

## Journal of Internet Banking and Commerce

An open access Internet journal (<http://www.arraydev.com/commerce/jibc/>)

Journal of Internet Banking and Commerce, December 2011, vol. 16, no.3  
(<http://www.arraydev.com/commerce/jibc/>)

### Factors Influencing Electronic Business Technologies Adoption and Use by Small and Medium Scale Enterprises (SMES) in a Nigerian Municipality

---

#### Wole Olatokun

**Africa Regional Centre for Information Science, University of Ibadan, Nigeria**

Postal Address: No 6 Benue Road, P. O. Box 22133, Ibadan

Author's Personal/Organizational Website: [www.spjimr.ernet.in/~Doe](http://www.spjimr.ernet.in/~Doe)

Email: [woleabbeyolatokun@yahoo.co.uk](mailto:woleabbeyolatokun@yahoo.co.uk)

Dr. Wole Olatokun is Ag. Director, Africa Regional Centre for Information Science, University of Ibadan, Nigeria. His areas of interest are Social Informatics, Information Technology Policy and Indigenous knowledge management.

#### Busola Bankole

**Africa Regional Centre for Information Science, University of Ibadan, Nigeria**

No 6 Benue Road, P. O. Box 22133, Ibadan

Postal Address: No 6 Benue Road, P. O. Box 22133, Ibadan

Author's Personal/Organizational Website: [www.spjimr.ernet.in/~Doe](http://www.spjimr.ernet.in/~Doe)

Email: [busolabankole@yahoo.co.uk](mailto:busolabankole@yahoo.co.uk)

Miss Busola Bankole completed her Master's degree in Information Science at Africa Regional Centre for Information Science, University of Ibadan, Nigeria. Her areas of interest are Electronic business and Mobile commerce.

---

#### Abstract

This study examined the adoption of e-business technologies by SMEs in Ibadan a metropolitan city in South West Nigeria. It aimed at finding out the factors that promote and inhibit the adoption of e-business technologies, the kinds of e-business technologies adopted and used and their extent of use. It also identified the challenges faced by SMEs with regard to e-business technologies use. Descriptive survey research design was adopted. Data were collected with structured questionnaires administered among

sixty SMEs (30 adopters and 30 non-adopters). Four hypotheses were tested at 0.05 level of significance. Data were analyzed using frequency and percentage distributions, t-test and multiple regression. Results showed that majority of the firms were smaller firms with 0-9 employees and not less than 1-5 years of establishment. The respondents cited perceived benefits as the major factor for adopting e-business technologies in their firms while 83.4% of non-adopters agreed that low capital base was the major reason inhibiting them from adoption. Hundred percent of the firms each have adopted internet technology and electronic mail which are daily used by all the firms. The major service provided with the use of these technologies was e-mail to communicate with customers and suppliers. On the benefit and challenges of e-business, all the organizations affirmed that e-business have benefited them in the sharing and exchange of information and improving market share. About 96.7% of them affirmed inadequate technical manpower as the major challenge. Further results revealed that the age of the SMEs had significant relationship on the adoption of e-business while size had no significant relationship. Independent variables jointly correlated significantly with the adoption of electronic business ( $R=0.162$ ) and they contributed (22%) to the variance of the dependent variables. Their significant contributions were as follows: perceived benefit ( $\beta=0.568$ ,  $p<0.05$ ), nature of organization's business ( $\beta=0.533$ ,  $p<0.05$ ); owner's awareness of the technology ( $\beta=-0.577$ ,  $p<0.05$ ); and ( $\beta=0.725$ ,  $p<0.05$ ) while other variables were not significant. The results clearly indicate the necessity to provide support to SMEs to enable them to successfully adopt and use e-business technologies. The results have implications not only for managers of SMEs but also for government bodies in developing countries such as Nigeria.

**Keywords: Adoption; E-business; Information and Communication Technologies (ICT); Nigeria**

© Wole Olatokun and Busola Bankole, 2011

---

## INTRODUCTION

Access to the web in developing countries was primarily restricted to e-mail communication and many people thus continue to view the internet and its application as simply a medium for e-mail communication, faxing and majorly web surfing, making majority of them not fully aware of other web-based applications. UNCTAD, 2006 reports that these trends are particularly common in Africa. Electronic business (e-business) generally provides new ways and opportunities for organizations to broaden their participation into new national and international markets. There are lots of SMEs adopting e-business at the moment all over the world. This adoption has brought with it many benefits including market changes, controlling business cost, customer expansion, and creation of wealth. Others are creation of job opportunities, ability to be reachable worldwide, production gain and system efficiencies, as well as value creation.

However, there are still lots of challenges for SMEs in adopting e-business because they are small and are challenged by lack of adequate resources and training, inadequate

infrastructures, lack of push from the supply chain, lack of vision and a persistent poor security measures (Davis *et al.*, 2001). SMEs rely on an environment in which structures and processes must remain simple, flexible, and adaptable (Carmichael, Turgoose, Older Gary, Todd, 2000). These unique characteristics affect Internet technologies adoption in SMEs. Research suggests that there is a correlation between the size of a business and the level of IT adoption (McDonagh and Prothero, 2000). A typical small enterprise exhibits much lower rates of e-business activities than larger firms when excluding smaller high-technology firms (Smyth and Ibbotson 2001). Small and medium-sized firms lack a general pattern on adoption of Internet technologies (Chavez, Leiter, and Kiely, 2000) and the extent of adopting them often vary widely (Kula and Tatoglu, 2003).

Today, because the internet can facilitate the quick and efficient movement of information among trading partners at a greatly reduced cost, e-business is gaining ground globally (Ministry of Commerce Barbados, 2005) as cited in Emma and Georgia (2009). The adoption of e-business technologies is influenced by many factors. A study conducted by Ramsey *et al.*, (2003) found that the growing awareness and understanding of the benefit of e-commerce among SMEs could positively influence their desire and interest in adopting e-business. Peer pressure or industry standard is also a driving force to pushing firms up the ladder of adoption of e-business technologies (Kula *et al.*, 2003). However, this could become an inhibitor of adopting new technologies if there is no industry leader or champion to innovate and to demonstrate the strategic advantage of using advanced e-business technologies. A study conducted by Lacovou *et al.*, (2005) found that the owner's lack of awareness of the technology and perceived benefits is a major factor to a take up of electronic business. Other factors, according to Olatokun and Kebonye (2010), such as the size of the enterprise and the type of business enterprise also influence its adoption. According to these studies, size, as well as the enterprises' activities has an influence on e-business adoption.

Literature also identified the benefits of e-business on businesses stating their ability of enabling easy access to global market, adequate and efficient market research, removal of business intermediaries, reduced transaction costs and value creation.(Almeida *et al.*, 2006; Kapurubandara and Lawson, 2006; Moodley, 2003; Alemayehu,2005; Turban *et al.*, 2004). SMEs appear to encounter many challenges in adopting new technologies. The cost of implementation, security, perceived customer readiness, lack of knowledge of IT and e-business are some of the challenges encountered by SMEs in adopting electronic business technologies.(Department of Enterprise, Trade and Employment,2004) cited in Emma and Georgia(2009). The literature indicate that many studies have been carried out which militate the adoption of electronic business. These studies have looked at owner/manager perspectives, firm perspectives and costs and return on investment (Akkeren and Caraye, 2000).

A number of related studies such as the status of Internet commerce in the manufacturing industry (Cooper and Burges, 2000), deploying internet banking and e-business (Kannabiran and Narayan, 2005), e-business adoption in the electronic industry (Parish *et al.*,2002) have focused mainly on multinationals and larger organizations as regards their suitability to the technology. Based on Kapurubandara and Lawson (2006) and the E-Adoption Ladder (DTI, 2001), which are the models underpinning this study, the main aim of this paper was to present the level of adoption

and use of e-business technologies by small and medium scale enterprises (SMEs) in Ibadan in South-west Nigeria, and the factors that promote or inhibit adoption.

The following research questions guided the study: What type of e-business technologies do SMEs adopt for their various activities? What factors promote or inhibit the adoption of e-business technologies. To what extent do SMEs implement e-business technologies in their enterprise? What benefits do SMEs derived from adopting e-business technologies? and what challenges do they face in adopting e-business?

The remainder of this paper is structured as follows: The next section reviews relevant literature on SMEs and e-business, factors that promote and inhibit e-business adoption among SMEs. A concise description of the research model followed. In the next section, a presentation of details of methodological approaches employed with the survey implementation scenarios followed. The survey results were later presented and discussion of the findings followed. The conclusions and recommendations finalized the paper.

