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BENEFITS OF INFORMATION AND COMMUNICATION TECHNOLOGY IN SMALL AND MEDIUM SIZED ENTERPRISES: A CASE STUDY OF A NIGERIAN SME

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Abstract

Research indicates that the use of Information and Communication Technology (ICT) in organizations offers promising opportunities in order to meet the challenges of an ever-changing environment (Kapurubandara and Lawson, 2006). ICTs, having a remarkable potential to contribute to sustained competitive advantage for businesses, have been identified as key tools in management processes (Ion and Andreea, 2008). In Small and Medium Sized Enterprises (SMEs), ICT can be used as a business tool to reduce costs, create stronger links with customers, innovate and facilitate market niche (Kutlu and Özturan, 2009). This study reviews some benefits associated with the use of ICT with reference to a Nigerian SME and also identifies some problems facing the Nigerian SME sector.

Keywords: ICT, SMEs, Nigeria

1.0 Introduction

In the present knowledge economy, businesses worldwide have been deeply influenced by ICT. Organizations of all types are utilizing ICT in order to have some sort of competitive advantage (Ashrafi and Murtaza, 2008). SMEs are generally regarded as a major contributor to the development of many economies and ICT provides opportunities for SMEs to improve their competencies. However in Nigeria, preliminary investigations (Posu, 2006; Udechukwu, 2003) show that many factors

hinder Nigerian SMEs from using ICT. This paper is drawn from an ongoing PhD research. The study highlights some benefits associated with the use of ICT with reference to a Nigerian SME and also identifies some problems facing the Nigerian SME sector. The study is based on primary research from interviews and secondary research including internal documents and academic sources.

2.0 Significance of SMEs

The importance of Small and Medium Sized Enterprises (SMEs) cannot be overlooked in the economic development of any country since SMEs play a critical role in every country's economic development and Nigeria is no exception. In developed and developing countries, SMEs are recognized as the main source of economic growth and a major factor in promoting private sector development and partnership (Okongwu, 2001). SMEs help to create employment and are often seen as very important for the growth and innovation of dynamic economies (Mutula and Brakel, 2006). They help diversify economic activity that has significant contribution to imports and exports, they are flexible and can adapt quickly to changing market demands (Ongori, 2009). Thus, SMEs contribute more and more to the national and international economies of the world.

According to Wattanaputtipaisan (2003), the significance of SMEs for growth, productivity and competitiveness of the economies in both developed and developing countries is acknowledged universally, since SMEs bring about substantial local capital formation, contribute to improved living standards and achieve high level of productivity. They are identified as a major means of achieving equitable and sustainable industrial diversification.

The contributions of SMEs to the Nigerian economy are not contestable as about 10% of the total manufacturing output and 70% of the industrial employment are by SMEs. Through the utilization of local resources, SMEs promote industrial and economic development and are responsible for the production of intermediate goods and the transformation of rural technology (Aina, 2007). Nigerian SMEs not only provide employment and income for majority of its citizens but are also recognized as the breeding ground for domestic entrepreneurial capabilities, technical skills,

technological innovativeness and managerial competencies for private sector development (SMEDAN, 2005, Aina, 2007).

The benefits of SMEs to any economy are obvious, as SMEs are known to contribute to the development of several economies in terms of output of goods and services, creation of jobs at relatively low capital cost, especially in the fast growing service sector and they provide a vehicle for the reduction of income disparities thus developing a pool of skilled or semi-skilled workers as a basis for the future industrial expansion (Aina, 2007). SMEs also improve forward and backward linkages between economically, socially and geographically diverse sectors of many economies and provide opportunities for development (SMEDAN, 2005). Therefore, the development of SMEs is an essential element in the growth strategy of most economies and holds particular significance for Nigeria.

