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

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Abstract

Firms are initiated and propelled to profit maximization, necessitating adoption of unique strategies to achieve better performance. Acting strategically can help firms respond to turbulent environment. Studies had revealed high mortality rates of SMEs during early stages globally and previous studies in hospitality have not addressed lean-green practices as a strategy to improve on performance and competitiveness. This article explored the influence of lean-green practices on the relationship between innovations and performance of medium hotels in Kenyan cities. The article is anchored on Natural Resource Based View theory. The article adopted pragmatic philosophical research paradigm and employed mixed method, concurrent triangulation research design. The study population was 534 managers of medium hotels in Mombasa, Nairobi and Kisumu cities and a sample size of 229 respondents was enumerated using stratified random sampling technique. Data collection employed a questionnaire and the data was saved in Ms-Excel for case variable screening and cleaning. Data analysis employed Statistical Package for Social Sciences (SPSS version 21). Pearson's correlation and regression models were used to analyze quantitative data. The findings indicated that innovations had a significant positive influence on performance of medium hotels in Kenyan cities (β=.610, t=10.982, p< .05). Lean-green practices had a significant positive influence on performance (β = .664, t = 15.495, p < .05) and moderates the relationship between innovations and firm performance. The study concluded that incorporation of lean-green practices as a strategy can be relied on to improve performance. The study recommends incorporation of lean-green practices in production matrix. These findings are beneficial to; entrepreneurs and managements in hotel industry, academia and government policy makers. The study suggests further studies to be conducted in other sectors other than in the hospitality industry to determine if similar results would be obtained.

Keywords: Lean-Green Practices, Innovations, Performance

INTRODUCTION

Most of the entrepreneurial venture starts as small business aiming to make profit and growth (Jemal, 2020). As a result, the entrepreneurial ventures have to develop and deploy strategic flexibilities when need arises. These strategies should make the firm thrive and remain competitive in its respective industry (Korir, 2018). The emergence of Strategic Entrepreneurship (STE) as a research field has appealed to a substantial number of scholars around the world (Audretsch, Kuratko, & Link, 2016; Chai & Sa, 2016; Chenuos & Maru, 2015; Kiyabo & Isaga, 2019; Simsek, Heavey, & Fox, 2017). STE is the act of simultaneously engaging in the search for opportunities and competitive advantages in conjunction with devising and implementing entrepreneurial strategies that create wealth (Luke, Kearins, & Verreynne, 2011).

This requires firms to acquire resource and develop capabilities which will allow them to take the necessary action in order to adapt to the ever-changing environment. It is therefore a duty of both entrepreneurs and entrepreneurial managers to design and capture more of existing market from less aggressive competitors while creating new ones (Djordjevic, 2013). This can be looked at from a different perspective as trying to create a tomorrow's business which calls for firms to be entrepreneurial and innovative today. The critical aspect of innovations rests on the ability of a firm to uniquely differentiate its goods or services from those of competitors in such a way that new value is created to customer than that of competitors. To achieve and sustain competitive advantages, entrepreneurial competences are paramount.

Firms innovate through either autonomous or induced strategic behavior (Djordjevic, 2013). Firms can also gain access to other innovations or innovation capabilities through strategic alliances or to a larger extent through acquisitions. Since entrepreneurship is concerned with the discovery and exploitation of profitable opportunities brought either through existing products or destroying the existing methods of production and replacing them with new ones, STE will require entrepreneurial activity to create changes and also help the firms to adapt to changes created by other competitors. Entrepreneurial firms must be risk takers, proactive actors and committed to innovations by creating opportunities instead of waiting for opportunities created by others.

