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MANAGEMENT ACCOUNTING PRACTICES: TRENDS AND ISSUES -A NIGERIAN EMPIRICAL REFLECTIONS

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ABSTRACT. This study provides some preliminary findings pertaining to the trends and changes in manufacturing and management accounting practices by Nigerian manufacturing Companies. It also highlights issues related to changes in the production costs and product costing methods. The manufacturing environment is undergoing dramatic transformation due to the growing intensity in competition, the rapid pace of technological changes and advancements in computerization.

CONCEPTUAL OVERVIEW OF MANAGEMENT ACCOUNTING

Drucker (1969) explained almost two decades ago:

"To make knowledge work productive will be the great management tools of this century, just as to make manual work productive was the great management task of the last century. This gap between knowledge work that is managed for productivity and knowledge work that is left unmanaged is probably a great deal wider than was the tremendous difference between manual work before and after the introduction of scientific management".

Since the past two decades, the manufacturing environment has undergone tremendous changes. Today's business environment is characterized by escalating global competition, changing competitive strategy, time-based competition, short product life cycle and stronger emphasis on total quality management (Morrow, 1992). Advances in manufacturing technology have enabled greater product diversity, and demands for shorter product lifecycles. The dramatic changes in the manufacturing environment have raised questions relating to adequacy of traditional Management Accounting System (MAS) in providing managers with suitable information to deal with the challenges in an advanced manufacturing environment.

Many have raised concerns whether the traditional Management Accounting System are capable of providing relevant, timely and accurate information for companies

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to compete successfully in the new environment (Cooper and Kaplan, 1988; Johnson and Kaplan, 1987; Kaplan, 1984). Johnson and Kaplan (1987) argued that, the Management Accounting System that exists today are in fact the same systems that were developed in the textile industry during the Industrial Revolution in the 1920's. The main purpose of the systems then, were to control operating activities and promote efficiency in the mass production of standard products with high labour usage (Kaplan, 1984). Since then, management accounting systems have changed very little despite significant changes in the manufacturing environment. As such these systems are unable to meet the information needs of today's manufacturing companies.

THE MANUFACTURING ENVIRONMENT

Consistent with global development, the manufacturing environment in Nigeria has experienced significant changes. The results of the survey indicate that the majority of the managers surveyed (70.6%) has expressed that they faced 'high' competition in fulfilling their manpower requirements. Though many managers (75) indicated that product pricing is very competitive, a majority of the managers only face 'some' or negligible competition in bidding for raw materials. As for the external environment, a majority of responding managers considers the economic and technological environment to be from "moderate" to "very dynamic". Table one below summarizes these findings.

Table I: Competition and Stability of the External Environment

Area of Competition	Level of Competition			Total
	Negligible	Moderate	High	
Bidding for raw materials	51.2%	27.3 %	21.5%	100%
Manpower	10.2%	19.2%	70.6%	100%
Product price	8.2%	16.8%	75.0%	100%
External Environment Economic	16.6%	38.1%	45.3%	100%
Technology	22.4	38.5	39.1	100%

The Nigerian economy is an open economy and global change impact significantly and swiftly on Nigerian industries. Adopting a proactive stance to develop appropriate strategies for survival, competitiveness and sustained profitability is of strategic importance. Dent (1996) outlines three essential elements of global strategy, thus;

Product Standardization and Global Marketing: The basic thrust here is to emphasize similarities across national markets, rather than differences, and to design common products of distribution throughout the world.

The Pursuit of World-Scale Efficiencies: This implies integrated research and development, manufacturing and distribution, in order to gain available economics and experience effects.

Cross-Subsidization for Market Penetration: Global competitors generally proceed from strong and profitable positions in some market, typically (but not always) the home market where competitions may be less on price than on quality or reputation: an uncontested 'profit sanctuary'. The cash flows from there are used to fund entry into new markets.

Further, Dent (1996), argues that adopting global strategies is not new as many U. S. firms have recognized and reaped the benefit of product standardization and world-scale efficiencies since the early decades of the century. Further, he argues that strategies of global competition are not uniquely a Japanese phenomenon as commonly thought US Companies such as UBM, Coca-Cola, American Express and McDonalds are among the companies that have successfully penetrated their respective markets.

