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Abstract

The hotel industry is one of the major economic segments to achieving the Kenya Vision 2030. The hotel sector is a significant contributor to GDP and a source of employment for thousands of Kenyans. However, many hotels have relied much on the quality of products as an avenue to achieving competitive advantage, disregarding the role of green energy influence on competitive advantage in the hotel sector. This study aimed to determine the influence of green energy practices on the competitive advantage of tourist hotels in Nyeri County. A cross-sectional survey design was employed to guide the study. The study population was 170 tourist hotels and nine government officers concerned with tourism. Data was collected using semi-structured questionnaires and interview schedules. A reliability test was employed to measure the questionnaire's consistency and adequacy by using the Cronbach alpha coefficient technique with only items of 0.70 and above selected. Qualitative data were analysed using thematic content analysis. A p-value of 0. 005 determined the overall significance of the study. The study revealed that green energy conservation practices and competitive advantage are significantly and positively related (β= 0.838, p=0.000). The study found that every unit change in energy conservation practices leads to an increase in competitive advantage. The study concluded that green energy practices reduce hotel operation costs, leading to a competitive advantage. The study recommends that hotels consider implementing energy conservation practices and using renewable energy, such as solar power.

Keywords: *Green energy practices, Competitive advantage, Hotels, Nyeri County, Kenya*

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1.0 Introduction

The hotel sector significantly contributes to the global economy (World Travel & Tourism Council, 2018). The global hotel market was approximately USD 525.57 in 2018 and is expected to be valued at USD 611.5 billion by 2026 at a compound growth of 4.6% (World Travel & Tourism Council, 2019). The hotel industry is one of the major economic segments to the achievement of the Kenya Vision 2030, driving earning foreign exchange and source of employment for 1.1 million Kenyans (about 9% of the employment workforce) in 2017 (World Travel & Tourism Council report 2018). The hotel sector's contribution to GDP in 2017 stood at 9.7% (Kenya Hospitality Report, 2018). The hotel sector earned Kenya USD 1.6 billion in 2019, a slight increase of 6.6% 2018, whereas Kenya earned USD 1.5 billion and USD 1.19 billion in 2017 (UNWTO report, 2019). However, the sustainability of the hotels will depend on the competitive advantages of each of them hotel. Competitive advantage is the capability of a business to operate optimally and better than competitors in the market by offering superior products and services (Pereira, Silva, M., & Dias, 2021). In the hotel sector, competitive advantage entails providing superior products and services to customers supported by competitive marketing and innovation (Murimi, 2020).

However, many hotels have relied much on the quality of hotel products and services to achieve a competitive advantage, disregarding the role of green energy and its role in promoting competitive advantage in the hotel sector (Moise et al., 2021). In Ireland, the hotels have been on the run to adopt green hotel practices to align with European Union requirements for sustainability and protection of the natural environment (Hanrahan, 2017). Ireland's hotel industry is one of the leading, with a market share of 11% approximately of countries' employment data (IHF, 2017). The competitive strategies are customer cravings for personalized service, luxury, and new experiences (Băltescu & Boșcor, 2016). In Kenya, green hotel practice is a novel idea in many hotels (Mungai & Irungu, 2013). Many hotels in Kenya have not employed the concept of green hotel practices. The high cases of environmental pollutants are improper waste disposal, energy, and water waste (Murimi, 2020). However, the Kenyan hotel industry is slowly adopting green practices due to calls by hotel stakeholders, environmentalists, and environmental authorities. However, the extent to which green energy hotel practices influence the competitive advantage among the hotels in Kenya has not been widely studied through an empirical study. The same phenomenon is evident among hotels in Nyeri County.

