

COST REDUCTION STRATEGIES AND PERFORMANCE OF MANUFACTURING COMPANIES IN NIGERIA

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ABSTRACT

This work is on Cost Reduction Strategies and Performance of Manufacturing Companies in Nigeria (A Study of Selected Manufacturing Firm in Rivers State). Cost reduction strategies was measured by value analysis and value engineering while the researcher measured performance by Profit before tax and return on assets. The specific objectives of the study were: to determine relationship between value analysis and profit before tax of Manufacturing Companies in Nigeria; To investigate relationship between value analysis and return on asset of Manufacturing Companies in Nigeria; To determine relationship between value engineering and profit before tax Manufacturing Companies in Nigeria. To determine relationship between value engineering and return on asset of Manufacturing Companies in Nigeria. Questionnaires were used in generating data while the Spearman Rank Order was used in the determination of relationship between the variables. From the analysis the following findings were made; There is a significant relationship between value analysis and Profit before tax of the selected manufacturing companies in Nigeria; There is a significant relationship between value analysis and return on asset of selected manufacturing companies in Nigeria; There is a significant relationship between value engineering and profit before tax of selected manufacturing companies in Nigeria; There is a significant relationship between value engineering and return on asset selected manufacturing companies in Nigeria. It was therefore recommended as follows; Manufacturing firms should continuously embark on value analysis of existing products as an attempt in reducing cost of production which ultimately improves the profit before tax; Manufacturing firms should consistently compartmentalize the functions in the production process of products as this will reveal areas cost can be reduced with the ripple effect of reporting favorable Return on Assets.

INTRODUCTION

Growth of any company is largely determined by how well it can manage its costs. This is partly because to be able to maximize profit, cost must be reduced. Cost reduction has become a vital tool for companies to constantly stay ahead of increased competition in the business environment (Alireza & Mahdi, 2012). Indeed, even organizations that are making gainful profit, by implementing cost-lessening techniques to make a considerably higher overall revenue on its items or administrations. According to Ogunnaike (2010), the effective and efficient management of cost is not only necessary to meet the profit objective of the company but also the going concern status of the entity. To record growth in terms of increase in profit of an organization, cost reduction mechanism should be put in place.

Chartered Institute of Management Accountants (CIMA), London defined cost reduction as the achievement of real and permanent reduction in the unit cost of goods manufactured or services rendered without damaging the ability of the product to serve the purpose for which it was intended. According to Gaurav, Jam, Kapoor and Nateriya (2013), cost reduction is "the way toward searching for, finding and expelling baseless costs from a business to build the benefit without negatively affecting item quality". The concept of continuously searching for new ways and avenue of reducing costs needs to be constantly promoted at all levels of an enterprise, which signifies that the enterprise has a strategic approach to this issue (Figar & Ivanoic 2015).

In addition, cost reduction strategies is another challenge encountered by manufacturing firms when it comes to manufacturing of products or provide services within the tolerable cost structure. This has been a challenge in which no manager can really identify the ways to discover the best

cost reduction strategy or approach. The issue concerning cost reduction strategies has attracted much attention due to the expectation that companies who operate on adequate cost will maximize their profitability and also survive the test of time. Although there have been substantial research efforts by different scholars in determining what seems to be the optimal cost reduction strategy for firms and the effect on the reported profit, yet there is no universally accepted theory.

Considering the fact that cost reduction strategies is an integral factor that is pertinent in running the affairs of a firms; therefore manufacturing companies should attempt to establish the required standard cost through the use of various cost reduction strategies and ensure that management policies promote these strategies.

Cost reduction strategies such as value analysis and value engineering, net profit and return on asset can be adopted by manufacturing companies to reduce the material cost, labor cost and productivity cost attributed to manufacturing. This research is therefore concerned with the nexus between cost reduction strategies and performance of manufacturing companies in Nigeria.

The changing business environment has brought about so many changes in organizations including policies on cost management (Richtel. 2008). Robert (2007) stated that a company with adequate cost structure possesses the higher chance of attaining its profit target. The increasingly competitive global economy pushes firms to exploit all of their available resources as a means of achieving competitive advantage (Andersen, 2009). Innes and others (2013) assert that the survival triplet today for any company is how to manage product or service cost, quality, and performance. Santos, (2012) noted that even though organizations have formal standards of performance measurement systems, their degree of comprehensiveness is different. The scope of the organization and its association with different international organizations, the experience and qualifications of managers and partners needed for the design and execution of similar performance procedures, the resources required for the introduction of such performance procedure and the uniqueness of the organization and customer association with the need to uphold impartiality and confidentiality while providing high-quality services are the mainly great challenges that face organizations in measuring their performance (Mohammed, 2015). Other key challenges also include entrepreneurs' characteristics, processes of founding, venture attributes, and environmental characteristics.

There is heavy dependence of new ventures upon environmental developments, many of which may be very difficult to predict. Thus, well-conceived ventures can fail because of unforeseen environmental shocks and the lack of enough finance to ride out hard times. These same factors can cause organization performance to swing widely; confounding attempts to identify predictors of good or poor performance. The Nigeria manufacturing customers are increasingly demanding for quality products and better services, with low price. This has been a great challenge to Nigeria manufacturer hence affecting its performance as an organization. Thus, this study seeks to investigate cost reduction strategies and performance of manufacturing companies in Nigeria.

