

# ICT Adoption and Development of E-business among SMEs in South Africa

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## **Abstract**

**Objectives:** This paper examines ICT adoption among small hotel establishments in South Africa. The paper identifies the key ICT adoption attributes and explains how these influence ICT adoption and development of e-business among these typical SMEs in South Africa.

**Prior Work:** The paper draws and builds on several studies on ICT adoption in small firms (Gibbs et al., 2007; Beckinsale and Ram, 2006; Zappala and Gray, 2006; Manuelli et al., 2007). Notably, the paper mainly draws from the Gibbs et al. (2007) model which identifies and integrates the key ICT adoption factors that include government; environmental attributes; owner (managerial) attributes; organisational attributes; adoption attributes and social networks.

**Approach:** This qualitative research takes a multiple case study approach highlighting the experiences of small hotel establishments in South Africa. Semi-structured interviews, observation and document analyses are used to collect data from a total of 3 case studies theoretically sampled from two locations in Johannesburg. The underlying technique in the analytical and interpretative process within the multiple case study methodology is that of epistemological bootstrapping (Archer, 1988).

**Results:** The findings suggest internet; websites; fixed-line and mobile phone networks as the most common technologies adopted by SMEs to support their e-business operations. The results also suggest both formal and informal networks as important for ICT adoption. These are key sources of information, technology, social and business support. In addition, financial and owner manager support, including personal skills and experience are also crucial in the adoption of ICT. Power outage is identified as a major barrier across the three case studies. Government intervention is largely indirect and crucial in areas such as setting up of national ICT policy; infrastructure; dissemination of information; facilitating public-private partnerships; capacity building and power supply.

**Implications:** The paper highlights ICT adoption and the distinctive and behavioural characteristics of SMEs operating small hotel business in South Africa. Potentially, other sectors and, SMEs in general may benefit from these insights which may also be useful to policy-makers in terms of effective policy reviews, implementation and support strategies for SMEs.

**Value:** Although this paper only presents the findings based on SMEs in South Africa, the original doctoral project also included case studies from Botswana and Zimbabwe. The findings contribute to literature on ICT adoption among SMEs in general, but more specifically bring new insights to this area of study in developing nations within SADC. In addition, the research framework was applied within different geographical, economic, political and social contexts of the SADC countries and provided insights which suggested it was a useful framework for undertaking this research in southern Africa. Future research involving more SADC countries and other SME sectors would bring more detailed insights into ICT adoption at regional level.

**Key words:** ICT; Adoption; e-business; SMEs; South Africa

## 1.0 Introduction

Despite the growing number of studies on the adoption of information and communication technology (ICT) in small and medium sized enterprises (SMEs), the literature still suggests the need for advancing understanding of the key factors experienced in different contexts around the world. In addition, this area of study is still under-researched in African settings. Most of the existing literature represents other contexts in countries and regions of the world such as Europe, USA, Asia and Australia while far less research in this area has been carried out in African contexts.

ICT is defined as 'any technology used to support information gathering, processing, distribution and use' (Beckinsale and Ram, 2006). The definition taken in this paper classifies ICT into information technologies, telecommunications technologies and networking technologies (Nicol, 2003). This covers all forms of technologies such as computers, Internet, websites as well as fixed-line telephones, mobile phones and other wireless communications devices, networks, broadband and various specialised devices (Manueli, Latu and Koh, 2007). From a stream of ICT literature that focuses on the small firm sector, this research takes the ICT adoption approach (Beckinsale and Ram, 2006; Zappala and Gray, 2006; Manueli et al., 2007) to advance the understanding of technology uptake among small businesses in developing nations within Southern African Development Community (SADC). More specifically, the research identifies the key driving and inhibiting factors, including some barriers of ICT adoption and their contextual significance and implications to national government policy-makers in South Africa.

This paper specifically focuses on small hotel establishments, as typical SMEs with economic value and high potential of ICT usage within the SADC region. These are used as a vehicle to explain and advance understanding of the key ICT adoption attributes in small businesses. While the SME concept has been defined differently in various regions and economies around the world, in South Africa, for example, the enterprises are classified into small, medium and micro enterprises with an upper limit of 250 employees (PNC on ISAD, 2004). This is the SME definition employed in this paper, and is also consistent with the classification adopted in the European Union (Curran and Blackburn, 2001; Verheugen, 2003). In addition, the behavioural and distinctive characteristics of small businesses (Blackburn and Smallbone, 2008; Curran and Blackburn, 2001; Zappala and Gray, 2006; Van Akkeren and Cavaye, 1999; Manueli et al., 2007; Ritchie and Brindley, 2005; Smallbone and Welter, 2001) are presented in this paper with a view to strengthening the conceptual definition of SMEs and offering useful insights that help in the analysis of ICT adoption among SMEs in South Africa.

The paper presents findings from a research conducted in Johannesburg, South Africa. Within this SADC context, there are still relatively few studies that specifically offer useful insights on ICT adoption and development of e-business in the small firm sector. Notably, some relevant studies involving the use of ICT in SMEs to access business information services (Chiware and Dick, 2008); e-readiness among SMEs (Mutula and Van Brakel, 2006) and internet adoption (Brown and Licker, 2003) provided useful insights in this literature domain. However, such previous studies employed different methodological approaches and techniques. Based on a multiple case study approach, this paper employs a research framework that presents key ICT adoption attributes which, in combination with the insights from reviewed existing theories (Zappala and Gray, 2006; Beckinsale and Ram, 2006; Van Akkeren and Cavaye, 1999; Manueli et al., 2007), offer a basis for interpreting the qualitative data from case studies in South Africa.

Gibbs, Sequeira and White, 2007 confirm that the process of developing an integrative theoretical framework incorporating ICT adoption attributes in SMEs is still on-going. The key factors noted by the researchers to date include government; environmental attributes; owner (managerial) attributes; organisational attributes; adoption attributes and social networks. This paper, therefore, is concerned with examining and explaining these key ICT adoption attributes presented in the Gibbs et al. (2007). Beckinsale and Ram (2006) argued that "existing models of ICT adoption need to be refined and developed if they are to be applied to ethnic minority businesses (EMBs)", which 'are not necessarily different from those of other SMEs.'

With the aim to examine ICT adoption and the development of e-business among SMEs in South Africa, the research questions for this paper are:

1. What ICT adoption exists in small hotel establishments in South Africa?
2. What are the key ICT adoption attributes in small hotel establishments in South Africa?
3. How do the identified key attributes influence ICT adoption and development of e-business among small hotel establishments in South Africa?
4. What are the implications of ICT adoption in small hotel establishments in South Africa for policy and practice?

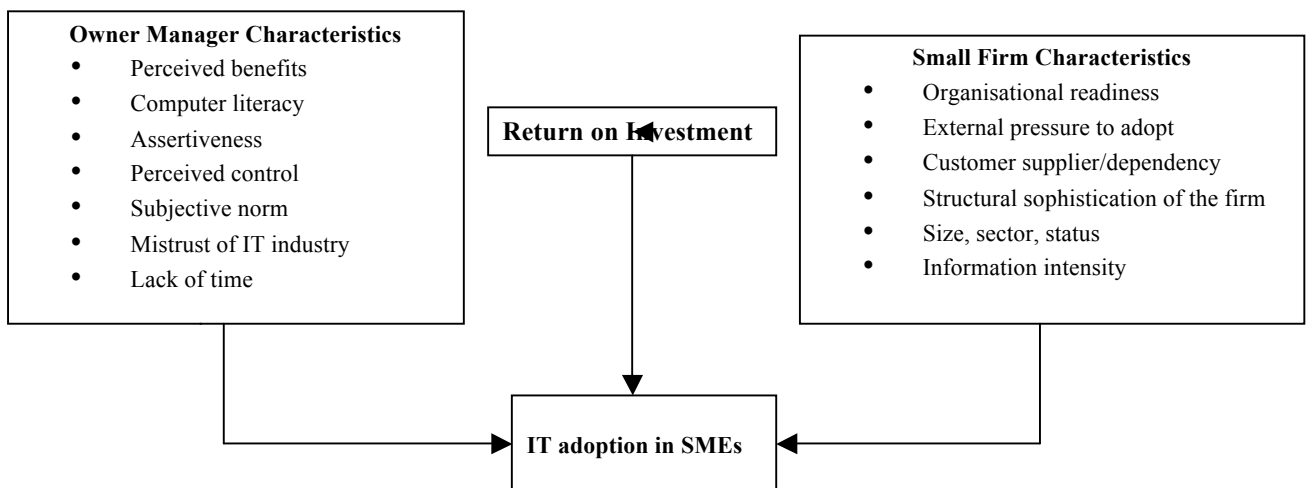
## 2.0 REVIEW OF ICT ADOPTION THEORIES AND MODELS

### 2.1 Distinctive and behavioural characteristics of SMEs and ICT adoption factors

The review of literature revealed that small firms are found in various sectors of the economy. Understanding of the distinctiveness and behavioural characteristics of SMEs is important for explaining ICT adoption patterns in the small firm sectors which are, for example, particularly of interest to policy-makers, support agencies and researchers. Accordingly, some researchers revealed that:

*“Entrepreneurs and owner-managers come from different genders and/or a wide range of ethnic, cultural and educational backgrounds and from every age group. While some start their own businesses from scratch, others inherit or buy an on-going business. Some are sole owners while others run their businesses with partners or other directors. Some are family businesses with owners, partners or fellow directors and even employees linked by blood or marriage. Others are run by people who have come together solely because they share common goals, complementary skills or access to capital”*, (Curran and Blackburn, 2001: p.6).

