Activity Based Costing System and Nigeria's March towards VISION 20: 2020

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Abstract

The paper examines the need to develop Activity Based Costing Systems (ABC) in accounting practices among manufacturing firms in Nigeria as a tool for product costing as Nigeria marches to the top 20 economics of the World come 2020. With the aid of a structured questionnaire, a total of 50 copies of questionnaires were administered to a cross-section of Accountants, Managers and Auditors in the manufacturing sector but only 45 copies were returned. T-test of difference between means was used to statistically test hypotheses one, two and three. Based on these, the study found among other things that there is extreme low adoption of ABC among manufacturing firms in Nigeria, possibly because of low level of ICT. Secondly, ABC improves efficiency, reduces operational costs, and properly cost products better than traditional cost accounting systems. The implication of these on the study is that in this era of Advanced Manufacturing Technology (AMT) and ICT development, traditional cost accounting systems used decades ago when the manufacturing sector was labour intensive and less automated may no longer give the required result. This should give way to Activity Based Costing system, an offshoot of the new manufacturing innovation with capabilities to cost product properly, recognizing causality and transactions involved. Consequent upon these, the study recommends that with expectations of the country to march towards a vision of attaining the height of top 20 economies of the world, Activity Based Costing systems are the challenges we need to face now. The system is in tandem with progressive ideas and new way of thinking in accounting in the manufacturing sector.

Keywords: Activity Based Costing (ABC), VISION 2020, cost driver

1. Introduction

Nigeria's quest to join the league of the top 20 economies of the world by 2020 can only materialize if the country enthrones structures and systems that are appropriate for economic development (Egbunike, 2009). Vision 20:2020 document came with a surfeit policy thrust that will help Nigeria and her leaders navigate the years of hope to the dawn of lived dreams. Growth is essentially a means to an end, the end being good life for Nigerians where goods and services are cheaper and have affordable prices.

Activity-Based Costing Systems (ABC) are accounting practices that this Nation must adopt by all product costing practitioners to attain this dream in the wake of the global influence on trade liberalization and competition in the expected march to the vision, our hearts' desires dreams and hopes. This is because ABC is often claimed in the literature to be superior to traditional cost accounting methods. It reflects causality between the cost object and how the cost occurs. In essence, ABC provides a framework that deconstructs costs traditionally seen as fixed, thereby explaining diseconomies of scope. This deviates from traditional cost accounting which tends to group costs in more heterogeneous cost pools with less emphasis on causality (Kaplan, 2006).

In the light of this, it becomes increasingly impossible to march to the envisaged Vision 2020 with the traditional cost accounting practices that does not recognize causality and transactions involved in costing. This practice has been found to be in heavy use in arriving at product costing among manufacturing firms in Nigeria. This may not be adequate in the present milieu having been in use over 60 years ago. Thus, Goldratt (1983) believed that it is:

Too late, too aggregated and too distorted. Additionally, these measures fail to consider important aspects of

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operating environment especially the presence of committed costs and related capacity limitations (Sheu, et al., 2003).

Considering these issues probably are the reasons why costs of certain products in Nigeria seem overpriced than goods and services of higher sophistications produced in industrialized Nations. Appropriately therefore, ABC represents a new way of thinking. They carry with them a set of questions completely different from the conventional traditional costing systems such as:

- What activities would be performed within organization?
- ➤ How much it would cost in order to carry out such activities.
- Why the organization would need to organize enterprise activities and processes.
- What will be the starting point or amount required from each activity—products, services and customers. (Kaplan & Cooper, 1990, quoted by Rivero & Emblemsavg, 2007)

Consequent upon this, this paper seeks to examine the nexus of Activity Based Costing System as an appropriate costing technique and Nigeria's march towards Vision 2020; specifically it addressed the following objectives:

- 1) To examine whether there is a statistical difference in the level of Activity Based Cost Accounting practice adopted by accountants in Nigerian firms and accountants who adopt traditional cost accounting systems.
- 2) To examine whether the ABC approach of charging cost to products based on activities causality is significantly better than production volume alternative.
- 3) To determine the extent ABC would help improve efficiency, reduce operational costs and therefore propel industries in achieving the Vision 2020 agenda.

