

**ANALYSIS AND DESIGN OF LOW COST INFORMATION COMMUNICATION AND TECHNOLOGY -  
BASED APPLICATION SOFTWARE FOR SUSTAINABLE TOURISM DEVELOPMENT IN AFRICA:  
NIGERIA AS A CASE STUDY**

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**ABSTRACT**

The paper conducts an investigative study into the uses and applications of information and communication technology (ICT) for sustainable tourism development (STD) with particular reference to security control and management in tourist centre across Nigeria. The researcher collected data to measure level of adoption and usage of ICT within tourist centres in Lagos State. The analysis of the data collected leads to proposition of Low Cost ICT- Based Application Software which can be used to control and manage security in tourist centers across Nigeria.

**Keywords:** Application Software, ICT, Security, Tourist Centers, STD., Lagos State.

## **INTRODUCTION**

Tourism, like any economic activity, has arguably produced detrimental security treat. The increasing rate of criminal activities within tourist centres in Nigeria is a challenge which tourism professionals continue to grapple with.

The tourism industry has responded to some of challenges in tourism industry by applying the concept of sustainable development to tourism policy and planning. Sustainable Tourism Development (Choi & Sirakaya, 2006). Tourism can be considered one of the most remarkable socio-economic phenomena of the twentieth century. From an activity “enjoyed by only a small group of relatively well-off people” during the first half of the last century, it gradually became a mass phenomenon during the post-World War II period, particularly from the 1970s onwards. It now reaches an increasingly larger number of people throughout the world and can be considered a vital dimension of global integration (Ashley C. 2001).

This research proposes that sustainable tourism development (STD) can become an effective concept through the application of ICT. STD is a positive, comprehensive and integrated approach to tourism development, which involves resource management and working together with stakeholders for the long-term viability and quality of the social, economic and environmental resources (Miller & Twining-Ward, 2005).

Nigeria has various categories of tourist centres across the nation among others are: ECO tourism, Beach Tourism, Natural/physical attraction, Rock foundation, Hill/Highland, Cave and Tunnel, Spring, Manmade, Zoological garden, and cultural tourism (M.A. Dantata 2011).

The paper focus mainly on how ICT can be full adopted for managing and controlling of security in the tourist centres. The researchers conduct an investigative research with the aid of questionnaire on current adoption of ICT in the hotels and tourist centres in Lagos state Nigeria.

Data obtained was tabulated and the result was discussed. The discussion of the result leads to proposition of design of low cost ICT based application software which can be used by some smaller hotels and tourist centres.

## **LITERATURE SURVEY**

### **Sustainable Development**

Sustainable Development stands for meeting the needs of present generations without jeopardizing the ability of futures generations to meet their own needs – in other words, a better quality of life for everyone, now and for generations to come. It offers a vision of progress that integrates immediate and longer-term objectives, local and global action, and regards social, economic and environmental issues as inseparable and interdependent components of human progress.

Sustainable development will not be brought about by policies only: it must be taken up by society at large as a principle guiding the many choices each citizen makes every day, as well as the big political and economic decisions that have. This requires profound changes in thinking, in economic and social structures and in consumption and production patterns. The diagram below illustrates the concept of sustainable development.



Figure 1: Sustainable Tourism Development

## TOURISM AND TOURISM TRAVEL

Tourism include the activities of people (visitor) travelling away From their usual environment for leisure Business and other purposes (UNWTO1991). The activities of these ‘Visitors’ includes:-Purchasing goods and services;-Travelling to, from and within a destination and-Affecting various ways of the natural and social environment.

The word ‘visitor’ as explained by the body and understood by the researcher is any person travelling to a place other than his usual environment for less than 12 months and whose main purpose of trip is other than the exercise of any activity remunerated from within the place visited. The visitors within the scope of the definition can be seen to be tourism which is a subject of a traveller who undertakes this between two or more localities within their country of usual residence (domestic tourism) or outside their country of nationality (outbound) (cit).The critical distinction here is that the visitor is away from his/her designate environment to other area different from where they normally live, work and conduct other day to day activities. The implication of this is that these activities involve the demand for services from various sectors of the economy thereby providing for the component travel inputs which qualifies it as an industry (Inskeep: 1999).