The insights from the behavioural and distinctive characteristics of SMEs and the relevant existing theories are discussed in this paper with a view to subsequently offering a strong basis for analysing the key ICT adoption drivers and inhibitors from the case study data collected from South Africa. It is important to bear in mind that the ICT adoption factors, as drivers or attributes, may also play a role in inhibiting ICT uptake in SMEs (Beckinsale and Ram, 2006). Other previous studies (Manueli et al., 2007; Van Akkeren and Cavaye, 1999) identified and classified key ICT adoption attributes in SMEs into owner manager characteristics and small firm characteristics as shown in Figure 2.1 below:



**Figure 2.1: Factors affecting ICT adoption by SMEs**

(Source: Van Akkeren and Cavaye, 1999, p1081 cited in Manueli et al., 2007)

### 2.2 Small firm characteristics

As shown in Figure 2.1 above, the small firm characteristics include organisation's ICT readiness (Zappala and Gray, 2006); external pressure from customers, suppliers and competitors. The business structure; size; sector; status and information intensity are also key characteristics of SMEs which can influence the technological needs and capacity for ICT adoption. According to Manueli et al. (2007, p177), "little or no technology use reflects low ICT readiness and a strong reluctance for ICT adoption." The source suggested business size as key in determining the structure and internal ICT requirements for the operations. In terms of information intensity, the existing theories suggested that SMEs that handle large amounts of information are most likely to adopt more ICT solutions to improve efficiency, effectiveness and competitiveness (Windrum and de Berranger, 2002; Manueli et al., 2007).

Distinctively, SMEs are more likely to experience several ICT adoption and implementation challenges given their relatively small sizes; simple structures; shortage of resources and lack of capacity to view ICT strategically (Beckinsale and Ram, 2006). Such distinctive characteristics of SMEs may bring in other several factors which tend to inhibit ICT adoption in the small firm sector. For this reason, this paper is therefore interested in explaining, through the use of case studies, the key ICT adoption attributes presented in the Gibbs et al. (2007) model, by making specific reference to other relevant existing theories (Van Akkeren and Cavaye, 1999; Manueli et al., 2007).

Based on previous studies, ICT adoption in SMEs can be driven or inhibited by government intervention, which is also viewed as an external source of pressure apart from the suppliers, customers and competitors. Government's primary role is to articulate vision and policy (Howell and Terziovski, 2005), as these are

considered the two development drivers for any regional or national ICT development initiatives to promote e-business among SMEs. The research findings viewed the role of government as leader and facilitator in technology adoption in SMEs. A facilitating government works with other stakeholders to leverage resources. In view of these roles, the government is therefore crucial as a standard setting and knowledge dispersing body (Seyal and Rahman, 2003). According to Howell and Terziovski (2005), weaker SME demands for intervention and support for ICT adoption and development of e-business may indicate that policy-makers are playing more of a leadership role whereas stronger needs for support and ICT access may indicate that policy-makers' role could be more facilitative. If there is a strong demand for ICT in any given business environment, SMEs and the broader community are likely to adopt ICT as initiators, centres of influence or champions of change.

Smallbone and Welter (2001) argued that "direct support measures are not the main role for government." Government is expected to create the framework conditions for private sector development with a view to supporting the growth and sustainability, particularly in ICT adoption and development of e-business. Based on survey evidence from the Ukraine, Belarus and Moldova, Smallbone and Welter (2001) suggested that many enterprises could be set up, survive and even grow without government direct intervention. This could be attributed to the commitment and creativity of owner managers (Smallbone, Leigh and North, 1995) in mobilising resources and flexibility in adapting to hostile external environments. However, the source argued that the number of firms could remain small in size and contribution to economic development rather limited under such inhibiting conditions.

### **2.3 SME owner manager characteristics**

The owner manager characteristics include perceived benefits of ICT adoption; ICT literacy; level of assertiveness in terms of business decision processes, perceived control over requirements for opportunities and resources as well as mistrust of ICT and lack of time (Zappala and Gray, 2006; Van Akkeren and Cavaye, 1999; Manuelli et al., 2007). According to Beckinsale and Ram (2006), the perceived benefits of ICT adoption often include focus on improving business efficiency; operational effectiveness and the need to reach out for new markets and opportunities (Poon and Swatman, 1999; Mehrtens et al., 2001). In addition, the existing theories suggested a strong tendency to adopt ICT in small businesses if owner managers and employees have ICT literacy, skills and expertise. Moreover, access to internal and external support and motivation from ICT experts is crucial for ICT adoption and e-business success in SMEs (Windrum and de Berranger, 2002).

SME owner managers viewed as 'more entrepreneurial, risk-takers, innovative and invariably creative' are considered to be critical to the organisational readiness for ICT adoption (Zappala and Gray, 2006; Beckinsale and Ram, 2006). Furthermore, Manuelli et al. (2007) suggested that business action is driven from the key decision-makers responsible for defining appropriate ICT goals and identifying critical ICT business needs and allocating financial resources to facilitate ICT adoption. According to Gray (2006), "SMEs planning to invest are also much more likely to provide training and development to their staff and managers." The source further suggested that SME owner managers with technical and vocational qualifications are more likely to engage in more innovation activities that include ICT adoption and development of e-business. In addition, the source argued that small business owners with appropriate qualifications and ICT skills are more growth-oriented while those without these prerequisite characteristics are more likely to be growth averse.

Further review of literature revealed that age and experience of owner managers are some of the distinctive characteristics which influence on ICT adoption in small businesses (Manuelli et al. 2007; Windrum and de Berranger, 2002). In terms of age, the second generation (youthful) business owners are more likely to be receptive to ICT than their first generation (elderly) counterparts (Beckinsale and Ram, 2006). Clearly, this view carries an assumption that 2<sup>nd</sup> and 3<sup>rd</sup> generation (youthful) business owners, born and educated in recent years characterised by advanced technologies and applications in daily activities, have greater awareness of ICT than the 1<sup>st</sup> generation (elderly) counterparts. However, such studies are mainly looking at Western developed economies and this view may be different in less developed economies such as those found in the SADC region. According to Gray (2006), resources and capabilities of SMEs, which are both linked to the age and experience of owner manager as well as age and size of the firm, are viewed as important attributes for effective innovation and growth (Smallbone et al., 1995). The source argued that SMEs that are oriented towards competition and growth may lack the resources and personal capabilities to adopt ICT and manage growth successfully, perhaps due to age, cultural and educational background of the owner.

Social networks of business owners also play a crucial role in driving or inhibiting ICT adoption in SMEs. For example, in communities where culture is viewed as a key factor, particular cultural traits, beliefs and values attached to resources and investment may influence ICT adoption in several different ways (Beckinsale and Ram, 2006; Straub et al., 2002; Yap et al., 1992). In addition, the size and type of social structures as well as

the nature of social links and preference for personal friendships and contacts (Beckinsale and Ram, 2006) may have positive or negative influence on ICT adoption in SMEs.

In terms of positive influence, social networks are crucial to small business owners for sharing information, business experience and technical knowledge especially if the SMEs are experiencing resource constraints which inhibit ICT adoption, formal training and effective innovation as well as growth (Gray, 2006). Increased ICT adoption and connectivity might be expected to help in developing absorptive capacity and reduce the traditional constraints on the ability of SMEs to innovate, while leveraging their flexibility and responsiveness (Gray, 2006). Internet and website adoption, for example, may help SMEs to participate in useful business and social linkages 'without a strong need for spatial proximity' (Gray, 2006).

Manueli et al. (2007) further added that "Information filters through the networks and depending on the nature of the networks and the roles of its opinion leaders, new innovations are either adopted or rejected." Opinion leaders can be the small business owner managers, friends other members of the social network who can explain the advantages, disadvantages and benefits of ICT adoption through personal contact. On the other hand, change agents and gatekeepers include government and private sector representatives. These are viewed as intermediaries who can effectively communicate the benefits of ICT adoption and applications in small businesses (Gibbs et al., 2007; Forman and Goldfarb, 2006). According to Manueli et al. (2007), change agents and gatekeepers "deliberately set out to promote ICT adoption to small businesses by offering unbiased advice on the need to adopt ICT and how to go about doing it."

In another relevant study involving ICT and social networks, Braun (2004) argued that tourism networks are dynamic relationships with ever-changing actors and contextual innovation factors. The findings suggested that understanding the change processes which take place in tourism networks has the potential to benchmark change, speed up ICT adoption and create effective collaborative network outcomes. While the study provided some useful insights into ICT uptake and network relationships, the researcher suggested the need for further empirical evidence on tourism network research and e-business development, which are some of the aspects examined in this research. Further evidence on social networks (Windrum and de Berranger, 2002) suggested that trust and external company culture are also considered as important factors that can influence SME owner managers' decisions to use their social networks as sources of business information, knowledge acquisition and adoption of ICT. In addition, increased network density and interconnectivity within network externalities are widely viewed as vital in influencing small businesses to adopt ICT (Gibbs et al., 2007). Given the importance of key decision-makers in ICT adoption decisions at organisational level, it is therefore crucial for small business managers to recognise possible links and partnerships in their social networks (Gibbs et al., 2007; Manueli et al., 2007; Braun, 2004; Rogers, 1995) as these can bring opportunities and success ventures.