1.1 Problem statement

Nyeri County has hotels supporting local and international tourism and is a vital source of revenue for the county governments and job opportunities for the locals. However, the hotels' competitiveness has been declining in terms of revenue and falling room occupancy (Murimi, 2020). In addition, the disregard for safe environment practices through higher energy consumption among the hotels in the region has questioned the level at which green energy hotel practices have been adopted. Moreover, the extent to which green energy hotel practices influence the competitive advantage among the hotels has not been widely studied through an empirical study. Pereira et al. (2021) asserted that classed hotels had instituted water control measures use of energy-saving bulbs. The study did not indicate how green energy practices influence the

competitiveness of the hotels. Kariuki (2017), in his study, tested the correlation between hotel performance and green practices in the coastal region of Kenya. Operational performance is a limited measure when investigating the long-term impact of green hotel practices. As a result, this study strives to determine the influence of hotel green energy practices on the competitive advantage of tourist hotels in Nyeri County.

1.2 Objective of the Study

The study sought to determine the influence of hotel energy green practices on competitive advantage of tourist hotels in Nyeri County, Kenya.

2.1 Literature review

The chapter reviews the literature on hotel green energy practices and competitive advantage. Lastly, the study highlights the existing gaps based on the empirical literature. Abdou et al. (2020) defined green hotel practices as less environmentally damaging activities, including water, energy usage efficiency, and solid waste reduction. In the hotel industry, green practices are characterized by reducing water and energy consumption and waste management (Berezan et al., 2013). Competitive advantage is the ability of a firm to operate optimally and better than competitors in the market by delivering quality products and services as rivals at affordable prices (Abdou et al., 2020). A firm is said to have a competitive advantage over its competitors when it can offer superior products and services at affordable prices, meeting customer expectations (Singjai et al., 2018). Kariuki (2017), in Kenya's coastal region, researched the relationship between green hotel practices and their operational performance in Kenya utilizing a descriptive cross-sectional census survey design. The various green practices adopted by hotels include energy and water management, management of waste entailing its reduction and recycling, as well as training engaging in advocacy. Operational performance is limited when investigating the long-term impact of green hotel practices.

Focusing on Arrábida Natural Park Hotel Portugal, Pereira, Silva, and Dias (2021) investigated hospitality sustainable practices using semi-structured interviews, document analysis, and observation. In their study, Wanjiru, Gesage, and Kariuki (2022) investigated the impact of energy-saving methods and their influence on the satisfaction of clients patronizing classified hotels in the Mt. Kenya region using a descriptive method of research. In study 24, star-rated hotels from the counties of Nyeri, Embu, Meru, and Tharaka Nithi were included. Using a stratified sampling technique, the Yamane formula was used to obtain a sample of 243 respondents. Using the Yamane formula, a sample of 243 respondents was obtained. The data was obtained through a structured questionnaire. The study found a positive correlation between energy conservation practices and customer satisfaction. According to the study, hotels should embrace sustainable technologies such as energy efficiency measures/equipment and architectural design methods that optimize available sunlight. Cingoski and Petrevska (2018), in their research on the efficient use of energy and corresponding energy consumption in the Macedonia hotel industry. The study used descriptive techniques through an online survey of three and four-star-rated hotel managers. The result of the study revealed that hotel managers have a very good perception of sustainability practices which result in substantial benefits to energy consumption. The findings relate well with the regulation of European environmental impact assessment. The study recommends that hotels should institute

new approaches to reduce operational costs, and managers should be at the forefront of understanding the importance of using energy in an efficient manner.