Adopting STE will enable the organizations to combine and balance advantage-seeking and opportunity-seeking activities which are essential for growth-oriented companies (Ukenna, Makinde, Akinlabi, & Asikhia, 2019). Since STE adoption denotes taking an entrepreneurial action with a strategic perspective according to Venkataraman and Sarasvathy (2001), entrepreneurship and strategy are "two sides of the same coin", as both focused on value creation. As a process STE tries to satisfy both the short-term goals and the longer-term strategic focus whose overall objective remains, an enhanced performance of the firm (Arokodare, 2018).The tendency towards sustainability and green practices has gained recognition as a business strategy and in the global tourism market (Yeh, Ma, & Huan, 2016). Travelers prefer hotels whose sustainable practices are visible and genuine (Verma, Chandra, Kumar, 2019). This has led to multiple organizations of tourism to implement various environmental policies to upgrade and harmonize their equipment and facilities aimed at capturing certain target markets which are demanding green practices and products (Saunders, Hughes, Pope, Douglas & Wessels, 2019). Therefore, hotels that have the ability to attract, satisfy and retain customers are more likely to survive than hotels that do not do so (Alipour, Safaeimanesh, & Soosan, 2019).

Interestingly, existing literature shows that Green practices can help companies to become Leaner (Verrier, Rose & Cailaud, 2016). This implies that there exists a synergy between lean and green practices. A study carried by Bergmiller and McCright (2009) identified a correlation between Green operations and Lean results. Dües, Tan and Lim (2013) explored the bonds between Lean and Green practices and argued that Lean is a catalyst for the implementation of Green in manufacturing companies, and that Green may help in return to maintain best practices in Lean. Dües, *et al.* (2013) argument portrayed Lean as not only serving as a catalyst but also as a synergistic for Green. This argument therefore leads to a conclusion that in this synergy of the Lean and Green paradigms, Lean has to be driving forward and enhancing Green practices while at the same time Green has to be synergistic for Lean (Verrier *et al.*, 2016).

Lean production as an organizational strategy is driven by the idea of "doing more with less" (Maia, Alves & Leão 2017). This calls for hospitality industry to align itself with lean-green practices because dynamic competition among firms encourage them to discover new ways

of doing business and new ways of creating value for their customers (Koopman, Mitchel & Thierer 2014). Green practices provide more service differentiation in hotels and sustainable practices for tourists (Maskivker, 2016) thereby making implementation of green practices in businesses to result in competitive advantage.

Adopting lean production methods automatically incorporates green practices because of the need to obtain products and services that are environmentally friendly, (Basuki, 2019). A Lean-green practice denotes actions that protect the environment and products made with little environmental harm because they are produced in an environmentally and ecologically friendly way (Tzschentke, Kirk & Lynch, 2008). The unavailability of a simple tool for integrating traditional value stream mapping with value stream mapping of the carbon footprint from material, energy, transport and unrecyclable wastes, provide a strong rationale for developing a tool for evaluating lean and green performance of SMEs simultaneously (Sartal, Bellas, Mejias & Collado, 2020). However, no pragmatic integration could be found where lean and green value streams are integrated to map, measure and improve operational and environmental performances synergistically (Choundhary, 2017). Therefore, this study examined the influence of lean-green practices on the relationship between innovations and firm performance.

THEORETICAL AND EMPIRICAL REVIEW

This study adopted the Natural Resource Based View theory because it offers a useful lens for evaluating SMEs in a sustainable business context (Caldera, 2018) and lean and green relationships (Galeazzo, Furlan & Vinelli, 2014). This theory states that competitive advantage will depend on the firm's ability to manage natural resources and develop capabilities to address the volatile environment. Lean-green practices were seen as drivers which allow firms to gain a sustainable competitive advantage (Barney, 1991) because the practices are valuable (will reduce the needed inputs and waste outputs), rare (most firms would not have it), costly to imitate (other firms would have difficulty benchmarking this capability) and even non-substitutable (it would display authenticity of firm values) hence performing at a higher level than the industry average (Barney & Clark, 2007).

This model offers strategic capabilities essentially creating a tacit, complex and rare asset. Integration of stakeholder perspective is of critical importance because of playing a significant role in pursuing a shared vision of minimizing the environmental burden of firms (Hart, 1995). Hart and Dowell (2011) further elaborated and empirically corroborated the green concept and highlighted the links among environmental strategies, capabilities development, and competitive advantage. In support Russo and Fouts (1997) argued that internal corporate capabilities might be results of investment in technologies and physical assets to improve corporate environmental performance. Adopting lean-green strategy will reduce the cost of inputs required; simplify the process and reducing the costs of compliance and responsibility (Caldera, 2018).