## **LITERATURE REVIEW**

### **SMEs and E-business**

SMEs have gradually recognized the positive impact that ICTs, such as computer terminals, e-mail and the internet and their applications can have on their business. In advanced countries, most small firms, including micro-enterprises with fewer than ten employees, now have at least one computer terminal, usually with Internet access. Many types of business software can improve information and knowledge management within the firm, leading to more efficient business processes and better firm performance. Communication via e-mail and the Internet can help to improve external communication, in either business-customer or business-business contexts, or may reduce transaction costs, increase transaction speed and reliability, and extract maximum value from each transaction in the value chain (OECD, 2002).

At inter-firm level, the Internet and e-commerce have great potential benefit for reducing transaction costs and increasing the speed and reliability of transactions. They can also reduce inefficiencies resulting from lack of co-ordination between firms in the value chain. Internet-based business-business interaction and real-time communication can reduce information asymmetries between buyers and suppliers and build closer relationships among trading partners (Moodley, 2002). In fact, adoption of e-business reduces transaction costs, increase transaction speed and reliability, and extract maximum value from transactions in their value chains (OECD, 2002).

In the business to customer context, the Internet and e-business can be effective tools for better communication. A corporate web site that provides information on products, services or technologies can enhance the quality of a firm's services to customers and attract new ones.

E-business can describe companies operating in the ICT producing sectors as well as new emerging sectors and industries such as in the areas of digital content. However, at a more fundamental level, the term e-business also describes the application of information and communication technologies to business processes in all sectors of the

economy to reduce costs, to improve customer's value and to find new markets for products and services (Crawford, 2004).

Electronic business methods enable companies to link their internal and external data processing systems more efficiently and flexibly, to work more closely with suppliers and partners, and to better satisfy the needs and expectations of their customers. E-business also offers the opportunity to small and medium-sized enterprises to take on and compete with larger enterprises. Small companies, despite their size can also have a global presence through their Internet website which is a cost-effective medium to expand the organizations network and provide immediate awareness in the markets serving as a means for competition in the global marketplace.

Kalanje (2002) also stated that ICTs rapid pace of change combined with its developments in international trade have resulted to the opening of a wide range of opportunities and challenges for SMEs as they are now able to reach potential customers in distant market which a decade ago was a dream. Therefore e-business adoption is a key concept that will help businesses to be more competitive in the marketplace where new competitors will use the technology to carve a niche in the market, lower transaction costs and enhance competition through cheaper communication and information (Alemayehu, 2005).

#### **Factors that promote e-business adoption among SMEs**

Business driver has been regarded as a main driving force for technology adoption as in the Staircase model adopted by the British Library. The model shows four stages and technology sophistication, the model includes non-technology driving forces (e.g., external pressure, increased ICT skills, business driver). These forces may push SMEs up the stairs, but influential factors (e.g., lack of resource and skills, system changeover, etc.) may send the firm down the stairs. Gary (2003) positively commented that the British Library Staircase model takes the perspective of the SMEs owner-managers, linking technology evolution to their capability to learn, to manage new ICT knowledge, and to introduce business changes. Levy, Powell, and Yetton (2002) suggest that SMEs tend to be driven by short-term efficiency and operational benefits to the detriment of strategic, long-term business benefits. SMEs gained immediate operational benefits from using Internet technologies, for example, cost reduction, sharing information, improved marketing, and communication.

The alleged popularity of e-business adoption is due to a multitude of perceived operational benefits it could bring to purchasing practices. Examples of these are: cost savings resulting from reduced paper transactions; shorter order cycle time and subsequent inventory reduction, resulting from speedy transmission of purchase order related information. It also includes enhanced opportunities for the supplier/buyer partnership through the establishment of a web of business-to-business communication networks (Gulledge, and Sommer, 2000).

Another key benefit is faster responses to customers needs. Carmichael *et al.*, (2000) suggest that the key driver for SMEs to innovate e-business is competition and customer feedback. SMEs realized that they need to remain competitive in order to survive, thus responding to customer feedback is an important weapon of competition. These

operational benefits and response to competition needs clearly constitute the main driving forces that push firms up the adoption ladder.

Ramsey *et al.*, (2003) argue that growing awareness and understanding of the benefits of e-commerce among SMEs can positively influence their desire and interest in adopting e-business. The adoption of e-business has to do with the age of the organization. The older the organization, the higher the level of adoption. Freeman, Carroll, and Hannan (2003) stated that older organizations have an advantage over younger ones because reliability and accountability tend to increase with age, and failure rates tend to decrease as firms grow older. According to Olatokun and Kebonye (2010), the big size of an enterprise promotes the adoption of internet technology and the small size is an important factor, as it can hinder adoption. The type of business enterprise also influences the adoption of e-business. Olatokun and Kebonye (2010) studied the relationship between various types of businesses (governmental, local or foreign organizations; characteristics of products, number of product categories, etc) and adoption of the internet. Their findings revealed that size, as well as the enterprises types of activities have an influence on the adoption of e-business (Olatokun and Kebonye, 2010).

Kula *et al.*, (2003) suggest that most SMEs innovate only when they clearly perceive business opportunities for their firms, or because they are under pressure from suppliers and clients. Peer pressure or industry standard is also a driving force to pushing firms up the ladder of adoption of e-business technologies. However, this could become an inhibitor to adoption if there is no industry leader or champion to innovate and demonstrate the strategic advantages of using advanced e-business technologies.

### **Factors that Inhibit the Adoption of E-business Among SMEs**

Various studies have reported that SMEs are generally lagging behind to large organizations as far as the adoption and usage of e-business is concerned. Recent research work by Kapurubandara and Lawson (2006) identified a variety of factors that could be grouped into several categories. Also, Chau and Turner, 2001; OECD, 2002 identified factors relating to three major categories: owner/manager characteristics, firm characteristics and costs and return on investment (Akkeren and Caraye, 2000). Some of these inhibitors are discussed in some detail in the next sections.

#### **(a) Owner/manager characteristics**

The adoption of electronic business is a decision made by the business owner and the manager. Successful companies that embrace IT and Internet technologies are often those whose owners take on the role as innovation champion. SMEs owner perceive e-mail as an important function for their business (Ramsey *et al.*, 2003). However, many SMEs prefer the comfort of what they perceive as familiar over indulging into any new venture. They are reluctant to “think outside the box” in order to seek new business solutions (Cyert and March, 1992). Some SMEs don’t perceive (or are not convinced by) the potential strategic benefits of being the first to utilize new technologies. Some do not perceive the relevance of using new technologies to their business, although they understand the online buying and selling functions offered by the technologies. Gary (2003) argues that whether the adoption is driven by business demand or technology push, the SMEs need to be personally ready before moving on to the next stage and that the process involves learning and new knowledge.

**(b) Organization/Firm characteristics**

A number of factors influencing adoption of e-business have to do with the organization itself. For instance, the age of the organization is a major factor - the older the organization, the higher the level of adoption. Freeman, Carroll, and Hannan (2003) stated that older organizations have an advantage over younger ones because reliability and accountability tend to increase with age, and failure rates tend to decrease as firms grow older. The nature of the industry, the size, the common practice, and the traditional way of doing business impose a significant impact on the adoption of new technologies. The high level of intangibility of the service/product mix can be viewed as one of the major impediments to future utilization of Internet commerce. Ramsey *et al.*, (2003) addresses the unique nature of an industry in relation to utilization of Internet technology. Adoption has also been found to be largely dependent on external pressure from the business competitors as well as its supply chain (Thong and Yap, 2005).

Business might adopt electronic business as a result of their competition using it as not to lose their competitors advantage. Fillis *et al.*, (2004) speculate that there may be a sense that business is dictated mainly by the end customer, supplier or distributor who does not want to embrace e-business technology, instead preferring conventional, traditional methods. If an organization has large amount of data and transaction, then it is more likely to adopt electronic business which can help streamline operations and offer process efficiencies within the organization (Thong and Yap, 2005).

**(c) Costs and Return on Investment**

Limited resources (e.g., financial, time, management, training, personnel) are often highlighted as major factors impacting the decision to adopt e-business. Lawrence (2002) argues that resource limitations such as time and capital coupled with preferences for traditional mechanisms to do business, inhibited firms from gaining benefits from introducing e-commerce technology. SMEs have been seen as spending little on technology, therefore they do not use the optimum solutions for much of their business. SMEs are also concerned with return on investment. The pressure to show a return on the investment often leads to small firms being more concerned with medium-term survival rather than long-term viability (Akkeren and Caraye, 2000). As a result, owners are often hesitant to make substantial investments when short-term returns are not guaranteed. As a result, they are unable to invest in new technologies that could actually help put them on the fast track.

