Study on the Application of Information Technology to Intelligent Building of Green Hotel under the Background of Low-carbon Economy

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Abstract. It has been the new challenge for the hotel how to adapt to the situation of the low carbon economy development lately. Because of the higher building cost, the immature low carbon technique, these factors have obstructed the low carbon economy development in the hotel industry. This text applies the means of information technique to research how to apply information technique to push the development of the hotel intelligence architectural under the background of low carbon economy and to arouse the green hotel development.

Keywords: low carbon economy, information technique, green hotel, intelligence architectural

1. Introduction

Energy, environment and climate change are the worldwide major concerns nowadays Low carbon economy which based on low energy dissipation, low-emission, lower pollution has become the focal point of worldwide attention. The green hotel has make some attempts at developing a low carbon hotel, but the higher building cost and the immature low carbon technique obstructed the applying of the development model of low carbon economy. During the low carbonization in the green hotel development it needs to build up new concept of green hotel development and use new building material when setting up and reforming in the hotel. At the same time it should push the development of hotel intelligence architectural through applying information technique to strengthen energy-saving, environmental protection and to raise service efficiency.

2. Low Carbon Economy, Green Hotel and Intelligence Architectural

2.1 Low Carbon Economy and Green Hotel

The low carbon hotel means the hotel which makes use of the core value of low carbon economy principles and applies the mode of low carbon economy development to build and operate applying low carbon science technology. The hotel industry has the characters of heavy energy consumption, high-emission and heavy pollution. Because of the huge amount of energy demand in the world, resources scarcity and energy price continuously ascension, the expenditure of energy expenses of the hotel makes up the proportion of business expenses 8% to 15%, and present up-trend.

2.2 Green Hotel and Intelligence Architectural

The intelligence building gradually develops along with the progress and fusion of the calculator technique, communication technique, automation controls system and graphical display. With the rapid development of, the hotel industry is broadly making use of the electronics digital technique means, electronic

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commerce and modernization information system day by day. Hotel Building being the importance information-based carrier, it requests the hotel building must be turned to intelligence construction. The intelligent comes true the intelligence management by delivering information flow, controlling information flow delivered by intelligent.

2.3 Relationships Among Which

The low carbon economy pushes the development of green hotel, but construction of green hotel has to rely on application of information technical to carry out the hotel building intelligence. Information technique investment usually not only has same investment repay with the facilities in the investment room and information-based construction but also influences and improves hotel management efficiency etc. Hotel intelligent integrates information-based value into the value chain of oneself in the hotel and promotes the competition ability of the hotel.

3. Existent Problems and Present Condition of Application of Information Technology to Intelligent Building of Green Hotel

"Intelligence building" or "intelligence hotel" is a new idea to the hotel manager. "Intelligence hotel" being one integrate concept, it is still at the stage of continuously abundant, development and mature. But there still are a lot of problems in promoting the management accomplishment and competition ability of hotel by applying information technique in reality.

3.1 Higher Building Cost in the Low Carbon Hotel

Low carbon hotel although has very great attraction at energy saving and mitigation of CO_2 in ecosystem, but because of large amount investment and requite slowly; so many hotels will not invest to build this kind of low carbon hotel. From the angle of building environmental protection, currently 8 0% to 90% of the operating green hotels is still never attained international economy energy standard. However the budget expenses and high maintenance in the later are great when turning these hotels into low carbon hotel integrating each kind of high technology as whole body, so it is very difficult to make profit.

3.2 Immature of Low Carbon Technique

Low carbon technique closely-related with low carbon hotel construction has two types: the first category is energy efficiency technique, including building saving energy technique, electric appliances energy efficiency technique and saving energy technique of industrial production line. The second is a low carbon technique or even zero carbon energy technique, such as water energy, wind energy, solar energy and biological intelligence and subterranean heat. Although many techniques have already been commercialized, they could embody the advantage of saving energy after attaining certain economic scale in the technical applications.

3.3 Differences in Different Industry Applying

The hotel industry belongs to the type of labor-intensive industries; the IT belongs to the n type of technique-intensive industries. Many IT companies promote the most advanced equipments to the hotel, but they could not satisfy with hotel's needs that usually paid expensive price. The main reasons are: The first, technique function doesn't meet the hotel need, the IT company doesn't understand the real need of hotel and can not resolve the key problem that the hotel faces; The second, the hotel managers don't understand the information technique, there is no whole programming and be subjected to the control by developing companies and suppliers; The third, the benefits are inconsistent between suppliers and hotels.

3.4 Lack of Industry Standard

The hotel Industry comprehends different to the information quite distinct and the solution methods of the IT Company are different respectively, which make the limited technique hotel invests to build the green hotel blindly. In regard to the implementation of the guest room network, there are ADSL, fiber optic and double wringing projects line, etc. how hotel makes choose, there is no common industry standard. Some IT companies sign contract with many hotels for financial purposes and explicit property right of network

environment not belonging to the hotel in the contract, the hotel has no power to establish any other business items in the network's environment. In the future the intelligence supervises of hotel would be subjected to limit if it wants to carry out saving energy controlling.