3.0 Research Methodology

The study applied a cross-sectional survey design. A cross-sectional survey design is appropriate when studying a population at a specific point in time (Hall & Lavrakas, 2008). Cross-sectional surveys are also useful in assessing practices, attitudes, knowledge, and beliefs about a population. The study population was 170 tourism hotels in Nyeri County (Tourism Regulatory Authority 2021). The selection criteria of hotels are tourism hotels offering all seasons hospitality services, including food and drinks, recreational facilities, and accommodation exceeding KES 3000 per day. The unit of observation was the hotel operation managers, hotel chefs, Housekeeping managers, and food and beverage managers. Thus the target population was 270 middle-level hotel managers. Other key stakeholders in the hotel sector can provide valuable information regarding green hotel practices and the competitive advantage of hotels in Nyeri County. The study targeted nine officers comprising three from the County Ministry of Tourism, two from the National Management Environment Authority, two from the Tourism Regulatory Authority, and two from the Ministry of Environment and Forestry. The study employed Stratified random sampling to select the 57 hotels, 33% of the target population. The sample of the study was 136 middle-level hotel managers. Tourism officers are selected through the purposive sample, with nine officers selected. The study collected primary data using questionnaires and interview schedules to collect qualitative data. Data analysis involved the triangulation of both qualitative and quantitative results. Qualitative data were recorded, transcribed, and analyzed using thematic content analysis. Quantitative data were analyzed using descriptive statistics, including means, SDs, frequencies and percentages, and inferential statistics. The inferential statistics entailed regressions to determine the influence of hotel green energy practices on the competitive advantage of hotels in Nyeri County. A 95% confidence interval was used to determine the overall significance of the model. Five percent (5%) was highly recommended for academic research (Fisher, 1955). Hypothesis testing was conducted using simple linear regressions. For the null hypothesis testing, the sample p-value was calculated and tested at a 5% significance level. If the calculated p-value$<$ 0.05, the null hypothesis was rejected, and the relationship between the independent and dependent variable was termed statistically significant, but if the p-value calculated$>$ 0.05, then the null hypothesis is not rejected.

4.0 Discussion and Findings

The study obtained 88.97% response rate this being 121 out of 136 questionnaires administered. Babbie (2014) asserts that a response rate of 50% and more is suitable for analysis, 60% is good while 70% is very good therefore this study achieved a very good response rate for analysis and publication. Respondents were asked to specify the period the hotel has been in operation in terms of the number of years. The respondents were presented with categories of years the establishments have been in operation in which they indicated. Figure 1 provides a summary of the findings.

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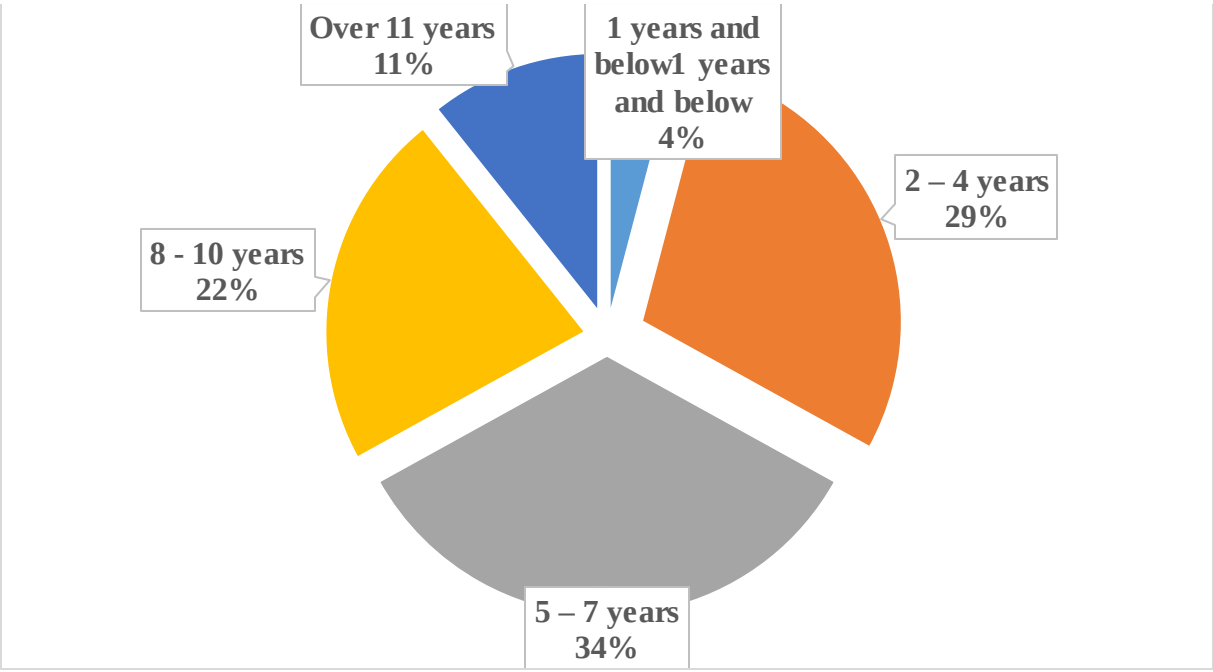

