Impact of Accounting Information Systems on the Performance of Selected Companies in Nigeria

Ogbonna, G. N. and Sagbara, Emila Clifford
Department of Accounting, University of Port Harcourt Nigeria.

ABSTRACT

This study empirically investigates the extent of relationship between accounting information system and performance of selected companies in Nigeria. A total of 140 questionnaires were administered out of which 128 respondents returned theirs which represents 91% response rate considered adequate for this study. The Spearman's Rank Correlation Coefficient statistical technique was employed for this study and used to test the hypotheses. The two hypotheses tested in this study revealed that accounting information has a significant relationship with the performance of companies in Nigeria. Based on this finding, the study recommends that Companies should constantly embrace the ever unfolding trend in accounting information systems as it is capable of enhancing the performance of companies. Since Accounting and Finance Departments are the two key departments which are the sources through which accounting information is implemented and used for effective and efficient management of finances of every company, management should organize regular training and re-training of the staff and expose them to the current demand and realities of accounting information systems.

Introduction

Accounting Information System is an interconnected activities or processes that use computer system to transform financial and economic data into useful, relevant and appropriate information for informed decision making in an organization. Transforming financial data into relevant and reliable information such as sales by geographic area, customer characteristics and transaction histories, demand for inventory items, and vendor quality ratings can improve decision making by enhancing the elements of relevance: predictive value, feedback value, and timeliness; additionally, internal controls in the accounting information system promote reliability, verifiability, neutrality, and representational faithfulness (Hurt, 2008:4). Through the use of information, an entrepreneur or manager links, co-ordinates and activates other factors of production for each of them to play its expected role; and without which the usual chain of communication activities that go on in organizations and bring about the desired objectives will break down. That is, those factors of production will remain inactive, uncoordinated and useless without information. When timely and appropriate information is regularly communicated to each level of management according to their needs and role, the organization comes alive and will be in a better position to achieve its desired goal. The value of information is usually assessed on the basis of its relevance to decision making process and how it facilitates and improves the way business is being done. It is also directly linked to the extent it helps decision makers to achieve organizational goals.

Considering the importance of accounting information system (AIS), Hurt (2008) astutely defined AIS as a set of interrelated activities, documents, and technologies designed to collect data, process it, and report information to a diverse group of internal and external decision makers in organizations. He therefore posits that well-designed AIS can significantly enhance decision making in organizations by responding to many organizational information needs and various elements of the Financial Accounting Standards Board Conceptual Framework.

The driving force behind the use of Accounting Information systems according to Summers (1991) is management's constant search for efficient, core competence and competitive advantage. Organizational goal can better be achieved when strategic Accounting Information Systems are applied thoughtfully to the peculiar needs of individual organization so as to reap enormous benefits embedded in the unfolding information. That is, strategic Accounting Information System is the process of focusing your business areas where you have special skill, quality, ability, technical competence and knowledge to deliver high quality goods and services at minimal cost with less risk to your business and customers.

Information is the life blood of every organization and a means to an end. This is because information helps to disseminate instructions at all levels of management and ensures coordination of various activities of the business resources in order to achieve the desired goal. Information is a key resource that if properly harnessed could turn the fortune of any organization to greater height. Without timely, objective and reliable information, no organization can achieve its primary objective of maximizing the market value of the companies' share capital. This is underscored by Ofurum and Ogbonna (2013) who stated that managers in every field of human endeavour need information that is relevant, objective and timely for planning, decision making and controlling of business activities in order to achieve the goal of the organization. The accounting information system according to them is therefore charged with the function of

Tele:
E-mail address: ogbonnagab@yahoo.Com

transforming financial data into useful information that will aid not only the direct interest users of accounting information but also the indirect interest users for decision making and taking practical actions. To this end, information produced by AIS permeates virtually every aspect of modern businesses, to the extent that its effective use can easily mean the difference between success and failure (Sleight, 2000).

