

## **Factors Influencing Adoption of ICT by Small and Medium Enterprises in the Hospitality Industry in Kenya**

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**Abstract:** *Small and Medium Enterprises (SMEs) are of great importance in developing economies in job creation, growth, source of productivity and diversification of economic activities. Many studies have been done on ICT adoption by SMEs but mainly on the importance of ICTs on enterprise competitiveness. This study sets out to clarify the factors influencing adoption of ICTs in accessing information by Small and Medium Enterprises in the hospitality industry in Kenya in order to fill the apparent gap in literature. Lack of adoption of ICT is harming this industry as firms are losing out on the benefits brought about by use of ICTs and not being able to have competitive advantage, increasing operating cost and low productivity. ICT growth and adoption in Kenya is highlighted in particular the fixed telephony, mobile telephony, internet, computers and application software. The specific objectives of this study were: To establish the influence of the industry market characteristic on the adoption of ICTs by Small and Medium Enterprises in the hospitality industry in Kenya, to explore the influence of the customer characteristics on the adoption of ICTs by Small and Medium Enterprises in the hospitality industry in Kenya, to examine the influence of initial ICT installation and running costs on the adoption of ICTs by Small and Medium Enterprises in the hospitality industry in Kenya and establish the influence of technology characteristics on the adoption of ICTs by Small and Medium Enterprises in the hospitality industry in Kenya. The study targeted the SMEs in the hospitality industry in Kenya. The sample size was 100 management and technical staff from Nairobi region. Both quantitative and qualitative data was collected by use of questionnaire with both open and closed ended questions. Data was analyzed and presented using descriptive statistical tools including frequencies, percentages, mean and standard deviation. SPSS (Statistical package for social sciences) model was used in data analysis. The study found out that between industry market characteristic, customer characteristics, initial ICT installation and running costs, technology characteristics influence the adoption of ICTs by Small and Medium Enterprises in the hospitality industry.*

**Keywords:** *ICT, SMEs, Adoption*

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### **I. Introduction**

Information and communication technologies (ICTs) may be defined as 'electronic means of capturing, processing, storing, and disseminating information'. All that these technologies do is provide new mechanisms for handling an existing resource: information. There is no standardized definition of Small and Medium Enterprises (SMEs) but largely it is based on either the number of employees or the annual turnover. In order to be considered as an SME, an enterprise must have less than 250 employees. An enterprise is considered as medium-sized if it has more than 50 and less than 250 employees, to be defined as small, an enterprise must have less than 50 employees (European Union, 2003). In Kenya, there is no standard definition but lenders' generally accepted one is that SME is a business with six to fifty employees or with annual revenue below Kshs. 50 million (Kihuro, 2010).

SMEs are often considered to be a key source of productivity, growth, job creation and hence their performance and the environment in which they perform are seen as an important factor for economic development. In most developing countries SMEs account for the majority of firms and large share of employment (Olaf Nielinger 2003). It is generally recognized that the SME sector face unique challenges which affect their growth and profitability. Among these challenges include poor infrastructure, inaccessibility to credit facilities, technological change in which many small business enterprises appear to be unfamiliar with and foreign firms, national and international firms shall remain in the fore front in accessing the new technologies. Lack of sufficient market information poses a great challenge to SME in Kenya. Many small enterprises continue to rely heavily on private or even physical contacts for market related information (A. Wanjohi 2009). SMEs in the hospitality industry are being subjected to increased competition, demand for quality products and services as well as customized services. Enterprises that wish to grow must consider diversified markets, local and export markets as an outlet for their products (Kenya, Ministry of Labour and Human Resource Development, 2004).

The current business world is deeply influenced by information and communication technologies and the application of ICT among business is widespread. ICT are rapidly changing global production, work and

business methods and trade and consumption patterns in and between enterprise consumers (kamal Mohammad, 2009).

