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Deployment of Security Management Technologies in the Hospitality Industry in Lagos Metropolis, Nigeria

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Abstract

This study examined the technologies being deployed for security management in selected hotels in the Lagos metropolis and investigated factors influencing the deployment of the technologies. It also assessed the effectiveness of the security technologies in the hospitality industry with a view to improving the standard of hotel security management in the metropolis. A multistage sampling technique was adopted to select fifty (50) hotels in Lagos state that were registered with the National Tourism Development Corporation (NTDC), Abuja. Three classes of hotels namely; 3-, 4-, and 5-Star were purposively selected. Data were collected through the administration of fifty (50) copies of questionnaire to the security managers, general managers, personnel managers, and other staff of the hotels. The questionnaire elicited information on the types of security technologies used, factors influencing the deployment of the devices and effectiveness of the technologies on quality of service. The data were analyzed using descriptive and inferential statistics. The results showed that Close Circuit Television (CCTV) (100%), access pass for cars (92.9%), badges (81.0%) and lightings (97.6%) were the most used security technologies in the hotels. The study also showed that across the three classes of hotels considered, (3-, 4- and 5-Star hotels), most of the respondents considered training (4, ,4.0 and 4.2), level of knowledge and expertise (4.3,4.7 and 4.0), user acceptance (4.0, 3.7 and 4) benefit consideration (4.1, 3.7 and 4.0) and location of the hotel (3.7, 3.5 and 4.6) respectively as factors that influenced deployment of security technologies on a five-point Likert scale. In addition, the result showed positive and significant relationships between quality of service and size of hotel ($r=0.385$, $p<0.05$), and among variables such as cost-benefit consideration ($r=0.330$, $p<0.05$), coverage area ($r=0.420$, $p<0.05$), cost of maintenance ($r= 0.335$, $p<0.05$), user acceptance ($r=0.317$, $p<0.05$) and customers' attitude toward the device ($r=-0.437$, $p<0.05$). Finally, the result showed that quality of service achieved through the deployment of security technology had significant effect by increasing efficiency ($\beta=0.947$), reliability ($\beta=1.359$) and improved security ($\beta=1.058$) The study concluded that security technologies deployed by the hotels were effective as it increased efficiency, improved security, and reliability.

Keywords: *Security management technologies, Hospitality industry, Effectiveness, Deployment, Lagos, Nigeria*

1.0. Introduction

Hospitality, according to Singh (2015) means providing service to others, as well as demonstrating consistent excellence and quality. This was discovered to be one of the fastest growing industries in the world (Okpolo and Okpolo, 2002; Walker, 2010). The industry provides services such as lodging, event planning, theme parks, and transportation among others within the tourism industry. The firms that make up the industry include Recreation, Travel and Tourism and Accommodations (Popova, 2012). However, the area of interest to this work is limited to hotels which is a sub-system of accommodation within the industry. Onuaha, (2016) reported that hotels have a unique place in the economic anatomy of any state. They provide services such as hosting tourists, businessmen and investors as well as the provision of a conducive ambience and facilities for meetings, conferences, and other vital engagements. Hotels have become a second home for leisure travellers and second office for business travellers.

With rising acts of terrorism, tourists and travellers have become skeptical about security issues within hotel premises. The current paper investigates the safety-security issues haunting the thought process of guests and the modern options and approaches that hotels may use to gain the confidence of their guests. Due to these characteristics, enforcement of regulatory measures in terms of safety to the patrons and protection of investment becomes necessary. This necessitated the Nigeria Tourism Development Corporation (NTDC); an agency saddled with the responsibility of regulation of hotels to mount a campaign calling for tighter security to check the increasing wave of criminal activities in the industry (Alade, 2012). One of such measures is the adoption of security technology management.

Management of security technology as applied to the hotel business means the proactive management of security devices like security cameras, security doors, and organisational assets to improve security and add value to the core accommodation they provide for their customers to meet organisational strategic and tactical objectives even at corporate level. On a day-to-day level, effective hotel security management provides a safe and efficient working environment which is essential to the performance of the establishment and give the customers what they want and need at a price they are prepared to pay (Durodola, 2009).

Nigeria as a country is faced with serious economic challenges. This has resulted in drastic loss of value of the Naira. This can be attributed to the inability of the Nation to generate revenue from various sectors of economy, which include the hospitality sector. Every Nigerian and national of other West African nations whose economy depend on Nigeria are feeling the effect of this. Many countries are faced with the menace of increasing crime rate and Nigeria is not an exemption. This increase in crime rate may be attributed to factors such as increase in population, unemployment, poverty, single parenthood, depression, social and mental disorders, regionalism, TV violence, politics, and drug abuse (Belinda, 2016). These have manifested in armed robbery, kidnapping, violence, rape, burglary, theft, human trafficking, illegal possession of firearms, fraud, and cybercrime (Binuyo, 2019). Individuals who may use hotels as their meeting point may be the target of criminal activities. With the high level of advancement in technological innovation in security, most hotels are yet to exploit the field.