Survival and making progress in the future in accounting profession, largely depend on the need for effective and reliable internal control systems, and efficient internal administration. This is because computer is emerging as both objects of crime and instrument of sophisticated white collar crime (Summers, 1991). Laudon and Laudon (2008) posit that there is a growing interdependence between a firm's ability to use information technology and its ability to implement corporate strategies and achieve corporate goals. They therefore stated that what a business would like to do in five years often depends on what its systems will be able to do. For instance, increasing market share, becoming the high-quality or low-cost producer, developing new products, and increasing employee productivity depend more and more on the kinds and quality of information systems in the organization. Therefore, the study of the impact of accounting information system on the performance of selected companies in Nigeria has become increasingly necessary in order to provide solution to the research questions raised.

Research Questions

The following research questions have been designed and addressed in order to achieve the objectives of this study:
1. To what extent does accounting information system affect profitability?
2. To what extent does accounting information system affect growth?

Research Hypotheses

The following null hypotheses were formulated and empirically tested in order to provide answers to the research questions raised in this study:

Ho_1: There is no significant relationship between accounting information system and profitability.

Ho_2 There is no significant relationship between accounting information system and growth.

Review of Literature

Theoretical framework

Contingency Theory and the Design of Accounting Information System

This theory was propounded by Gordon and Danny (1976). Gordon A. Lawrence is a Professor of Managerial Accounting and Information Assurance of the University of Maryland, School of Business Studies, USA. He opines that contingency theory suggests that an accounting information system should be designed in a flexible manner so as to consider the environment and organizational structure confronting an organization. Accounting information systems also need to be adapted to the specific decisions being considered and according to the basic needs of the organization. In other words, accounting information systems need to be designed within an adaptive framework. This theory suggests that general living systems (GLST) may provide a conceptual framework to guide practical research on accounting information systems. The accounting information system is described as a subset of the information processing subsystems of GLST, thus, demonstrating that research based

GLST may enhance the quality of research on accounting information systems (Gordon and Danny, 1976).

The Socio-Technical Theory of Accounting Information System Acceptance

The socio-technical theory of accounting information system acceptance would be relevant for the study. The socio-technical systems perspective according to Connor (1997) has become influential in the analysis of the organization impact of accounting information system. The theory views any organization as an open system of interdependent sub-units transforming input to desired outputs. The gainful employment of any technology hinges on the ability and willingness of users to employ it for worthwhile task (i.e. those deemed central to the organization's goal). Socio-technical system has given birth to framework for technology design that emphasizes holistic job satisfaction (rather than just performance) and user participation through the development process.

Connor, (1997) therefore posits that socio-technical theorist recommends the analysis of all stakeholders, not just the direct users of a technology, the formation of planning groups to oversee the design, the performance of prototyping exercises, and the analysis of likely impact the technology will have on the organization. In studying technology acceptance, socio-technical theorists conceptualize acceptance in terms of two competing technology forces: control and enhancement. Control factors are those that impose rules or structures upon the users, thereby removing autonomy (control over their own actions) from them. Among the control issues raised with respect to technology design are: reliability, confidentiality, monitoring, pacing, stress, social contact. Low or high presence of certain factors (e.g. low reliability, high pacing) with the introduction of a new technology is likely to reduce the user's perception of control and thus, increase the risk of resistance (Connor, 1997).

The Conceptual Issues of Accounting Information System (AIS)

The term accounting information system came into being when accounting operations were no longer carried out manually but electronically by organizations both in Nigeria, and the globe (Fredrick, 1993). Meanwhile, before the millennium, Davidson and Well (1983), said that "accounting is an information system designed to communicate meaningful economic information about an entity to interested parties". They went further to state that the communication process involves "preparers" and users of information". Millicichamp (1993:2) gave two definition s of accounting: First, accounting is the art of recording, classifying and summarizing in a significant manner and in terms of money, transactions and events which are part at least, of financial character, and interpreting the results thereof. Secondly, accounting is the process of identifying, measuring and communicating economic information to permit informed judgments and decisions by the users of information.