Objective of the Study

The objective of this study is to investigate Cost Reduction Strategies and Performance of Manufacturing Companies in Nigeria (A Study of Selected Manufacturing Firm in Rivers State). Specifically, the objectives of this study are:

- i. To determine relationship between value analysis and profit before tax of Manufacturing Companies in Nigeria.
- ii. To investigate relationship between value analysis and return on asset of Manufacturing Companies in Nigeria.
- iii. To determine relationship between value engineering and profit before tax Manufacturing Companies in Nigeria.
- iv. To determine relationship between value engineering and return on asset of Manufacturing Companies in Nigeria.

Hypothesis

The following null hypothesis were formulated for the study.

HO₁: There is no significant relationship between value analysis and project before tax of selected manufacturing companies in Nigeria.

HO₂: There is no significant relationship between value analysis and return on asset of selected manufacturing companies in Nigeria.

HO₃: There is no significant relationship between value engineering and profit before tax of selected manufacturing companies in Nigeria.

HO₄: There is no significant between value engineering and return on asset selected

REVIEW OF RELATED LITERATURE

Concept of Cost Reduction

Low production costs has become one of the primary ways that organizations compete in a global economy, hence, cost reduction must continually be in the minds of managers of organization (McWatters, Morse, & Zimmerman, 2001). Cost reduction is a planned approach to reduce expenditure. It is a continuous process of examining critically all elements of cost and each aspect of the business with a view to improving business efficiency, cost reduction is a corrective function. Cost reduction is the process of cutting down costs incurred by an organization for the purpose of making profit. It starts when cost control ends and considers that no cost is at its optimum level. According to Adeniji (2011), cost reduction starts with an assumption that current cost levels or planned cost levels are too high despite the fact that cost control may be good and organization experiencing high efficiency levels.

According to Chartered Institute of Management Accounting (CIMA), cost reduction is defined as "The reduction in unit cost of goods or services without impairing suitability for the use intended". Cost reduction is a strategic helpful methodology to reducing expenditure. Cost control action is designed to reduce excess expenditure (for instance when the cost of materials wastage is higher than budgeted or the level of production is less than the required standards). A cost reduction program, however, can be directed towards reducing expected cost level by cutting cost lower than the current budgeted or standard level by procuring new tools, or changing methods of working. Current costs are reflected in both budget and standards conditions and not only the cost and conditions which would lessen costs.

Planning for Cost Reduction

According to Adeniji (2011), there are two basic approaches to cost reduction:

Crash programs to Cut Spending Levels: If an organization is having problems with its profitability or cash flow, the management might decide on an immediate program to reduce spending to a minimum. Some current project might be abandoned, capital expenditures deferred, employees made redundant or new recruitment stopped and so on. The absence of careful planning might give such crash program the characteristics of panic measures and authoritarian dictatorship from top management. Cost reduction measures might be too little and too late, or misdirected. Poorly-planned crash programs to reduce costs might result in decisions which seriously reduce operation efficiency without the effects being immediately noticeable

Planned Programs to Reduce Costs: Many companies tend to introduce crash programs for cost reduction in times of prosperity. A far better approach is to introduce continual assessments of an organization's entire products, production methods, services internal administration systems and so on. The management accountant will normally become involved when compiling reports on the costs and benefits of different alternatives, and also on providing cost benefit analysis of the cost reduction schemes themselves. Cost Reduction exercises are planned campaigns to cut expenditure; they should preferably be continuous long-term campaigns, so that short-term cost reduction are not seen as reversed and 'forgotten'. The major difficulties with cost reduction programs are as follows:

Resistance by employees to pressure to reduce costs, usually because the nature and purpose of the campaign has not been properly explained to them, and they feel threatened by the change. They may be limited to a small area of the business with the result that costs are reduced in one cost center only to reappear as an extra cost in another cost center.

Cost reduction campaigns are often introduced as a rushed, desperate measure instead of a carefully organized, well thought exercise.

Cost reduction does not happen on its own accord and managers must make positive decisions to reduce costs.

A planned program of cost reduction will begin with an assumption that some costs can be reduced significantly. The benefits of cost savings must be worth-while and should exceed the costs of achieving them. Areas for potential cost reduction should be investigated and unnecessary costs identified. Cost reduction measure should be proposed, agreed, implemented and then monitored. At this point it is necessary to examine why unnecessary costs occur.

These include the followings:

Lack of information, for example, about new materials, products or processes. Lack of ideas.

Genuine but incorrect beliefs, that quantities are too small to justify mass production techniques.

Changed circumstances, for example a failure to take advantage of better processes that are now available.

The scope of a cost reduction campaign should embrace the activities of the entire company, which in a manufacturing company would span purchasing and distribution and all levels within the organization from the shop floor upwards. Non-manufacturing industries and public sector organizations should equally look at all areas of their activities for ways of reducing costs.

In the short-term, only variable costs, for the most part, are susceptible to costs reduction efforts many fixed costs (for example depreciation, rent) are unavoidable, Some fixed costs are avoidable in the short-term (for example advertising or sales promotion expenditure). These are called discretionary fixed costs.

In the long-term costs can be either reduced or avoided. This includes fixed cost as well as variable cost expenditure items.