ADVANCED MANUFACTURING TECHNOLOGY

As a strategic response to the challenges in today's manufacturing performance, a growing number of companies are adopting Advanced Manufacturing Technology (AMT). World-Class Manufacturing (WCM) refers to the production of high-quality products coupled with prompt and high-quality service at a low cost to provide high customer satisfaction (Clarke, 1995). AMT can assist manufacturers to attain the WCM performance through better product design, reliability and production flexibility and with quicker response times to customers' needs.

Generally, AMT refers to a family of technologies that include Robotics, Computer-Integrated Manufacturing (CIM) systems, Computer-Aided Design (CAD), Computer-Aided Manufacturing (CAM), Flexible Manufacturing Systems (FMS), Testing and Numerically Controlled Machines. Jean and Morrow (1989), outlined the following effects with the use of AMT in the manufacturing process: (a) decline in direct labour as a proportion, (b) increase in indirect overhead cost (production, planning, engineering etc), (c) increase in capital investment especially in technology on the factory floor and support department, and; (d) greater production flexibility.

The level of AMT deployment by Nigerian Manufacturing Companies in the survey has been 'low' to 'moderate' level. "Testing" was the most frequently used AMT with 76% of the companies answering in the affirmative. Currently, all industries indicate similar "low" to "moderate" levels of AMT deployment. However, respondents forecast a higher AMT usage in the future. Generally, it can be noted that many manufacturing companies in Nigeria are in the process of employing a higher level of AMT in their manufacturing process as part of their strategic response to changes in the competitive

environment. Table 2 below shows the current level of AMT deployment by Nigerian Manufacturing Companies in four major industries.

Table 2: The Extent of AMT Usage

AMT	Level of Usage Indicated by Weighted Mean Score in the Side of 1 to 4)				
	Overall for Whole Sample	Electrical Electronics	Food Beverages	Chemicals Pharmaceutical	Primary Metal/ Construction
Robotics	3.3	3.3	3.4	3.4	3.3
FMS	3.00	2.9	3.4	3.4	3.3
CAD	3.1	2.8	3.4	3.2	3.0
CAM	2.7	2.5	3.6	2.6	3.3
LAM	3.0	2.9	3.1	3.0	2.9
Testing	2.4	2.1	2.8	2.4	2.8
Sample Size (n)	190	46	17	5	10

*1 = Very widely used; 4 = not used at all

Table 2 shows that among the major manufacturing industries in Nigeria, only the electrical and electronics industry indicated a higher level of AMT usage when compared to the average for the whole sample. The fundamental objectives of management accounting in an AMT environment remain the same as a traditional manufacturing setting: to cost products, to value inventory, to measure performance and to make investment decision (Jeans and Morrow, 1989). However, while existing MAS are still useful, new manufacturing technologies have created new changes to management accountants to meet the need for relevant information for decision-making. The use of AMT and managerial techniques and practices such as just-in-time (JIT) and Total Quality Management (TQM) have made it necessary to evaluate the effectiveness of management accounting systems in the new manufacturing environment.

CHANGES IN MANUFACTURING COST STRUCTURE

As a result of automation and advances in manufacturing technology, the structure of manufacturing costs has significantly changed. Overhead costs have become the major component of manufacturing expenses and these costs are becoming increasingly fixed in the future. Direct labour costs have become a smaller component of production cost while the direct material cost component remains relatively stable. Consistent with the findings of studies carried out in other countries, production cost structure of Nigerian Companies is shifting in a similar manner, see table 3.