London AAT study pack on "Certificate in Accounting" (paper A, 1998 edition) defines accounting as "a set of techniques to record, analyze and summarize the transaction of a business or other entity so as to provide information to assist the management or owners of that business or entity". In view of the above, it would be seen that accounting message usually summarizes large compilations of information. The analysis of accounting information/data and financial statements is increasingly being carried on by means of statistical and

mathematical techniques. When discussing the modern system of AIS, the 1988 edition of London AAT study pack on "Certificate in Accounting" has this to say:

The modern accounting system is currently concerned with providing two types of information:

(a) **Financial Accounting**: Recording the day-to-day activities of business and producing periodic summaries.

(b)**Management accounting**: (cost accounting): The supply of accounting information to internal management in order that they can attempt to plan and control future business activities.

Accounting information system (AIS) is the information subsystem within an organization that accumulates information from the organization's information processing subsystem (Moscov et al.., 1999). The accounting information system (AIS) has traditionally focused on collecting, processing, and communicating financial – oriented information to a company's external parties (such as investors, creditors and tax agencies) and internal parties (principally management). Today, however, the accounting information (AIS) is concerned with non-financial as well as financial data and information.

The main aim of every business organization is to be effective and efficient in its business activities by increasing the wealth of the shareholders. In an attempt to achieve this objective, the management of every organization seeks to employ every relevant tool that can foster its objectives. However, going by modern technology which had resulted in a paradigm shift from the traditional approach of data recording and processing in many industries, to an electronically operated approach where information are computerized. Therefore, organizations seek to identify with this new technology in order to keep improving its performance (Fredrick, 1993).

The modern technology discussed above usually referred to as accounting system (AIS), has taken over the usual manual accounting system of recording and processing information in many organizations both in Nigeria and the globe. With AIS, data are now been recorded and processed electronically using the computer. The computer now takes the place of books and order manual means of recording and processing accounting information.

Recent research on the impact of AIS on organizational performance in Nigeria and globe shows that accounting information system played vital role on performance of organizations. Izedonmi (2001) posits that accounting information system play a major role in the performance of organizations both in developed and developing economy. He further categorized accounting information system into two perspectives:

(a) The narrow prospective: This approach views AIS essentially as a component of management information system (MIS) and

(b) The broad perspective: This perspective presents AIS as a discipline. As a discipline, it has ten elements.

Apart from Izedonmi (2001) above, others who have written about the impact of accounting information system on organization performance include (Davidson and well, 1983; Fredrick, 1993; London AAT study pack on "certificate in accounting" – paper A 1988, and 1998 editions; Millichamp, 1993). Despite the importance of accounting information system in organization performance, there is paucity of research on how to address this issue in Nigerian organization.

Therefore, it is the aim of this study to examine the extent of significant relationship between Accounting information system and performance of selected companies in Nigeria.

Izedonmi (2001:446) views accounting information system (AIS) from the perspective: which are:

a) **The narrow perspective**: This approach views AIS essentially as a component of management Information system (MIS);

b) **The broad perspective**: This perspective presents AIS as a discipline, it has ten elements as shown in figure1 below:

Accounting/Information Systems Elements

The following elements of accounting information systems which are very essential in any organization have been summarized by Ofurum and Ogbonna (2013). While the AIS is made up of these elements, they interact with one another and are connected in order to produce information for decision making by various users of information as shown below:
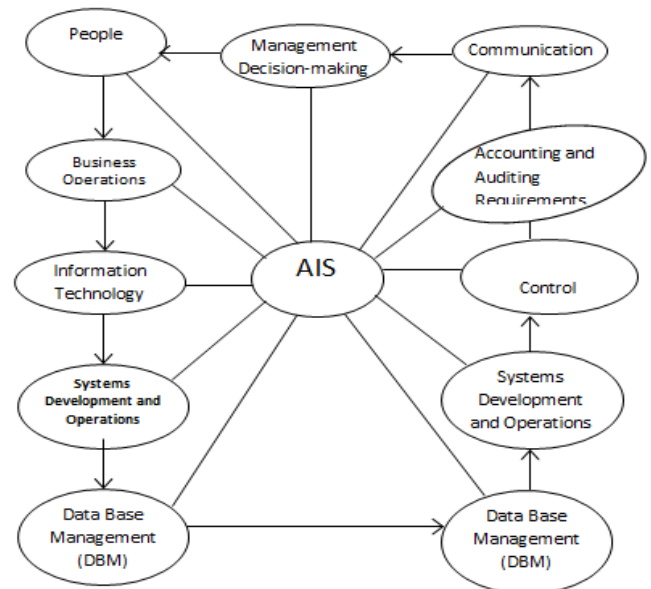

