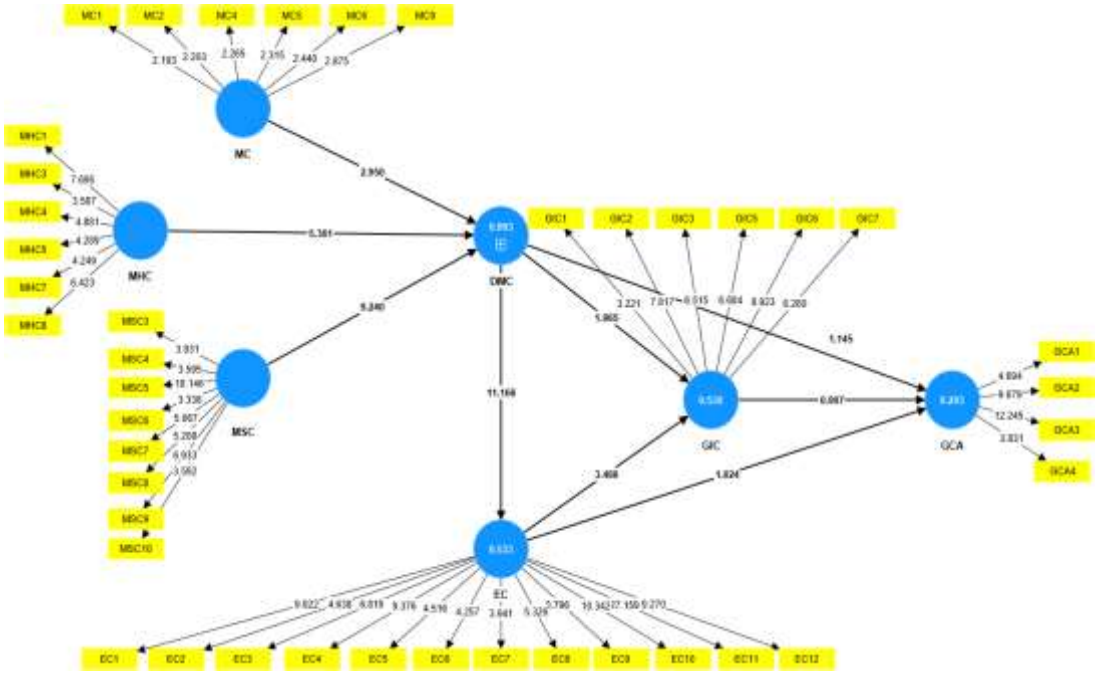


Figure 2 ***Output* Boostraping (*t-value*)**

To assess the significance of the predictive model in the testing of the structural model, one can examine the t-statistic values between the independent and dependent variables in the direct effects table (path coefficient). Table 9 presents the results of hypothesis testing in the structural model of the study. It is evident from the hypothesis testing results that two out of the five hypotheses have been accepted.

**Hypothesis Testing: Direct Effect and Indirect Effect**

Hypothesis testing in this study encompasses direct, indirect, and total effects. The results are depicted in the following Table 10.

Table 9 **Hypothesis Results**

| **Hypothesis** | **Path** | ***Standard deviation*** | **t-value 5% (≥1.96)** | **Influence** | | **Conclusion** |
|---|---|---|---|---|---|---|
| | | | | **Direct** | **Total** | |
| **H1** | **DMC→EC** | 0.065 | 11.166 | 0.730 | 0.730 | Accepted |
| **H2** | **DMC→GIC** | 0.147 | 1.965 | 0.288 | 0.288 | Accepted |
| | DMC→EC →GIC | 0,107 | 3,171 | 0.358 | 0.358 | Accepted |
| **H3** | **DMC → GCA** | 0.198 | 1.145 | 0.227 | 0.227 | Rejected/ insignificant |
| | DMC →GIC → GCA | 0.076 | 0.779 | 0.281 | 0.281 | Rejected |
| | DMC → EC → GCA | 0.153 | 1.076 | 0.517 | 0.517 | Rejected |
| | DMC → EC → GIC → GCA | 0.068 | 0.914 | 0.27 | 0.27 | Rejected |
| | DMC → GCA (*Total Effects*) | 0.113 | 4.222 | 0.224 | 0.224 | Accepted |
| **H4** | **EC → GIC** | 0.490 | 3.486 | 0.490 | 0.490 | Accepted |