Techniques and Methods of Cost Reduction

Improving efficiency and standards: One way of reducing cost is to improve the efficiency of material usage, the productivity of labor, or the efficiency of machinery or other equipment. There are several ways in which this might be done:

Improved materials, where wastage is currently high. Wastage might be reduced by one of the following methods:

Changing the specifications for cutting the materials, Introducing new equipment that reduces wastage in processing or handling material.

Identifying poor quality output at an earlier stage in operational processes, using better quality of materials. Even though more expensive, better quality materials might save costs because they are less likely to tear or might last longer.

Labor productivity can possibly be improved by the following methods:

Giving pay incentives for better productivity.

Changing work methods to eliminate unnecessary procedures and make better use of labor time. Changing work patterns or schedules so as to smooth out seasonal fluctuations over the year and reduce the need for overtime payments as the height of seasonal production. This can also reduce non-conformance quality costs, that is, the cost of faulty goods produce under pressure during unrealistically high overtime periods.

Improving the methods for achieving co-operation between groups or departments.

Setting more challenging standards of efficiency to aim for. Standards should be tight but achievable. If efficiency standards are too lax, it is likely that the work force will put in the minimum

effort needed to achieve the required standards. Given the right motivation among the workforce, more challenging standards will encourage greater effort.

Introducing standards where they did exist before.

Improving the efficiency of equipment usage might involve the following:

Making better use of equipment resources.

Achieving a better balance between preventive maintenance and machine downtime for repairs.

Method of Reducing Materials Costs

The key to reducing materials Cost might be as follows:

Obtaining Lower Prices for Purchases of Materials and Components: Bulk purchase discounts might be obtainable at favorable rates. Alternative, a more cost conscious approach to buying, with a system of putting all major purchase contract out to tender might help to reduce prices.

Improving store Control and Store Costs: You should be familiar with the concept of the economic ordering quantity which is the size of order that will minimize the combined costs of ordering items for stock and stock-holding costs. Holding costs can be reduced by dealing with problem of obsolesce, deterioration of items in store or theft. The use ofJIT should also reduce storage costs.

Using Alternative Materials: Cheaper substitute materials might be available.

Standardization of Parts: Standardization of parts and components might offer enormous cost reduction potential for some manufacturing industries.

If a manufacturer has fewer types of components to manufacture, he will be able to increase the length of production runs, and so reduce production costs.

Customers benefit from standardization for the following reasons:

They will have fewer items to buy and stock. They can purchase in bulk, and so perhaps obtain bulk purchase discounts

They may be able to buy standard part from more than one supplier, and so purchasing will be more competitive.

Value Analysis

In this study, value analysis and value engineering are two dimensions of cost reduction strategies used. In other words, they are the methods of cost reduction adopted for this study. They are therefore discussed below. The concept of value analysis was developed as a result of the need for cost effectiveness. It is simply a planned, scientific approach to cost reduction, which reviews the material composition of a product and production designs that modifications and improvements can be made which do not reduce the value of the product to the customer or the user. The value of the product must therefore be kept the same or else improved at a reduced cost. The administration of a value analysis exercise should perhaps be the responsibility of a cost reduction committee.

According to Chartered Institute of Management Accountant (CIMA) (2005), value analysis is defined as "A systematic inter-disciplinary examination of factors affecting the cost of a product or service, in order to devise means of achieving the specified purpose most economically at the required standard of quality and reliability".

Value analysis is one of the major cost reduction techniques. It is an organized method of identifying and eliminating unnecessary costs associated with product or service by conducting an analysis of function of each component of the product. It is an almost universal method used for analyzing existing products and services offered by production companies, with basic principle of

offering value for the lowest or optimal production costs (Leber, Bastic, Marvic, & Ivanisevic, 2013). It is an approach to improving that focuses on improving the value of an item or process by understanding its constituent's components and their associated costs. It is an organized examination of every item of cost which goes into production. The very core of VA is the effort to determine and eliminate those characteristics of products or services with no real value for the customer or the product, but which, nevertheless, cause costs in the production process or service delivery (Leber et al., 2013).

Value analysis entails the systematic investigation of every source of cost and method of production with the aim of ascertaining all unnecessary costs. An unnecessary cost is an additional cost incurred without adding value, exchange or esteem value to a product. Naturally, cost reduction techniques seek the way of achieving the low production costs for a particular product design and indeed, a cost reduction exercise must often work within this constraint of 'making the product exactly like the drawing. However, value analysis recognizes that the real goal should be the lowest cost approaches of making a product that accomplishes its specified function, not the lowest cost approaches of finishing a product designed to an obligatory barren detailed specification.

Value analysis is not quite as simple as this, and in practice there might be a conflict between reducing costs and maintaining the aesthetic value (esteem value) of a product. Whereas a value analysis exercise should not result in a sacrifice of the product's function in order to cut costs. It might result in a product that is not as pleasing aesthetically. Where cost cutting and aesthetics are incompatible, there should be a clear direction from senior management about which is more important.

Therefore, if manufacturing companies adopt value analysis approach, they tend not only to increase net profit and return on asset but also operate at cost effective.