The wave of insecurity across Nigeria which ranges from killing, kidnapping, and armed robbery among others has remained a recurring phenomenon of which the hospitality industry is not an exception. Owing to the public nature of the industry, the review of the security and safety of the industry becomes imperative in crime detection and prevention. This phenomenon has, at various times, attracted scholarly attention. Though studies have been conducted on this subject matter, there is a dearth of empirical studies on the management of security technology in hotels, especially in relation to the new dimensions of insecurity and kidnapping for ransom in Nigeria's recent

democratic history. This study therefore examines the application of security technology management in securing hotels in the Lagos metropolis, Nigeria.

2.0. Related Literature

The essential elements otherwise known as the critical elements of security are those elements that constitute and facilitate effective security management. These include adequate security structure and functions in each society or environment, which could be categorized as human, material, and technical elements that support security activity. The Human Essential Elements in Security Management comprises of the Personnel; Security operatives; strength and quality of security; man-power and its functioning pattern; private and public security and law enforcement personnel. Others are citizen's level of security awareness; perceptions of security and law enforcement agencies/departments; aspects of public relations; leadership and political class perceptions and attitudes towards security matters; sources and agents for procurement of critical timely information and pertinent intelligence; agents and informants; discipline and levels of training of security personnel; access control system; security parameters of buildings and premises; security and safety of materials; types of machinery and functioning of the security system.

The material elements in security management on the other hand have to do with the logistic and administrative support to security as an institution. These are the security equipment available in the security departments, crime combat kits, adequate fire-arms, ammunitions, and advanced weaponry for combat readiness, security personnel; availability of patrol vehicles, decent office and residential accommodation, health and sports facilities to keep personnel physically fit and healthy. Others are weapons training and provision of facilities for physical, academic and professionalized training for capacity building and security personnel service insurance for ensuring the safety of personnel.

Murphy and Rottet (2009) also affirmed that technical apparatus used for interior and exterior security management, the present advancement in information technology, advancement in electronics, and the recent invention of smart technology devices to the advancement of various security gadgets are expedient. These could be categorized into communication, surveillance, alarm systems, access, and biometrics system among others. The advancement of technology is ever-increasing, and hotels have historically lagged behind industries in the implementation of technology, especially in the developing nations of the world (O'Conner and Frew, 2002). The author opined that it would be of immense benefit if technological advancement in the management of security apparatus in hotels is augmented with existing technology.

Examples of the technological element/devise system used for security in hotels are Advanced Global Satellite Communication systems (GSM) telecommunications gadgets; Advanced scientific weapon research and communication; bomb disposal technologies; and Close circuit television/camera (CCTV) technologies. Others include Audio and video surveillance and monitoring sensors, Forensic laboratory facilities, advanced photographic technologies, Satellite space technologies, Personnel explosive indicators, Conventional alarm systems, and Door metal detectors among other devices (Sharma, 2004).

Moreover, Information and Communications Technology (ICT) are necessary components of hotel business culture. ICT is no more distinctive characteristic by itself. Only effective and efficient usage can help in obtaining competitive advantage. Cameras as a product of ICT, can enable security staff to keep an eye out for suspicious behaviour and therefore, prevent crime, such as theft and assault. Information technology is everywhere currently and adding this to security communication technology, makes the possibilities of how it can be used endless.

Additionally, Hightower and Borriello, (2001) aver that the emergence of Geographical Information Systems (GIS) technologies, such as Radio Frequency Identification (RFID) and the Global

Positioning System (GPS) allows to pinpoint and track the location of people and commodities. There are a vast array of navigation and tracking systems available but principally they rely on the techniques such as proximity sensing, scene analysis and GPS technologies, which facilitate the collection of location information by enabling the location of devices (mobile phones, vehicles, electronic warping devices, etc.) to be pinpointed accurately using reference data taken from various sources most notably GPS location referencing radio signals received from satellites.

Meanwhile, the digital revolution and subsequent advances in mobile, wireless, and networked devices and the programming that drives and links them have significantly contributed to the development of security and surveillance technologies. Radio Frequency Identification tags (RFID), nanotechnology, and information technology offer the possibility of recording everyday activities. Security technologies are no longer discrete; the trend is toward convergence, creating more powerful networked systems. Thus, our everyday lives are scrutinized by many actors as never before, all made possible by developments in technology.

