EFFECT OF COST REDUCTION TECHNIQUES ON PROFITABILITY OF MANUFACTURING FIRMS IN NIGERIA

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Abstract

The objective of this study is to examine the effect of cost reduction techniques on profitability of manufacturing firms. To achieve this objective, the study adopted survey design. Data were collected from the primary source. A total of 120 copies of questionnaire were administered out of which only 100were retrieved. The returned copies of questionnaire were utilized in the data analysis of the study. Simple regression model was established and the findings of the study indicate that there is a significant relationship between cost reduction techniques and organizational profitability. The study concludes that the application of cost reduction techniques has improved organizational profitability. Based on this, the study recommended that company should employ linear programming (LP) techniques so that there would be timely purchase of raw material and component to meet production and sales requirement. With the above recommendation, the company can achieve its goal of being 'Low cost management'

Keyword: Cost Reduction Techniques, Profitability and Manufacturing Firms

Introduction

The business environment today is very competitive, impacting every organization large or small. An impulsive reaction under the current circumstances is just to cut all costs to the minimum level. Every aspect of an organization's cost structure must be carefully examined to eliminate unnecessary discretionary and non-value adding costs, while yet retaining its competitive position (ACCA Study Text, 2015). In any business organization, the goal of most organizations is to achieve maximum profit. Since management is concerned with the profitability which is one of the tools to evaluate the business performance especially in a manufacturing company, the need of increasing sale will arise and this will eventually lead to increase in production capacity and as a result lead to increase in cost. Thus, the need for cost control and cost reduction is required to achieve maximum profit in competitive market where demand is affected by the price of goods and services.

Asaolu and Nassar (2017) define cost reduction as the term used for planned and positive approach to the improvement of efficiency. It can be viewed in many ways, such as increasing productivity, and elimination of waste. Lucey (2016) refers to cost reduction as concept which has the aim of reducing cost from a previously accepted norm or standard without reducing the effectiveness or performance of the project or services. Dury (2015) defines control as the means of ascertaining that the activity of an organization follows the standard plan and that its goal is accomplished. Sikka (2013) discussed that cost control system consists of ways and methods that are used to control the operating cost of a job and ensure that cost does not go beyond a certain amount. The process of regulating the cost of operating business is known as cost control and is involved within acceptable limits. These limits are usually stated as standard cost or target cost limits in a formal operation plan or budget. Cost control is the process of avoiding wasteful use of valuable resources and encouraging efficiency and cost consciousness. Cost reduction is a planned positive approach to reduce expenditure. ACCA Study Text (2015) defines cost reduction as the reduction in unit cost of goods or services without impairing suitability for the use intended.

In competitive industry, there is need to incur reasonable cost and management has to ensure careful and efficient use of resources so as to achieve the setoff standard. Cost control is the process of established standard and maintaining the performance according to standard. Therefore, cost control and reduction are important in an organization in order to regulate and reduce unwanted expenses and it also helps to bring about increase in market demand in term of competitive market. The significance of cost reduction and cost control derived from its function in profit maximization. Any organization that is successful using cost reduction and cost reduction can sell its product at a lower rate than its competitors without reducing its quality.

Lockey (2012) stated that, having price competitive advantage, the company can increase its market share and become a market leader. Cost control and reduction are techniques used in making other means of competition feasible. The importance of cost reduction scheme within a company cannot be overstated especially when a company is struggling to maintain profitability. Organizations that forfeit money are required to intensify profits or become more involving need to reduce expenses in order to succeed. Frequent re-examination of costs can assist an organization to curb excessiveness and thereby eliminating costs. The significance of cost control and reduction scheme remains constant either it is in good or bad period (Lockey, 2012).