2. Review of Related Literature

2.1 Traditional Cost Accounting System

This approach is still widely used today in product costing in Nigeria by manufacturing firms. It developed in the early part of the century to deal with product costing in a typical factory fashion which then existed (Adeniji, 2004). Industry then was labour intensive, there was no automation, product variety was small and overhead in manufacturing firms were generally very low compared to today. This is why Sheu et al., (2001) observed that in the industry then, direct labour costs were variable and accounted for as major portion of production costs. Standards were developed for tracing and controlling direct labour activity and indirect cost were allocated across product units. Those measures were appropriate for organizations that mass produced a narrow range of products and incurred mostly variable costs.

However, labour now is largely fixed and indirect costs have become a large part of total cost in most organizations. On accounts of these reasons, and more traditional cost accounting systems which were used then, have been called everything from Number 1 enemy of production and question whether, it is an "asset or liability" have been raised (Lucey, 2003).

We are not arguing that the traditional costing systems do not work but that the world it was designed for is rapidly disappearing. This was captured by Lucey, 2003 when he quoted Kaplan (1996):

... Traditional accounting practices ... simply the wrong measures. They move the company in the wrong direction, reward managers for damaging business and provide incentives for improvement. The best we can do is to switch them off, just stop driving them.

Collaborating with this statement, Goldratt (1983), observed that cost accounting was a powerful solution. It did change the behavior and performance of industrial companies. Then technology pulled the rug from underneath cost accounting. The assumption on which cost accounting was then based is no longer valid. Many companies are already facing the disaster from following an obsolete solution. Production is continually changing, there is constant drive for improvement and batch quantities are low because goods are made to meet demand, not to move into stock. It is demand pull-system rather than production push. Care must be taken not to use inappropriate and out-modeled cost accounting systems and techniques which were developed to suit earlier and superseded conditions (Lucey, 2003). To meet these challenges, Nigeria's quest to march towards Vision 2020 should follow a high technological arrangement suited to improve quality and appropriately cost product in the right direction, thus results in improved decisions and information needs of the firms. The answer to these challenges is Activity based costing systems. These are new realities.

2.2 Activity Based Costing System

Martin (2007) observed that Activity based costing logic is based on the idea that designing, producing, distributing products and services require many activities to be performed and performing these activities require resources to be incurred and using these resources cause costs to be incurred. This is unlike traditional accounting cost system where costing is based on production volume.

Osisioma and Enahoro (2006) explain that ABC is an alternative cost accounting model which identifies cost pools or activity centres in an organization, and assigns costs to products and services (cost drivers) based on the number of events or transactions involved in the process of providing a product or services as a result. They opined that activity based costing can support managers to see how to maximize shareholders value and improve corporate performance. ABC is a full absorption costing method that has gained ground than conventional methods due to its more accurate cost assessments and superb training of costs. Conventional costing systems earlier explained cannot trace cost. Overhead costs are simply distributed as butter on bread. As it were without estimating the effect of all the complexities and identifying the root causes of costs, (Hardy & Habbard, 1992; Rivero & Emblemsvag, 2007). ABC differs greatly from the traditional costing systems in two major ways. This was observed by Rivero and Emblemsvag, (2007 when they quoted Copper, 1990).

- In ABC system, it is assumed that cost object products, services etc. consume activities while the conventional systems assume that a cost object consumes resources. By this, ABC acknowledges that one cannot manage costs; one can only manage what is being done (activities). Cost management practices should focus on the process management and not virtually solely on structure and organization.
- An ABC system utilizes drives on several levels (unit, batch, product and factory level), while the conventional system uses on unit level characterizations called allocation bases. Roughly speaking, an allocation base is an arbitrary, unit-level driver. In this sense, cost driver try to establish precise causal relations between products and consumption of activities. The problem is to choose the most suitable cost driver to undertake the allocation process. In general, this problem could be solved by choosing between the following requirements:
- a) To represent the existing cause and effect relations between costs, activities and products as well as possible, and;
- b) To be the most cost effective to measure and to observe (Sheu et al., 2001)

Despite the differences discussed above, it is important to note the point emphasized by Lucey, (2003) and Maher, (2005).