The advancement in technology has improved tremendously and the technology of Building Automation and Control (BAC) systems has advanced rapidly over the years. Current technology provides building owners and designers with a rich range of options and flexibility. These advances have taken place across a variety of building services including heating, ventilating, and air conditioning (HVAC) control systems, biometric systems, lighting control systems, access control systems, and fire alarm systems (Singhal and Jain, 2011). Also, O'Neil (2014) laid emphasis on the significance of biometric technology as it aims at reducing fraud and eliminating risks associated with security. Recently, airports, security companies, and financial organisations are gradually integrating biometric system applications into their workplace. Parton (2007) posits that hotels are increasingly seen as soft targets by terrorists in the world for being open and accessible. With this spread of terrorism in the world, biometric systems can help in securing hotels. This has made security an important issue for hoteliers particularly at the luxury end of the market. In addition, hotels have long suffered security breaches including network and system security, theft by employees and credit/debit card theft. These crimes can be avoided using biometric system.

The hotel sector has been less enthusiastic but are gradually waking up to the benefits which electronic distribution can bring. However, given the way in which ICT is reshaping the basic structure of both commerce and society in general, and consumers' increased demand for information, its importance to the success of a tourism enterprise can only grow in the future. As a result, tourism enterprises need to understand, incorporate, and utilize ICT strategically in order to serve their target markets, improve their efficiency, maximize profitability, enhance services and maintain long-term profitability (Law and Jogaratnam, 2005).

Hotels, like any economic enterprise has arguably produced detrimental security treats, and the increasing rate of criminal activities within hospitality centres in Nigeria is a challenge which tourism professionals continue to grapple with. The killing of Miss Cynthia Osokogu Udoka on 23rd March 2012, 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 hotels in Nigeria. The erstwhile Lagos State Commissioner of Police, Umar Abubakar Marko told journalists that the detectives arrested the suspects using the close circuit television system at the hotel where the crime was committed to identify them. Before now, the regulatory body in charge of tourism in Nigeria, Nigeria Tourism Development Corporation (NTDC) had mounted a campaign calling for tighter security in Nigerian hotels to check the increasing wave of criminal activities in the industry (Alade, 2012). It would probably have been more difficult for the detectives to arrest the suspects without the CCTV mounted by the hotel's management.

3.0. Methodology

The study area for this research is Lagos metropolis which is the commercial hub of Nigeria (Ogueleka; 2009, Kofoworola, 2007 and Olowokudejo *et al.*, 2005). Lagos is situated within latitudes 6° 23°N and 6° 41°N and longitudes 2° 42°F and 3° 42°E. According to the 2006 National Census, the State has a population of 9,013,534 while the metropolis has population of 7.937.932 (Aderogba, Oredipe, Oderinde, and Afelumo, 2012). Lagos is regarded as Nigeria's commercial and industrial centre, with small, medium, and large-scale industries distributed across the State (Braimoh and Onishi, 2006; Fourchard 2006; Oparaku 2002; Aderamo, 2012; Hopkins, 1966; Adedibu and Okekunle, 1989 and Udonwa, Ekpo, Ekanem, Inem and Etokidem, 2004). It has the largest and busiest seaport (Osayinwe, 1989, Ekpo, *et al*, 2004), with large network of roads connecting neighbouring countries. The choice of Lagos metropolis was informed by the large number of hotels in it. It is the pillar of hotel business (Durodola, 2009). This makes the metropolis the most likely to have a fair representation of hotels in the State. According to Jumia Travels and Tours, (2017) there are about 1418 hotels in Lagos state which are registered with the National Tourism Development Cooperation (NTDC), Abuja, out of which 384, 74 and 9 are 3-, 4- and 5-star hotels respectively.

The study adopted a multi-stage sampling procedure in the selection of the sample. The first stage was the purposive selection of Lagos metropolis, followed by purposive selection of hotels within the metropolis and classification of the hotels into their various classes as specified by the Nigerian Tourism Development Corporation (NTDC) and as adopted by Jumia Travels and Tours (2017). This was followed by the random selection of 50% of the 5-star hotels (5 out of 9) and 10% each of the 4 stars (7 out of 74) and 3-star (38 out of 190) hotels. This was done using a ballot system. The procedure was further followed by purposive selection of security personnel in each of the sampled hotels.

Two research instruments were used for this study. They were secondary and primary data sources. For the secondary instrument, a vendor website with the list of hotels was used to identify names, classes and location of hotels within the Lagos metropolis. Web Internet-Based map was also used in locating the hotels. Questionnaire and observation were used as primary instruments of data collection. This was administered to the hoteliers. Information elicited from the hoteliers include year of hotel establishment, capital value of the investment, ownership of the hotel, the types of security technology devices used, and reasons for the choice and the level of efficiency of the devices. Others were factors influencing deployment of the devices and effectiveness of the devices was measured.