Table 1: Definition of SME

S/N	Size Category	Employment	Assets (N million) excluding land and building
1	Micro Enterprises	Less than 10	Less than 5
2	Small enterprises	10-49	5- less than 50
3	Medium enterprises	50-199	50- less than 500

(SMEDAN, 2005)

In Nigeria, SMEs cover the entire range of economic activity within all sectors and share a number of common problems. These problems, as identified by the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) and other similar studies, include low market access to credit, poor information flow, discriminatory legislation, poor access to land, weak linkages among different sectors, weak operating capabilities in terms of skills, lack of knowledge and attitudes, lack of infrastructural facilities among others.

3.0 Information and Communication Technology (ICT)

Information and Communication Technology (ICT) refers to a wide range of computerized technologies. ICT is any technology that enables communication and the electronic capturing, processing and transmission of information. These technologies include products and services such as desktop computers, laptops, handheld devices, wired or wireless intranet, business productivity software such as text editor and spreadsheet, enterprise software, data storage and security, network security and so on (Ashrafi and Murtaza, 2008). In Nigeria, commonly used ICTs include Personal Digital Assistants (PDAs), Automated Teller Machines (ATMs), mobile phones and smart cards.

4.0 The Role of ICT in SMEs

In the present knowledge-based economy, it is important for SMEs to adopt processes that enable them to provide services that will bring about competitive advantage. ICT has a significant positive impact on organizational performance (Maldeni and Jayasena, 2009) and is vital to SMEs. ICT is known as a major catalyst and enabler of organizational change (Hazbo et al, 2008). Without the use of ICT, modern businesses are not possible as ICT has a significant impact on SMEs operations and is claimed to be crucial for the survival and growth of economies in general (Berisha-Namanil, 2009). ICTs provide opportunities for business transformations (Chibelushi, 2008) and provide SMEs the opportunity to conduct business anywhere (Jennex et al, 2004).

The European Commission (2008), states that SMEs could use ICT in order to grow and to become more innovative. Hence, there is a need to encourage the use of ICT in SMEs and address the high cost of ownership of ICT equipment since it can help to improve technical and managerial skills, making available e-business solutions for SMEs. Love et al (2004) ascertain that the use of ICT offers many benefits to SMEs at different levels (operational level, tactical level and strategic level).

Ongori (2009) states that the use of ICT would help change the way businesses operate in this era of globalization by changing business structures and increasing

competition, creating competitive advantage for businesses and by changing business operations. For that reason, SMEs must have an ability to compete and dynamically respond to rapidly changing markets using ICT as it plays a significant role in an organization's growth and success. According to Kapurubandara and Lawson (2006), for survival and staying abreast in a competitive global economy it is apparent that SMEs embrace ICT, as it is becoming imperative for SMEs to gain competitive advantage and for stability in international markets.

5.0 Benefits of ICT in SMEs

The benefit of ICT cuts across all sectors of the economy and all the fields of human activities, and ICT can improve the standard of living and enhance business operations as well as organizational efficiency (Udo and Edoho, 2000). It is commonly accepted that ICT offers many potential benefits to organizations so as to make them more efficient, effective and competitive (Fink and Disterer, 2006). ICT increases richness and reach (Evans and Wurster, 1997); companies communicate, collaborate, conduct transactions internally with their customers, suppliers and distributors via the internet and local SMEs are able to participate in the digital economy (Golding et al., 2008). The use of ICT allows companies to obtain, process, accumulate and exchange information (Ion and Andreea, 2008). According to Erumban and de Jong (2006), ICT has created a revolution by making the world seemingly smaller and improving potential economic growth. Pavic et al (2007) argue that SMEs have the opportunity to achieve a competitive advantage from the advances in ICT through innovation, marketing, efficiency gains, better quality and customer responsiveness. Also, Levy et al (2002) found some evidence which shows that SMEs act proactively in relation to the use of ICT.

Appropriate use of ICT can assist SMEs to gain competitive advantage by reducing costs and improving core business processes. According to Brynjolfsson and Hitt (2000), the use of ICT can help to cut down the costs of coordination, communication, information processing and also enable efficient service provision at lower cost. ICT is described as a strategic tool that allows users to be efficient and effective (Sewanyana, 2009). The diffusion of ICT in many countries by different sectors of the economy have led to rapid development in these countries and has also been found to

have direct positive impact on organization's efficiency (Achimugu et al., 2009). However, in Nigeria there has not been a formal study to ascertain the impact of ICT in these organizations.

