COST MINIMIZATION STRATEGIES - AN EMPIRICAL INVESTIGATION OF THEIR IMPACTS ON MANUFACTURING FIRMS IN NIGERIA

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COST MINIMIZATION STRATEGIES: AN EMPIRICAL INVESTIGATION OF THEIR IMPACTS ON MANUFACTURING FIRMS IN NIGERIA

BY LAWYER C. OBARA AND BASSY O. EYO

ABSTRACT
This study examines cost minimization strategies adopted by manufacturing firms in Nigeria. The study is fundamentally predicated on primary data obtained from questionnaire administered on principal officers of Lever Brothers (one of the leading manufacturing firms in Nigeria) who occupy strategic positions at various cost centers of the company. Eight areas of cost that cut across the three major cost elements, namely, labor, materials and overheads were identified in the company. Data obtained from principal officers occupying strategic positions at these centers were used to evaluate the impact of the company's various cost minimization strategies on the unit cost in such areas. From the findings of this study, we conclude that manufacturing firms in Nigeria are familiar with a number of cost minimization strategies that are in vogue within the system. CSI minimization strategies such as variety reduction, work-study, organization and method, value analysis and Just-In-Time (JIT) are used by manufacturing firms in Nigeria. But the choice of each strategy is contingent on factors such as: familiarity, cheapness, effectiveness and recommendation by consultants. Based on the findings of this study, we recommend that manufacturing firms in Nigeria should intensify their effort in backward integration strategies in order to minimize costs and should structure their raw material procurement processes to involve better purchasing terms that will take advantage of discount concession.

INTRODUCTION
Manufacturing is the transformation of materials into other goods through the use of labor and factory facilities. Firms or organizations involved in this process are always confronted with many constraints. These constraints are referred to as costs. Manufacturing involves three major elements of costs. These include: direct materials, direct labor and factory overhead. The desire of every manufacturing firm is to minimize any aspect of these costs without compromising standard. This need has become very compelling in view of the very shoddy state of the Nigerian economy. The astronomical rate of inflation, despicable low exchange rate, low capacity utilization and poor state of infrastructure in the country in recent times have imposed negatively on the cost of manufacturing in Nigeria.

This scenario has forced manufacturing firms operating in the country to adopt some approach, the other in order to minimize cost. Since cost must be minimized and controlled, for profitability to be impinged (G续al, 1975) cost minimization involves adoption of tested strategies to obtain the required objectives. Such objectives which aim at giving the customer a commensurate value for his money, while reducing the costs of making and supplying the goods and services (Wood, 1974) must lead to improvement of shareholders' wealth.

The difference between cost minimization and strategy for minimizing cost is essential for effective assessment of the resultant impacts. Cost minimization embraces costs control and reduction. Cost control implies the comparison of actual and standard costs and then taking action on any variances, which have arisen (Sarv, 1970). The prominent examples of cost control techniques include budgetary control and standard costing. These techniques have the broad objective of containing cost within predetermined target. Costs reduction on the other hand goes beyond containing costs, it actually aims at reducing cost from predetermined or accepted standard. It is concerned with the reduction of costs from a previously accepted name or standard. While at the same time maintaining the effectiveness or performance of the product or service (Lucy, 1998) while cost minimization is an active, dynamic concept which attempts to extract more from the factors of production without a loss of effectiveness. A strategy is a method used in achieving cost minimization objectives.
In order to survive in the hard economy, plagued by high production costs, and prohibitive operating environments; many manufacturing firms in Nigeria adopted various strategies aimed at minimizing their costs. Some of these strategies are known to have fallen short of the required result. In this study, we present the results of empirical investigation of the impacts of cost minimization strategies on manufacturing firms operating in Nigeria, we use Lever Brothers Nigeria Plc as a case study.

CONCEPTUAL FRAMEWORK

One of the longest surviving manufacturing outfit in Nigeria is the Lever Brothers Nigeria Plc. The company was incorporated in 1923. The company started its operations from the manufacturing of soaps based on local palm oil. She diversified and expanded its operations to the production and marketing of personal wash products such as toilet soaps, non-soapy detergents, foods and personal products such as tooth paste, body creams, locations, body care and hair care products. Like most other manufacturing firms in Nigeria, the company has adopted many strategies at its survival. Merge was adopted as a strategy for expansion and communication. In 1985, it merges with Lipton Nigeria Limited in its attempts to strengthen its production of tea. It also merged with Chessbrooke Products Industries Limited in 1988 and in 1995 with Uniliver Nigeria Limited, which effectively transferred to it the Seward's business.

