Determinants of ICT Adoption among Hotels in Kenya: A Multiple Case Study Approach

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Abstract

Information communication technology is changing how hotels conduct their business in the global tourism market prompting a number of hotels to use ICTs to improve their business operations. The aim of this study was to identify factors that determine ICT adoption among hotels in Kenya. Multiple case study approach was used to collect and analyse data from hotel managers drawn from 10 hotels in Nairobi and Mombasa regions in Kenya. The interview data was thematically analysed and five factors namely organization needs and perceived benefits, organizational capacity, technology characteristics, market characteristics and organization characteristics were identified as key determinants of ICT adoption by hotels in Kenya. The study findings provide useful insights for guiding ICT adoption and application decisions at the hotel, particularly for developing countries.

Keywords: ICT adoption, hotel, multiple case studies, Kenya.

Introduction

Information Communication Technologies (ICTs) have assumed a central position in the development agenda of most organizations due to their critical role in facilitating business operations. Throughout the world, there has been a paradigm shift where organizations have realised the importance of information and communication technology (ICT) as a strong strategic tool for improving their performance. Similarly, organizations within the travel and tourism industry have not been left behind in ICT usage.In fact, ICT usage within the tourism industry dates back to the early 1960s when the first computer reservation system (CRS) was produced by the American Airline (International Federation for IT and Travel & Tourism [IFITT], 2013).Since then, the tourism industry has matured and is seen as one of the biggest and quickest developing industries in the globe, accounting for more than one third of the total global service trade (International Labour Organization (ILO), 2010; Walker, 2010; Zelenka, 2009). This exponential growth is attributed to a number of factors, among them, technological advancement.

While technology is generally considered a key factor towards the expansion and growth of the tourism industry (Ansah, Blankson, &Kontoh, 2012; Hospitality Technology, 2002; Petre, Stegerean, &Gavrea, 2012), its major impacts have for a long time been felt only in one major sector of the industry: the airlines (International Federation for IT and Travel & Tourism [IFITT], 2013).

Other sectors, in particular the hotel, have been less enthusiastic in adopting ICT in the past decades. In fact, the rate of ICT adoption has been found to be quite uneven across the hotels (Hoontrakul&Sahadev, 2007) particularly in developing countries. While large international hotel chains and those in economically developed countries proactively employ advanced ICTs, hotels in the developing countries dawdle in the large scale adoption of ICTs (Hoontrakul&Sahadev, 2007; Magnini, Honeycutt, & Hodge, 2000).This notwithstanding, the contribution of ICT in the tourism industry is widely recognised among several tourism and hospitality literature. A number of authors (e.g. Eze, 2013; International Labour Organization (ILO), 2010; Mihalič&Buhalis, 2013; Mutua&Wasike, 2009; Sahadev& Islam, 2005; Sirirak, Islam &Khang, 2011; Zelenka, 2009; Petre, Stegerean&Gavrea, 2012; Nwakanma*et al*., 2014)have indicated that the adoption and application of ICTs by business firms leads to improved efficiencies in operations and customer service levels and thus results to comparative advantage. Due to prevalence of ICT and the need to adopt and use ICTs to enhance hotel performance generally, there is a need to understand the factors that determine a hotel ability to adopt ICTs, particularly in developing countries like Kenya. This study, therefore sought to examine factors that determine ICT adoption among hotels in Kenya. It was guided by the following research question:

RQ: *What are the key determinants of ICT adoption among three to five star hotels in Kenya?*

