

Influence of Lean-Green Practices on The Relationship Networks and Performance of Medium Hotels in the Kenyan Cities

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ABSTRACT

Purpose: Examine the influence of lean-green practices on the relationship between networks and performance of medium hotels in the Kenyan cities.

Design/methodology/approach: The study was anchored on dynamic capability theory. Pragmatic research paradigm employing mixed method was applied which utilized concurrent triangulation research design. The target population was 534 medium hotels. Stratified random sampling technique was used to determine a sample size of 229 hotels.

Findings: The study found that networks positively influenced performance of medium hotels in Kenyan cities and lean-green practices positively and significantly influences on the relationship between networks and performance of medium hotels in Kenyan cities. Designing, implementing and utilizing lean-green practices in collaboration with networking in medium hotels is important in production matrix.

Research limitations/implications: Focus was on medium hotels in the Kenyan cities.

Practical implications: Results of this research shows that lean-green practices constitute one of the most important strategies resulting in performance.

Originality/value: This research is original because the research was conducted in Kenya and there is no other similar research in Kenya.

Keyword: *Lean-green practices, Networks and performance*

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I. INTRODUCTION

The hotel sector has been accused of being the most polluting, consuming a substantial amount of resources and releasing huge volumes of wastes which impacts negatively to the environment. This is contrary to (IHEI) revelation that 90% of the hotel guests prefer to stay in a hotel that cares for the environment (Kularatne, Wilson, Månsson, Hoang & Lee, 2019). The investors in particular hotels have to look for new strategies aimed at protecting individual hotels' reputations and maintenance of the positive image. Mbasera, Saayman, Du-plessis, and Kruger (2016) revealed that in Africa, most hotels lack adequate green management policies, and a few engage in eco-friendly practices while other hotels do not have any clue regarding implementing green initiatives and how to mitigate on environmental challenges emanating from hotel operations. This revelation had come when there is sprouting of techno hubs in Kenya and the country is expected to host an increasing number of travelers by the year 2030 based on government's vision 2030 strategy.

Unfortunately, even though Kenya has been rated among the top innovation leaders in Africa, in 2017 it was ranked 80th out of 127 countries in the Global Innovation Index, and in 2019 it moved to position 56 among 190 countries on the World Bank Ease of doing business index (Kenya's SMEs Performance index 2019). This shows the need to enhance strategic entrepreneurship and in essence widen networking capability with lean-green strategies to be able to minimize operational costs and enjoy sustainable competitive advantage. This comes at the backdrop of the hotel industry being identified as the most polluting in its endeavors to satisfy a range of customer needs such as accommodations, food and beverages (Ronra & Chaisawat, 2016). According to Alipor et al (2019)

about 62.0% of travelers are concerned about the environmental issue when deciding to stay at a hotel, where 87.0% of guests are aware of the importance of eco-friendly hotel, about 80.0% of guests consider themselves as Eco-conscious customers with about 30.0% of them showing willingness to pay more for environmentally responsible hotels.

There are several gaps that have not been addressed by previous researchers in the area of hotel and sustainability. Previous researchers have not investigated the synergy of lean-green to unravel the puzzle of how to transform that into output that improves sustainable competitive advantage in the hotel sector. The complexity of blending lean-green practices and networking has not been adequately addressed. Although many researchers have argued that going green can be a holistic business strategy that adds value to the firms and their stakeholders no study has shown how to achieve this. Most studies have addressed either lean or green separately without giving weight to the combined synergy. Therefore, this study attempts to bridge these knowledge gaps through examining the influence of lean-green practices on the relationship between networks and performance of medium hotel in the Kenyan cities. The main objective was to test the hypothesis that networks does not influence the performance of medium hotels in the Kenyan cities.

