ICT and accounting system of SMEs in Nigeria

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CHRONICLE	ABSTRACT
	This study examined the relationship between ICT and Accounting system of SMEs in Nigeria. The study adopted the survey research design, which involves the collection of data from the Accounting department of SMEs in Nigeria. Primary data was employed and copies of questionnaire were administered to respondents for the purpose of this study. Two hypotheses were formulated and tested using Pearson Product-Moment Correlation Coefficient at a significant level of 1%. Findings revealed a significant relationship between ICT knowledge (Microsoft tools) and accounting system of SMEs in Nigeria also, the study further reviewed significant relationship between ICT adoption (accounting packages) and Accounting system of SMEs in Nigeria. The study therefore recommended that Management of SMEs must periodically send employees on training in the use of ICT.

1. Introduction

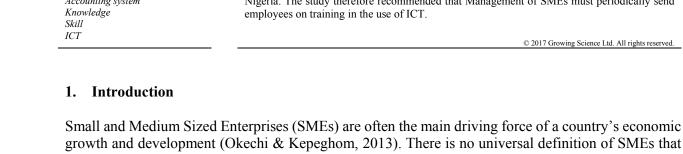Small and Medium Sized Enterprises (SMEs) are often the main driving force of a country's economic growth and development (Okechi & Kepeghom, 2013). There is no universal definition of SMEs that is widely accepted as the definition is dynamic and depends largely on a country's level of development (Aruwa & Gugong, 2007; Apulu, 2012). Varying definitions amongst countries may arise from differences in organizations at different levels of economic development. For example, the Department of Business, Enterprise and Regulatory Reform (BERR) (2009) uses the following definitions: Micro firm: 0-9 employees; Small firm: 0-49 employees; Medium firm: 50-249 employees; and Large firm: over 250 employees. In Nigeria, the Small and Medium Sized Development Agency of Nigeria (SMEDAN) defines SMEs based on the following criteria: a micro enterprise as a business with less than 10 people with an annual turnover of less than ₦5,000,000.00, a small enterprise as a business with 10-49 people with an annual turnover of ₦5 to 49,000.000.00; and a medium enterprise as a business with 50-199 people with an annual turnover of ₦50 to 499,000.000.00.

Extant literature revealed that most SMEs in Nigeria die within their first five years of existence, a

small percentage goes into extinction between the sixth and tenth year while only about five to ten percent survive. Over the years researchers have also revealed some of the major problems faced by SMEs to be incomplete records, lack of finance, poor power supply, staff inexperience amongst others. In Nigeria for example, power supply is a huge problem for various firms not just SMEs alone and as a result of this inefficiency of power supply funds spent on electricity becomes overbearing for most organizations. Of all the challenges faced by most SMEs, incomplete records seem to be a very fundamental problem of SMEs as it affects stakeholders with respect to making informed decisions. Prior to the 21st century, most organizations adopted the traditional method of recording transactions, which of course involved too much paperwork and was very time consuming. As a result of this, some of the records prepared by their accountants were not usually complete and as such, users of accounting information were not able to make informed decisions. These and many more problems faced in the course of using the traditional method of recording transactions birthed the ICT. Information and Communication Technology (ICT) is defined as any technology that facilitates communication and assists in capturing, processing and transmitting information electronically (Apulu & Latham, 2009). SMEs have with time seen the positive impact that ICTs, such as computer terminals, e-mail, internet and their applications can have on their business. According to Organization for Economic Co-operation and Development (OECD), in advanced OECD countries, most small firms, including micro-enterprises with fewer than ten employees, now have at least one computer terminal, usually with Internet access. Many types of business software can improve information and knowledge management within the firm, leading to better business process and better and efficient performance of the firm.

The introduction of ICT has made available new technology like software accounting packages which have made accounting process very easy and time saving. But since adopting ICT in most SME's, it is still a known fact that accounting records are still not complete. As a result of this shortcoming, stakeholders find it difficult to rely on accounting information from SME's in making effective decisions. This has raised questions such as: Is there any relationship between ICT adoption and accounting system of SME's?. Why are accounting records of SME's still incomplete even having introduced ICT? This study therefore intends to examine whether or not there is a relationship between ICT adoption and accounting system of SME's.

