Green Technology Initiatives & Practices by Environmentally Friendly Hotels (Ecotels) using Information & Communication Technology (ICT)

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ABSTRACT

The eco-friendly management in the hotel industry is a practice of operating hotels through green technology. The hotel that uses the resources wisely that reduces the consumption of water and energy, produces minimum waste and recycles the waste which has less impact on the environment is called as Eco friendly Hotel (Ecotel) also termed as Green Hotels. The green hotels are aimed to save resources, reduce pollution and operating cost increase profit margins and support the Ecotourism. This paper focuses on the green technology to be practiced in hotel industry for the environmental sustainability. The study also states that currently technology is at nascent stage in terms of adopting sustainability & has certain limitations. The Hospitality & Tourism industry contributes about 10 % of global G.D.P. (Gross Domestic Product) hence it is a very high touch, high resource, and labor intensive industry. The paper also highlights the Green initiatives undertaken by Ecotels to reduce ecological & carbon footprints by being responsible luxury industry. The implementation of energy and water conservation projects, zero waste approach and management of solid waste disposal are the key factors of the sustainable development.

Keywords: Ecotels, green technology, sustainability, carbon footprints, responsible luxury.

More hotels should adopt eco-friendly practices and implement innovative technologies to reduce carbon footprints and increase a viable green image. Many hotel guests value hotels that offer up-to-date technology and demonstrate sustainability efforts through various sustainable programs. Previous studies investigated how eco-friendly practices would induce higher customer loyalty and increase the image of a hotel brand in the past decade and reported the benefits of implementing green efforts in hotels. The technologies, innovations, and sustainable-effort-related factors have an impact on customer perceptions, selection decisions, experience, and post-experience.

INTRODUCTION

The Hotel & Hospitality industry is one of the fastest growing industries in the world that benefits the world economy. The foremost functions of the majority of the hotels from simple to deluxe are to offer comfortable accommodation, food & beverage to the guests. The

Hospitality industry consume lot of natural resources such as energy & water for providing customer care & service. It also produces massive amount of solid Waste & littering. As a result the local community experience reduction of natural resources, scarcity of water & environmental pollution. Environmental sustainability is paramount for the development of local community & eco tourism. Hence over the years hotels are becoming responsible to adapt sustainable practices & green technology to conserve water & energy.

In the current scenario, sustainability is more than just a travel industry buzzword. According to a recent survey of millennials, 85 percent would be more loyal to a Hotel that helps them contribute to social and environmental causes and more than 8 in 10 millennials would like to be associated with a Hotel brand with a sustainable cause.

Smart hotel chains are changing the way they operate to reduce their impact & ecological footprint. As a reward, hotel chains have realized that 'going green' can be a savvy marketing strategy as well receiving free press and promotion about their sustainability efforts in annual rankings. Also, being a Green hotel goes a long way to build a better branding image in today's social media. Being more sustainable is not hard for a hotel to implement; in fact incorporating green practices actually help in saving expenditure. One of the most popular movements recently has been the push to remove single-use plastic from the hotel. Many International Hotels have eliminated plastic straws in thousands of hotels worldwide, removing an estimated 1 billion straws from the ocean and landfills. That adds up, for both the hotels and the environment. Leading hotel brands also are cutting out single-use bottles in the hotel bathroom, estimating to remove more than 500 million plastic bottles every year from the environment.

Objective of the Research:

1. The primary objective of this study is to recognize, understand & identify sustainable, green initiatives by ecotels.

2. To understand the full extent of types of emerging sustainability trends in Hospitality.

3. To provide factual information based on the research to relevant stakeholders.

4. To analyze measures pertaining to green initiatives undertaken by ecotels.

5. To understand technological interventions using ICT for environmental sustainability in hotels.

Research Methodology

In order to achieve the aim of the study & arrive at conclusion, secondary data was collected Literature review, Research publications, Reports from journals, Hotel business Magazine, Green Hotelier were also referred.