The main difficulty encountered by organizations recently is the increase in the cost of operation that could lead to inevitable cost control and reduction scheme which makes it difficult for most organizations to operate at the cost efficient frontier. Every organization that wants to survive and maintain its consumers must seek to improve on its product. Therefore, in order not to exceed their budget and not to run at loss, as well as not to reduce the quality of their products, organization needs to control costs and reduce their cost to the lowest minimum. For this reason, the study investigates the extent of application of cost control and cost reduction technique and the degree of their impact on the operational efficiency in an organization

Statement of Problem

The manufacturing industries in developing countries have never grown beyond a certain point as if they have physical barriers impossible to cross. This view could be applied to manufacturing industries in Nigeria. Many companies are suffering from profit squeeze; this is because manufacturing companies are still constrained by problems such as frequent shortage of raw material, liquidity problems and mismanagement of resources. Owing to the effectuations in the economy and increasing competition among companies, business managers are becoming conscious of how they manage their firms. They are struggling to maintain satisfactory earnings in a situation where costs are rising. They incur high cost in almost all the areas of their operations and commitments with result that their major problems are not to minimize and control these costs for higher productivity and profitability.

The reasons why manufacturing firms cannot perform well or even compete are invariably due to

1) High costs production
2) Low capital base
3) Inability to borrow from financial institutions
4) Inability to meet up with technological advancement. Thereby contributing to use obsolete and over depreciated machines.
5) Inability to get discount since they do not buy it in bulk.
6) Lack of communication system
7) Lack of management education and defective infrastructure
8) Defective national supply.

The problem now is, can these firms survive in this era of economic recession? The answer is not retrenchment of workers, compulsory leave, pay cuts nor is closure of firms rather they should find a solution that would lead to profitability and efficiency and this efficiency in operation and utilization of cut edge tools.

Objectives of the study

This paper seeks to;

1. Examine and evaluate the application of cost reduction techniques in the organization profitability
2. Make recommendation as regards the improvement of cost reduction techniques in the organization

Research Questions

1. To what extent has the application of cost reduction techniquesimproved organizational profitability?

Hypothesis

In order to direct the flow of this work, this hypothesis was formulated:

H_{01}: The application of cost reduction techniques has no significant effect on organizational profitability.

Literature Review

The Concept of Cost

Resources must be sacrificed for any organization to achieve its objectives. To an accountant, cost is defined as a resource forgone to achieve a specific goal. This can be expressed as the monetary amount which must be paid to acquire goods and services. ACCA Study Text (2015) defines cost as the amount of expenditure incurred on, or attribute to a specific thing or activity cost of anything ordinarily is money spent to acquire that things. As Chukwugbo (2005) opined, cost is the worth of a unit of product or service. It is the amount of money spent in procuring a thing or product commodity. The importance and necessity of cost to shareholders, investors, tax agencies, and creditors are not overawed in period reporting.

Types of Cost

Fixed Cost: These are costs that do not always change with activity level. They are constant within certain range of activities. It is when the maximum limit of particular activity range is exceeded that fixed costs jump up. It can also be defined as costs that do not respond to a change in the level of activity such as an increase in output. Thus they represent one extreme of cost behavior in that within a certain period they remain the same. Asaolu and Nassar (2017) defines fixed cost as the cost which tends to be unaffected by increases or decreases in the volume of output. Example of fixed cost:

a) The salary of the managing director (monthly or annually).

b) The rent of a single building (monthly or annually).

c) Straight line method of depreciation of a single machine (monthly or annually).

Variable Costs are costs that vary with the level of activity. The higher the activity level the higher the amount of the cost incurred. Activity level is measured in terms of number of units produced. Variable cost is the cost which tends to vary with the volume of output, the variable cost per unit is the same amount for each for each unit produce, which means that the amount of resources used and the price of these resources are constant for each additional unit product (Asaolu & Nassar, 2017).

Cost Reduction Techniques

For one to successfully present cost reduction scheme as a tool of improving efficiency, one must bring into perspective the techniques that can be employed. In its execution they usually try to find how new mathematical models improve planning and control. Most accounting techniques are employed to reduce costs as such as study and acceptable of cost reduction techniques in achieving more profitability in the organization.

The following scheme should be implements for manufacturing industry

a. Linear programming
b. CVP analysis
c. Standard costing

Linear Programming: It is defined by Horngen (1997) as a potent, mathematical approach to a group of management problems that contain many iterating variables and they basically involve the allocation of limited resources in such a way as to increase profit or decrease cost. It is a decision model under condition constraints affects the allocation of resources among competing uses.