2. Literature

2.1 Information and Communication Technology

Information and Communication Technology (ICT) covers technologies like the simple telephone, point-of-sale systems, stand-alone PCs, networked environments, Internet, and credit card facilities. Ritchie and Brindley (2005) define ICT as the array of primarily digital technologies designed to collect, organize, store, process and communicate information within and external to an organization and, in our case, SMEs (Ritchie & Brindley 2005).
ICT is a broad concept that covers Information Systems (IS), Information Technology (IT) and digitalization. Many authors (Martin & Matlay, 2001; Fulantelli & Allegra, 2003; Ritchie & Brindley, 2005) on this topic concur that ICT brings changes in the global information flow, behavior, patterns and options of customers, and SMEs stand to benefit from ICT in reduced transaction costs, inventory controls, quality controls, access to a wider market space and leveraging economies of scale. According to Moodley (2002), ICT is an enabler for global networking economy as it offers enterprises a wide range of possibilities for improving their competitiveness. They also provide mechanisms for getting access to new market opportunities and specialized information services such as distance consulting, continuous training, new advisory modes, etc. (Fulantelli & Allegra 2003). ICT integration is defined as the use of ICT to introduce, reinforce, supplement and extend skills (Pisapia, 1994) and its integration has been attracting a great deal of interest among researchers in professional development communities and human-computer interaction circles.

Accounting information system (AIS) is a tool, which was incorporated in the field of Information and Technology systems and it is very important for business entities. The design of a system may depend on the size of the firm, volume of transaction data, nature of operations, organizational structure and business form (Francis, 2013).

2.2 Small and Medium Enterprises

Small to medium enterprises (SMEs) are businesses that employ 150 people or fewer and are not a subsidiary of a public limited company, according to Southern and Tilley (2000). SMEs play a very significant role in the growth and development of an economy. Empirical studies have shown that a large percentage of the growth in GDPs and of the reduction in unemployment is as a result of activities of SMEs. Mahemba and Bruijn (2003) cited the fact that SMEs make up more than 90% of all business establishments worldwide. Authors such as Southern and Tilley (2000), Taylor and Murphy (2004), and Martin and Matlay (2001) agree and acknowledge that SMEs are different and should be treated as such. The nation needs the Small and Medium Enterprises (SMEs) because they contribute meaningfully to economic development. They are in the forefront of output expansion, employment generation, income redistribution, promotion of indigenous entrepreneurship and production of primary goods to strengthen industrial linkages. The sector is responsible for about 70 percent of the total industrial employment in our country and between 10-15 percent of the total manufacturing output. The agricultural sector, which comprises mainly of SMEs have promoted indigenous technology and increased utilization of local raw materials. They are the strongest promise we have for industrial growth

2.3 Empirical Review

This section discusses previous findings in many developing countries in context of AIS implementation and SMEs performance. Studies have been carried out on Information Communication Technology and Accounting systems of Small Medium Enterprises by various authors. Sam et al. (2012) carried out studies on the adoption of technologies with particular reference to AISs. Malaysian SME's seem relatively high as nearly 80 percent of SME's surveyed in Melaka has adopted CASs or are at various implementation stages. Studying the use of computerized accounting systems, 80 percent of responding SMEs chief executives possesses basic knowledge of accounting while 90 percent has at least rudimentary ICT skills and knowledge. In terms of familiarity with accounting applications, over 75 percent of adopters were unfamiliar with computerized accounting systems. This outcome was founded on the possibility that majority of CEOs only access the CAS for financial report purposes and therefore do not have direct connection in accounts preparation using CAS. To describe competitiveness of the SMEs s surveyed, the conclusion was that 70 percent of respondents in the manufacturing sector believed that their firms existed in high information intensity industry hence the need for reliable, up-to-date and accurate information to remain competitive. Enquiries about kinds of application systems deployed, majority adopts generalized applications mostly due to their flexibility, low cost and module specificity. Only 19 percent make use of in-house packages.

