

## Green Designed Hotel as Innovation in Tourism Industry

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**Abstract:** As the public is increasingly concerned about environmental issues, green innovation is rapidly becoming a strategic tool that can enhance a hotel's competitive advantage. One of the most important considerations for hotels in deciding whether to implement green initiative is to understand customers' attitudes and demand for such new products. Green designed hotels have potential to be seen as new innovation in tourism industry. Satisfaction and attractiveness level of tourists from green building design and green decorative was examined in this study, in addition, this study aims to find an answer for the question that is whether that hotels with green design can be seen as competitor in this industry or not? And can this satisfaction bring more interest about these kinds of hotels in this competition. The green design hotel have a positive effect on customer satisfaction and hotel winning competition. These results have important implications for designing strategic for the tourism industry. A total of 406 cases were used to answer the research questions. Findings indicate that customer's green designed hotels are in general, significantly associated with their expressed intentions to visit a green designed hotel to spread word of mouth about a green hotel and to pay more for it.

**Key words:** Green building innovations, green designed hotel, tourist satisfaction and hotels competitions, industry, environmental

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### INTRODUCTION

With advent of green innovations growing arose in the 1990s in clients' awareness of the environmental topics such as non-renewable resources depletion, global warming, contamination of underground water and depletion of the ozone layer (Banerjee *et al.*, 2003; D'Souza and Taghian, 2010), producing a surge of research in how clients' environmental concerns translate to the exact green treatment in the marketplace (Millar *et al.*, 2012).

For a few decades ago, the people have been recognizing the critical issue of environmental disasters or problems, producing their worries about the environment to become worldwide (Kirk, 1995; Roberts, 1996). Such concerns and awareness of environment have led to big changes in clients' buying manner and views toward eco-friendly business institutes (D'Souza and Taghian, 2010). A large number of customers favor green services or products and environmentally responsible institutions that fulfill customers' green requirements, for example their reluctance to pay for eco-friendly services or productions (Roberts, 1996; Vandermerwe and Oliff, 1990).

Users are becoming January 19, 2016 highly worried about environmental issues such as global warming, habitat destruction and ozone depletion. Many now realize that their buying decisions directly affect the surrounding.

As major part of tourism industry, lodging properties and hotels might harm environment at two main levels of operation and construction (Kasim, 2004). On the other hand late research display a demand among customers for less damaging influence of hotels on the surroundings, building green hotels a growing niche business which dispartate itself from other usual hotels' business in offering green productions and services (Lee *et al.*, 2010).

Later, hotels and lodging properties try to give special attention to green activities as hotels contribute to environmental degradation to a great extent via, construction of building, the waste disposal and water consumption as one of the results in hotel (building hotel itself can be viewed as a green goods as construction sectors).

In spite of the significant influence of the reluctance to pay a premium for green items (Laroche *et al.*, 2001), loyalty and client satisfaction (Andreassen and

Lindestad, 1998), no study has focused on exploring the green image a designed hotel from the view of hotel guests. This attempt addresses this perspective. The very first aim was to examine that are green designed hotel's clients pleased with the effectiveness of green construction design's element in hotel. On the other hand, the study was to explore how competitive elements in the green design hotels are for the client and interest them to choose these types of hotels. Last, the purpose of this study is to show that green designed hotels as good rival in tourism industry and they are able to satisfy and attract clients about choosing them as accommodation on travels.

### **Literature review**

**Tourism innovation:** This novel idea has become one of the most paramount issues for all institutions to acquire new technological facilities and examine new business procedure for remaining profitable for a long time. Due to living in an environment feature by increasing change, a variety of clients requirements and severe competition compel the organizations to produce innovation that is able to fulfill customer requirements and have new products or procedures (Vanhaverbeke and Peeters, 2005). That is companies are more competitive with this novelty in today's severe competition area (De Jong and Vermeulen, 2006). Innovation seems not only strategic for tourism industry but also plays a fundamental role in improving the economy in upgrading industrial competitiveness in developing the living standard and in producing a better life quality (Gopalakrishnan and Damanpour, 1997).