Figure 1: Hotel operation period

The results indicated that most of the respondents which are 34% stated that hotel establishments have been in operation for 5-7 years. 29% of the respondents said the hotels have operated for 2 - 4 years. In addition, 22% of the respondents revealed that the hotel's operation was between 8-10 years. Those who provided over 11 years were 11%, and lastly, 4% of the respondents showed that the hotel has been in operation for a period that is one year and below. The findings imply that most regional hotels have been operating long. Thus, the hotel employees have information about their performance and how they have been operating, providing the study objectives with unbiased information.

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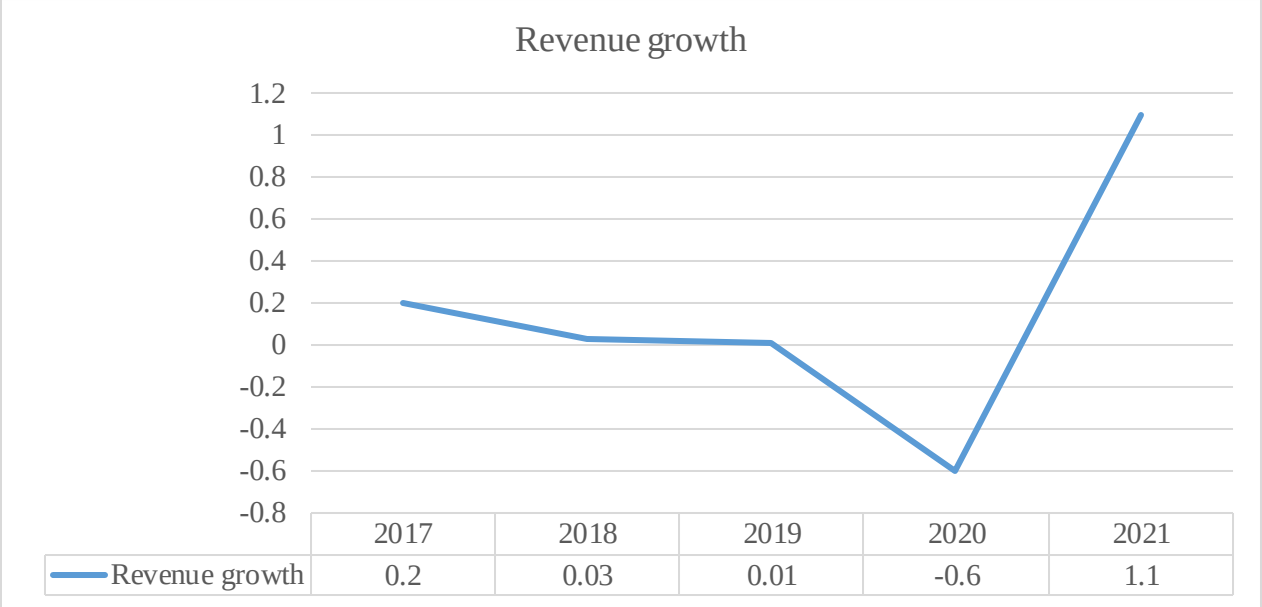

