

Effect of Accounting Information System Adoption on Accounting Activities in Manufacturing Industries in Nigeria

¹AKANBI, T.A.

²ARUWAJI, A. M.

^{1,2}Department of Management and Accounting

Ladoke Akintola University of Technology, Ogbomosho, Oyo State, Nigeria

¹ akanbitaibat@yahoo.com

²maaruwaji@lautech.edu.ng

ABSTRACT: AIS as a system that combines the methodologies, controls and accounting techniques with ICT to track transactions, provides internal reporting data, external reporting data, financial statements and trend analysis capabilities to improve organization's performance. This study examined the impact of accounting information systems (AIS) adoption by manufacturing industries on their general accounting activities and also to estimate the relationship that exist between AIS devices and accounting activities. Regression and correlation analyses were used to analyse and interpret the objectives. The regression model results that F-value ($0.000 < 0.050$) and Adj $R^2 = 0.6970$ showed that AIS devices has 68.70% impact on the efficiency of accounting activities in the manufacturing industries if properly implemented. The result of Kendall's correlation matrix showed the statistical coefficient of 62% indicating that there is a strong correlation between dependent and independent variables, the coefficient of determination (R^2) = 0.418 revealed that there is a significant relationship in using accounting information system to fast track accounting activities. The tested hypotheses of this study was measured at level of 95% confidence interval. The study concluded that accounting information systems devices are spontaneously and simultaneously appropriate for manufacturing industries engaging in accounting activities, also revealed that there is a significant relationship between accounting activities and Accounting information systems. The study also concludes that accounting information systems adoption in manufacturing firms has the following benefits: facilitation of financial statements preparation, enhancement of inventory valuations, enhancement of budgetary management, and favoring General Accepted Accounting Principles adoption. Therefore, manufacturing firms should embrace more and well-structured accounting information systems to enhance accounting activities

Keywords: accounting information system, accounting activities, Peachtree, manufacturing firms

1. Introduction

1.1 Background of the Study

In earlier time, business organizations were only working towards profit making and survival but in recent time the objectives of business organization have moved beyond profit making into gaining competitive advantage, sustainability, surviving turbulence environment, customer satisfaction and effective decision making are parts of the objective of digital organization. In other to achieve organization objectives, managers require implementing a sophisticated information system and software that will supplies them with adequate and essential business information. Accounting Information System (AIS) contains a series of devices used to undertake a set of common business functions such as accounting, human resources management and stock management. The fundamental nature of a comprehensive AIS is to computerize business process and most importantly, to produce real-time data (Nah et al., 2001). Grande, Estebanez and Colomina (2010) refers AIS as a system that combines the methodologies, controls and accounting techniques with ICT to track transactions, provides internal reporting data, external reporting data, financial statements and trend analysis capabilities to improve organization's performance. However, the main benefits of an optimal use of AIS in an organization are: better adaptation to a changing environment, better management of arm's length transactions and a high degree of competitiveness. Copeland et al., (1996) sees AIS as one of the most effective decision making tools of management as it provides an orderly method of gathering and organizing information about the various business transactions so that it may be used as an aid to management in operating the business. In recent time, the adoption of AIS in any business; be it manufacturing or service rendering cannot be over emphasized. AIS is the combination of similar components that are put together to collect raw financial data and transform them into useful financial information for the purpose of reporting them to decision makers. There are several digital and online financial information and these was as a result of emergence of AIS as one of the most critical system in any organization and has also changed its way of capturing, processing, storing and distributing accounting information to the users of financial statement. Despite the usefulness and benefit of AIS some manufacturing industry are yet to adopt it while some have low adoption level, some firms that have adopted AIS do not know the benefit accruable from it adoption. Hence researching into the impact of AISs on accounting activities and the relationship that exist between AISs adoption and accounting activities in manufacturing firms constitutes the tenet of this research.

1.2 Objective of the Study

The main objective of the study is to evaluate the impact of accounting information systems (AIS) adoption on general accounting activities in manufacturing industries in Nigeria. Other related objectives is to:

- i. Identify AIS devices that are appropriate in enhancing accounting activities in Nigeria manufacturing industries.
- ii. determine the extent in which manufacturing industries adopt AIS in their general accounting activities
- iii. determine the relationship between accounting information system and accounting activities in Nigeria manufacturing industries.