Figure 1. Adapted from Gelinas and Oran (1996), and Wiggins(1993) in Izedonmi (2001) and Ofurum and Ogbonna (2013) Accounting Information Systems.

Attributes of Accounting Information

According to Ofurum and Ogbonna (2013), the following are the necessary attributes which information must possess for it to be useful for decision making and play its proper role in an organization:

Objective: That is, the information is free from bias and is based on verifiable facts that are capable of supporting decision making on day to day operations, stewardship and predictive performance reports.

Timely: It must be on time for the decision at hand as any delay may reduce its value or render it useless.

Concise: It must be pertinent to the need of the user in decision making.

Complete: It must not omit any necessary part.

Detailed: The report should contain sufficient and relevant detail but should not constitute an information overload.

Reliable: It should be dependable, trustworthy and faithfully represent what the report purports to be.

Comparable: It should be capable of being compared with previous periods to know similarity and differences between two sets of financial and economic reports.

Cost-effective: It should give adequate returns that far outweigh the cost incurred in generating the information.

Accurate: The report or information should be error-free.

Representative and Fair: The report should fairly represent all the interest groups.

Right Form and Place: It should be provided at the right form and place where it is needed for decision making.

Confidential: Information should also be confidential except where it is meant for public consumption.

Besides the foregoing attributes, management information should have the value of:

1) **Drawing management attention to potential risk**;

2) **Lead a decision-maker** to take action that will result in cost reduction, cost savings, avoidance of idle time, elimination of losses, increasing income or sales, effective utilization of resources, fraud prevention, internal control, ensuring competitive advantage and favourable returns.

Costs benefit analysis. Until information is put into action and that action results in any or some of the above values, such information would not be meaningful to any organization.

Odunfunwa (2008) also identified the following characteristics of good accounting information:

Effectivess: This deals with accounting information being relevant and pertinent to the customers' process as well as being delivered in a timely, correct, consistent and usable manner:

Efficiency: It is concerned with the provision of accounting information through the optimal (most productive of economic) use of resources.

Confidentially: This is concerned with the protection of sensitive accounting information from unauthorized disclosure.

Integrity: It relates to the accuracy and completeness of accounting information as well as its validity in accordance with customers' value and expectation.

Availability: It relates to accounting information being available when required by customers now and in the future.

Compliance: It deals with complying with those laws, regulations and contractual arrangements to which users process their subject i.e. externally imposed criteria as well as internal policies.

The Concept of Organizational Performance

The term performance has been frequently used in business to mean success, resulting from a task. Many authors and scholars in the field have given various definitions of performance. But then, there is no distinctive definition of performance. According to Oxford Advanced Learner's Dictionary, performance is how well or badly something works. Connor (1997), asserts that performance is the act of performing, carting into execution of action: execution, achievement, accomplishment of an approach adopted by an organization. Odunfunwa (2008) views performance as effective and efficient delivery of accounting information system to enhance profitable, productivity and growth. In view of the above definitions, it is obvious that the adoption of accounting information systems by companies will help to enhance performance.