Dedrick and Kraemer (2001) contended that the major factors inhibiting the uptake of e-commerce by SMEs include inadequate transportation and delivery, limited diffusion of computers, lack of online payment processes, limited availability of banking services and uncertain taxation rules. Cloete (2001) and Cloete *et al.*, (2002) reported several factors which affect the adoption of e-commerce including lack of information options, lack of time to investigate options, lack of access to computers, lack of access to hardware and software, limited knowledge of e-commerce models and methodologies. Study carried out by Cloete *et al.*, (2002) revealed that low use of electronic business by customers and suppliers, concern about security, legal and liability aspects, high costs of development and computer and networking technologies for electronic business, limited knowledge of electronic business and unconvincing benefits to the company are among

some factors that negatively affect electronic business adoption by SMEs. Brown (2002) contends that SMEs lack strategic vision and e-commerce adoption is perceived a distraction from core business. Kaynak *et al.*, (2005) report on the difficulty of finding and retaining qualified personnel with required skills and knowledge and the risk of dissipation of company specific knowledge.

Bolongkikit *et al.*, (2006) found among other issues that SMEs markets needed a high degree of human interaction, while Scupola (2003) contended that e-commerce is perceived a constant interruption and distraction, too many junk mails and technology change and evolution inhibit e-commerce adoption. Looi (2003) espoused that lack of external pressure from suppliers and customers inhibit e-commerce adoption. Similarly, Lawson *et al* (2003) contended that poorly trained staff and not being sure how many people are using the Internet impede the adoption and diffusion of electronic commerce among SMEs. A study conducted by Lacovou *et al.*, (2005) found that the owner's lack of awareness of the technology and perceived benefits is a major factor to a take up of electronic business. The lack of knowledge on how to use the technology and the low computer literacy are other contributing factors for not adopting electronic business (Knol and Stroeken, 2001). Mistrust of the IT industry and lack of time are two other factors that affect the decision to adopt electronic business (Akkeren and Caraye, 2000).

Related research studies carried out on the inhibitors of adoption of e-business noted that in China, shopping is regarded as a social activity in which personal face-to-face contacts with sellers is an important part of the shopping experience (Storensen and Buatsi, 2002). A study conducted by Cloete *et al.*, (2002 cited in Kapurubandara and Lawson, 2006) in South Africa, found that SMEs adoption and acceptance of e-business is largely influenced by factors within the organization, lack of access to computer, software, hardware and telecommunications at a reasonable cost, low e-business use by competitors and supply chain partners, concern with security and legal issues, low knowledge of management and employee and unclear benefits from electronic commerce were found to be the major factors that affect adoption.

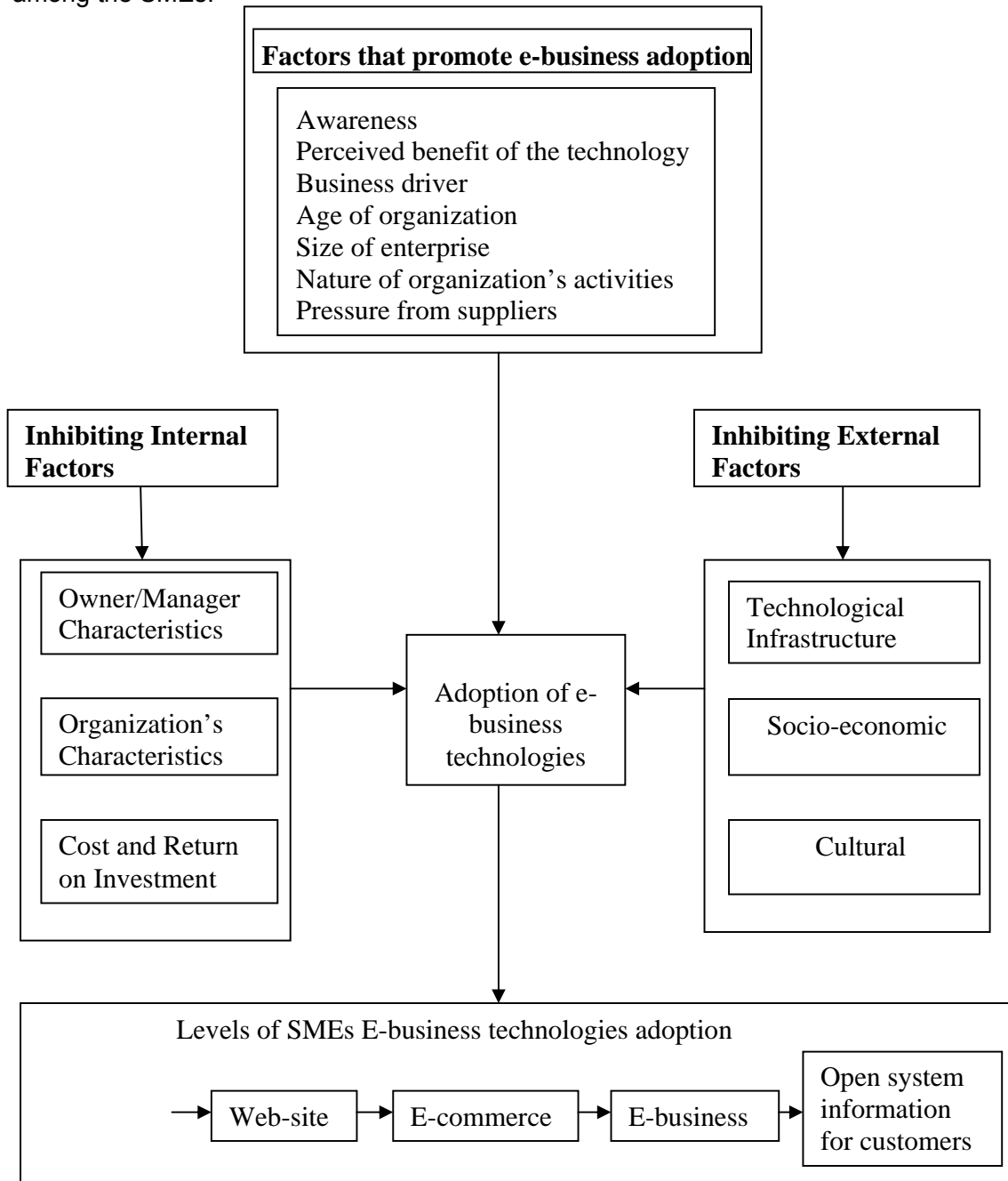
El-Nawawy and Ismail(1999 cited in Kapurubandara and Lawson, 2006) also carried out a research on electronic business adoption by SMEs found that the main factors contributing to the non adoption of electronic business in Egypt are awareness and education, market size, e-commerce infrastructure, financial infrastructure, legal system, government's role, pricing structure and social and psychological factors. A lack of understanding of the benefits (Goode, 2002) and the difficulties of evaluating them contribute to the low level of e-commerce adoption in SMEs (Stockdale and Standing, 2004). Bada *et al.*, (2006) stated that in Nigeria, poor electricity service, lack of infrastructure and an unprogressive monopoly in the sector is the major problem.

### **Conceptual Framework**

The conceptual framework adopted for this study was based on two main premises,: the factors that promote and inhibit e-business adoption and levels of its adoption by SMEs. Several different combinations of factors that promote and inhibit the adoption and level of the electronic business adoption have been identified in the literature review presented in the preceding sections. The e-adoption Ladder and Kapurubandara and Lawson (2006) conceptual models were adopted to drive this study because the former focuses on the increasing e-business technology complexity along with incremental



steps of adoption, which is related to the objective of revealing the level of usage of e-business in the study area.. The latter considers the driving forces that inhibit adoption, which is related to the objective of examining the factors driving or inhibiting adoption among the SMEs.