To outperform competitors persistently depends on how a corporation can access unique information and resources not known by rivals. Many researchers have argued that going green can be a holistic business strategy that adds value to the firms and their stakeholders (Amegbe, Owino & Nuwasiima, 2017), but the achievement of such a magnitude is somehow hinged to the firms' alliances with other entities that stimulate formulation and distribution of its goods or services (Muteshi & Kariuki, 2020). Networking as a strategy encompasses blending resources that physically interact with routines and joint projects (Baraldi, 2008). This requires associations at personal levels with linkages that are likely to overlap with national networks. Firms therefore have to toil on how to uniquely use these integrations both locally and internationally to realize high performance. These linkages are operationalized as networks in this study falling under; network size, network intensity and network diversity.

Linkages enables a firm to obtain valuable and specialized knowledge, capabilities and competences leading to implementation of proactive corporate strategies such as green strategies. Although going green has been advocated as a unique strategy, adopting green production methods automatically incorporates lean practices (Basuki, 2015). Lean production as an organizational strategy is driven by the idea of doing more with less (Maia, Alves & Leão, 2017). This strategy is flexible in cost reduction through process improvement culminating in minimization or elimination of all wastes (Carvalho, Duarte & Machado, 2011). Lean-green therefore as a practice calls for commitment by entrepreneurial firms to adopt various ecologically sound practices such as saving water, saving energy, reducing solid waste and recycling where necessary.

II. METHODS

The study adopted pragmatism research philosophy because it enabled the researcher to use mixed method and ally triangulation. The target population was of 534 medium hotels adapted from Booking.com (2021) in the Kenyan cities from which a sample of 229 top managerial participants were drawn. The study adopted stratified random methods because the Kenyan cities at that time were three. The medium hotels categories comprised of those hotels whose accommodation capacity ranged from 26 beds to 100 beds. By adopting this criterion 93 hotels were picked from Nairobi, Mombasa 347 and Kisumu 94 making a population of 534 medium hotels from which a sample was drawn. The names of all hotels were written on separate pieces of papers and placed in three baskets depending on the city's total hotel enumeration. From the Nairobi basket 40 papers were picked randomly, 149 from Mombasa and 40 from Kisumu basket respectively making a total of 229.

The sample size was determined through an applying scientific formula which objectively provided the representation of target population. The sample size for this study was determined using the formula for estimating sample sizes provided by Yamane (1967) that states $n = N/1+N(e)^2$. Where n is the sample size, N is the target population and e is the level of precision which in this case was 5%, and it is the accepted level of significance in social science research. The application of the formular led to $n = \frac{534}{1+ 534(.05)^2} = 229$. The inclusion of all cities was a form of data triangulation.

The researcher collected the data using questionnaire and a checklist. This helped to improve on accuracy and also to arrive at a holistic view as well as avoiding the biases of single methods (Denscombe, 2008). The researcher distributed 229 questionnaires to the respondents in senior management out of which 205 questionnaires were fully filled when returned. Data was analysis was based on the 205 returned questionnaires representing a response rate of 87.5%. Sekaran (2004) argues that any response rate above 75% is classified as best and appropriate for any study.

Table 1: KMO and Bartlett's Test

<i>Tests</i>	<i>Value</i>
<i>Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</i>	<i>0.817</i>
<i>Bartlett's Test of Sphericity</i>	<i>Approx. Chi-Square</i>
	<i>6729.466</i>
<i>Df</i>	<i>1128</i>
<i>Sig.</i>	<i>.000</i>

To assess the appropriateness of factor analysis in measurement scale development of the questionnaire items KMO test was conducted and a value of 0.817 which tends to be close to 1 was obtained as shown in Table 1. This indicating that the patterns of correlations were relatively compact and therefore factor analysis should yield distinct and reliable factors. The index also meant that more than 81 percent of variance in the measured variables was a common variance. Bartlett's test of sphericity was also determined to tests the null hypothesis that the original correlation matrix was an identity matrix. The bartlett's was statistically significance with achi-square and degree of freedom (1128= 6729.466, p= .000) an indication that there was sufficient relationship among the variables worth investigation.