Abilities of SMEs to adopt ICTs would render them global competitiveness and sustainability, however the extent for ICT adoption in Kenya is not clear particularly in the hospitality industry. ICTs helps SME capture global market, sell to international customers and compete favorably with large corporations. ICTs provide opportunity to conduct business anywhere (Jannex et al, 2004). For small firms to adopt e-business and e-commerce strategies and tools, benefits must outweigh investment and maintenance costs (Mehrtens et al. 2001; OECD, 2004).

A high number of models and theories have arisen which aim to uncover the factors that will influence the adoption of technology. These factors range from focus on the technology itself through to the psychological characteristics of the individual (Dillon and Morris, 1996). The innovation diffusion theory draws upon different economic, psychological and sociological traditions in an attempt to explain the distribution of adopters typically following an s-shaped curve. Technology acceptance model talks of theory of reasoned action and aims at predicting the attitude of potential users toward a new technology focusing on individual perception (Davis, 1989).

Hospitality industry consists of broad category of fields within the service industry that includes hotels and restaurants, bars, lodging, event planning, theme parks, transportation, and additional fields within the hospitality industry. ICTs facilitate information access and the opportunity to reach markets beyond the Kenya borders.

ICT applications in hospitality industry have concentrated on front-office functions, including reservation, reception, housekeeping, cashier, catering, marketing, and customer relationship management. Online reservation is rarely used. Very few hotels have websites.

The various ICTs that have been adopted in the hospitality industry in Kenya include use telephone lines, faxes, and cell-phones for their communication purposes both to staff and clients. Internet services including email have been adopted by some of the SMEs.

Computer applications that are used in these enterprises are word processing, financial and accounting packages, spreadsheets and desktop publishing. Some SME uses internet for marketing and advertising.

## **II. Statement Of The Problem**

The development of technology has highly affected the way businesses operate; it has changed the organization structures and the degree of competition. Technology has created a competitive edge for the businesses which have adopted ICTs in their business operations. ICTs adoption in SMEs are said to provide means to accessibility, processing and distributing greater amount of data and information quickly in the organization to aid the process of making thoughtful decisions (Jimmy and LI, 2003). SMEs have been forced to adopt ICTs in their business processes in order to counter the competition posed by large and multinational companies (Ramdani, et al., 2009; Nguyen, 2009)

SMEs in the hospitality industry are being subjected to increased competition, an increased demand for quality of products and services, and a growing demand for customised services. Surviving in this competitive environment will require raising the overall productivity of Small and Medium Enterprises.

Lack of utilization of ICT to provide access to timely, accurate and relevant information and meet the information needs of SME in the hospitality industry is harming these enterprises which are leading to increased operating costs, affecting their competitive advantage, reducing incomes and their growth and development. For the hospitality industry this limits the access to information on market, credit facilities and opportunities, technological changes, technical skills and management skills

The extent to which SMEs in the hospitality industry in Kenya can actually benefit from the adoption of this potential and the factors that influence the adoption of this potential in accessing information is unclear. This study sets out to clarify this potential and assess factors influencing adoption of ICTs by Small and Medium Enterprises in the hospitality industry in Kenya in order to fill the apparent gap in literature.

## **III. Research Questions**

In order to achieve the objectives of the study, the following research questions will guide the inquiry:

1. How does the various industry markets characteristic influence the adoption of ICTs by Small and Medium Enterprises in the hospitality industry in Kenya?
2. How do the customer characteristics influence the adoption of ICTs by Small and Medium Enterprises in the hospitality industry in Kenya?
3. How do the initial ICT installation and running costs influence the adoption of ICTs by Small and Medium Enterprises in the hospitality industry in Kenya?
4. How do the characteristics of technology (ICT) influence the adoption of ICTs by Small and Medium Enterprises in the hospitality industry in Kenya?