In the hospitality industry consumers are becoming cautious of the products they consume and their impact beginning from how they are developed from the grassroots. Initiating improvement activities such as lean and green practices will lead to improved quality, increased productivity at reduced costs ultimately leading to increased competitiveness. Although lean and green thinking have gained popularity among large-sized enterprises, it is still unclear how to strategically implement these processes in SMEs (Caldera *et al*, 2018). Despite the combination of Lean and Green being mentioned in published articles, only few examples are available to explain how managers can integrate Green methodologies into current Lean practices (Dues *et al* 2011). No research has analyzed how the lean-green practices can help to improve on firm performance in the hospitality industry.

Consequently, most of the research have been done in manufacturing using the green supply chain and are only done in developed economies. Less developed nations such as those on the African continent have not been given significant research attention (Namagembe, 2019). Only a handful of environmental experts and researchers have so far investigated the relationship between aspects of lean and green practices Dues *et al*, (2013) in the service industry such as hospitality. In areas of economic growth, lean-green integration as a strategic weapon lacks documented research and the present body of literature lacks empirical evidence on linkages between the firm's performance and lean and green practices (Thanki & Thakkar, 2019). This paucity of knowledge has prompted the research to investigate how lean-green practices as a strategy influence the relationship between innovations and performance of medium hotels in Kenyan cities.

METHODOLOGY

This study adopted pragmatism philosophical paradigm because a mono-paradigmatic research orientation was deemed not good enough (Kivunja & Kuyini 2017). Since positivism is pro quantitative methods and deductive reasoning while constructivism is for qualitative approaches and inductive reasoning, pragmatism embraces the two extremes and offers a flexible and more reflexive approach to research design (Feilzer 2010). Pragmatism allows abductive reasoning that moves back and forth between deduction and induction reasoning (Kaushik & Walsh, 2019).

This study used a questionnaire schedule to collect data and applied mixed-method approaches because of allowing the researcher to compensate for weaknesses of one single approach with the strength of the other to achieve the best results Johnson & Onwuegbuzie (2004), as quoted by Kusumawadhani (2014), and also increase the validity of the study. To arrive at an appropriate sample size the researcher used stratified random sampling technique to reduce sampling error and achieve more representativeness of the population (Creswell, 2014). The study population was 534 managers in medium hotels in Mombasa, Nairobi and Kisumu cities and a sample size of 229 respondents. The sample size was determined using the formula for estimating sample sizes provided by Yamane (1967).

RESULTS AND DISCUSSIONS

The first objective of this study was to establish the relationship between innovations and performance of medium hotels in Kenyan cities. The objective sought to test;
Ho*: There is no significant positive relationship between innovations and performance of medium hotels in the Kenyan cities.*

The goodness of fit indices indicated that the hypothesized Structural Sub Model provided a good fit between the data and the model as indicated by Table 1 below. The fit measures showed that the model perfectly fitted the observed data. The absolute measure GFI was 0.977, incremental CFI was 1.000, TLI was 1.000 and parsimony RMSEA was 0.011 indicating good absolute fitness of the model.

Table 1: Results of Fit indices with innovations as the predictor

Model	Chi-square			GFI	AGFI	RMR	CFI	TLI	NFI	RMSEA	CMN/DF
	χ^2	df	p-value								
Statistic	19.499	19	.425	.977	.956	.011	1.000	1.000	.987	0.011	1.026
Cut-off				≥0.9	≥ 0.8	≤0.03	≥0.9	≥0.8	≥0.9	≤0.08	≤ 3.0

The study sought standardized path coefficients of innovations on performance. Table 2 below shows there is a significant relationship between innovations and performance of

medium hotels in Kenyan cities. The standardized path coefficients of innovations on performance (β= .389, CR 6.928) in the model confirmed that the four items measuring performance of medium hotels were significant indicators. The CR of the model was 6.928 which is greater than 1.96, the standard normal distribution critical ratio at 0.05 level of significance. This meant that when the innovation goes up by 1, the performance of medium hotels goes up by .389 or 38.9%.