| | | | | | | |
|---|---|---|---|---|---|---|
| | EC→GIC → GCA (*Total Effects*) | 0,144 | 3,225 | 0,465 | 0,465 | Accepted |
| **H5** | **EC → GCA** | 0.198 | 1.024 | 0.203 | 0.203 | Rejected |
| **H6** | **GIC → GCA** | 0.178 | 0.997 | 0.177 | 0.77 | Rejected |

This section discusses the findings of the hypothesis testing in the study. The discussion of research findings is elucidated through both descriptive and verificatory analyses, which are subsequently compared with relevant theories and previous research outcomes.

**Hypothesis 1: Dynamic Managerial Capabilities has a positive influence on Environmental Capabilities.**

Based on the analysis results, it is evident that the value of Dynamic Managerial Capabilities (DMC) has a significant influence on Environmental Capabilities (EC), as indicated by the t-value of 11.166, which is greater than the critical value of 1.96 at a 5% significance level. Thus, Hypothesis 1 is supported. Consequently, it can be concluded that a one-unit increase in DMC can lead to a 0.730-unit increase in EC. The study by Permana and Ellitan (2020) reveals that DMC can influence firm performance through dynamic capabilities as an intervening variable. Moreover, the research by del Mar Alonso-Almeida et al (2017) found that individual dynamic managerial capabilities positively impact a company's long-term success and that individual dynamic capabilities have a stronger positive effect on business sustainability with a stronger relationship to social commitment compared to environmental commitment. DMC influence on EC is attributed to the dynamic managerial abilities that enable organizations to adapt and effectively navigate environmental changes (Widianto et al., 2021). DMC refers to an organization's capacity to identify, address, and exploit new opportunities while tackling challenges arising from the external environment. This dmc encompasses an organization's ability to innovate, respond to market changes, adapt to new technologies, and manage resources efficiently (Koster and Benda, 2020). When an organization possesses strong DMC, they can identify new opportunities in a changing environment and devise appropriate strategies to enhance EC.

**Hypothesis 2: Dynamic Managerial Capabilities has a positive effect on Green Innovation Capabilities.**

The analysis results indicate that the value of Dynamic Managerial Capabilities (DMC) has a significant influence on Green Innovation Capabilities (GIC), with a t-value of 1.965, which exceeds the critical value of 1.96 at a 5% significance level. Thus, Hypothesis 2 is supported. Consequently, it can be concluded that a one-unit increase in DMC can lead to a 0.288-unit increase in GIC. Furthermore, DMC also significantly and positively influences Green Innovation Capabilities indirectly through Environmental Capabilities (EC), with a t-value of 3.171, surpassing the critical value of 1.96 at a 5% significance level. Hence, it can be inferred that EC significantly mediates the relationship between DMC and GIC. According to Heubeck (2023), there is a connection between DMC, indicating that higher levels of social capital and lower levels of cognition enhance the positive effect of entrepreneurial skills in the transformation of digital business.

**Hypothesis 3: Dynamic Managerial Capabilities has a positive effect on Green Competitive Advantage**

Dynamic Managerial Capabilities (DMC) do not have a significant and positive impact on Green Competitive Advantage (GCA) directly. DMC does not exert a positive and significant influence on GCA through Green Innovation Capability (GIC) Indirectly. The same pattern is observed in the indirect effect of DMC on GCA through Environmental Commitment (EC). The combined indirect effect of DMC on GCA through both EC and GIC does not exhibit a positive and significant influence. However, in total, DMC significantly and positively impacts GCA with a t-value of 3.225, surpassing the critical threshold of 1.96 at a 5% level of significance. Consequently, Hypothesis 3 can be accepted. Mehta et al. (2020) conducted research on DMC to analyze the influence of marketing capabilities and Competitive Advantage as moderators. The findings reveal four aspects of DMC that can delineate

marketing capabilities, including intellectual resources, marketing mix, competition, and sensing capabilities

