

# ICT solution to Small and Medium Scale Enterprises (SMEs) in Nigeria

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**Abstract—** Information and Communication Technology (ICT) is one of the main forces driving the present day business environment. ICT is dramatically informing business practices as well as the outcome of business engagements. There are many factors to consider in the successful adoption of ICT in SMEs in developing countries. The development of the ICT solution taking into account the peculiarities of developing countries is very crucial to this. This work highlights the adoption of ICT in SMEs, some challenges hampering its adoption and its solution to SMEs of developing countries such as Nigeria.

**Keywords-** *Information and Communication Technology, SMEs, solution, business, developing countries*

## I. INTRODUCTION

The contribution of Small and Medium Scale Enterprises (SMEs) has been recognized as main sustenance of the economy because of its capacity in enhancing the economy output and human welfare in a country.(Akinguola, 2006) SMEs' role in the overall economy cannot be over-emphasized, because of its contribution to creating more jobs and development of the social-economy for the local community (Barba-Sanchez, 2007). SMEs development not only brings changes in developed countries like the UK, other European Countries, and the USA, it brings changes to developing countries such as China (Tan, et al., 2007). SMEs are at the heart of efforts to address key socio-economic challenges such as poverty and unemployment. In South Africa, as is the case in most African economies, the SME sector is one of the largest employment-generating sectors, particularly among the country's poor. In Ethiopia, an estimated 50% of the urban workforce is projected to be engaged in the micro and small-enterprises sector. In Ghana, SMEs have become critical agents in enabling the countries attain their development objectives, notably poverty alleviation and wealth creation. (Myjoyonline) Therefore, SMEs are not only a strong engine of economic growth and productivity, but also a means of empowerment and distributing wealth. In many emerging markets, SMEs are seen as the most attractive components of the economy. Nigeria according to Ayo et al, 2011, is the fastest growing telecommunication market or country in Africa with 43.98 million internet users. This represents 29.5% of the entire Nigerian population. With the expansion of

telecommunication companies and cheaper ISPs (Internet Service Providers) package, this number is expected to increase. To be successful, SMEs have to do more than just have an online presence. It's no longer enough to just have a mobile phone, a website or email. These tools have to enable the small businessman to connect with the customer in a savvy and cost effective manner to the business. While some SME-owners still prefer the traditional methods of doing business such as face-to-face interaction, there is no doubt that Information and Communication technologies (ICT) solutions are enhancing customer centricity and growth of business.

The adoption of ICT is crucial to SMEs as ICT has become a major catalyst and enabler of organizational change (Hazbo et al, 2008). SME in Nigeria however has not been able to effectively take advantage of this potential market because of the 'digital divide' that exists in Nigeria being a developing nation. The digital divide is the gap between "ICT haves" and "ICT have-nots", a tool to take advantage of information and knowledge; ICT is increasingly becoming a foundation of our societies and economies. Optimists believe that "ICT haves" generate more opportunity than "ICT have-nots" in ICT enhanced education, business, or even healthcare (Osterwalder, 2007). The debate concerning this particular issue will be whether ICT is helping SMEs in developing countries improve profit or ICT is nothing but more than a magic lure, which distracts people from working hard. This perspective is understandable, because a nation where people have a minimum level of life, obviously cannot afford to construct an expensive city wide wireless network. Expensive infrastructure, lack of training in retrieving information (computer literacy), language, and costly connection devices such as computers or even handheld devices are all obstacles (Barzilai-Nahon, 2006). But optimists are hopeful because they see access to and effective use of the ICTs and networks of advanced knowledge-driven markets as critical to poverty reduction and creation of a better life, even to social inclusion (Ho and Tseng, 2006). Also, Rasiah (2006) confirmed statistically the positive, strong and synergistic impact of ICT on GDP per capita, that there is a need for economies to spend more on ICTs. Fortunately, this debate has been resolved with the answer of "Yes". What we need to discuss is not whether ICT has an impact, but how (Walsham, et. al, 2007). How to find a proper model to mine the potential power of a developing nation, especially in SME sectors, is important.

Apulu and Latham (2009) noted that there is a variation in the adoption of ICT solutions between the developed nations and the developing nations. The developing nations are adopting such solutions at a slower rate. The authors pointed out that this might be because such technologies are produced in the developed countries to meet their needs while they are imported into the developing nations, though to meet similar need but at a slower rate because the technology is not developed to directly meet the need of developing countries. Thus, there is need for ICT solution developed for developing nations by the people of the developing nations to meet their specific and unique needs. There are other hindrances to the adoption of ICT solutions by Nigerian SMEs. These include but not limited to the following: Poor adoption of e-business models created in developed nations by business owners (Apulu and Latham, 2009); Lack of constant electricity (Apulu and Ige, 2011); High cost of ICT implementation (Faisal, 2012); Lack of good government policies and intervention; and Lack of education (Apulu and Ige, 2011).

