

# IMPACT OF STRATEGIC COST MANAGEMENT PRACTICES ON ORGANISATIONAL PERFORMANCE OF SELECTED MANUFACTURING FIRMS IN NIGERIA

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## ABSTRACT

*The use of the traditional cost management system (standard costing and predetermined overhead allocation system) in the manufacturing industry is less effective in product cost analysis, management, and decision making than the strategic cost management system (Activity Based Management (ABM), Life Cycle Costing (LCC), Target Costing (TC), and Total Quality Management (TQM)). Particularly in the face of continuous rising production costs, multiple product mix systems, and rising market competition resulting from globalization, it has become crucial for manufacturing firms to employ the strategic cost management system to refine product costing analysis and decision-making, and to attain production efficiency, which may lead to improved firm performance and market competitiveness. This study examines the effect of strategic cost management practices on firm performance of Nigerian manufacturing industry. The survey research design is employed to collect primary data, which are analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) method. The study reveals that strategic cost management practices positively impact organization's performance. In light of this result of the study, it is recommended that manufacturing firms still using the traditional costing methods should consider implementing the strategic cost management techniques to enhance their performance and competitiveness.*

**Key words:** Activity – based costing, Life cycle costing, Target costing, Performance

## INTRODUCTION

The state of the current manufacturing industry has become complex as manufacturing firms engage in production of multiple lines of products, dealing with high costs of production, and facing fierce competition. Nigerian manufacturing industry is no exception to this characterization of today's manufacturing environment. The costs of production resources are high and scarce, and products manufactured by firms in the country are competing with imported products, which are often offered at cheaper prices. Conventionally, one way that manufacturing firms can lessen the impact of these conditions on performance (profitability) and competitiveness is to reduce and control production costs. Hence, manufacturing firms are now implementing the strategic cost management strategies to analyze and manage production costs, improve performance, and attain competitive advantage. The advancement of manufacturing technology has also been instrumental in refining production activities, leading to life cycles of production being shortened (Abdel-Kader & Luther, 2008).

With intense competition, the market orientation has also changed from a seller's market to buyer's market, where manufacturing firms have to deliver what customers want at the prices they are willing to pay. The availability of the variety of goods from multitude of manufacturers has caused manufacturing firms to be more cognizant of market competition and product pricing limitation. Consequently, the employment of strategic cost management practices has reportedly allowed manufacturing firms to enhance customer value while improving firm's performance. Although the advancement of manufacturing and information technology has allowed manufacturing firms to automate their production systems and use robots in manufacturing activities, the automation has led to increases in overhead production costs and changes in cost structure. As a result, the overhead costs require an intricate cost analysis system for effective cost allocations and cost management.

In Nigeria, most manufacturing firms are experiencing a high production costs due to scarce and expensive resources. As an example, one of the production resources that has significantly increased overhead costs in Nigeria is the scarcity of power (electricity) resource. The availability of electricity supply from the Power Holding Company of Nigeria (formerly known as National Electric Power Authority (NEPA)) is very limited. Hence, manufacturing firms have to generate and fund their own power supply in order to maintain continuous production. This has resulted in high overhead costs.

Although several studies have examined the role of strategic cost management techniques in manufacturing operations in developed and developing countries, empirical studies of strategic cost management techniques in Nigeria manufacturing industry is limited. Therefore, an in depth study of the impact of activity-based costing (ABC), target costing (TC) and life cycle costing (LLC) techniques on the performance of Nigerian manufacturing firms is warranted. Hence, the objective of this study is to examine the impact of ABC, TC, and LCC on organizational performance.

The remainder of this paper consists of the following sections: literature review, research hypotheses, research methodology, data analysis and discussion of results, conclusion and recommendation.

## **LITERATURE REVIEW**

According to Stenzel and Stenzel (2003), strategic cost management (SCM) practices consists of refined cost/resource allocation and analysis methods in the manufacturing of products that meet customers' requirements at the lowest costs. They identify some of the CCM to include activity-based costing (ABC), target costing (TC) and life cycle costing (LLC) and total quality management (TQM). Similarly, Cooper and Slagmulder (1998) refer to the same concept as strategic cost management (SCM), the application of cost management techniques that simultaneously improve the strategic position of a firm by reducing production costs. SCM can be regarded as a system made up of practices or techniques that have been developed over the years, most of them outside the traditional management accounting to ensure that a firm is able to manage and reduce its cost strategically, enhance value and performance, and secure a competitive position in the market place. The activity-based costing (ABC), target costing (TC) and life cycle costing (LLC) strategies are the focus of this study.