Value Analysis as a Tool or Techniques in Cost Reduction

Value analysis is a scientific approach to cost reduction by increasing the value of the product. A systematic examination and assessment of the techniques and functions in the various fields of an entity with a view to investigate channels of performance improvement so that the value of the particular product or service can be better is referred to as value analysis or value engineering. This enables the greatest possible value to be achieved for a given cost. Hence, the technique which is used to analyze all aspects of an existing product or service to determine the minimum cost necessary for specific functional requirement is known as value analysis (Sikka, 2003)

Value Engineering

Value engineering searches to potential areas of cost reduction during the product planning design of the product, while maintaining the functional status and quality of product (Hilton, 2005). The entrance of value engineering is one of the main tools that production designers use to achieve their target cost. The value engineering seeks to find potential areas for cost reduction during the product design and planning phase as an integral to the target cost approach. The important aspect of value engineering is to achieve a certain level of cost reduction. In other words, value engineering aims at reducing the gap between the estimated cost of product and the allowable cost (Blocher et al., 2008).

Mondcr (1995) defined value engineering as "organized effort to implement functional analysis of product and/or service to reliably achieve all required functions as the lowest possible life cycle cost".

Cooper and Slagmulder, (1997) defined "value engineering as a systematic, interdisciplinary examination of factors affecting the cost of production so as to devise means of achieving specified purpose at the required standard of quality and reliability at the target cost.

The primary goal of value engineering is to enhance value of a product. Here value is the ratio of functionality of a product and cost of the product and it can be measured by value of the product — functionality or qualities of product — cost of product.

The Concept of Performance

Financial performance is the single most important factor in assessing growth potential, earnings capacity and overall financial strength (Richardson, 2002). The business dictionary (n.d) defines financial performance as measuring results of a firm's policies and operations in monetary terms and these results are reflected in firms return on investments, return on assets, return on equity, liquidity and solvency.

Neely (2001) observed that financial performance measures mainly serve three purposes. One they serve as a tool of financial management, two they serve as major objectives of business and three they serve as a mechanism for motivation and control in an organization. Various researchers have used different financial performance measures. Doyle (1994) says that profitability is the best most commonly used measure of performance in Western companies.

Performance Measures

Research has shown that the performance of a business could be measured through many proxies. As mentioned by Douglas and Hobert (2013) in their paper titled 'measurement of business risk for inter- industry comparison', the following can be used to measure performance. These are operating revenue, operating income, net income, ratio of income to capital, and ratio of operating income to operating revenues. But Pandey (2005) posits that net profit, return on assets and return on equity are more effective and efficient tools to measure the performance of an organization in a given period. The study therefore adopts the proxies as identified by Pandey (2005) which include net profit and return on asset to measure performance.

Profit Before Tax.

Profit before tax (PBT) is a measure of a company's profitability that looks at the profits made before any tax is paid. It matches all the company's expenses, which include operating and interest expenses, against its revenue but excludes the payment of income tax Bodie (2004).

Return on Asset (ROA)

Return on asset evaluates the gain or loss produced on an asset comparative to the amount of money invested. It is typically articulated as a percentage and is used for special financial decisions making, to compare a company's profitability or to compare the efficiency of different assets. The return on asset formula is;

ROA = (Net Profit/Cost of Assets) x 100.

It is one of the most frequently used profitability ratios because of its tractability. One of the disadvantages of the ROA is that it can be influenced by the variables which include value analysis, value engineering, net profit and return of asset, so result may differ between users. Therefore, when using ROA to compare assets, it's imperative to use the same inputs to get precise comparison. Also, it is important to note that the basic ROA calculation does not take time into consideration. Basically, it is more desirable to get a + 15% return over one year than over two years. According to Schmidt (2004), ROA is a popular financial metric for evaluating financial consequences of assets and actions.

Empirical Review

Barbole, Yuraj, and Santosh (2013) conducted an examination on the impact of cost control and cost reduction strategies on the manufacturing sector. Research findings show that cost control and cost reduction activities are required for businesses to survive, grow and prosper. They further explained several cost control and cost reduction tools and techniques and also carried out an analysis of the changes that occur in component cost after implementing the various techniques. The study is limited to material cost; it does not include labor costs and other overheads in its

analysis. The study therefore recommends that manufacturing companies should make use of value engineering, budgetary control and quality control for cost control and cost reduction in production plant.

Suleiman, Almad and Alwi (2005) conducted a study on strategic Cost Management Accounting Instruments And Their Usage In Albanian Companies. According to the findings of the study the most used Strategic Cost Management (SCM) instruments were: benchmarking strategic pricing, customer accounting, and target costing in their order of intensity. These instruments were the most used instrument by the Albanian manufacturing companies and the reason behind this selection of instruments were primarily related to implementation costs and the usage of the non-financial information, rather than the cost drivers, that can be a very important factor in determining the product price. This study shows that in recent years the Albanian business have successfully adapted to the new economic and technological changes by adopting strategic cost managements instruments to hold or improve their competitive advantage in the market.

Edward and other (2004) discovered that downsizing as a tool used to improve firm profitability by enhancing firm efficiency and reducing cost. While Sadri (1996) in his study agreed with the above finding. However, many studies proved that downsizing reduce the performance of firms Ozkanli and Bumin (2006); Cascio (1995); and Forsyth, (2002), downsizing does not induce better corporate performance Mentzer (1996), and De Meuse et al. (2004). Oyewo (2013) studied Strategic cost management as a recession survival tool in the Nigerian Manufacturing sector. He discovered that cost management is good to maintain profits in the face of softening sales and shrinking margin.