Engaging SMEs in the manufacturing, agriculture, mining and construction, hotel and hospitality, information technology, medical services, wholesale and retail trade, and general services, Relhan (2013) explored the use of electronic accounting in India. The result indicated that 97 percent of the firms use computers in their accounting functions. As regards software categories, 62 percent make use of turnkey systems in particular generalized accounting packages ranging from Pastel, Sun, Tally, Sage and QuickBooks while 25 percent simply deploy office automation systems. On the use of networks, only 28 percent uses stand-alone systems as other 72 percent deploy multi-user systems using local area networks (LAN). Enquiries about the factors responsible for the deployment of IT systems in their accounting operations revealed that 79 percent indicated cost reduction, efficiency of clerical accounting functions, storage space for data and information processing while others were of the opinion that CASs assist in providing timely information for decision making. Few of the challenges identified in

the use CBAS include inaccuracy of reports, frequent systems breakdown, inability of software to support large volume of data, loose electricity supply (common to most developing economies), inability to carry out data filtering (export/import data), and inability to fully comprehend and interpret results.

Study on Accounting Information System implementation in India was conducted by Sharma and Bhagwat (2003). They measured and evaluated AIS performance from six perspectives; operational efficiency of AIS function, downtime of AIS, responsiveness of AIS, timeliness of information, accuracy of information, and overall competitive position. This cross-sectional survey was based on a questionnaires and personal interviews of 147 Indian SMEs. The results suggest that AIS performance measurement framework can be the foundation for SMEs strategic growth in the globalization. The proper management of AIS and its performance measurement are necessary for SMEs that want to remain competitive in global economy. Another study in Spain, documented by Naranjo (2004), found a relationship between sophistication of AIS and hospital performance. The relationship was explored using data collected from 112 CEOs in 218 hospitals. The finding proved the indirect effect of sophisticated AIS on performance, acting through a prospector strategy. The result of above-mentioned studies showed that AIS has a significant relation with SMEs performance.

While the study which contradicted majority of positions on the use of CBAS by SMEs was conducted by Grande et al. (2011) in Spain on the impact of AIS on performance measures, the authors revealed that there is no significant relationship between SMEs productivity and the use of computer-based accounting systems. The findings appeared characterized by inherent bias in recognizing the concept of productivity. Although the researchers ascertain the qualifications in productivity of AIS to mean efficiency, technological change and change of scale, only staff-cost was connected with reviewing productivity in the course of the work. Levy et al. (2011) employed a qualitative and quantitative analysis on the sample of 27 CEOs in SMEs. The study seeks to understand how strategic AIS alignment takes place in SMEs. The results of the study are: first, the benefit realization depends on alignment between AIS and business strategy; second, the AIS investment is frequently limited to supporting operation and transaction; third, the organizations with more sophisticated AIS tend to perform less successfully than those with less complex systems, the greatest alignment and the highest performance are reported for systems to improve efficiency. Similarly, Sousa (2006) analyzed performance measurement in 52 SMEs in UK. The data collected from the survey suggest that there are no significant differences in the use of performance measurement in SMEs, which engage in industry and service sector. Training of employee and difficulty of defining new performance measurement were highlighted as the most important barriers to the adoption of the new performance measurement.

2.4 Theoretical Framework

For the purpose of this study, **Technology Acceptance Model (TAM)** would be the theory that this study is based on. TAM is based on the Theory of Reasoned Action; Davis (1986) developed the Technology Acceptance Model, which deals with the prediction of the acceptability of a tool and to identify the modifications that must be brought to the system in order to make it acceptable to users. This model suggests that the acceptance of an information system is determined by: perceived usefulness and perceived ease of use. Perceived usefulness is defined as the degree to which an individual believes that the use of an information system will improve performance. Perceived ease of use refers to the degree to which an individual believes that the use of a system will be effortless. (Hauser & Shugan, 1980; Larcker & Lessig, 1980; Swanson, 1987). As demonstrated in the theory of reasoned Action, the Technology Acceptance Model is based on the belief that the use of an information system is determined by the behavioral intention, but on the other hand, that the behavioral intention is determined by the individual's attitude towards the use of the information system and also by his perception of its utility. According to Davis, the attitude of an individual is not the only factor that determines his use of a system, but is also based on the impact that it may have on his performance. Therefore, even if an employee does not welcome an information system, the probability that he will use it is high if he

perceives that the system will improve his performance at work. Besides, the Technology Acceptance Model hypothesizes a direct link between perceived usefulness and perceived ease of use. With two systems offering the same features, a user will find more useful the one that he finds easier to use (Dillon & Morris, 1996).

