STRATEGIC COST MANAGEMENT PRACTICES AND ORGANIZATIONAL PERFORMANCE: A STUDY OF MANUFACTURING FIRMS IN NIGERIA

Ezekiel A. Adigbole, University of Ilorin, Nigeria
Arinola O. Adebayo, Virginia State University
Olubunmi F. Osemene, University of Ilorin, Nigeria

ABSTRACT

There has been a lot of transformation in the manufacturing industry. The manufacturing processes are highly automated, multiple product mix strategies are employed, and the nature of production cost drivers are complex, production costs have increased and market competition has risen due to market globalization. Therefore, the use of the traditional cost management system, such as standard costing and predetermined overhead allocation system in the Nigerian manufacturing industry has proven to be ineffective in product costing, cost management, and decision making. As a result of these developments, it has become necessary to employ more refined product costing techniques of Strategic Cost Management. Some of the Strategic Cost Management methods are Activity-Based Costing, Target Costing, Life Cycle Costing, Balance Scorecard, and Total Quality Management. The implementation of the Strategic Cost Management system has led to improved product costing analysis and decision-making, production efficiency, and improved firm performance and market competitiveness. This study examines the effect of Strategic Cost Management practices on organizational performance of Nigerian manufacturing industry. A 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 organizations' performance. Therefore, it is recommended that manufacturing firms still using the traditional costing methods should consider employing the Strategic Cost Management methods to enhance their performance and competitiveness.

Key words: *Activity-based costing, Life cycle costing, Target costing, Organizational Performance, Strategic Cost Management, Production Costing*

INTRODUCTION

The current manufacturing industry in Nigeria is facing some challenges that warrant crucial attention. The sale of goods in Nigerian has faced strong competition from most imported goods, which are cheaper than those manufactured in Nigeria. Correspondingly, the market orientation has changed from seller's market to buyer's market. In addition, the advancement in manufacturing technology has shifted from single product manufacturing model to multiple and product mix production approaches, and the life cycles of modern products have also become shortened (Abdel–Kader and Luther, 2008). Nigerian consumer market is flooded with foreign and domestic products where customers and consumers have options to purchase products at prices that they consider reasonable and affordable. In order to survive and maintain a competitive advantage in this market, manufacturing firms in Nigeria have to adopt cost

reduction and cost management practices that result in improved production, productivity, and profitability, while maintaining product quality (Cheng and Lin, 2018). In their study of responsibility accounting, Mahmud, Anitsal and Anitsal (2018) reveal the important relationship between responsibility centers and cost accounting strategies. The study references that the use of strategic cost management techniques for product costing has impact on the assessment and evaluation of the performance of responsibility centers.

The advancement in manufacturing and information technologies have led to automated manufacturing processes. Consequently, Nigerian manufacturing industry has to adapt to this reality in order to compete in today's market. The manufacturing costs in Nigeria have significantly increased by manufacturing and information technologies. The cost of automation contributes to the increase overhead manufacturing costs. Another challenge facing Nigerian manufacturing firms is the shortage of electric power supply in Nigeria. Because manufacturing firms have to generate their own power supply needed in this highly automated manufacturing environment, the cost of production increases considerably. Thus, due to the changes in the industry, the traditional cost management systems of budgetary control and standard costing are no longer effective because they do not necessarily focus much attention on the impact of customers, competitors and other external environmental factors and they are not amenable to strategically managed manufacturing costs to attain cost reduction (Shuah, Malik and Malik, 2011).

The complexity in overhead costs structure calls for the implementation of in-depth product costing systems for effective allocation of manufacturing overhead costs. The use of Strategic Cost Management methods allows manufacturing firms to manage their production costs strategically to attain cost reduction, profitability, and competitive position in the market. Gilaubicas and Kanapickiene (2015) conclude that manufacturing companies are utilizing more SCM techniques to combat intensified competition. Other studies assert that market competition is one of the external forces responsible for companies' move toward the use of strategic cost management techniques (Kariuki and Kamau, 2016; Ismail, Isa and Mia, 2018). The Strategic Cost Management methods provide information "which is externally orientated, market-driven, and customer-focused" leading to sound decision-making. (Emiaso and Amaechi, 2018). The information required to make decisions in respect to gaining competitive advantage and performance enhancement must be holistic, and must contain both financial and non-financial information (Abdullah and Said, 2016). Hence, Nigerian manufacturing firms need to adopt strategic cost management methods to effectively manage manufacturing costs, be profitable and remain competitive.