Linear programming is a general model for optimum allocation of scarce or limited resources to competing product (or activities) under such assumption, as certainty, linearity, fixed technology and constant profit per unit. The term linear implies proportionately and addictively. The term program me refers to a course of actions covering specified period of time. A specific production schedule, product mix, stock portfolio, advertising media are examples of programmes. A programme is optimal if it maximizes or minimizes some measure or criterion of effectiveness such as profit cost or sales. Linear programming is one of the most versatile powerful and useful techniques for making managerial decision. It has been employed in solving a broad range of problems in business, government, hospitals and education. As a technique of decision making it has demonstrated its value in such diverse areas as production, finance, marketing, research and development and personnel. Determination of optimal product – mix, transportation schedule, plant location assignment of personnel and machine, media selection and investment portfolio selection are but a few examples of the type of problems that can be solved by linear programming technique.

Cost – Volume –Profit (CVP) Analysis

Cost – volume – profit analysis is a systematic method of examining the relationship between changes involutes of output and changes in total sales revenue, expenses and net profit, it is a method of determining how changes in variables like unit variable costs, unit sales mix civil affect profit; (Horne 1977). The C.V.P analysis is based on relationship between sales revenue, costs and profit in the short-run. According to Osisioma (1996), cost volume profit analysis means analysis of cost behavior, resolution of cost into fixed and variable, fixed coronets are fixed in total over a particular range but in unit it is variable while variable costs are those cost that change in direct proportion to changes with the level of production and services. They are variable only in total.

Cost volume profit formulae, there are three methods used in the analysis. These are the; formulate, graphics and algebraic. Nwokochah, 2006) the formula usually met in this analysis thus.

i. Break-even sales point in units =
$$\frac{\text{Fixed costs}}{\text{Unit contribution}}$$

ii. Break –even sales point in value =
$$\frac{\text{fixed cost}}{\text{Contribution margin rate}}$$

iii. Sales of level of produce a target profit in sales value
$$\frac{\text{Fixed cost + target profit}}{\text{Contribution margin ratio}}$$

iv. Sales level to produce a target profit in sales units
$$\frac{\text{Fixed cost + target profit}}{\text{Unit contribution}}$$

Standard Costing

Standard costing can be defined officially as a “technique which user’s standards for costs and revenues for the purpose of control through variance analysis.

Terminology

Standard costing is a cost technique based on a pre-planning of unit cost, a comparison of actual with planned costs and an isolation of variances for further analysis and remedial actions. It involves five distinct steps:

a. Cost plans are set based on each cost unit of production
b. Performance is closely monitored
c. There is a comparison between plans and performance and any deviation is noted
d. The variance or deviations are isolated for further analysis and study.

e. Correction actions are taken by management intervention

Cost Reduction Techniques/Performance Evaluation

It is used to evaluate and stimulate managerial effectiveness in reducing cost

i. Establish Profit Cost**:** A profit centre is a segment of a business where managers are responsible for both revenues and expenses. The scope of each centre should be clearly defined such that work is divided according to functions or responsibilities.
ii. Set goals for future contribution of each profit centre to the overall company.
iii. Incentive that ultimately leads to minimization in total cost should be encouraged.

Dangers of Cost Reduction

For every advantage, there must be a disadvantage, as one adage upholds. Therefore, though each cost reduction campaign brings considerably benefits to the company.

However, some dangers or problems emerged from the use of it's viz.

i. Cost reduction in a company may result to higher cost in another department for instance increase in quantity of goods bought to spoilage of such products.
ii. If cost reduction is not based on sound reasoning like improved method then the cost will grow back to the original size.

The Concept of Profitability

According to Lucey (2016), accountants use the term profit, as the excess of revenue over costs or expenses; it may qualify as gross profit, net profit, pre-tax profit etc. Profitability therefore, is the measure of returns on the resources or capital employed by the organizations while growth is the rate of development in the organization. Since making of profit involves costs and revenue, any factor that reduces cost, increase a profit vice versa. The factors that affect profitability and growth mostly in business organization are:

i. Fluctuation in economic trend
ii. Change in population and fashion
iii. The introduction of new technology
iv. Demand and price

Profits are indispensable for the efficient management of a business as highlighted. It is therefore advice able for business to undertake those ventures that would maximize their profit and minimize costs authority fraud or deception. Some of these would include the employment of capable and efficient managers, proper and prudent employment of the resources available to the organization, making sure that enough finance is available to implement most of the project of the organization, making available modern equipment which would increase output and reduce unit cost of the product. The aim of the measure is to reduce cost and increase revenue. The business organization has to organize its production department marketing, finance and administrative department to ensure that coordination and efficiency are achieved (Dury, 2015).

