



An Appraisal of the Impact of Information Technology (IT) on Nigeria Small and Medium Enterprises (SMEs) Performance

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Abstract

The purpose of this paper is to investigate a deep understanding of influence of Information Technology (IT) on the performance of Small and Medium Enterprises (SMEs) operation in Nigeria. This paper attempts to explore the extent to which the improvement in SMEs operation performance can be certified to the implementation of Information technology (IT). The study was carried out in Lagos State, using multi-stage sampling technique, a sample of 200 out of 250 respondent SMEs were selected from a list of 4,535 registered small and medium Enterprises as provided by NASSMEs obtained from www.businessdayonline.com as at November 2013. Data collected were coded and analyzed using frequency table and percentage while non-parametric statistical test, chi-square was used to test the formulated hypothesis using STATA 10 data analysis package. The result of hypothesis tested showed that information technology has a significant impact on the performance of SMEs operation in Nigeria. It was concluded that involvement by SMEs in IT will significantly improve their performance in term of productivity, time saving, business turnover, operation expenses reduction and also increase level of country economy as whole. To this end, it is recommended that there in need for more training facilities in IT for SMEs, and ease of use to free professional advice and consulting on IT at reasonable cost to SMEs.

Key Words

Information Technology (IT), Small and Medium Enterprises (SMEs), ICT Adoption and Usage

I. INTRODUCTION

SMEs have played a key role in the economies of both developed and developing countries in terms of turnover, level of employment and serve as a mechanism to fight against poverty as evidenced in the literature (Akanji, 2006; Akintoye and Oladejo, 2008; Akande, 2013). The current wave of Information Technology calls for the attention of SMEs Entrepreneurial, scholars. E-commerce, according to Bansal and Sharma (2006), is rapidly transforming the way of businesses functions are performed, posing new challenges to the Entrepreneurial profession. This view is further corroborated by Olivier (2000) that one of the most important current influences on the business operation is the development of new information technology. Prior to the emergence of electronic payment, banks transactions remain the widely accepted mode of payment in business, thus cash payment was only popular where it became inevitable especially in transactions dealing with minimum price such as foods, groceries etc where electronic payments may not be convenient.

Cashless economy has always been the advocacy of most countries of the world where carriage of cash at effecting transactions are utterly discouraged. Money in the traditional sense no longer exists at present times. Today, technology has made the need to carry heavy cash outdated, inconvenient and of no use (Popoola, 2010; Odior and Banuso, 2012; AIGhamdi, Nguyen, Nguyen & Drew, 2012)). Along with the information technology, the Internet high speed development, electronic commerce has caused the current distribution realm significant transformation gradually as observed by Liang and Yang, (2009).

Experiences from practices of Businesses over the world and hypotheses derived from institutional economics and the theory of collective action, as observed by(Manmood and Man, 2008;Oladejo and Yinus,2013), suggest that taking advantage of Information Technology diffusion is possible for business organisation and adoption of IT can provide organisation with valuable information, improved performance, improve relationships with customers and suppliers, increase efficiency and reduce cost of production among others. Evidence also shows that full-size business organisation have taken the opportunity of IT to gain the edge over their competitors unlike the small and medium enterprises. The influence of Information Technology on SMEs operations for better performance is worthy of exploration in this current move to cashlite economy.

A. Statement of the problem

The recent increase in technological advancement has strong impact on SMEs in other parts of the world including China and Brazil (James Manyinka et al, 2011).Emphasis on impact of information technology on increase in productivity and performance on SMEs can be considered as an issue of much apprehension to Entrepreneurs, scholars and practitioners in developing economy like Nigeria. In a global world, the use of IT to increase productivity and performance is one of the challenges being faced by SMEs presently in developing country due to the lack of knowledge on the benefit of IT in their businesses. However, there is the need for changing roles of SMEs operation to meet the global challenges. In developing countries, ability to continuously upgrade functions, processes and productive in Business becomes a matter not only of innovativeness but ultimately one of survival. IT is expected to improve SMEs operation performance in a form of transactional convenience, saving of time and quick transaction.