- Different cost allocation methods result in different estimates of a product cost.
- It provides realistic product costs most especially in Advanced Manufacturing Technology (AMT) factories where support overheads are significant proportion of total cost.
- It enhances the tracing of overheads to the products. In modern factories, there is growing number of non-factory floor activities. ABC is concerned with all activities.
- It is flexible to trace cost to process, customers, areas of management responsibility as well as product costs.
- ABC can help marketing people select and price each product by providing more accurate product numbers.
- Implementing ABC requires teamwork among accounting, production, marketing, management and others.
- It recognizes the complexity and diversity of modern production by the use of multiple cost drivers, many of which are transaction based rather than being based solely on production volume.
- Activity cost driver rates reflect the practical capacity of the resources supplied; measuring, creating and managing unused capacity is at the heart of ABC. It gives managers insight into the existence, creation, and deployment of capacity both used and unused (Cooper & Kaplan, 1999, quoted by Sheu, 2003).

In the circumstance, obviously ABC is an acceptable costing techniques needed for our march for vision 2020.

2.3 Factors that Lead to the Development of Activity Based Costing Systems

A number of factors have made it imperative to embrace ABC logic. It includes:

- > Direct labour cost which have high proportion of total product cost have been recently reduced considerably. Absorption rates that related to labour cost are increasingly becoming misleading.
- There has been growth in the cost of service support function which assists the efficient production of a range of high quality products—schedule, set-up, handling, production control and industrial engineering. This posed two implications:

- 1) The magnitude of overhead cost has gone up.
- 2) The nature of these costs has also changed and it is noticed that overhead costs are largely unaffected by production volume; instead, they vary in longer term according to the range and complexity of products manufactured rather than simple volume of output.
- In recent times, manufacturing has become complex with computer aided designs-(CAD), computer aided manufacture-(CAM), flexible manufacturing systems (FMS), and short product lifecycle with customers' demanding higher quality standards. All these result in increase in overhead costs.
- With market place becoming more and more competitive for manufacturing and services. It is more advantageous to stay ahead of your competitor at reduced overhead costs. (Adeniji, 2004).
- 2.4 Steps for Implementing Activity Based Costing System
- 1) Identify and define activities and activity cost pools—There may be too many activities which should be grouped together under five different activity levels—Unit, Batch, product customer and organization level activities sustaining activity, material handling, purchasing, reception, dispatch machining and assembly etc.
- 2) Identify factors which determine the cost of an activity known as cost drivers:

Number of Purchase orders:

Number of Received orders:

Number of Setup.

- 3) Assign costs to activity cost pools—Activity cost pools are "buckets" in which costs are accumulated that relate to a single activity measure in ABC systems. It is equivalent to cost centres as we have it in conventional systems. This is often classified as first stage
- 4) Calculate activity rates/cost driver rates for each cost pool.

$$\frac{\textit{Total cost for each activity}}{\textit{Total Activity}} / \underbrace{\textit{Activity Drivers}}$$

- 5) Assign the activity cost driver rates to cost objects (product, customer, orders) to arrive at an activity based product cost. This is referred to as the 2^{nd} stage allocation.
- 6) Prepare Management Report—In this, the overhead costs computed are combined with direct material, labour and ultimately deducted from revenue to show the profit level of the organization under study (Garrison, 1999).

2.5 VISION 20:2020

Nigerian's quest to join the league of the top 20 economies of the world by 2020 is a strategic vision of then Head of State, His Excellency, Alhaji Umaru Yar' Adua whose critical elements of moving the nation forward centered on 7-point agenda of energy, education, agriculture, wealth creation and poverty alleviation, land reforms and security.

The Vision became a front burner when it was noticed that inspite of abundant human and natural resources, Nigeria is still behind less endowed nations that were at par at independence such as Malaysia, Singapore, Indonesia, Brazil and South Korea. The Vision was crafted to accelerate Nigeria's economic development to catch up with the above economies using the following parameters as engine:

- 1) Moving the economy from oil dominated to a more diversified economy.
- 2) Changing from public sector-dominated to private sector-led economy.
- 3) Integrating local with global economy.
- 4) Transforming the pervasive oil industry to more proactive one and
- 5) Restructuring the economy from centralized federalism to a more decentralized one (Abdullali, 2008; quoted by Okwoli, 2010).