Apart from Merger, backward integration and self-sustenance have also played significant roles in its survival. Local sourcing and development of raw materials were possible strategies adopted to reduce high cost of importation of raw materials.

Our focus in this paper is cost minimization in its specific form. Here, our focus is on specific decisions that lead to the reduction or lowering of the cost of production of and operation on manufacturing firms. This can be achieved through various means, some of which are:

1. Cost accounting: Identify areas where substantial reductions are possible.
2. Top management sets targets for cost minimization campaigns.
3. Top management communicates the decision reacted to the departmental heads.
managers after series of meeting and consultation.

Cost accountants prepare a system for the verification of the cost minimization for ratification by top management.

Departmental managers systematically observe the principle of productive guidance.

In the 2nd face, which is practical execution, nine steps are taken. These are:

(i) Reduction in purchase price. 111s includes the purchase of materials, suppliers, equipment, plant etc.
(ii) Reduction in warehouse rent
(iii) Reduction in use of materials
(iv) Reduction of manufacturing costs
(v) Reduction of fixed assets costs
(vi) Reduction in development costs
(vii) Reduction in administrative costs
(viii) Reduction in distributive costs
(ix) Reduction in publicity costs

In the third and final phase, the preparation of cost minimization progress report is presented to top management. Production division managers submit periodic progress report, these report are evaluated in a joint meeting of top management and all divisional managers to consider the consolidated results.

COST MINIMIZATION STRATEGIES

There are many cost minimization techniques available that could be used by manufacturing firms. Prominent ones include:

(i) Work study
(ii) Value Engineering Analysis
(iii) Quality circles
(iv) The just-in-time philosophy (JIT)
(v) Activity Management (A.M)
(vi) Organization and Methods (O & M)
(vii) Variety Reduction
(viii) Ford’s Better Experience
(ix) Lags Technique
(x) Gestalt Technique

Work study is a generic term for all techniques. The box known as reason, method study and work measurement are used in the examination of human work in all its contexts and which lead systematically to the investigation of all the factors which affect the efficiency and economy of the situation being reviewed in order to effect improvement.

Work-study was developed in America in 1920’s and was first used by F.W. Taylor and other scientific managers.

Value Analysis is a systematic inter-disciplinary examination of factors affecting the cost of a product of service. In order to devise means of achieving specified purpose most economically at the required standard of quality and reliability. This strategy has been known to contribute to about 58% in cost savings in packaging cases in synthetic fiber spinning (Mayo, 1988:533).

Quality circles is a recent phenomenon. They comprise small groups of about eight to ten employees, meeting together on a regular basis to discuss day-to-day issues such as quality, productivity and safety, with the main objective to make improvement and organize the implementation of strategies that will ensure the attainment of such goals.

Just in time strategy involves the firm keeping a minimum level of inventory on hand, relying on suppliers to furnish parts, just-in-time for them to be assembled.

Activity management is a strategy aimed at discovering and eliminating activities that do not contribute to the value of the firm while improving the contribution of other activities which impact positively on the firm’s value.

Organization and methods (O & M) is essentially a work study in the office, it serves as a systematic analysis of selected procedural problems aims at producing alternative which would be more suitable, technically and economically.

Variety reduction is a strategy which is often applied to product range that are too intensive and uneconomical due to its nature of production. Variety reduction when applied to components is often called standardization and is widely used because it is cost effective to be able to produce a range of finished products from a common, relatively small, pool of components.

Lags strategy aims at reducing the cost of materials. It involves taking advantage of expected fall or rise in value of currency of the supplier. The strategy enables firms to procure materials based on speculative motive that has strong correlation with the value of the currency of the supplier country.

Gestalt strategy is a method that helps managers or workers to develop their problem-solving capacity that is contingent on the
situation, thus increasing efficiency and responsibility and at the same time lowering labour cost.

COST MINIMIZATION TECHNIQUES AS APPLIED TO THE ELEMENTS OF COST

Cost minimization strategies can also be applied to the four basic costs elements, which include: Direct Material, Direct Labour, Direct Expenses and Overhead. The application of a particular cost minimization strategy in any organization is contingent on the relevance of the technique to the operation/production of the company as well as the usefulness and/or the contribution of such techniques to attainment of corporate objectives.