2.0   Literature Review

2.1 ICT Adoption Factors

ICT has been described as simply working with computers (Adeosun, Adeosun, &Adetunde, 2009); technology used to support information gathering, processing, distribution and use(Beckinsale& Ram, 2006). According to Rice and Leonardi (2013), ICTs generally refers to the devices, applications, media, associated hardware and software that receive and distribute, process and store, retrieve and analyse, digital information, between people and machines (as information) or among people (as communication). In the organisational context, ICT entails a wide scope of computer-based digital systems ranging from transaction and information processing to wired and wireless communication media, linked through internal intranet or external internet and wireless networks (Rice &Leonardi, 2013).Evidence suggests that afirm's propensity to adopt a new ICT is affected by several factors, both internal and external (Sahadev& Islam, 2005;Nkwamana*et al*., 2014), which are connected to each other.The "external (internal) environment consists of those physical and social factors outside (within) the boundaries of the organization or specific decision unit that are taken directly into consideration" (Duncan, 1972, pp.314). The concept of ICT adoption has been widely investigated across many organizations ranging from manufacturing to service industries with a number of authors (e.g. Rice &Leonardi, 2013; Nwakanma*et al*., 2014; Lee & Lee, 2010; Bayo-Moriones&Lera-Lopez, 2007) dedicating their time trying to understand the factors that impacts ICT adoption by firms.While recent studies have indicated a keen interest by hospitality and tourism organizations on ICTs (Nwakanma*et al*., 2014; Sahadev& Islam, 2005; Crystal, Leung & Law, 2011; Duffy, 2010; Law, Leung &Buhalis, 2009; Mihalič&Buhalis, 2013; Sirirak, Islam&Khang, 2011), the rate and degree of ICT adoption varies considerably across the hospitality and tourism enterprises (Sigala, 2003; Sahadev& Islam, 2005).

2.1.2 Internal Organization Factors of ICT Adoption

There is consensus in the extant literature regarding to contingency and structural factors that determine ICT adoption by organizations with a number of studies (Nwakanma*et al*., 2014; Mutua&Wasike, 2009; Yousaf, 2011; Seyal*et al*., 2007; Bayo-Moriones&Lera-Lopez, 2007) pointing to the relevance of adopters characteristics (e.g. firm size, firm location, age, capabilities, etc.) in determining ICT adoption. Nwakanman*et al*. (2014) for instance considered the geographical position of a hotel as a significant causal factor of ICT adoption by hotels as this would limit their market size, profile of visitors it targets and competition level.Seyal*et al*. (2007) in their study reported that organizational attributes such organization nature and size as well as type of business are important predictors of SMEs adopting e-commercialism.Bayo-Moriones and Lera-Lopez (2007) also described five key factors among them firm structural characteristics as influential in determining ICT adoption by a firm.

Also linked to this is the capacity of the organization to embrace ICT. Capacity in this context focuses on the competency level of the organization to use the ICTs once adopted and include management ICT expertise and skills (Samkange& Crouch, 2008; Seyal*et al*., 2007), staff ICT skills (Lee & Lee, 2010), the capital budget for procuring ICTs once an organization has decided to adopt.

Only those organizations with the relevant internal capability can successfully adopt and use ICTs for achieving positive results (Lee & Lee, 2010; Hikmet*et al*., 2008). In addition, (Crystal, Leung & Law, 2011) propose the need for learning appropriate habits and practices by concerned people in order to successfully adopt and apply ICTs in organizations.

2.1.3 External Organization Factors of ICT Adoption

Another broader category of ICT adoption factors relates to the external operating environment of an organization. Organizations including hotels are considered to be open systems that constantly interact with their external environment. They obtain inputs from the environment, respond to its demand and offer their services and product to it (Damanpour& Schneider, 2006). The concept of external dynamism is brought about by a number of factors that emanate from the external organization environment. In this regard, Mutua and Wasike (2009) in their study proposed that ICT adoption should generally focus on two sets of determinants from the external environment: features within the competitive market environment (e.g. level of prices, existence of information spill over among potential users, etc.) and attributes of the technology (e.g. compatibility with existing solutions, etc.). A similar sentiment is shared by Yousaf (2011) who found out that, market characteristics and the degree of competition greatly influences the likelihood of hotels adopting a peculiar technology.This supports Baggio (2004) contention that the hospitality industry is sensitive to the ever-increasing competitive pressure, implying that the intensity of competition would be decisive in determining ICTs adopted by hotels.In addition, the extant literature (Olsen & Connolly, 2000; Law, Leung &Buhalis, 2009) contend that ICT adopters should also consider the needs of its customers implying that customers are centric to ICT adoption by an organization. According to Mistilis, Agnes and Presbury (2004), the customers in this regard should also include the suppliers. Given the variations in hotels in terms of the external and internal factors that affect their propensity to adopt ICTs, there is generally a need to understand these factors in respect to different contextual set up of the hotels.