Publications related to Hospitality were also gathered & identified for the research purpose. Relevant database, Hospitality info graphics & Google scholar were also used during the course of the study. In order to achieve the objective of the study, social media related articles, social networking sites, Hospitality industry related updates, blogs, articles were referred to arrive at conclusion. A qualitative analysis vas done & the measures were monitored to comprehend any specific trends which could be attributed to the sustainability & green initiatives in Hospitality using ICT.

What are sustainable, eco-friendly hotels?

Sustainable hotels or ecotels incorporate practices that significantly reduce their environmental impact through green practices in operations, maintenance, services, logistics, products, and supplies. The main practices involved are reducing waste, saving energy, and also reducing water usage significantly.

There are many steps a hotel can take to move toward sustainability. Some of them are major capital expenditures, such as replacement of the Heating, Ventilation, & Air conditioning (HVAC) system, others are easy to put into operation and even low-cost.

Why should hotels go green?

When hotels adapt green practices, naturally they consume less resources resulting in less damage to the environment. Green practices do not cost fortune so it helps in lowering operational costs, and win goodwill from guests. Sustainable business practices help to achieve growth and results in satisfied guests. Increasingly, consumers seek out green businesses and pay more for eco-friendly products and services. One in three consumers prefers sustainable brands from Hospitality & Tourism industry.

Trip Advisor, for example, has developed its Green Leaders Program showcasing hotels with environmentally-friendly best practices to conscientious travelers, such as hotels going green with LEED (Leadership in Energy and Environmental Design).

Source: https://palmexindia.com/the-business-benefits-of-leed-certification-for-indian-hotels/

Role of Information & Communication Technology (ICT) in sustainability

ICT has become prevalent in every aspect of global business practices. To achieve sustainable development, the balancing act lies between how individual needs are satisfied and how well one preserve the ecosystem and all natural resources. This is not necessarily an easy task to achieve. Recently tremendous advances in the role of e-government, for example, and the abilities it gives to citizens to be more productive. This initiative needs to continue by integrating services across departments and ministries. Hotels have realized that sustainability & automation technology need to go hand in hand.

The hotel technology holds the promise of making a far greater contribution to carbon footprint reduction and a more eco-friendly hospitality industry. During the course of investigation, the following technologies are being used by some of the leading hotels.

Smart Rooms

Intelligent room technology has been implemented in hotels. A few years ago, the idea of controlling all aspects of the guestroom from your smartphone was an unthinkable. It has become a reality in 2020, where the largest hotel brands will be rolling out room controls within their loyalty platforms that enable guests to preselect the room temperature, lighting mood, TV, music, blinds and more all triggered by a mobile key that transmits those settings from the digital lock on the door. This level of personalization has never been possible before and will transform both the guest experience and optimize energy consumption to save major chunk of revenue for the hotel.

Mobile Extension

Mobile technology is the real game changers for many popular Hospitality business models. More than 5 billion people are now connected to a mobile network, equivalent to two-thirds of the world's population. Mobile devices are a key enabler of sustainable economic growth and a major contributor to the delivery of the United Nations' 17 sustainable development goals (SDG).

Mobile technology is already changing the whole Guest life cycle ecosystem. The guest smartphone has the potential to deliver the largest environmental impact of all other platforms combined. Using the digital device that guests already have, hotels can reduce (or eliminate) the use of paper saving tons of water and chemicals used in paper processing hence reducing wasteful plastic keycards. Paired with modern property-management-system (PMS) platforms, mobile key software can revolutionize the guest journey in a hotel and reduce considerable cost in the operations.

The digital future is keyless, paperless and has less plastic. Plastic may never be completely eradicated from the hotels, but they would eventually stop buying and producing plastic that is used once and discarded. As technology evolves to seamlessly link functionality within the hotel with guests' mobile devices, the synergistic forces of guest satisfaction, cost reduction and environmental sustainability will produce a greener planet for everyone to enjoy.