Theoretical Foundation

According to Horngren, Forster and Datar (2012), the term cost control '' is widely used today, and no uniform definition exists. They explained that cost control is used to describe the activities of manager in short-run and long-run planning and management of costs. They further proceed that the planning and cost control is often inextricably linked with revenue and profit planning. Agara, (2015) opines that cost control is "a process whereby targets are set against which the daily incidence of cost is compared to ensure that cost targets are not unduly exceeded''. He went further to buttress the point that cost control, therefore, involves all methods of limiting the frivolous and unguarded expense of resources by managers to avoid unnecessary creation of liabilities. Adeniyi, (2017) explained that cost control is the regulation of cost of operating a business and it's concerned with keeping costs within acceptable limit. He said these limits will usually in a formal operational plan or budget. He proceeded to state that, if actual cost differ from planned cost by an excessive amount, cost control action will be necessary.

Empirical Studies

Adam, (2015), Despite the seeming gain of democracy in 1999, the mobilization of domestic and foreign resources has become problematic due to several year of dictatorial misrule, the business environment continues to be severely impacted by widespread religious, cultural and political disturbance in Nigeria, infrastructural by all intents and purposes, remain to be grossly inadequate and in a poor state, with the cause by supply of power leading to serious disruptions in production are constituting serious strains in the company's finances, with greater reliance been placed on the use of private generating facilities. However, the productivity of the manufacturing sector is also associated with high production cost related with high tariffs, increase in cost of energy, rising cost of imported inputs as a result of continues depreciation of naira exchange rate, and rising rate of inflation. Furthermore, the net import requirement of the manufacturing sub-sector grew rapidly as more than 60% of the raw materials consumed is imported due to lack of economics of scale, difficulty in obtaining technical expertise, inadequate research into local substitute and cost of production of locally sources material. There are a number of studies that were carried out in Nigeria and outside with the view to appraise the various cost control and strategy cost management in manufacturing firms as a survival technique. Some utilize primary data (questionnaire and /or interview) while others used secondary data.

According to a research conducted in India by Barbole (2013), is one of those that used secondary data such as books, online articles and descriptive statistics to analysis the study and title ''Impact of cost control and cost reduction techniques on manufacturing sector'' the study review that for a business enterprise to survive, grow, and prosper. Cost Control and Cost reduction are the activities necessary for ensuring objectives are fulfilled. The researchers further highlighted that, with the liberalization of the Indian Economy and Globalization, there is now a cut throat competition from various concerns of the world. This has now increased the importance of Cost Control as a survival technique. He further explained different tools and techniques used for Cost Control and cost reduction and analysis the changes in component cost after implementing the various techniques.

Another study was carried out by Emengini (2014) and title 'product cost management in relation to Activity-Based costing (ABC) by manufacturing companies in a developing country like Nigeria. Data were collected from 58 sampled companies using questionnaire and analyzed using student's t-test and Multivariate analysis variance (MANOVA). The study disclosed that product cost management through application of ABC and traditional costing is geared towards cost reduction and are good strategic cost techniques in controlling cost. They further review that there is no statistically significant difference in cost reduction attained by ABC over Traditional costing, but though ABC tend to have higher effect and profit realized of ABC is equally higher. Base on the findings, the study recommends that manufacturing companies in developing countries should develop a good tone of management and core values that will promote the utilization of ABC in their costing system, and the use software to facilitate application of ABC. The research is limited to South East of Nigeria. The study also recommends that the initial cost of implementation of ABC should deter the companies from adoption of ABC since its long run benefits surpasses its costs.