3.0   Research Methods

This study implemented a multiple qualitative case study design (Yin, 2009) for collecting and analyzing data. This approach was considered suitable for this study for three reasons: (1) case study enable researchers study factors and their relationship (Oates, 2005) making it suitable for studying IT adoption and implementation components, (2) case studies provide researchers with a better understanding of nature and complexities of issues happening in organizations (Benbasat, Goldstein & Mead, 1987) and (3) case studies while not offering generalizable results can be used to generalize to theoretical propositions (Yin, 2009) that can be tested further quantitatively.

3.1 Case Selection and Data Collection

The sample for the study was selected purposefully since qualitative research is often about depth, nuance and complexity and focuses on specific issues, processes, phenomena etc.(Miles & Huberman, 1994; Mason,2002; Patton, 2002). Face-to-face interviews were conducted with 10 hotel managers drawn from hotel in Nairobi and Coast regions in Kenya. Hotels considered here ranged from three-five star hotels. Prior to conducting the interviews, target respondents were identified and phone calls made to establish contact with the target respondents requesting them to take part in the interview.This was then followed with an introductory letter. This was deemed necessary in order to have a favourable response. Two days prior to the agreed interview dates, phone calls were made to the targeted respondents reminding them of the impending interview. All the interviews were conducted by the lead researcher with each respondent in the confines of their offices. This was believed would make the interviewee feel more comfortable and encourage him or her to speak expansively on a topic (Creswell, 2007; Turner, 2010; McNamara, 2009). It also offered room for interaction so as to achieve fullness and profundity of understanding the topic of discussion (Rubin & Rubin, 1995).

Before the interview, informed consents were obtained through letters that indicated the researcher intention to conduct research in the targeted hotels, with the managers as the targeted respondents. The letter defined the nature of the inquiry, the routines in which participants were expected to take part, a description of the means by which confidentiality was to be protected, contacts of persons to whom inquiries and complaints about the research can be conducted, and a description of the risks and benefits of the research. Generally, part of the interview question for this paper required the respondents to give their insights regarding their considerations when adopting any new ICT in the hotel.

In order to identify key determinants of ICT adoption among three-five star hotels in Kenya, the hotel managers interviewed were asked the following questions: (1)*"What consideration do you make when adopting any new ICT?"* and (2) "*Can you take me through the rationale to introduce ICTs in managing hotel operations processes?"*

To capture their responses for analysis, research assistant were used to take interview notes and to ensure that the researcher did not miss on any pertinent information, the entire interview sessions were alsorecorded using a digital voice recorder after agreement with the respondents. At the end of each interview, the interviewer was requested to review the interview notes for accuracy of representation. Later on, the interview transcripts were mailed to the informants to see if the interview itself was accurately portrayed. At the conclusion of each interview also, the researchers reflected on the interview session, compared notes and made modifications where necessary. These helped enhance validity of the data collected (Bashir, Afzal, &Azeem, 2008; McMillan & Schumacher, 2006).

3.2 Data Analysis

A three step procedure consisting of data condensation, data display and data conclusion-drawing/verifying (Miles, Huberman & Saldana, 2014) was applied to each interview as it came in to thematically analyse the data.