This work highlights the adoption of ICT in SMEs, some challenges hampering its adoption and its solution to SMEs of developing countries such as Nigeria. The remaining sections are arranged as follows: Section 2 describes the small and medium-sized enterprises (SMEs), Section 3 gives the adoption of ICT in Nigeria, Section 4 point to ICT solution and Section 5 gives the conclusion and further research.

## II. SMALL AND MEDIUM-SIZED ENTERPRISES (SMES)

A consensus on globally accepted definition for SMEs has not been reached at the time of this research but SMEs has been described in literature as follows. The European Commission Enterprise and Industry states that “Enterprises qualify as micro, small, and medium-sized enterprises (SMEs) if they fulfill the criteria laid down in the Recommendation” as shown in Table 1.

TABLE I. CATEGORIZATION OF BUSINESSES BY THE EUROPEAN COMMISSION ON ENTERPRISE AND INDUSTRY

Enterprise category	Category		
	Headcount	Turnover	Balance sheet Total
Medium-sized	<250	≤ £50million	≤ £43 million
Small	<50	≤ £10 million	≤ £10 million
Micro	<10	≤ £2 million	≤ £2 million

Source: [www.europa.eu](http://www.europa.eu)

According to Central Bank of Nigeria (2003) at the 13th Council Meeting of the national Council on Industry held in July 2001, micro, small and medium-sized enterprises (MSMEs) were defined by the council as shown in Table 2:

TABLE II. CATEGORIZATION OF BUSINESSES BY THE CENTRAL BANK OF NIGERIA NATIONAL COUNCIL 2003

Enterprise category	Category		
	Headcount	Turnover	Balance sheet Total
Large scale	>300	>N200 million	>N200 million
Medium-sized	<300	≤ N200million	≤ N200million
Small	<100	≤ N50 million	≤ N50 million
Micro	<10	≤ N1.5 million	≤ N1.5 million

Source: CBN National Council (2003)

## III. ICT ADOPTION IN NIGERIAN SMES

ICT is defined as any technology that facilitates communication and assists in capturing, processing and transmitting information electronically. Some commonly used ICTs in many developing countries include Radio, television and print media (Parliamentary Office of Science and Technology, 2006). It is a broad term for a “wide range of software, hardware, telecommunications and information management techniques, applications, and devices that are used to create, produce, analyze, process, package, distribute, receive, store and transform information (Barba-Sanchez, 2007).” In 1995, Porter and Millar discussed how general managers should face the challenges that come from the information revolution, they pointed out three ways that information technology will bring competitive advantage.

- IT changes industry structure and, in so doing, alters the rules of competition.
- IT creates competitive advantage by giving companies new ways to outperform their rivals.
- IT spawns whole new businesses, often from within a company’s existing operation. (Porter and Millar, 1995)

Today, after more than ten years, Porter and Millar’s points are still valid. IT is the most significant technology that has been adopted by organizations and has also reshaped most industries over the past decade. Nowadays, in the business world, IT has become so common that some people assert that it is no longer an advantage, because almost everybody is using it, just like they use electricity (Carr, 2003).

In developed countries, ICT adoption to SMEs has changed the way businesses are conducted in order to have a strategic advantage in their various operations. Table 3 shows the contribution of SMEs to developed countries and regions in the world.

TABLE III. CONTRIBUTION OF SMES TO ECONOMIC DEVELOPMENT IN DEVELOPED COUNTRIES

Country	Category	
	Economic output	Employment
United States	65%	80%
Japan	45%	80%
Western Europe	45%	45%

Source: Sabah Almogyped, 2003

SMEs within the developing countries have been slow in adopting ICT as they face major constraints such as poor telecommunication infrastructure, limited ICT literacy, inability to integrate ICT into business processes, high costs of ICT equipment, incomplete government regulations for e-commerce, legal and regulatory issues, weak ICT strategies, lack of research and development, excessive reliance on foreign technology, weaknesses in ICT implementation and a poor understanding of the dynamics of the knowledge economy (Dutta et al, 2003; Lucey, 2005). Kapurubandara et al (2006) categorized internal and external barriers that impede adoption of ICT by SMEs in a developing country. The internal barriers include owner/manager characteristics, firm characteristics, cost and return on investment, and external barriers include, infrastructure, social, cultural, political, legal and regulatory.