## **IV. Literature Review**

### **Empirical Review**

#### **Mobile subscriber growth**

The country has four mobile operators name safaricom, airtel, orange and Yu (Essar Telecom Kenya). The regulator in this industry is the CCK. These operators have realized tremendous growth in subscriber rollout which has seen the combined subscriber base reach 29.8 million subscribers in total, or a 75.8% penetration rate as at March 2013. However there was 2.9 per cent decline during the period from 30.7 million subscribers compared to the same quarter of the previous year. The decline was brought about by reduction in subscriptions by three mobile operators namely Safaricom Limited, Airtel Networks Limited and Telkom Kenya (Orange). Despite promotions and special rates by operators during the period, the mobile subscribers appear not to have been keen to take advantage of the offers. Notably, the regulator's directive to the operators to switch off unregistered SIM cards by 31st December 2012 could have contributed highly to the remarkable decline in the number of subscribers. According to a report released by the Commission, over 2.4 million SIM cards had been suspended as at 8th January 2013.

#### **Mobile Money Transfer Service**

The mobile money transfer service has continued to record a steady growth over the period. During the period under review, the number of mobile money subscriptions increased by 10.1 per cent to reach 23.2 million up from 21.1 million the previous quarter. Compared to the same quarter of the previous year, an increase of 22.6 per cent was recorded. The popularity of the service, coupled with its ease and convenience in use as well as facilitation of electronic payments have continued to be the main drivers behind this growth.

#### **Role of ICTs to Small and Medium Enterprises**

In countries where SMEs already have basic ICT, adopting more advanced ICT still brings enormous benefits. Advanced communication technologies such as email can help firms communicate faster and cheaper with both its suppliers and clients. In 2000, an organization that uses paper took on average 7.4 days to move a purchase from request to approval, but if done electronically, only took 1.5 days.<sup>12</sup> Advanced ITs such as ERP software can capture cost savings. ICT also help SME obtain the necessary information, process and disseminate within a reasonable timeframe and access to information for marketing purposes

#### **Challenges of using ICTs by SMEs**

Large organizations have enough resources to adopt ICT while on the other hand SMEs have limited financial and human resources to adopt ICT. (Duan et al 2002) identified lack of ICT skills and knowledge in SMEs as one of the major challenges faced by all European countries. (Shiels et al 2003) found that characteristics of the firm and industry sector are contributory factors to the adoption and exploitation of ICTs by SMEs. (Kaprubandara et al 2006) have categorized internal and external barriers that impede adoption of ICT by SMEs in a developing country. The internal barriers include owner manager characteristics, firm characteristics, cost and return on investment, and external barriers include: infrastructure, social, cultural, political, legal and regulatory.

### **Theoretical Framework**

#### **Theories of adoption**

A high number of models and theories have arisen which aim to uncover the factors that will influence the adoption of technology. These factors range from focus on the technology itself through to the psychological characteristics of the individual (Dillon and Morris, 1996). In this: Rogers's innovation diffusion theory and the technology acceptance Model. The innovation diffusion theory draws upon different economic, psychological and sociological traditions in an attempt to explain the distribution of adopters typically following an s-shaped curve. Technology acceptance model talks of theory of reasoned action and aims at predicting the attitude of potential users toward a new technology focusing on individual perception (Davis, 1989).

#### **Diffusion of Innovation**

Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 2003).

Rogers states that there are four main elements of diffusion: Innovation; the idea, practice or object that is developed that is the focus of the adoption, Time; the acceptance rate of the innovation over time, Communication channel; how the innovation is introduced or how it is marketed to an individual, Social system; the elements (such as individuals, groups, organizations and/or subsystem) that are involved in the adoption of the innovation and their impact on each other. Each of the above four elements play a role in the adoption of technology. When assessing the adoption of ICT, focus needs to be placed on the innovation itself; in particular,

do ICTs offer greater benefit over existing tools and methods? In addition do potential users, managers and entrepreneurs' see a need to change their way of doing things? Also it is necessary to consider where ICT is in its adoption cycle? Related to this is which 'adopter categories' are using ICTs and how ICTs can be encouraged to be used by other categories?. The way in which ICT is communicated and encouraged by the social system will also play a role. The managers will be the main players in introducing ICT tools. However, the managers will be impacted by other managers seeing ICT in use, which will impact and encourage others to adopt.