Types of Accounting Information and Levels of Management

The effectiveness and performance of each level of management according to Ofurum and Ogbonna (2013) depends on the quality and type of information provided by

AIS. The following figure 2 illustrates the levels, purposes and types of information usually provided by AIS and MIS:

	Level	Purpose	Types of Information
1.	Operational/Lower Level	To ensure that the day-to-day operations run smoothly in the pursuit of organizational goals	- Number of casual workers and operatives pay-roll sheet to facilitate their supervision and payment of wages - Number of hours worked per week and per month. - Quantity of raw materials delivered and used for production of goods etc.
2	Management control/middle level	To ensure that the tactical planning and management control objectives are achieved	They need budget, standard costing, responsibility and performance reporting to achieve control objectives
3	Strategic Planning/Top Level	To ensure that the long range planning about product line, mark shre, opening new branch etc are achieved	They need condensed and unstructured reports such as five-year-scales forecast, five-year budget plan that will support and shape corporate strategy

Source: Figure 2: The levels, purposes and types of information (Ofurum and Ogbonna, 2013)

Measurements of Organizational Performance

According to Odunfunwa (2008), organizational performance can be measured by profitability, productivity and growth.

Methodology

The study took a cross – sectional survey. The study units for data generation were employees of all the companies in Rivers state and the micro-level of analysis was adopted. A sample of 140 employees was determined using the Taro Yemen's formula (Baridam, 2001). Hence 140 copies of the instrument (questionnaire) were administered across the respondents and out of which 128 returned theirs and they were used for the analysis. In selecting the respondents, the simple random sampling technique was adopted. The respondents selected were top and middle managers of the selected companies. A four-item scale was developed for accounting information system based on Mullins and Aldrich (1998). The dependent variable is performance. The measures of performance include profitability and growth. A five items scale was developed for profitability and growth. A five point Likert type scale was used (ranging from 5 - strongly agree to 1 - strongly disagree) for all.

For test of reliability of the scale, the following Cronbach's alpha coefficients were obtained: computerized accounting (0.72), payroll records (0.8) and errors and frauds reduction (0.80), the reliability scale are acceptable. Spearman's Rank correlation statistical technique which allows researchers to determine whether there is evidence of a linear relationship between two interval variables was employed to test the hypotheses (Keller,2005).

The results as presented below were obtained.
Spearman's Rank order coefficients correlation formula

$$r_s = 1 - \frac{6\Sigma d^2}{N(N^2-1)}$$

Where Σd^2 = sum of the squared differences in the ranking of the subjects on the two variables.

N = Number of subjects been ranked

r_s = Rank correlation coefficient between X and Y

Model Specification: Y = f (x$_1$, x$_2$, x$_3$, - - x$_n$)

Where Y is profitability and growth

X is accounting information system.

Profitability (Y) = f (Accounting information system)

Profitability (Y) = f (x$_1$, x$_2$, x$_3$, - - x$_n$)

Growth(Y) = f(Accounting information system)

Growth(Y) = f (x$_1$, x$_2$, x$_3$, - - x$_n$)

Empirical Results

Being a correlation study, frequencies and descriptive were used in our primary analysis on the demographics and univerate, respectively. The results show that 68% of the respondents are males while 32% are females. On age, 23.66% of the respondents are between 21 – 30years old, 34.41% are between 31 – 40years old while 26.88% are between 41 – 50years old. The results also show the following distribution of educational qualification; 46.24% diploma, 37.63% HND/B.SC, 16.13% Master. Finally the results disclosed the experience/period of service each respondent had worked in their various firms, 26.9% of the respondents have worked between 3-5years, 35.5% have worked 6 – 10years, 37.6% have worked above 10 years.

Hypotheses 1 (Ho$_1$): There is no significant relationship between Accounting Information System and Profitability

Correlations

		AIS	P
Spearman's AIS P	Correlation coefficient Sig (2-tailed) N	1.000 128	.994** .000 128
	Correlation Coefficient Sig (2-tailed) N	994** .000 128	1.000 128

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

The result of Hypotheses 1 in the table above indicates that there exists a positive and significant relationship between Accounting Information System and Profitability. The rho value is 0.994 at a significant value of .000 falls within the critical value at a 0.05 level of confidence; thus the Null hypotheses is rejected while the alternative which states that accounting information system has a significant relationship with profitability is accepted.