Technology of Acceptance Model is a theory that relates to this study as the study looks at the relationship between Information and Communication Technology and Accounting system of SMEs and tries to describe the relationship. ICT is not adopted by all SMEs; TAM is based on two things, perceived usefulness and perceived ease of use. Most SMEs will only integrate ICT as regards Accounting system only if they believe that it is useful enough to enhance his/her job performance in the preparation of their financial information and also if they think that the use would be very easy and make the use effort free. The degree in which the adoption of ICT gives the perceived ease of use is only if the employee/ user has experience, most SMEs do not feel they need to adopt ICT because they have been using the traditional method of recording information; they have become very comfortable and do not want change.

3. Methodology

Research design refers to the overall strategy that the researcher choose to integrate the different components of the study in a coherent and logical way, thereby, ensuring you will effectively address the research problem; it constitutes the blueprint for the collection, measurement, and analysis of data (Grard, 2013). For the purpose of this study the type of research design to be used is the Survey Research Design; survey is a method of collecting information or data as reported by individuals, this type of research design is used to assess the thoughts, opinions and feelings of different groups of individual. A survey consists of a predetermined set of questions that is given to a sample, with a representative sample, that is, one that is representative of the larger population of interest; one can describe the attitudes of the population from which the sample was drawn. The population size for the purpose of this study is the total number of SMEs in Nigeria totally 72,838. Using Purpose sampling technique to select the sample area, the area of study for the purpose of this research is Lagos State. The reason for the selection of Lagos is as a result of the fact that Lagos State has the largest number of Small and Medium Scale Enterprises in Nigeria. Using Convenience/Accidental sampling technique, 55 of this SMEs domicile in Lagos State will be selected. Data for this study would be sourced using primary data and the research instrument to be used in collecting this data is Questionnaire, other sources to be used include, Internet sourced materials and journal articles. The questionnaire will be designed using the five-point Likert scale and this would be administered to 55 SMEs in Lagos State. Content validity is the validity tool to be used to check if the questionnaire measures what it is originally supposed to measure. The reliability test would be carried out using the test re-test reliability tool. Statistical Packages for Social Sciences will be used in analyzing data collected via copies of questionnaire administered. The Pearson Product Moment Correlation, a type of parametric statistical technique will be adopted in determining whether or not there is an association between ICT adoption and the Accounting System of SMEs in Nigeria. ICT adoption would be proxied using two variables:

   i.   ICT knowledge: That is Accountants and Managers knowledge of Microsoft tools such as Microsoft Excel, Microsoft Word, Microsoft Powerpoint and Microsoft Access
   ii.   Accounting Packages: That how knowledgeable are Accountants and Managers in the use of Accounting Packages such as Sage, PeachTree etc.

4. Findings

Hypotheses

The following two (2) hypotheses stated in their null form are formulated in this research work:

Hypothesis one:

H$_0$: There is no association between ICT knowledge and accounting system of Small and Medium Enterprises

Hypothesis two:

H$_0$: ICT adoption (accounting packages) is not associated with accounting systems of Small and Medium Enterprises

Hypothesis one:

H$_0$: There is no association between ICT knowledge and accounting system of Small and Medium Enterprises

Table 1
Correlation results of ICT knowledge and accounting system of SMEs

Questionnaire Items		Knowledge and application of ICT has aided the accounting system in your organization.	With the knowledge of the use of Microsoft tools, the preparation of financial statements in your organization is timely.
Knowledge and application of ICT has aided the accounting system in your organization.	Pearson Correlation	1	0.688(**)
	Sig. (2-tailed)		0.000
	N	55	55
With the knowledge of the use of Microsoft tools, the preparation of financial statements in your organization is timely.	Pearson Correlation	0.688(**)	1
	Sig. (2-tailed)	0.000	
	N	55	55

** Correlation is significant at the 0.01 level (2-tailed)

From Table 1, the results of correlation analysis of respondents responses regarding Knowledge and application of ICT having aided the accounting system in their organization and the timeliness of the preparation of financial statements in their organization with the knowledge of the use of Microsoft tools indicate a strong positive correlation as the Pearson's correlation coefficient of 0.688 is highly statistically significant at the 1% level. Therefore on the basis of the evidence provided by the Pearson's correlation coefficient, it is concluded that ICT knowledge and accounting system of SMEs are positively associated indicating that as knowledge of ICT by employees (accountants, managers) increases, accounting system of SMEs may also improves