Considering the enormous potentials and immense contribution of the SME sector to sustainable economic development, Nigerian SMEs not unlike other developing countries, still fall below expectation especially in adoption of ICT (Ihua, 2009). There are many factors affecting Nigerian SMEs adoption of ICT and these factors increase in their rate of failure. Costello and Sloane (2003) state that SMEs are hindered in adopting technologies as a result of the barriers that arise in the organization. The factors affecting Nigerian SMEs include lack of infrastructural facilities, corruption, cost of implementation, lack of funds, lack of awareness among owners managers, lack of skills and training, cultural factors, lack of government policies that support ICT adoption in SMEs, electricity constraints among others (Adenikinju, 2005; Akpan-Obong, 2007; Ihua, 2009). Lal (2007) investigated the adoption of ICT in SMEs in Nigeria and found that one of the major factors inhibiting ICT diffusion and intensive utilization is poor physical infrastructure. Another obstacle is inapplicability of the standard software used in developed countries due to their high cost, lack of developed supporting infrastructure and a number of other reasons.

The adoption of ICT by SMEs provides the ability of rapid access to data, assessment, processing and dissemination of large data volumes. Consequently, only those SMEs which use the state-of-the-art technologies have the opportunity to enter the international market and remain competitive despite the challenges of globalization, liberalization and scientific and technical progress [Ongori, 2010]

SME adoption of ICT ranges from basic technology such as radio and fixed lines to more advanced technology such as email, e-commerce, and information processing systems. The first ICT tool that most SMEs adopt is having basic communications with a fixed line or mobile phone, whichever is more economical or most convenient for the business. This allows the SMEs operators to communicate with its suppliers and customers without having to pay a personal visit. After acquiring basic communication capabilities, the next ICT upgrade is usually a PC with basic software. Even without Internet connectivity, SMEs can use PCs for basic word processing, accounting, and other business practices. With the Internet, SMEs are able to use more advanced communications capabilities such as email, file sharing, creating websites, and e-commerce. Like any firm, an SME decides which type of ICT products to adopt based on the concrete benefits they can

bring to its core business, the ICT capacity of its employees, and the financial resources available. Most people are familiar with basic ICT such as fixed phone lines, mobile phones, fax, computers, and basic document processing software – like Microsoft Office. Advanced communication technology, however, is more complex. Advanced communication technology relies primarily on the Internet and the intranet, which allow people within the firm to share files with each other over the same network. Having Internet connectivity enables firms to do faster research, set up websites, conduct e-commerce, and set up video conferences. (Irefin et al, 2012)

#### **IV. ICT SOLUTION TO NIGERIAN SMEs**

Information and Communication Technology (ICT) play a very important role in helping SMEs both to create business opportunities and to combat pressures from competition. Appropriate ICT can help SMEs cut costs by improving their internal processes, improving their product through faster communication with their customers, and better promoting and distributing their products through online presence. In fact, ICT has the potential to improve the core business of SMEs in every step of the business process. Through the use of information technology, SMEs can gain from developing capabilities for managing information, intensive resources, enjoy reduced transaction costs, develop capacity for information gathering and dissemination of international scale and gain access to rapid flow of information (Minton, 2003). ICT solution helps SMEs in increasing their productivity and achieving higher business performance.(Ongori, 2010).

Some empirical studies by Ashrafi & Murtaza (2008), Brynjolfsson and Yang (1996), Baldwin et al. (2003), Love et al (2004) and Ritches and Brindley (2005) confirm the positive effect of information and communication technologies (ICT) on firm performance in terms of productivity, profitability, market value and market share. Their study also reveals that ICT has some effect in terms of intermediate performance measures, such as process efficiency, service quality, cost savings, organization and process flexibility and customer satisfaction.

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. It is necessary for the Nigerian government to develop an ICT model that will assist Nigerian SMEs to successfully adopt ICT, and technological infrastructures should be put in place by the government to support ICT adoption. For Nigerian SMEs to remain competitive or to become successful, it is important for owner-managers to understand the critical success factors related to ICT adoption. This involves the Nigerian government making more funds available to SMEs and putting some structures in place to ensure a successful investment. The integration of ICT in Nigerian SMEs would help integrate these SMEs into the world's IT village.(Apulu and Latham, 2009)

#### **V. CONCLUSION AND RECOMMENDATION FOR FURTHER RESEARCH**

Information and Communication Technology (ICT) is one of the main forces driving the present day business environment.

ICT is dramatically informing business practices as well as the outcome of business engagements. The adoption of ICT in Nigerian SMEs is relatively low; hence there are still many factors that need to be considered. This work only highlights the adoption of ICT in SMEs, some challenges hampering its adoption and its solution to SMEs of developing countries such as Nigeria. In order to have a better understanding of the benefits associated with ICT adoption in developing countries there will be a need for extensive research and meeting with the small business owners in Nigeria to find out how they have been carrying out their business, the level of ICT solution they have adopted so far and how to further improve business growth and sustainability for SMEs in different sectors. The development of the ICT solution taking into account the peculiarities of developing countries, additional research in order to examine the existing problems, the peculiarities of micro and macro environment and other strategies will help to boost the SMEs of developing countries thereby enhancing the sustainable economic growth.

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