The Characteristics of Innovation that were considered were Relative advantage, Compatibility, Trialability, Complexity and Observability

Rogers (2003) states in general that successful adoption of a particular innovation should score higher in terms of its relative advantage over existing practices, compatibility to users' needs, trialability and observability, and lower in its complexity to use. There is a general agreement among researchers that Rogers Innovation Diffusion Theory is a suitable and valid theory for examining the process of adoption. Looi (2004) stated that Rogers' theory is considered valuable because it attempts to explain the factors which influence the adoption of an innovation and the manner in which new innovations are disseminated through social systems over time

In Rogers's Diffusion Model it categorizes and groups users according to the speed in which they adopt new technology. These categories include: (1) innovators, (2) early adopters, (3) early majority, (4) late majority, and (5) laggards. These have been described as follows (Kiljander 2004): The innovators are the 'techies', the experimenters who have technology as a central interest in their lives and pursue new technology as soon as it appears, no matter what its function is, The early adopters are the 'visionaries' who blend an interest in technology with a concern for significant professional problems and tasks, The early majority are the 'pragmatists'. Although fairly comfortable with technology in general, their focus is on concrete professional problems rather than on the tools (technological or otherwise) that might be used to address them, the late majority are the conservatives or 'sceptics'. They share the attitude of the early majority, though being less comfortable with technology, The laggards are the most likely never to adopt at all.

## **V. Conceptual Framework**

### **Industry market characteristic**

According to Sunil and Nazrul 2005 in the hotel industry, the geographical location of a hotel has a major impact on its operations and profitability. The geographical location of a hotel greatly determines the profile of its visitors, the size of its market and the level of competition that it has to face. These three variables also have a strong impact on the ICT adoption propensity of a hotel. This is because the ICT adoption propensity of a hotel can be linked mainly to its expectations about the value addition that ICTs can provide to its customers, as well as the belief about the expansion of its target market through ICTs. A hotel will therefore be more inclined to adopt ICTs if it expects the ICT-based facilities to either provide greater competitive advantage or to blunt the advantage enjoyed by its competitors considering the characteristics of its customer profile, its market size and the intensity of competition that it has to face. Thus, based on the profile of a hotel's visitors, the size of the market, or the intensity of competition, hotels may differ in their levels of ICT adoption propensity. Wei *et al.* (2001) found significant impact of geographical location on the adoption and use of the internet among hotels. Thus, the location-related factors considered are: the percentage of consumers who visit the hotel's location from high internet penetration areas, the overall market size of the hotel's location; and the level of competition between the firms in the locality. Unless their target consumers access and use the internet as a medium for transaction, hotels are not in a position to rely heavily on the internet for their marketing activities. Some of these factors have been found to have significant impact on the adoption of the internet by Wei *et al.* (2001) in a study conducted among managers in the hotel industry. The size of the hotel has an important effect on ICT adoption propensity. The effective adoption of several ICT technologies requires a substantial investment of resources. Lack of resources may affect the inclination of small hotels to adopt costly ICTs, and therefore large hotels can be expected to be more inclined to ICTs. Further, the risky nature of investing in new technologies may prompt small hotels to wait until the technology has stabilized before investing in it.

### **Customer Characteristics**

The rapid development and commercialization of information and communication technologies (ICTs) for the travel and tourism industry has prompted hotels and other enterprises in this sector increasingly to adopt these technologies. This is based on the expectation that new ICT-based technologies and processes will lead to an improvement in operating efficiencies and customer service levels. According to Connolly and Olsen (2000), information and communications technology is the single greatest force effecting change in the hospitality industry. Buhalis (1998) attributes this trend to both rapid advances in technology as well as the increasing demands of customers, who look forward to flexible, specialized, accessible and interactive products and

