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Adoption of E-Business by Small and Medium Enterprises in Kenya: Barriers and Facilitators

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Abstract

The study looks into the internet-based electronic business adoption profile of small and medium-sized enterprises (SMEs) as well as the factors affecting their willingness to adopt e-business usage.

The study adopted a literature review methodology where a wide spectrum of literature was interrogated. This methodology has its limitation in that there is need to empirically validate the findings through studies in different geographical regions and economic sectors.

It is noted that e-business adoption is significantly influenced by its perceived benefits. The benefits are majorly financial. However, based on the literature reviewed, the main barriers to e-business adoption appear to be the unwillingness of managers to be responsible for technological change. Ignorance surrounding the technology is fuelling concerns about security, costs, legislation and interoperability.

This paper is presented in the following order: introduction, problem statement, literature review, theoretical framework, methodology, findings, conclusion and recommendations.

Keywords: E-business**,** E-business Adoption**,** Small and medium enterprise

1.0 Introduction

Small and medium-sized businesses (SMEs) make substantial contributions to national economies (Jutla et al., 2002; Poon and Swatman, 1999) and are estimated to account for 80 per cent of global economic growth (Jutla et al., 2002). They are considered as major economic players and a potent source of national, regional and local economic growth (Taylor and Murphy, 2004). They are crucial for the economic performance and development of any country and are an important source of flexibility and innovation (OECD, 2002). SMEs represent between 96 and 99 per cent of the total number of enterprises in most OECD countries. In Kenya SMEs are major sources of employment especially for the youth (GoK,

2012). These enterprises have been documented as playing other important roles in the Kenyan economy including:

1. Income generation and growth of the country's economy as measured by the Gross Domestic Product (GDP)
2. Sources of new products and services through creativity and innovation of SME entrepreneurs
3. Important market links for large enterprises
4. Utilization of local resources which would otherwise not catch the attention of large national/international corporations

The information and communication technologies (ICTs), particularly the use of internet to conduct online business is quickly changing the conventional way of doing business among all categories of businesses. The continuous and growing interest in ICT adoption is attributed to the exponential growth in the number of internet users worldwide, with a bigger increase reported from users in developing countries (International Telecommunication Union, http://itu.int/ITU-D/ict/statistics).

With the strong waves of globalization and liberalization across the world, ICT is believed to be the most cost-efficient tool to help small businesses gain bigger markets and the ability to compete with larger organizations in attracting customers to their products, services and information (Tan et al., 2009). This is in light with the advantages inherent in internet such as speed, user-friendliness, low cost and wide accessibility which has allowed electronic business (e-business) to be increasingly diffused globally, bringing countries together into a global networked economy (Gibbs and Kraemer, 2004).

Both buyers and sellers can significantly benefit from implementation and usage of e-business (Zhu, 2004), those benefits can also be materialized for SMEs (Al-Qirim, 2007).

This paper aims to identify the factors influencing adoption of e-business technologies among SMEs. This study essentially aims at reviewing the e-business usage profile of small and medium-sized enterprises (SMEs) as well as the factors affecting their willingness to e-business usage. The study also analyses both the benefits and limitations associated with the use of e-business in SMEs.

1.1 Problem Statement

SMEs can widely benefit from e-commerce (OECD, 2000, 2002). Whilst e-business technologies are increasingly being applied by large companies to facilitate collaboration, trade, learn, manage company business processes and deliver services there are significant barriers to e-business adoption by SMEs.

Prior e-business literature has shown that only a small number of studies focused on the adoption and use of e-business in SMEs (Grandon and Pearson, 2004). Moreover, it has been found that in spite of exponential growth of e-business within SMEs, the rate of e-business adoption by these businesses has remained relatively low (MacGregor and Vrazalic, 2005) and large organizations have noticeably profited more than SMEs in both their improved sale and costs saving (Riquelme, 2002).

SMEs differ from large companies in important ways affecting their information-seeking practices (Buonanno et al., 2005, Lang and Calantone, 1997).Thus, the adoption of e-business innovations in SMEs cannot be a miniaturised version of larger organisations.