1.3 Research Hypotheses

The following hypotheses were stated in Null form, which are;

- i. There is no significant impact of AISs device on accounting activities in manufacturing industries
- ii. There is no significant relationship between accounting information system and accounting activities in Nigeria manufacturing industries.

2. Literature Review

2.1 Conceptual Framework

Existing literature offers scant evidence of the relationship between these Accounting Information System (AIS) and accounting activities; many studies investigated the effects of different factors on the extent of usage of management accounting practices and the benefit obtained from using these practices. Grande, Estebanez and Colomina, (2010) discovered a positive association between AIS design and organizational strategy and performance. The study also found that accounting information system leads to good financial reports and also leading to better decision-making (Ali Alzoubi, 2011). The results showed that the integration of accounting information system within the Enterprise Resource Planning (ERP) system improving the quality of accounting outputs and the internal control in companies.

This study tries to ascertain the relationship or linkages that exist between accounting information systems and accounting activities of manufacturing industries. Every organisation be it profit or

non-profit oriented need to maintain an accounting information system as no organisation is exempted from decision making in their operations. Accounting information systems could be described as systems used to record the financial transactions of a business or organization. These system combine the methodologies, controls and accounting techniques with the technology of the IT industry to track transactions provide internal reporting data, external reporting data, financial statements, and trend analysis capabilities to affect an organizational performance (Grande, Estebanez and Colomina, 2010). Areas of accounting in which computer is applicable are stock recording and control, Integrated sales ledger, purchase ledger, normal ledger, Pay roll, Job costing, Word processing and Budgeting control/financial modeling. The primary purpose of financial statements is to provide information concerning the financial situation of the company, its operational results, any changes of control in the company and cash flow. Accounting information is expected to give informed information for decision making by the manager. In the management of any manufacturing industry and putting in place perfect internal control system the function of AIS is critical to the survival of any organization. Data imputed into computerized accounting system will be processed into accounting information and printed out inform of financial statement such as income statement, cash statement and balance sheet

2.1.1 Accounting

Accounting is the process of identifying, recording, grouping, evaluating, interpreting and communicating financial information or economic information to its end users (shareholder, internal auditor, Inland Revenue, government, management and creditor etc.) to permit informed judgment and decision making.

2.1.2 Accounting as Information

Henry et al., (2012) viewed accounting as an information system that focuses on the information provided by accounting system put in place in order to facilitate decision making and to provide informed decision to the users of accounting information.

Internal users of accounting information include the following:

- **Management:** for analyzing organization's performance and taking appropriate measures to improve the company results.
- **Employees:** for assessing company's profitability and its consequence on their future remuneration and job security.

- **Owners:** for analyzing the viability and profitability of their investment and determining any future course of action.

External users of accounting information include the following:

- **Creditors:** for determining credit worthiness of an organization. Creditors includes suppliers and finance lender like banks etc.
- **Tax Authorities:** for determining tax liability of the company.
- **Investors:** for analyzing feasibility of investing in the company. Investors make sure they can earn a reasonable return on their investment before they invest.
- **Customers:** for assessing financial position of their supplier so as to ensure stable supply in the long run.
- **Regulatory Authorities:** to ensure that the company prepare and disclose their financial information in accordance with the rules and regulation put in place, in order to protect the interest of their stakeholders.

Viewing the accounting as information system means; a group of systems, methods, and process, governed and controlled by following the fair principles and rules, in order to operate the data about the financial process occurred in the entity to produce financial information (Henry, et al., 2012).

3. Methodology

3.1 Population of the study

The study considered three (3) major manufacturing industries in Nigeria which includes; Cadbury Nig plc, Flour Mills Nig Plc and Brewery Nig. Plc. This companies were chosen because they are active and reliable in terms of their disclosures. Total number of 80 questionnaire were distributed cross the accounting department of the three (3) companies but only 70 questionnaire were return

3.2 Model specification

$$AIS_i = a_1 + a_2LA_i + a_3TB_i + e_i \quad (1)$$

The regression model will be modified to include the control variables as below;

$$AIS_i = a_1 + a_2 LA_i + a_3TB_i + a_4RR_i + a_5IN_i + a_6CA_i + a_7IV_i + a_8BC_i + e_i \quad (2)$$