The target respondents were the security personnel and other management staff who are presumed to have relevant information about the hotels. Fifty (50) copies of the questionnaire were administered to 50 hotels comprising 3-, 4- and 5-star hotels. The study recorded eighty four percent (84%) total response rate. According to classes of hotels, the research was able to achieve 100%, 86% and 82% response rate from the 5-, 4- and 3-star hotels, respectively. The effectiveness of each of the security technology devices that are in use were measured on five-point Likert scale of 1 to 5 (5-very effective, 4- effective, 3- moderately effective, 2-fairly effective and 1-not effective). The effectiveness of the devices in relation to Increasing efficiency; Improving return on investment, Cost effectiveness; Security and privacy control; High level of accuracy of the device; Ease of use (little training required), Reliability, improve security and Generation of new service were also measured on a 5-point Likert scale (5 – very strongly agree, 4 – strongly agree, 3 – agree, 2-strongly disagree and 1 – very strongly disagree).

The method of data analysis used for this study include descriptive statistics such as means, frequencies, percentages as well as inferential statistics such as correlation, linear regression, Analysis of Variance (ANOVA) and Duncan multiple range test. The level of significance was

chosen as 0.05, which is 95% confidence interval. The data were analysed using Statistical Package for Social Sciences (SPSS 20) software. The questionnaire was subjected to scrutiny by experts, and it was test-run in 10 hotels in Ile-Ife, Osun state. It was reviewed to ensure that necessary questions were added while the irrelevant ones were removed to ensure adequacy in the questionnaire. The validity of the scales used in this study was assessed for content and construct validity.

4.0. Results and Discussion

Table 1 reveals that about 17 security technology devices have been used for security management of hotels in Lagos metropolis. These devices are fingerprint scanner; close circuit television (CCTV), coded cards, Badges, car access passes, lighting, burglar alarm system and mechanical locks. Others include hydraulics barricade, body scanners, luggage scanners, electronic door systems, coded lift system, car mirror reflector, frequency detector, automated gates and access doors.

Further analysis of the result revealed that of all the forty-two (42) hotels surveyed, Close circuit television (CCTV), Lighting, Access pass for cars, mechanical lock and badges are used by most of the hotels representing 100.0% (42), 97.6% (41), 92.9% (39), 83.3% (35), and 81.0% (34), respectively. On the other hand, 16.7% (7) of the hotels use Burglar alarm system, 11.9% (5) use frequency detectors, 9.5% (4) use electronic door systems, 9.5 % (4) use Car mirror reflector, 7.1% (3) use Body scanner, 7.1% (3) use Luggage scanner, 7.1% (3) use Automated gate, and 2.4% (1) each use Coded card, Hydraulic barricade, Coded lift system and automated access card. However, it was observed that, although all the sampled hotels use CCTV, most of the hotels only have the device at the entrance of the premises of the facilities. While the strategic locations such as the reception, carparks, bars, pool side among others don't have the device.

The highly used devices, include CCTV, Lighting, Access pass for cars, mechanical lock and badges are' in use because of their low cost of purchase and lack of maintenance charge, except for CCTV and lighting which are relatively expensive but because of their high effectiveness and efficiency they are sought for by most of the respondents. On the other hand, the least used devices, Coded card, Hydraulic barricade, Coded lift system and automated access are capital intensive and highly technical. These may be attributed to their limited use by the hotels.

The table further reveals that all the 5-star hotels 100% have CCTV and mechanical lock, 80% of them have Access pass for cars, Lighting, Burglar alarm system, 60.0% use badges and 20%, use Fingerprint scanner, Coded card, Body scanner, Luggage scanner, electronic door system, electronic door system, Frequency detector, Automated gate and Automated access card. Considering the 4-star hotels, 100% of them use CCTV and lighting for managing security, 83.3% use access pass, 66.7% use Frequency detector, 50.0% use Badges, 33.3% use Burglar alarm system, Mechanical lock, Body scanner, electronic door system and Car mirror reflector respectively and 16.7% use Fingerprint scanner, Hydraulic barricade, Luggage scanner, Coded lift system and Automated gate. On the other hand, 100% of the 3-star hotels have CCTV and mechanical locks, 96.8% use access pass for cars, 90.3% use Badges and one each use Burglar alarm system, Luggage scanner, electronic door system, Car mirror reflector and Automated gate.