The extent to which SMEs can be benefited from Information Technology (IT) is worthy of exploration. The impact of IT on SMEs operation performance has not been greatly explored in Nigeria. Few studies in Nigeria focus on ICT Investment in SMEs and more on ICT adoption and Usage in the Financial Sector. This is because Information Technology is just gaining wider acceptance in Nigeria SMEs. This paper remain germane by appraising the impact of the Information Technology (IT) on Nigeria SMEs operation performance. Specifically, the study will answer the following research questions:

- What is the impact of Information Technology on SMEs performance?
- Does Information Technology influence the growth of SMEs operation?
- What are the problems and challenges of adopting IT method by SMEs?

B. Research Hypothesis

The hypothesis for this study are stated in the null form

- Ho: Information technology has no significant impact on the SMEs operation in Nigeria

II. CONCEPTUAL CLARIFICATIONS LITERATURE REVIEW

The Information Technology concept is a new development that has changed ways and manner of doing things, in commerce, trade, agriculture, and manufacturing and government services. It is to be adopted by business as a matter of responding to world dynamics. Highlighting the impact of IT in recent years, Oladejo and Adereti (2010) observed that the 1990s witness the proliferation and hyper growth of internet and internet technologies, which together are creating a global and cost-effective platform for business to communicate and conduct commerce. Despite the enormous investment in IT during recent years, demonstrating the effect on such on organizational performance has proven extremely difficult (Mahmood and Mann, 2000). Nigeria is largely a cash-based economy with over 90 percent of funds residing outside the banking sector as against the developed world where the money in circulation is 4 percent in US and 9 percent in U.K as submitted by (Ovia 2002 and Ojo 2004). Whereas the cash-based economy is characterized by the psychology to physically hold and touch cash a culture informed by ignorance, illiteracy, and lack of security consciousness and appreciation of the merit of digital payment.

According to world development report (1999), for leading countries in the world economy, the balance between knowledge and resources has shifted so far towards the former that knowledge has become perhaps the most important factor determining the standard of living more than land, tools, and labor. Today's most technologically advanced economies are truly knowledge based. Countries in the world are moving from an industrial economy to a knowledge economy in which economic growth is dependent on a country's ability to create, accumulate and disseminate knowledge. Computers and the internet catalyzed the growth of the knowledge economy by enabling people to put knowledge into a digital form easily transmitted to anywhere around the world. IT has sped up the pace of globalization and increase the complexity of business practices because firms not only need to be familiar with their local context but also with global developments. Thus, to compete in the knowledge economy, countries need a strong IT literate

skills base that can innovate and adapt quickly to change.

Many countries such as India, the Republic of Korea, Taiwan and China have created enabling environments to ensure that SMEs are well positioned to capture these emerging business opportunities. India, for example offered relief from import duties for IT hardware, tax deductions for income earned from software exports, and tax holidays, and developed infrastructure in software technology parks. India's thriving IT sector has boosted the country's economic growth. SMEs outside the IT sector have also benefited by adopting ICT in their own operations, enabling them to communicate quickly, increase productivity, develop new business opportunities, and connect to global networks.

A. Small and Medium Scale Enterprises

Small and medium scale enterprises (SMEs) have been long recognized as an instrument of economic growth and development. This growing recognition has led to the commitment of World Bank group on SMEs sector as core element in its strategy to foster economic growth, employment and poverty alleviation. the importance of small and medium scale enterprises has not been in doubt, unfortunately classifying businesses into large and medium scale is subjective and premised on different value judgment. Such classification has followed different criteria such as employment, sales or investment for defining small and medium scale enterprises.

According to extant literature the definition vary in different economics but the underlying concept is the same. Ojo,(2004); contends that the "definition of small and medium scale enterprises varies according to context, author and countries". Small and medium scale enterprises are certainly not transnational company, multinational cooperation, publicly owned enterprises or large facility of any kind. However they can depend on business and ownership structure to become a large business unit (Liedholm C and Mead D (1987),) while it can be argued that 80% of the financing of SMEs come from owners, friends and families, business form can take different form including private ownership, limited partnership, contract and sub-contracts, cooperatives or association (Akande, 2005; Kozak, 2007). Small and medium scale enterprises have a narrow context within which its operation is carried out. However, where it is effectively operated it has capacity to sprout the economic growth and national development. In every economics small and medium scale enterprises has been seen has a pivotal instrument of economic growth and development either in developed for developing economics. Several studies have confirmed this (.Ovia, 2000; Ojo, 2004, Asaolu 2004; Akande, 2005; Kozak, 2007; Oladejo, 2008).