According to Fullanteli and Allegra (2003), ICT offers enterprises a wide range of possibilities for improving their competitiveness. They provide mechanisms for getting access to new market opportunities and specialized information services such as distance consulting, continuous training, new advisory modes and so on. Organizations can exchange real-time information and build closer relationships with their customers, suppliers and business partners; customers can receive immediate feedback that allow companies to react fast to changing customers demands and recognizing new market niches. This implies that organizations that are able to exploit the potentials offered by ICT can handle innovative processes such as Supply Chain Management (SCM), Customer Relationship Management (CRM) and Knowledge Management (KM) more effectively (Fullanteli and Allegra, 2003).

While ICT has been described as critical to the competitiveness and growth of SMEs (Apulu and Latham, 2009), it is important for it to be applied in the relevant manner in order to reap the far-reaching payoffs of ICT. Shiels et al., (2003) state that technology would not lead to business growth except when it is aligned with a business strategy. Having the right technology in the right place and at the right time would assist to improve business performance and also aid competitiveness and sustainability (Swift, 2009). Once ICT is integrated into a business process, it becomes a useful tool in many stages of the value chain (Swift, 2009).

Another benefit of using ICT in SMEs is the fact that high efficiency is obtained in business transactions due to a fast and accurate processing of information (Ion and Andreea, 2008). Lal (2005) further states that web-enabled services increase the competitiveness of SMEs because they change the relationship with customers by creating a stronger link between firms and clients. The use of ICT in SMEs facilitates cooperation within the company, between the company and other firms.

Similarly, Swift (2009) argues that SMEs benefit from the use of ICT as it connects them more easily and cheaply to external contact. Other benefits include increasing

business competitiveness, vertical integration with other related initiatives, meeting stakeholders of various institutions, networking with other parties, creating an enabling environment and the development of internal competence in capturing market opportunities (Swift, 2009). Hence, the investment in ICT will result in increasing an SME's rate of sales and share of market, improve Return on Investments (ROI), and assist them to develop new products and/or markets.

Chowdhury and Wolf (2003) argue that SMEs use ICTs both as input in the production process and in the transaction process, selling their products or acquiring inputs. ICT enhances enterprise performance through indirect cost savings such as labour costs and increased labour productivity and direct cost such as reduction of firm's input (Chowdhury and Wolf, 2003; Love et al, 2006). In addition to these short-run impacts of ICT in the production process, the use of ICTs in the transaction process can foster input and output market expansion. However, in the long term ICT may have a bigger impact as it could completely restructure the production process and transaction methods, increase flexibility and improve outputs (Chowdhury and Wolf, 2003). In other words, it can be concluded that ICTs can influence the performance of an enterprise in multifaceted ways.

Obijiofor et al (2005) perceive ICT as a major tool for kick-starting ailing economies and consequently in assisting developing societies to 'catch up' with the developed world. ICTs have valuable potentials for developing SMEs through more effective use and better integration in their business processes. This can bring about a change among SMEs and make them more competitive, innovative and also generate growth (Obijiofor et al., 2005).

Nevertheless, several factors hinder SMEs from fully realizing these benefits. According to Liedholm (2002); Ducombe and Molla, (2009), SMEs especially in Africa suffer from many constraints related to unfriendly policy and regulatory environment, lack of finance, lack of skills, access to markets and market information, lack of infrastructure among others and Nigerian SMEs are no exception.

6.0 Problems of SMEs in Nigeria

Several problems are militating against the development of SMEs in Nigeria. As a developing economy, the most worrying of all among these challenges is funding. Most SMEs are not attractive prospects for banks as they would want to minimize their risk profile (Aina, 2007). The lack of adequate credit for SMEs is traceable to the reluctance of banks to extend credit as well as inadequate collateral by SME operators (Onugu, 2005). Other problems include weak demand for products arising from low and declining consumer purchasing power and lack of patronage of locally produced goods by those in authority (Onugu, 2005). Consequently, the Nigerian economic situation is not very attractive to investors.