**Fig 2: Conceptual model**

There are several factors that constrain SMEs from adopting e-business technologies. These factors have been identified and grouped into internal and external factors. The distinctions between internal and external factors is made to distinguish between

organization specific (and organization determined) factors and those imposed (and determined) from outside the organization. The internal factors are those which the SMEs have control over them and the ability to change within the organization. Internal factors are further been categorized into three groups. These include owner/manager characteristics, organization characteristics and costs and returns on investment (Kapurubadara and Lawson, 2006). External factors, on the other hand, are environmental and are categorized into technological infrastructure, socio-economic, cultural, political and legal and regulatory. For levels of e-business adoption, the common approach shared by all is to divide the levels according to complexity, moving from simpler level to a more complex one that involves more complex e-business adoption. In view of the conceptual model, the study formulated the following hypotheses:

- Ho<sub>1</sub>: There is no significant relationship between age of SMEs and adoption of e-business technologies.
- Ho<sub>2</sub>: There is no significant relationship between size of SMEs and adoption of e-business technologies.
- Ho<sub>3</sub>: There is no significant relationship between the internal and external factors and the adoption of electronic business technologies by SMEs.
- Ho<sub>4</sub>: There is no significant relationship between the internal and external factors and the non-adoption of electronic business technologies by SMEs.

## METHOD

The descriptive survey design was adopted. The target population comprised small and medium enterprises (SMEs) in Ibadan, a South-west Nigerian municipality. Ibadan was selected as the location of the study due to the proliferation of SMEs in the city. SMEs were considered as enterprises with employees not less than ten and not greater than ninety-nine. Stratified random sampling was used in selecting 30 e-business adopters and 30 non-adopters. Structured questionnaires were used for data collection - one each for e-business adopters and non-adopters. A total of 60 copies were administered in the months of November and December 2010. Data collected were analyzed using descriptive statistics namely frequency and percentage distributions to describe the general patterns in the data. T-test was used to examine the differences in the age and size of the SMEs and the significant relationship that exist between them on the adoption of e-business. Also, Pearson Moment Correlation was used to examine the relationships that exist between the variables on the non-adoption of e-business while multiple regression examined the relationship that exist between the predictor variables on the adoption of e-business. The Statistical Package for the Social Sciences (SPSS) software was used to run the analyses.

A high percentage of the SMEs (e-business adopters) surveyed were from event and entertainment (33.3%), shopping (30%) and computer and Internet (13.3%). About 6.7% of the SMEs have been in existence for 5 years and 33.3% were above 5 years. About seventy-three percent of them have employees between 0-9, followed by those with 10-49 employees (26.7%) and 50-99 employees with 6.7%. This showed that majority of them were smaller firms. For the non-adopters, high percentage were from shopping (23.3%), agriculture and agro-allied (16.7%). Majority of them have been in existence for

a long period (over 5 years) and were smaller firms with 0-9 employees (90.0%). None had employees within the range of 50-99.

## RESULTS AND DISCUSSION

### Adoption and use of electronic business technologies

In order to determine the factors that promote the adoption of e-business, SMEs adopters of electronic business technologies were asked to indicate the reasons why they adopted e-business technologies. Also non-adopters SMEs were asked to indicate the factors inhibiting the adoption of e-business technologies. The results are presented in Tables 1 and 2 respectively.

**Table 1: Reasons for e-business adoption by SMEs**

Internal factors	Strongly Disagreed		Disagreed		Agreed		Strongly Agreed	
	Freq	%	Freq	%	Freq	%	Freq	%
Owner's high level of awareness about e-business technologies	0	0	2	6.7	18	60.0	10	3.3
Owner's decision to adopt	0	0	4	13.3	11	36.7	15	50.0
Perceived benefits by owner	0	0	0	0	2	6.7	28	93.3
Many number of years of your Firm's organization	12	40.0	17	56.7	0	0	1	3.3
High capital base of your organization	7	23.3	15	50.0	1	3.3	7	23.3
The big size of the organization	7	23.3	9	30.0	8	26.7	6	20.0
Low level of technological usage Of your organization	15	50.0	11	36.7	3	10.0	1	3.3
High volume of the organization's activities and transaction	6	20.0	3	10.0	8	26.7	13	43.3
High cost of ICT infrastructure	16	53.3	8	26.7	2	6.7	4	13.3
High maintenance cost	9	30.0	12	40.0	4	13.3	5	16.7
Nature of your organization's business	1	3.3	1	3.3	8	26.7	20	66.7
Availability of qualified staff to develop and support e-business site	5	16.7	9	30.0	8	26.7	8	26.7
Erratic electricity supply	18	60.0	9	30.0	2	6.7	1	3.3
<b>External factors</b>								
High cost of transport equipment for delivery	12	40.0	6	20.0	3	10.0	9	30.0
Customers and suppliers preference for face-to-face shopping	17	56.7	11	36.7	0	0	2	6.7
Uncertain government taxation rules	15	50.0	9	30.0	1	3.3	5	16.7

The results in Table 1 show that all the SMEs indicated that e-business technology was adopted owing to its perceived benefits to their organization. This shows that the SMEs owners perceived benefit as the major reason for the adoption of e-business technologies. Similarly, the nature of their organization's business (92.4%), owner's high

level of awareness about e-business technologies (93.3%), owner's decision to adopt (86.7%) and high volume of their organization's activities and transactions (70.0%) are all other reasons that promote their adoption of e-business technologies. More than half of the respondents (96.7%) disagreed that although their organization has been established for a long period of time, many number of years of their firm's establishment was not the reason for their adoption of e-business technology and most of the respondents also disagreed that high capital base of their organization (73.3%), low level of technological usage in their organization (86.7%), the big size of their organization (53.3%), high cost of transport (60.0%) were the reasons that promote their e-business adoption.

### Reasons for the non adoption of e-business among SMEs

The SMEs non-adopters were asked to indicate the reasons that prevented them from adopting e-business technologies. The detailed results are shown in Table 2.

**Table 2: Reasons for non adoption of e-business technologies among SMEs**

Internal factors	Strongly Disagreed		Disagreed		Agreed		Strongly Agreed	
	Freq	%	Freq	%	Freq	%	Freq	%
Owner's high level of awareness about e-business technologies	16	53.3	7	23.3	5	16.7	2	6.7
Owner's decision to adopt	4	13.3	4	13.3	20	66.7	2	6.7
Perceived benefits by owner	3	10.0	8	26.7	16	53.3	3	10.0
Many number of years of your Firm's organization	12	40.0	2	6.7	20	66.7	5	16.7
Low capital base of your organization	3	10.0	2	6.7	20	66.7	5	16.7
Organization not too big	4	13.3	7	23.3	12	40.0	7	23.3
Low level of technological usage of your firm's organization	2	6.7	6	20.0	20	66.7	2	6.7
Low volume of the organization's activities and transaction	3	10.0	12	40.0	14	46.7	1	3.3
Lack of necessary ICT infrastructure	5	16.7	8	26.7	15	50.0	2	6.7
Nature of your organization's business	8	26.7	4	13.3	6	20.0	12	40.0
Lack of qualified staff to develop and support e-business site	6	20.0	10	33.3	13	43.3	1	3.3
Erratic electricity supply	2	6.7	1	3.3	18	60.0	9	30.3
<b>External factors</b>								
High cost of transport equipment for delivery	0	0	9	30.0	3	10.0	0	0
Customers and suppliers preference for face-to-face shopping	3	10.0	6	20.0	19	63.3	2	6.7
Uncertain government taxation rules	2	6.7	6	20.0	2	6.7	0	0

Table 2 showed that (76.7%) of the respondents disagreed that owner's lack of awareness was not the reason why their firms had not adopted e-business. The main

inhibitor cited by 83.4% was low capital base. Other inhibitors were owner's decision to adopt, low level of technological usage, low use of e-business by customers and suppliers and the nature of organization's business activities with (60%) respondents from each firm respectively. Furthermore, perceived benefits (63.3%), organization's small size, (63.3%), lack of ICT infrastructure (56.7%), high cost of transporting equipment for delivery (63.3%), were also the reasons for not adopting e-business technologies. To support Bada et.al (2006) that one of the main reason for not adopting e-business technology in Nigerian is poor electricity supply. This is in line with the findings from the present study as (90.3%) respondents' agreed that they had not adopted e-business technology because of erratic electricity.

### **E-business Technologies adopted and Frequency of use by SMEs**

Results showed that all the SMEs use Internet technologies. E-mail, credit card payment service system and point of sales system each with 77.7% were adopted in the shopping category compared to other firms. Only the shopping category 55.5% adopted electronic shopping system. High rate of adoption of these technologies in the shopping category can be said to be related to the nature of business activities. Results also indicated that internet technology and electronic mail system were the most adopted and used with all the firms indicating their daily use. This was followed by credit card payment system from shopping, telecommunication, computer and internet SMEs category indicating its daily use. The technology was not however used in other categories of SMEs. SMEs in the shopping category 55.5% appeared to be using point of sales system far more than those in other categories. Those from pharmaceuticals (33.3%), telecommunications (33.3%), computer and internet (25%), and event and entertainment (20%) indicated using e-cheque system daily while Industrial and chemical machinery (100%) and computer and internet (50.0%) indicated using it monthly.