3.2.1 Data Condensation

Data condensation is the process of choosing, focusing, and simplifying, building and transforming data in the interview transcripts (Miles, Huberman & Saldana, 2014). It involved the researcher reading through the interview transcripts, and highlighting sections of each participant's full text transcript that could be used to answer the research question. The data was then broken down into distinct constituents and examined thoroughly to identify similar data which were then grouped into categories or codes (Strauss & Corbin, 1998). Further scrutiny saw the data being condensed further to generate main themes and sub-themes or codes. After identifying the themes, the researcher read through the content again and again to compare, contrast and search for any missing information and ensure that the full picture of the participant's story was captured. Multiple coders (2) were used in order to increase coding reliability (Miles & Huberman 1994). These coders were taken through training facilitated by pilot interviews which had a sample of two (2) hotel managers. They were then presented with copies of the interview transcripts each and were asked to use the information to generate relevant themes and their related text extracts from the transcripts. Their results were compared and since there was no much significant difference in their outputs, they were asked to combine their codebooks into one which was used for this study.

3.2.2 Data Display

The emerging themes and relevant direct quotes from the interview transcripts are presented to provide supportive meaning to the interpretation of some statements (Patton, 2002).

3.2.3 Conclusion Drawing and Verification

This involved assigning meanings and sense to the analysed data by finding regularities, similarities, patterns, explanations and propositions in relation to the research question (Miles & Huberman, 1994).

4.0 Findings and Discussions

Varied views and opinions regarding consideration for ICT adoption and *the rationale to introduce ICTs* by hotels were elicited and these were categorized into five themes, namely the organization needs and perceived benefits, organizational capacity, technology characteristics, external environment and organization structure.

4.1 Organization Needs and Perceived ICT Benefits

In answering the question "What consideration do you make when adopting any new ICT?" a very interesting point that came out clearly is that a hotel needs to evaluate itself in terms of ICT needs and requirements. A common thread through the various narratives of the participants was their implicit and explicit reference to organization needs in relation to benefits that would be derived from ICT adoption and application. Their narratives demonstrates respondent's beliefs that hoteliers must understand their ICT needs before adopting any particular ICT as well as the eventual benefit that would be attributed to the ICT adopted once put into use.

> "…the organization should understand why a particular technology is required by the hotel in the first place…As a manager, you need to have an understanding of how such a technology will be of most importance to the organization…" Interview: Participant 4)

While this findings present new insights for ICT adoption, it generally supports Cobanoglu (2014) preposition that there is need for assessing organization needs before any ICT related system is put into place. The study revealed that when assessing the hotel ICT needs, critical questions needs to be addressed by the intended adopters as articulated by one of the interviewees.

> "…Before adopting any given ICT for your hotel, you need to ask yourself the following questions (pose): Why are you investing in a given ICT? Are you just adopting because your competitors are doing so? The answer is NO…Understand the goals of your organization as the principal guideline to making any ICT investment decision". (Interview: Participant 7)

Providing answers to these questions will generally help ICT adopters in the hotel take into consideration all the ICT needs of the hotel making them only adopt the relevant systems they need and as such avoid wasting money on unnecessary ICTs. The adopters also need to understand the potential benefits that will be realized from the ICTs to be adopted.

4.2 Organization Capacity

The majority of interview respondents also felt that aside from organization needs and benefits to be rendered by ICTs once adopted, a hotel must have sufficient financial resources, expertise, skills and knowledge to be able to handle a given line of ICTs. For instance, one of the respondents expressed that:

> "…hotels should analyses themselves to determine whether they have what it takes to adopt a particular line of ICT. As a manager and the hotel generally, understanding your ability in handling a particular ICT is very important not just for its adoption, but also for ensuring that once adopted, the ICTs are put into practical use. You need to have the relevant resources including staff with skills and expertise in ICT use as well as finances for procuring and maintaining ICT facilities once adopted." (Interview: Participant 2)

Another respondent enunciated that:

> "…Given the magnitude of finances required in installing some of ICTs for the hotel, the owners and managers of a given hotel must avail the necessary financial resources for not only procuring the ICT facilities but for the continued sustenance of the facilities once adopted… You also need finances for training your existing staff on newly adopted ICTs." (Interview: Participant 6)

The interview narratives basically point to the need for conducting organization capacity analysis in relation to ICT adoption and as such adopters need to ask themselves a number of questions in relation to ICT adoption as expressed by one of the respondents:

> "…it's very important to analyse organization capacity by addressing questions such as: Do you have the financial muscle to invest in such a technology? Do you have the expertise required in using the technology? How skillful are your staffs? Do they require training or you need to recruit others? What is the financial implication? How knowledgeable are you as their manager about ICT use? Will there be some resistance on the part of the employees? How do you overcome these?" (Interview: Participant 5).