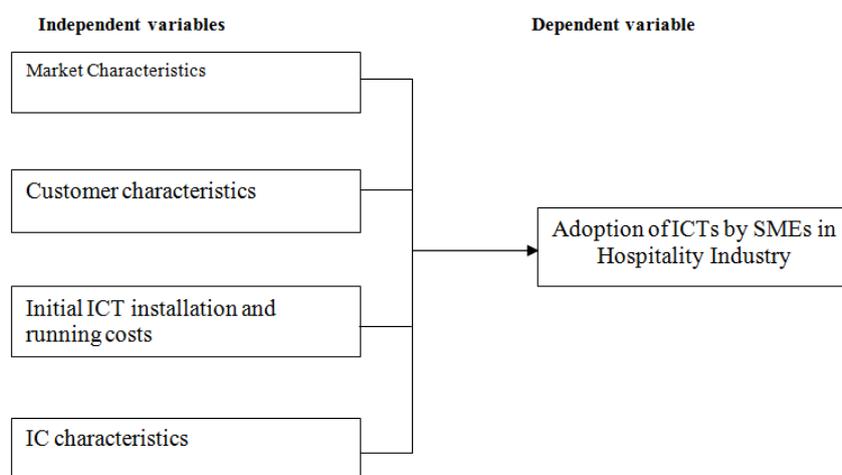
communication with principals. ICT-based products and processes help hotels to enhance operating efficiency and improve the service experience as well as providing a means to access markets on a global basis.

### **Initial ICT installation and running costs**

Investment in ICTs is expensive, and its impact largely un-researched and easily exaggerated (Xie, 2000). According to Wong (2002), many of the assumptions underpinning current thinking on ICTs in development are based on intuition rather than analysis – and on limited evidence from a narrow range of pilot projects rather than large-scale impact assessments. The danger is that, without better understanding of the real impact of ICTs on both national economies and community development, the pursuit of over-ambitious, unrealistic goals may mean that resources are misapplied and worthwhile objectives missed. When compared to developing economies, ICT investment costs are generally much higher in Less Developing countries (LDCs) where almost all ICT equipment must be imported (often subject to high rates of taxation and non-tariff barriers), and where telecommunications usage charges are generally much higher (especially for international and Internet connectivity). Regulatory factors such as licence fees often also add to the cost of ICT investment. The net result is that every dollar of ICT investment in an LDC buys significantly less ICT equipment and usage than in the developed economies. This is therefore likely to have a significantly lower rate of return (OECD, 2004).

## **VI. Research Framework**

The research framework below shows the various attributes drawn from the literature review above using the adoption theories and the empirical literature. The research model also draws from previous studies on ICT adoption in small firms. The model will be used to analyse the influence of the independent variable on the dependent variable. The independent variables include market characteristics, customer characteristics, initial ICT installation and running costs and the ICT characteristics.



**Figure 2.1 Research Framework Diagram of Integration of Factors influencing ICT Adoption**

### **Summary**

The above conceptual framework has been built using the existing literature and knowledge by borrowing from previous research on ICT adoption done both locally and internationally. The conceptual framework will be used to investigate the impact of the independent variables which include Market Characteristics, Customer characteristics, Initial ICT installation and running costs and ICT characteristics on the adoption of ICTs by SMEs.

## **VII. Research Methodology**

The survey method which incorporated both qualitative and quantitative research approaches was used for this study. The study was a Descriptive research. The target population was the managers and technicians in SMEs in the hospitality industry in Kenya. The sampling technique that was used to select the subject of study was simple random sampling to ensure data validity was guaranteed. The sample was taken from SMEs in hospitality industry in Nairobi. The sample size was 100 of those SMEs. 10% of organization staff mostly comprised of the management and technical team who had the required knowledge in the subject of study was sampled using simple random sampling. The main research instrument that was used in this study was questionnaires. Data collected was analyzed using descriptive statistics.

## **VIII. Research Findings And Discussions**

### **Industry Market Characteristics**

The study sought to establish how industry market characteristics influence the adoption of ICT by SMEs in the hospitality sector. The study established that market size, the greater competitive advantage and expansion of its market coverage influence the adoption of ICT by an SME's. This agrees with Sunil and Nazrul 2005 who stated that the geographical location of a hotel, the size of its market and the level of competition that it has to face have a strong impact on the ICT adoption propensity of a hotel.