MINIMIZATION OF MATERIAL COST

Material costs minimization can be elicited through two perspectives; Quality and Price. When purchase price approach is used, effort is made by the management to negotiate with present suppliers to obtain either a straightforward price reduction or a discount in some form. Outright reduction may be as a result of long patronage, brand loyalty, and goodwill. Though this approach is not so reliable, a more reliable approach is to negotiate for discounts in form of quality, trade or cash or a combination of some or all of them.

Material cost can also be minimized through economic order quality (EOQ). This approach tries to identify the three major groups of cost associated with inventory, such as:

- Cost of ordering inventory
- Cost of carrying inventory
- Cost of carrying insufficient inventory.

The approach provides a working tool for management on how to balance off the three groups of cost against each other. In particular, a distinction is drawn on how much of inventory to order (or to produce in a production run), and how often to effect the order (or production). (Fabunmi, W.I. et al 1994:246).

Labour cost minimization can be affected through a suitably organized costing system. Minimizing labour cost through lower wages and replacement of highly paid workers by lower paid employees is not becoming unaffordable (West, 1973). Capital investment in better equipment is known to reduce the time used in carrying out production/operation activities, thus serving as a possible means of minimizing labour cost.

Incentives scheme is also a possible strategy of minimizing labour costs. Bonus schemes for example can reduce the excess costs of undisclosed waiting times since labour cost minimization consists of reduction in time required to make a product or render a service.

Better and systematic training especially for skilled work force, can reduce labour cost as there is increased efficiency and higher productivity which will reduce idle time.

Reduction in labour turnover rate will reduce the cost associated with advertisement, recruitment, orientation of new employees.

OVERHEAD COST MINIMIZATION TECHNIQUES

Overhead cost is synonymous with the cost of indirect materials, labour and such other expenses including services that cannot conveniently be charged directly to specific cost unit. The first step for reducing overhead cost is to review these expenses and ascertain the possibilities and modes of reducing their cost. For example, purposeful organization and regular checking can reduce indirect wages cost. Use of suitable employees can be used to reduce staff costs, and finally, cash-end-carry distribution technique can be used for selling and distribution overheads.

Cost minimization is a very difficult issue to handle, especially in new and national economy are largely unpredictable and can work against a well-formulated strategy. Despite this constraint, it is still a need tool in attainment of a firm’s profitability.

METHODOLOGY

This study is an empirical investigation of cost minimization strategies adopted by manufacturing firms in Nigeria. It is a case study. Our investigation covered four branches of the company. We used Aghara and Ogun - all reputable commercial to wms in Nigeria.
To have a focus for our investigation the following research questions were raised.

1. Is there any significant difference in various elements of costs before and after embarking on cost minimization by manufacturing firms in Nigeria?

2. Is there any difference between the theory and practice of cost minimization strategies by manufacturing firms in Nigeria?

And the following null hypotheses were also tested:

- There is no significant difference in various element of costs before and after embarking on cost minimization by manufacturing firms in Nigeria.

- There is no significant difference between the theory and practice of cost minimization strategies by manufacturing firms in Nigeria.

- Questionnaire were administered on eight (8) principal officers in each of the four (4) branches of Lever Brothers. Out of 32 questionnaires administered, 25 were returned, giving a return rate of 81.0% for our time focus in 5 years.

DATA ANALYSIS

This study is fundamentally predicated on primary data obtained from questionnaire responses administered on principal officers of the company. Eight major areas of cost, that cut across the three major cost elements, namely, Labour, Material and Overheads were identified in the company (See Appendix I). Principal officers occupying strategic positions at these centres were asked to comment on the impact of cost minimization strategies applied by the company in the specified areas for the past 5 years.

The respondents were simply asked to state if such strategies are in any way contributed to the reduction or otherwise of the unit cost in such areas. The responses were grouped into two categories. Those that feel the strategies result in unit cost reduction, X, and those that feel they do not Xi.

A statistical test was conducted on these data, with a view to eliciting if there is a mean difference between the proportion of those who feel implementation of cost minimization strategies result in reduction of unit cost and those that feel otherwise. Our computational device is the statistical package for social science-SPSS. The time frame is 5 years. The t-statistics was used. The summary result is presented in Appendix 2.