These findings corroborate those of similar studies (Samkange& Crouch, 2008; Seyal*et al*., 2007; Yousaf, 2011; Lee & Lee, 2010). Organization capacity to adopt ICT is a critical determinant since it will influence the implementation stage of the adopted ICTs. The findings suggest that by hotel having the capacities to adopt particular ICTs, and then they will be successfully implemented to meet the organization needs for which they are being adopted. A similar view is shared by a number of authors (Lee & Lee, 2010; Hikmet*et al*., 2008) who point out those organizations with the relevant internal capability can successfully adopt and use ICTs for achieving positive results.

4.3 Technology Characteristics

The interview narratives also points to need for addressing technology characteristics as a determinant of ICT adoption by hotels. The managers categorically mentioned that technology attributes must be considered as they greatly influence technology adoption and application. Common threads attributed to technology characteristics included technology reliability, ease of use, availability, technology complexity and compatibility with existing ones. These they felt would not only impact adoption but eventual use of the adopted ICTs. For instance, one of the participants expressed that:

 "Some technologies are complex while others are not. While complex technology may not be problematic to put in place, their implementation may present challenges to their users (e.g. staff) which may lead to their eventual aborted use. As a result, the kind of ICT adopted must be easy to use and should be compatible with existing technologies in order to save on present and future cost since an organization may not require an entire overhaul of existing technology to have new ones in place". (Interview: Participant 3).

In this regard, one of the respondents also presented some questions that adopters need to address in relation to technology characteristics:

"…To critically examine technology issue that hotel managers should address before adopting any technology, the management should provide answers to the following questions: How friendly the technology to its users is, is it easy to maintain? What's the maintenance cost? Can it be integrated with other existing technologies or does it hold the potential to be integrated with future technologies? Can it be easily obtained? What is its implication on the general environment? How sustainable is the technology? Is there potential for it to become obsolete in the near future? How can one overcome such potential obsoleteness? Is it readily available? Should it be customized for the hotel or should it be a generic?" (Interview: Participant 8)

The findings generally support Mutua and Wasike (2009) who articulated that adopters of any technology should address technological attributes that may influence sustained use of the ICT once adopted. For instance, the issues of technicality may prove daunting for eventual use who may find a particular ICT system very difficult to use hence may not use it.

4.4 External Organization Dynamics

From the interview responses, it was also evident that hotels operate in an environment that is dynamic and in one way or the other influence hotel business operations thus ICT adoption. Common narrative threads related to external environment apart from technology included market characteristics such as competitors, suppliers, government agencies and even the customers. Their narratives demonstrate respondent's beliefs that these market characteristics effects on hotel operation keeps on changing, a reason enough for hotel managers to be on the lookout. Their responses indicate particular concern with the rate at which other players in the market continuously influenced how technology is adopted and used in the hotel industry. For instance, one of the respondents expressed that

"…who doesn't know the rate at which technology, particularly the internet, has affected todays' hospitality clients? In today's hospitality business we are dealing with 'digital customers' that include our suppliers and customers who bring with them varied demands relating to technology use. These must be put into consideration at the adoption stage of ICT without overlooking government regulations and sometimes what your competitors are using..." (Interview: Participant 6).