Table 3: Manufacturing Cost Components

Cost Component	Mean Percentage		Next 5 Years
	Past 5 Years	Present	
Direct Material	59.1	60.2	59.4
Direct labour	13.3	12.5	12.3
Direct expenses	11.8	11.1	11.9
Overhead cost	15.8	16.2	16.4
Total	100.0	100.0	100.0

There appears to be an upward trend for overhead costs, increasing from 15.8% in the past to 16.4% in the future, and a downward trend for direct labour costs, decreasing from 13.3% to 12.3%. However, the proportion of overhead costs to total cost is relatively smaller than that of manufacturing companies in USA and UK, where studies indicated that the overhead component represents one-third of total cost (Drury et al, 1993). In Nigeria, the lower overhead cost could be due to the 'low' to 'moderate' level of AMT adoption by the majority of Nigerian manufacturing companies.

Changes encountered in production cost structure currently and indications of future trends raise questions on the adequacy of traditional management accounting methods used to allocate these costs to products. Strong arguments against the use of labour-related allocation bases to allocate overhead costs, have been put forward. For instance, Johnson and Kaplan (1987) argued that the traditional allocation bases such as direct labour hour or rate can no longer be considered as appropriate allocation bases for today's advanced manufacturing environment as direct labour usage is drastically reduced in today's manufacturing activities. Clarke (1995) summarizes the main criticisms of traditional MAS as follows: (a) that management accounting fails to capture a company's progress towards world-class manufacturing performance, (b) that product costs in multi-product companies are incorrect due to overhead absorption, and; (c) that the internal orientation of accounting information is too narrow for strategic decision-making.

The strongest criticisms on traditional management accounting came from Kaplan (1984), Johnson and Kaplan (1987), Copper (1988), Drury (1989) and others who wrote extensively on the subject. The basic thrust of the criticism is that management accounting that exists today is irrelevant, outmoded, and lagging behind the technology, and can lead managers to wrong decisions. They further argue that in order to continue providing companies with relevant and timely information for decision-making, management accounting needs to evolve with changes in the competitive environment and advancements in manufacturing technology.

IMPLICATIONS FOR MANAGEMENT ACCOUNTING PRACTICES

The tremendous changes in the competitive environment and manufacturing technology during the 1980's have profound implications for MAS. During this period, companies, especially from the industrialized nations such as USA and other Western Countries, were suddenly jolted by aggressive competition from the Newly Industrialized Countries (NIC) such as Japan and Taiwan, which were producing better quality products at much lower costs. Western Companies tried to find answers as to how the companies from the NIC were able to outperform them. Researchers and practitioners concluded from their studies that inadequate and inaccurate information provided by their MAS was one of the reasons for ineffective decisions and actions that ended their competitiveness. Accurate information about products, cost, excellent cost management, and coherent performance measurement are important for making knowledgeable strategic decisions on products, price, technologies and human resources.

Clark (1985) identifies five implications on accounting: changes in cost patterns and cost behaviour, reduced inventory and inventory accounting, changes in standard costing systems, changes in capital investment decisions and great emphasis on non-financial measures of performance. The changes highlight various issues related to the changing nature and role of MAS and the need for MAS to evolve to meet these changes.

ALLOCATION FOR PRODUCTION COST

Traditional standard costing system based on the allocation of overhead costs to products or services based on volume-related rates is becoming increasingly irrelevant in multi-product environment. Direct and indirect production cost (labour, material and overhead costs) are allocated to products using volume-related base such as direct labour cost, direct labour hours and machine hours. New manufacturing technologies require huge capital investments, resulting in significantly higher proportion overhead costs in the total costs. Labour costs are decreasing in amount and becoming increasingly fixed. Hence, allocating costs to products using volume-based rates is no longer appropriate and will result in distorted products cost (Cooper and Kaplan, 1988).

Miller and Vollman (1985) suggested that overhead costs in modern manufacturing companies are not output volume related but rather are associated with organizational activities or cost drivers. They argue that there are a number of overhead cost drivers associated with organizational activities such as logistics (the movement of materials from one place to another), balancing (the ensuring that purchasing, materials planning, and human resource requirements are met), quality (which includes quality control and indirect engineering, etc.), and change (where the focus is on the cost of items such as engineering change orders).