### Activity-Based Costing

ABC was developed by Cooper and Kaplan (1999) as an approach to address problems associated with traditional cost management practices such as standard costing or variable costing, absorption costing, and predetermined cost allocation, which tend to have the inability to provide detailed relevant and timely information. Activity-Based Costing (ABC) is an accounting cost allocation technique that identifies activities contributing to the incurrence of costs and allocates the costs to products on the basis of activity bases or drivers. ABC is a management accounting process that ensures the allocation of costs to products based on activities which determine the incurrence of such cost or, the consumption of such products or services (Turney 1996; Cooper and Kaplan, 1999; Krumwiede & Roth, 1997). Extant literature reveals that ABC has a positive impact on firm performance either directly or indirectly (Ali, Malo- Alain, & Haque, 2015; Noordin, Zainudin, Mail, Mail & Sariman, 2015). Ebben and Johnson (2005) provide evidence that reducing unnecessary costs can improve a company's financial performance. Firms using ABC are able to offer high quality product resulting from production efficiency can charge premium prices and increase profit margin and return on investments (Rattanaphaphtham & Ussahawanitchakit 2010). In light of the conceptual design of ABC to enhance product costing analysis and control, we propose the following hypothesis in the null:

*H1: Activity-Based Costing has no significant impact on manufacturing firm performance*

### Target Costing

In examining target costing as an instrument of strategic cost management, Shank and Fisher (1999) note that this technique should be observed as a process of determining a long term goal (future product cost) at the product design stage and achievement of this goal at the manufacturing stage (throughout the life cycle). The basic principles of target costing as noted by Ansari and Bell, (1997) are market orientated, customer focused, design focused, cross functionally involved, value chain involved, and life cycle oriented. Target costing on the other hand can assist a firm in producing products with lower cost, better quality and enhancement of performance (Huang, Lai & Chun (2012). Target costing achieves lower product or service cost by minimizing production costs through the imposition of spending limits, and avoiding waste. This can lead to increase in firm performance. Hence we propose the following hypothesis in the null:

*H2: Target costing has no significant effect on organizational performance of selected manufacturing firms in Nigerian.*

### Life Cycle Costing

Life cycle costing refers to the process of estimating and accumulating the total costs in monetary terms that the producer or manufacturer will incur over the product's entire (life cycle) to minimize the combined costs (Testa, Iraldo, Frey & O'Connor, 2011). Horngren, Foster and Datar (2000) have referred to life cycle costing as "cradle-to-grave costing" since all the costs associated with the product during its life span are captured. Life-cycle costing ensures that the total cost determined for each of a product life stages - introduction, growth, maturity, and decline are accurate. Life cycle cost information assists managers and planners to manage costs more effectively since it focused on cost behaviour during each unique phase of the product life cycle. In cost management, it is possible to classify costs in product life cycle into these three groups: Pre-manufacturing cost, manufacturing costs and post-manufacturing costs (Bengu & Kara, 2010). Spickova and Myskova (2015) notes that the main goal of life cycle costing approach is to optimize the life cycle cost of a

product without losing its performance. The organization that seeks cost reduction and performance improvement must focus its cost management activities on all the production stages of a product as noted by Berliner and Brimson (1988). We hereby we propose the following hypothesis in the null:

*H3: Life cycle costing has no significant influence on organizational performance of selected manufacturing firms in Nigeria.*

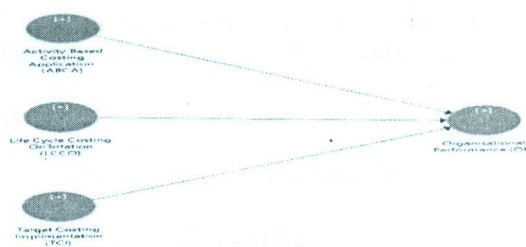
## METHODOLOGY

A cross-sectional survey design was used to collect data from manufacturing firms in Lagos and Osun states of Nigeria. According to the 2015/2016 Nigerian Stock Exchange Fact Book, majority of Nigerian manufacturing firms either have their headquarters or factories are located in these states. There are 77 quoted manufacturing firms in the two states; a sample of 65 quoted firms were selected. A total of 325 survey instruments were administered to five accounting professionals (financial accountant, cost accountant, management accountants, chief financial officer (CFO), and chief internal auditor) in each firm. The questionnaire was designed to capture the respondents' assessment of the impact of activity-based costing (ABC), target costing (TC) and life cycle costing (LCC) practices on organizational performance (OP). Two hundred and forty-four (244) completed questionnaires were returned, eleven (11) were unusable due to missing data. Two hundred and thirty-three (233), a 71.7% response rate, were used in the analysis. The questionnaire evaluated the four variables ABC, TC, LCC, and OP on a seven point Likert scale.