Robert, Nixon, Michael, Hitt, Ho-Uk Lee and Eni .Jeong (2004) examine the effect of downsizing strategy on market performance. The study discovered that management downsize their work force to reduce cost but it have negative impact on market reaction because of losses in valuable human capital that exceed the benefits derived from the strategy. Clint, Larry and Stephen (2004) discovered in their study that downsizing does not generally leads to improved organizational performance.

The study carried out by Saaydah and Khatatneh (2014) on the adoption of some recent cost management tools and their perceived effects on the performance of Jordan manufacturing companies shows that few modern techniques have been adopted so far. The authors used 30 companies which represent 25% of the targeted population and confirm a reasonable level of awareness and adoption of just-in-Time Manufacturing, Balanced Score Card, and JIT inventory, Activity Based Costing, Target Costing and Kaizen Costing in their order of intensity. Their findings also reveal that the tool that faces the greatest difficulty in terms of adoption is Target Costing followed by Activity Based Costing.

Badern, Ergin, & Dury (2013) investigated the relevance of standard costing in a study titled: Is Standard Costing Still Used? Evidence from Turkish Automotive Industry. The objective of their study is to find out the use of standard costing in the automotive industry, the leading manufacturing sector of Turkey. Three survey methods were used in order to obtain the data - electronic questionnaires, telephone and face-to face interviews .The questionnaire was sent to all of the thirteen primary and 300 supplier companies in the automotive industry in Turkey. The findings show an average usage rate of 77 percent for standard costing. It is concluded that the standard costing is still used in the automotive industry in Turkey, despite a general belief by some academicians who argue that the standard costing is out of date. The majority of non-users are local small supplier firms. The findings of the study are similar to the findings of Suleiman, Ahmad and Alwi (2005) in Malaysia and Marie, Cheffi, Louis and Rao [2010] in Dubai.

Karanja, Mwangi and Nyaanga [2012] also conducted a study on Adoption of Modern Management Accounting Techniques in Small and Medium (SMEs) in Developing Countries: A Case Study of SMEs in Kenya. Their study shows that modern costing techniques such as target costing, Activity based costing (ABC), Just in Time method (JiT) as well as other non-conventional methods were

adopted as an attempt to enhance enterprise efficiency and innovation for better planning and improved product/service pricing. The findings showed that SMEs in Kenya have intuitively adopted varying management accounting techniques. From the sample, the majority of the SMEs are faced with constraints of capital management.

Askarany (2006) carried out a study on Technological Innovation, Activity Based Costing and Satisfaction. He used questionnaire to survey all 200 manufacturing firms registered with Australian Plastic Industry. The results of the study show that cost and management accounting changes lag behind technological changes in manufacturing practices. The findings show a significant relationship between technological change in manufacturing practice and the diffusion of ABC but no significant association between the diffusion of ABC and the level of satisfaction with implemented management accounting techniques. In other words, there was no perceived difference between the responses of firms employing ABC and those which do not in terms of the level of satisfaction.

Dugdale, Jones and Green (2005) carried out a study on Contemporary Management Accounting Practices in UK manufacturing and found out that the old techniques are still being used alongside the contemporary techniques. The study, which involves interviewing 41 UK manufacturing companies reveals that almost all the techniques developed since the late nineteenth century, and evident in the historical literature, are still in use today. The old techniques still being practiced in the UK include the heavily criticized standard costing, Absorption costing and Marginal costing. The contemporary techniques include activity- based costing and throughput accounting among others. They conclude that old methods have not died, they are still taught, examined and used. Their study lends credence to the findings of Traditional cost accounting practices are still being used in all manufacturing environments in the US, but a significant portion of world-class manufacturers supplement their internal management accounting system with non-traditional management accounting techniques. The two traditional measures of performance- Standard Costing/Variance analysis and Budgeting and two modern techniques Target costing and Just in Time were widely used by Japanese companies in Malaysia. However, Ahrnad, Mehra and Plether (2002) found out that the need for traditional performance measures; indirect labor productivity, direct labor productivity, Variance, Labor efficiency and machine efficiency is decreasing as manufacturers increase their emphasis on uT practices.

Cost Accounting Techniques Adopted by Service Companies Ashfaq, Younas, Usman and 1-lanif (2014) investigated the traditional and contemporary management accounting practices and their Role and Usage across Business Life Cycle Stages in Pakistani Financial Sector. The data for the study were gotten via structured questionnaire from 90 targeted service listed companies comprising; Banks, Insurance companies, Telecommunication companies and Computer Service companies. Descriptive statistics were used for the analysis and the findings shows that 69% of respondent companies belong from growth stage and 24.4% are located in maturity stage. The results also indicate that management accounting practices for instance costing practices; budgeting practices & decision making practices are widely used especially traditional management accounting practices in the service sector of Pakistan.

However, in terms of performance evaluation practices, all the non-financial measures related to employees, customers and operation or innovation have a lower level of usage in Pakistani service sector irrespective of the business life cycle stage. Their findings reveal further that financial companies which are sub sector of the service sector are more sophisticated by utilizing management accounting practices than other services companies. They concluded that management accounting practices are more complicated as the companies move from growth to maturity stage and that traditional management accounting practices still have the highest level in financial sector of Pakistan based on its importance & usage.