LA_i = Ledger accounts

TB_i = Trial balance

RR_i = Recording and Reporting

IN_i = Invoice (Receipt and Payment)

CA_i = Cost Accounts

IV_i = Inventory Valuation

BC_i = Budgetary Control

e_i = Error term

$$a_1 + a_2 LA_i + a_3 TB_i + a_4 RR_i + a_5 IN_i + a_6 CA_i + a_7 IV_i + a_8 BC_i + e_i$$

a_1 is a constant and a_2, a_3, a_4, a_5 and a_6 are coefficients of regression equation.

4. Results and Discussion

This study examined the impact of accounting information systems on the accounting activities of manufacturing industries in Nigeria. The accounting information systems adoption is however categorized into two categories. The first category is the AIS devices while the other category is the AIS applications. Hence, table 4.1 below revealed that all the respondents make use of desktop computer in their organizations, 68 respondents make use of laptop while only 2 assert that laptop is not available in their organizations. 65 responded that printer is made available in their organization, 66 respondents also assert that scanner is made available for their use. While only 32 and 20 respondents supported the use of POS and currency counting machine respectively in their various organization

Table 4.1: AIS Devices

| S/N | AIS DEVICES | YES | NO | TOTAL |
|-----|---------------------------|-----|----|-------|
| 1 | Desktop computer | 70 | - | 70 |
| 2 | Laptop Computer | 68 | 2 | - |
| 3 | Printer | 65 | 5 | - |
| 4 | Scanner | 66 | 4 | - |
| 5 | Point of Sales(POS) | 32 | 38 | - |
| 6 | Currency Counting Machine | 20 | 50 | - |

Source: Field Survey, 2016

It was discovered that Microsoft Excel is mostly adopted, followed by Peachtree, followed by QuickBooks, followed by Sage50, then Microsoft dynamics, followed by Zoho Books. Lastly, is the Xero which is reported to be the least adopted by the organizations

Table 4.2 AIS Applications

| S/N | AIS DEVICES | YES | | NO | TOTAL |
|-----|--------------------|-----|--|----|-------|
| 1 | Peachtree | 41 | | 19 | 70 |
| 2 | Sage50 | 18 | | 42 | 70 |
| 3 | Microsoft Excel | 76 | | 4 | 70 |
| 4 | ZohoBooks | 7 | | 63 | 70 |
| 5 | Xero | 6 | | 64 | 70 |
| 6 | QuickBooks | 20 | | 50 | 70 |
| 7 | Microsoft Dynamics | 13 | | 57 | 70 |

Source: Field Survey, 2016

4.1 Analysis on the AIS devices put in place in enhancing accounting activities in manufacturing industries.

OLS Pool regression model was used based on heterogeneity nature with the assumption that the companies are similar. The result of this analysis revealed that the model was statistically significant based on the fact that; The F-value ($0.000 < 0.050$) and $\text{Adj } R^2 = 0.6970$ showed that AIS is 69.70% change in dependent variable is because of change in independent variables. Realistically, the model is used in assumption that all the three companies are the same. The result showed that accounting information system have significant effect on the accounting activities of the manufacturing industries.

Table 3: OLS Pooled regression

| Variables | Coef. | Std. Err. | T | P> t | Adj R ² | F-value |
|-----------------|--------|-----------|-------|-------|--------------------|---------|
| _cons | 9.966 | 4.355 | 0.023 | 0.024 | 0.6970 | 0.0000 |
| LA _i | 0.237 | 0.544 | 15.38 | 0.000 | | |
| TB _i | 0.250 | 0.470 | 11.10 | 0.042 | | |
| RR _i | 0.361 | 0.381 | 10.15 | 0.083 | | |
| IN _i | 0.398 | 0.715 | 1139 | 0.044 | | |
| CA _i | 0.148 | 0.039 | -0.59 | 0.856 | | |
| IV _i | 0.014 | 0.075 | 0.02 | 0.985 | | |
| BC _i | -0.027 | 0.072 | -0.00 | 0.997 | | |
| IC _i | 0.467 | 0.489 | 14.34 | 0.003 | | |

Source: Researcher's computation, 2016

4.2 To determine the relationship between AIS and accounting activities in manufacturing industries in Nigeria.

In Table 5 below, the summary statistics of the analysis of the accounting information system on accounting activities showed the correlation coefficient (R) = 0.695; the coefficient of determination (R^2) = 0.518; and the standard error estimate of 0.32188, indicating accounting

information system contributes about 51.8% in efficient and effectiveness of accounting activities. The tested hypotheses of this study was measured at level of 95% confidence interval.