Sustainable operations and green development are surely getting the attention of customers in the industry of hotel but operators and developers wonder if consumers' present interest in green hotel activity will soon decline as has occurred in the past (Butler, 2008). Green hotels make themselves to conserve energy and water and lower solid waste so that they can minimize the environmental impact (Ayala, 1995).

Regarding design part in hotels, the green innovation can be viewed as a novelty in tourism industry by making hotels ready which are friendly treating environment and lowest expense for tourism with more turnover for owners.

Like many other products, hotel service and products have become divided into separate parts by market and as a result the "hotel design" has emerged (Ransley and Ingram, 2001). Design innovations have routinized the interior and exterior faces of the hotels. Attracting hotels in ball, plane castle, fish, jail or ship segmented have shown in different Tourism areas of the world. And many hotel designers and hoteliers agree that "good" design

can influence the bottom line and it is very crucial: as important as their level of personality and service (Callan and Fearon, 1997; Ransley and Ingram, 2001).

While, Ransley and Ingram (2001) stress that design can produce an atmosphere in the hotels' public areas that makes it charming enough to visit different parts including bars, restaurants, lounges, lobbies, shops and bedrooms. They argue that both exterior and interior design were able to increase or decrease the property's attractiveness. Charming design can affect "soft" parameter such as comfort, style, image, ambience and marketing as well as harder and more tangible features such as safety, cost, ergonomics, cleanability and maintenance, space allocation, noise and operational efficiency (Ransley and Ingram, 2001). Hassanien (2006) put that renovation and innovation in hotel design are critical to make hotel operations successful.

Tourist accommodations can have big, expensive energy needs, especially for cooling systems and space heating. However, there are many choices for saving energy. Strategies from producing passive solar heating system to something like good insulation can help lower or remove the need for expensive cooling and heating. Simply altering thermostat settings can bring a big difference (Alexander and Kennedy, 2002).

A green hotel is referred to as an eco-friendly asset in which practices and programs operations (e.g., optimizing consumption, conserving water and energy, reducing solid waste, etc.) are practiced to protect our green planet and the environment.

Lately, an increasing number of hoteliers are considered to be becoming alert of attitude and aims changes among their clients towards environmental topics and have been attempting to embark to appropriate and timely strategies (Bohdanowicz, 2006; Chung and Parker, 2010; Han *et al.*, 2011; Vandermerwe and Ollif, 1990).

A great number of customers indicate increased environmental alertness and favor for green firms and their respective products, showing their willingness to buy and pay more for environmentally friendly items/services (Manaktola and Jauhari, 2007; Vandermerwe and Ollif, 1990).

In the next par, the notion of green design of hotel, green hotels, clients' satisfaction about green designed accommodations (hotels) and competition among green designed hotels are briefly reviewed. Next, the research method which involves measures of study variables, collection of data and data procedures and sample characteristics is discussed. The statistical findings are then shown followed by the elaboration of the managerial implications (Fig. 1).

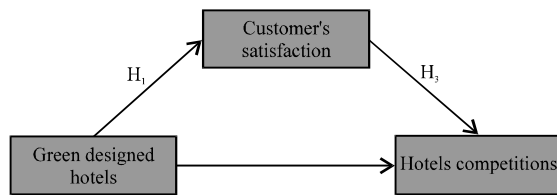


Fig. 1: Proposed theoretical model

**Consumers' green attitudes, demographic information and purposes:** The industry of tourism originally focused on the industries of "smokestack". However, all attention is paid to tourism and its environmental effects (Manaktola and Jauhari, 2007). As for the WTTC the industry of tourism is the world's largest industry, directly producing 200 million jobs over world and responsible for 11% of the world's GDP.

It is well established that for environmentally-friendly goods to be considered in consumers options or buying repertoire they require to act satisfactorily to conventional items and receive consumer acceptance on important features such as convenience, quality, functional performance and price (Rahman *et al.*, 2015).