Some previous studies (Bandiera and Rasul, 2002) argued that SMEs which choose not to adopt ICT do so because they may be unfamiliar with the technology and lack organisational readiness (Zappala and Gray, 2006). The organisational readiness can be reflected in the size, type, nature of business as well as ICT expertise and the perceived benefits upheld by management and employees (Gibbs et al., 2007; van Akkeren and Cavaye, 1999; Manueli et al., 2007). According to Thong (1999), the change agents for ICT adoption at organisational level may include the support and attitude (Scupola, 2006; Gibbs et al., 2007) of key decision-makers such as owner managers and chief executive officers (CEO). These key decision-makers have a vital role to play in purchasing, planning and ICT adoption decisions in small business. They are, therefore, expected to have the capacity to respond accordingly to the changing needs of a dynamic e-business environment.

Zappala and Gray (2006) investigated factors that distinguish small business adopters and non adopters of ICT and also confirmed the importance of organisational support of key decision-makers such as owner managers in ICT adoption process. The early adopters also identified as change agents or innovation champions (Poon and Swatman, 1999) and access to financial resources are among the key organisational characteristics that influence ICT adoption in small businesses (van Akkeren and Cavaye, 1999; Manueli et al., 2007; Gibbs et al., 2007). In addition, Seyal and Rahman (2003) argued that SMEs adopt ICT due to the decreasing cost and availability of software as well as the overall benefits and opportunities brought by ICT adoption.

### 3.0 THEORIES AND ICT ADOPTION APPROACHES

#### 3.1 Theories and classification of ICT literature

The review of literature suggested several existing theories and different approaches that help to explain and advance the understanding ICT adoption in small businesses. For example, Beckinsale and Ram (2006) classified ICT literature into four major areas that include ICT use; ICT specifically for SMEs; ICT as a strategic tool and ICT adoption which is the focus of this paper. According to Beckinsale and Ram (2006), these four classifications of ICT literature are 'not mutually exclusive'. This means that there is overwhelming overlap in terms of the key ICT adoption attributes among these four classifications of ICT literature. Apart from the four ICT literature classifications (Beckinsale and Ram, 2006), other previous studies (Manueli et al., 2007) proposed three broad approaches namely: the diffusion approach; adoption approach and domestication approach.

#### 3.2 ICT adoption approach

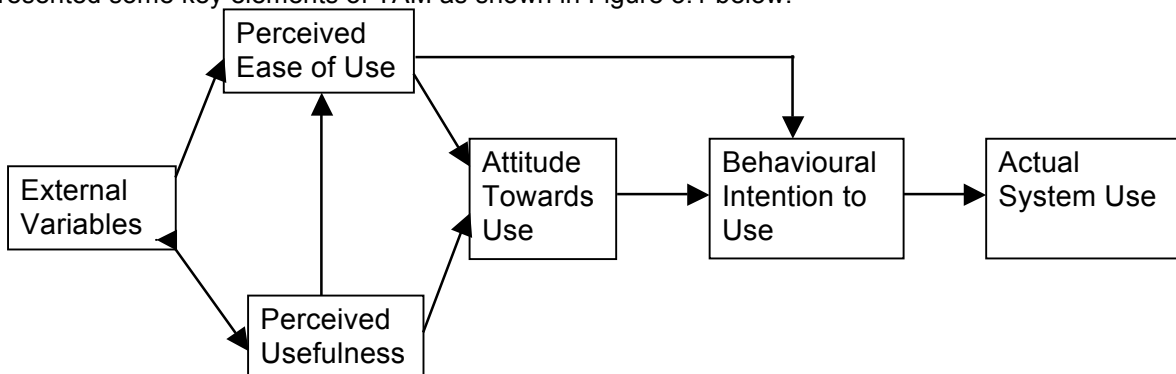
This is the area of ICT literature of particular interest in this paper. Investigations in this literature domain tend to examine issues that include facilitators; inhibitors; contextual barriers; adopters; non-adopters (Zappala and Gray, 2006) as well as benchmarking adoption rates for policy-makers in government (Merhtens et al 2001) Some previous studies have predominantly focused on perceived benefits (Beckinsale and Ram, 2006; Poon and Swatman, 1999; Mehrtens et al, 2001; Chapman et al, 2000); organisational readiness (Zappala and Gray, 2006; Beckinsale and Ram, 2006; Merhtens et al, 2001) and external pressures from government; customers; suppliers and competitors (Beckinsale and Ram, 2006; Merhtens et al, 2001; Sillence et al, 1998).

Within the ICT adoption approach, several studies (Gibbs et al., 2007; Manueli et al., 2007; Zappala and Gray, 2006; Merhtens et al 2001) mainly derived their theoretical foundation from Davis (1989) Technology Acceptance Model (TAM). The Davis (1989) model suggested that when "a user is presented with a new technology, a number of factors influence their decision regarding how and when they will use it" (Manueli et al., 2007). The key innovation characteristics, notably perceived usefulness (PU) and perceived ease of use (PEOU) are widely used within the adoption approach that builds on TAM. To this end, the following definitions for PU and PEOU are given (Gibbs et al. (2007):

- **Perceived Usefulness (PU)**: is "the degree to which a person believes that using a particular system would enhance his or her job performance."
- **Perceived Ease of Use (PEOU)**: is "the degree to which a person believes that using a particular system would be free of effort."

According to Forman and Goldfarb (2006), TAM has proven to be a robust model that is frequently used to study user acceptance of ICT. It is widely viewed as an information system theory which helps to understand the adoption and use of internet (Gibbs et al., 2007; Davis 1989). The theory helps to understand how adopters come to accept or reject the use of ICT in their small businesses. However, Manueli et al. (2007) criticised TAM as less comprehensive compared to the diffusion approach which has more innovation characteristics, including time as an essential element of the theory (Rogers, 1995; Gibbs et al., 2007; Manueli et al., 2007; van Akkeren and Cavaye, 1999). TAM was also criticised for not accounting for the influence and personal control factors on behaviour, including the lack of consideration to other factors such as external influences from the environmental attributes, suppliers, customers and competitors (Manueli et al., 21007; van Akkeren and Cavaye, 1999).

Building on the Davis (1989) model, there are various extensions of TAM such as the Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB) (Manueli et al., 2007; Wahid, 2007; Cloete and Courtney, 2002). The TRA model, which is a more general theory than TAM, includes four general concepts namely: behavioural attitudes; subjective norms; intention to use; and actual use. Similarly, Wahid (2007) presented some key elements of TAM as shown in Figure 3.1 below.



Source: Wahid (2007), p.3)

Figure 3.1: Technology Acceptance Model (TAM)

The TPB is viewed as an extension of the TRA which 'deals with conditions where the individual has no control of their behaviour' (Manueli et al., 2007). Apart from TRA and TPB, there are also other extensions of TAM such as the Brown and Licker (2003) theoretical framework which was applied in South Africa and provides useful insights that illuminate ICT adoption in terms of the perceived usefulness and perceived ease of use. These are crucial issues often presented in theoretical frameworks driven by TAM (Davis, 1989).

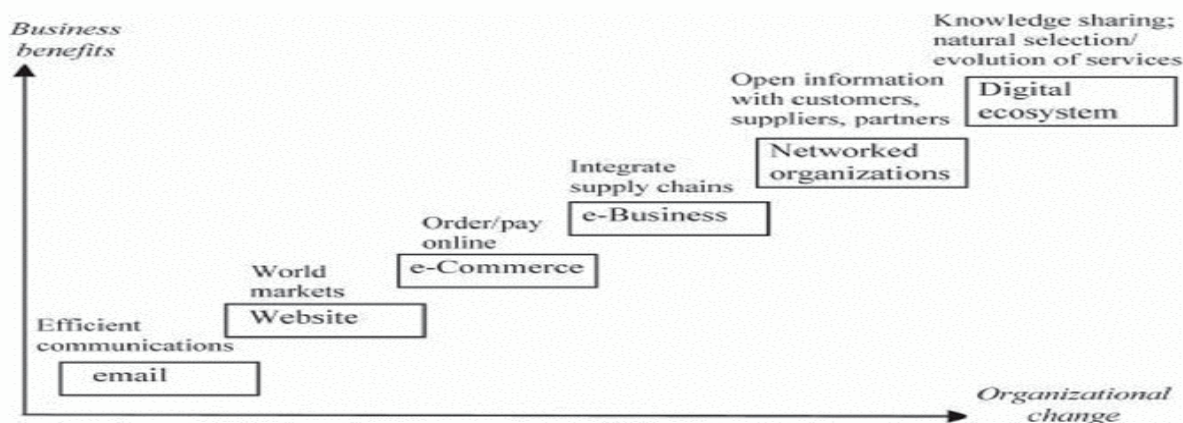
This paper seeks to examine and advance understanding of ICT adoption among SMEs using case study evidence collected through interviews conducted in South Africa. This research mainly draws its theoretical foundation from the Gibbs et al. (2007) model and useful insights from other relevant studies (Zappala and Gray, 2006; Beckinsale and Ram, 2006; Van Akkeren and Cavaye, 1999; Manueli et al., 2007).

On the other hand, Brown and Licker (2003) was concerned with testing theory using the Technology Acceptance Model (TAM), which has been widely used as a basis for understanding internet adoption and usage behaviour (Davis, 1989). Brown and Licker (2003) focused on internet adoption and usage behaviour between historically advantaged (HAD) and disadvantaged (HDA) groups of university students in South Africa. The previous study extended the TAM to include long term consequence of use (LTCONS) and perceived enjoyment (PENJ) factors in predicting internet adoption processes between the HAD and HDA groups of university students.