4.1. Factors Influencing the Deployment of Security Technology for Class of Hotel

Table 2 captures comprehensively the factors influencing the deployment of security technologies for the 3-, 4- and 5-star hotels. The table revealed that cost of the device (Mean=4.33, SD=0.661) and privacy concerns (Mean=4.37, SD=1.351) were ranked high and the respondents agreed that they are highly influential to the deployment of security technology. This cost of device could be due to financial reasons and probably because it is a 3-star hotel. Also, the high ranking of privacy concerns maybe because clients might not want to patronize the hotel when security technologies are installed

Table 1: Distribution of Devices in Each Class of Hotel

Device	5-Star	4-Star	3-Star	5-Star (%)	4-Star (%)	3-Star (%)
Fingerprint Scanner	1	1	0	20.0	16.7	0.0
CCTV	5	6	31	100.0	100.0	100.0
Coded Card	1	0	0	20.0	0.0	0.0
Badges	3	3	28	60.0	33.3	90.3
Access Pass for Cars	4	5	30	80.0	83.3	96.8
Lighting	4	6	31	80.0	100.0	100.0
Burglar Alarm System	4	2	1	80.0	33.3	3.2
Mechanical lock	5	2	31	100.0	33.3	100.0
Hydraulic Barricade	0	1	0	0.0	16.7	0.0
Body Scanner	1	2	0	20.0	33.3	0.0
Luggage Scanner	1	1	1	20.0	16.7	3.2
Electronic Door System	1	2	1	20.0	33.3	3.2
Coded Lift System	0	1	0	0.0	16.7	0.0
Car Mirror Reflector	1	2	1	20.0	33.3	3.2
Frequency Detector	1	4	0	20.0	66.7	0.0
Automated Gate	1	1	1	20.0	16.7	3.2
Automated Access Card	1	0	0	20.0	0.0	0.0

Table 2: Factor Influencing the Deployment of Security Technology in Three Class of Hotel

Factor	5-Star Mean	5-Star SD	4-Star Mean	4-Star SD	3-Star Mean	3-Star SD
Power Supply	4.50	0.548	4.00	1.095	3..63	0.669
Cost of Maintenance	4.10	0.837	3.67	1.366	3.50	0.682
Easy to Monitor	2.60	1.342	3.33	0.516	3.03	0.183
Cost of Device	3.90	1.095	4.33	0.516	4.33	0.661
Hotel Location	4.60	1.663	3.50	0.837	3.70	0.466
High Threat in the Area	2.20	1.095	4.33	0.516	3.53	1.676
Privacy Concern	1.80	0.837	3.50	1.225	4.37	1.351
Size of the Hotel	1.60	0.548	2.00	0.000	2.63	1.066
Training	4.20	0.447	4.00	1.095	4.20	0.805
Level of Knowledge and Expertise	4.00	1.225	4.67	1.366	4.27	1.388
Coverage Area of the Device	3.80	1.095	3.00	1.549	3.23	0.728
Durability	1.40	0.548	3.50	1.225	3.70	1.149
Government Policy	3.40	1.517	3.67	0.516	3.57	1.547
Users Acceptance	4.20	1.095	2.67	1.366	4.07	0.365
Cost-Benefit Consideration	4.00	1.414	3.67	1.366	4.10	1.626
Infrastructural Support	1.80	0.837	3.83	1.472	3.47	1.074
Management Support	1.40	0.894	2.33	1.033	3.67	1.184
Change in Customers Attitude	3.80	1.304	3.67	0.516	3.57	0.971
Flexibility of the Device	1.20	0.447	2.17	0.983	2.13	0,434
Susceptibility to Change	1.40	0.548	2.00	1.549	3.00	0.000
Cost of Installation	2.00	1.732	3.17	1.329	3.67	1.516
Operational Risk of the Device	3.00	1.000	3.33	0.816	3.27	0.828

Key: 5-Strongly Agree 4- Agree 3 – Disagree 2- Strongly Disagree

or probably because they still want to keep the running of the hotel privately for a while before deploying the technology. Training (Mean= 4.20, SD=0.805), level of knowledge and expertise (Mean=4.27, SD=1.388) and cost-benefit consideration (Mean=4.10, SD=1.626) were the next ranked factors. For training and level of knowledge and expertise, it could be because it is vital for the daily operations of the security devices, and they need the necessary knowledge to ensure the devices are well handled. Other factors which the respondents agreed were vital to the deployment of security technology though not highly ranked were power supply (Mean=3.63, SD=0.669), hotel location (Mean=3.70, SD=0.466) and infrastructural support (Mean=3.47, SD=1.074).

