

**INFORMATION TECHNOLOGY ADOPTION CHALLENGES AND SUSTAINABLE ADMINISTRATION
OF SMES IN NIGERIA: A POST COVID-19 EXPERIENCE**

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Abstract

The paper took a critical look into information technology adoption challenges and sustainable administration of SMEs in Nigeria with emphasis on the experience after Covid-19 pandemic. The Small and Medium Enterprises (SMEs) and ICT have been credited with enormous contributions to the growth of the developed economies of the world. The SMEs provide the cornerstone on which any country's economic growth and stability rests. Small businesses have witnessed constant challenges because of their attitude, behaviour and the activities of numerous entities associated with ICT adoption. These challenges most times, produce ICT anxiety, reduce the SMEs managers' sense of control resulting to continuous difficulty in the adoption of IT facilities. Technology Acceptance Model was used as the most appropriate framework for the study. Similarly, qualitative research approach and applied chronological method in the analysis of mainly secondary data were used. Some of the challenges identified in the work includes low-income, limited

IT skilled workers, workers resistance to change, limited ICT infrastructure and expensive nature of ICT. It is recommended that Nigeria should strive to strongly position herself to meet up with the requirements of ICT infrastructure, with specific reference to the SMEs. Also, SMEs in Nigeria should

Introduction

Rapid globalization and advances in Information and Communication Technology (ICT) has brought about phenomenal improvements and great opportunities for developing countries to participate meaningfully in the global digital economy. It is in Nigeria's national interest to harness potentials that exist in the information driven age through the deployment and exploitation of ICTs to facilitate socio-economic development. The information age is one in which information and knowledge are key factors in enabling social and economic growth (Moses, Theresa, Tonna and Moses, 2014). It is, therefore, imperative for Nigeria to facilitate the development of information and knowledge-based economy through the deployment, development and exploitation of ICT.

The impact of ICT affects all facets of the society and is used to meet real development needs such as wealth creation, job creation, poverty reduction, economic growth and education. It provides the unique opportunity to compete and participate in the global networked economy. ICT is a key factor in ensuring sustainable development in today's information age. Developing an ICT roadmap will show clearly how ICT fits into the national picture. In today's information age no nation can perform at its best without concrete, well thought-out and working ICT strategies. Countries therefore develop national ICT policies in recognition

as a matter of necessity, equip themselves adequately with all ICT facilities and not just basic office tools. We mean relevant ICT gadgets as internet facilities, video conferencing facilities, facsimile, e-mail, etc.

of the enormous potential of ICT (Anga, 2014).

The Small-scale and Medium-sized Enterprises (SMEs) have been credited with enormous contribution to the growth of the developed economies of the world. In the same vein, the Information and Communications Technology (ICT), and particularly the Internet have played their own part in those economies. The SMEs provide the cornerstone on which any country's economic growth and stability rests. The American economy, the largest in the world, depends largely on the success of SMEs for "innovation, productivity, job growth and stability" (Bhatnagar, 2003).

The rapid transformation of the "Asian Tiger" countries of India, Malaysia, Indonesia, Taiwan and Hong Kong, has also been hailed as proof that SMEs are major catalysts to economic development. Their importance to any economy hinges on their ability to stimulate indigenous entrepreneurship, to provide employment to a greater number of people; to mobilize and utilize domestic savings and raw materials, to provide intermediate raw materials or semi-processed products to large-scale enterprises, and to curtail rural-urban migration.

Of equal strategic importance is also the role of the SMEs in other developing countries like Nigeria. With a Gross National Product (GNP) of some \$41.2 billion and a World Bank estimated population of 170.9 million, Nigeria is one of the largest

economies in Africa (World Bank Report, 2014). This being the case, the economic success or failure of Nigeria can affect not only the country but the whole of sub-Saharan Africa. This is why any effort geared towards understanding how the SMEs make use of emerging technologies in improving their products and services which ultimately reflect on their growth potential is worthwhile.

Statement of Problem

The emergence of new ICT has constantly revolutionized business processes, changed the nature of power that exist between customers and suppliers, grant quick access to a worldwide market and the change from post-industrial era to an information based economy where, information is becoming predominant (Simpson & Docherty, 2004) as a result of the accessibility of information in the new e-economy. The new e-economy is a dynamic system of interactions involving diverse actors (managers, individuals, government, IT experts, vendors and customers) that partake in information technologies adoption and implementation in SMEs to achieve socio-economic goals (Hamilton, 2002).