Wei *et al.* (2001) found that firm-related factor such as the size of the hotel in terms of the number of rooms; the scope of activities of the hotel in terms of activities that the hotel is engaged in; the grade of the hotel; and the age of the hotels have a significant impact on the adoption of ICT in the hotel industry. This agrees with the research findings which showed that SMEs with varied lines of activities would find more use in the adoption of ICTs than hotels with a relatively smaller span of activities.

### **Customer Characteristics**

The study sought to find out the influence customer characteristics have on the adoption of ICT by SME's. From the study it was seen that ICT-based technologies and processes will lead to an improvement in operating efficiencies and customer service levels. This concurs with what Connolly and Olsen (2000) established that information and communications technology is the single greatest force effecting change in the hospitality industry. These changes include the improvement in operating efficiencies and customer service levels.

It was also noted that rapid advances in technology as well as the increasing demands of customers, who look forward to flexible, specialized, accessible and interactive products and communication may influence adoption of ICT in SMEs. Buhalis (1998) attributes this trend to ICT-based products and processes help hotels to enhance operating efficiency and improve the service experience as well as providing a means to access markets on a global basis.

### **Initial ICT installation and Running Costs**

The study sought to examine the effect of initial ICT installation and running cost on adoption of ICT especially after Wei *et al.* (2001) showed clearly that the effective adoption of several ICT technologies requires a substantial investment of resources. The study established that lack of resources may affect the inclination of smaller SMEs to adopt costly ICTs, while relatively larger SMEs with some resources may be positively inclined to adopt ICT. This is logical considering that investment in ICTs is expensive, and its impact largely un-researched and easily exaggerated (Xie, 2000) and according to Wong (2002), many of the assumptions underpinning current thinking on ICTs in development are based on intuition rather than analysis – and on limited evidence from a narrow range of pilot projects rather than large-scale impact assessments. Hence as it was shown in the study considering the risky nature of investing in new technologies most SMEs may be prompted to wait until the technology has stabilized before investing in it.

## **IX. Conclusion**

SMEs focusing on intensifying marketing and sales of its products and services in the target market and expansion of market coverage are inclined to adopt ICT. This is due to the great competitive advantage provided by ICT facilities which can be used both to attract customers as well as to increase the efficiency of their operations. This helps to blunt the advantage enjoyed by the SMEs competitors. Size of the SMEs in terms of the number of rooms, the scope of activities of the hotel is engaged in, types of core and support services offered and the market size, in terms of the number of clients who visit the location, the product and service market coverage influence ICT adoption by SMEs. SMEs with varied lines of activities would find more use in the adoption of ICTs than hotels with a relatively smaller span of activities.

Rapid advances in technology as well as the increasing demands of customers, who look forward to flexible, specialized, accessible and interactive products and communication influence adoption of ICT leading to an improvement in operating efficiencies and customer service levels desired by the customers. Demographic characteristics such as age, educational level, economic status, position in society and gender of the customers influence the adoption of ICT by SMEs for example SMEs that target higher economic classes may be more inclined to adopt ICTs due to customer demand, as well as to enhance their image. ICT-based products and processes aimed at enhancing operating efficiency of SMEs and improving the service experience of customers as well as providing a means to access markets on a global basis is more likely to be adopted by SMEs.

Effective adoption of several ICT technologies requires a substantial investment of resources. This explains the lack of inclination of smaller SMEs to adopt costly ICTs, while relatively larger SMEs with some resources may be positively inclined to adopt ICT. This is further compounded by high initial ICT investment costs especially in cases where almost all ICT equipment are imported and subjected to taxation and other non-

tariff barriers, high ICT usage charges especially for international and Internet connectivity and the addition of regulatory factors such as license fees to the cost of ICT investment. This risky nature of investing in new technologies may prompt SMEs to wait until the technology has stabilized before investing in it.

In most SMEs where ICT is adopted the organization performs most of its functions online. These include the storage and sharing of information, communication and service of customers and the use of internet software application to perform some of its functions. Also most SMEs have a functional website where most of the company information can be obtained.

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