Despite the significant contribution that e-business has made to firms, many studies indicate that there are a large number of unsuccessful e-business implementations in SMEs and that the adoption rate is very slow (Acar et al., 2005; Mole et al., 2004; Shin, 2006;

Southern and Tilley, 2000). There appear to be three main reasons for this. First, management is unclear on how and why their firms adopt e-business in the first place (Levyet al., 2001; Southern and Tilley, 2000). Second, there is a misconception toward the e-business adoption process mainly because managers do not understand the relationship between e-business and the firms themselves (Bull, 2003; Carson and Gilmore, 2000) or are uncertain about the opportunities that e-business can offer (Southern and Tilley, 2000). Finally, firms do not have the capabilities to expand their ICT resource (Acar et al., 2005; Claessen, 2005) because of lack of business and ICT strategy, limited access to capital resources, emphasis on automating, influence of major customers and limited ICT skills (Ballantine et al., 1998). Levy et al. (2001) suggests that e-business adoption in SMEs often happens without any proper planning and as a result there is a low percentage of successful implementations. SMEs also have a lack of awareness of the potential of ICT solutions to help their businesses gain competitive advantage and concerns over the cost of e-business deployment and data security.

Some success in adoption rates has been reported, particularly among larger SMEs (Van Beveren and Thomson, 2002). However, the use of e-business applications remains obstinately low (Goode, 2002; Jutla et al., 2002; Korchak and Rodman, 2001; Lewis and Cockrill, 2002; Stokes, 2000), raising the question of why adoption initiatives are not more successful.

2.0 Literature Review

The Internet is a force for change, creating new business economies (Lambert, 2002) and altering considerably the world's economies (Rayport and Jaworski, 2001). Tidd et al. (2001) consider the Internet to be one of the "defining symbols" of twenty-first century innovation that has transformed our conceptual notions of how we value knowledge to create a new e-economy. This is a departure from the post-industrial business age that is typified by physical goods, towards a knowledge led economy where service, information and intelligence are the main currencies (Rayport and Jaworski, 2001). As the internet became more commercialised and users began to participate in the world wide web in the early 1990s, the term e-business was coined and e-business applications expanded rapidly (Turban et al., 2002). In the past, large-sized companies had increasingly utilized private networks to undertake e-business, but high costs impeded to reap the resulting benefits by most SMEs. The internet, however, has changed this equation by making it easier and cheaper for all businesses to transact business and exchange information.

2.1 Benefits of e-business to SMEs

The internet and e-business have become increasingly diffused globally, bringing countries together into a global networked economy (Gibbs and Kraemer, 2004). The small entrepreneur, for instance, can compete on the internet simply by setting up a home page (Sterrett and Shah, 1998). While there are numerous benefits of conducting business on the internet, the most prominent ones are:

i. it offers direct links with customers, suppliers and distributors and facilitates transactions;
ii. facilitates information transfer;
iii. enables companies to develop new products and services for existing and new customers (Walters and Lancaster, 1999); and
iv. offers opportunities for companies to market their products around the world without physically contacting customers or advertising in other parts of the world (Karakaya and Karakaya, 1998).

Among the principle benefits of internet-based e-business that are more directly relevant for SMEs include: direct savings such as product promotion, new sales channels, quick product delivery, more satisfaction of customers, inexpensive advertising medium, enhanced company image, new business opportunities, efficiency in information gathering and better support from suppliers (Walczuch et al., 2000).

2.2 Facilitators/Inhibitors to adoption e-business by SMEs

There are a number of recognised factors that affect the ability of SMEs to adopt and develop their e-business involvement.

i. Owners and management - An owner's enthusiasm for the technology has been identified as a major motivator in SME adoption of e-business (Cragg and King, 1993). This can be extended to include senior management (DeLone, 1988; Poon and Swatman, 1999) in larger SMEs and enthusiastic employees or family members in smaller businesses.

ii. Industry sectors and relationships - The industry sector may have a significant influence on an SME's decision to participate in e-business activities (Cragg and King, 1993; Poon, 2000). In relationships where large firms use SMEs in their outsourcing, the motivation to adopt is fuelled by the integration of trading partners into organizational extranets. Large organisations are increasingly outsourcing many of their requirements, and e-enabled SMEs have the ability to respond more quickly to changing demands than their large counterparts enabling them to take advantage of outsourcing opportunities (Bartlett and Ghoshal, 2002, Walczuch et al., 2000). Conversely, SMEs that have few e-competencies will face barriers in entering the outsourcing market.

iii. Expectations and realisation of benefits – e-business literature promises benefits including substantial cost savings, improved communications, access to wider markets and improved competitiveness. However, many SMEs remain unsure of the benefits they can achieve (Goode, 2002), due in part to unrealistic expectations and the difficulties of effective evaluation (Poon, 2000). Confidence in the realisation of benefits remains low and even for SMEs who gain in the short-term, advantages are "marginal and often circumstantial" (Lewis and Cockrill, 2002, p. 198).