Validity and reliability measures were undertaken to ensure that the instruments used were accurate and consistent (Bryman and Bell, 2011, Biggam, 2011). Convergent, discriminant, content and criterion related validity were used to ascertain the credibility of the research procedure. The factor analysis results were used to determine average variance extracted to test convergent validity of the constructs. Criterion validity was assessed through factor analysis to reduce or summarize the large number of variables into factors or components based on correlation between those variables. Convergent validity was determined through calculating average variances extracted (AVEs) for each construct. The results shows that the lowest construct had an AVE of 0.723 while the highest had an AVE of 0.841 and therefore all the constructs achieved convergent validity and were above the threshold mark of 0.5 of convergent validity as shown in Table 2.

Table 2: Average Variance Extracts

<i>Construct</i>	<i>AVE</i>
<i>Mindset</i>	<i>0.756</i>
<i>Innovations</i>	<i>0.841</i>
<i>Capital Mobilization</i>	<i>0.736</i>
<i>Network</i>	<i>0.723</i>
<i>Green Practices</i>	<i>0.770</i>
<i>Lean Practices</i>	<i>0.766</i>
<i>Firm Performance</i>	<i>0.736</i>

Source: Author 2023

Discriminant validity was assessed to ensure that items measuring different constructs were not actually related. This study tested for discriminant validity using chi-square difference test because the method allows the researcher to compare two models, one in which the constructs are correlated and one in which they are not. The difference test result was significant ($p=0 < 0,05$) which means that the two constructs present discriminant validity as shown in Table 3. The content validity was addressed by constructing a measuring scale in line with the literature and pre-testing the research instruments during piloting. The lean observational indicators were

adopted from Lean Manufacturing and Environment checklist while green indicators were extracted from Green Design Guide pamphlet.

Table 3: Chi-squares Differences

<i>Model 1</i>		<i>Model 2</i>	
<i>Chi-square</i>	<i>= 1849.428</i>	<i>Chi-square</i>	<i>= 1376.593</i>
<i>Degrees of freedom</i>	<i>=663</i>	<i>Degrees of freedom</i>	<i>=642</i>
<i>Probability level</i>	<i>= 0.000</i>	<i>Probability level</i>	<i>= 0.000</i>
$\chi^2_1 - \chi^2_2 = 472.835 = 22.52$			
$df_1 - df_2 = 21$			

Source: Author 2023

Reliability was tested using internal consistency technique. The test for reliability measures consistencies of correlation analysis to avoid Type 1 and Type 11 errors (Osborne, Christensen & Gunter, 2001). To assess the reliability, this study used Cronbach alpha as it assesses the internal consistency. The reliability statistics for the variables was 0.878 above 0.7. This was sufficient confirmation of the reliability of the data collection tool as shown in Table 4.

Table 4: Cronbach's Alpha for Reliability test

<i>Variable</i>	<i>Cronbachs'</i>	<i>Alpha Number of Items</i>	<i>Decision</i>
<i>i) Networks</i>	<i>.942</i>	<i>6</i>	<i>Reliable</i>
<i>ii) Green practices</i>	<i>.848</i>	<i>4</i>	<i>Reliable</i>
<i>iii) Lean practices</i>	<i>.903</i>	<i>6</i>	<i>Reliable</i>
<i>vi) Performance</i>	<i>.908</i>	<i>8</i>	<i>Reliable</i>

Source: Author 2023

A normal residual curve on residuals was used to test the normality of the data. The study adopted the ANOVA test of linearity. The ANOVA test statistics of the inverses of both dependent and independent variables were significant and hence linearity was confirmed as shown in Table 5. Homoscedasticity was tested using the regression standardized residuals plot. This study tested the analysis variables for multi-collinearity using the multi-collinearity statistics of Tolerance and Variance Inflation factors (VIF). The highest VIF was 2.086 and the lowest 1.449 all the variable had a VIF less than 3, while highest tolerance level was .690 and the lowest .479 and all the variables had a torelance value above .2 cut off limit as shown in Table 6. Therefore, for all the independent variables had no multi-collinearity issue.