B. Information Technology Challenges in Developing Countries

Kropp, Fredric and Zolin, Roxanne (2008) found that in most African countries, small and medium enterprise (SMEs) account for a significant share of production and employment and is therefore directly connected to poverty alleviation. Especially in developing countries SMEs are challenged by the globalization of production and the shift in the importance of various determinants of competitiveness. ICTs can improve efficiency and increase productivity by different ways including, improving efficiency in resource allocation, reducing transaction costs, and technical improvement, leading to the outward shifting of the production function. Although South Africa is much more developed and its ICT infrastructure is far more advanced. Mahmood

et al (2000) in his study found that SMEs in South Africa faces similar problems as in other African countries with respect to poor management practices, limited access to technology, and limited access to credit facilities education, unemployment, ICT infrastructure and role of the SME sector leading to slow pace of internet services. The challenges is to move SMEs to go beyond these first few basic steps, and to eventually move towards integrating ICTs in more sophisticated business applications. This is a major step for SMEs, especially in developing countries, because these would require management and technical skills and investments (as well as organizational changes) that they may not be able to afford or for which they may not have ready access.

C. Information Technology (IT) diffusion in SMEs in Developing Countries

There are very few studies about IT adoption in developing countries,(Cosh, A.D. and Hughes, A. 2000; Yeh et al, 2007; Lal 2007; Popoola 2010) investigating adoption of IT in Nigerian SMEs found that, one of the major factors inhibiting IT diffusion and intensive utilization is poor physical infrastructure. In developing countries some of the IT adoption challenges include legal and regulatory issues, weak IT strategies, lack of R& D, excessive reliance on foreign technology and ongoing weaknesses in IT implementation (Ovia, 2000).

There are a number of studies that discuss adoption of Internet and e-business in SMEs in developed countries (Lucchetti and Sterlacchini, 2004), and (Yeh et al 2007). Governments around the globe recognize the importance of adoption of IT by SMEs and they have created special groups to study various aspects of IT adoption in SMEs. Despite the importance of IT and emphasis by various governments to encourage SMEs to adopt IT, it has been reported that SMEs have been slow in adopting IT for various reasons.

D. Barriers to Information Technology (IT) Adoption by SMEs

Large organizations have enough resources to adopt IT while on the other hand SMEs have limited financial and human resources to adopt IT. (Brynjolfsson, E and Hitt, L.M. 2000) identified lack of IT skills and knowledge in SMEs as one of the major challenges faced by all European countries, particularly in the UK, Poland and Portugal, in their study. Brynjolfsson, E and Hitt, L.M. 2000) have reported a slow response of SMEs relating to adoption of IT. (Shiels et al 2003) found that characteristics of the firm and industry sector are contributory factors to the adoption and exploitation of ITs by SMEs. (Ovia, 2000) have categorized internal and external barriers that impede adoption of IT 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.

E. Measurement of Information Technology (IT) Effect on Performance

Researchers using field studies examining the link between business organization, information technology and changes in organization structure agreed on the potentials of IT but have come to diverse and contradictory conclusions on its measurement, (see Robinson, 1999) for a review. Some recent studies of relationship between investment in IT and organizational performance and productivity (Kozak, 2005; Abassi, 2007) have reported positive and significant effects of such investments. Some researchers question these results on the grounds that the studies involved examination of primarily cross sectional data. This criticism, according to Mahmood and

Mann 2000, stems at least in part from the premise that the benefits of IT investment can be realized only over longer periods of time. However it is possible indeed likely, that in many instances IT has the potential to provide important benefits within the same year the investment is made.

In any event, research reflecting relationship between IT investment and organizational performance and productivity might be more convincing if it were based on IT investments in both current and earlier periods. It has also been emphasized that causality cannot be established by using conventional statistical techniques. Hence use of canonical correlation analysis as well as non-parametric analysis like data envelopment analysis methods have been suggested (Manmood and Man, 2008). This opposed more general commonly used methods such as correlation and regression analysis to enable researchers infer causality if present between IT investment and organizational performance and productivity.