The main reason why people undertake tourism travel as credited to McIntosh (1974); Medlik et al (1981); Robinson (1976) and UNWTO (1999) are purposely for the following: Leisure; Recreation; Pilgrimage; Medical treatment; Family affairs; Festival; Sporting events; Conference; and Studies.

Inskeep (1991) gave a clear cut distinction of the components of the travel and tourism industry, which is a fundamental base of this research study. Preparatory to the components is the UNWTO(1999) definition of the travel industry which defined the industry as The composite of organizations both public and private that are involved in the development, Production, distribution, and marketing of products and services to serve the needs of the travellers

From the definition, it is obvious that the industry is all encompassing being multifaceted and multidimensional in nature as attested from the components of the industry and as identified by Inskeep to include; Transportation, Accommodation,

Food and Beverage, Support service Entertainment facilities as Nite-club, opera etc. Another theorem developed to explain the tourism industry component was put forward by Delphi Panel (1994) stratifying the component to include:- Hotels and Resorts;- Travels Agents Retails;- Tour Wholesalers;- Tourism marketing;- Cultural Resources Attraction;- National Resources Attraction;- Tourism Administration;- Tourism Transportation.

### **NEED TO INCREASE HOTEL SECURITY**

The recent killing of Miss Cynthia Osokogu Udoka, the only daughter of a retired General, in Cosmilla Hotel, Lakeview Estate, Amuwo Odofin, Festac Town, Lagos, has brought to the fore the issue of security in our hotels. Though the Lagos State Commissioner of Police, Umar Abubakar Manko told journalists that the detectives arrested the suspects using the close circuit television at the hotel where the crime was committed to identify them. Before now, the regulatory body in charge of tourism in the country, Nigeria Tourism Development Corporation (NTDC) had mounted a campaign calling for tighter security in Nigerian hotels in order to check the increasing wave of criminal activities in the industry (Alade 2012).

The Director General of the corporation has always maintained that it would not relent in its effort at ensuring that Nigeria is a safe destination for Nigerian and foreign tourists.



Figure 2: Cosmilla – Hotel where Cynthia Osokogu was strangled to death.

### **HOW CYNTHIA KILLER WAS TRAPPED**

It would probably have been more difficult for the detectives to arrest the suspects without the CCTV mounted by the hotel's management. It has become imperative for hotel owners to know that people come in and out of hotels constantly as guests, checks in and out, and so should make conscious efforts to control visitors, even at hotel lobbies considered as public spaces. With recent events and threats of terrorism in the country, hotels should review and find ways to protect not only their guests but also themselves. Hoteliers should start thinking of installing additional surveillance cameras which some people may view as infringing on their privacy, despite these feelings, video cameras on guest room floors, in elevators, stairwells and lobby areas do help in protecting guests. According to some experts, "Cameras can enable security staff to keep an eye out for suspicious behaviour and therefore, prevent crime, such as theft and assault (Osuagwu 2012).

## RESEARCH METHODOLOGY AND DISCUSSION OF THE RESULTS

### RESEARCH METHODOLOGY

Survey is one of the most cost effective ways to obtain information from a large number of people, it gives better results - more specific, accurate, faster and most cost effective ways, (McQueen and Knussen, 2002). The survey in this research work covered a sampled hotel and tourist centres in Lagos state.



**Figure 3: Map of Lagos State**

Questionnaire was used to gather data. The questionnaire was left out of any technical details and it was designed to be simple and easy to understand in order to make the respondents comfortable with the questions. The respondents were given choice of answers and were only expected to mark the answers with a tick or a cross. Using this method it was expected that the questionnaire would produce a high response rate. The language used in the questionnaire was English. Data that were generated from the questionnaires were fed into excel spreadsheet application software and presents in table and charts as follows.

Total sampled hotel and tourist centers was 51 which cut across medium, average and high class hotel tourist centres within Lagos metropolis.