iv. External factors - Globalisation has brought great changes to the business environment. In addition to the trend for outsourcing, deregulation of many industries has opened up markets for companies that are able to respond to the changes and who have networking capabilities to facilitate partnerships across wide geographic areas (Dutta and Evrard, 1999). Changes in trading boundaries have had a major effect on the ability of SMEs to cross national borders and broaden their markets.

v. Lack of knowledge - Lack of technical knowledge, combined with little appreciation of the benefits of e-business, remains a major difficulty for SMEs. Mehrtens et al.(2001) describe this as lack of organisational readiness that is compounded by difficulties in accessing affordable, quality services from external sources (Bode and Burn, 2001). IT consultants are seen as too expensive and unhelpful (van Akkeren and Cavaye, 1999). Insufficient e-competencies within a firm remain a barrier to e-commerce adoption.

vi. Technology concerns - Several concerns relating to technology affect SMEs' participation in e-business. One concern is a mistrust of the IT industry, which is perceived to be too fast moving, and too changeable (van Akkeren and Cavaye, 1999).

Another concern for companies is that of security and worries about fraud. A further concern is that of connectivity. This is often a regional problem related to the telecommunications industry and political will.

vii. Lack of resources - Lack of resources remains a barrier to SME e-business participation (Cragg and King, 1993). Although the cost of internet connection is falling and e-mail is coming within the reach of most companies, for more extensive participation there remains a substantial investment cost. Hardware and software costs represent a significant investment for smaller companies and telecommunication costs remain high. In addition, there is a requirement for a substantial investment in time and training for employees to maintain a multi-skilled workforce. This can impose a severe strain on the limited financial and time resources of SMEs, particularly of the smaller firms that lag behind larger SMEs (Lewis and Cockrill, 2002).

2.3 Theoretical Framework

According to Molla and Licker (2005) and Tan et al. (2007), the literature on technology adoption by businesses suggests that most researches are based on the following frameworks:

i. The Diffusion of Innovation (DOI) (Rogers, 1995; Zhu and Kraemer, 2005).
ii. Technology Acceptance Model (TAM) (Davis, 1989).
iii. The Technology-Organisation-Environment Model (TOE) (Kuan and Chau, 2001; Tornatzky and Fleischer, 1990; Zhu and Kraemer, 2005).
iv. Institutional Theory (Chatterjee et al., 2002; Scott, 1995).
v. Resource-based Theory (Barney, 1991; Zhu and Kraemer, 2005).

These models have differences in term of their focus and are designed to examine different aspects of business technology adoption.

DOI (Rogers, 1995) and TAM (Davis, 1989) have been widely used in previous studies (Rogers, 1995; Tornatzky and Klein, 1982; Bajaj and Nidumolu, 1998; Igbaria et al., 1997; Davis et al., 1989; Riemenshneider et al., 2003). The technology-organisation-environment (TOE) framework developed by Tornatzky and Fleischer (1990) has been tested and validated by many studies (e.g.Kuan and Chau, 2001; Premkumar and Roberts, 1999; Iacovou et al., 1995).

This article adopts the Diffusion of Innovation theory as proposed by Rodgers (1983). DOI remains a popular model in investigating DOI in different sectors of the economy, including the SMEs. (Tan et al. 2009). Since the DOI model is inclined towards investigating new technological adoption and diffusion (Rogers, 1983), it is therefore aligned to the main focus of this study.

2.3.1 Diffusion of innovation theory (DOI)

The DOI model, introduced by Rogers (1983), remains a popular model in the investigation of the behavior of users in adopting new technological innovation. The DOI is a broad psychological or sociological theory used to describe the patterns of adoption, explain the mechanism and assist in predicting whether and how a new invention will be successful. Specifically, diffusion is defined as a process by which an innovation is communicated through certain channels over a period of time among the members of a social system. Innovation, on the other hand, is defined as an idea, practice, or object that is perceived to be new by an individual or other unit of adoption. Communication is a process in which participants create and share information with one another to reach a mutual understanding (Rogers, 1983). In short, the DOI is concerned with the manner in which new technological ideas migrate from

creation to use and that technological innovation is communicated through particular channels, over time, among the members of a social system.

Based on the DOI model, Rogers (1983) proposed five important perceived characteristics of innovation. They are:

1. Relative advantage – the degree to which the innovation is perceived to be better than what it supercedes.
2. Compatibility – the degree to which the innovation is consistent with existing values, past experiences and needs.
3. Complexity – the degree to which the innovation is difficult to understand and use.
4. Trialability – the degree to which the innovation can be experimented on a limited basis.
5. Observability – the degree of visibility of the new innovation results.