These findings corroborate many other similar studies (Olsen & Connolly, 2000; Mistilis, Agnes & Presbury, 2004; Law, Leung &Buhalis, 2009) that suggest that effective ICT adoption and application should focus on immediate and constantly changing environmental factors that affect the business. By being an open system, it means a hotel continuously interact with all those institutions and forces outside the organization that potentially affects its behaviour and business operations. A hotel for instance, constantly interacts with customers, suppliers, government agencies, competitors, among other externalities that affect their business operations and given the fact that ICTs are considered for enhancing business operations (Rice & Leonardi, 2013; Sahadev & Islam, 2005; Nwakanma*et al*., 2014; Law, Leung &Buhalis, 2009; Mihalič&Buhalis, 2013; Sirirak, Islam &Khang, 2011), these externalities should therefore be considered in the adoption stage.

4.5 Organization Characteristics

Another theme that emerged from the interview narratives was organization characteristics. In this line, common threads from the interview narratives included hotel size, location, design, grade, type, ownership, management structure and style and type of clientele targeted. Their responses points to the shared beliefs that while hotel characteristics may vary from one hotel to another, the hotel characteristic does influence the kind of ICTs to adopt and how they are put into actual use at the hotel as expressed by one of the respondent:

> *"...well...concerning our hotel generally and ICT adoption, there are a number of factors that determine what ICTs we adopt and how they are implemented at the hotel. Our hotel is foreign owned and it's the owner who determine for instance the PMS we use at the hotel. Basically it's imported from Germany which is the home country of the hotel owner. Its success however will depend on the kind of structures we put in place as a hotel. The range of activities also to some extent may bear a substantial impact on the adoption process including which section of the hotels the technology may be used…"* (Interview: Participant 4).

It was also evident that hotel characteristics such as hotel size and design would only influence the extent to which ICTs are used within the hotel and outside. It was also apparent from the interview responses that bigger hotels in terms of facility and business venture have the tendency of adopting more elaborate ICTs as the magnitude of activities are also elaborate. The majority of the respondents concurred that while organization characteristics was significant in determining ICT adoption process, the extent to which these impact on ICT adoption would vary from one hotel to another depending on the kind of characteristics depicted by the hotel. Other characteristics were also thought to be more important than others in determining ICT adoption. Size and location of hotel were vehemently mentioned as important considerations.

In particular, one of the respondents said that:

> *"...the size of our hotel means that the kind of ICT adopted must be able to sustain the expansive activities undertaken by the hotel. It determines the type, quantity and capacity of ICT facilities to invest in as a hotel..."* (Interview: Participant 6)

The findings support those of Nwakanma*et al*. (2014) who found out that geographical position of a hotel as a significant determinant of ICT adoption by hotels would determine their market size, profile of visitors it targets and competition level. On a similar note, Seyal*et al*. (2007) in their study reported that organizational attributes such organization nature and size as well as type of business are important predictors of SMEs adopting e-commerce. Bayo-Moriones and Lera-Lopez (2007) also reported five key factors among them firm structural characteristics as influential in determining ICT adoption by a firm.

5.0 Conclusions

ICTs find applications in virtually functional area of the hotel and given the fast pace changes in technology advancement, hoteliers need to ensure that appropriate ICTs are adopted by their hotels. To safeguard this, hoteliers should first understand factors that determine ICT adoption in their hotel since hotel varies from one to the other in a number of ways. First and foremost, there is need to understand the hotel ICT needs and how the ICTs to be adopted will be of benefit to the hotel. This is very important since it ensure that the hotel only goes for the ICTs it needs and that once implemented, the hotel can positively gain from their ICT investment. Hoteliers need to assess their capacity regarding their ability to invest, use and maintain the ICTs once adopted. These basically involve financial and labour requirements to adopt and successfully implement any adopted ICTs by the hotel. Third, hoteliers should consider the technology characteristics of the ICTs being adopted as it influence its implementation stage. Fourth, given that a hotel is an open system that is in constant interaction with its external environment and that these external forces (i.e. buyers, suppliers, competition etc.) influence how hotel operates, hoteliers should also consider the external environmental factors as determinant of ICT adoption. Lastly, hoteliers should also take into consideration hotel characteristics such as location, size, ownership, etc., as they impact on hotel ability to adopt and appropriately implement ICTs once adopted.

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