Perhaps a more valid method of determining whether IT is living up to expectations is through analysis involving both cross-sectional and longitudinal data bases involving hundreds or even thousands of data points from various industries. This is because large data bases would serve to average out extremes and provide a clearer picture of the underlying relationship between IT investment and organizational performance as put by Mahmood and Iman (2000). It has also been argued that the traditional IT investment – performance analyses have not been very successful in the past because of their over reliance on financial data.

Some researchers (Birchall, et al 2009) have called for additional research to identify “hidden cost and benefits” that a typically net included in the traditional analysis of IT investment relationship with organizational performance and productivity. However the divide between the different groups of researchers is rather common knowledge. One group emphasizing the need for use of qualitative analysis believes that quantitative measures have received preferential consideration in the research performed to date. The quantitative group is somewhat vocal about what it considers the superiority derived from the rigors of its approach. They argued that qualitative measures can only be used if they first concur with the quantitative measure of IT pay-offs. Ideally the works of both groups should complement the other.

III. METHODOLOGY

The study made use of cross-sectional survey design. The study area was Lagos, Nigeria; a choice based on its considered location as the commercial impudence of Nigeria. Using multi-stage probability sampling technique, a sample of 250 SMEs were selected from a list of 4,535 registered SMEs in Lagos state as at the end of September, 2013 (www.businessdayonline.com) all which constitute the study population of the research. Multi-stage sampling techniques were used in which Lagos state was stratified into Five axis (IKORODU-EPE, IKEJA- LAGOS ISLAND, AGEGE-ALAGBADO, IKORODU-EPE, OJO- BADGRY) from which the sample of various Associations of small medium scale enterprises was drawn through the simple random sampling procedure.

Two hundred and fifty (250) Questionnaires were administered and distributed to the members of National Association of Small and Medium scale Enterprises (NASMEs) across the entire five

(5) identified geo political zone in Lagos state. The 250 small and medium scale enterprises consist of manufacturing enterprises, with employment capacity ranging from 2-10 employees, in the area of printing businesses, bakery and Artisan with employment capacity ranging from 2-10 employees. This was done in such a way that all the five axis were represented with each axis having fifty (50) SMEs each. Two hundred (200) Questionnaires were found useful for the purpose of the study representing 80% of the total questionnaire distributed. The major instrument used in the collection of data for this research work is questionnaire. The questionnaire consists of questions that are related to Information Technology structure and SMEs Operation as identified in the literature. Likert five point scales ranging from 1-5(1=strongly agree &5=strongly disagree) were used as a basis of the questions. Data collected was analyzed using frequency table, percentage and mean score analysis while the non-parametric statistical test (Chi- square) was used to test the formulated hypothesis using STATA 10 data analysis package/software.

IV. RESULT AND DISCUSSIONS

A. Information Technology Impact on Performance of SMEs Operation

Table I reveals that majority of the respondents that is (70%) of the total respondents Agreed, while (22%) of them Disagreed, and (8%) of the respondent are undecided to the motion that Great understanding of Information technology serve as a key determinant of sustainable economic development. Hence this shows that Great understanding of Information technology serve as a key determinant of sustainable economic development in Nigeria. Similarly, the table I indicate that little number of respondents, i.e.(12.5%) of the respondents Agreed that There is no significant relationship between SMEs operation performance and Information Technology, while (37.5%) of them Disagreed, while (20%) undecided.

Furthermore the table I signify that a large number of respondents, i.e.(77%) of the respondents Agreed that Information Technology structure improve the performance of SMEs operation in Nigeria, while(12.5%) of them Disagreed and (10.5%) undecided. additionally, the table give evidence that a large number of respondents, i.e.(72%) of the respondents Agreed that Information Technology exposure will improve the performance of SMEs in Nigeria, while (20.5%) of them Disagreed and (7.5%) undecided.