There is also the problem of inadequate and inefficient infrastructural facilities which tend to raise costs of operations as SMEs are forced to resort to private provisioning of utilities such as water supply, electricity, and so on (Udechukwu, 2003). Electricity constraint is another major problem that affects the use of ICT in Nigerian SMEs. In many rural areas, there are no electricity supplies; while in the towns and cities where there is electricity, its presence is limited. Electricity generation and distribution therefore negatively affect the diffusion levels of ICT in the country (Akpan-Obong, 2007). Unless there is stable power supply and it is expanded to the rural areas, electricity is likely to remain a key factor hindering the development of SMEs in Nigeria. Moreover, provision of public infrastructure is grossly inadequate and poor (Posu, 2006). Necessary telecommunication services, such as public infrastructure required for meaningful investment are very expensive and inadequate.

Furthermore, there is the problem of multiplicity of regulatory agencies and taxes which has always resulted in high cost of doing business, poor management practices and low entrepreneurial skill arising from inadequate educational and technical background of many SME owners (Udechukwu, 2003). Similarly, developmental policies weigh in favour of large firms and sometimes foreign owned firms, leaving SMEs in a distressed and vulnerable position (Quartey, 2001). There are also problems such as corruption, lack of transparency, very high bureaucratic costs and lack of government interest in supporting the roles of SMEs in national economic

development and competitiveness. Hence, they all affect the use of ICT in the Nigerian SME sector.

7.0 Research Method

Case studies are the most common qualitative method used in information systems research (Orlikowski and Baroudi, 1991). Sauer (1993) is of the opinion that research in information systems is best done by case study. A case study research is useful when a phenomenon and context are not clearly evident (Yin, 2003). It also allows us to study a phenomenon within its natural context (Yin, 2009). Therefore given the exploratory nature of this study, the qualitative case study approach is adopted. According to Yin (1994), case study methodology offers a means of testing existing theories while providing a probable analytic generalization.

This study is based on primary research from interviews and secondary research from academic sources. The case study was selected based on the size of the company, in accordance with the definition of SMEs in Nigeria, and also based upon the post-ICT experience in the company. The case is one of many that will form the PhD research. Semi-structured face-to-face interviews were conducted with the owner-manager and technical staff of the SME. Questions related to the business aspects of the company, drivers for ICT adoption, barriers to ICT adoption, use of ICT, ICT infrastructure, competition and benefits of ICT were asked at some point in the interviews. Each interview lasted for an hour and was tape recorded. Afterwards, the interviews were transcribed and written-up and a copy was sent to each of the participant to check for accuracy and correct interpretation. This gave an accurate reflection of the information gathered. In addition, some company documents were reviewed. Furthermore, an extensive amount of secondary data was collected and reviewed from various sources which included books and academic journals. A general introduction to the organization involved is provided below, followed by a discussion on the benefits of ICT within the organization. The company in this paper has been given pseudonyms and some details of the company have been shrouded to maintain company confidentiality.

8.0 Case Study

MACO is a small manufacturing company located in Port-Harcourt, Nigeria and was established in 2003. Presently, the company has forty employees all of which are full time workers. The company's goal is to satisfy its present and future customers by developing level of services superior to those of its competitors. MACO's vision is to satisfy customer needs by providing prompt and efficient service and to create a secure and viable engineering solution to its customers. In 2005, the company decided to implement an ICT system called ERP (Enterprise Resource Planning) due to the competitive nature of the market and the need to stand out from the crowd. Another reason behind the company's decision to use the new system was due to the challenges MACO was facing with its customers in terms of tendering and purchase processes and in production capacity planning. The ERP system helps in the company's production capacity planning and control, so that the scheduling and resource allocation for different projects can be planned ahead before the project begins. The ERP system has given MACO a huge opportunity. The company can now easily target new customers, survive and grow in this competitive climate and also build long term relationships with its customers.