Based on several field visits, Cooper and Kaplan (1988) found that the more

complex and diverse product lines of companies. The larger the number of support departments are required to perform the transactions. Shank and Govindarajan (1988) highlighted some of the problems associated with the use of volume-based overhead allocation systems. Their analysis shows that the cost of handling and processing activities for products produced in small batches were averaged across the entire product lines thus resulting in excessive costs being allocated to high-volume products while the low-volume products were undercosted. Thus, it is argued that manufacturing environment is no longer driven by volume but indeed by product diversity and complexity.

In spite of intense criticism of traditional costing systems, it is apparent that these systems are still widely used for decision-making (Drury and Tayles, 1995). Companies surveyed in United Kingdom (UK) and United States of America (USA) (For example Drury et al, 1993 and Ohen and Paquett, 1991) used simplest conventional product costing systems with an adoption rate of more recent studies carried out in Australia (Chenhall and Smith, 1998) and in New Zealand (Guilding et al. 1998). In both countries, standard costing systems are still widely used with adoption rates of over 70%. Research on management accounting practices of manufacturing companies in Nigeria has been sparse. A study conducted in 1994 by Obara et al, reported that a large majority of respondents almost 90%, were satisfied with traditional MAS and indicated the intention of changing them in the near future. Consistent with the findings of other studies cited earlier, the application of standard costing system is still the most prevalent, with 69% of the respondents in this study indicating its usage. The electrical/electronics industry is the biggest user of the standard costing system with almost 83% of companies using the system.

Furthermore, most of the companies surveyed indicated high levels of satisfaction with traditional costing systems for making-decision related to inventory costing, short-run pricing, long and periodic profit analysis. Table 4 below shows the responses related to the level of satisfaction with the traditional costing system by major industries.

Table 4: Satisfaction with Traditional Allocation Base Use

Area Using Allocation Bases	Percentage of Responses				
	Overall Sample	Electrical/ Electronics	Food/ Drink	Chemicals/ Pharmaceutical	Iron/Steel/ Metal/ Const.
Inventory Costing	3.6	3.6	3.9	4.1	3.5
Short-run pricing	3.5	3.6	3.9	3.7	3.0
Long-run pricing	3.4	3.5	3.8	3.5	3.2
Periodic profit analysis	3.7	2.7	4.0	3.6	3.4
Sample size	180	48	19	17	19

While many academics and researchers have attacked traditional costing systems for being irrelevant and insufficient to meet the changing information needs in today's advanced manufacturing environment, practitioners on the whole still find the systems useful. To reduce the gap between information needed and information provided in an advanced manufacturing environment, Cooper and Kaplan (1988) proposed a comprehensive revision of MAS and suggested a drastic change in the product costing approach.

Bromwich and Bhimani (1989) and Lucas (1997), responded in defense of the traditional costing system. Bromwich and Bhimani (1989) and Lucas (1997), responded in defense of the traditional costing system including the standard traditional costing system, including the standard costing. Bromwich and Bhimani (1989) recommended non-radical reform in the current MAS since the evidence and arguments advanced by the proponents of comprehensive changes in management accounting are not yet sufficient to justify the moves. They suggest more suitable changes in the MAS, evolutionary rather than revolutionary changes.

Cooper (1987) argues that cost of products and services is distorted by the use of inappropriate volume-based method for allocating production overhead cost. Consequently, Cooper and Kaplan (1988) introduced the activity-based costing (ABC) system as an alternative product costing method for more accurate product costs. In an ABC system, resources are assigned to activities and activities to cost objects based on the utilisation of cost drivers. It is activities that trigger cost in each major manufacturing activity. Activity-based costing allocates production costs using the following steps: (i) identify the major activity in each company, (ii) determine the cost driver in each activity, (iii) create the cost pool/centre for each, and (iv) trace the cost of each activity to product according to their demand for the activity.

Cooper and Kaplan (1988) agreed that ABC systems can lead to better and more accurate product costs and profitability measurement than the traditional costing approaches. More accurate product cost information would highlight strategic options available for managers. For instance, high volume products that are normally overcosted by traditional costing systems might be overpriced. Reducing the price of these products will allow the product to be more competitive in the market. Furthermore, ABC systems can also provide information that can encourage companies to redesign products to use common parts, which could bring about cost reductions through economics of scale in production. Additionally, ABC systems can change the way managers evaluate new manufacturing technologies by also focusing on the non-financial benefits such as reduction in setup times, improvements in plant layout and material handling, and improved product quality and information.