### **Services provided with e-business technologies**

The level of e-business adoption was examined in light of the various services provided with the aid of e-business technologies. Table 3 shows the various kinds of services SMEs provide with e-business technologies.

**Table 3: Services provided with e-business technologies (N=30)**

Services	Yes		No	
	Freq	%	Freq	%
Taking orders online	8	26.7	22	73.3
Receiving payment online	8	26.7	22	73.3
Sales of electronic goods	10	33.3	20	66.7
Providing company information online	24	80.0	6	20.0
Delivery of digital goods or services	12	40.0	18	60.0
Ordering and payment of inventory purchasing	4	13.3	26	86.7
Communication (e-mail) with customers and suppliers	30	100.0	0	0
Electronic advertising	25	83.3	5	16.7
Online recruitment	5	16.7	25	83.3

The SMEs make use of e-business technologies for various activities. The highest being those that used e-mail for communication with customers and suppliers. This showed

that all the SMEs used e-mail technology. Apart from using e-business for communication, other major services provided were electronic advertising (83.3%) and providing company information online (80.0%). Only 8 firms (26.7%) enabled customers to take orders and receive payments online. Few firms indicated using e-business technology for sales of electronic goods and delivery of digital goods or services while majority of them indicated that they don't use e-business for ordering and payment of inventory purchasing and online recruitment. This showed that using e-business technologies to improve business transactions like, purchasing, selling, sales and exchange of goods and services was still low among the SMEs surveyed.

#### E-business Rate of usage by SMEs

Table 4 presents the rate of e-business usage by the firms surveyed in this study.

**Table 4: E-business usage by SMEs**

Category of SMEs	1-25%		25-50%		50-75%		75 %above		Total
	Freq	%	Freq	%	Freq	%	Freq	%	
Pharmaceuticals	0	0	0	0	3	100	0	0	3
Industrial and Chemical Machinery	0	0	0	0	1	100	0	0	1
Telecommunications	0	0	0	0	3	100	0	0	3
Computer and Internet	0	0	2	50.0	1	25	1	25	4
Event and Entertainment	0	0	2	20.0	6	60	2	20	10
Shopping: Supermarket Malls, Bookshop etc	0	0	2	22.2	5	55.5	5	55.5	9
Total	0	0	6	20.0	19	63.3	8	26.7	30

Table 4 showed that none of the respondents rated their firm's e-business usage as 1-25%, while 63.3% of the SMEs rated their use of e-business as average 50-75. The categories of pharmaceuticals (100%), telecommunications (100%), event and entertainment (60%) and shopping (55.5%) were amongst the lowest users of e-business. Very few respondents 26.7% rated their firms' e-business use as high, with 20.0% respondents each from shopping and event and entertainment categories and 25% from computer and Internet category rated their e-business usage as being between 75-100%.

#### E-business technologies to be adopted by SMEs in the next 3-5 years

Results from SMEs adopters showed that 66.7% of them indicated that they plan to adopt electronic mail system in the next 3-5 years. Over forty-six percent also said they intend to adopt e-cheque system in the future. Apart from the e-business technologies listed in the survey instrument, two firms from shopping category specified they intend to adopt e-check system in the future. Also 33.3% of all SMEs intend to use e-billing system in the future.

Among the non-adopters, all the firms (100%) indicated that they plan to adopt internet technology and electronic mail in the next 3-5 years. Five SME categories namely: pharmaceuticals (100%), industrial and chemical machinery (66.7%), telecommunications (57%), event and entertainment (50%), shopping (50%), rated credit card payment system highly as one of the technologies to be installed in future. Point of sales system

technology was only slated to be adopted by 2 firms each from pharmaceuticals and shopping categories. Across all category of firms only shopping indicated the intention to adopt all the technologies in the future.

### Challenges of e-business Technologies Use

The survey sought to establish the challenges the firms faced in using e-business. The results are presented in Table 5.

**Table 5: Challenges associated with the use of e-business technologies among SMEs**

Challenges	Yes		No	
	Freq	%	Freq	%
High cost of implementation	25	83.3	5	16.7
Constant breakdown of infrastructure	14	46.7	16	53.3
Slow speed of internet connections	21	70.0	9	30.0
Inadequate technical manpower	29	96.7	1	3.3
Lack of security equipment to deal with theft of credit card information	28	93.3	2	6.7

The results in Table 5 showed that 96.7% of the SMEs regarded inadequate technical manpower as the main challenge faced in their use of e-business. It also showed that lack of security equipment to deal with theft of credit card information (93.3%), high cost of implementation (83.3%) and slow speed of internet connections (70%) were identified as the challenges faced by the firms in using e-business technologies.

### Test of Hypotheses

#### Hypothesis 1

*Ho<sub>1</sub>: There is no significant relationship between age of SMEs and the adoption of e-business*

**Table 6: Relationship between age of SMEs and the adoption of e-business**

Use of e-business	N	Mean	Std. Dev	Crit-t	Cal-t	df	p
Establishment 1-5 years	20	13.0000	2.5732	2.02	1.845	28	0.076
Establishment > 5 years	10	15.3000	4.2701				

Results in Table 6 showed that there is no significant relationship in the use of e-business of the firms that were 1-5 years old and those > 5 years old (Crit-t = 2.02, Cal.t = 1.845, df = 28, P >0 .05 level of significance). The null hypothesis was therefore accepted.

#### Hypothesis 2

*Ho<sub>2</sub>: There is no significant relationship between size of SMEs and the adoption of e-business*

**Table 7: Relationship between size of SMEs and the adoption of e-business**

Use of e-business	N	Mean	Std. Dev	Crit-t	Cal-t	df	p
Size of employee 0-9	22	12.6818	4.5591	2.02	3.451	28	0.002
Size of employee > 9	8	16.7500	1.9853				

Results in Table 7 showed that there is a significant relationship in the use of e-business of the firms whose size was 0-9 and those with size > 9 (Crit-t = 2.02, Cal.t =3.451, df = 28, p< 0.05 level of significance). The null hypothesis was therefore rejected.

### Hypothesis 3

*Ho<sub>3</sub>: There is no significant effect of internal and external factors of adopters on the adoption of e-business by SMEs.*

**Table 8a: Regression Analysis showing the joint effect of internal and external factors on the adoption of e-business by SMEs**

Model	Sum of squares	Df	Mean of square	F	Sig.
Regression	71.451	2	35.725	3.799	0.035
Residual	253.916	27	9.404		
Total	325.367	29			

R=0.469; R square = 0.220; Adj R square 0.162

As shown in Table 8a, the linear combination effect of internal and external factors on the use of e-business was significant (F (2,27) = 3.799; R =0.469. R<sup>2</sup> = 0.220, Adj.R<sup>2</sup> =0.162, p<<0.05). The independent/predictor variables jointly accounted for a variation of about 22% while other extraneous variables accounted for 78%. The significant result could have been due to chance.

**Table 8b: Regression Analysis showing the relative contributions of internal and external factors on the adoption of e-business by SMEs**

Model	Unstandardized Coefficient		Standardized Coefficient	T	Sig.
	B	Std.Error	Betaβ		
Constant	17.823	2.418		7.371	0.00
Internal factors	-0.335	0.122	-0.650	2.756	0.010
External factors	0.659	0.339	0.458	1.942	0.063

Results in Table 8b showed the various relative contributions and level of significance of the independent variables. Internal factors (β = -0.065, P = <0.05) and external factors (β= 0.458, p >0.05). The result showed that while the internal factors were significant the external factors were not.