9.0 Discussion

SMEs have been recognized for playing very important roles towards the economic growth, development and stability of several economies. SMEs play a vital role in employment generation and immensely contribute to the Gross Domestic Products (GDPs) of several countries (OECD, 2000). With reference to the case study presented above, it can be said that there are a number of benefits associated with the use of ICT. ICT offers SMEs a competitive edge over its competitors (for example increase in production capacity planning and control); hence, it is vital for Nigerian SMEs to use ICT and ICT should be regarded as a critical tool for SMEs' competitiveness.

Based on the literature review, some major factors that affect Nigerian SMEs are lack of infrastructural facilities and lack of electricity. Furthermore, lack of resources is another major factor. Hence, the Nigerian government should set up different agencies to look into the various problems associated with SMEs in Nigeria. The

government can provide an enabling environment in which ICT can realize its full potential. They can help to address the problems and challenges of infrastructure under- development (Payne, 2001).

Nowadays several organizations have moved from manual paper-based to ICTs for internal processing of information and from telephony to ICTs for external communication. Thus, access to ICT has provided people with a foundation for building up and applying knowledge globally and particularly in developing nations (Ani et al., 2007). Through the use of ICT, modern society has been described as an information age and the knowledge economy.

In the present knowledge based economy, the use of ICT can bring the same competitive advantage to small and medium sized enterprises as that brought to large enterprises. ICTs are also making it possible for developing countries to participate in the world economy in ways that simply were not possible in the past (Ndukwe, 2004). Hence, information and communication technologies should be regarded as a strategic tool in SMEs. The use of ICTs in SMEs should be considered as part of the wider informal to formal transition process for information systems.

There is need for SMEs to undertake continuous improvement of their existing processes, products and services. They need to introduce products and services with extended capabilities to create more value for their customers (Hanif and Sajjad, 2009). On one hand, ICT provides all enterprises with many opportunities for their business activities. On the other hand, SMEs have always been considered to be the major economic players and strong sources of economic growth. Therefore, it is apparent that the use of ICT in SMEs is critical in every economy, including Nigeria.

As a result of Nigerian SMEs not being fully ICT-enabled they are unable to keep up with the pace of globalization. They are deprived of ways by which ICTs can improve their business processes. ICTs have the potential to improve SMEs' business processes as it is able to bring about better insights. Hence, the government needs to address these issues to encourage ICT enabled SMEs.

Nigeria needs to leapfrog from its present status of under development to a fully developed global giant, as it cannot afford to stand alone (Elebeke, 2009). Today's business world has been deeply influenced by ICT and its application among business is widespread. ICTs are rapidly changing global production, work and business methods and trade and consumption patterns in and between enterprises and consumers (Alam and Noor, 2009). SMEs are often seen as a vital source of growth and innovation in a dynamic economy and consequently small businesses help to diversify the economy and at the same time create employment (Machacha, 2002, as cited in Banda et al., 2004). Therefore, the ability for SMEs to survive in an increasingly competitive global environment is largely dependent upon their capacity to leverage technologies.

10.0 Conclusion and Recommendations

The use of ICT can provide a platform for future growth of SMEs; however; the use of ICT in Nigerian SMEs is relatively low due to many factors militating against their growth. For Nigerian SMEs to effectively use ICT, technological infrastructures should be put in place by the government to support ICT use. Based on the literature review and the case study, it is certain that there are a number of benefits associated with the use of ICT. Hence, effective use of ICT in Nigerian SMEs would bring about enormous opportunities for these SMEs. For an SME to set itself apart from its competitors and also to have a sustainable competitive advantage there is a need to invest in ICT. There is also a need for the government to intensify the efforts of promoting the use of ICT in Nigerian SMEs, since ICT is known to improve managerial practices in SMEs and also assist SMEs to grow and become more innovative. Finally, the Nigerian government must invest largely in the SME sector by making more funds available to SMEs and putting structures in place to ensure a successful investment. The integration of ICT in Nigerian SMEs would help integrate these SMEs into the world IT village.

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