3.0 Methodology

This paper is entirely based on a literature review. It involved review of literature on e-business adoption as it relates to SMEs. The literature reviewed included academic journal articles, books, government publications and materials published by inter-government organizations. The material reviewed gives a different insight on adoption of e-business by SMEs.

4.0 Findings

Based on the literature reviewed, the main barriers to e-business adoption appear to be the unwillingness of managers to be responsible for technological change (Kalakota and Robinson, 2001). Ignorance surrounding the technology is fuelling concerns about security, costs, legislation and interoperability (Timmers, 1999). There are also concerns about the complexity of available e-business services (Bodorick et al., 2002). While Bodorick et al. (2002) identified limited resources as a distinctive characteristic of SMEs and therefore a barrier for them to compete in the global e-business market, Cragg et al. (2001) found that a lack of financial resources was not delaying e-business adoption.

Darch and Lucas (2002) found several perceived barriers to the adoption of e-business in SMEs including costs, lack of awareness of what e-business involves, lack of e-business skills, lack of knowledge, lack of help and lack of time. Secondary issues were inadequate telecommunications infrastructure, lack of trust and the relevance of e-business to their particular industry sector. Chappell et al. (2002) state that a lack of SME bespoke information is why many SMEs are not taking advantage of the Internet. Lawson et al. (2003) suggest that the barriers can be categorised as either technical or social factors and provides further evidence in SMEs for lack of skills, knowledge and poorly trained staff. Most of the barriers identified by Lawson et al. (2003) were non-technical and they suggested some ways in which these barriers may be overcome such as government and industry associations providing information to raise awareness, training, participation in the diffusion process and working with good quality consultants.

Fillis et al. (2003) have devised a conceptual model of e-business development for SMEs which appears to incorporate many of the factors outlined in this paper.

5.0 Conclusions

SMEs are major economic players and a potent source of national, regional and local economic growth. The increasing liberalization and fierce competition of the world economy has demanded the SMEs to continuously look for ways to improve their competitive ability. The SMEs should not underestimate their capability to compete in a larger market and that e-business adoption and utilization can act as a strategic tool to help them to achieve just that. E-business technologies offer growth opportunities to these firms.

The reasons why SMEs adopt e-business appear to be numerous. Most of the reasons outlined in this paper appear to involve financial benefits for the SMEs. Studies in indicate that top management generally does not understand what e-business is all about and this lack of understanding lead them to underestimate the impact of e-business and prefer to be followers rather than leaders in the adoption of e-business technologies. In order to reap the advantages of e-business, businesses must fully embrace it by making owners/ managers aware of its potentials.

Finally this study is not free of limitations. The study was a desk research in which available literature on the subject matter was critically reviewed. The paper generalizes all SMEs without distinction of region or economic sector. Therefore it would be objective for other researchers to conduct empirical studies in specific regions and economic sectors to confirm the findings.

6.0 Recommendations

There is a certain need to create greater awareness among the SMEs on the importance of e-business adoption. This can particularly be done through peer motivation whereby SMEs in the ICT sector take up the initiative of sensitizing their peers on the benefits e-business can have on their individual businesses and economic sectors. SMEs in ICT related fields should act as champions of e-business especially because they do not only have the required skills but they most likely are implementing some form of e-business.

In the Kenyan context, the government should work towards reducing the cost of internet bandwidth. It is commendable that most Kenyans now have some form of internet access, especially through mobile phones. However, if the country's SMEs are to fully utilize the platform for e-business activities, then there is need to bring down the cost of internet services.

The Kenya government has a commendable project whereby it intends to issue laptops to all children joining primary school. If the project is successful then it will be a major step in fighting ICT ignorance from an early stage among Kenyans. It means the next generation of Kenyans will be more receptive to technology and will appreciate the benefits that come with it - including e-business capabilities. Government should therefore fast track the project.

In recent years, the government of Kenya has been giving funds to start up MSEs. This is a commendable initiative. However, what it needs to add in its criteria of deciding which start ups to fund, is the level of e-business activities proposed by each of the would be entrepreneurs. This should especially apply to those seeking funding from the Youth Enterprise Fund as most of its targeted beneficiaries are ICT literate. This way, we will have more SMEs adopting e-business.

Finally, benchmarking of the Kenyan SMEs sector e-business initiatives with global leaders on the subject would serve as a drive for the initiatives to succeed. Such global leaders include South Korea and Singapore. There is much in the area of e-business that Kenyan SMEs

can learn from their counterparts in those countries. To enable this, industry associations and the government can organize exchange programs.

The widespread impact of globalization and emergence of EC on smaller firms offers avenues for future research. Future studies may place further emphasis on examining the factors that will influence the EC adoption from cross-country and cross – industry perspectives.

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