Emerging ICT is defined in this study as any new ICT or enhanced ICT. Although these applications have been widely acknowledged in various establishments as tools for accomplishing business strategies, they have remained the foundation for most firms to accomplish their business strategies SMEs, government, and other stakeholders are regularly relying on ICT tools (Eze, Duan & Chin, 2014) because of the significant amount of resources invested on them on the account that it will save time and cost and improve the firm's

performance. However, small businesses have witnessed constant challenges because of their attitude, behavior and the activities of numerous entities associated with ICT adoption.

These challenges most times, produce ICT anxiety, reduce the SMEs managers' sense of control and provoke ICT related negative cognition. This paper is therefore determined to explore technology adoption challenges and how it affects sustainable administration of SME in Nigeria Post Covid-19 era.

Objectives

1. To identify the challenges of technology adoption in sustainable administration of SMEs in the post-covid-19 era.
2. To assess the role of technology adoption for sustainable administration of SMEs.
3. To proffer measures to ameliorate the identified challenges to sustainable administration of SMEs in Nigeria.

Theoretical Framework

Technology Acceptance Model (TAM)

This paper adopted Technology Acceptance Model developed by Davis (1989) who presented a theoretical model aiming to predict and explain ICT usage behavior, that is, what causes potential adopters to accept or reject the use of information technology. Theoretically, TAM is based on the Theory of Reasoned Action (TRA).

In TAM, two theoretical constructs: perceived usefulness and perceived ease of use, are the fundamental determinants of system use, and predict attitudes toward the use of the system, that is, the user's willingness to use the system. Perceived usefulness refers to "the degree to which a

person believes that using a particular system would enhance his or her job performance”, and perceived ease of use refers to “the degree to which a person believes that using a particular system would be free of effort” (Davis, 1989).

Information Technology

The term “Information technology” evolved in the 1970s. Its basic concept, however, can be traced to the World War II alliance of the military and industry in the development of electronics, computers and information theory. There have been varying opinions on the concept of information technology most of them revolving around the same axis. Mitra (2002) present technology as something new as it drives change at an ever-increasing rate. It is often equated as being modern and holds out a panacea in which the future is invariably better than the past. Information technology can be seen in the light of the following definitions.

- As the various technologies which are used in the creation, acquisition, storage, dissemination, retrieval, manipulation and transmission of information (Woherem, 2001).
- As a means of processing data, gathering information, storing collected materials, accumulating knowledge and expediting communication (Madon, 2000).
- As having a primary focus of collecting, organizing, storing, retrieving, interpreting and using information.

Khalil (2003) conceptualizes information technology as the term that describes an organization computing and communications infrastructure, including

computer systems, telecommunications, networks, and multimedia software and hardware. He goes on to assert that information technologies are computer-based and operate on a convergence of the electronics and telecommunications devices.

Information technology is defined by the United Nations Development Programme (2007) as the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware. Encompassing the computer and information industries, information technology is the capability to electronically input process, store, and output, transmit and receive data and information including text, graphics, sound and video, as well as the ability to control machines of all kinds electronically. Information technology is comprised of computers, networks, satellite communications, mobile communications, robotics, videotext, cable television, electronic mail (E-mail), electronic games and automated office equipment.

All the above definitions of information technology share certain key characteristics which are outlined below.

- Information technology is a combination of two major components, computers and telecommunications.
- Information technology is a master tool for managing information in all its ramifications, i.e. creating /generating, gathering, organizing, manipulating, storing, retrieving and dissemination.
- Information technology carries with it the hallmarks of a modern day

computer i.e. speed, accuracy, efficiency and productivity.

As Akomea-Bonsu and Sampong (2012) put it, “the personal computer has already had a huge effect on business; but its greatest impact won’t be felt until the PCs inside and outside a company are intimately connected”. What this implies is that, although an organization may own standalone computers, such an organization cannot be said to be proficient in IT until these computers are interconnected or networked, allowing information to be exchanged within the organization with utmost ease.

Small Scale Industry

Some of the features of Small-Scale Industries in Nigeria as identified by Anamekwe (2001) are as follows:

- Low set up costs compared with large companies.
- Reliance on local raw materials.
- Employment generation.
- Value added.
- Accelerating rural development and contribution to stemming urban migration and problems of congestion in large cities.
- Stimulating entrepreneurship especially in the country side.
- Provide links between agriculture and industries.
- Mobilizing private savings and harnessing them for productive purposes.
- Supplying parts and components for large-scale industries.
- Contribute to domestic capital formation

Challenges of IT Adoption

The challenges of small-scale industries are administrative, financial and general.