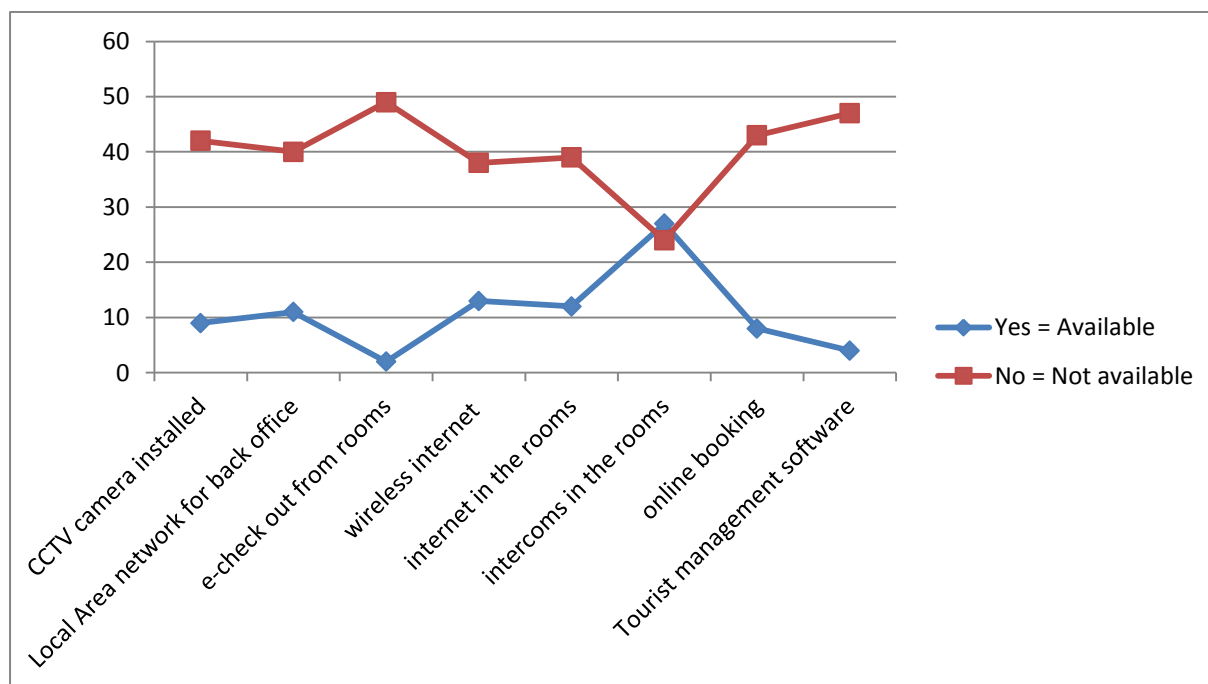
### Table and diagram

**Table 1: Hotels/Tourists considered in various locations**

Location	No of Hotels/Tourist Center for the study
Ikeja	13
Ojo	7
Badagry	9
Lagos mainland	7
Etiosa/Epe	9
Ikorodu	6

**Table 2: Data on ICT facilities in the hotels/Tourist Center considered**

ICT facilities considered	Availability in the Hotel/Tourist Center	
	Yes = Available	No = Not available
CCTV camera installed	9	42
Local Area network for back office	11	40
e-check out from rooms	2	49
wireless internet	13	38
internet in the rooms	12	39
intercoms in the rooms	27	24
online booking	8	43
Tourist management software	4	47



**Figure 4: Chart Showing the ICT facilities usage in the hotels/tourist centers**

## DISCUSSION OF RESULT

Fifty one Hotels/tourists center were sampled within Lagos state and data obtained was tabulated as in table 2 which was then converted to chart as shown in figure 1. It is absolutely glaring that the hotels/tourists center in Nigeria are not utilizing the use of ICT facilities. The percentages of availability ICT facilities sampled fall below average except for intercoms presence.