The Vision 2020 was informed by the series of studies by Goldman Sachs economic research that Nigeria is projected to be the 20th largest economy by the year 2025 (ahead of Egypt, Bangladesh etc), and as well, could be the 12th largest economy in the world by 2050 (ahead of Korea, Italy, Canada, etc). These projections on Nigeria were based on conservative statistics of its initial conditions (GDP, growth Environment score). This is

believed that Goldman Sachs projections on Nigeria may have informed the belief of Yar' Adua government to think that it is achievable in a shorter period by 2020 as against 2025 projection (Okeke, 2009). Currently, Nigeria is the 48th largest economy in the world but in terms of GDP per capita Nigeria occupies 165th position in the world and 33rd position in Africa and achieving this feat might require that the economy grows at annual rate aimed rate of 13 percent steadily for the next 12 years (IMF/world Bank, 2006).

- Goldman Sachs paper highlighted that Nigeria requires a large amount of work to do if it should have a serious claims in achieving the potential growth outlines in the new 2025 projections.
- However, Soludo (2006) is of high spirit and optimistic that we can attain such height given our commitment to greatness. These he captured in philosophical manner when he quoted that:

Put differently, Nigeria seems destined for greatness but whether and when it achieves it remains an open question.

- Achieving this vision from now remains challenging and demanding, entailing lots of political will and commitment on part of our leaders; But this appears no problem judging by the Vision 2020 Kuru declaration:

To build a truly great African democratic country, politically united, integrated and stable, economically prosperous, socially organized, with equal opportunities for all, and responsibility from all, to become the catalyst of (African) Renaissance and making adequate all-embracing contributions sub-regionally, regionally and globally (NEED, 2005).

This confirms the achievability of the vision, offered, the historical Marshall plan which rebuilt the West European societies from the ruins of the 2nd World War took only four years to operate from April, 1948. So it is achievable provided we do what we ought to do. Undoubtedly, one of the issues that face the nation in addressing the attainment of Vision 2020 is industrialization especially in the manufacturing sub sector. Economic development in any Nation is a major catalyst for transformation and an engine of growth for modern economies. This is why it is often described in the literature as the heartbeat of the economy. Therefore moving the nation forward to achieve the expectation of the vision will heavily anchor on industrialization. The G20 or top 20 economies of the world are not just largest economies but highly industrialized economies as well. This is captured more recently by Chinweizu (2008):

In any case, this ambition cannot be taken seriously because Yar' Adua and his team do not even know what they are aspiring to join. They think that the G20 is simply the group of the largest economies in the world. However, a critical little fact that escape their inattention ... The G20 members are all seriously industrialized economies each with a substantial manufacturing sub-sector. The G20 actually is the group of the largest industrialized economies.

The issue of Industrialization has to be addressed squarely to move the nation forward. A serious scenario is painted when one notices the very low level of manufacturing Value-Added/GDP ratio where in 1981–1986, it was at 9.1 and 9.2 percent but quickly declined steadily very long declined level.

It is only when the manufacturing subsector is raised from slumber that we start to conceive how to cost products and services from such endeavor. To this we are saying that Activity Based Costing Systems is available waiting to help take us to the next level.

2.6 ABC Implications for VISION 2020

Undoubtedly, Activity Based Costing system resulting from the advanced manufacturing technology are the challenges and practices that will help us usher in a new dawn in product costing. This may be possible when the enabling environment in manufacturing subsector is created. Activity based costing system have changed the manner in which data and information are collected, measured, analyzed, and disseminated within and between organizations. To cope with the turbulence and uncertainty in manufacturing—market place environment, organizations need to adapt themselves with appropriate responses to the new threats and opportunities and ensure that they design and use appropriate control systems for this purpose. This has led to the development of new management accounting techniques such as Activity based costing.

Manufacturing firms in Nigeria need to live up to this global changes and challenges to stay afloat and be able to deliver goods and services to its esteemed Nigerian population as and when due. This they must accomplish by constantly reviewing and revisiting their manufacturing strategies as they march to Vision 2020. Among the strategies to review and develop to achieve these competitive instinct is to abandon the old ways of accounting for products as they are backward in accuracy and product costing and embrace a new dawn offered by ABC, the appropriate tool to aid product costing which ultimately ensures that products are costed properly and our

manufacturers are sure of survival and continuity, without which we cannot get to our Vision.

These implications point to the need for new management accounting practices which will meet the challenges of the new manufacturing system.