1. All-important entrepreneurial and operational decisions of SMEs are taken by one person (sole owner). Also, lack of formal training in administration and production skills.
2. Financing: This constitutes major problem. Their low business credibility, poor management, inefficiencies, limited collateral security, high risk of failure make it difficult for them to raise capital from usual sources and often force them to secure loans at higher interest rates from other lenders.
3. Most of them tend to be imitators rather than being innovators.
4. Production of non-standardized products.
5. Problem of marketing of products due to lack of awareness of market opportunities/skills.
6. Most of them are concentrated in urban centers and could therefore not tap local advantages e.g. cheap labour, access to primary products etc.
7. Little access to/inability to apply new technologies e.g. computers.

It is clear from the foregoing that little or no access to modern technologies like the computers, Internet, and, in fact, ICT infrastructure, as one of the fundamental problems of SMEs in Nigeria posed serious challenges to their operations and overall service delivery to customers/clients. Empirical research on ground will prove or invalidate this assertion.

Small and Medium Enterprises and ICT Adoption

The usage of information technology is expected to be an important factor for

competitive growth of SMEs in global and regional markets. Growth of competitive pressure force SMEs to fight for new markets, new products and new distribution channels. These environment movements can be faced just from those businesses that have quality information systems support. The only competitive advantage companies and SMEs enjoy are their innovation and ability to derive value from information as resource. As noted earlier, information technology is the technology that is used to store, manipulate, distribute or create information. Furthermore, it is claimed that 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 at international scale and gain access to rapid flow of information (Irefin, AbdulAzeez, and Tijani 2012). New business models and market configurations enabled by information technology, including business process outsourcing, provide SMEs with access to new market and new sources of competitive advantages.

SMEs usage 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. Using advanced ICT to improve business processes falls into the category of e-business (UNDP, 2007).

However, not all SMEs need to use ICT to the same degree of complexity. 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 their suppliers and customers without having to pay a personal visit. After acquiring basic communication capabilities, the next ICT upgrade is usually a Personal Computer (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. This may be sufficient for most SMEs, especially those in service industries such as tourism. SMEs in manufacturing may adopt more complex IT tools such as Enterprise Resource Planning (ERP) software or inventory management software. SMEs may adopt the tools progressively or jump immediately to advanced ICT capabilities.

Factors Affecting ICT Adoption in Nigerian SMEs

The importance of ICT in organizations whether it is service or manufacturing cannot be over emphasized. It is also noteworthy that the type and volume of product an organization produces determine the relevant ICT facilities and the capital spent to adopt and make available to the workers to discharge their specialized duties. The explosive growth of ICT as a strategic tool is needed by today's organizations in order to adopt new, more powerful techniques to reduce inefficiencies and improve growth and development via commitment to work. In order to understand the overall role of ICT at the organizational level, it is useful to begin by thinking about the qualitative impacts of ICT application and use in

organization's production processes (Ajayi, 2002).

In Nigeria as a developing nation, the application and use of ICT in organizations is still very slow compared to other African countries, this corroborates the finding of Kolawole, Adeigbe, and Hilary (2014), who noted and concluded that most organizations in Nigeria are Non-Intensive ICT users (that is, such organizations of course have some ICT facilities such as computer, LAN, WAN, mobile and land phones) but could not afford internet and VSAT which could give them access to the outside world. The reason according to Ojukwu, (2006) is due to cost, fear of fraudulent practices and lack of facilities necessary for their operations. E-HOB (Electronic wide area connections for small scale enterprise and household) has not been firmly rooted in Nigeria due to the inability of many households to afford terminals and all accessories required for effective connection, high capital investment required for its operations, low level of economic development, ineffectiveness of telecommunication service provider and epileptic power supply".

Kapurubandara and Lawson (2006) have 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 includes infrastructure, social, cultural, political, legal and regulatory policies. 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. In

developing countries some of the ICT challenges include legal and regulatory issues, weak ICT strategies, lack of research and development, excessive reliance on foreign technology and ongoing weaknesses in ICT implementation.

Adebayo, Balogun and Kareem (2013), Adenikinju (2005), Sajuyigbe and Alabi (2012), Lal (2007), Apulu and Emmanuel (2011) and Apulu and Latham (2011) amongst others, identified more factors that affect the adoption of ICT by SMEs in Nigeria. These factors include: lack of infrastructural facilities, lack of funds, cost of implementation, lack of awareness, lack of appropriate government policies, lack of skills and training, cultural factors, electricity constraints, corruption, low levels of education, illiteracy, lack of proper information, and so on. Adenikinju (2005) advocates that problems relating to the SMEs sector in Nigeria and its development have been handled inappropriately by the government and highlights problems such as infrastructural and cultural factors, as acting against the effective development and exploitation of ICT in Nigeria.