As it mentioned before hotels constructions are seen as the first output of hotels that clients seen them first. As result, clients' acceptance about design of hotels and their decoration can be regarded as the first experience of tourists about accommodation and customers how pay attention to environment and hotels' eco-friendly status; it's one of the critical points that hotels can take from clients' idea. Consequently, marketer in the industry of lodging must examine these changes in consumers' actions and follow green techniques and operations to fulfill the movement of consumers' needs (Brown, 1996; Chan and Wong, 2006).

Most recent studies implemented in lodging industry show that the travelers' attitudes in respect to environmental topics have driven them to give more attention to green hotels (Lee *et al.*, 2010; Han *et al.*, 2011). Thus, hotel industry's marketers must actively get some feedback form clients on how their green views might direct them to their green purposes and how green construction design can make clients pleased. The main question remains as follows: can green building design in hotels seen as competitor element in tourism industry?

**Becoming more "green":** The lodging industry could not be the first one that produces abundant environmental pollution and uses significant deal of global resources; due to its primary intentions of providing convenient supplies/services (e.g., air-conditioning, lighting, hot water, etc.), hotels clearly use gross amounts of

non-recyclable goods, energy, water and natural resources, hence indirectly or directly harming the environment (Bohdanowicz *et al.*, 2005; Dief and Font, 2010). These types of energy consumptions are related to the hotels construction design and with some alternations in this area, a lot of profit can be gained for hoteliers and customer. Conventional hotels, particularly are often connected to issues related to the environmental deterioration. It has been argued that traditional hotels (both small and large hotels) have enormous environmental harm by using excessive non-water, recyclable goods and heating energy, air-conditioning (e.g., electricity and gas) and ventilating and have released remarkable amounts of emissions into the atmosphere, water and soil (Bohdanowicz *et al.*, 2005; Han *et al.*, 2011).

By appearance of environmental regulations/rules and individuals' environmental alertness, clients are increasingly looking for eco-friendly accommodations over conventional ones. As result, many hotels have already started to use various innovative methods to intensify the "greenness" of their activities (services parts) (Dief and Font, 2010; Manaktola and Jauhari, 2007; Wolfe and Shanklin, 2001). The term "green" has to do with "actions that reduce the impact on the environment such as eco-purchasing or recycling". Likewise, "green hotel" refers to an eco-friendly hotel activity that follows/performs disparate environmentally friendly activities/programs including saving energy/water, using eco-friendly buying policies and decreasing waste/emission disposals to safeguard the natural environment and decrease operational costs. As Green Hotel Association states, the last section of definition of green hotels as about designed for long-term service. It implies the "green hotels" regards service of hotels more than their design. It is completely agreed that making a lodging property green not only meets environmentally cautious clients' green requirements and presumes the responsibility of acting environmental responsibilities but also leads to substantial expense saving through different environmental advantages (e.g., energy/water conservation, product-life extension, recycling, source/waste reduction, etc.) (Manaktola and Jauhari, 2007).

A green hotel is an eco-friendly hotel organization that has green programs and principles (e.g., energy and water savings or the reduction of emissions and solid waste) to help conserve the environment and to improve the hotel's efficiency (e.g., cost saving). The term, "green" is interchangeably called environmentally responsible, eco-friendly or environmentally friendly (Laroche *et al.*, 2001; Han *et al.*, 2009; Manaktola and

Jauhari, 2007; Roberts, 1996). According to Manaktola and Jauhari (2007), the number of clients seeking green hotel with green features has arisen. Marketing its eco-friendly practices can be an influential strategy for a hotel seeking change its status and reach competitiveness in the industry of lodging (Manaktola and Jauhari, 2007).

Wolfe and Shanklin argue that “green” deals with actions that increase negative influence on our environment (e.g., eco-purchasing, recycling). Likewise, regarding the Han and Kim we can define a green hotel as an eco-friendly lodging asset that has done various green activities and institutes sound and eco-friendly programs to provide protection for the environment and lower operational costs. In specific as for green hotels, the following are usually practiced, used and served: durable service products, linens and cotton towels for air quality, charity donation, well-educated workers about green practices, conservation of energy, cleaning environment, organic/eco-friendly foods, water conservation/recycling, fresh air, recycling cans, towel recycling pro-gram, etc. (GHA, 2008).