Karirn and Jhantasana (2005) investigated cost efficiency of Thailand's life insurance industry and studied the relationship between profitability and cost efficiency. The purpose of their paper was to evaluate the cost efficiency and its relationship with profitability in Thailand's life insurance.

They examined the association between profitability and inefficiency by examining the association between annual profitability and inefficiency. They found that the mean inefficiency was negatively correlated to size and ROE and ROA ratios showing that efficient firms on average had higher returns on equity and on assets indicative of inefficiency effect on profitability of insurance companies. Karim and Ihantasana (2005) also found that the mean inefficiency is negatively correlated with size suggesting the need for rationalization in the insurance industry in Thailand. These results imply that consolidating the large number of smaller insurers should be high on the government's agenda, and the capital requirements for life insurers need to be increased. The results also revealed that inefficiency is negatively correlated with ROE and ROA ratios. This shows that efficient firms, on average, have higher return on equity and on assets. This indicates that inefficiency has substantial effect on the profitability of life insurance companies. The study however found no significant relationship between inefficiency and age of the firm which is contrary to the argument that more experienced firms are more efficient than the less experienced ones because new firms are unaware of their abilities and need time to decide on their optimal size but because with time the less efficient firms exit the market, this leaves a population of more technically efficient firms.

Ellram (2000), cited in Modorress, Ansari, and Lockwod, (2004) observed that Kaizen Costing ensures that products meet or exceed customer demands for 'quality, functionality, and prices' in order to sustain the product's competitiveness. According to Rof, (2012) this can be achieved through a sequential elimination of all the processes that would increase the product's cost of production without a corresponding increase in value. The philosophy emphasizes continuous improvement in our ways of life. This technique has made tremendous changes in management policies not only in Japan, but all over the world (Ogundele 2004). Blocher, Chen and Lin (1999), define Kaizen costing technique as the application of continuous improvement specifically to reduce costs. It focuses on making production and service delivery processes more efficient. Kaizen costing is used for making improvement to a process through small incremental amounts, rather than through large innovations. Unlike target costing, Kaizen costing is applied during the production stage of the product life cycle (Target cost is applied during the design stage). Adeniji (2011), asserted that Kaizen costing is the process of continuous improvement, encouraging constant reductions by tightening the 'standard'. The cost reduction objective is to set for each process, and then adopt value analysis and value engineering to achieve the set objective. With target costing, the focus is on the product, and cost reductions are achieved primarily through product design.

METHODOLOGY

The data collected are represented in tabular form and bar charts. It was further analyzed using descriptive statistics (frequency and percentage). Spearman Rank Order Correlation Coefficient (Rho) was used to test the hypotheses formulated for the study. This choice of this technique is to convey meanings to readers and other researchers who may be interested on replicating the study. All these plans were executed to ensure that the study achieve its set objectives. The instrument are based on the use of the five point likert scale, which are (a) to a great extent, 4 (b) to a considerable extent 3 (c) to a moderate extent 2, (d) to a low extent 1, and (e) not at all 0. The likert scale will be used to elicit information from the respondents on the attributes of the study.

The formula for the data computation is:

$$\frac{\text{No of Respondents}}{\text{Total Responses}} \times \frac{100}{1}$$

In testing the hypotheses, the Spearman Rank Order (Rho) test will be used to determine the relationship between the variables. Rho assumes any value from -1 to +1 indicating perfect correlation and 0 no relationships. The rank correlation coefficient has the following formula:

$$6\epsilon d^2$$

$n(n-1)$

Where; $\sum d^2$

= sum of squared difference in the ranking of the subject of the two variables.

n = number of subjects being ranked.

Furthermore, to arrive at decision, since the objective is to determine the extent of correlation between the variables, the test is two-tailed. For a two-tailed test with $\alpha = 0.05$, the critical Z values are ± 1.96 . If the Z values falls between these critical Z values, the null hypotheses is accepted. And if the correlation between the two variables would result in a value of +I, it means the variables are positively correlated and if in the value of -I, it is negatively correlated.

Table 4.7: Descriptive Statistics (Frequency and Percentage) on the Responses on Value Analysis

S/N	Value Analysis	To a Great Extent	To a Considerable Extent	To a Moderate Extent	To a Low Extent	Not at all	Total
1.	To what extent would you classify the effect of value analysis on your company's net profit?	53(39.25%)	47(34.81%)	22(16.29%)	10(7.40%)	3(2.22%)	135
2.	To what extent does value analysis increased return on asset?	43(31.85%)	48(35.55%)	30(22.22%)	9(6.70%)	5(3.70%)	135

Source: Survey Data, 2022

Table 4.7 shows the descriptive statistics (frequency and percentage) on the responses on value analysis. Thus, on the classification of the effect of value analysis on net profit 53(39.25%) indicated to a great extent, 47(34.81%) indicated to a considerable extents, 22(16.29%) respondents indicated to a moderate extent, 10(5.40%) indicated to a low extent while 3(2.22%) indicated not at all. Similarly, on the question, to what extent does value analysis increased return on asset, 43(31.85%) indicated to a great extent. 48(35.55%) indicated to a considerable extent, 30(22.22%) indicated to a moderate extent, 9(6.67%) indicated to a low extent while 5(3.70%) indicated to not at all.