Table 4: Kendall’s correlation matrix of the relationship between accounting information system and the accounting activities.

| Variable | Accounting information System (AIS) devices | Accounting Activities |
|---------------------------------------|---------------------------------------------|-----------------------|
| Accounting Information System Devices | 1 | 0.68 |
| Accounting Activities | 0.68 | 1 |

Note: level of Significance 0.01

Table 5: Model Summary^b

| Model | R | R Square | Adjusted R | Std. Error of the Estimate | Durbin-Watson |
|----------|-------|----------|------------|----------------------------|---------------|
| 1 | .695a | .518 | .510 | .32188 | .538 |

a. Predictors: (Constant), Accounting Information System

b. Dependent Variable: LA_i, TB_i, RR_i, IN_i, CA_i, IV_i, BC_i, and IC_i

In table 4, Analysis of Variance (ANOVA) disclosed that accounting information system devices (F (2, 41) = 92.091; P<.01) contributed significantly in the efficiency of accounting activities in the selected manufacturing company

Table 6: Analysis of variance (ANOVA) for the relationship between the two variables

| Variable Source | Degree of Freedom | Sum of squares | Mean Squares | Calculated Value of T | Level of Significance |
|-----------------|-------------------|----------------|--------------|-----------------------|-----------------------|
| Regression | 2 | 17.459 | 17.459 | 92.091 | .001 ^b |
| Error | 41 | 11.869 | .188 | | |
| Total | 43 | 29.328 | | | |

a. Dependent Variable: Accounting activities

b. Predictors: (Constant), Accounting Information System

In table 5, the regression model estimate that accounting information system ($\beta = 0.84$; $t = 9.943$; $P < .01$) have positive significant influence on accounting activities. This implies that if accounting information system devices were appropriately applied, it will increase the efficiency and effectiveness of accounting activities.

Table 7: Regression equation coefficients

| Model | Non-Standardized Coefficient | | Standardized Coefficient | T Coefficient | Significance |
|-------------|------------------------------|------------|--------------------------|---------------|--------------|
| | Beta | Std. Error | Beta | | |
| Fixed | 1.335 | 0.429 | | 4.352 | .001 |
| AIS devices | 0.84 | 0.86 | 0.885 | 9.943 | .000 |

a. Dependent Variable: accounting activities

Conclusion

The study concluded that accounting information systems devices are spontaneously and simultaneously appropriate for manufacturing industries engaging in accounting activities, also revealed that there is a significant relationship between accounting activities and Accounting information systems. The study also concludes that accounting information systems adoption in manufacturing firms has the following benefits: facilitation of financial statements preparation, enhancement of inventory valuations, enhancement of budgetary management, and favoring General Accepted Accounting Principles adoption. Therefore, manufacturing firms should embrace more and well-structured accounting information systems to enhance accounting activities

The study also concludes that accounting information systems adoption in manufacturing firms has the following benefits: facilitation of financial statements preparation, enhancement of inventory valuations, hastening production flows, enhancement of budgetary management, and favoring General Accepted Accounting Principles adoption. Conclusively, the study asserts that there is a significant relationship between accounting activities and Accounting information systems in manufacturing industries in Nigeria.

Recommendations

Based on the findings of this research, the study recommends that manufacturing firms should embrace familiar and friendly accounting information systems application as a major accounting practice in their various firms. Also, manufacturing firms need to explore the diverse accounting information systems that are available and spectacular to their industry/sector. Lastly, the researcher recommends that employees should be willing to adapt to technological changes as the firms embrace new accounting information systems devices.