Figure 2: Trend Analysis of Revenue growth

Based on the results presented in Figure 2, the revenue growth of the hotel industry has been fluctuating. The trend illustrates that revenue growth has been decreasing from 2018 up to 2020. This could be attributed to the fact that there was an outbreak of the coronavirus in 2019 and 2020 which brought about the closure of the economy to curb the spread of the Covid-19 pandemic. The government of Kenya put up measures of lockdowns and curfews which attributed to the hotel industry experiencing a lot of losses and a decrease in revenue. However, from 2021 onward, the revenue growth has been increasing. This might have been attributed to the economy's improvement and the reduced frequency of pandemics caused by Covid-19. The findings agreed with Lai and Wong (2020), who opined that the hotel industry had been immensely affected by Covid -19 pandemic in addition to crisis management practices supporting the hotel sector.

4.1 Descriptive Statistics for Green Energy Practices on Competitive Advantage

The section discusses descriptive statistics on green energy practices on competitive advantage as shown in Table 1.

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Table 1: Hotel operation, food and beverage, housekeeping managers and hotel chef's

Statements	Strongly disagree	Disagree	Don't know	Agree	Strongly agree	Mean	Std. D
The use of solar power panels has helped efficiently save energy.	7.40%	1.70%	4.1%	53.70%	33.10%	4.03	1.056
The use of wind power is an alternative being undertaken by hotel to save on energy use.	4.10%	3.30%	0.8%	57.90%	33.90%	4.14	0.916
The hotel has invested in energy saving devices like low power rated bulbs, electronic devices, cooking and kitchen equipment	5.80%	3.30%	2.5%	44.60%	43.80%	4.17	1.046
This hotel catering have been designed with natural light mechanism in place to save on energy	6.60%	1.70%	0.8%	47.10%	43.80%	4.2	1.038
The hotel catering outlet uses solar energy for its hot water use and has helped tremendously save on energy	7.40%	1.70%	2.5%	50.40%	38.00%	4.1	1.068
The construction design of the hotel allows the use of green energy like sunlight	1.70%	1.70%	0.8%	56.20%	39.70%	4.31	0.729
Average						**4.158**	**0.976**

Table 1 indicates that many middle-level hotel managers claim that using solar power panels has helped save energy efficiently, with a mean of 4.03 and a standard deviation of 1.056. Most respondents indicated that using wind power is an alternative for hotels to save on energy use, as indicated by a mean of 4.14 and a standard deviation of 0.916. In addition, the study revealed with the majority of respondents that hotels have invested in energy-saving devices like low power rated bulbs, electronic devices, and cooking and kitchen equipment as revealed with of mean of 4.17 and a standard deviation of 1.046. Further, respondents opined that hotels had been designed so that natural light mechanism is in place to save on energy, as indicated with a mean of 4.02 and standard deviation of 1.038. Moreover, the study indicated most hotels use solar energy for the hot

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water systems, and this has reduced energy costs in a huge way, revealed by a mean of 4.1 and a standard deviation of 1.068. Additionally, the research showed that many respondents provided that the construction design of the hotel allows the use of green energy, like sunlight, as revealed by a mean of 4.31 and a standard deviation of 0.729. The overall mean was 4.158, and the standard deviation was 0.976. Key informant showed that;

> "*Solar panels are a source of energy that we utilize in certain situations, such as when there is a power outage and no electricity is available. In addition, we choose to use solar energy as a renewable form of energy to save money on the costs of both gasoline and electricity. Utilization of energy-saving technologies such as electrical systems that turn lights on and off often to save money on utility bills*"

4.2 Correlation Analysis for Green Energy Practices on Competitive Advantage

To find out the degree of relationship between green energy practices and competitive advantage a correlation analysis was done as indicated in Table 2.

Table 2: Correlation analysis for Green Energy Practices on Competitive Advantage

	Competitive advantage	Energy conservation
Competitive advantage	1.000	
Energy conservation	0.817 0.000	1.000

Competitive advantage has a strong positive and significant relationship with green energy practices (r= 0.817, p=0.000). The implication is green energy practices tends increase competitiveness of the hotel establishments.