Oyewo (2013), study the impact of ''strategic cost management as a recession survival tool in the Nigerian manufacturing and financial service industries''. The study used questionnaire for collecting the data from targeted 280 respondents, out of which212 were completed and returned from both manufacturing and financial sectors and the collected data where analysis using the Mann-Whitney test. The objectives of the research is to determine whether strategic cost management (SCM) techniques are practically used by Nigerian companies and the extent of their utilization particularly in the Nigerian manufacturing and financial services industries. The study reveals that survival of businesses in recessionary times is dependent on managing cost strategically and the

SCM techniques is more feasible, applicable and can be implemented in Nigerian manufacturing industry than in financial service industry because of the predominant application of SCN to manufacturing concerns and, product tangibility of the two industries. The author recommends more researches in SCM should be done in other industries apart from manufacturing industries in order to demonstrate that management accounting can be applied with resounding success in any industry and country. The Nigerian government should formulate more policies that create enabling environment to promote higher adoption of SCM.

Ayodele and Alabi, (2014) topic of research was ''Effect of cost control on building projects delivery in Nigerian''. The study aims at determined the effects of cost control techniques on building projects delivery for both government and private developers based on quality, time and cost. Interviews were conducted for selected quantity surveyors, architects, civil engineers, builders and contractor. Observations were also made on construction sites of government and private developers. The data collected were analyzed by percentage. The study reveals that bill of quantities and other cost control techniques was utilizes on government building contracts while none of the cost control techniques was utilized by private developers. The research did not specify the cost control techniques used by government and is limited to south west of Nigerian.

Methodology

The research design used is Survey Design. This is established aimed at describing and predicting the influence of Cost Reduction Techniques on Organizational Profitability. A purposive sampling method was adopted to select 120 staff of the 5 selected firms listed on NSE. It includes; Guinnes Nigeria Plc, Nigerian Breweries Plc, Life Breweries Plc, Assaba Textiles and Dumex Nigeria Plc.

The questionnaire survey was designed using Linkert five scale points was used to transform the data to scale measurement and the hypothesis was statistically tested using Simple Regression. The study adopted the Model of Anyigbo (2012) which is shown as

Prof = f(CRT) -----------------------------------i

Prof = B_0+B_1CRT+ a --------------------------ii

Result of the Study

Simple Regression Model was explored to test the linear relationship between the dependent and independent variable using SPSS version 20 as shown in the tables below:

Table 1: Result on Effect of Cost Reduction Techniques on Organizational Profitability Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
	(Constant)	1.455	0.307		1.020	.033		
1	Cost Reduction Techniques	.899	.668	.613	1.345	.021	1.000	1.000

Dependent Variable: Profitability

H_{01}: The application of cost reduction techniques has no significant effect on organizational profitability.

This hypothesis was tested and the result of this regression indicates that the relationship between cost reduction techniques and organizational profitabilityis positive and significant; this can be justified with the P-value (significance) of 0.021 which is less than the 5% level of significance adopted. Likewise the result of positive coefficient of 0.613 is proving that the more the application of cost reduction techniques while other remaining variables remain constant increases organizational profitability. Therefore, we reject the null hypothesis and accept the alternate hypothesis which contends that the application of cost reduction techniques has significant effect on organizational profitability. The findings of the study seem agreeable with the priori expectations of Oyewo (2013) who found that the cost control and techniques have significant effect on organizational profitability.

Conclusion and Recommendation

In manufacturing firm where its main cost element are direct material, direct labour costs, manufacturing overhead, other costs of high level significance are transportation and administrative costs. Manufacturing companies are preferring techniques like value engineering, quality control, budgetary control, standard costing systems, for the purpose of cost reduction. Base on the above findings, the paper recommended that company interested in carrying out cost control procedures must necessarily be concerned about cost reduction techniques as a means in achieving its aims. It is recommended that mechanics for conducting value analysis (incorporating value engineering) should be put in place on permanent basis. A good budgeting process would effectively control cost. The inventory management process must provide for the pre determination of economic-order quantities and re-order level for all class of raw material and components in store to achieve its objectives of maintaining minimum stock holding costs. In addition, the company should employ linear programming (LP) techniques so that there would be timely purchase of raw material and component to meet production and sales requirement. With the above recommendation, the company can achieve its goal of being 'Low cost management'.

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