3. Methodology

A survey was conducted to determine whether Activity Based Costing system is an appropriate accounting tool to propel the country in the attainment of the Vision 2020. 50 copies of questionnaire were administered to a cross-section of Managers, Accountants and Auditors in quoted manufacturing firms, only 45 copies of questionnaire were returned and used for the study. The collected data was analyzed using mean scores. The questions were based on the five point Likert scale with the following options: Strongly agreed, Agreed, Disagree, Strongly disagree and No idea with associated weights of 5, 4, 3, 2 and 1 respectively. The questions were distributed to Managers, Accountants and auditors who are in practice, thus 25 were for those practicing ABC while 20 are for those who are practicing traditional cost accounting systems. Three hypotheses were formulated and tested using t-test of difference of means.

3.1 Analysis of Data

This focused on the presentation and analysis of data generated from the study. A summary of the mean scores is presented below.

Table 1. Questionnaire items response and mean score calculation

S/No	Statements	Mean Scores
1	Activity Based costing (ABC) affects changes in cost structure in such a way that products are realistically and properly costed	4.15
2	ABC improves efficiency, reduces operating costs, improves delivery cost, better than traditional accounting costing system	4.88
3	ABC practice among Nigerian firms is extremely lower than traditional accounting cost systems	4.73
4	Traditional accounting cost system is the answer to product costing needs for attaining vision 2020.	2.97*
5	Using traditional accounting cost system, overhead costs are charged to products based on production volume with direct labour or machine hours rather than activity cost pools	4.33
6	Use of Advanced manufacturing technology has changed the way accounting practices are executed	3.60
7	Significant activities are identified and overhead costs are assigned to activity cost pools in line with the way resources are consumed by the activities under the ABC costing system	4.22
8	Vision 2020 can be achieved if Nigeria reviews and revisits its manufacturing accounting practices	4.53
9	With increase in market competition, customers are more likely to purchase at affordable prices	4.44
10	Use of traditional cost accounting techniques is a major drawback to the vision 2020	2.80*

Source: Field Survey (2011).

3.2 Test of Hypothesis

 $\mathbf{H_1}$: The level of ABC practice among Nigeria firms is extremely low when compared with traditional accounting cost systems.

To test this, the respondents were asked the following question.

Question: To what extent is ABC practice implemented in Nigerian firms when compared to traditional cost accounting system?

29.92

Table 2. The level of ABC practice among firms in Nigeria compared to traditional accounting cost system

Activity Based Cost	System (ABC)					
Responses	Scores (x)	Frequency (f)	Fx	$\mathbf{x}-\mathbf{\bar{x}}$	$(x-\bar{x})^2$	$f(x-\bar{x})^2$
Strongly agree	5	19	95	0.32	0.10	0.19
Agree	4	4	16	-0.68	0.46	1.85
Disagree	3	2	6	1.68	2.82	8.46
Strongly disagree	2	0	0	-2.68	7.18	0
No idea	1	0	0	-3.68	13.54	0
Total		25	117			10.5
Traditional Accoun	ting Cost System (TC	AS)				
Responses	Scores (x)	Frequency (f)	Fx	$\mathbf{x} - \mathbf{\bar{x}}$	$(x-\bar{x})^2$	$f(x-\bar{x})^2$
Strongly agree	5	3	15	1.3	1.69	5.07
Agree	4	12	48	0.3	0.9	10.80
Disagree	3	2	6	0.7	0.49	0.98
Strongly disagree	2	2	4	1.7	2.89	-5.78
No idea	1	1	1	2.7	7.29	7.29

Source: Field Survey (2011).

Total

$$\bar{x} = 4.68$$
 $\bar{x} = 3.70$
 $S_1^1 = 0.42$ $S_1^1 = 1.99$
 $n = 25$ $n = 20$

74

20

$$t = \frac{4.68 - 3.70}{\sqrt{\frac{(25 - 1)(0.42) + (20 - 1)(1.49)}{25 + 20 - 2}} (\frac{1}{25} + \frac{1}{20})}$$
$$= 4.92$$

Decision: Since the t-computed $4.92 \ge t$ -critical value of 1.68, the hypothesis is accepted. This implies that ABC practices among Nigerian firms are low compared to a more popular Traditional Accounting cost system.