From the results of the t-test analysis, we discovered that the t value calculated of 4.71 at 14 degree of freedom, 2 tail test was greater than the critical value of 2 at 95 percent confident level. Based on this result we reject the null hypothesis of no significant difference in various elements of cost before and after embarking on cost minimization by manufacturing firms in Nigeria.

Since the strategies adopted by these firms are in line with the existing theories in the field, we conclude that there is no significant difference between the theory and Practice of cost minimization strategies as applied by manufacturing firms in Nigeria.

CONCLUDING REMARKS

From the findings of this study, we conclude that manufacturing firms in Nigeria are familiar with a number of cost minimization strategies in vogue within the system. Cost minimization strategies, such as: variety reduction, work-study, organization and method, value analysis and just-in-time (JIT) are used by manufacturing firms in Nigeria. But the choice of such strategies is contingent on factors such as: Familiarity, cheapness, effectiveness and recommendation by consultants.

Most manufacturing firms in Nigeria do not take advantage of discount concession in the purchase of raw materials as greater part of such purchases are contracted out to vendors.

Most manufacturing firms in Nigeria do not have separate cost accounting department. Cost section is merged with the finance and accounts department (FAD). Qualified and experienced personnel man this department with functions well segregated. Despite this arrangement, costs of production operation, as well as unit selling price of the products are not determined arbitrarily. Due to the positive impact of cost minimization strategies in manufacturing firms in Nigeria, there exists a significant difference in labour, material and overhead costs before and after embarking on cost minimization strategies.

RECOMMENDATION

Based on the findings of this study, we recommend that manufacturing firms in Nigeria should intensify their effort in backward...
integration strategy to enable them invest in the production of their basic raw materials as a reliable source of cost minimization. And should review the method of material procurement to include better purchasing terms that will provide avenue for them to take advantage of discount concession.

There is need for manufacturing firms in Nigeria to develop efficient and effective manageable labour force rather than maintaining a large labour force that are deprived of basic allowances for the sake of minimizing costs, since such strategies have the potentials to breed uncommitted workforce with its attendant costs.

Manufacturing firms should adopt a centralized and specialized buying system to take advantage of trade and quality discounts to eliminate inflated price on supplied materials by vendors.

Finally, manufacturing firms should maintain a system that places emphasis on responsibility accounting to technique. The use of budgetary control and standard costing techniques are of particular importance. And the system of analyzing the raw materials in the laboratory to ascertain their quality can aid the manufacturing firms in Nigeria to minimize the costs.

REFERENCES


Mayo, A. (1988) Management Accounting ICAN Study Text CIMA 533


APPENDIX I

EMPIRICAL ANALYSIS OF COST MINIMIZATION AND ITS IMPACTS IN MANUFACTURING COMPANIES IN NIGERIA

<table>
<thead>
<tr>
<th>Areas of cost minimization in manufacturing industry in Nigeria</th>
<th>Number of respondents who feel cost minimization strategies do not result in reduction of unit cost</th>
<th>No of respondents who feel cost minimization strategies result in reduction of unit cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement of raw materials</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Taking advantage of purchase discount</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Use of economic order quantity model for procurement of raw materials</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>Effectiveness of the systems used in checking the quantity and quality of purchase materials</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Frequency in occurrence of unfavourable material quality variance</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>Inbuilt strategy for preventing abnormal materials loss</td>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td>Adequacy of stock strength</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>Efficiency of the system use in checking abnormal idle time</td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

APPENDIX II

SUMMARY RESULT OF T-TEST ANALYSIS

<table>
<thead>
<tr>
<th>Number Of Cases</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>8</td>
<td>7.6250</td>
<td>4.138</td>
</tr>
<tr>
<td>Group 2</td>
<td>8</td>
<td>17.37504.138</td>
<td>1.463</td>
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### Pooled Variance Estimate

<table>
<thead>
<tr>
<th>F Value</th>
<th>2 tail Probability</th>
<th>t Value</th>
<th>Degree of freedom</th>
<th>2 tail Probability</th>
<th>Critical value of t at 5 percent level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>1.000</td>
<td>-4.71</td>
<td>14</td>
<td>0.00</td>
<td>3.14</td>
</tr>
</tbody>
</table>

Source: ComputerPrint Out.