Green hotels are often identified with environmentally friendly, sustainable, high performance, etc. There is no correspondence in the expectations or threshold for a green or sustainable hotel though. As it is clear, definitions of green hotels are more about operation parts and services and they don’t concentrate on the part of hotels design. In hospitality section as it said, hotels construction design can go forward on the line of green accommodations by concerning green constructs in their design.

**What is green designed hotel?** While people are becoming more conscious about the damage done to the environment by regular manufacturers’ activities, it has become increasingly clear that the hotel industry can do more than its usual share in wasting and harming environmental resources. Accordingly, more and more clients are looking for places following activities to protect environment (Manaktola and Jauhari, 2007).

Products can be defined as eco-friendly if in some cases they are going to reduce a product’s negative impacts on environment. This is usually clarified as providing measurable developments throughout the entire lifecycle of product (Manaktola and Jauhari, 2007). Hotels are some sorts of accommodations and industry of tourism products as outcomes of these product also must be eco-friendly and green. This may be due to a process or technology change with development of “cleaner” and more effective technologies. It could also be said that their aspects or product are biodegradable, recyclable

or programmed for reuse, repair or remanufacture or disposability. It may also be mirrored in the option of raw materials, the waste production, how the product is consumed, the disposal means, the amount of pollution generation and in its safety and health measures (Manaktola and Jauhari, 2007). The environmental advantage, including reducing source, conserving energy, pollution, preventing product-life extension and so on, may vary in importance and be either more or less. In industry of tourism as it is usually said, focuses on the green hotels that are about services and the main purpose in this industry forget (hotel design itself).

Every environmental performance is designed to save finance. In fact, for an activity to be undertaken it should show environmental development and financial savings. In 1993, it relaxed this savings benchmark for noticeably original environmental technologies (Shrivastava, 1995). Each project should fulfill four criteria to reach formal funding and recognition. It must:

- Reduce or remove a pollutant
- Beneficial to the environment via reduced energy consumption or more efficient use of producing resources and materials
- Prove technological innovation
- Save money by means of avoiding or deferring of pollution control equipment expense, decreasing operating and material cost or increasing sales of an existing or brand new product

As a basic sector in the industry of tourism, hotels can do their duties in the green movement, since they have several important social and environmental impacts, including energy/water consumption; production of waste; waste/water management; chemical consumption and contamination of atmosphere; procurement/purchasing and initiatives of local community (Kirk, 1995). To set out working on social and environmental responsibility, these key areas must be addressed (Kasim, 2007).

**Satisfaction of tourist about hotels:** Studies on customer satisfaction in the industry of service has dramatically increased recently (Peterson and Wilson, 1992). This rise has been violated by a surge in the service industries’ growth. Providing the best quality service and increasing customer satisfaction are commonly recognized as important elements leading to the success of institutions in the hotel, tourism and catering industries (Barsky and Labagh, 1992; LeBlanc, 1992).

To be successful in the industry and to outrun other rivals, hotel providers should provide customers with hotel design satisfaction as a green hotel. It is stated that clients with nice experienced with the services are more likely to be loyalty (Cronin Jr. and Taylor, 1992), leading to repeat purchases (Fornell, 1992) and kind word of mouth (Halstead and Jr. Page, 1992) but clients' attention on green hotels design as departed factor of hotels is a special component and this study has focused on this part.

Manaktola and Jauhari (2007)'s work in India showed that customers favor those hotels whose green activities were adopted but were not reluctant to pay more for the green choice.

The literature review on the subject reveals that satisfaction is the outcome of two parallel procedures affective and emotional that can interact. However, the main paradigm puts that satisfaction is the outcome of a subjective comparison between primary expectations of a service or a product and the a posteriori attitudes toward its performance. This domain also postulates a linear contributions that is each constituent feature of a product or service has an accidental weighting in the shaping of satisfaction. Further, there is no intermediate link between dissatisfaction and satisfaction (Oliver, 1981).

#### **Customer satisfaction about green designed hotels:**

Satisfaction of customer has long been a domain of motif in academic study. Oliver (1981) defines it as an affection reaction to the use of a service or product. It is a complex human property which engages emotion and cognitive processes as well as other physiological and psychological effects (Oh and Parks, 1997).