 H_2 : The ABC approach of charging cost to products based on activities causality is significantly better than the production volume alternative of traditional accounting cost system.

Table 3. Benefits of ABC as an accounting tool

Activity Based Cost System (ABC)						
Responses	Scores (x)	Frequency (f)	Fx	$\mathbf{x} - \mathbf{\bar{x}}$	$(\mathbf{x}-\overline{\mathbf{x}})^2$	$f(x-\bar{x})^2$
Strongly agree	5	21	105	0.08	0.01	0.21
Agree	4	3	12	-0.92	0.85	2.53
Disagree	3	2	6	-1.92	3.68	7.40
Strongly disagree	2	0	0	-2.92	8.53	0.00
No idea	1	0	0	-3.92	15.37	0.00
Total		25	123	-		10.14

Traditional Accounting							
Responses	Scores (x)	Frequency (f)	Fx	$\mathbf{x}-\mathbf{\bar{x}}$	$(x-\bar{x})^2$	$f(x-\bar{x})^2$	
Strongly agree	5	9	45	0.9	0.81	7.29	
Agree	4	6	25	-0.1	0.01	0.06	
Disagree	3	3	9	-1.1	1.21	3.63	
Strongly disagree	2	2	4	-2.1	4.41	8.82	
No idea	1	0	0	-3.1	9.61	0	
Total		20	82			19.80	

Source: Field Survey (2011)

$$\bar{x} = 4.92 \qquad \bar{x} = 4.10$$

$$S_1^1 = 0.41 \qquad S_1^1 = 0.99$$

$$n = 25 \qquad n = 20$$

$$t = \frac{4.92 - 4.10}{\sqrt{\frac{(25 - 1)(0.41) + (20 - 1)(0.99)}{25 + 20 - 2}} (\frac{1}{25} + \frac{1}{20})}$$

$$= 4.82$$

Decision: Since the t-computed $4.82 \ge$ t-critical value of 1.68, the hypothesis is accepted. This implies that ABC adequately improves efficiency and reduces operational costs better than traditional cost systems.

H3: ABC would help improve efficiency, reduce operational costs and therefore propel industries in achieving the Vision 2020 agenda.

Table 4. Reviewing accounting practices in achieving VISION 2020

Activity Based Cost System (ABC)							
Responses	Scores (x)	Frequency (f)	Fx	$\mathbf{x}-\mathbf{ar{x}}$	$(x-\bar{x})^2$	$f(x-\bar{x})^2$	
Strongly agree	5	20	100	0.36	0.13	2.59	
Agree	4	2	8	0.64	0.41	0.82	
Disagree	3	2	6	1.64	2.69	5.38	
Strongly disagree	2	1	2	2.64	6.97	6.97	
No idea	1	0	0	3.64	13.25	0	
Total		25	116			15.76	

Traditional Accounting Cost System (TCAS)							
Responses	Scores (x)	Frequency (f)	Fx	$\mathbf{x}-\mathbf{\bar{x}}$	$(x-\bar{x})^2$	$f(x-\bar{x})^2$	
Strongly agree	5	5	25	1.15	1.32	6.61	
Agree	4	10	40	0.15	0.02	0.23	
Disagree	3	3	9	0.85	0.72	2.17	
Strongly disagree	2	1	2	1.85	3.42	3.42	
No idea	1	1	1	2.85	8.12	8.12	
Total		20	77			20.55	

Source: Field Survey (2011).

$$\overline{\mathbf{x}} = 4.64 \qquad \qquad \overline{\mathbf{x}} = 3.85$$

$$S_{1}^{1} = 0.63 \qquad S_{1}^{1} = 1.03$$

$$n = 25 \qquad n = 20$$

$$t = \frac{4.64 - 3.85}{\sqrt{\frac{(25 - 1)(0.63) + (20 - 1)(1.03)}{25 + 20 - 2}(\frac{1}{25} + \frac{1}{20})}}$$

$$= 4.17$$

Decision: Since the t-computed $4.17 \ge t$ -critical value of 1.68, the hypothesis is accepted. This implies that Vision 2020 can be achieved only when we review and revisit modern accounting practices which costs products cheaply and affordable.