**Table 8c: Degree of contribution of internal and external factors on the adoption of e-business**

	Unstandardized Coefficients	Standardized Coefficients		



	B	Std. Error	Beta( $\beta$ )	T	Sig
(Constant)	17.034	3.041		5.601	.000
Owner's decision to adopt	2.779	1.704	0.725	1.631	0.012
Perceived benefits by the owner	2.051	1.174	0.568	1.746	0.036
The big size of the firm	-0.198	1.621	-0.046	-0.122	0.905
Many number of years of your firm's establishment	1.513	1.634	0.355	0.926	0.373
High capital base of your organization	-1.463	2.396	-0.220	-0.611	0.553
High volume of organization's activities and transactions	0.456	1.365	0.099	0.334	0.744
Low level of technological usage of your organization	7.990E-02	1.925	0.022	0.042	0.968
Owner's high level of awareness about e-business	-2.888	1.682	-0.577	-1.717	0.029
High cost of ICT infrastructure	0.909	1.821	0.275	0.499	0.627
High maintenance costs	0.376	1.697	0.111	0.221	0.829
Nature of organization's business	1.771	1.248	0.533	1.370	0.032
Availability of qualified staff to develop & manage e-business site	0.447	1.017	0.143	0.439	0.668
Erratic electricity supply	0.486	1.232	0.105	0.395	0.700
High cost of transport equipment for delivery	-0.930	1.761	-0.231	-0.528	0.607
Customers & suppliers preference for face-to-face shopping	-5.362E-02	1.091	-0.015	-0.049	0.962
Uncertain government taxation rules	0.527	1.302	0.082	0.422	0.676

As shown in Table 8c, perceived benefit by the owner contributed most ( $r=0.568$ ;  $\beta=2.051$ ;  $p=0.036$ ) having a positive correlation and positive significant slope, next was the nature of organization's business with positive correlation and positive significant slope ( $r=0.533$ ;  $\beta=1.771$ ;  $p=0.032$ ); followed by owner's high level of awareness with negative correlation and negative but significant slope ( $r=-0.577$ ;  $\beta=-2.888$ ;  $p=0.029$ ); and lastly owner's decision which has a positive correlation and also a positive significant slope. ( $r=0.725$ ;  $\beta=2.779$ ;  $p=0.012$ ). All the four factors contributed significantly towards adoption of e-business while the remaining factors did not. We therefore rejected hypothesis 3.

#### Hypothesis 4

*Ho<sub>4</sub>: There is no significant relationship between the internal and external factors of the non-adopters.*

**Table 9: Relationship between internal and external factors for non-adopters**

Variable	Mean	Std.Dev.	N	R	p	Remark
Internal factors (non-adopters)	20.5333	7.74033	30	0.453*	0.012	Sig.

External factors(non-adopters)	8.7333	2.53164				
--------------------------------	--------	---------	--	--	--	--

\*Sig. at.05 level

Results in Table 9 revealed a significant relationship between the internal and external factors of the non- adopters ( $r= 0.453^*$ ,  $N=30$ ,  $p<0.05$ ). The null hypothesis was therefore rejected.

## DISCUSSION

Age of the organization has been regarded as one of the factors that promote e-business adoption. Findings showed that most of the firms were smaller firms with 0-9 employees and majority of them were of 1-5 years of establishment. A t-test was used to find out if there was a significant relationship in the organizations whose size is 0-9 and higher than those that were lesser in age. Results showed that there was a significant relationship between the age of the firm and e-business adoption. This result agrees with Freeman, Carroll, and Hannan (2003), who stated that the nature of the industry, the size and the traditional way of doing business impose a significant impact on the adoption of new technologies. It equally corroborated Olatokun and Kebonye (2010) who revealed that the big size of an enterprise promotes the adoption of internet technology. Further investigation on the difference between age of organizations that were 1-5 years old and organization greater than 5 years showed that there was no significant difference. This contrasts Freeman, Carroll, and Hannan's (2003), view that the older the organization, the higher the level of adoption and that older organizations have an advantage over younger ones because reliability and accountability tend to increase with age, and failure rates tend to decrease as firms grow older.

The results also showed that of all the current e-business technologies, internet technology was the most adopted by the SMEs as all the firms had access to the internet for electronic advertising and for providing company information. E-mail has also been widely used by small and medium sized enterprises to enhance messaging and efficient internal and external communication. This affirmed the findings of Mendo and Fitzgerald(2005) that early stages of electronic business adoption are typically characterized by gaining access to the internet followed by the use of relative simple applications such as e-mail in order to dispense and gather information.

The level of the adoption of e-business was examined in the light of various services provided with the use of e-business technologies. A further enquiry on the type of technology adopted and the services provided revealed that they make use of electronic business for various activities. The highest percentage of the SMEs being those that used it for email communication with customers and suppliers, other major services provided were electronic advertising and providing company information. This showed that the technologies were predominantly used as a marketing and communication tool. It is worth highlighting that only eight organizations enabled customers to take orders and received payments online. Few indicated using e-business for sales of electronic goods and services. Majority did not use e-business for ordering and payment of inventory purchasing and online recruitment. The high usage of internet technologies and e-mails confirms many findings reported in previous studies. Kula et al. (2003)

reported the ranking of Internet application usage from the highest to lowest level are: e-mail, browsing company homepages, and market and product searches. They suggested that Internet applications were principally concerned with external communications and gathering information for market and product research. Ramsey et al. (2003) reported that owner managers perceived e-mail as an important function for their business.

In addition, findings showed that the SMEs were still at the early stages of electronic business adoption. Referring to the e-adoption ladder, firms in this study widely adopted the most common e-business technologies (e-mail and Internet) that constitute the first and the second levels of the ladder. This firmly positions the SMEs on the lowest two steps on the ladder. The use of these technologies by few firms to take orders and receive payments online, sales of electronic goods and delivery of digital goods or services shows that they attempt to maximize accessibility and speed. Although these technologies were used, there was little sign to show that they were moving up to the full e-commerce stage. This adds to the criticism over the e-adoption model as stated by Poon (2002) that the diffusion and assimilation of internet commerce by SMEs may not necessarily lead to a higher degree of e-commerce or e-business adoption, it is likely to follow a “zig-zag” path based on a “trial and error” approach.

Furthermore, results showed that perceived benefits, nature of organization's activities, owner's high level of awareness and owner's decision to adopt all have a significant correlation on the adoption of e-business technologies. The finding on perceived benefits in relation to the factors that promote the adoption of e-business agrees with the assertion of Levy, Powell, and Yetton (2002) who affirmed that SMEs tend to be driven by short-term efficiency and operational benefits to the detriment of strategic, long-term business benefits. The finding is also in consonance with that of Gullidge and Sommer (2000) who reported that the alleged popularity of e-business adoption is due to a multitude of perceived operational benefits it can bring to purchasing practices.

The nature of organization's business equally contributes to the adoption of e-business as previously found by Filiatrault & Huy (2006) that variables such as size, as well as the enterprises types of activities have an influence on the adoption of e-business. Freeman, Carroll, and Hannan (2003) further corroborated the finding when they reported that the nature of the industry, the size and the traditional way of doing business impose a significant impact on the adoption of new technologies. Ramsey et al.'s (2003) also addresses the unique nature of an industry in relation to the use of Internet technology.

The finding on owner's high level of awareness corroborated the findings of Ramsey et al. (2003) which unveiled that the growing awareness and understanding of the benefits of e-commerce among SMEs can positively influence their desire and interest in adopting e-business, a different report from Lacovou et al (2005) that found out that the owner's lack of awareness of the technology is a major factor to a take up of electronic business. Overall, the findings contrast some of the claims that a lack of understanding of the benefits (Goode, 2002) and the difficulties of evaluating them contribute to the low level of e-commerce adoption in SMEs (Stockdale & Standing, 2004).

Owner's decision to adopt as indicated by the result contributes to the adoption of electronic business. This finding agreed with Cyert & March (2002) who affirmed that the

adoption of electronic business is a decision made by the business owner and the manager, they reported that successful companies that embrace IT and Internet technologies are often ones in which the owner takes on the role as innovation champion of IT adoption. This is also in line with Kapurubandara and Lawson (2006) who stated that owners/managers of SMEs are the decision makers when it comes to the issue of adopting internet and electronic business for their business operation.

Moreover, results among non-adopters showed that the internal and external factors all have a significant correlation with non-adoption of e-business technology. Capital as indicated by the result contributed most to the reasons for not adopting e-business. This finding is in agreement with Lawrence (2002), who found in a study of factors inhibiting the adoption of e-business that resource limitations such as time and capital coupled with preferences for traditional mechanisms to do business inhibited firms from gaining benefits from introducing e-commerce technology. Fillis et al (2004), speculated that there may be a sense that business is dictated mainly by the end customer, supplier or distributor who does not want to embrace e-business technology, instead preferring conventional, traditional methods. Findings affirmed this with more than half of the firms indicating that customers preferred face-to-face traditional methods. Cloete et al, (2002) also suggested that low use of electronic business by customers and suppliers, legal aspects, high cost of development and networking for electronic business and perceived benefits were among some factors that affect electronic business adoption by SMEs. Also lack of ICT was identified as a factor that inhibits adoption as cited by Lacovou et al (2005) who stated that the current level of technology usage within the organization affects the process of adoption. Cloete et al (2002) also found that SMEs' adoption and acceptance of e-business is largely influenced by factors within the organization, lack of access to computer, software, hardware and telecommunications at a reasonable cost, were found to be the major factors that affect adoption.