Moreover, the table I show that a large number of respondents, i.e.(72.5%) of the respondents Agreed that Information technology have the capacity of developing the economy in a positive manner, while(12.5%) of them Disagreed and (15%) undecided. In addition, the table confirm that a majority of respondents, i.e.(65%) of the respondents Agreed that Information technology will facilitate improvement to small business operation and serve as a poverty reduction mechanism to the nation as a whole, while (17%) of them Disagreed and (18%) undecided. Hence this shows that a majority of respondents believed that Information technology will facilitate improvement to small business operation and serve as a poverty reduction mechanism to the nation as a whole.

TABLE I: DISTRIBUTION OF RESPONSES ON NASMES PERCEPTION OF INFORMATION TECHNOLOGY EFFECT ON PERFORMANCE OF SMEs OPERATION.

QUESTIONS	SA	A	D	SD	U	TOTAL
Q1.Great understanding of Information technology serve as a key determinant of sustainable economic development	100 (50.00)	40 (20.00)	20 (10.00)	24 (12.00)	16 (8.00)	200 (100)
Q2.There is no significant relationship between SMEs operation performance and Information Technology.	20 (10.00)	5 (2.50)	66 (33.00)	69 (34.50)	40 (20.00)	200 (100)
Q3.Information Technology structure improve the performance of SMEs operation in Nigeria	49 (24.50)	105 (52.50)	8 (4.00)	17 (8.50)	21 (10.50)	200 (100)
Q4.Information Technology exposure will improve the performance of SMEs in Nigeria	46 (23.00)	98 (49.00)	25 (12.50)	16 (8.00)	15 (7.5)	200 (100)
Q5.Information technology have the capacity of developing the economy in a positive manner	76 (38.00)	69 (34.50)	5 (2.50)	20 (10.00)	30 (15.00)	200 (100)
Q6.Information technology will facilitate improvement to small business operation and serve as a poverty reduction mechanism to the nation as a whole.	88 (44.00)	42 (21.00)	18 (9.00)	16 (8.00)	36 (18.00)	200 (100)
Q7. It is difficult to obtain information on how to start a business without information technology skill	60 (30.00)	80 (40.00)	19 (9.50)	31 (15.50)	10 (5.00)	200 (100)
Q8.Information technology does not positively impact on the performance of SMEs operation in Nigeria	10 (5.00)	10 (5.00)	103 (51.50)	48 (24.00)	29 (14.50)	200 (100)
Q9. Achievement of poverty eradication in Nigeria will be influenced positively with IT exposure of SMEs.	110 (55.00)	57 (28.50)	13 (6.5)	8 (4.00)	12 (6.00)	200 (100)
Q10. Information technology does not helps entrepreneurs in attaining personal satisfaction in business operation.	20 (10.00)	26 (13.00)	40 (20.00)	84 (42.00)	30 (15.00)	200 (100)
Q11.Lack of IT exposure of SMEs operation has no imperative effect on the achievement of poverty eradication goals in Nigeria	10 (5.00)	14 (7.00)	35 (17.50)	133 (66.50)	8 (4.00)	200 (100)
Q12.Information Technology structure is complex and not easy to use for SMEs operation in Nigeria	11 (5.50)	23 (11.50)	29 (14.50)	128 (64.00)	9 (4.50)	200 (100)

Note: the bracket Figures indicate the percentage& figure not bracket indicate the frequency

Source: Computations and Output of STATA10 based on Authors' Field Survey (2013)

Furthermore, the table I reveal that a great number of respondents, i.e.(70%) of the respondents Agreed that it is difficult to obtain information on how to start a business without information technology skill, while (25%) of them Disagreed and (5%) undecided. Moreover, the table indicate that minority of respondents, i.e.(10%) of the respondents Agreed that Information

technology does not positively impact on the performance of SMEs operation in Nigeria, while (75.5%) of them Disagreed and (14.5%) undecided.

Hence this shows that information technology has positive effect on the performance of SMEs operation in Nigeria. More so, the table I signify that minority of respondents, i.e. (83.5%) of the respondents Agreed that Achievement of poverty eradication in Nigeria will be influenced positively with IT exposure of SMEs, while (10.5%) of them Disagreed, while (6%) undecided. Furthermore, the table I indicate that small integer of respondents, i.e.(13%) of the respondents Agreed that Information technology does not helps entrepreneurs in attaining personal satisfaction in business operation, while (62%) of them Disagreed and (15%) undecided.