4. Summary of Findings, Conclusion and Recommendations

Based on the analyses above, it was found that:

- 1) There is extreme low adoption of ABC among manufacturing firms in Nigeria. Because of low level of ICT, traditional accounting systems are applied heavily in product costing. Hypothesis one—clearly attests to this statement.
- 2) ABC improves efficiency, reduces operational costs, and properly cost products better than traditional cost accounting systems.
- 3) ABC identifies significant activities and assigns overhead costs to activity cost pools in line with the way resources are consumed by the activities.
- 4) Continual use of traditional cost accounting system is a drawback. Markets are globalised and accounting with traditional costing system in this era of ICT is unwarranted since it will put costs on products and make them less competitive internationally.

Nigeria needs to revolutionize its manufacturing subsector to imbibe the needed advanced manufacturing technology that promotes Activity based costing system where products are properly and cheaply costed with high degree of quality. Dependency on traditional manufacturing practices with the attendant traditional accounting practices will not take us to the promised height of top 20 economies of the world by 2020. Activity Based Costing System holds the key to the future, the time to lay the foundation is now. This in place among our firms will march to the vision 2020 with accomplishments.

Consequently, the study recommended that with an expectation to move the country towards attaining top 20 economies of the world, manufacturing firms in Nigeria should adopt accounting practices based on Activity Based Costing System since it costs products realistically and properly and makes such products stand a chance for global competitiveness. Secondly, ABC is an offshoot of Advanced Manufacturing Technology (AMT). This requires frequent power supply but where it is in short supply it will hinder mass production and ultimately curtail cheapness in product costs. We need to move beyond this in achieving the envisaged vision 2020.

References

Adeniji, A. A. (2004). An Insight into Management Accounting. Lagos: Value Analysis Consult Publishers.

Chinweizu, H. (2008). Can Nigeria make it into G20? Nations Newspaper, Oct. 30.

Cooper, R. (1990). ABC: A Need, Not an Option. Accountancy, September.

Cooper, R., & Kaplan, R. (1999). The Design of Cost Management Systems (2nd ed.). Prentice Hall: Upper Saddle River.

Egbunike, P. A. (2009). Imperatives of Advanced manufacturing Technology in Nigeria: Implications for Management Accounting practices. *Journal of Association of National Association of Nigeria*, 17(3).

Godralt, E. M. (1983). Cost Accounting: the number one enemy of productivity. 1983 APICS International Conference proceedings.

Isa, C. R., & Foong, S. U. (2005). Adoption of Advanced Manufacturing Technology (AMT) and Management Accounting Practices: Case Study of Manufacturing Firms from Malaysia. *World Review of Science, Technology and Sustainable Development*, 2(1), 35–45. http://dx.doi.org/10.1504/WRSTSD.2005.006726

Lucey, T. (2003). Management Accounting. Great Britain: Bookpower.

- Maher, M. W. (2005). Activity Based Costing and Management. In Weil, R. L., & Maher, M. W. (Eds.), *Handbook of Cost Management,* Hoboken, Nj: John Wiley and Sons.
- Martin, J. R., (2002). Activity Based Costing: Management concepts, Techniques and Controversial Issues. Retrieved June 1, 2011, from http://www.maaw.info
- Okeke, T. C. (2009). A Structural Analysis of Nigeria's Gross Domestic Product (GDP): Implication for 2020. Seminar paper presented to the faculty of management sciences, Nnamdi Azikiwe University in partial fulfillment of the requirements for MKT 791.
- Okwoli, A. A. (2010). The Role of Audit Institution in the attaining of the Vision 20:2020 Objection. *Journal of Business and Financial studies*, 2(1), 96–112.
- Osisioma, B. C., & Enahoro. (2006). *Activity Based Costing: Journal of Global Accounting*. Department of Accounting Nnamdi Azikiwe University.
- Rivero, E. J. R., & Emblemsavg, J. (2007). Activity Based Lifecycle Costing in the Long-Range Planning. *Review of Accounting and Finance*, 6(4), 371–373. http://dx.doi.org/10.1108/14757700710835041
- Sheu, C., Chem, M. H., & Stacy, K. (2003). Integrating ABC and TOC for Better Manufacturing Decision Making. *Journal of Accounting and Finance*, 14(5), 433–435.
- Soludo, C. S. (2006). *Can Nigeria be the China of Africa?* Lecture delivered at the Founders Day of the University of Benin, Benin City, Nov. 23.

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