A classical definition of satisfaction of customer regards disconfirmation paradigm of Consumer Satisfaction/Dissatisfaction (CS/D) that recommends that CS/D could result in interplay between a clients' pre-purchase anticipation and post-purchase examination (Choi and Chu, 2001). A user is regarded satisfied when his calculated sum total of purchasing experiences shows a sense of gratification compared with his expectations. Whereas, a he or she is regarded dissatisfied when his or her actual experience reveals a sense of displeasure compared with his her anticipation (Choi and Chu, 2001).

Anton (1996) proposes a contemporary theory in defining satisfaction that is he defines it as a state of mind in which the customer's expectations, wants and needs via the product or service life have been fulfilled or satisfied, resulting in loyalty and repurchase. Even though, satisfaction of customer has been defined in various ways, the underpinning conceptualization is that pleasure is a post-purchase examination judgment, eventuate in an overall good or bad feeling about a specific deal (Fornell, 1992).

Obviously, a hotel that successfully does "green designed" activities can reduce its energy and water use and enhance satisfaction of guest, thereby receiving advantages of functional features from green products (Han *et al.*, 2011).

To be economically versatile such initiatives should not increase operating expense and if they are to help improve profits, they should produce value for customers. Analyzing consumer behavior and strategic marketing studies show a clear link between satisfaction and value (Slater, 1997; Oliver, 1999). Satisfaction of customer is key element to the marketing concept, since there is clear ad enough evidence of strategic links between overall company activities and satisfaction (Anderson and Fornell, 1994). In this study, we intend to explore satisfaction of customer with respect to hotel performance examined by travelers' actual experiences.

Studies on guest satisfaction which has to do with the more practical consideration of if customers will return to an accommodation or recommend it to other guests or not is crucial to the hospitality business success. Failure to give attention to these attributes considered most crucial in choice intention by guests may lead to undesirable evaluation of the hotel which finally reduce the opportunity of repeat patronage by the clients to the same hotel. Thus, exploring the relative significance of hotel features in hotel selection is regarded necessary. In green designed hotels with advantages that accrue hotel managers from the costumers we will try to evaluate whatever the customers are pleased with the benefits that will have by the green designed hotels and will return as travelers to these types of hotels.

**Competitiveness of tourism industry:** The travel industry competitiveness can be upgraded by the fame of a destination environment and via the existence of natural attractions. Travel products; however, often negatively influence the natural environment because heavy visitor traffic can result in natural structures degradation (Han *et al.*, 2011). Today's, hotels are increasingly are concerned with green management as they contribute to degradation of environment through the construction, water usage and waste disposal. As it was mentioned, people are increasingly worried about global warming, guests are more likely to have an eco-friendly options to select a hotel. Hence, a growing number of hotels have used eco-friendly practices and environmental techniques and converted operating or purchasing procedures to be more environmentally friendly. Step by step, going green is stated to be an effective competitive merit in the lodging market (Manaktola and Jauhari, 2007; Han *et al.*, 2009). Therefore, a important challenge for hotel marketers

is to collect a better understanding of potential/current customer's intention and desire for green consumption (Han *et al.*, 2009).

**Ability of green designed hotels as competitor in tourism industry:** In the last 20 years, need for and supply of hospitality services above that of the traditional services supposed for travelers have facilitated the growth of hospitality industry worldwide, leading to serious competition in the market-place. Of the greatest challenges hotel organizations confronting today is the ever-growing amount and pace of competition. It has had major contributions to for the customer, providing (Kandampully and Suhartanto, 2000):

- Increased options
- Greater money value
- Increased levels of service

There are two techniques most commonly exploited by hotel managers to gain a competitive advantage as follows (Kandampully and Suhartanto, 2000):

- Low expense leadership via price discounting
- Increasing customers' loyalty by equipping them with unique benefits

Hotels that attempt to upgrade their market share by discounting cost, however have the serious risk of having a negative influence on the their long and medium term profitability. Then, it is quality of service rather than cost that has become the fundamental element to a hotel's ability to make itself unique compared to its competitors and have customer loyalty.