### Structural Equation Modeling

Partial Least Squares-Structural Equation Modeling (PLS-SEM) was used to measure the reliability and validity of the instrument and analyze the data. The PLS-SEM software (SmartPLS 3.0) describes the independent variables of activity-based costing application (ABCA), target costing implementation (TCI) and life cycle costing orientation (LCCO) as exogenous variables. Organizational Performance (OP) was the dependent variable (Figure 1).

**Figure 1: Structural Equation Model**  
Source: Researcher's SmartPLS 3.0 Results (2018)



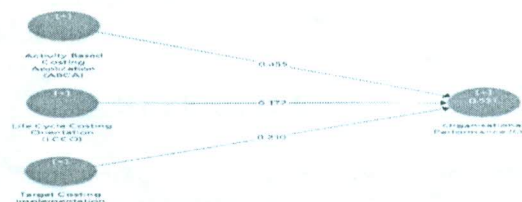
### Structural Model Assessment

The structural model demonstrates the relationship between the exogenous variables and organizational performance (OP). Figure 2 indicates the  $R^2$  and the  $\beta$  values within the model. The SmartPLS bootstrapping process determined the t-statistic and p-values.

### Coefficient of Determination ( $R^2$ )

The  $R^2$  is a measurement of the overall effect size for the structural model. A higher  $R^2$  indicates a higher predictive ability. In SEM, the  $R^2$  is evaluated based on thresholds of 0.75, 0.50, and 0.25 as large, moderate and weak, respectively (Hair *et al.*, 2011). The  $R^2$  value of 0.551 confirms the moderate predictive capacity of the overall model (Figure 2). This confirms that combinations of ABCA, LCCO, and TCI can reasonably predict OP.

**Figure 2: Structural (Inner) model**  
Source: Researcher's SmartPLS 3.0 Results (2018)



### Assessment of Path Coefficients ( $\beta$ values)

The relationship between the constructs in PLS-SEM can be determined by examining their path coefficients ( $\beta$  values) and related t-statistics. In this analysis, the bootstrapping procedure carried out 2000 samples at a 10% level of significance to determine the t-values and p-values of the coefficients. All three  $\beta$  values were significant at a maximum of 10% significance and all path coefficients show a positive effect. ABCA has the highest positive effect on OP (0.455), followed by TCI (0.210) and LCCO (0.172).

Hence, the results of the analysis indicate the following:

**H1:** ABCA has a direct, significant influence on organizational performance ( $\beta = 0.455$ ,  $p < 0.0001$ ). This Indicates that ABCA positively relates to organizational performance. Thus, the hypothesis that activity based costing does not significantly influence organizational performance is not supported.

**H2:** LCCO also has a direct, significant influence on organizational performance ( $\beta = 0.173$ ,  $p > 0.066$ ). This result indicates that LCCO relates positively to organizational performance. Thus, the hypothesis that life cycle costing does not significantly influence organizational performance is not supported.

**H3:** TCI has a direct, significant influence on organizational performance ( $\beta = 0.210$ ,  $p > 0.026$ ). This Result indicates that TCI relates positively to organizational performance. Thus, the hypothesis that target costing does not significantly influence organizational performance is not supported.

### DISCUSSION

This study shows a positive relationship between strategic cost management practices and organizational performance (OP). The statistical significance of this finding implies that successful implementation of ABC, TC and/or LCC can significantly improve organizational performance. This finding supports the findings of existing studies (Adigbole, 2018; Imeokparia, 2013; Alsoboa, 2015; Elhamma, and Yi fei, 2013). These results reveals that target costing illicit favorable financial impacts on ROI and cost reduction, financial goal attainment, and increased OP (Alsoboa, 2015; Imeokparia, 2014; Kaneko, 2013; Huang, 2012). Similarly, the of the study

result corroborates assertions in existing literature suggesting that successful implementation of life cycle costing can reduce costs, improve profitability and help companies achieve their strategic goals (Bengu, 2010; Ilic, 2010; Petrova, 2013).

## CONCLUSION

It is apparent, based on the results of this study, that strategic cost management techniques advantageous in manufacturing firms in improving organizational performance and maintaining competitive advantage. It is recommended that manufacturing firms that are using the traditional costing methods should consider implementing the strategic cost management. Future research could be conducted to access the usefulness of strategic cost management techniques and impact on performance in the service industry.

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