Methodologically, the quantitative research by Brown and Licker (2003) used questionnaires to gather statistical data from both HAD and HDA groups in South Africa. By using multiple regression technique and confirmatory factor analysis the researchers concluded that perceived usefulness (PU), perceived enjoyment (PENJ) and long-term consequences of use (LTCONS) were found to influence internet adoption among the previously advantaged group. Other useful insights from Brown and Licker (2003) suggested a few studies that have examined technology adoption and usage behaviour in developing countries, including the impact of group characteristics on the adoption process.

### 3.3 Stage models of ICT adoption in SMEs

By recognising that ICT adoption among SMEs may vary between various contexts, Zappala and Gray (2006) presented different stage models of ICT adoption. Zappala and Gray (2006), for example, suggested that ICT adoption among SMEs may take three broad approaches namely: supply-side, demand-side and social network approach. In another related study (DTI, 2001), Cisco developed an 'adoption ladder' for the UK government's information age partnership project as shown in Figure 3.2 below.



**Figure 3.2: e-business adoption ladder**

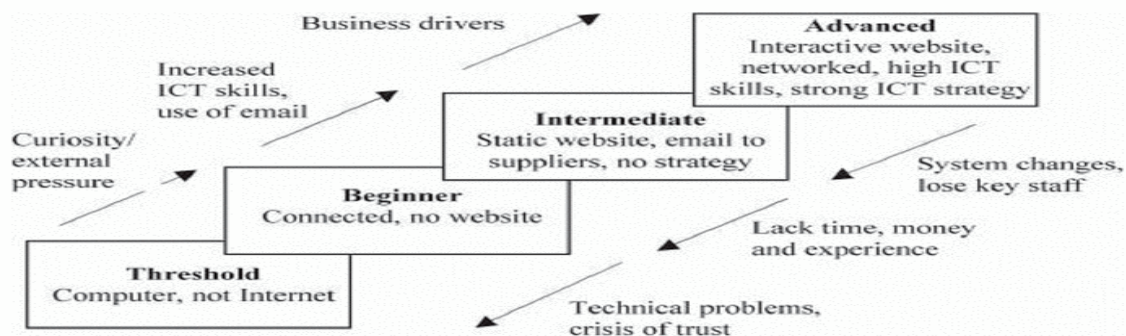
**Source: Adapted from DTI (2001) and Nachira (2002) cited in Zappala and Gray (2006)**

The e-business adoption ladder shown in Figure 3.2 above offers a widely used technology-push model that provides a sense of technology adoption and business development in incremental stages driven by ICT uptake, business benefits and organisational change. However, the model is criticised for being "too linear to describe processes that are often non-linear and very complex" (Zappala and Gray, 2006). The adoption ladder shows no indication of the dynamic processes that drive SMEs from one stage to the other. In addition, the DTI (2001) adoption ladder lacks evidence that 'the rungs in the ladder actually do represent evolutionary steps by which SMEs transform themselves into e-business' (Zappala and Gray, 2006; Sparrow, 2001). The ladder also fails to explain how ICT changes what SMEs can do, including the resource implications of successful ICT adoption.

Given the ICT adoption stage model identified above, Zappala and Gray (2006) argued that "none of these models alone adequately explains or predicts the adoption of ICT by small firms." Therefore, other distinctive behavioural characteristics of SMEs such as size, structure, type of industry and business operations need to

be considered in explaining ICT adoption in small firms (Van Akkeren and Cavaye, 1999; Manuelli et al., 2007). Moreover, Manuelli et al. (2007) proposed a simple 4-stage ICT adoption model suggesting that SMEs start from very basic or no ICT adoption and move up to basic; intermediate and advanced ICT adoption. These four stages are viewed as helpful in classifying the different stages of ICT adoption in SMEs (Manuelli et al., 2007; Beckinsale and Ram, 2006; Willcocks et al, 2000, Poon and Swatman, 1999, Chaffey, 2002). However, the major criticism lies in their failure to move forward as the dynamic circumstances; drivers and influences vary (Martin and Matlay, 2001; Storey, 1994). According to Beckinsale and Ram (2006), “The stage models fail to incorporate the multiple influencers with different degrees of influence.”

In view of the above, the British Library staircase is another proposed framework which offers a more detailed and dynamic stage model of ICT adoption in SMEs. The dynamic 4-step ‘staircase of internet engagement’ model, which resulted from a study on SME use of internet as an information and learning resource (Zappala and Gray, 2006; Allcock et al., 1999), is shown in Figure 3.3 below.



**Figure 3.3: British Library staircase of internet engagement**  
**Source: Adapted from Allcock et al. (1999) cited in Zappala and Gray (2006 p.7)**

As shown in Figure 3.3 above, the British Library dynamic model shows that SMEs can move up and down the staircase or even leapfrogging the stages according to their distinctive behavioural characteristics which may include business needs, challenges, expectations and information strengths and weaknesses. In this way, the British Library staircase is clearly serving as information-needs based model for ICT adoption. The model takes into account the perspectives of SME owner managers and links the technological evolution (lower stages of adoption) to their capabilities to learn and manage new ICT knowledge leading to business changes in the small firm. However, the staircase model is criticised for failing to address where owner managers find their ICT information and what drives them to do so (Zappala and Gray, 2006).

Regardless of the approach taken, Zappala and Gray (2006) argued that the key decision-makers such as SME owner managers need to be personally ready for ICT adoption that can take them to the next stages in the process of adoption. Accordingly, ICT adoption readiness is defined in terms of “the psychological and practical point at which an individual is prepared to proceed to the next stage... determined by a particular mix of experience, capabilities, resources, education, age, peer pressure, business imperatives, motivation and circumstance” (Zappala and Gray, 2006). Apart from consolidating the learning and operational knowledge from previous experiences in the ICT adoption process, readiness also implies the positive attitudes and expectations that come before the change in a small firm takes place (Zappala and Gray, 2006). The researchers added that ICT adoption models for SMEs need to take into account the individual (personal) readiness, organisational readiness and external (social, technical and business) readiness. Following the stage models of ICT adoption approaches identified by Zappala and Gray (2006), including the British Library staircase, the Open University Business School (OUBS) proposed a framework for empirical research conducted among SMEs in Britain and other EU countries. The OUBS model mostly draws from the dynamic British Library staircase model and also incorporates the three levels of readiness required for more advanced ICT adoption ( Zappala and Gray, 2006), as shown in Table 3.1 below.



**Table 3.1: OUBS Stage model of ICT adoption and readiness issues in SMEs**

READINESS ISSUES		
Individual/personal	Organizational	Business environmental
<i>Pre-stage. Uninvolved: naïve, indifferent, hostile</i>		
Cultural/lifestyle concerns	Lack of resources; unemployed; sole-trader	Low ICT contact; no market demand
<i>Stage 1. Threshold: Keen to try ICT; unsure how</i>		
Low technical knowledge; ICT business potential curiosity	Communication important; customer, staff demand	Customers/peers online; supplier, government pressure; local ISP, ADSL
<i>Stage 2. Beginner: Recently online but unsure of where to go next</i>		
Confident with e-mail, Internet; ready for website	Internal e-mail; sales-customer activities; skills-productivity issues	Market/ network push ICT use; sources of advice not obvious
<i>Stage 3. Intermediate: Internet e-mail, website, no ICT strategy</i>		
Owner grows ICT knowledge; sees benefits of Web, ready to use ICT in admin. and ops.	ICT skills and efficiency issues; network benefits	Use of advice and support networks; stronger competition push on costs, access/delivery issues
<i>Stage 4. Advanced: ICT an integral part of business strategy</i>		
ICT capabilities developed; ready for new approaches to business	Knowledge issues; outsourcing; ASP; ICT integrated in systems	Strong competitor and customer ICT skills; clear regulatory and legal frameworks
<i>Stage 5. Innovative: Capability to exploit ICT strategically in process/product innovations</i>		
Entrepreneurial; high ICT literacy; managers/workers in effective autonomous working	Shared corporate culture and vision; knowledge management/sharing; networked	Strong value-chain; strategic partnership + support networks; global competition

Source: Zappala and Gray (2006: p.12)

It is important to note that the OUBS model, shown in Table 3.1 above, was proposed (Zappala and Gray, 2006) taking into consideration the experiences of SMEs in developed nations such as Britain. For this reason, the model makes an assumption that entrepreneurial SMEs progressing more surely from one stage of ICT adoption to the next have explicit growth strategies and are also more open to external events and opportunities. Furthermore, the processes of consolidation of learning, operational knowledge of new routines and capabilities, including the new skills and working relations to be addressed at each stage for readiness to grow at personal and organisational levels are all implicitly embedded in the model (Zappala and Gray, 2006). Although the OUBS model may appear complex and makes the assumption which may be more suitable for the developed nation context, the model is clearly detailed and useful in illuminating the readiness issues and different stages of ICT adoption which are also applicable in describing SMEs operating within developing nations in the SADC region.

Given the systematic review of distinctive behavioural characteristics of small firms and the existing theories and models, the literature has clearly suggested that the development of a theoretical framework, which integrates the most common ICT adoption attributes in SMEs, is still an ongoing process (Gibbs et al., 2007; Zappala and Gray, 2006; Beckinsale and Ram, 2006).