**Hypothesis 4: Environmental Capabilities has a positive effect on Green Innovation Capabilities**

With a t-value of 3.486, which exceeds the critical value of 1.96 at a significance level of 5%, it can be concluded that EC has a statistically significant and positive impact on GIC, thereby leading to the acceptance of Hypothesis 4. This outcome allows us to infer that each unit increase in EC results in a corresponding increase of 0.490 units in GIC. Furthermore, when considering the overall influence, EC exhibits a significant and positive effect, as indicated by a t-value of 3.225, surpassing the critical threshold of 1.96%. Environmental Capabilities (EC) exhibit a positive effect on Green Innovation Capabilities (GIC), as highlighted by the research findings. This relationship can be attributed to several key factors. Firstly, organizations with strong Environmental Capabilities tend to allocate substantial resources towards environmental sustainability initiatives (Alsayegh et al 2020). These resources, in turn, support research and development efforts aimed at creating innovative, eco-friendly products, processes, and technologies, thereby enhancing the organization's Green Innovation Capabilities (Matuszak-Flejszman and Paliwoda, 2022). Additionally, heightened environmental awareness and sensitivity among companies with robust EC lead to a greater understanding of the significance of green practices and innovations. This understanding acts as a driving force behind the development and implementation of creative solutions with positive environmental impacts. Moreover, the growing regulatory landscape and consumer demand for sustainable products create pressures that encourage companies with well-established Environmental Capabilities to invest in and prioritize Green Innovation Capabilities (Guo et al 2022). Furthermore, collaborations and partnerships that often arise from a commitment to environmental sustainability facilitate knowledge exchange, technology transfer, and joint efforts that contribute to the development of green innovations. Ultimately, the positive relationship between Environmental Capabilities and Green Innovation Capabilities underscores the strategic advantage of integrating environmental responsibility into an organization's core values, fostering a culture of innovation, and aligning long-term business strategies with sustainable practices (Li et al 2018).

**Hypothesis 5: Environmental Capabilities has a positive effect on Green Competitive Advantage**

The influence of Environmental Capabilities on Green Competitive Advantage, both directly and indirectly, is found to be insignificant. Consequently, the hypothesis pertaining to this relationship is not supported and is thereby rejected. This outcome contrasts with the findings of the study conducted by Atriksa and Murwaningsari (2022), which indicate a significant impact of environmental capabilities on green competitive advantage. The divergence between the present research and the aforementioned study could be attributed to a variety of factors, including differences in research methodologies, sample sizes, contextual nuances, or variations in the specific measures used to assess environmental capabilities and green competitive advantage. This incongruity underscores the complexity of the relationship between environmental capabilities and green competitive advantage, suggesting that further investigation and a deeper exploration of these factors are warranted to gain a more comprehensive understanding of their interplay. The absence of a significant effect of EC on GCA could be attributed to several key factors. Lack of Regulation Support might play a pivotal role, where insufficient regulatory incentives or mandates fail to encourage companies to prioritize eco-friendly practices (Li 2022). Without a strong regulatory push, organizations might not perceive a substantial advantage in developing robust Environmental Capabilities. Additionally, inadequate resource allocation could hinder the potential impact of EC on GCA (Amaranti et al 2022). Successful green innovation often demands significant investments in research, development, and infrastructure, and a lack of commitment to allocating these necessary resources could limit the competitive advantage gained. Short-term financial focus might also be at play, as companies driven by immediate profits may not fully embrace the long-term benefits of their Environmental Capabilities. Moreover, the market's perception and demand for green products could be limited, dampening the potential for EC to translate into a competitive edge (Stanković et al 2022). Furthermore, competitive landscape considerations are essential; if many competitors possess similar Environmental Capabilities, differentiation may be reduced, minimizing the impact on competitive advantage (Portna and Iershova 2020). Resistance to change within the organization, potential complexities of implementation, and limited integration of

environmental initiatives with the core business strategy are factors that could contribute to the absence of a significant effect (Liu et al 2019). It is crucial to acknowledge the measurement challenges in capturing the nuanced relationship between EC and GCA accurately. The interaction of these multifaceted factors underscores the complexity of the relationship and offers insights into why Environmental Capabilities might not yield a significant effect on Green Competitive Advantage in a given study or context.