Hospitality managers say that forms can increase their profits by satisfying clients. However, Studies show that customers' satisfaction one is not sufficient, due to no guarantee that pleased customers will be back to purchase.

As Faulk put, the tourism industry and hospitality are under tremendous pressure to become more environmentally eco-friendly from the following factors:

- Consumer need
- Increasing environmental rules
- Managerial worry with ethics; customer pleasure
- Maintenance topics related to the physical site
- The demand for aesthetics

These are can be viewed as factors which can help hotels win in there competition for tourists

attractiveness. In a highly intense competition in hotel industry which offers homogenous services and products, every one of hoteliers must find methods to make their services and products to be outstanding among the others. In this sense, what hoteliers are required to do is to understand their customers' demands and to fulfill or exceed those requirements (Choi and Chu, 2001). One of the critical customers' demands and need is to get best design hotels with low cost. Undeniably, satisfaction of customer with hotel properties has been regarded as one of the elements leading to the tourist destination success.

Alpert (1971) stresses that those features directly influencing options are termed determining factors in that they may trigger consumers' purchase purposes and differentiate from competitors' recommendations. Making this practical in the hospitality industry, Wuest define the perspectives of hotel attributes as the extent to which the travelers could find various facilities and services important in promoting satisfaction of customer for staying in a accommodation. Green design of building can produce tremendous competitive edge for a hotel managers by authorizing brand differentiation, increasing customer loyalty and upgrading a hotel's reputation (Han *et al.*, 2011).

Lewis (1985) examined 66 hotel attributes to find out how business and leisure travelers choose hotels. The results showed that price and location are the determinant attributes for hotel choice for both leisure and business travelers. Atkinson (1988) says that in order of importance, tidiness, security, money value, helpfulness and courtesy of staff are found to be important attributes for guest in selection of hotel.

Knutson (1988)'s investigation reveals that tidiness and comfort, location convenience, courtesy and promptness of service, security and employees' friendliness are considered to be determinant factors by leisure and business travelers when it comes to select a hotel for the 1st time stay or for repeat patronage.

Wilensky and Buttle (1988) indicate that travelers significantly examine personal service, standard of services, opportunities for relaxation, physical attractiveness, attractive image and money value.

Ananth *et al.* (1992) survey 510 guests, asking them to rate the significance of 57 hotel features in hotel selection. Cost and quality are regarded as the most important features, followed by security and location convenience.

Barsky and Labagh (1992) found that attitude of employee, rooms and location are the attributes that both leisure and business travelers consider critical in hotel selection. LeBlanc and Nguyen's research shows that

corporate identity, physical environment, service personnel, services quality and accessibility are highly influential in travelers' perceptions towards the hotel selection. They recommend that marketing attempts should be led to highlight the environmental issues in order to have new customers (LeBlanc and Nguyen, 1996).

Their findings reveal that location convenience, money value and physical attractiveness catch the highest attention from guests. The innovation of green building in tourism industry as it stated before could answer all these parts (in particular regarding money and totally green building have turned out to decrease and save money in long term and render benefits to customers in first level and environment).

Satisfaction of customer and repurchase goals are regarded as qualitatively disparate constructs. Satisfaction could be only a judgment with affective and cognitive aspects while repeat goals consist of a behavioral aspects (Pizam and Ellis, 1999; Vavra, 1997) which implies winning competition among all involved hotels.