### 3.4 Research framework

By drawing and building on the previous studies, this paper presents a research framework adapted mainly from the Gibbs et al. (2007) model as shown in Table 3.2 below.

**Table 3.2: Summary of key ICT adoption attributes (Gibbs et al., 2007)**

<b>Key Attributes</b>	<b>Measures (Distinctive characteristics)</b>
Government role	National policies; vision; strategies and support programmes; taxes and tariffs; regulatory frameworks; subsidies; support infrastructure etc.
Environmental attributes	Business environment; suppliers; buyers; competitors; security; peace and stability
Owner/Managerial Attributes	Key decision-makers (top management) support and attitude; perceived benefits; computer literacy; assertiveness; perceived control; mistrust of ICT industry; lack of time; age and cultural background; ICT and business qualifications, skills and experience
Organisational Attributes	Organisational readiness; business size, sector, type, status; ICT expertise; customer - supplier/dependency; business structural sophistication (simple/complex); information intensity; access to financial support and other resources
Adoption attributes	Perceived usefulness (PU); perceived ease of use (PEOU)
Social Networks	Network type; size; effects, externalities; density

**Source: Adapted from Gibbs et al. (2007), p.74**

Gibbs et al. (2007) framework shown in Table 3.2 above is based on the review of existing theories and brings together the key ICT adoption attributes which were chosen based upon their significant influence on technology uptake and prevalent usage by other researchers. The Gibbs et al. (2007) framework has been employed in this research for its strength based on the following two fundamental goals:

- To present a conceptual analysis of the role of social networks in technology adoption and discuss the importance of incorporating various social network dimensions into existing ICT adoption frameworks (Zappala and Gray, 2006; Beckinsale and Ram, 2006; Van Akkeren and Cavaye, 1999; Manuelli et al., 2007).
- To create a framework that identifies a representative set of attributes from prevailing ICT adoption theories, 'using a multicultural and multinational lens' (Gibbs et al., 2007: p.68)

The Gibbs et al. (2007) model specifically provided a detailed analysis of social networks on technology adoption in small businesses, and also explained the relationships of the networks with other key ICT adoption attributes. According to Gibbs et al. (2007), the theoretical research framework, presents "a more complete and comprehensive set of factors that, either directly through moderation or interaction, are likely to influence a small firm's technology adoption decisions."

Apart from representing a significant contribution to the small business ICT adoption literature, Gibbs et al. (2007) model is also important in the following ways:

- It consists of the most common and universally accepted ICT adoption attributes in the existing literature with theoretical foundation based on models such as TAM and several other existing theories and frameworks.
- Although the model is inconclusive, it manages to succinctly combine the predominant theories for technology adoption into a single paradigm that incorporates several dimensions from the social network theory. However, the Gibbs et al. (2007) model fails to identify the different stages of ICT adoption in SMEs, which the OUBS model explains in detail (Zappala and Gray, 2006).

Despite the above criticism, the "integrative, multicontextual framework is representative of common ecologies and factors that may exist in developed, developing and underdeveloped countries" (Gibbs et al., 2007: p.79). Most importantly, the research framework provides the key ICT adoption attributes or major themes which, together with several existing theories (Zappala and Gray, 2006; Beckinsale and Ram, 2006; Van Akkeren and Cavaye, 1999; Manuelli et al., 2007), offer useful insights that help in analysing and interpreting the qualitative data from case studies in South Africa.

#### **4.0 METHODS AND DATA SOURCES**

This paper presents a qualitative research based on multiple case study approach. Marschan-Piekkari and Welch (2004) argued that "qualitative research may be preferable in developing countries, where the secondary data required for random samples may be lacking..., and in those cultures in which particular emphasis is placed upon the development of social, face-to-face relations and trust." The use of case studies offers valuable insights into existing theory, management situations and decision-making processes (Marschan-Piekkari and Welch, 2004; Miles and Huberman, 1994; Ghauri and Grønhaug, 2002). Furthermore, it is designed to bring out the details from viewpoints of participants by using multiple sources of data such as face-to-face interviews, observation and written documents.

Within the multiple case study methodological framework applied in this paper, triangulation of semi-structured interviews, participant observation and document analysis were used to collect data from a total of 3 case studies in South Africa. These were small hotel establishment or units of analysis theoretically sampled rather than selected on the basis of their representativeness. A total of 17 key interviews were conducted involving participants that included owner managers, employees and guests at the small hotel establishments. The use of pseudonyms such as SA1, SA2 and SA3, to represent case studies in this paper was necessary to address the issues of anonymity and confidentiality.

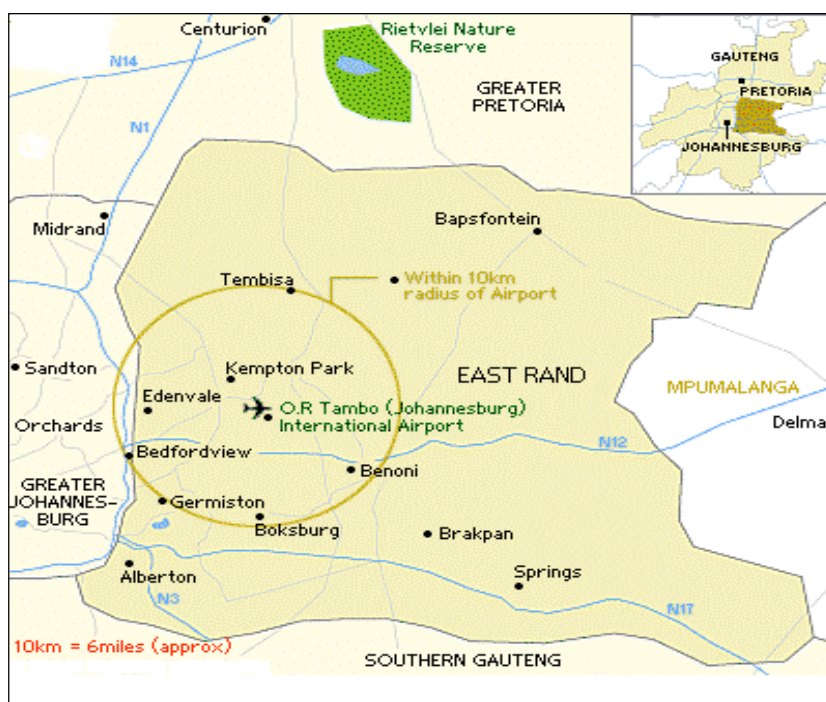
#### 4.1 Epistemological bootstrapping

The underlying technique in the analytical and interpretative process within the multiple case study methodology is that of epistemological bootstrapping (Archer, 1988; Wyer, 1990; Wyer et al., 2003; Ekanem, 2005; Ekanem and Smallbone, 2007). In this process, crucial insights are iteratively drawn from relevant existing theories and models on ICT adoption in small firms to develop an initial interpretative frame of reference. These frames of insights from the reviewed literature are progressively used to inform and foothold the case study data analysis.

## 5.0 FINDINGS

### 5.1 Location and background information of case studies

The three case studies were conveniently located within 10km radius of O.R Tambo (Johannesburg) International Airport in Benoni and Kempton Park local municipalities, which are both part of the Ekurhuleni Metropolitan municipality of the Gauteng Province. The specific locations of Benoni and Kempton Park areas are shown in Figure 5.1 below.



#### Access to the case studies:

1. **SA1:** accessed through booking using website ([www.africacentrelodge.co.za](http://www.africacentrelodge.co.za))
2. **SA2:** accessed through online booking using website ([www.savenues.com/visit/airportenroute/](http://www.savenues.com/visit/airportenroute/)).
3. **SA3:** accessed through an invitation to a social meeting between SA3 and SA2 owner managers.

Source: Adapted from [www.wheretostay.co.za](http://www.wheretostay.co.za)

**Figure 5.1: Location of Benoni and Kempton Park within 10km radius of O. R Tambo (Johannesburg) International Airport**

SA1 and SA2 case studies were both located in Benoni and SA3 is located in Kempton Park as shown in the encircled area in Figure above. The O.R Tambo (Johannesburg) International Airport is the major tourist entry point to South Africa (ACSA, 2007). From a contextual point of view, the inclusion of cases from such a competitive environment with large numbers of tourist arrivals; better support infrastructure and availability of information, provided the study with some valuable insights from the in-depth analysis of individual small businesses with high potential of ICT adoption and usage in South Africa.