After conducting the required tests to ascertain conformity with factor, data analysis was subjected to the linear and multiple regression analysis to establish the relations between independent and dependent variables. To examine the influence of lean-green practices on the relationship between networks and performance of medium hotels, a moderated multiple regression was used. Moderated multiple regression (MMR) models was employed because the dependent variable (firm performance) is continuous, as recommended by Lucky (2012) using step-by-step method (Field, 2009). The goodness of fit test were carried out by use of Root Mean Square Error of Approximation (RMSEA) because it is sensitive to the number of parameters being estimated and insensitive to the sample size. Goodness of Fit Index (GFI) and Adjusted Goodness of Fit Index (AGFI) were also computed to validate the goodness of fit.

III. RESULTS AND DISCUSSION

In the inferential stage of the analysis, the researcher sought to explore the nature of relationships between lean-green practices, networking and performance of medium hotels in the Kenyan cities. Factor analysis was conducted using Principal Components Method (PCM) approach varimax rotation. This was carried to check the factor loadings of every statement and ascertain whether they met the threshold of 0.5 to be retained for further analysis. The first objective of this study was to establish the influence of networks and performance of medium hotels in Kenyan cities. The goodness of fit indices indicated that the hypothesized Structural Sub Model of influence of networks on performance provided a good fit between the data and the model. The likelihood Chi-square ($\chi^2=51.457$; $df= 23$, $p= 0.001$) was significant while the other fit measures showed that the model fitted the observed data. The absolute measure GFI was 0.948, incremental CFI was 0.982, TLI was 0.973 and parsimony RMSEA was 0.078 indicating good absolute fitness of the model. The fit results are indicated in Table 7 and the cut off or acceptance limit statistic below each measure.

The standardized path coefficients of networks on performance statistics were ($\beta=.615$, CR 11.002) as shown in Table 8. The CR of the coefficient of networks was found to be 11.002 which was greater than 1.96 the standard normal distribution critical ratio at 0.05 level of significance. This means that when the networks goes up by 1, the performance of medium hotels goes up by 0.615 or 61.5 %. The findings therefore indicated that networks significantly influence performance of medium hotels positively. Chuang, Hang, & Huang (2015) study indicated that, when doing business in emerging economies such as China, only a proper fit between organization learning and guanxi networking can yield higher degree, or extent of strategic performance. Fernando, Jabbour & War (2019) study confirmed that transforming into network type of organizations where coordination, relationship building, partners’ knowledge and internal communication are important constituents of increasing business performance in the long-run and helps in sustainability and competitiveness.

The study further conducted analysis of variance between networks and performance of medium hotels to test the hypotheses which stated that there is no significant relationship between networks and performance of medium hotels in Kenyan cities. The analysis of variance result ($F= 34.134$, $p\text{-value} < 0.05$) showed a significant influence between networks and performance of medium hotels as shown in Table 9. These findings concurs with Mathuki, Ogutu & Pokhariyal, (2019) who indicated that strategic alliances had a strong statistically significant influence on the performance of firms in Kenya. Also Kamau (2020) study on strategic alliance practices and organization performance established that strategic alliance practices had a positive influence on the overall organization performance. The findings are indicated in analysis of variance Table 2. The null hypothesis was therefore rejected and the alternative hypothesis confirmed.

The influence of lean-green practices on the relationship between networks and performance of medium hotels in Kenyan cities was explored. The goodness of fit indices indicates a good fit between the data and the model. The likelihood Chi-square ($\chi^2=180.921$; $df= 135$, $p= 0.025$) was significant while the other fit measures showed that the model adequately fitted the observed data. The absolute measure GFI was 0.916, incremental CFI was 0.983, TLI was 0.979 and parsimony RMSEA was 0.041 indicating good fitness of the model. The model of fit results are in Table 10 accompanied with acceptable statistic underneath.