Sustainable efficiency can be achieved with the right technology

Hotels can increasingly save lot of cost by going green. Moving toward sustainability means reducing energy and water consumption, as well as staffing for things like maintenance and guest services.

The following are some measures for sustainability in many different areas of hotel operation, with examples of specific eco-friendly best practices to consider.

Explore eco-friendly hotel ideas

Make hotel staff eco-friendly & environmentally responsible.

Source: www.slideshare.com

1. Create a green team.

Those employees who are interested to participate in a 'green team' should be proactive in recommending eco-friendly best practices in their operational area. This gives these employees a sense of ownership of green strategies, and more commitment to long-term adoption. It is important to incentivize their efforts with a small stipend, a special meal, or gift coupons.

2. Try & better the existing sustainable practice

It is possible that a hotel or hotel group already has eco-friendly programs, but there is always a room for development & take sustainable practices to next level gradually.

3. Make the hiring and training process green.

Modern technology is a great enabler in green hiring process where initial hiring can be done using Skype, Zoom, Google Duo instead of face to face interviews cutting down commuting time & reducing fossil fuels. Instead of printing out lengthy employee manuals or hiring forms, provide new employees with links to documentation in electronic format, or provide computer access on-site for those without home computers. Steer new applicants to online employment portals rather than requesting hard copy resumes. It is important to highlight

hotel's sustainability efforts in hiring materials so all new additions to existing staff understand importance of sustainability in daily operations.

Ensure guest services are eco-friendly

4. Focus on efficiency.

Efficiency can be achieved by offering contactless Services ranging from remote/mobile check-in/check-out to keyless entry cut down on lost plastic key cards, the use of recycled paper is also recommended. This will help minimize overstaffing and the additional carbon emissions it causes.

5. Green transportation offerings and services with sustainability in mind.

Having an electric vehicle charging stations for guests with electric or hybrid cars. Eco friendly options like Golf carts, e-Bike and e-scooter should be opted as eco friendly mode of transportation. Using hybrid or electric vehicles, or group shuttle service to public transit hubs to cut down the number of low occupancy car trips to and from a hotel.

Making guest rooms more green

6. Automate conservation.

Room sensors are being increasingly used by hotels. Sustainability efforts in guest rooms have evolved beyond cards reminding guests to reuse towels, turn off the AC, or hit the light switch on the way out. Educating guests with informative signboards encouraging sustainable practices is also appreciated by new age travelers.

7. Furnish rooms sustainably.

In addition to smart technology, furnishing guest rooms with natural fiber sheets and furniture made of sustainable materials. Encouraging maximum natural light & ventilation in rooms as well as in guest area, stocking the room with reusable coffee mugs and glasses rather than plastic ware, paper. In the bathroom, provide natural and organic free-trade soaps and shampoos from certified green manufacturers in biodegradable packaging.

Make food services eco-friendly

8. Waste management in Banquets & large events

Waste management is critical in kitchen as well as banqueting events. Cutting down on the number of trash receptacles at large venues while increasing the amount of recycling options to force attendees to dispose of their waste thoughtfully. Make it easy for guests to recycle by clearly marking and positioning recyclable containers for paper, aluminum cans, and plastic bottles.

9. Incorporate reusable dishes, silverware, glasses and mugs.

Cutting down the use of straws, banning plastic serving ware, and paper plates. You'll also save money in lower supply costs and incorporating proper waste management disposal is

essential. Also, replacing single portion of cereal, yogurt, jam in the breakfast bar with glass containers to further minimize waste.

10. Shop local.

Being self sufficient, being organic & sourcing from local farmers, nearby growers and food providers is a great leap forward in terms of being sustainable. It's a great way to support local farmers & also reducing the carbon emissions caused when food is transported from a distance. Innovative menu should be incorporated in sustainable offerings, including vegetarian and vegan items that take fewer resources to produce than meat. The hotels are even sourcing vegetables from vendors with unique concepts like hydroponic farming which is mostly sustainable than traditional farming. Besides, shopping local would also boost local economy.