The result shows that level of knowledge and expertise (Mean=4.67, SD=1.366) was the highest ranked and the respondents agreed that it is highly influential to the deployment of security technology for 4-star hotels. This may be due to the fact that knowledge and expertise is a prerequisite for the daily operations and monitoring of the security devices. It could also be ranked high because it is vital to have the required expertise to monitor and detect faults on the devices. Cost of device (Mean=4.33. SD=0.516), power supply (Mean=4.00, SD=1.095), cost of maintenance (Mean=3.67, SD=1.366) and cost benefit considerations (Mean=3.67, SD=1.366) were the next ranked factors and the respondents agreed they are influential to deployment of security technology. The respondents agreed that power supply is a vital factor for deployment probably because security devices need to be up and running on a 24-hour basis and power failure could cause a failure in the security system. For 5-star hotels, the managers and staff of the hotels sampled agreed that hotel location (Mean = 4.60, SD=1.663), power supply (Mean = 4.50, SD = 0.548), cost of maintenance

(Mean = 4.10, SD = 0.837) and users acceptance (Mean = 4.20, SD = 0.447) were influential factors to deployment of security technologies in their hotels. Hotel location is an important factor may be because 5-star hotels are located in expensive localities and serene environment that needs security technology in order to keep up with the demand of their clients. Users' acceptance is vital probably because before deployment the perception of customers as regards security technologies must be put into consideration. This result is in line with the report by Chang and Kannan, (2002) that user's acceptance should be resolved before deployment. Also, Kuschchu and Kuscu, (2003) said that user's requirement has to be handled in order to gain acceptance by eventually deploying the security technology. The respondents also agreed that training (Mean=4.20, SD=0.447) and level of knowledge and expertise (Mean = 4.00, SD =1.225) which were influential factors for both the 3- and 4-star hotels were also influential for 5-star hotels. The respondents also agreed that cost-benefits consideration is influential for deployment. The reasons the 5-star hotels respondents gave for agreeing that training and level of knowledge and expertise are influential is similar to that of 3- and 4-star respondents.

4.2. Correlation matrix of factors influencing the deployment of security; technology in hospitality industry

Appendix 1 shows the correlation matrix of factors influencing the deployment of security technologies in the hospitality industry. The appendix shows that there are positive and significant relationships between the dependent variable (Quality of service) and independent variables. There is a positive and significant correlation between quality of service and size of hotel (r=0.385) at 0.05 level 2-tailed. It also showed that, there are a positive and significant correlation between cost of maintenance and cost-benefit consideration (r=0.330) at 0.01 level 2-tailed, user's acceptance (r=0.317) at 0.05 level, coverage area (r=-0.420) and infrastructural support (r=0.551). Customer's attitude and size of hotel (r=0.365). Also, it showed that there is a positive and significant correlation between training and level of knowledge and expertise (r=0.204) at 0.05 level. This probably means that training and level of knowledge and expertise are significantly important in the operations of security devices. Lack of familiarity with security technology could greatly hamper deployment (Broadbent et al, 2009), therefore, the need to educate and train staff, security personnel and those

specifically assigned to handle the security devices so that they can evaluate and recommend appropriately when the need arises (Koesnigsfeld et al., 2012). It further showed that there is a negative and significant correlation between customers attitude and privacy concerns (r=-0.367) at 0.05 level. The result is in line with Bilgihan *et al.* (2013) who reported that the respondents had issues with the security technologies in hotels. The study of James et al. (2006) also supported this claim.

4.3. Effectiveness of Security Devices Deployed in Class of Hotels

Table 4a shows the effectiveness of the various security devices under consideration for this study. The table revealed that Closed Circuit Television (CCTV) was rated as very effective as indicated by 47.6% of the respondents, while 33.3% respondents claim said it is effective and 19.0% moderately effective. This could be because 80.9% of the respondents that revealed CCTV effective had seen its obvious benefits. For Lighting, 31.7% of the respondents indicated it very effective, and 48.8% indicated just effective. About 26.0% of the respondents for Access pass indicated the device was very effective followed by 41.0% who indicated just effective while 33.3% said it is moderately effective. For electronic door system, only 3 (75.0%) indicated very effective and just one (25.0%) rated it as effective. For hydraulic barricade, only 1 (100.0%) indicated effective and same result applies for automated access door.

In addition, Table 4b reveals the linear regression of effectiveness of the deployment of security devices in hotels. Ordinary least square regression was employed to determine the effect of the dependent variable (Quality of service) on the independent variables. The result showed that increased efficiency, cost effectiveness, reliability and improved security were found to be significant.