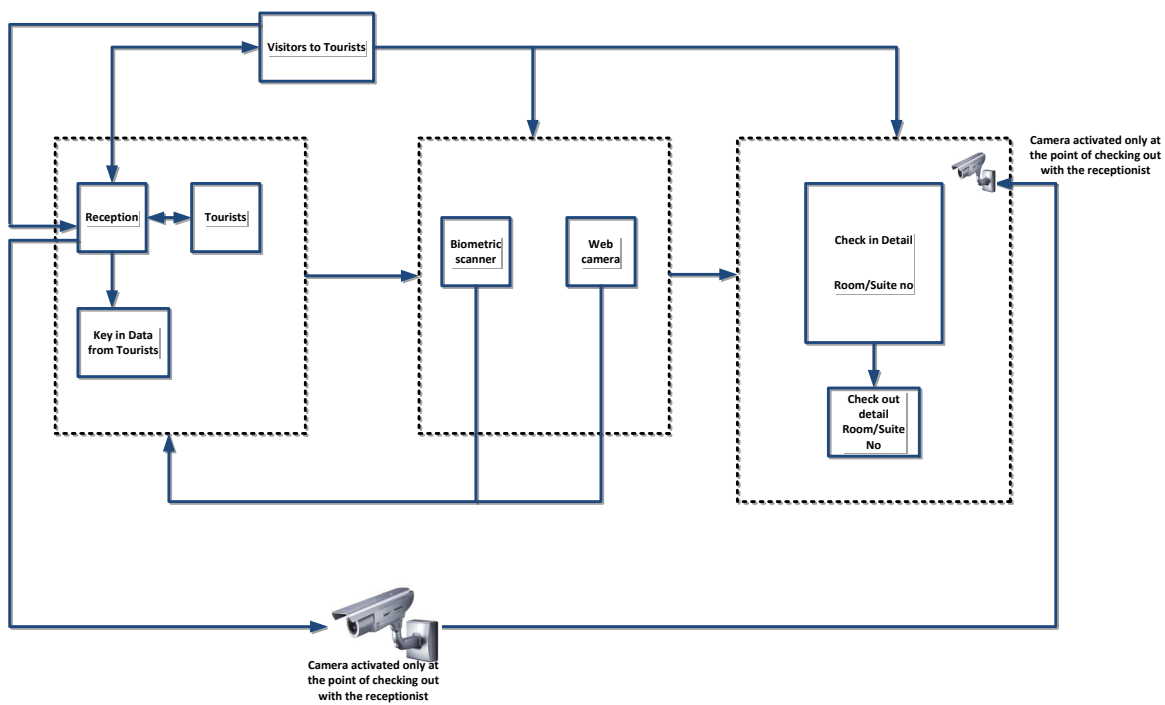
For sustainable tourism development in Nigeria, ICT must be integrated to every operation within tourism industry. This research work then proposed ICT- Based Application Software to be used in tourism center for security control and management.

**PROPOSED SOFTWARE MODEL AND DESIGN METHODOLOGY**

The discussion of the results leads to proposed design of computer software that will be used for recording the detail of customers (tourists) in any tourist centre. The software will also have biometric finger print recognition for capturing the finger print of the tourists and their accompany. The program will be design in such a way that even an ordinary computer users or the receptionist in the tourist centres can use with little or no training at all.

The program could be online or standalone. If it online-based, the customer will have opportunity of virtual booking and the reception at the tourist centres will then verify the details in the database and then check he/she in for booking period. The information recorded in the database can be used to track any of the visitors if crime is committed during his stay in the tourist centre or the hotel.

The diagram below shows the model of proposed software.



**Figure 5: Model of Proposed Software**

**RECOMMENDATION AND CONCLUSION**

Tourism is expected to resume its rapid growth in the near future. This growth can be harnessed not only for the enjoyment of tourists themselves but, more importantly, for maximizing economic benefits and thus increasing the living standards of host communities and countries.

Sustainable tourism strategies have gone a long way towards minimizing this negative impact and ensuring that the economic benefits of tourism can contribute to environmental protection and the sustainable use of natural resources. But

while environmental sustainability must remain a key component of sustainable tourism strategies, another challenge for the international community is to devise ways and means to place poverty reduction at the center of tourism planning, development and management. For sustainable tourism development in Africa, there is need for managing and controlling of security in the tourist centers. Due to this it is mandatory to integrate ICT for management and control of security in the tourist centers. This research work revealed that some of the hotels and tourists centers do not have ICT facilities as in hardware or software for sustainable tourism development. Where some of these facilities are available, there is no electric power to run them as most of the tourist centers visited is operating with use of generator. Also booking is been done manually in almost all the sampled tourist centers. Based on these it is highly recommended that government should provide an enabling environment for tourism business to survive in our country. It is highly recommended that government should set up an ICT standard that a hotel/tourists center should meet before they can operate.

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