Hypothesis two

H$_0$: ICT adoption (accounting packages) is not significantly related to accounting systems of Small and Medium Enterprises

Table 2
Correlation results of ICT Adoption and Accounting System of SMEs

Questionnaire Items		Are accounting packages (Peachtree, QuickBooks) used in the preparation of accounts in your organization?	With the use of accounting packages is the quality of information produced more reliable.
Are accounting packages (Peachtree, QuickBooks) used in the preparation of accounts in your organization?	Pearson Correlation	1	0.621(**)
	Sig. (2-tailed)		0.000
	N	55	55
With the use of accounting packages is the quality of information produced more reliable.	Pearson Correlation	0.621(**)	1
	Sig. (2-tailed)	0.000	
	N	55	55

** Correlation is significant at the 0.01 level (2-tailed).

From Table 2, the value of Pearson's correlation for correlation between whether accounting packages (Peachtree, QuickBooks) are used in the preparation of accounts in respondent's organization and the reliability of quality of information produced as a result of use of accounting packages is 0.621 which is positive and highly statistically significant at the 1% level of statistical significance. The high significant Pearson's correlation coefficient implies a strong positive association between ICT adoption (accounting packages) and accounting system of sample SMEs. Increased ICT adoption (accounting packages) by SMEs therefore results in increased (improved) accounting system.

4. Discussion of findings

The main aim of this study is to examine the impact of ICT on accounting system of SMEs in Nigeria. This study engaged two objectives, which are: To determine the association between ICT knowledge and Accounting system of Small and Medium Enterprises; to determine the association between ICT adoption (accounting packages) and Accounting system of Small and Medium Enterprises.

4.1 The Association between ICT knowledge and Accounting system of Small and Medium Enterprises

Hypothesis one states that 'There is no significant relationship between ICT knowledge and accounting system of Small and Medium Enterprises'. To test this Pearson Product-Moment Correlation analysis was engaged and as a result, the null hypothesis was rejected, while the alternate hypothesis, which states that 'There is a significant relationship between ICT knowledge and accounting system of Small and Medium Enterprises', was accepted. This empirical finding is consistent with the result of a research carried out by Sam et al. (2012) on the adoption of technologies with particular reference to AISs by Malaysian SME's with the result of their study revealing that there is a significant relationship between ICT knowledge and accounting system of SMEs.

4.2 The Association between ICT adoption (accounting packages) and Accounting system of Small and Medium Enterprises.

Hypothesis two states that 'ICT adoption (accounting packages) is not significantly related to accounting systems of Small and Medium Enterprises'. To test this Pearson Product-Moment Correlation analysis was engaged and as a result, the null hypothesis was rejected, while the alternate hypothesis states which states that, 'ICT adoption (accounting packages) is significantly related to accounting systems of Small and Medium Enterprises' was accepted. This empirical finding is consistent with the result of a research carried out by Breen et al. (2003); who in their study on computerized accounting systems in Australia presented a report for the small enterprise association of Australia and New Zealand revealing that there is a significant relationship between ICT adoption (accounting packages) and accounting system of SMEs.

5. Conclusion and recommendation

The present study has examined ICT and accounting system of SMEs using samples of SMEs in Lagos, Nigeria. The results of data analysis of primary data using tables as well as correlation analysis show that ICT knowledge as well as ICT adoption (accounting packages) were both positively associated with accounting system of SMEs. Therefore SMEs should strengthen the capacity for ICT adoption (accounting packages) in developing their accounting systems as this may contribute to the improvement of their accounting system thereby leading to proper accounting data/information documentation. This study is unique as it will help provide information to regulatory bodied of SME's in Nigeria (SMEDAN), Nigerian government, SME's on the importance of the

Based on the findings of this study, the under listed recommendations are made:

1. SMEs should ensure that staffs employed have knowledge of ICT and are competent to use ICT in the organization.
2. Management of SMEs must periodically send employees on training in the use of ICT.
3. SMEs should invest in ICT especially in getting the latest technology, as this will improve the efficiency of operations within the organization.
4. Finally, government should ensure that all SMEs in Nigeria adopt ICT to promote vibrant enterprises in Nigeria.

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