Hence this make obvious that Information technology helps entrepreneurs in attaining personal satisfaction in business operation. In addition, the table I disclose that minority of respondents, i.e.(12%) of the respondents Agreed that lack of IT exposure of SMEs operation has no imperative effect on the achievement of poverty eradication goals in Nigeria, while (84%) of them Disagreed and (4%) undecided.

Hence this indicate that majority of the respondents believed that IT exposure of SMEs operation has imperative effect on the achievement of poverty eradication goals in Nigeria. Lastly, the table reveal that undersized figure of respondents, i.e.(17%) of the respondents, Agreed that Information Technology structure is complex and not easy to use for SMEs operation in Nigeria, while(78.5%) of them Disagreed and (4.5%) undecided.

B. Test of Hypothesis

H₀: Information technology has no significant impact on the performance of SMEs operation in Nigeria

Decision: Since the chi-squares calculated (X²-cal) are greater than chi-square tabulated (X²-tab) which makes all the figures to be highly statistically significant with the probability of F = 0.000.

Collectively; we reject null hypothesis stated earlier: Information technology has no significant impact on the performance of SMEs operation in Nigeria due to the result. Thus, we accept alternative hypothesis that: Information technology has significant impact on the performance of SMEs operation in Nigeria.

TABLE II: CHI-SQUARE ANALYSIS TABLE OF RELATIONSHIP BETWEEN INFORMATION TECHNOLOGY AND PERFORMANCE OF SMEs OPERATION IN NIGERIA.

S/N	Relationship	Pearson Chi-Square (Value)	Pr (Value)	Remark
1	Q1 VS Q3	394.1161	0.000	Significant
2	Q2 VS Q3	304.4970	0.000	Significant
3	Q3 VS Q4	501.6934	0.000	Significant
4	Q3 VS Q5	376.3234	0.000	Significant
5	Q6 VS Q8	317.4290	0.000	Significant
6	Q1 VS Q7	544.6774	0.000	Significant
7	Q2 VS Q9	271.3947	0.000	Significant
8	Q4 VS Q10	416.7851	0.000	Significant
9	Q5 VS Q12	199.1077	0.000	Significant
10	Q3 VS Q7	417.1773	0.000	Significant
11	Q6VS Q10	345.5628	0.000	Significant
12	Q4 VS Q5	460.8754	0.000	Significant
13	Q6 VS Q7	381.3406	0.000	Significant
14	Q7 VS Q8	277.6321	0.000	Significant
15	Q4 VS Q12	282.1734	0.000	Significant
16	Q5 VS Q8	321.7842	0.000	Significant
17	Q8 VS Q12	340.1612	0.000	Significant
18	Q2 VS Q11	323.9590	0.000	Significant
19	Q11VS Q12	607.3390	0.000	Significant
20	Q1 VS Q9	442.6502	0.000	Significant
21	Q6 VS Q9	317.8780	0.000	Significant

Source: Computations and Out-Put of STATA 10 based on Author's Field Survey (2013)

V. CONCLUSION AND RECOMMENDATIONS

Findings from the study show clearly that IT plays an important role in the increase of productivity and economic activities. Generally firms enter into business to make profit and IT does not only help in increasing productivity but also quality and make the way business operate less complicated, time saving, and disclose the new trends of business and how business are suppose to address such change. The study concludes that Information Technology positively impact on the performance of SMEs operation in Nigeria, also the result of hypothesis tested showed that information technology has a significant Impact on performance of SMEs operation and influence the level of economic activities in Nigeria as a whole. In view of the above conclusion the following recommendations were made:

- SMEs need to sense more strategically in relation to the use of Information Technology (IT). In this respect, SMEs are falling behind best practices adopted by their larger counterparts in the global economy.
- SMEs should improved access to information about networking opportunities, This will require co-operation among all stakeholders – including SME associations, public agencies and intermediary organisations – to correct deficiencies in existing sources of information and Strengthen international linkages between national and regional hubs of relevant

information flows.

- There should be ease of use to free professional advice and consulting on IT at reasonable cost to SMEs.

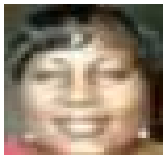
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