Empirical studies on various techniques of Strategic Cost Management (SCM) in Nigeria are scarce. The existing literature mostly focuses on Activity-Based Costing method and firm performance. Hence, there is need for an in-depth study of product costing methods to explore the impact of some of the SCM methods on manufacturing organization's performance (henceforth referred to as Organizational Performance). The purpose of this study is to explore the impact of three of the SCM methods namely Activity-Based Costing (ABC), Target Costing (TC), and Life Cycle Costing (LCC) on Organizational Performance (OP) in Nigerian manufacturing firms.

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

LITERATURE REVIEW

The traditional absorption and variable costing methods were used in the manufacturing environment where few products were produced, and the direct materials and direct labor costs were the dominant parts of factory costs (Drury, 2012). However, these costing methods fail to produce accurate product cost information in today's automated manufacturing environment. The limitations of the traditional cost methods include 1) the use of a single cost driver, and volume-based cost drivers (e.g. direct labor hour rate or machine hour rate) for cost allocation process (Cooper and Kaplan, 1999), 2) assumption that products or service are the real consumer of resources rather than activities (Blocher, Chen and Lin, 2002), and 3) inability of the methods to appropriately fit the contemporary automated manufacturing setting, where firms produce multiple products or services.

The concept of Strategic Cost Management is defined as "managerial use of cost information explicitly directed at one or more of the four stages of the strategic management cycle: formulating strategies, communication of the strategies throughout the organization, developing and carrying out tactics to implement the strategies, and developing and implementing controls to monitor the success of the objectives" (Shank and Govindarajan, 1989, p. 50). Shank and Govindarajan (1989) further note that the strategic cost management concept is built on three themes, borrowed from strategic management, namely value chain analysis, strategic positioning analysis, and cost driver analysis. Cooper and Slagmulder (1998) opined that strategic cost management is the application of cost management techniques that simultaneously reduce product cost, enhance firm's performance, and improve firm's competitive position in the market place. Strategic Cost Management (SCM) encompasses numerous cost management techniques such as Activity-Based Costing, Target Costing, Life Cycle Costing, Balance Scorecard, Total Quality Management (TQM), Value Chain Analysis, Early Warning Analysis, and Product-Cycle Approach (Stevcevska, et. al, 2020; Emiaso and Amaechi, 2018;; Mateso-Ronco and Mezquida, 2016; Basu, et. al, 2016; Ezugwu and Agu, 2016; Ali, Malo-Alain and Haque, 2015; Adigbole and Oludoyi, 2015; Elhamma and Yifei, 2013; Rattanaphaphtham and Ussahawanitchakit, 2010; Zaman, 2009; Ebben and Johnson, 2005). Although Janjic, Karapaviovic and Damjanovic (2017) report that the impact of strategic cost management techniques are negligible, they acknowledge the potential benefits of the techniques on performance and competition. Cescon, Costantini and Grassetti (2018) conclude Strategic Management Accounting techniques such as strategic pricing, balances scorecard, risk analysis target costing and life-cycle costing have positive association with performance and competitive forces. This study focuses on examining the impact of three of the of the SCM techniques of ABC, TC and LCC on the organizational performance in the Nigerian manufacturing firms.

Activity-Based Costing

The works of Turney (1996) and Cooper and Kaplan (1999) contributed to the development of Activity-Based Costing (ABC) technique in an effort to address the failure of the traditional costing methods, and to generate accurate product cost information. Activity-Based Costing (ABC) is a cost management accounting process that ensures the allocation of manufacturing costs to products based on activities which drive the incurrence of such costs (Krumwiede and Roth, 1997). The key concept of ABC is that manufacturing activities involve the use of resources and that the allocation of the costs should be based on the relevant cost driver of the

activities (Wegmann, (2019). Hence, the elaborate cost allocation process of ABC allows the costs of products to be accurately measured. The main purpose of ABC, as noted by Turney (1996) and Cooper and Kaplan (1999) is to provide accurate production cost information, determine selling prices, identify market channels, and implement business strategies for attaining competitive advantage. Albalaki, Abdullah, and Kamardin (2019) demonstrate the role of ABC implementation on the relationship between external contingency factors and organizational performance.