**SA1 case study:** is a three star hotel and travel centre operating as a small family business run by two owner managers, husband and wife, with qualifications in hotel management from Switzerland and Poland respectively. Apart from having the appropriate qualifications, the interviewed owner manager added: *"I think it should not be just about making money in our industry; one must be appropriately qualified and driven by passion and a sense of hardworking."* (SA1, owner manager)

According to the participants, SA1 started in 1997 as a small backpackers' guest lodge with only five rooms which were part of the main house. After ten years of hardworking, the establishment was awarded a three star grading in the category of hotel and leisure centre by the Tourism Grading Council of South Africa in 2007. By the time of data collection, the hotel had 19 employees and a capacity of 120 guests in 44 rooms. Passion and determination were the main driving factors in the success of SA1 owner managers. To illustrate this and the importance of ICT adoption, the interviewed owner manager pointed out:

*“At the beginning in 1997, we didn't have the internet and websites that we use here today for marketing purposes and facilitating online enquiries and bookings. I used to go and look for the guests and pick them up from the airport [Johannesburg International Airport]. I would leave the airport after the arrival of the last flight of each day, and only sleeping for 2 or 3 hours! It was very hard but our passion remained the driving factor in our achievements [3-Star hotel and Travel Centre].”* (SA1, owner manager)

**SA2 case study:** is a guest lodge located in Benoni small farmland situated within 10km radius of Johannesburg International Airport. The establishment is a family business set up as a guest lodge in April 2006. The two owner managers, husband and wife, were both interviewed and identified as owner manager1 and owner manager2 respectively in this paper. At the age of over sixty years, the couple, originally from Belfast (Northern Ireland) were sometimes assisted by their daughter and son-in-law as well as two part time employees who were mainly coming to help with cleaning and washing only on two fixed days in a week. The establishment had a capacity of 17 beds in 3 rooms and 4 cabins. The participants revealed that there were no immediate plans to enlarge the establishment beyond the 17 bed- capacity. According to the owner manager, *“We are trying to consolidate the current capacity of our infrastructure and getting it to work properly without stretching ourselves too far.”* (SA2, owner manager1)

**SA3 case study:** is a three Star guest house in Kempton Park. The establishment was run as a family business with a single highly skilled owner manager, originally from England, and two employees. Historically, the establishment started business in 2005 with a total of 6 rooms. Two years later, SA3 was awarded a 3 Star grading by South Africa Grading Council ([www.tourismgrading.co.za](http://www.tourismgrading.co.za)). According to the owner manager, the property was originally bought in 2005 with the idea of setting up a guest house.

The profile details of the three case studies in South Africa are summarised in Table 5.1 below.

**Table 5.1: Summary of background information for South Africa case studies**

	Name of Establishment	SA1	SA2	SA3
	Type of Establishment	Hotel and Travel Centre	Guest Lodge	Guest House
	Location	Benoni in Johannesburg	Benoni Farmland Area in Johannesburg	Kempton Park in Johannesburg
<b>Case Background Information</b>	Number of Employees	19	2	2
	Number of Rooms	44	3 and 4 cabins	6
	Number of Beds	120	17	12
	Star Grading	3 star	Not yet graded	3 star
	Years in Business	11	3	4
	Year Business Started	1997	2006	2005
	<b>Identification of guests (%)</b>	Local	10%	40%
Foreign		90%	60%	80%

**Sources: Interviews, observation and document analyses**

As shown in Table 5.1 above, the case studies were predominantly small in size. With 19 employees, SA1 was the largest in terms of size and operations, including the highest number of years in business compared to SA2 and SA3 case studies. Although SA3 had only 2 employees, the establishment had the same 3-Star grading as SA1. This could be attributed to the high standards and quality of services offered as a result of stronger financial and technological support at the two case studies than at the financially constrained SA2 case study. As a result of these factors, the evidence in Table 5.1 shows that SA1 and SA3 were receiving more foreign guests and appeared to be more growth-oriented than SA2 case study.

## 5.2 ICT adoption among the case studies

Based on the perceived benefits, various ICT systems were adopted by the case studies in South Africa to improve the efficiency of their e-business activities as shown in Table 5.2 below.

**Table 5.2: Actual ICT adopted by case studies**

Category of ICT systems		Actual ICT adopted			Examples of uses of adopted ICT
		SA1	SA2	SA3	
<b>Telecommunications Technology</b>		Telkom Fixed-line telephone	Telkom Fixed-line telephone	Telkom Fixed-line telephone	<ul style="list-style-type: none"> <li>• Bookings and enquiries</li> </ul>
		Public phone booth		Public phone booth	
		Mobile phones (Vodacom; MTN; Cell C)	Mobile phones (Vodacom; MTN; Cell C)	Mobile phones (Vodacom; MTN; Cell C)	
		Fax machine	Fax machine	Fax machine	
<b>Information Technology</b>		Computer hardware and Peripherals (e.g PCs; laptops; printers, photocopiers)	Computer hardware and Peripherals (e.g PC; printer)	Computer hardware and Peripherals (e.g PCs; laptops; printers, photocopiers)	<ul style="list-style-type: none"> <li>• Typing</li> <li>• Record keeping;</li> <li>• Printing;</li> <li>• Photocopying</li> </ul>
		Computer Software (e.g Windows XP; Microsoft Office)	Computer Software (e.g Windows 98; Microsoft Office)	Computer Software (e.g Windows XP; Microsoft Office)	
<b>Networking Technology</b>		Internet and Websites	Internet and Websites	Internet and Websites	<ul style="list-style-type: none"> <li>• Online booking and enquiries;</li> <li>• E-mail;</li> <li>• Advertising;</li> <li>• Communication</li> </ul>
		Internet Café		Internet Café	
		Wireless hotspots		Wireless hotspots	
		ADSL line connection	Dial-up Internet Connection	ADSL line connection	
<b>Other</b>	<b>Security Systems</b>	CCTV cameras			<ul style="list-style-type: none"> <li>• Security purposes</li> </ul>
		Guest room key cards			
	<b>Credit Card System</b>	Visa Card; Master Card; American Express and Dinners Club		<i>'Plans to set up a credit card system at an advanced stage'</i> (SA3, owner manager)	Billing purposes
	<b>Audio Visual Conference Equipment</b>	Screen projector; Rear Projector; TV/Video/DVD equipment			<ul style="list-style-type: none"> <li>• Conferencing;</li> <li>• Seminars;</li> <li>• Workshops</li> </ul>

**Sources: Interviews, observation and document analyses**

### 5.3.0 DISCUSSION

The discussion of findings from individual experiences of the three case studies in South Africa consistently makes reference to the research framework (Table 3.2). The interpretation of the case study results is driven by the insights derived from the distinctive and behavioural characteristics of small firms, including the existing theories and models on ICT adoption reviewed in this paper (Sections 2 and 3).

#### 5.3.1 ORGANISATIONAL READINESS (ICT adoption stages of case studies)

The results shown in Table 5.2 above suggest that the financially more stable SA1 and SA3 case studies had adopted more and better ICT applications, and appeared to be more growth-oriented than the financially constrained SA2 case study. Based on the Open University Business School (OUBS) stage model of ICT adoption and readiness issues in SMEs (Figure 3.1), SA2 could be classified as a stage 2 ICT adopter. This is a basic or beginner's level at which the adopter is "recently online but unsure of where to go next" (Zappala and Gray, 2006). The SA2 owner managers appeared confident with the email through their dial-up internet access. They also had websites through private companies (SA-Venues.com) in the business environment but did not seem to be ready to run their own website.

On the other hand, SA1 and SA3 could be placed at the intermediate stage of ICT adoption. In terms of readiness issues, the two case studies had adopted better ICT applications, with high speed internet access through ADSL and wireless hotspots, including several websites through various private companies for online bookings, enquiries and marketing purposes. Apart from strong financial support, the background experiences, ICT and business knowledge of the highly skilled owner managers appeared to play a crucial role in the decisions to adopt ICT at SA1 and SA3 case studies.

#### 5.3.2 OWNER MANAGER ATTRIBUTES

The evidence from SA3 case study suggested that owner manager attributes such as background, knowledge, skills, attitude and experience played a significant role in ICT adoption. For example, high speed internet access through wireless hotspots appeared relatively new to the small hotel establishment. As a result, the highly skilled SA3 owner manager took pleasure to explain, during a social meeting with other owner managers, the suppliers of the technology, the perceived benefits; including the costs involved and

contact details of one of the service providers identified as 'Wireless4U' ([www.wireless4u.co.za](http://www.wireless4u.co.za)). By doing so, the participant was clearly playing an important role of early ICT adopters or technology champions who could influence the decisions of other owner managers to consider the uptake of such ICT applications in social networks identified in South Africa.

The influence and perceived benefits of wireless internet connection also came out from SA2 case study which only had future plans for uptake of the technology. Despite the small size and financial constraints of SA2 case study, the owner managers expressed some interest in adopting high speed ADSL and wireless technologies as soon as their financial capacity could improve. The participants perceived the ICT as much faster and more convenient to use for internet access. According to the owner manager,

*"We currently do not have internet access for our guests... so the hotspots wireless internet would be a good idea to give our guests access to the internet in the convenience of their rooms. A lot of times the guests have asked for internet access and we had to take them to the nearby Oakfield and Northmead Square shopping centres for the service. We are finding this problem and the travelling involved causing a lot of inconveniences for us and the guests"* (SA2, owner manager1).

The case study results also suggested the importance of owner manager in further ICT skills training and development support for employees in view of the adopted new technologies and uptake plans for the future. Notwithstanding the high skills displayed by some of the employees at SA1, the owner manager strongly felt that there was still a need for further in-house training and retraining. According to the participant, some local software and hardware suppliers were offering opportunities for further training with a view to promoting the uptake and use of their technology products. Although in-house training could be given or provided by the local software and hardware suppliers, the owner manager felt that such training should start at school, colleges and universities before individuals could join the industry for work. The participant argued that:

*"It may cost a lot of money for employers to start training employees who never received basic computer skills at the time of going to school. Such training should start at school, colleges and universities before individuals can join the job market."* (SA1, owner manager)

### **5.3.3 ENVIRONMENTAL ATTRIBUTES**

#### ***(i) Pressure from customers, guests, employees, competitors and suppliers***

Consistent with the insights from the reviewed theories and distinctive behavioural characteristics of SMEs (Sections 2 and 3) in this paper, the results from case studies suggested that ICT adoption was on the basis of the perceived benefits and driven by pressure from customers, guests, competitors, employees and technology suppliers. For example, the experiences of some participants from the case studies offered the following insights:

*"We have the convenience of paying and using technologies such as internet, printing, photocopying and the Telkom public phone booth here at the hotel. However, the only two computers for public internet access are clearly not enough to cater for the high demand from the guests and employees."* (SA1, receptionist).