Table 4a: Effectiveness of Security Devices Deployed

Types of Devices	Effectiveness				
	Very Effective	Effective	Moderately Effective	Fairly Effective	Not Effective
Finger Print Scanner	3(75.0%)	1(25%)	-	-	-
CCTV	20(47.6%)	14(33.3%)	8(19%)	-	-
Coded Card	-	-	-	-	1(100%)
Badges	6(17.1%)	16(45.7%)	13(37.1%)	-	-
Automated Access Card	-	-	20(100%)	-	-
Access Pass for Cars	10(25.6%)	16(41.1%)	13(33.3%)	-	-
Lightening	13(31.7%)	20(48.8%)	8(19.5%)	-	-
Burglar Alarm System	5(100%)	-	-	-	-
Mechanical (Pad)lock	4(11.8%)	20(58.8%)	10(29.4)	-	-
Hydraulic Barricade	1(100.0%)	-	-	-	-
Body Scanner	-	2(100%)	-	-	-
Luggage Scanner	1(50.0%)	1(50.0%)	-	-	-
Electronic Door System	3(75.0%)	1(25.0%)	-	-	-
Coded Lift System	-	1(100%)	-	-	-
Car Mirror Reflector	2(50.0%)	2(50.0%)	-	-	-
Frequency Detector	5(100.0%)	-	-	-	-
Automated Gate	2(66.7%)	1(33.3%)	-	-	-

Table 4b: Effectiveness of the Deployment of Security Devices

Model	Unstandardized Coefficients	Standardized Coefficients	T	Sig.	
	B	**Std. Error**	Beta		
Constant	1.947	1.422		4.088	0.285
Increased efficiency	0.947	0.163	2.186	2.905	0.005
Improved Return on Investment	0.001	0.160	0.001	0.008	0.994
Cost Effectiveness	0.402	0.185	0.381	2.169	0.038
Security and Privacy Control	0.259	0.193	0.264	1.344	0.189
High Level of Accuracy of the Device	-0. 137	0.158	-0.158	-0.870	0.391
Ease of Use (Little Training Required)	0.297	0.191	0.310	1.552	0.131
Reliability	1.359	0.173	4.420	2.074	0.042
Improve Security	1.058	0.182	5.062	1.318	0.002
Generation of New Services	0.157	0.126	0.219	1.245	0.223

For a unit change in quality of service there will be a corresponding change in increased efficiency by (β=0.947, p=0.05) for unstandardized coefficient and (β=2.186, p=0.05) for standardized coefficient. This may be because deploying security devices across the various classes of the hotel could lead to more efficiency in the day-to-day running and management of the hotels.

In the same vein, a change in the quality of service would cause a change in improved security by (β= 058, p=0.05) for unstandardized coefficients and β=5.062, *p=0.05*) for standardized coefficients. This could be because of the respondents had an insight into what the quality of service the devices would provide, it will engender the purchase of more security devices that are even sophisticated that will be installed in every nook and cranny of the hotel. This might ensure the quality of security within and outside the hotel is tight and improved. In addition, a unit change in the dependent variable will cause a corresponding change in reliability (B=1.359. *p=0.05*), while unit change a quality of service will cause a change in cost-effectiveness by ($=0.402, *p=0.05*).
Table 5 reveals the ANOVA and Duncan multiple range test for effectiveness of the deployment of security technology in the selected hotels. ANOVA was used to separate means by classification of hotels in the industry, while Duncan multiple range test was used to determine the mean difference in each classification. The table revealed that increased efficiency, ease of use, reliability and improved security were significant. For increased efficiency, the table shows that the respondents agreed across the classifications of the hotels that deployment of security technologies in their hotel led to increased efficiency and at the same time significant.

For ease of use, the respondents also agreed across the various hotels that it is very easy to use because little training is required for its operations. But the responses by the respondents of the 4-star hotels indicated that it was significant, while responses from 5- and 3-star hotels respondents showed it is not significant. This could be because their reason for low levels of deployment.

Table 5: Effectiveness of the Deployment of Security Technology among Classes of Hotels

Effectiveness	5-Star	4-Star	3-Star	F	P
Increased efficiency	4.40[a]	4.33[a]	4.39[a]	1.555	0.004
Improved Return on Investment	4.20[a]	4.33[a]	4.06[a]	0.0118	0.889
Cost Effectiveness	4.40[a]	4.17[a]	3.94[a]	0.789	0.457
Security and Privacy Control	3.60[a]	3/83[b]	3.87[b]	3.161	0.053
High Level of Accuracy of the Device	4.40[a]	3.67[a]	3/61[a]	0.845	0.437
Ease of Use (Little Training Required)	4.13[a]	4.00[a]	4.60[a]	3.619	0.036
Reliability	3.60[a]	4.17[a]	3.84[a]	0.914	0.010
Improve Security	4.60[a]	4.50[a]	4.40[a]	1.896	0.014
Generation of New Services	3.80[a]	4.00[a]	3.10[a]	1.785	0.181

Means in the same row with the same superscript are the same

5.0. Conclusion

The study concluded that security technologies deployed was mostly CCTV. It was as well established that major factors responsible to have influenced deployment of security technology effectively were found to be training, level of knowledge and expertise, user acceptance, cost-benefit consideration, location, coverage area and size of hotel. The study also showed that the deployment of security technology was noted to have been effective as it increased efficiency, improved security and was reliable.