Table 4.8: Descriptive Statistic (Frequency and Percentage) on the Responses on Value Engineering

S/N	Value Engineering	GE	CE	ME	LE	NA	Total
1.	To what extent does value engineering affect your company's net profit?	51(37.78%)	44(32.59%)	31(22.96%)	4(2.96%)	5(3.70%)	135
2.	To what extent does value engineering increase the return on asset of your company?	48(35.55%)	53(39.25%)	31(22.96%)	3(2.22%)	10(7.40%)	135

Source: Survey Data, 2022

Table 4.8 shows that 51(37.78%) of the respondents indicated that value engineering affects their company's net profit to a great extent, 44(32.59%) indicated to a considerable extent, 31(22.96%) indicated to a moderate extent, 4(2.96%) indicated a low extent, and 5(2.70%) indicated to not at all. Also, the table shows that 48(35.55%) of the respondents indicated that value engineering increase the return on asset of their company to a great, 53(39.25%) indicated a considerable extent, 31(22.96%) indicated a moderate extent, 3(2.22%) indicated to a low extent whereas 10(7.40%) said not at all.

Table 4.9: Descriptive Statistics (Frequency and Percentage) on the Responses on Net Profit

S/N	NET PROFIT	GE	CE	ME	LE	NA	Total
1.	To what extent would you classify the level of net profit in your company, in the last five years?	46(34.07%)	42(31.11%)	20(14.81%)	18(13.33%)	17(6.67%)	135
2.	To what extent would you classify the overall impact of cost reduction strategies on the net profit level of your company?	55(40.74%)	38(28.14%)	31(22.96%)	4(2.96%)	7(5.18%)	135

Source: Survey Data 2022

Table 4.9 above shows that 46(34.07%) of the respondents level of net profit in their company, in the last five years indicated a considerable extent, 20(14.81%) indicated to a indicated a low extent while 9(6.67%) indicated not at all. 55(40.74%) of the respondents indicated that they classify reduction strategies on the net profit level of their company to indicated to a considerable extent, 31(22.96%) indicated a indicated a low extent, and 7(5.18%) indicated to a not at all.

Table 4.10: Descriptive Statistics (Frequency and Percentage) on the Responses on Return on Asset

S/N	RETURE ON ASSET	GE	CE	ME	LE	NA	Total
1.	To what extent would you classify your Company's return on asset in the recent years?	51 (37.77%)	33(24.44%)	42(31.11 %)	7(5.185)	2(1.48%)	135
2.	To what extent do you evaluate the effect of cost reduction strategies on return on asset?	31(22.96%)	38(28.14%)	55(40.74%)	7(5.18%)	4(2.96%)	135

Source: Survey Data, 2022

Table 4.10 above shows that 51(37.77%) of the respondents indicated that they classify their company's return on asset in the recent years to a great extent, 33(24.44%) indicated a considerable extent, 42(31.11%) indicated to a moderate extent, 7(5.18%) indicated to a low extent while 2(1.96%) indicated not at all. Again, the table shows that 31(22.96%) of the respondents indicated that they evaluate the effect of cost reduction strategies on return on asset to a great extent, 38(28.14%) indicated to a considerable extent, 55(40.74%) indicated a moderate extent, 4(2.96%) indicated a low extent, and 7(5.18%) indicated to a not at all.

Considering the nature of the study, which involves the test of association between the major variables in the study, Spearman's Rank Order Correlation Coefficient was applied for the hi-variables correlation relationship analysis. However, in carrying out this analysis, and respective results interpretation, we guided ourselves with Dana (2001)/decision scale frame as described below and the SPSS interpretation.

- a. $\pm .00 - .19$ (very weak association)
- b. $\pm .20 - .39$ (weak association)
- c. $\pm .40 - .59$ (moderate association)
- d. $\pm .60 - .79$ (strong association)
- e. $\pm .80 - .99$ (very strong association)
- f. ± 1 (perfect association)

TEST OF HYPOTHESES

HO₁: There is no significant relationship between value analysis and project before tax of selected manufacturing companies in Nigeria.

Table 4.11: Showing the relationship between value analysis and Profit before tax of selected manufacturing companies in Nigeria.

Correlations

		Value Analysis	Net Profit
Spearman's rho	Value Analysis		
	Correlation Coefficient	1.000	.957**
	Sig. (2-tailed)	.	.000
	N	135	135
	Net Profit		
	Correlation Coefficient	.957**	1.000
	Sig. (2-tailed)	.000	.
	N	135	135

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

The table above presents Spearman's correlation, its significance value and the sample size that the calculation was based on. We can see that Spearman's correlation coefficient, r , is 0.957, and that this is statistically significant ($p = .000$). Therefore the null hypothesis is rejected. The study therefore concluded that there is a significant relationship between value analysis and Profit before tax of selected manufacturing companies in Nigeria.

H02: There is no significant relationship between value analysis and return on asset of selected manufacturing companies in Nigeria.

Table 4.12: Showing the relationship between value analysis and return on asset of selected manufacturing companies in Nigeria.

Correlations

		Value Analysis	Return on Asset
Spearman's rho	Value Analysis	1.000	.932**
	Correlation Coefficient		
	Sig. (2-tailed)	.	.000
Return on Asset	N	135	135
	Correlation Coefficient	.932**	1.000
	Sig. (2-tailed)	.000	.
	N	135	135

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

The table above presents Spearman's correlation, its significance value and the sample size that the calculation was based on. We can see that Spearman's correlation coefficient, r_s , is 0.932, and that this is statistically significant ($p = .000$). Therefore the null hypothesis is rejected. The study therefore concluded that there is a significant relationship between value analysis and return on asset of selected manufacturing companies in Nigeria.