The study employed Hierarchical Multiple Moderated Regression (MMR) analysis to test the influence of lean-green practices on the relation between networks and performance of medium hotels in the Kenyan cities. The results are presented in the Table 11. The results show that the sub model has an R-square of 0.537, which shows that 53.7 % of the variation in the performance of medium hotels in Kenyan cities was explained by the variation of networks in the model. Based on the ANOVA F statistic, the model is generally significant with a p-value of 0.000 which is less than 0.05. After introducing the moderating variable Lean-Green Practices (LGP) the model experienced a change in R-square of 0.216 (from 0.537 to 0.753). The change in R-square was significant as shown by the significant change in F with a p-value of 0.000 which is less than 0.05. The change in R-square shows a significant 21.6 % increase in variation of performance of medium hotels is explained by predictors in the model due addition of LGP.

Table 12. shows the coefficients of model 1, 2, and 3, of the performed stepwise regression model. In model 1 internal networks has a significant influence on performance of medium hotels in Kenyan cities ($\beta=.733$, $t=15.357$, $p< .05$). The coefficient of networks has a t-statistic of 15.357 and a p-value of 0.000 which is less than 0.05 implying significant at the 0.05 level of significance. The equation generated from model becomes;

$$\hat{Y} = 0.00 + 0.733X4 \dots \dots \dots \text{Equation 1.}$$

Model 2, shows that by adding Lean-Green to the model, the results had a significant effect. The coefficient of Lean-Green is significant at 0.05 level of ($\beta = .571$, $t = 13.278$, $p < .05$) showing that Lean-Green practices has a significant influence on performance of medium hotels in the Kenyan cities. The equation generated from the model becomes;

$$\hat{Y} = 0.00 + 0.571X4 + .401Z \dots \dots \dots \text{Equation 2.}$$

The coefficients for multiple moderated regression with networks as predictor are shown Table 12.

IV. CONCLUSION

The study shows that networks had a significant statistical influence on performance of medium hotels in the Kenyan cities. Analysis of variance between networks and performance of medium hotels in Kenyan cities had an ($F=23.620, p < .05$). The effect of lean-green synergy on performance of medium hotels in Kenyan cities was found to be significant at 0.05 level ($\beta = .571, t = 13.278, p < .05$). Therefore a proactive approach should be adopted to address lean-green issues in the hotel industry. Integrating lean-green practices as a strategy in the production matrix of medium hotels in the Kenyan cities is not in vain since the practice amplify networks contribution to performance.

V. RECOMMENDATIONS

Since the influence of networks on performance was established in medium hotels with R-square of 0.370 and therefore this study recommends the Government to subsidize or allow tax free importation of networking facilities in hospitality industry to make them accessible and affordable by the medium hotels for use in areas like virtual reality tours. Also networked medium hotels will be able to interact with players in tourism and hospitality industry because they are interconnected. There is need to introduce gamification to boost customer loyalty, brand awareness, user-generated content and online engagement as well as revenue growth.

The government through the commercial attachés should organize tours for domestic entrepreneurs to visit the rural outskirts of host countries to tap from this powerful tool of learning from experience. The local communities' involvement and education needs to be enhanced to awaken dormant local entrepreneurs to participate in supply chains in relation to supplying fresh organically grown vegetables and other ingredients alternatively sourced from far away and even abroad.

VI. CONTRIBUTION TO KNOWLEDGE

The study contributes to literature on the area of lean-green synergy and networking and can act as a reference for scholars, policy makers and agencies dealing with enhancing sustainable service delivery. The Government will find the results useful when developing policies to promote productivity by supporting lean-green initiatives through emphasizing cleaner, competitive and decent employment for all. The study will enrich the knowledge of curriculum designers in entrepreneurship to incorporate lean-green practices aspects in line with changing lists of good practices and marketing.

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