The above evidence suggests that the only two personal computers at SA1 internet café were not enough to meet the demand from both employees and guests, resulting in pressure to adopt more computers to meet the growing demand for internet access. To illustrate this, another participant argued

*"Management should purchase more computers for our internet café... perhaps this may bring down the cost of internet access. Imagine, charging one Rand (R1) per minute is currently too high for us [employees]. This is obviously meant for the guests who can generally afford such higher rates compared to about ten Rands (R10) for half an hour in other place such as the nearby East Rand Shopping Mall."* (SA1, Restaurant worker)

Some viewpoints given by a participant from SA1 reflected pressure from the guests on the adoption of wireless hotspots internet connection, which appeared to offer them more convenient internet access and an alternative to the shortage of computers in the internet café. According to the participant,

*"The internet at this hotel has helped me a lot... I could have missed my flight bookings back to Cape Town en-route to Chile. I am so much used to regular emails to my family and friends whenever I am away from home... my stay here could have been difficult without internet access. The wireless hotspots internet connection here is easy and convenient to use. I just paid for the amount of time at the reception and they gave me a code for accessing internet on my laptop. Wireless is a better option here than waiting in a queue at the internet café... with this I can access the internet in my room, in the garden or any other convenient place around the hotel."* (SA1, guest)

As regards the pressure to adopt wireless internet connection, SA3 owner manager revealed that *“The idea of wireless internet connection came up following several requests from guests, mostly those coming from overseas with laptops. Several of them have come here asking for wireless internet connection for their laptops and we then decided to set up the wireless hotspot internet access here.”* (SA3, owner manager)

In terms of the importance of adoption of websites, SA1 owner manager, for example, revealed that *“More than 90% of the foreign guests coming here from different places like America, Europe, Asia, Australia and other parts of Africa appear to prefer making online enquiries and bookings using our own website [[www.africacentrelodge.co.za](http://www.africacentrelodge.co.za)] or other websites that we have through private companies such as ‘hotels.com’ and ‘SA-Venues.com’.”* (SA1, owner manager)

The participant further pointed out that: *“Our guests, however, seem to get to us mostly through our private company websites such as SA-Venues.com whose websites are offering more links, products and services than our website which is mostly restricted to our hotel services and travel tour operations.”* (SA1, owner manager)

Another participant from SA3 revealed that *“More than 80% of the guests are foreigners... we are happily handling all the bookings and enquiries from the foreign visitors by fax, phone and mainly online using the websites and the internet for emails. There are a lot of website companies that we are using for marketing purposes. For example, JIGA [[www.jiga.co.za](http://www.jiga.co.za)]; roomsforafrica.com [[www.roomsforafrica.com](http://www.roomsforafrica.com)] and safarinow.com [[www.safarinow.com](http://www.safarinow.com)] have given us very good business here ever since we started using their websites.”* (SA3, owner manager)

The results from SA1 and SA3 case studies suggest that pressure from mostly foreign guests and local technology suppliers was driving the decisions to adopt several websites for online marketing, including bookings and enquiries. Further evidence revealed that the guests could pay online for bookings through websites adopted by the case studies. Alternatively, the guests had an option to make their payments on arrival using credit cards such as Visa card, Master card, American Express and Diners Club which were available at SA1 case study. According to the interviewed guest from Chile:

*“I liked the idea of booking online and given the option to pay on arrival. All I did was simply to book for accommodation in both Cape Town and this hotel while I was still in Chile. I took the option to pay using my credit card on arrival here in South Africa. Most importantly, there was no need for carrying a lot of cash and getting worried from one place to the other. I find this to be a particularly very safe and convenient way of making non-cash payments in this country.”* (SA1, guest)

Compared to the ICT adoption experiences of SA1, the SA3 owner manager revealed that plans to set up a similar credit card system was at an advanced stage. Although SA2 appeared to be interested in the credit card system, the owner managers appeared to lack the necessary financial support and viewed this as one of the major barriers to ICT adoption at the establishment.

In addition, competition from other small business operators also appeared to influence the decisions to adopt ICT at SA1 case study, as the following quotation illustrates

*“As we prepare for the 2010 World Cup to be held in South Africa, our aim is to engage website companies that can give us good business. Our place is currently undergoing a lot of renovations with plans to expand the size and operations in order to be upgraded to at least a 4 star hotel. We also intend to buy more computers for our internet café. At times its not easy when there so much competition going on around the airport [Johannesburg International Airport]... we need these modern technologies in order to survive during these times when there are so many hotels coming up rapidly especially in places around the airport.”* (SA1, owner manager)

#### **(ii) Security concerns**

The adopted security systems such as CCTV cameras and room key cards at SA1 were offering safety and security at the premises. According to the owner manager,

*“The surveillance system offered by our 16 CCTV cameras is important for both residents and visitors at this hotel. These security systems give everybody here a peace of mind in an environment where crime and armed robbery are still major public concerns in this country.”* (SA1, owner manager)

### **5.3.4 SOCIAL NETWORKS**

With reference to the insights derived from the reviewed theories and distinctive behavioural characteristics of small firms (Sections 2 and 3) in this paper, the case study evidence consistently suggested that social networks were significantly important for ICT adoption among the case studies in South Africa.

### **(i) Large and formal networks**

SA1 owner manager, for example, revealed that they were generally getting to know about the website private companies and more information about the Internet Service Providers (ISPs) through social networks such as Johannesburg International Guest House Association (JIGA) and meetings at tourism Expos. JIGA was a large formal social network also serving as a support agency to all registered members. The registered members were benefiting through the regular monthly meetings at which they would share information and experiences with other small hotel business operators, including technology suppliers, private companies providing websites and the Internet Service Providers (ISPs). Like SA1 case study, both SA2 and SA3 were also registered members of JIGA. According to the official documents on the JIGA website <http://www.jiga.co.za/>):

*“All the establishments in this accommodation association are quality checked regularly to ensure the highest standard of guest house, self-catering or bed and breakfast accommodation within a 10 kilometre radius from the Johannesburg International Airport.”* (JIGA, website)

Reflecting on the benefits of meetings of JIGA members, SA2 owner manager revealed that *“JIGA members would pick up a lot of useful information; make contacts; meet suppliers of technology and service providers. As listed members we get better bargaining opportunities for discounts on purchases of technology and other requirements for our businesses.”* (SA2, owner manager1)

Another participant from SA2 added that JIGA members could also enjoy other benefits that include some collective bargain from suppliers, service providers and insurance cover, as the following quotation illustrates:

*“JIGA puts its members in touch with insurance companies which cover us in many ways. For example, the companies offer us an insurance policy tailored to suit the needs of guest house business. Some of the policies give 3<sup>rd</sup> part liability to the guest as well as 3<sup>rd</sup> part liability cover for the vehicle used to pick up the guests from the airport. We certainly need to be covered when transporting the guests, especially in cases of injuries; accidents and thefts where it is legally proven that one is liable to such occurrences during our operations. There is also additional cover on the actual property in the event of things like fire, accidents, injuries and theft.”* (SA2, owner manager1)

### **(ii) Other support agencies (social network externalities)**

Apart from JIGA, other social network externalities or support agencies for small businesses in the tourism industry were identified in South Africa based on the case study results. As a high standard and quality service hotel and travel centre, SA1 had earned several recognition and key partnerships and strategic alliances reflected by the membership certificates displayed at the reception. The evidence showed that the certificates were awarded by key industry support agencies that included Benoni Publicity Association, Ekurhuleni Business Initiative (EBI), Africa Adventure Tourist Information, South Africa Tourism Board and a 3-Star award from the Tourism Grading Council of South Africa (TGCSA). In addition, the evidence revealed that SA1 was offering tour operations which connected the establishment to the local shopping centres and other national and regional business partners as far as Zimbabwe and Kenya.

Similarly, SA3 had other various business networks through membership accreditations to key industry support providers. Observation on site revealed the 3-Star grading certificate awarded by Tourism Grading Council of South Africa (TGCSA) and membership certificates awarded by Ekurhuleni Business Initiative (EBI) and the AA Quality Assured Accommodation Programme.

### **(iii) Informal associations and personal friendships**

There was a lot of evidence suggesting the significant influence of personal friendships in ICT adoption among the case studies in South Africa. Apart from the large and formal networks such as JIGA to which all the case studies were registered members, SA2 owner managers pointed out that there were other several small and informal groups of guest house operators in Benoni and other neighbouring areas like Kempton Park. Interestingly, the participants revealed that they were also members of a local social group of guest house owners in Benoni local municipality. According to the owner manager,

*“The group is currently an informal association which is not registered and is only an initiative of our Benoni neighbourhood with interest in this kind of business. Our services are slightly different in this social group in order to cater for various needs of the different types of guests that we attract here. However, if any of our members is full, we share the guest-overflows amongst ourselves. Our meetings are regular with rotational venues - at least once a month. Each time, there is a volunteer secretary who takes the minutes, arranges the next meetings, venues and keeps records.”* (SA2, owner manager1)



In addition, the evidence from S3 case study also suggested several networks which were driving ICT adoption decisions and development of e-business at the establishment. The social meeting with friends from Benoni suggested that the case study had social and business links which could provide opportunities for meeting and sharing information and experiences with other small business owners. A lot of information about the technology suppliers, costs involved and the perceived benefits of the adopted ICT solutions were discussed at the social meeting of owner managers at SA3.