The findings confirm a significant positive influence of innovations on performance of medium hotels. These findings concurred with those of (Kitigin, 2017) whose study found that innovativeness as a dimension of entrepreneurial intensity had strong positive correlation with the performance of SMEs. Nyambura (2019) found that process innovation had significant positive relationship with competitiveness of hotels in Nairobi County. Hu, Danso, Mensah and Addai (2020) concluded that innovation types have palpable and are statistically significant with performance of hotel in Ghana. While Kimathi et al (2019) revealed that innovation had positive and significant effect on performance of SMEs.

Table 2: Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
perf	<---	innv	.389	.056	6.928	***	par_7
APC4	<---	innv	1.000				
APC3	<---	innv	.937	.061	15.479	***	par_1
APC2	<---	innv	1.057	.046	23.224	***	par_2
APC1	<---	innv	.851	.046	18.626	***	par_3
NCret1	<---	perf	1.000				
ECI1	<---	perf	.976	.048	20.206	***	par_4
CuSat1	<---	perf	.970	.050	19.512	***	par_5
MvP1	<---	perf	1.015	.048	20.937	***	par_6

The study conducted analysis of variance between innovations parameters and performance of medium hotels to test the hypotheses and the results are presented in table 3 below. The analysis of variance result (p-value 0.000, < 0.05) showed a significant influence of lean-green practices on the relationship between innovations and firm performance. The findings are in agreement with Othman, Ghazali, & Cheng (2005) who asserted that a firm's innovativeness is a critical precedent for competitive advantage. Also Mburu & Gichira (2017) study concluded that entrepreneurial factors commitment and innovation had significant and positive influence on the performance. The null hypothesis was therefore rejected and the alternative hypothesis confirmed.

Table 3: Analysis of Variance between innovations and Firm Performance

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	13.570	6	2.262	9.916	.000
Within Groups	45.160	198	.228		
Total	58.730	204			

Moderating effect of Lean-Green Practices on the relationship between of innovations and performance of medium hotels in Kenyan cities

The moderating effect of lean-green practices on the relationship between innovations and performance of medium hotels was explored. The goodness of fit indices indicates a good fit between the data and the model as indicated in Table 4. below. The likelihood Chi-square (χ^2=148.563; df= 77, p= 0.000) was significant while the other fit measures showed that the model adequately fitted the observed data. The absolute measure GFI was 0.918,

incremental CFI was 0.967, TLI was 0.955 and parsimony RMSEA was 0.067 indicating good fitness of the model.

Table 4: Fit indices with Lean-Green Practices as the moderator

Model CMN/DF	Chi-square			GFI	AGFI	RMR	CFI	TLI	NFI	RMSEA	
	χ^2	df	p-value								
Statistic	148.563	77	0.000	.918	.872	.024	.967	.955	.934	0.067	1.929
Cut-off				≥0.9	≥0.8	≤0.03	≥ 0.9	≥0.9	≥0.8	≤0.08	≤ 3.0

The study employed Stepwise Multiple Moderated Regression (MMR) analysis to test the moderating effect of lean-green practices on the relation between innovations and performance of medium hotels in the Kenyan cities. In step one; innovation was regressed as the only predictor of performance of medium hotels in Kenyan cities. In step two the moderating variable, lean-green practices were introduced and finally in step three, the interaction term a product of innovations and lean-green practices was introduced. The result in Table 5 shows that model 1 has an R-square of 0.370, which shows that 37 % of the variation in the performance of medium hotels in Kenyan cities is explained by the variation of innovations 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 0.341. 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 34.1 % increase in variation of performance of medium hotels explained by predictors LGP. The introduction of the interaction variable, a product of innovations and Lean-Green Practices (LGP) exhibited a very slight significant change in R-square of 0.1 % which had a p-value of 0.000 in the ANOVA table. This shows that considering innovations as the only independent variable in the in the model, interaction term slightly moderates the relationship between innovations and performance of medium hotels in Kenyan cities. Fernando, *et al* (2019) study found that eco-innovations unlock better sustainable performance.