11. Compost and donate food from kitchen.

It is imperative to set up processes to compost waste, which can in turn support sustainable gardening practices. Additionally, unused or leftover food can be donated to various local and national food banks.

Make the gift shop green

12. Stock-up with sustainable items.

When choosing which products to sell, or which manufacturers to use for branded apparel and gifts, look at green certified businesses. Explore ethical clothing companies, fair trade accessories, and even ethical travel gear.

13. Operational efficiency.

Monitoring occupancy levels in the hotel will also help in being sustainable, cutting down on staff transportation emissions. Sensor lights can automatically dim and brighten at different times of the day, and sensor thermostats can keep the guest rooms comfortable cutting down high energy costs & overheads.

At major touch points, sensors on doors can brighten interiors when opened, and there are eco friendly point of sale (POS) systems that cut down on electricity and paper for vouchers, receipts.

Also, plastic bags can be converted into environmentally friendly compostable bags or convenient reusable ones that can be returned to the desk or placed in drop boxes.

Create hotel landscaping and gardening that's eco-friendly

14. Cut down on runoff.

The excess water from storms, irrigation, and snow that doesn't evaporate or get absorbed into groundwater should be saved & stored. It's especially tricky on hotel grounds with lots of asphalt parking and concrete outdoor patios. This can be done by planting a rain garden

and water detention ponds to collect drainage. Rain water harvesting can be done in hotel green buildings.

15. Optimum use of water

Rain water harvesting, smart irrigation systems can reduce excess water use with timed watering. Overall water requirements can also be reduced by planting drought resistant native plants and ground cover instead of just grass. This change also reduces the need for pesticides and fertilizers. Smart irrigation system, rain water harvesting can be a boon to fight water scarcity.

Keep hotel utilities green

16. Keep things shady.

It may sound simple, but keeping the sun off your hotel walls and windows can reduce energy use. Plant trees or install awnings and overhangs. These are relatively inexpensive projects with long shelf lives.

17. Automate water and energy conservation.

Use aerators on bathroom sinks to reduce water usage, and replace standard toilets with low flow or dual flush versions. Swap out traditional lights with energy-saving lighting with sensors to automatically turn them on or off, or brighten and dim.

18. Invest in green infrastructure.

Big-ticket items available to hoteliers interested in long-term sustainability ROI include:

- Solar panel installations
- Energy Star-rated heating and cooling systems
- Geothermal cooling towers
- Water recovery and recycling systems

Go green for hotel maintenance

19. Regular check up of the equipments

When it is regularly checked for all the equipments and audited in periodic intervals it is definitely helpful for the energy saving also for all over saving of water and other maintenance.

20. Keep an eye on your systems.

Majorly HVAC (heating, ventilation, air conditioning) are more popular sensors which used in the hotels to monitor the level of energy used by a particular equipment. Also it helps to

create to analyze the level of energy waste in a particular time frame and to create the improvements plan.

22. No use of plastic bottles.

Plastic is the most disadvantageous factor for the environment it take a ton space Among the most environmentally damaging products on the planet, plastic water bottles take up a ton of space and often get intermingled with garbage during disposal. It's not difficult to move away from bottled water and toward filtered water dispensers, refillable bottles, and water pitchers for guests and event attendees.

23. Make green decisions.

In the hotel industry it is possible to use eco friendly paints to make hotel interior more attractive. Hoteliers can take initiative in using biodegradable, non-toxic products in sustainable packaging as much as they can. A sustainable purchasing policy is relatively easy to establish, and should incorporate items like we can use different types of products to become eco friendly hotel such as office supplies, light bulbs, cleaning supplies and other guest supplies which is provided in the room.

For improving sustainability, there are certain practices which are very much effective.