H03: There is no significant relationship between value engineering and profit before tax of selected manufacturing companies in Nigeria.

Table 4.13: Showing the relationship between value engineering and profit before tax of selected manufacturing companies in Nigeria.

Correlations

		Value Engineering	Net Profit
Spearman's rho	Value Engineering	1.000	.976**
	Correlation Coefficient		
	Sig. (2-tailed)	.	.000
Net Profit	N	135	135
	Correlation Coefficient	.976**	1.000
	Sig. (2-tailed)	.000	.
	N	135	135

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

The table above presents Spearman's correlation, its significance value and the sample size that the calculation was based on. we can see that Spearman's correlation coefficient, r_s , is 0.976, and that this is statistically significant ($p = .000$). Therefore the null hypothesis is rejected. The study therefore concluded that there is a significant relationship between value engineering and profit before tax of selected manufacturing companies in Nigeria.

H04: There is no significant between value engineering and return on asset selected manufacturing companies in Nigeria.

Table 4.14: Showing the relationship between value engineering and return on asset selected manufacturing companies in Nigeria.

Correlations			Value Engineering	Return on Asset
Value Engineering	Correlation Coefficient		1.000	.891**
	Sig. (2-tailed)		.	.000
	N		135	135
	Spearman's rho			
Return on Asset	Correlation Coefficient		.891**	1.000
	Sig. (2-tailed)		.000	.
	N		135	135

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

The table above presents Spearman's correlation, its significance value and the sample size that the calculation was based on. We can see that Spearman's correlation coefficient, r_s , is 0.891, and that this is statistically significant ($p = .000$). Therefore the null hypothesis is rejected. The study therefore concluded that there is a significant relationship between value engineering and return on asset selected manufacturing companies in Nigeria.

EMPIRICAL FINDINGS

From the analysis made from table 4.11 using Spearman's correlation, with a correlation coefficient, r_s , of 0.957, which is statistically significant ($p = .000$), we found out that there is a significant relationship between value analysis and Profit before tax of the selected manufacturing companies in Nigeria.

Again, from table 4.12, with a Spearman's correlation coefficient, P_s at 0.932, that this is statistically significant ($p = .000$), the null hypothesis is rejected which implies a significant relationship between value analysis and return on asset of selected manufacturing companies in Nigeria

Furthermore, from table 4.13 we can see that Spearman's correlation coefficient, P_s , 0.976, and that this is statistically significant ($p = .000$). Therefore the null hypothesis is rejected. The study therefore concluded that there is a significant relationship between value engineering and profit before tax of selected manufacturing companies in Nigeria. Finally, from table 4.14 it shows a Spearman's correlation coefficient, r_3 of 0.891, and that this is statistically significant ($p = .000$). Therefore the null hypothesis is rejected. The study therefore concluded that there is a significant relationship between value engineering and return on asset selected manufacturing companies in Nigeria.

CONCLUSION AND RECOMMENDATIONS

From the analysis carried out so far on this topic, the researcher can deposit that positive and significant relationship exist between value analysis and engineering on performance of manufacturing firms. It is therefore not surprising the level of emphasis given to these two techniques in manufacturing firms.

Recommendations.

Based on the findings made from the research the following recommendations were made;

1. Manufacturing firms should continuously embark on value analysis of existing products as an attempt in reducing cost of production which ultimately improves the profit before tax.
2. Manufacturing firms should consistently compartmentalize the functions in the production process of products as this will reveal areas cost can be reduced with the ripple effect of reporting favorable Return on Assets.
3. Value engineering which involves the designing stage of product life cycle, should be pursued rigorously as this will reveal the cost implications before actual production, measures taken to curb controlling costs with the attended effect of relatively higher profit before tax.
4. Again, since the work show a significant relationship between value engineering and return on assets, more effective and efficient use of the available assets should be sought through value engineering.

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APPENDIX 1.
QUESTIONNAIRE ON COST REDUCTION STRATEGIES AND PERFORMANCE
OF MANUFACTURING COMPANIES IN NIGERIA

Instruction: kindly tick () in the appropriate boxes as answers to each question any of the

following options.

- a. To a great extent (GE) = 5
- b. To a considerable extent (CE) = 4
- c. To a moderate extent (ME) = 3
- d. To a low extent (LE) = 4
- e. Not at all (NA) = 1

	Cost Reduction Strategies On Performance	GE 5	CE 4	ME 3	LE 2	NA 1
	Value Analysis:					
1	To what extent would you classify the effect of value analysis on your company's net profit?					
2	To what extent does value analysis increased return on asset?					
	Value Engineering:					
1	To what extent does value engineering affect your company's net profit?					
2	To what extent does value engineering increase the return on asset of your company?					
	Net Profit:					
1	To what extent would you classify the level of net profit in your company, in the last five years?					
2.	To what extent would you classify the overall impact of cost reduction strategies on the net profit level of your company?					
	Return on Asset:					
.	To what extent would you classify your company's return on asset in the recent years?					
2.	To what extent would you evaluate the effect of cost reduction strategies on return on asset?					