Though the benefits of ABC are recognized by many, ABC is not extensively used in practice (Bright *et al.*, 1992). Surveys carried out in Ukkola *et al.*, 1992; Drury

et al, 1995) have shown that the adoption rate of ABC is less than 20% . Similarly, Teoh and Schoch (1993) reported low adoption rates in Australia (17%) and in Nigeria (13%). Our findings, as reported in table 5, showed that only 13.9% of the companies surveyed adopted ABC while almost 50% of respondents indicated that "no discussion on introduction" of the method has taken place in their organizations.

Table 5: The Extent of ABC Adoption by Nigerian Manufacturing Company

Extent of Adoption	Percentage of Responses				
	Overall Sample	Electrical/ Electronics	Food/ Drinks	Chemical / Pharm.	Primary metal/ Const.
Discussion have not taken place on introduction of ABC	48.0	46.3	48.3	47.6	42.1
A Decision Has Been Taken not to introduce ABC	3.0	3.7	0	0	5.3
Some const. is being introduced of ABC	22.8	20.4	20.8	19.0	31.6
We intend to introduce ABC	12.4	9.3	4.2	9.5	10.5
ABC has been introduced	13.9	10.4	16.7	23.8	10.5
Total	100.0	100.0	100.0	100.0	100.0

The highest level of ABC application was by the electrical/electronics and the chemical/pharmaceutical industries where more than 20% of the companies have indicated adoption of ABC Systems. However, the adoption rate of ABC in Australia has improved to 56% as reported by a recent study (Chenhall and Smith, 1998). Drury and Tayles (1995) give two reasons why companies are reluctant and slow in changing their costing systems. Firstly, management accountants are being burdened with financial accounting functions such as preparing monthly reports that leave them little time for working with managers to develop new systems or reform costing systems or even to think critically about associated with the implementation of ABC may not meet the cost/benefit requirement of investment analysis. Table 6 shows the responses given by the companies surveyed when asked on their reluctance to reform traditional costing systems.

T"Me 6: Reasons for the Use of Traditional Management Techniques

Reasons	Percentage of Responses				
	Overall Sample	Electrical! Electronics	Food! Drinks	Chemicals! Pharm.	Primary metal! Const.
No reason for change	22.6	19.2	32.3	30.4	30.8
Lack of awareness	16.9	16.7	8.8	13.1	19.2
High cost of implementation	17.9	20.5	23.5	13.1	15.4
Lack of top management support	17.3	2.1	14.7	21.7	11.5
Total	100.0	100.0	100.0	100.0	100.0

The respondents provide the following reasons: "No reason for change" (22.5%), "Lack of awareness" (16.9%), "Lack of expertise" (22.2%), "Lack of top management support" (17.3%) and "High cost of implementation" (17.9%). It is interesting to note that "no reason to change" is the most popular (30% of respondents) response of companies in three out of the four industries surveyed; Food/Drinks, Chemical/Pharmaceutical and Primary metal/Construction industries. These findings seem to indicate that though Nigerian companies encountered intense competition in the market place, they do not recognize the role of accurate, relevant and timely information as the basis for good cost management, performance and global competitiveness. A plausible explanation could be that possibly Nigerian companies are still in the initial stage (*low* to moderate level) of AMT adoption; negating the use of modern MAS.

CONCLUSION

Many Nigerian Manufacturing Companies surveyed are still in the early stage of advanced manufacturing technologies adoption and have indicated reluctance to reform their traditional management accounting systems. In the face of intense competition in the global market place, continual improvements in methods, processes, systems and technology are the key to survival. It is our considered opinion that; what matters is not corporate governance per se, but the governance of change. In the 21st century, the only certainty is continuous change, forced by technology, globalization and intense competition,

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