4.3 Regression Analysis for Green Energy Practices on Competitive Advantage

To find out whether or not there is a statistically significant connection between energy conservation practices and competitive advantage, a regression analysis was carried out. The results presented in the Tables 3.

Table 3: Regression analysis for Green Energy Practices on Competitive Advantage

Model summary

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Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.817a	0.667	0.664	0.602905

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	86.612	1	86.612	238.276	.000b
	Residual	43.256	119	0.363		

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.578	0.168		3.435	0.001
	Energy conservation	0.838	0.054	0.817	15.436	0.000

Table 3 shows that different energy conservation practices were determined to be sufficient factors in explaining competitive advantage. To validate this observation, the coefficient of determination was 0. 667. This indicates that green energy practices explain 66.7% of variance found in the dependent variable (competitive advantage). The regression model is significant and this if reinforced by F= 238.276, p<0.000) the p value is less than 0.05, as indicated by table 4.5. Table 4.6 shows that the constant of 0.578 showed that when energy conservation is held constant, competitive advantage remained at 0.578 units. The regression of coefficient results shows that energy conservation practices and competitive advantage is positively and significantly related (β= 0.838, p=0.000).

Regression model;

CA= 0.578 + 0.838EC

Where,

CA = Competitive advantage

EC = Energy conservation

4.4.5 Hypothesis testing for green energy practices and competitive advantage

To test the hypothesis a regression analysis was done, the null hypothesis is stated below:

H_{01} Hotel green energy practices does not significantly influence competitive advantage of tourist hotels in Nyeri County.

The p-value method was used in the regression analysis model to test the hypothesis. The H01 is accepted if the p-value is greater than 0.05; if not, it is rejected. Tourist hotels in Nyeri County, Kenya, were studied, and a strong correlation between green energy practices and competitive advantage was found (p=0.000<0.05). In summary, descriptive results indicated that most participants agreed with the statements on energy conservation practices. Correlation analysis results revealed that energy conservation practices (r= 0.817, p=0.000) are positively and

significantly associated with a competitive advantage. The regression coefficient results indicated that energy conservation practices and competitive advantage are positively and significantly related (β= 0.838, p=0.000).

They were implying that a unit change in energy conservation practices increases the competitive advantage of tourist hotels in Nyeri County by an equivalent unit. Therefore, the null hypothesis that there is no significant relationship between energy conservation practices and the competitive advantage of tourist hotels in Nyeri County was rejected; an alternative hypothesis adopted that there is a significant relationship between energy conservation practices and the competitive advantage of tourist hotels in Nyeri County. This study's findings agree with those of Pereira, Silva, and Dias (2021), who researched hotels' green practices. They found that green hotel practices by the hotel included energy efficiency measures, the sparing use of water, waste, and carbon emissions control. In addition, the research concurs with Kariuki's (2017) study on the efficiency of hotel operations in coastal areas. The outcomes of the research suggested that several environmentally responsible practices were implemented, such as management of energy and staff training and awareness development.

5. 0 Conclusion

The hotel industry is an important contributor to the global economy, providing various services and contributing to foreign exchange and employment in countries like Kenya. While many hotels focus on quality products and services to gain a competitive edge, adopting green energy hotel practices is becoming increasingly important for achieving a competitive advantage and customer loyalty. This study found that green energy practices are positively and significantly associated with a competitive advantage in the hotel industry. Therefore, the study concluded that green hotel practices have a positive and significant relationship with a competitive advantage.

6. 0 Recommendations

Based on the findings, the study made the following recommendations:

The study recommended that hotels in Nyeri County and other regions adopt green energy practices to enhance their competitive advantage and improve customer loyalty. This study has implications for hotel managers, policymakers, and researchers interested in sustainable tourism and environmental management in the hospitality industry.

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