**Hypotheses:** In the current study, we tried to find about tourists' perceptions about hotel design (outdoor and indoor design). Do they think that green building designs (as innovative idea) are competitive edges for hotels in the industry of tourism? Do they think that green design of hotels makes them satisfied with it and catch their attention for recommending these hotels to others? Regarding the purpose of the study, the hypotheses of the study are as follows:

- $H_1$ : there are customers pleased with the effectiveness of green building design's element in hotel
- $H_2$ : there are competitive parameters in the green design hotels for the guests and make them attracted to select these types of hotels
- $H_3$ : there are green designed hotels as good competitor in industry of tourism and they are able enough to satisfy and attract customers regarding selecting them as accommodation on travels

## MATERIALS AND METHODS

**Measure of constructs:** The instrument used in the study was a questionnaire which was self-administered paper-based. It was categorized into four main parts. The first part of provides participants with consent as well as a brief elaboration on green hotels. The second, third and fourth parts with relevant multi-item questions were

planned to conceptualize and examine given dependent and independent variables. These three parts are proposed by modifying, adopting and closely tracking previous relevant research (Han *et al.*, 2011; Laroche *et al.*, 2001; Mathieson, 1991; Maxham and Netemeyer, 2002; McCarty and Shrum, 1994; Zeithaml *et al.*, 1996). These three parts are also about guests' satisfaction and second section is concerned with the competitive potentiality of hotels' green building design and whether construction design innovations green are providing hotels with enough profits in tourism sector. The instrument involves these ten items answered on a five-point Likert with anchors strongly agree (= 5) and strongly disagree (=1).

The items were adapted from literature to have content validity. The innovation green designed hotels scale was taken and adapted by Eiadat *et al.* (2008), ElTayeb *et al.* (2010), Manaktola and Jauhari (2007) and Zhu *et al.* (2007), the customer's satisfaction scale was borrowed and adapted by Robinot and Giannelloni (2010) and Choi and Chu (2001) and the hotels competitions scales were examined drawing on items based on Han *et al.* (2011, 2009).

**Data collection and profile of the sample:** The list of sampling is gained from the website of the Tourism Malaysia Corporate Website. Malaysia today has 25 million arrived tourisms in 2013 and 65 billion receipts. This attempt focused on tourism in Malaysia to gain information about green design and how they were selected as our respondents since, they are directly engaged with hotel competition and tourist satisfaction which makes them experienced and knowledgeable. The questionnaires was conducted exploiting a structured direction to the corresponding respondent in each company. A total of 406 useful responses were collected out of the 1221 questionnaires.

**Data analysis:** The casual interaction between variables were analyzed via Structural Equation Modeling (SEM). SEM analysis was selected over regression analysis since, SEM can examine all paths in only one analysis (Gefen *et al.*, 2000; Hair *et al.*, 2014). Partial Least Squares (PLS) theory was chosen because of its small scale requirements and the exploratory factor of the research (Hair *et al.*, 2011). SmartPLS M3 Version 2.0 (Ringle *et al.*, 2005) was utilized for the analysis. The size of sample (406) exceeded the minimum requirements of sample size suggested by Wixom and Watson (2001). According to of Hulland (1999), PLS is examined and interpreted in two levels. At the first level, the measurement model should be

testified by reliability and validity analyses on each measure to ascertain that only reliable and valid variable measures are taken into account prior to drawing any conclusions about the existence of construct relationships (Hulland, 1999). At the second level, the structural model is examined by measuring the paths between model variables to find out their significance and the predictive power of the model.

## RESULTS

**Common method variance:** According to what Podsakoff and Organ (1986) believe, common method bias introduces problems when a single latent construct is responsible for the whole explained variance. The unrotated factor analysis findings showed that the primary normalized linear combination can shed light on only 28.55% of the total 82.62% variance by which we can claim that common method bias does not face a serious problem in the current study.

**Measurement model results:** The validity and reliability of the reflective variables were measured. Composite Reliability (CR) is tested with respect to internal reliability which is like Cronbach's alpha. Table 1 displays that CR of all variables was more 0.9. This satisfies the rule of thumb by Hair *et al.* (2014). Hair *et al.* (2010) proposes accepting items with loadings of minimum 0.6., provided that the loadings linked with each scale were all >0.6, each individual item reliability was logically judged. On the other hand, convergent validity was tested through Average Variance Extracted (AVE). The all constructs' AVE was more 0.5, thus signifying a satisfactory level of convergent validity (Fornell and Larcker, 1981).