Target Costing

Another SCM method of Target Costing (TC) is a process of allocating product costs based on consumer demand, product planning and design and functional cost analysis (Emiaso and Amaechi, 2018). Ansari and Bell (1997), describe the basic principles of Target Costing as a market-orientated, customer-focused, and design-focused technique to achieve cross-functional and value-chain goals. TC embodies the concepts of desired product/service quality characteristics (Ellram, 2006), product functionality through market survey (Zengin and Ada, 2010), target selling price through pricing research, customer's view surveys, reviews of competitor pricing, and disaggregation of target cost components and functions (Gopalakrishnan, Samuels and Swenson, 2007), target profit through market research (Hamood, Omar and Suleiman, 2013), cost reduction, and continuous improvement (Shank and Fisher, 1999).

Life Cycle Costing

Life Cycle Costing (LCC) refers to the process of estimating and accumulating the total costs in monetary terms that producer or manufacturer will incur over a product's entire life with the aim of minimizing its combined costs (Testa, et al., 2011). Spickova and Myskova (2015) note that the main goal of life cycle costing approach is to optimize the life cycle cost of a product without sacrificing firm performance. This goal depends on the accurate determination of life cycle cost of the product. Horngren, Foster and Datar (2000) refer to LCC as "cradle-to-grave costing" as all the costs associated with a product during its life span are captured and analyzed. LCC ensures that the total cost determined and managed for each product life stages of introduction, growth, maturity, and decline need to be accurate in order to contribute to the enhancement of firm performance and competitive advantage. Bengu and Kara (2010) also assert that the costs determination process of a product during its life cycle can be classified into three phases of pre-manufacturing cost, manufacturing costs and post-manufacturing costs, and because LCC focuses on cost behavior during each unique phase of the product life cycle, managers and planners are able to manage costs effectively. Pavlatos (2018) reportes that SCM techniques have significant positive impact on performance and competitiveness, but that life cycle technique does not directly impact performance.

Organizational Performance

Organizational Performance (OP) is the accomplishment of an organization measured in financial (quantitative) or non-financial (qualitative) terms. Mostly, Organizational Performance can be measured in financial terms (profit, return on investment (ROI) return on assets (ROA, earnings per share (EPS)), product market performance (market share and sales level),

shareholder return (dividends ratio, economic value added (EVA), and stock price). These measures of organizational performance are effectiveness indicators, and firm success. Several studies have used these performance indicators to study organizational performance (Hassan, et al., 2013; Hagedoorn and Cloodt, 2003; Gunday, et al., 2011). In their study of the Balanced Scorecard (BSC) concept, Kaplan and Norton (1996) argue that an organization's vision and strategy are best achieved if viewed from customer, internal business operations, growth, and financial perspectives. The study of Tontiset and Usshawanitchakit (2009) which investigates the relationships among cost management effectiveness, cost information usefulness, corporate competitiveness and firm success, reveals that cost management effectiveness plays a role in driving superior corporate competitiveness and firm success.

RESEARCH HYPOTHESES

The conclusions of extant studies indicate that strategic cost management methods have an impact on firm's financial performance (Mijoc, Starcevic and Mijoc, 2014). Alsoboa, Al-Ghazzani and Joudeh (2015) asserts that Activity-Based Costing, Target Costing and Cost of Quality have positive effects on overall performance, while Life-Cycle Costing and Value Chain Costing do not have a significant effect on the performance of the firms they studied. Several others studies of strategic cost management also report evidence of strong relationship between strategic cost management techniques and organizational performance (Ali, Malo-Alain, and Haque, 2015; Noordin, Zainudin, et al., 2015; Adigbole and Oludoyi, 2015; Ebben and Johnson, 2005; Rattanaphaphtham and Ussahawanitchakit 2010; Zaman, 2009; Elhamma and Yifei; 2013). This study endeavors to study the SCM methods in the Nigerian manufacturing industry. Hence, we postulate the following null hypothesis:

Ho 1: Activity-Based Costing has no significant impact on organizational performance of manufacturing firms.

Current literature asserts that Target Costing can assist a firm in producing products with lower cost, better quality and enhanced performance (Huang, et al., 2012). Target Costing achieves lower product cost by minimizing production costs through the imposition of spending limits, and avoidance of waste. Prior studies assert that there is a positive correlation between Target Costing and Organizational Performance (Juhmani, 2010; Huang, Lai and Chun, 2012; Tontiset and Choojan, 2012; Chaikambang, Ussahawanitchakit and Boolua, 2012; Imeokparia and Adebisi, 2014). We hereby propose the following null hypothesis:

Ho 2: Target costing has no significant effect on organizational performance of manufacturing firms.