Table 5: Model Summary for MMR with innovations as predictor

Model	R	R Square	Adjusted	Std.R Square	Error	Change Statistics			
				R-square	F change	Change	df1	df2	Sig
1	.610[a]	.373	.370	37427	.373	120.595	1	203	.000
2	.845[b]	.713	.711	.25361	.341	240.095	1	202	.000
3	.845[c]	.714	.710	.25397	.001	.435	1	201	.511

a. Predictors: (Constant), Innov
b. Predictors: (Constant), Innov, Lean-Green practices
c. Predictors: (Constant), Innov, Lean-Green practices, X2Z

Table 5 above shows the model coefficients of model 1, 2, and 3, of the performed stepwise regression model. In model 1 innovations has a significant influence on performance of medium hotels in Kenyan cities (β=.610, t=10.982, p< .05). The coefficient of Innovations has a t-statistic of 10.982 and a p-value of 0.000 which is less than 0.05 implying significance at the 0.05 level of significance. The equation generated from model 1 becomes;
$\hat{Y} = 0.00 + 0.610X_2$……………………………………………………………Equation 1.

Model 2, shows that by adding Lean-Green to the model has a significant effect. The coefficient of Lean-Green is significant at 0.05 level of (β = .664, t = 15.495, p < .05) showing that Lean-Green practices has a significant influence on performance of medium hotels in the Kenyan cities. The equation generated from model 2 becomes;

$\hat{Y}$ = 0.00 + 0.294X_2 + .664Z…………………………………………………..Equation 2.

In model 3, introducing the interaction term to the model did not yield any significant improvement. This means that the interaction term had no significant influence on the performance of medium hotels in the Kenyan cities (β = -.021, t = .649, p > .05). The p-value of the interaction term according to this model was found to be 0.511 implying non significance. Therefore, there is no significant model to be generated from model 3.

CONCLUSION AND RECOMMENDATIONS

The influence of innovations on performance was established in medium hotels with R-square of .535 and as such this study has the following recommendations: There is need to enhance innovativeness levels in areas dealing with eradication and minimization of any adverse practice compromising the environment by adopting continuous improvement philosophy. Entrepreneurs need to be sensitized to develop and support inventions and retrain their workforce in 5S translated to mean focus on value in an orderly, safe, clean, comfortable and positive work environment, that link natures well-being and job creation. The Government should come up with ways of recognizing hospitality firms which shows exemplary contributions towards supporting initiatives involving lean-green adoption by allowing tax holidays to enable them cut expenses associated with embracing and implementing lean-green initiatives at all levels.

The government should also provide updated information concerning research and innovations to aid in development of new products aligned to sustainability. This can go along with lean-green labels on hotel logos to enhance identification as well as communicating their commitment to sustainability philosophy. Managers should train in methodologies oriented towards output processes embracing the principles of lean consumption. The hotel staff need refresher training on extra skills and a shared means of thinking aimed at driving out waste through involvement in suggesting better working ways. The findings will benefit hotel developers and investors willing to operate in a more environmentally friendly manner but unsure whether customers are concerned about adherence to lean-green practices.

Area for Further Research
This study proposes that a similar study be undertaken across the board involving micro, small and large enterprises in the hotel industry. Similar studies could be undertaken in the counties to involve rural categorization and hence allow widespread generalization. There is need for a study in medical tourism to unearth additional lean-green practices required to meet the emotional attributes of the guests. Future research is also needed to expand the list of strategic entrepreneurship practices to cope with evolving initiatives and technology and especially the influence strategic agility. Studies are needed to unearth how to tame the challenge of attracting tourists who are aware of environmental problems but reluctant to invest in preservation efforts.

Contribution to Knowledge
The study contributes in to literature on the area of strategic entrepreneurship and can act as a reference for scholars, policy makers and agencies dealing with enhancing sustainable production. The Government will find the results useful when developing policies to promote productivity by supporting sustainability 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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