Hypothesis 2 (Ho$_2$): there is no significant relationship between accounting information system and growth

Correlations

		AIS	G
Spearman's rho G	AIS correlation / coefficient Sig (2 - tailed)N	1.000 128	.952** .000 128
	Correlation coefficientSig (2- tailed) N	.952** .000 128	1.000 128

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

Analysis from the table above indicates that there a positive and significant relationship between computerized accounting and error and fraud reduction. The rho indicates a value of 0.952 at a significant value of 0.000. Since it falls within the 0.05 level of our preferred level of confidence, the null hypothesis is rejected while alternative is accepted. This simply means that accounting information system has a significant relationship with growth. The correlation coefficient of 0.952 is an indication that there is a strong positive correlation.

Summary of Findings

The two hypotheses examined the extent of relation between accounting information system and the measure of performance (profitability and growth). These hypotheses were tested using spearman's rank correlation technique. From the analysis of collected data (see tables above), a possible relationship was revealed between accounting information system and measures of performance. These findings may be explained by the fact that Nigerian companies are adopting accounting information system trainings, symposia, seminars etc. in their ICT/accounting departments to ensure they have the required skills and talents that can boost normal performance and reporting to the users of the information for informed decision.

Conclusion

Based on the summary of the findings, the researchers conclude that accounting information system significantly related to performance (profitability and growth) within the Nigerian companies.

Recommendation

Based on the summary of findings and the conclusion above, the study therefore recommends that:

Since Accounting and Finance Departments are the two key departments which are the source through which accounting information is implemented and used for effective and efficient management of finances of every company, management should organize regular training and re-training of the staff and expose them to the current demand and realities of accounting information systems.

In order to be successful such as the ones at which the survey was conducted, companies should focus on use of accounting information systems more than ever before.

They should also align their accounting/finance department staff with the current demand of accounting information system. They should equally establish some effective internal controls that can prevent human errors frauds.

References

Adedaje (2000). Computerized and Payroll. A Journal of Finance and Accounting Vol. 36 (6). Pp. 113

Baridam, D. M. (2001). Research methods in Administrative Science", 2nd Edition, Port Harcourt Sharebrook Associates.

David, A. T. (1993). Accounting Information System: An Appraise. Journal of Management Science Vol. 2 (4) 13- 15.

Fredrick, A. T. (1993). Computerized Accounting Approach: Impact on Payroll Records and Errors and Frauds Reduction.

Fredrick (1999). Learning theory of computerized accounting Cambridge, M. A: Blackwell.

Fraser, R. (1996). Computerized Accountings: A Practical Approach to Errors and Frauds. Journal of Accounting, Vol. 3 (2),

Gelinas, U. J. Oran A. E and Wiggins W. P. (1993). "Element of Accounting Information System": Journal of Management 21 (2)

Gordon L A .and Danny M. (1976). "A Contingency Framework for the Design of Accounting Information Systems", USA, Accounting Organizations and Society, Vol. 1, No. 1, pp.59-69 (1976).

Hurt, R.L. (2008). Accounting Information Systems, New York: McGraw Hill Publishers.

Izedonmi, P. F. and Ola, C. S. (2001). Intermediate Accounting 2nd Edition Bofic consulting Group, Benin.

Keller G. (2005). Statistics for Management and Economics, USA, Thompson Books/Cole, 7th Edition.

Laudon K. C. and Laudon, J. P. (2008). Management Information Systems: Managing the Digital Firm, USA, Prentice Hall Inc10th edition4

Millichamp, A. H. and Fraser R. (1993). Foundation Accounting with information Technology Applications. Third Edition, D. P. Publication Limited London.

Mulins, L. J. (1998). Computerized Accounting and Payroll. 5th Edition London Financial Times Pitman

Odunfunwa, M. O., (2008). Impact of information technology on banking industry. Information System Research 12(1).

Oliver, A. C. and Champson, B. B. (1991). Evidence of Computerized Accounting in Developing Countries. Journal of Management, 28: 113- 121.

Robert, O. I. (2014). Financial Accounting made simple-IFRS, (Vol. 1, 4th Edition) RO1 Publishers, Lagos- Nigeria.

Steve, S. (2000). Information Technology, Singapore: Dorling Kindersley

Summers, L.E. (1991). Accounting Information Systems, USA: Houghton Mifflin Company.