Two methods were used to test the discriminant validity of variables. First, the cross loadings of indicators were used. There were no indicator loads higher than an opposite construct (Hair *et al.*, 2012). Second, drawing on criterion proposed by Fornell and Larcker (1981), the AVE square root for each variable has to exceed the intercorrelations of the variable with other model constructs (Table 2). Both examinations certified the all constructs' discriminant validity.

Table 2 displays that even though tourist in Malaysia have witnessed tremendous pressure from a demand for green design hotel innovation (mean = 4.016), a paucity of pressure has been shown from customers' satisfaction (mean = 3.948) and eventually green design hotel (mean = 4.083).

**The structural model assessment:** The measurement model revealed satisfactory findings and the structural

Table 1: Measurement model evaluation

Constructs	Items	Factor loading	CR	AVE
Competition	10	0.685-0.873	0.937	0.599
Innovation	9	0.623-0.859	0.927	0.586
Satisfaction	8	0.637-0.812	0.904	0.542

CR: Composite Reliability; AVE: Average Variance Extracted

Table 2: Discriminant validity coefficients

Constructs	Mean	SD	Competition	Innovation	Satisfaction
Competition	4.083	0.908	0.774	-	-
Innovation	4.016	0.841	0.742	0.765	-
Satisfaction	3.948	0.918	0.562	0.432	0.736

Table 3: Path coefficient and hypothesis testing

Hypothesized paths	Path coefficient	SD	t-values	Results
Innovation~competition	0.613	0.115	5.343***	Supported
Innovation~satisfaction	0.432	0.119	3.622***	Supported
Satisfaction~competition	0.297	0.141	2.102***	Supported

t-values are computed through bootstrapping procedure with 406 cases and 1221 samples; \*p<0.05; \*\*\*p<0.01 (one tail)

model was measured subsequently. The predictive appropriateness of the model was testified with respect to the explained variance portion. According to results the model is able to explain 61.2% of the variance concerning competition, 17.7% of satisfaction. Aside from calculating the loading of  $R^2$ , predictive relevance proposed by Stone (1974) and Geisser (1975) is used as additional model fit measurement.

This method indicates the potentiality of the model to forecast the manifest indicators of each latent variable. Stone-Geisser  $Q^2$  (cross-validated redundancy) was calculated to measure predictive relevance through a blindfolding process in PLS. According to the guidelines by Chin (2010), the value of  $Q^2$  was greater than zero which implies predictive relevance of the model. The current study gained 0.354 for average cross-validated redundancy (for all endogenous constructs) that is much greater than zero. Hence, the model showed an acceptable fit and remarkable predictive power. Nonparametric bootstrapping was also used (Wetzels *et al.*, 2009) with 5,000 replications to testify the structural model. As Table 3 shows, the structural model was resulted from PLS analysis.

## DISCUSSION

Nowadays, we are residing in a community where companies are evaluated based on their business social accountability, ethics, socio-economic alertness and financial output. While understanding of the whole community is growing about climate change and global warming, the public which involves customers, employees and stakeholders expects a specific type of hotel which acts on their understanding. This universal trend directs hotels to follow in a green movement. As this study



suggested, a green hotel can turn out to be a powerful operational asset in appealing and retaining more customers.

The green design hotel could be pursued diligently to involve the current environmental situation. The idea of green design is a good method for the tourism industry. A number of research has examined the service of the green hotel and compelling forces of this innovative idea but have not fully focused on the green design hotel. So, this current attempt gave special attention to the green design hotel in industry of tourism. The advantages of using green design hotel in this industry was elaborated to some certain extent. Some tourists might, however, remain unconvinced in using green innovation. Therefore, this study showed the feasible positive influence of green design hotel on hotel competition and simultaneous tourists' satisfaction. Several motivating factors have driven green design hotels to be regarded as green innovation in industry of tourist.

## CONCLUSION

Our results on the relationship between hotel competition and green innovation are in line with those by Han *et al.* (2011) and Kandampully and Suhartanto (2000) who figured out that rule-based green service innovation could upgrade hotel competition. Guests' satisfaction is also considered as an important parameter for adopting green design hotel innovation. There is also a positive relationship between hotel competition winning and customer satisfaction. Malaysian clients' concern about hotels' green design has grown dramatically.

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