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Appendix 1

	Y	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	X16	X17	X18	X19	X20	X21
Y	1																					
X1	-0.17	1																				
X2	0.064	0.335*	1																			
X3	0,077	0.102	0.435**	1																		
X4	0.034	0.279	0.365*	0.312*	1																	
X5	0.254	0.329**	0.368*	0.247	0.203	1																
X6	-0.087	-0.248	-0.054	0.042**	0.179	0.127	1															
X7	-0.131	0.167	-0.113	-0.207	0.159	-0.257	-	1														
X8	0.385*	-0.237	-0.114	-0.119	-0.252	-0.028	0.02	-0.359*	1													
X9	0.09	-0.261	-0.175	-0.127	-0.188	0.064	0.107	-0.141	0.26	1												
X10	0.079	-0.13	-0.192	-0.061	0.066	-0.143	0.125	0.235	0.006	-0.004	1											
X11	0.096	-0.12	-0.420*	-	0.066	-0.073	-0.065	0.178	-0.045	0.477**	0.226	1										
X12	-0.147	0.236	-0.03	0.131	0.394**	0.036	0.043	-0.05	-0.083	0.025	-0.185	-0.072										
X13	0.147	0.201	0.317*	0.211	0.136	0.385*	-0.195	-0.132	0.095	0.088	0.096	0.006	1									
X14	0.047	0.182	0.730**	0.293	0.286	0.385*	-0.093	-0.05	-0.053	-0.333*	-0.196	-0.537**	0.296	1								
X15	-0.133	0.287	0.551**	0.095	0.205	0.172	-0.164	0.187	-0.255	-0.214	-0.269	-0.2	0.316*	0.685**	1							
X16	0.177	-0.182	0.197	-0.1	-0.046	0.097	-0.062	-0.229	0.145	-0.061	-0.226	-0.118	0.127	0.211	0.251	1						
X17	0.285	-0.265	0.071	0.097	0.142	-0.197	0.169	-0.367*	0.365*	0.242	-0.198	-0.086	0.124	0.201	0.1	0.303	1					
X18	-0.103	0.128	0.397**	-0.09	0.185	0.14	-0.221	0.125	-0.112	-0.360*	0.02	-0.213	0.151	0.574**	0.456**	0.504**	0.179	1				
X19	0.277	0.055	0.049	-0.2	0.063	-0.192	-0.27	-0.083	0.265	-0.012	-0.305*	-0.062	0.102	0.219	0.155	0.015	0.072	-0.014	1			
X20	-0.042	0.268	0.231	0.067	0.236	0.082	-0.327*	0.087	0.042	-0.380*	0.379*	-0.148	0.004	0.218	0.208	-0.048	-0.045	0.018	0.291	1		
X21	0.081	0.144	0.128	0.095	0.004	0.124	-0.024	-0.341*	0.399**	-0.341*	0.133	-0.360*	0.356*	0.277	0.093	0.112	0.266	0.189	0.185	0.198	1	
X22	-0.259	-0.034	0.086	-0.132	-0.003	-0.148	0.151	0.105	0.06	-0.167	0.003	-0.071	0.041	0.209	0.264	0.328*	0.146	0.467**	-0.319*	-0.129	0.231	1

*Correlation is significant at 0.05 level (2- tailed)
** Correlation is significant at 0.01 level (2- tailed)

Legend

Y= Quality of service
X_1 = Power supply
X_2 = Cost of maintenance
X_3 = Easy to monitor
X_4 = Cost of device
X_{10} = Level of Knowledge and expertise
X_{12} = Durability
X_{21} = Susceptibility to changes in environment
X_5 = Location
X_6 = High threat in the area
X_7 = Privacy concern
X_8 = Size of hotel
X_9 = Training
X_{11} = Coverage area
X_{13} = Users acceptance
X_{22} = Operational risk
X_{14} = Cost – Benefit consideration
X_{15} = Infrastructural support
X_{16} = Management Support
X_{17} = Changes in customers attitude
X_{18} = Flexibility of the device
X_{19} = Government policy
X_{20} = Cost of Installation