The adoption of electronic business is sometimes tied to the decision of owners as the result from this study demonstrated that some SMEs were yet to adopt e-business based on their owners' indecision to adopt it. This is in agreement with Cyert & March (2002) who reported that some SMEs do not perceive the relevance of using new technologies to their business, although they understood the online buying and selling functions they offer. This buttresses the report by Gary's (2003) that whether the adoption is driven by business demand or technology push, the SMEs need to be personally ready before moving on to the next stage and that the process involves learning new knowledge.

Finally, findings showed that majority of the firms were faced with erratic electricity supply. This affirmed the report by Bada et al (2006), who stated that in Nigeria, poor electricity service, lack of infrastructure and unprogressive monopoly sector are the major constraints. Crawford (2004) highlighted some of the challenges of e-business as cost of implementation, security, lack of technical and managerial skills. This study confirmed this as almost half of the respondents surveyed indicated lack of security equipment to deal with theft of credit card information, high cost of implementation and inadequate technical manpower as the challenges their firms faced.

## **CONCLUSION AND RECOMMENDATIONS**

The findings from this study shed light on some of the issues concerning the adoption and use of e-business in SMEs in Nigeria. SMEs in the survey were at the lowest ebb of

adopting e-business. The technologies used were predominantly e-mail and Internet primarily as additional marketing tools to display company's products and services information, rather than as an e-commerce platform to enable online transactions.

The problems underpinning the low adoption of sophisticated e-business technology lie not in Internet access, cost and managerial understanding, but in the factors including poor electricity, high cost of implementation, industry/sector practice, lack of push from supply chain, as well as internal factors such as lack of resources, expertise and strategic vision to lead.

Although, owner managers are aware of e-business functions, awareness of e-business strategic benefits can be further improved. As far as this industry is concerned, a push from external forces could quickly change the picture of the level and the scale of e-business adoption. Also lack of capital and ICT infrastructure, low use of e-business by customers need to be recognized as major internal factors that influence adoption of e-business. Although the study empirically tested whether internal factors outweigh external factors, its results indicate that internal factors tend to be stronger inhibitors in e-business adoption among SMEs in Ibadan, Nigeria.

The findings confirmed that most SMEs are followers in their sector in terms of adopting technology. It can be envisaged that an industry champion/or leader who demonstrates strategic benefits of adopting advanced technologies, together with a strong demand from suppliers or customers could influence many SMEs in adopting the e-business technology, although there are internal resource constraints. Owner managers need to develop a strategic vision, and the industry needs a champion to lead. As far as the SMEs in Ibadan metropolis were concerned, there needs to be an external push as well as an internal business driver to make them proactively engage in adopting e-business..This could be achieved by sensitizing owner managers to be aware of the immediate benefits and strategic (competitive) advantages of using e-business technologies.

In line with the findings, the following recommendations are made: the ICT industry that provides e-business solutions needs to articulate explicitly the potential and added value of technologies to owner managers. The products and services need to be tailor-made to suit the unique needs of SMEs, and vendors' support and training should be prioritized to SMEs clients, due to the significant lack of expertise, specialist knowledge, and resources in the SME sector and the e-business environment and infrastructure need to be continuously improved to facilitate e-business application in SMEs. This includes easy Internet/band access, secure order processing and payment systems, distribution infrastructure supporting online transactions, online taxation and legislation, government incentives for SMEs such as support for the SMEs to be able to better benefit from e-business technologies.

Creation of more widespread awareness about e-business, better provision of capital and requisite technologies, as well as adequate training and skills are some of the support that would help SMEs plan their business optimization strategically.

Specifically, there is a need for government to support SMEs in terms of loan, adequate training and provision of regular electricity and support to overcome or alleviate the identified barriers to e-business adoption.

Further studies outside Ibadan metropolis need to be conducted. This will enable the identification of the unique needs and problems related to that industry/organization in adopting e-business technology can be appropriately addressed, and the findings generated from different industry/sector and multiple industry/organization can be compared in the context of developing an appropriate solution.

## REFERENCES

- Akkeren, J. & Caraye, A.L.M. (2000). 'Factors Affecting Entry-level Internet technology Adoption by Small Business in Australia: An Empirical Study'. *Proceedings of the 10<sup>th</sup> Australiabian Conference on Information Systems*, Wellington, New Zealand, 1-3 December, 2000 pp 66-70.
- Akoh .O. (2001). An exploratory study of small business and e-business. *Information & Management*, 62(2), 231-315.
- Alemayehu, M. (2005). *Exploring the reality of e-commerce benefits among businesses in developing countries; Development Informatics*. Greenwich: Kluwer Academic Publishers, pp1-3.
- Almeida, G., Avila, A.& Boncanoska, V. (2006). Promoting e-commerce in developing countries, Internet Governance and Policy-Discussion papers (Internet) <http://textus.diplomacy.edu/textusbin/env/scripts/Pool/GetBin.asp?IDPool=1212>. 23<sup>rd</sup> April 2010.
- Bada, A.O., Okunoye, A., Omojokun, E., Adekoya, A., & Eyob, E. (2006). Globalization and the Nigerian banking industry: efficiency and legitimacy considerations in the adoption of electronic banking (e-banking) services. *International Journal of management and decision making*. 23(3), pp 23-26.
- Bolongkikit, J., Obit, J.H., Asing, J.G. & Tanakinjal, G.H. (2006) "An exploratory research of the usage level of e-commerce among SMEs in the West Coast Sabah, Malaysia"(internet) <http://www.arraydev.com/commerce/JIBC/2006-08/Bolongkikit.asp>. 29th September 2009.
- Boone, C., De Brabander, B., & Hellemans, J. (2000) Research note: CEO locus of control and small firm performance. *Organization Studies*, 21(3), 641-646.
- Brown, E. (ed) (2002) "accelerating the uptake of e-commerce by small and medium enterprises" *small enterprises telecommunications center (SETEL)* [http://www.setel.com.au.smeforum2002/final\\_report.pdf](http://www.setel.com.au.smeforum2002/final_report.pdf). 23rd April 2010.
- Carmichael, C., Turgoose, C., Gary, M.O., & Todd, C. (2000). Innovation and SMEs the case of Yorkshire,UK. *Journal of Industry and Higher Education*, 14(4) 244-248.
- Chau, S & Turner.P.(2001) 'Stages or Phases Insight into the utilization of E-Commerce based on the experience of Thirty- four Australian Small Businesses'. Heidelberg Press pp. 93.112.
- Chavez, R., Leiter, M., & Kiely, T. (2000). Should you spin off your Internet business? *Business Strategy Review*, 11(2), 19-31.
- Cloete, E. (2001). *SME's in South Africa: Acceptance and Adoption of e-Commerce*: Department of Information Systems, University of Cape Town, 66p.
- Cloete, E., Courtney, S., & Fintz, J. (2002). Small Businesses Acceptance and Adoption of E-Commerce in the Western-Cape Province of South-Africa: *Electronic Journal on Information Systems in Developing Countries*. 3(2) 5-8
- Cooper, J., & Burgess, L. (1998). The status of Internet Commerce in the manufacturing industry in Australia: a survey of metal fabrication industries. *In: COLLECTeR '98 Conference Proceedings*, September 1998, Sydney Australia (internet). <http://www.collector.org/Coll98/> 23<sup>rd</sup> April 2010.
- Crawford, J. (2004). 'Issues and barriers affecting the Development of E-business in small and Medium Enterprises: Department of Enterprise, Trade and Employment. <<http://www.gov/publications/SME/news.bk.pdf>. 4th June 2009.
- Cyert, R.M., & March, J.G (2002). *A behavioural theory of the firm* (2<sup>nd</sup> ed). Oxford: Blackwell.