### **5.3.5 GOVERNMENT ROLE**

The case study results suggested that government intervention in their business operations was largely indirect. This was reflected in the role government was playing in setting up policies, providing ICT support infrastructure, power supply, development of tourism infrastructure and dissemination of information to the small businesses. According to a participant from SA2,

*"There is a big tourism drive here at the moment. The Benoni local municipality is currently busy upgrading tourism facilities such as publicity association offices, information centres and other infrastructure for tourism in this area. There is always someone to help or give advice at the local information centre or at the Ekurhuleni metropolitan municipality offices which cater for about nine individual municipalities in Gauteng Province. We pick up a lot of useful information from brochures, books and maps which are readily available at these information centres."* (SA2, owner manager2)

From the case study evidence illustrated above, government was playing a significant role in supporting the small businesses in the tourism industry. However, the participants commonly raised concerns in issues like power outages, shortage of public transport, persistence of crime and armed robbery, which they felt were affecting their business activities. The owner managers urged the government to find more effective ways of dealing with these issues. As one participant pointed out:

*"We are finding public transport in Johannesburg to be far from satisfactory. The idea of a fast rail link between the major cities in Gauteng Province is a welcome move but the project might take long to complete as it appears a long term measure. The government in partnership with private sector could do more to support other short term measures like introduction of more buses to reduce the shortage of public transport."* (SA2, owner manager1)

Another participant from SA3 added during the social meeting of owner managers *"A reliable public transport system would give visitors options to use taxis, buses or train from the airport to any destination in South Africa."* (SA3, owner manager)

As regard the issue of interrupted power supply, one participant from SA1 suggested that *"The government could do more to ensure that Eskom, [the major power utility in South Africa], has the necessary support to increase the power production capacity. These power cuts that happen without notice are affecting our business activities and the internet services to our guests."* (SA1, receptionist)

### **5.3.6 Barriers to ICT adoption**

#### **(i) Financial constraints and age factor**

While the evidence suggested that SA1 and SA3 were more financially stable, growth-oriented and presenting strong technology uptake tendencies, the adoption of ICT and growth strategy at SA2 appeared to be mainly inhibited by financial constraints. Although SA2 owner managers had a possibility of accessing finance from the local banks in South Africa, the participants revealed their age at over 60, as a barrier, and declared:

*"Borrowing at our old age can be a risky undertaking especially considering the small size of our business and the little income we are generating and immediately use it to finance the upgrading of our existing infrastructure. We are not prepared to get into a burden of repaying the loan with high interest rates and bank charges which we cannot afford."* (SA2, owner manager1)

#### **(ii) Lack of time**

From the discussions at the attended social meeting between SA2 and SA3 owner managers, lack of time appeared to inhibit ICT adoption at SA2. According to the participant, *"Honestly, we previously had never committed ourselves or created time to search for wireless internet service providers... and we were also not aware that Telkom could set up public phone booth at places like these for no charge."* (SA2, owner manager2)

In response to the above, the SA3 owner manager revealed that *"The public phone booth can be arranged with Telkom and installed at no cost. All you need is simply to apply... it may take a bit of time but once approved, Telkom will certainly put up the facility for you at no cost! Telkom would only expect you to look*

*after the phone booth and making sure it is not vandalised or abused in any way. This is a pretty good facility which turns out to be a cheaper alternative for guests and employees who may want to make phone calls. We also offer Telkom phone cards which they can buy here and use to make local and international phone calls.”* (SA3, owner managers)

The visiting friends from SA2 case study acknowledged the shared information and expressed interest in considering taking-up the same ICT solutions at their establishment in the near future.

### **(ii) Power outages**

The frequently experienced power outages were affecting business operations and causing loss of internet connection across the case studies in South Africa. A deeply concerned receptionist at SA1 internet café pointed out: *“Apart from the shortage of computers for our customers in the internet café, our major concern is on the frequent power cuts that we experience here without notice. At times it can take the whole day before Telkom reconnects our internet services. This is affecting our operations here and we do not want this to continue frustrating our customers who need internet access.”* (SA1, receptionist)

Similarly, SA2 owner managers urged the government and Eskom, the major power utility in South Africa, to find a lasting solution to the problem of power cuts which they said was a cause for great concern in their business activities. The following quotation illustrates the concern of the participants to this barrier issue:

*“The problem of load shedding is seriously affecting our business operations and electronic equipment. Now our computer keeps on freezing and occasionally switching off on its own... we are not certainly sure whether the computer is infected by a virus or it is just faulty because of the power cuts that we have been frequently experiencing since January 2008. We also have got two TV sets to repair! The problem comes on and each time there is no warning. Imagine, for example, that we have our guests and there is no electricity for lights, for cooking and for us to access our internet which we use to confirm enquiries and bookings – the situation is so bad when it happens! This is already pushing us into thinking of buying a fuel power generator which we do not have at the moment.”* (SA2, owner manager1)

## **6.0 Conclusions**

This paper sought to examine ICT adoption among small hotel establishments in South Africa. Based on a multiple case study approach, the findings provide rich and in-depth insights which confirm the usefulness of the research framework used in this paper. The adapted ICT adoption model (Gibbs et al, 2007) identifies and integrates key factors that include government; environmental attributes; owner (managerial) attributes; organisational attributes; adoption attributes and social networks. The examples from unique individual experiences of the 3 case studies offered this research with useful insights which help to explain and understand the ICT adoption attributes and development of e-business in SMEs within South African context. In all the three case studies in South Africa, the results suggested that both formal and informal social networks are vital for ICT adoption in small firms. The identified social networks included the large and formal JIGA, friendships and small informal social groups of guest house owners in Benoni and Kempton Park in Johannesburg. These social network types appeared to be key sources of information, advice and support in business and technology issues that relate to small hotel establishments. Moreover, several support agencies or social network externalities for small businesses in the tourism industry were identified. Pressure to adopt ICT among the case studies also appeared to come from environmental attributes that include customers, guests, suppliers and competitors. The support of owner managers appeared crucial in terms of business planning, ICT uptake and purchasing decisions. In addition, the background experience, skills and knowledge of the owner managers suggested a significant influence on ICT adoption decisions in some case studies (SA1 and SA3). In terms of organisational readiness, the more financially stable case studies (SA1 and SA3) appeared more growth-oriented and prepared to adopt ICT than the financially constrained case studies (SA2).

The results suggested that the various ICT applications were adopted by the case studies mainly on the basis of their perceived benefits in improving their business efficiency; competitiveness; planning; management; communication; emailing; security; cash handling and billing purposes as well as online advertising and market sourcing. As a result, internet, websites, fixed-line and mobile phone networks were commonly adopted by the case studies in South Africa. There were notable differences in the level of organisational readiness and stages of ICT adoption (Zappala and Gray, 2006), which appeared to range from basic (SA2) to intermediate (SA1 and SA3) levels. The preparedness for ICT uptake appeared to be mostly driven by financial and owner manager support of the small firms. Therefore, financial constraints and age factor in some cases (SA2), and power outages across all the case studies, were identified as the major barriers to ICT adoption and development of e-business among the SMEs in the South African context.

## 6.1 Implications for policy and practice

Notwithstanding the important role played by government in setting up policies, providing ICT support infrastructure, development of tourism infrastructure and dissemination of information to the case studies in South Africa, the participants expressed their concerns in issues that included power outages, public transport, crime and armed robbery. The owner managers across the case studies urged the government to consider stronger measures and more effective strategies in addressing these environmental issues affecting their business activities. Despite the significant improvements in the ways government is dealing with crime ever since the end of apartheid regime in 1994, the views from the case study participants suggested more effective intervention strategies in dealing with these external issues inhibiting the freedom and development of small firms in South Africa. Notably, the economic empowerment programmes such as the Black Economic Empowerment (BEE) could be further supported and expanded to cover various groups of people in disadvantaged communities in order to reduce the gap between the rich and the poor in South Africa. In view of the skills training and educational needs highlighted by some case studies (SA1), the government, through relevant ministries and departments, could play a more leading role in programmes and initiatives that help to support ICT skills training across the education sector.

There are several implications for practice from the results of this research. For example, small business owners need to recognise the existence of social networks, technology suppliers and the benefits these can offer their businesses. The evidence showed that technology suppliers and service providers were offering technical support, information and learning opportunities to their clients and end users for new ICT applications such as wireless hotspots which appeared relatively new to some case studies in South Africa. These case study insights on ICT adoption presented in this paper may help policy-makers and the identified support agencies in terms of policy reviews and intervention strategies that are meant to support ICT adoption and development of e-business among SMEs in South Africa.

## 6.2 Recommendations for future research

The findings presented in this paper are inconclusive. Although the results are only based on the individual experiences of case studies in South Africa, the original doctoral project also included case studies in the small hotel industry from Botswana and Zimbabwe. Future research involving more SADC countries and other SME sectors would bring more detailed insights into ICT adoption at regional level. Further work may also consider the use of quantitative methods in empirical research which may be concerned with investigation of the interrelationships between the identified key ICT adoption attributes in small firms. Further empirical evidence is needed to test the overall efficacy of the research model using different methods in similar socio-economic environments and business contexts. By doing so, perhaps the generalisability of the ICT adoption framework applied in this paper can be increased.

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