4. Basic Requests and Countermeasures of Application of Information Technology to Intelligent Building of Green Hotel

4.1 Basic Requests

According to the request of low carbon environmental protection, the basic science technology requests of the green hotel to hotel service, safety and management at the application of information technology to intelligent building include the follows:

· There have to be perfect network environment inside the hotel.

· Guest room and multi-function hall internal should have breadth to take connect and the wireless network overlies

· The hotel can carry out variety booking ways.

· The hotel should have the electronics the environment condition for paying bill.

· Record image supervision and broadcasting stereo set system should overlay the whole public district of hotel.

· Automatic smoke feeling and automatically spray to sprinkle facilities inside the guest room and other district should be ready.

· The key height of the elevator in the hotel and the hint with speech should satisfy personages such as wheel chair, visual impairment and hearing impairments request.

· The public telephone of public district should close to without obstacle passage and is convenient for the wheel chair personage to use and satisfy the need of hearing impairments guest at the same time.

· The urgent evacuation measure can promise to have the safety of sense of hearing and sense of vision disabled guest.

· Other technological application, such as automatically regulation lighting and air condition, the renewal of the intelligence building card, appliance change, the grass automatic irrigation, the getting stripe of generation, hotel management system reformation.

The application scope in the industry hotel and the depth in the hotel intelligence management of the information technique have been able to cover each aspect of hotel operation, management and service. Information-based concept in the hotel has already developed to become making use of Internet, area network platform in bureau and to surround the intelligence of hotel to turn, network marketing, face to service system, information service, internal business of guest to manage etc., which forms integral whole data center. It provides overall information for hotel by excavation each kind of data and gathering and analyze. The realization of these functions in the hotel intelligence management could enhance manage efficiency, raising serving quality, improving guest's satisfaction.

4.2 Countermeasures

4.2.1 Use New Building Material

Adopting a new building on energy economizes design and material could save 65% energies than the traditional building. Therefore, for the new building hotel and renew building hotel, it could compulsive hotel to use new saving energy design, new building material and equipments. But we should hold a cautious attitude to tore down and reconstruct to the existing hotel, because tore down and rebuild mean a tremendous waste of resources. tore down reconstruction and reformation in the hotel has two different index signs in consuming achievement, so we should carefully set up little dismantle to realize the optimization of resources, energy and environment efficiency, truly carrying out a low carbon environmental protection. .

4.2.2 Beginning at Low Carbon Intelligence Building Design in Hotel

The building carbon emission takes up 40% of carbon dioxide emission in the world, 50% resources in the world are used on the building, 60% timbers basically are gearing at construction realm. For example, the area of new opening building is the half of world in China annually, 80% to 90% doesn't attain international saving energy standard. Now the adopting warm energy consumption unit area is the triple of development country in China. Constructing a low carbon hotel, it should begin at constructing the low carbon building first. The techniques of the low carbon building are low carbons designs, low carbon to consumption, low carbon emissions, the low carbon construction, and the low carbon remitted with material and increment carbon.

4.2.3 Normalization, Automation and Intelligent of Engineering Foundation Data

The characteristics of building industry information-based are single product, variable standard of production craft process, the temporary team organization, and the large quantities of material product category, price data and supplier data, so it causes two greatest hard questions to the item management:

Firstly, it is very difficult to establish, compute, management and share the great deal of connection data of engineering. Engineering data is composed of numerousness piece, flat surfaces and line segments. It is impossible to satisfy the data that the fine turns cost analysis and dismantle cent and gather analysis by handicraft operation.

Secondly, it is difficulty in conjunction, as results it leads to a lot of mistakes and delay. To complete a small scaled engineering also needs a nice bit of engineering line to match, it will concern many dividers and supplier cooperation, but everyone who participate in conjunction only send information to each other by copy paper currently, the efficiency is very low, the result is in dissimilarity step and leads to the mistake of construction.

4.2.4 Push Information-based Standard in Hotel

The hotel faces a new competition situation and presents a diversification competition situation nowadays; there is multi-type competition, such as new technique and lately served competition and the competition of management. The information-based standard is very important to promote competition ability to hotel.

There are both embodiments in information-based management and service in the hotel: one is to promote management efficiency, the other is to provide more information-based products and information-based service for guest, and giving customer over-valued satisfaction. The main purpose of building up information-based standard is from building design to reform the whole hotel by applying this information-based standard, and have guide line to hotel construction, service, and management and equipments types of hotel. Information-based standard and intelligence turn standard could promote the management efficiency of hotel and could actually grasp the whole operation condition that controls each link in the hotel. These closely link with saving energy, environmental protection, reducing emissions.

5. Conclusion

Intelligence building and low carbon economy is closely related, it is system engineering. Along with the intelligence building rising, the information technique has already applied to each aspect of hotel. To hotel, the information technique is an essential tool and service that has to provide, it directly influences the economic revenue and competition ability of hotel. The competition of hotel will mainly launch in the aspects of constructing intelligence and information-based, decorate inside the store, the amount of guest rooms, the room facilities waits are no longer completive advantages. So executive of the hotel must change idea and hold opportunity. Along with the extensive application of "cloud calculation", "misty control technique" and more new materials, new technique, new craft, intelligence building will definitely do one larger contribute for construction a low carbon economy world.

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