I.T Adoption Challenges in the Post Covid-19 Era

After the shutdown of economic activities in Nigeria, no thanks to Covid-19 pandemic, from late 2019, businesses are still struggling to establish their financial and sustainable status in the market. The adoption of information technology has not been fully established because of the administrative decisions which most entrepreneurs and other business owners in Nigeria must make. However, there has been a continuous difficulty in the adoption of I.T facilities. Some of the identified challenges are:

1. Low-income: Despite the introduction of innovative technology for businesses, so many enterprises have not been able to invest in information technology because of their financial status that was crumbled by the pandemic.
2. Few I.T skilled workers: One of the effects of the pandemic on businesses was the administrative decision of retrenchment of skilled and unskilled workers because of low profit.
3. Workers resistance to change: It is evident that many workers quietly oppose the adoption of new methods and introduction of machines.
4. Limited ICT infrastructure: Government and other I.T policy makers have failed in introducing sophisticated and speedy technologies that will encourage business owners to venture into innovative ICT infrastructure. The recent internet speed is the 5G internet network, but the case of Nigeria as a developing country, we are still struggling with consistent 4G internet network.
5. Expensive nature of I.C.T: Cost of innovative I.T equipment is enough to make it difficult for SMEs to invest and adopt the use of contemporary equipment for their businesses. The alarming rate of exchange between naira and other foreign currencies since the wake of Covid-19 has made the cost of modern information technology too expensive to purchase.

Methodology

This work used qualitative research approach and applied chronological, thematic method of analysis of data. The work used secondary sources of data - published and unpublished works such as textbooks, pamphlets and project works. Internet materials were also used.

Analysis and Discussion Based on Previous Studies

- The findings from past studies reveal that SMEs are much more interested in running their daily business and hardly had time to improve their skills that would assist them in adopting the right kind of technology. The implication of this is that for SMEs to make informed evaluation exercises on any new ICT, they must require some direction on how the new ICT would meet their needs. According to Simpson and Docherty (2004) although some small service businesses can handle most of the broad problems triggered by their environment through paper leaflets, most of them lack the time to read reports, instead they prefer immediate responses to their problems.
- The findings from past studies reveal that majority of small businesses do not spend time in learning and equipping themselves before taking a decision for emerging ICT owing to the fact that most times they are lost as to what they exactly needed. This alone increases tension and hinders successful ICT adoption. One of the major implications of this finding is that, most times SMEs tend to rely heavily on external

sources of advice, especially the consultants, who are seen as the first point of contact. In line with the findings above, a number of research (Rantapuska & Ihanainen, 2008; Fincham, 2002) also found that lack of time, resources, skills and misleading advice from external experts, lack of understanding of its benefits (Fang, Benamati & Lederer, 2011) are some of the challenges facing SMEs in ICT adoption and these make small businesses to adopt ICT as late majority in the adopters' category .

- Findings revealed that the government's poor IT support was one of the issues encountered by SMEs which hindered them from adopting emerging ICT successfully. The finding is an indication that government is not doing enough to support SMEs. In fact the effects of Covid-19, and/or bad government, are still crumbling SMEs as ICT infrastructures - electricity, internet equipment, etc., are hardly available and/or affordable.

Conclusion

Small-scale enterprises no doubt require ICT facilities which is generally believed makes work faster and better, speed up operations, eliminate duplication and reduce paper work etc. Regrettably however, SMEs in Nigeria portray an appalling lack of ICT facilities, hence limited application of same. Expectedly, their services and operations were being hampered due to this abysmally low ICT application. It is equally regrettable that this state of affairs exists in spite of a National Policy on Information Technology. It is

unfortunate that lack of ICT infrastructure (due to poor funding and sundry reasons) seems to stand between Nigeria SMEs and better services accruing from ICT.

Recommendations

Based on the revelations above the study recommends as follows:

- a. Nigeria should strive to strongly position herself to meet up with the requirements of ICT infrastructure, with specific reference to the SMEs. The present state in terms of ICT facilities is, to say the least, deplorable, and the trend needs to be urgently reversed.
- b. SMEs should as a matter of necessity, equip themselves adequately with all ICT facilities, not just basic office tools, but with such relevant ICT gadgets as Internet facilities, video conferencing facilities, facsimile, e-mail, etc.
- c. SMEs should urgently ensure that all or, at least, most of their staff henceforth have access to personal or shared access to computers which have been hooked to the Internet.
- d. Government should extend her hand of assistance to SMEs, particularly with a view to improving their funding and financing capacity.
- e. The energy sector needs to be urgently over-hauled to ensure constant and uninterrupted electricity supply, lack of which greatly and severely hampers day-to-day operations of the SMEs (particularly ICT services).
- f. The National Policy on ICT should be amended to include government

directly procuring or subsidizing ICT facilities for SMEs.

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