- Davies, T. Summers, C., Burns, A., Hodges, P., Kaminaris, G., Davies, J., Potts, T. & Roberts, Y. (2001). Trading Electronically-An ecommerce premier for Small Businesses, ecommerce innovation centre [online] <http://www.ecommerce.ac.uk/pdf/trading.PDF>. 23rd April 2010.
- Dedrick, J. & Kraemer, K.L (2001) "China IT report" *The Electronic Journal on information systems in Developing countries*, vol.6, No.2, pp. 1-10. Department of Trade and Industry, (2001). *Business in the information age— international benchmarking study 2000*. from [www.ukonlineforbusiness.gov.uk](http://www.ukonlineforbusiness.gov.uk). 25<sup>th</sup> February 2010.
- Earl, M. (2000) "Evolving the E-Business", *Business Strategy Review*, 11 (2), 33-38p.
- EBPG, (2002) Europe GO Digital, Benchmarking national and regional e-business policies for SMEs, final report of the e-business policy Group. 23rd April 2010.
- EI-Nawawy, M.A. and Ismail, M.M. (1999) "overcoming deterrents and impediments to electronic commerce in light of Globalization" *Proceedings of the 9th annual conference of the internet society*, INET 99, San Jose,USA, 22-25 June.
- Emma, A.M. & Georgia, A. (2009). *E-Business Adoption in the Banking Industry in Ghana* (Doctoral thesis), Department of Business Administration and Social Science, Division of Industrial marketing and e-commerce, Lulea University of Technology, Lulea, 39p
- Fillis, I., Johnson,U. & Wagner, B. (2004). Factors impacting on adoption and development in the smaller firm. *International Journal of Entrepreneurial behaviour and Research* 10(3), 178-191.
- Freeman, J., Carroll, G.R. & Hannan, M.T. (2003). The liability of newness: Age dependence in organizational death rates. *American Sociological Review*, 48, pp.692 - 710.
- Gary, C. (2003). A stage model of ICT adoption in small firms. *Workshop in Rimini— Firms and Consumers Facing E-Commerce: Strategies to Increase Its Adoption and Usage*. Open University Business School, UK
- Gulledge, T. & Sommer, R. (2000). 'Electronic commerce resource an industry university partnership', *ECRC Research Paper*, Fairfax. USA, 12p.
- Goode, S. (2002). Management attitudes towards the World Wide Web in Australian small business. *Information Systems Management*, 19(1), 45-48.
- Hinson, R. (2005). 'External adoption among Ghana's SMEs expectation, realities and barriers to use', *Africa insight*, 35(1) pp, 20-27.
- Kalanje, C. (2002). Enhancing the Competitiveness and Growth of SMEs: *Marketing Challenges for SMEs*, 5th NASME International Conference and Exhibition (Internet) <http://www.wipo.int/sme/en/documents/pdf/nasme.pdf> . 23rd April 2010.
- Kannabiran, G. & P. Narayan (2005). "Deploying Internet Banking and e-Commerce— Case Study of a Private-Sector Bank in India." *Information Technology for Development* 11(4): 363-379.
- Kapurubandara, M. & Lawson, R. (2006). Barriers to Adopting ICT and e-commerce with SMEs in developing countries: An Exploratory study in Sri Lanka, University of Western Sydney, Australia.
- Kaynak, E., Tatoglu, E. and Kula, V. (2005) "An analysis of the factors affecting the adoption of electronic commerce by SMEs: evidence from an emerging market" *International marketing Review*, Vol 22, Number 6 pp 632-640



- Knol, W.H.E & Stroken, J.H.M. (2001). The diffusion and adoption of Information Technology in Small and medium-sized enterprises through IT Scenarios, *Technology Analysis & Strategic Management*, 13(2), pp.227-246.
- Kula, V. & Tatoglu, E. (2003). An exploratory study of Internet adoption by SMEs in an emerging market economy. *European Business Review*, 15(5), 324-333.
- Lacovou, C.L, Benbasat I. & Dexter A.A (2005). Electric Data Inter-change and Small Organization: Adoption and Impact of Technology, *Mis Quarterly*, Dec 19(4) 465-485.
- Lane, M.S., Der Vyver, G.V., Delpachitra, S. & Howard, S. (2004) "An Electronic Commerce Initiative in Regional Sri Lanka: The Vision for the Central Province Electronic Commerce Portal" *Electronic Journal on information systems in Developing countries* 16(1), pp 1-18
- Lawrence, K.L. (2002) "Factors inhibiting the utilization of electronic commerce facilities in Tasmanian small to medium sized enterprises" *Proceedings of the 8th Australasian conference on information systems*, Adelaide, pp 587-597.
- Lawson, R., Alcock, C., Cooper, J. and Burges, L. (2003) "Factors affecting adoption of electronic technologies by SMEs: an Australian study" *Journal of small business and enterprise development*, Vol 10, Number 3 pp 265-276
- Levy, M, Powell, P., & Yellow, P. (2002). The dynamics of SMEs Information Systems. *Small Business Economics*, 19 (4), 341-354.
- Looi. H.C. (2003) "A model of factors influencing electronic commerce adoption among small and medium enterprises in Brunei Darussalam" *International Journal of information technology*, 10(1), 72-87.
- McDonagh, P. & Prothero, A. (2000). Euroclicking and the Irish SME: Prepared for E-commerce and the single currency. *Irish Marketing Review*, 13(1), 21-33.
- Mendo, F. & Fitzgerald, G. (2005), "Theoretical Approaches to study SMEs E- Business Progression" *Journal of computing and Information Technology*, 13(2),pp 123-136.
- Moodley, S. (2002). "E-Business in the South African Apparel Sector: a Utopian Vision of Efficiency, *The Developing Economics*, pp. 67-100.
- Organisation for Economic Cooperation and Development (OECD) (2002). "SMEs and electronic commerce", Ministerial conference on electronic commerce, Ohawa, Canada, 7-9 October, 2002.
- Organisation for Economic Cooperation and Development (OECD) (2007) Centre for Entrepreneurship, SMEs and Local Development (Internet) <http://www.oecd.org/countrylist.25th> February 2010.
- Olatokun W. & Kebonye (2010). SMEs and e-commerce adoption in Botswana, *International Journal of Emerging technologies and Society*, 8(2) pp.44-45.
- Parish, A., Kibblewhite, G., Woodley, M., & Richardson, J. (2002). *The UK electronics industry e-business initiative—a study of the adoption of e-business*. [www.intellectuk.org/publications/reports.29th](http://www.intellectuk.org/publications/reports.29th) September 2009.
- Poon, S. (2000). Business environment and Internet Commerce benefit- a smallbusiness perspective. *European Journal of Information System*, 9(2), 72-82.
- Pracy, D. & Cooper, J. (2000) "internet commerce adoption by small and medium Sized enterprises in the Illawarra". [http://COLLECTeR.org/archives/2000\\_December/01.PDF](http://COLLECTeR.org/archives/2000_December/01.PDF). 29th September 2009.
- Ramsey, E., Ibbotson, P. Bell, J. & Gary, B. (2003). E-opportunities of service sector SMEs: An Irish cross-boarder study. *Journal of Small Business and Enterprise Development*, 10(3), 250-264. *Development*, 10(3), 250-264.

- Scupola, A. (2003) "Factors affecting e-commerce adoption in Danish and Australian SMEs (internet), <http://akira.ruc.dk/~jpg/doc/adascupola.doc>. 23rd April 2010.
- Smyth, M. & Ibbotson, P. G. (2001). *Internet connectivity in Ireland*. (Internet), [www.bankofireland.co.uk](http://www.bankofireland.co.uk). 20<sup>th</sup> September 2009.
- Sorensen, O., Hinson, R. & Buatsi, S. (2002) 'Internet Use Pattern among Internationalizing Ghanaian Exporters: EJISDC 29(1), pp 1-14
- Stockdale, R., & Standing, C. (2004). Benefits and barriers of electronic marketplace participation: An SME perspective. *The Journal of Enterprise Information Management*, 17(4), 301-311.
- Taylor, M. & Murphy, A. (2004). "SMEs and E-Business", *Journal of small business*. 2(4), 23-26.
- Teo, T.S.H. & Pian, Y. (2003). A contingency perspective on internet adoption and competitive advantage, *European Journal of Information System*. 12(4), 78-92.
- The Companies Act 1985 (Accounts of Small and Medium-Sized Enterprises and Audit Exemption) (Amendment Regulations 2004). <http://www.opsi.gov.uk/si/si2004/20040016.htm> 23rd April 2010.
- Thong, J. & Yap, C.S. (2005). CEO characteristics, Organizational characteristics and Information technology adoption in small Business: *Omega*, 23(4), pp 429-442.
- Turban, E., Maclean, E. & Wetherbe, J. (2006). *Electronic commerce: A managerial perspective*, Prentice Hall. 102p.
- UNCTAD (2006). Trends in information and communication technology: Broadband becoming the <http://www.unctad.org/templates/webflyer.asp?docid=7678&intltemID=1528&lang=1>. 29<sup>th</sup> September 2009

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.