REFERENCES

- Nah, F.F.-H., Lau, J.L.-S. and Kuang, J. (2001), "Critical factors for successful implementation of enterprise systems", *Business Process Management Journal*, Vol. 7 No. 3, pp. 285-96.
- Elena Urquia Grande., Raquel Pérez Estébanez., Clara Muñoz Colomina (2010) "The impact of Accounting Information Systems (AIS) on performance measures: empirical evidence in Spanish SMEs1"
- Onaolapo A. A1* and Odetayo T. A2 "Effect of Accounting Information System on Organisational Effectiveness: A Case Study of Selected Construction Companies in Ibadan, Nigeria" *American Journal of Business and Management* Vol. 1, No. 4, 2012, 183-189.
- Huber, G. P. (1990). A theory of the effects of advanced information technologies on organizational design, intelligence, and decision making, *Academy of Management Review*, 15(1), 47-71. *IBIMA Business Review* 12.
- Olatunji, T.E (2012), "The Impact Of Accounting System On The Performance Of Small And Medium Scale Enterprises In Nigeria – A Survey Of SME's In Oyo State-Nigeria." *International Journal of Business and Management Invention* ISSN (Online): 2319 – 8028, ISSN (Print): 2319 – 801X www.ijbmi.org Volume 2 Issue 9 September. 2013 PP.13-17.
- Hussin, H. King, M. & Craig, P. (2002). IT alignment in small firm. *European Journal of Information Systems*, 11, 108-127.
- Brynjolfsson, E. Hitt, (1996). "Paradox lost? Firm level evidence on the returns to information systems spending, *Management Science*, vol. 42, n. 4: 541-558.
- Schoderbek, Charles et al. "Management Systems" business publications, Dallas, 1980, p12.
- Pincus, K.V. "Core Concepts of Accounting Information" University of southern California, McGraw-Hill, Inc. 2nd edition 2000. Module 2, p.19.
- Husain, Ahmed Husain "Accounting information Systems, The Theoretical Framework and The Applications systems" Alashaa. a technique library for pressing, 1997, P.30.
- Agbaje, Wale Henry¹, Busari, Ganiyu Adeniran², Adeboye, Nureni Olawale³ "Effects of Accounting Information Management on Profitability of Nigerian Banking Industry" *International Journal of Humanities Social Sciences and Education (IJHSSE)* Volume 1, Issue 9, September 2014, PP 100-105.
- Chenhall H. Robert and Smith Langfield Kim 1998, "Adoption and benefits of management accounting activities: an Australian study", *Management Accounting research*, Volume 9, Issue 1, pp. 1-19.
- Woo, H.S. (2007), "Critical success factors for implementing ERP: the case of a Chinese electronic manufacturer", *Journal of Manufacturing Technology*, Vol. 18 No. 4, pp. 431-42.
- Pollock, N. and Cornford, J. (2004), "ERP systems and the university as a „unique“ organisation", *Information Technology & People*, Vol. 17 No. 1, pp. 31-52.
- Themistocleous, M. and Irani, Z. (2001), "Benchmarking the benefits and barriers of application integration", *benchmarking: An International Journal*, Vol. 8 No. 4, pp. 317-31.
- Beke J (2010), "Review of International Accounting Information Systems". *Journal of Accounting and Taxation* Vol. 2(2), pp. 025-030.
- Al-Mashari, M. (2001), "Process orientation through enterprise resource planning (ERP): a review of critical issues", *Knowledge and Process Management*, Vol. 8 No. 3, pp. 175-85.

- Spathis, C. and Constantinides, S. (2003), "The usefulness of ERP systems for effective management", *Industrial Management & Data Systems*, Vol. 103 No. 9, pp. 677-85.
- Reneau, J. H. & Grabski, S. V. (1987). A review of research in computer-human interaction and individual differences within a model for research in accounting information systems. *Journal of Information Systems*, 2(1), 33-53.
- Sajady, H., Dastgir, M., & Hashemnejad. (2008). Evaluation of the effectiveness of accounting information systems. *International Journal of Information Science & Technology*, 6(2).
- Love, P. E. D., Irani, Z., and Edwards, D. J. (2004). Industry-Centric benchmarking of information technology benefits, costs and risks for small and medium sized enterprises in construction. *Automation in Construction*, 13,4, 507-524.
- Shang, S. and Seddon, B.P. (2002), "Assessing and managing the benefits of enterprise systems: the business manager's perspective", *Information Systems Journal*, Vol. 12, pp. 271-99.