- **There are top 3 Technologies** to Implement in 2020:

    1. **Occupancy Sensors:** Data shows that 65% of the energy is used for heating, ventilation and air conditioning (HVAC) and lighting purposes of a hotel building (depending on the geographical location). There has been a massive improvement in technology linked to energy management systems. Thermal occupancy sensors, motion detection, and network presence sensing all have the potential to reduce guestroom's energy intensity from lighting and HVAC.

    2. **Solar Photovoltaic** and **Carbon Measurement Tools** are also used to in the hotels to help the environment.

Innovation is key to grab the guests in the hotels

According to the American Hotel & Lodging Association (AHLA) trend survey released earlier in 2018 supporting sustainable initiatives remains important to the lodging industry as a whole.

As of 2018, 25% of domestic properties have received a Green Certification, the gold standard of sustainability. Linen and towel reuse programs are nearly universal among

properties, and a majority of hotels across all segments have implemented a water savings program.

- Green Certification is highly increased in the year 2018 as it was 25%, up from 16% in 2016
- Linen / towel reuse programs are nearly universal among affiliated hotels (range: 94%-99% across chain scales), with independent hotels (83%) not far behind.
- About two-thirds of hotels within all chain scales report some type of water savings program

This tells us that hotels need to continue to innovate and the future of technology in hospitality has to be green, or those brands that do not adopt to these emerging standards face being left behind.

FINDINGD AND CONCLUSIONS

Findings

1. Cut down on the use of plastic water bottles by offering hotel reward program members a reusable branded bottle.
2. Add a water-bottle filling station in the lobby.
3. Install additional towel racks in bathrooms to make it easy for guests to reuse towels. Create a sign encouraging reuse.

4. Make recycling options easy to spot. Replace outdated bins with worn recycling symbols and add bins near elevator banks so that guests pass them frequently

5. Smart showers limit the length of showers to a pre-set time, alerting users when their time is almost over

6. Room sensors automatically detect light levels, increasing and reducing the bulb brightness.

7. Thermostats with occupancy sensors adjust heating and AC temperatures
8. Utilizing Internet of Things (IoT) technology, these same room amenities can be connected to apps so guests can change settings remotely.

Conclusions:

The primary energy technologies recommended for the hoteliers are the lighting systems; heating, ventilation and air-conditioning systems (HVAC); variable speed drives; and energy management systems. To reduce the consumption of water the hoteliers should install low flow shower heads, sensor activated kitchen taps, and drainage barriers around pools; replace all toilets with ultra-flow toilets; switch from water cooled to air-cooled ice machines; use

AAA rated front loading washing machines; and consider alternative sources of garden watering such as rainwater, treated grey water and cooling tower effluent. The hotel staff should be trained to collect the recyclable materials from the hotel waste stream through recycling program. The insitu composting and biomethanation are the best practices of managing the waste generated by the hotels. More hotels should adopt ecofriendly practices and implement innovative technologies to reduce carbon footprints and increase a viable green image. Many hotel guests value hotels that offer up-to-date technology and demonstrate sustainability efforts through various sustainable programs. Previous studies investigated how ecofriendly practices would induce higher customer loyalty and increase the image of a hotel brand in the past decade and reported the benefits of implementing green efforts in hotels. The technologies, innovations, and sustainable-effort-related factors have an impact on customer perceptions, selection decisions, experience, and post-experience.

The use of ICT to drive sustainable development is a constant debate. Whereas one group staunchly defends employing ICT for guiding and implementing sustainable development, others fight vigorously to highlight its many negatives. One should readily agree that, as with most things in this world, applying ICT to propel any development will have its benefits and pitfalls. Its measurement must therefore be focused on whether the advantages outweigh the disadvantages. Driving sustainable development through ICT initiatives bring much greater benefits than negative consequence. One is also acknowledging that like all good projects, protocols and methods are important to success. Therefore, when advancing sustainable development with ICT as the driving force, it is essential to have proper planning, analysis, implementation, and monitoring if one anticipates favorable outcomes.

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