**Hypothesis 6: Green Innovation Capabilities has a positive effect on Green Competitive Advantage**

The influence of Green Innovation Capabilities on Green Competitive Advantage is deemed insignificant. As a result, the hypothesis posited in this regard is not substantiated and is consequently rejected. The apparent lack of a significant influence of GIC on GCA raises several noteworthy considerations. Market acceptance and demand could be contributing factors, as a limited consumer valuation of eco-friendly products or services might impede the potential for a substantial Green Competitive Advantage resulting from Green Innovation Capabilities (Alhadid and As'ad 2014). Moreover, the absence of robust regulatory mandates or competitive pressures for environmentally conscious offerings might lead companies to allocate fewer resources and prioritize GIC less, thus dampening their impact on GCA (Ikram et al 2020). The timing of benefits is another facet, where the long-term nature of the advantages stemming from GIC might require more time for their full realization. Additionally, insufficient resource allocation, inadequate integration with core business strategies, and challenges in implementing complex technological changes could all contribute to the apparent lack of significance (Kruse et al 2017). The role of organizational culture, competitive landscape saturation with similar green offerings, measurement metrics, and missed opportunities for external collaborations further compound the complexity of the relationship. In sum, the absence of a substantial impact underscores the intricate interplay of multiple internal and external factors that influence the link between Green Innovation Capabilities and Green Competitive Advantage. Thorough exploration of these factors within specific contexts is vital for a comprehensive understanding of their relationship.

## 4. Conclusion

Based on the elucidated research findings, it can be deduced that Dynamic Managerial Capabilities (DMC) exert a positive influence on both Environmental Capabilities (EC) and Green Innovation Capabilities (GIC). DMC also demonstrates a direct positive impact on Green Competitive Advantage (GCA), albeit insignificantly. However, DMC exhibits a significant and positive effect on GCA when mediated through EC and GIC collectively. Furthermore, EC exhibits a positive influence on Green Innovation Capabilities (GIC). Nevertheless, the impact of EC on GCA, whether direct or indirect, is not statistically significant. Lastly, it is evident that GIC does not yield a significant influence on GCA. Practical recommendations for hospitality companies aiming to attain Green Competitive Advantage (GCA) involve a strategic focus on the enhancement of Dynamic Managerial Capabilities (DMC).

**Recommendation**

Hospitality companies that want to achieve a Green Competitive Advantage (GCA) should prioritize the development of their Dynamic Managerial Capabilities (DMC), which are the abilities of managers to create, extend, and modify the resource base of the firm. DMC have a positive impact on both Environmental Capabilities (EC) and Green Innovation Capabilities (GIC), which are the capabilities of the firm to reduce environmental impact and generate green products and services, respectively. DMC also have a direct positive impact on GCA, which is the ability of the firm to gain competitive edge by being environmentally friendly, but this impact is not significant. However, when DMC are mediated by EC and GIC together, they have a significant and positive effect on GCA. This means that DMC can enhance GCA by improving both EC and GIC simultaneously. Therefore, hospitality companies should invest in training and empowering their managers to acquire and apply DMC effectively.

Additionally, hospitality companies should also pay attention to the relationship between EC and GIC. EC have a positive influence on GIC, which means that by reducing environmental impact, the firm can also foster green innovation. However, EC do not have a significant impact on GCA, either directly or

indirectly. This implies that EC alone are not enough to achieve GCA, and that the firm should also focus on other aspects of green performance, such as customer satisfaction, brand reputation, and cost efficiency. Moreover, GIC do not have a significant influence on GCA either. This suggests that green innovation is not a sufficient condition for gaining competitive edge, and that the firm should also consider other factors, such as market demand, customer preferences, and industry standards. Therefore, hospitality companies should balance their EC and GIC with other strategic objectives and environmental factors to achieve GCA.

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