Life Cycle Costing is also relevant in performance enhancement and cost reduction. The organization that seeks cost reduction and performance improvement focuses its cost management activities on all the production stages of a product as noted by Berliner and Brimson (1988). However, prior studies have reported mixed results concerning the association between LCC and Organizational performance. Mijoc, Starcevic and Mijoc (2014) examines the relationship between strategic cost management methods and firms' financial performance; they conclude that financial performance is significantly positively associated with the cost

management methods. However, Alsoboa, Al-Ghazzani and Joudeh (2015) examine the impact of some of the strategic costing techniques on the performance of Jordanian listed companies. While the result indicates that some strategic cost management methods impact firm performance positively, the Life-Cycle Costing method does not have a significant effect on the performance of the firms studied. We hereby propose the following null hypothesis:

Ho 3: Life Cycle Costing has no significant influence on organizational performance of manufacturing firms.

METHODOLOGY

This study employs a cross-sectional survey research design, which allows for the examination of statistical associations at any particular point in time. The study examines the ABS, TC and LCC cost management practices of manufacturing firms located in Lagos and Ogun States of Nigeria, where majority of Nigerian manufacturing firms' headquarters and/or manufacturing facilities are located (Adigbole, 2018). A list of seventy-seven (77) quoted manufacturing firms with potential 385 respondents in the geographical areas were obtained from Nigerian Stock Exchange 2015/2016 Fact Book. Using Taro Yamane formula (Imeokparia, 2013), 65 of the quoted manufacturing companies were selected for the study.

The primary data were collected using a survey instrument. The survey items consists of relevant questions to assess the implementation of strategic cost management methods (ABC, TC and LCC), and demographic characteristics. The survey items for Firm Performance (dependent variable) were developed using a seven-point Likert scale ranging from 1 being **greatly decreased** to 7 being **greatly increased**, and those items for ABC, TC and LCC (independent variables) as (1) being **strongly disag**ree to (7) being **strongly agree** (adapted from Aksoylu (2013).

Five (5) copies of the survey instrument were administered in each of the sampled sixty-five (65) companies, a total of 325 survey instruments. The financial accountant, cost accountant, management accountant, chief accountant, and chief internal auditor of each manufacturing company were implored to complete the survey. These accounting professionals were considered knowledgeable in cost and management accounting to provide relevant responses to the questions on strategic cost management practices (Singh, 2013). Two hundred and forty–four (244) copies of the survey instruments were completed and returned, yielding 75% response rate. However, 11 returned survey instruments are unusable. Consequently, two hundred and thirty-three (233) survey responses from 57 manufacturing firms were used in this study, a 71.7% usable response rate.

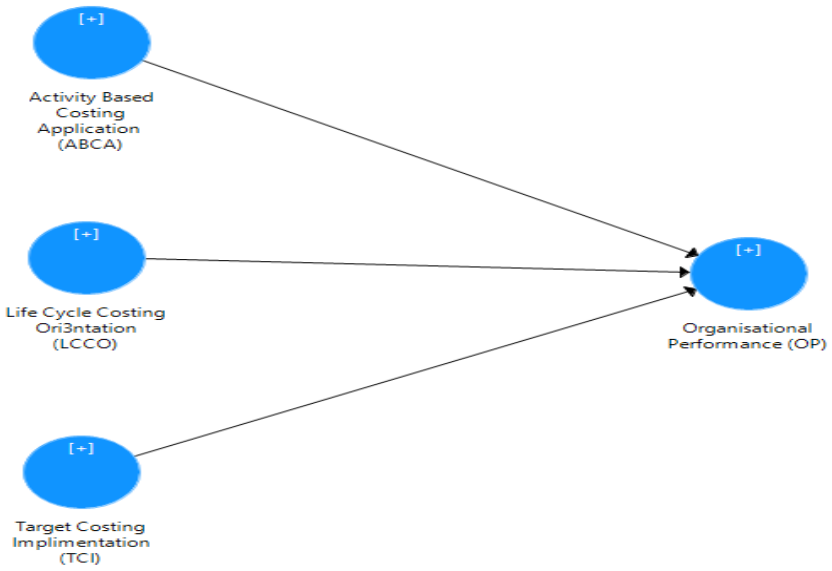
Partial Least Squares-Structural Equation Modeling (PLS-SEM) method, which is appropriate for assessing complex cause-effect relationship models with latent variables, was used to analyze the survey data and to test the hypotheses. PLS-SEM was also used to determine several measures of reliability and validity tests (Baines and Langfield-Smith, 2003).

Structural Equation Model

In using PLS-SEM to examine the hypothesized effects of ABC, TC and LCC on Organizational Performance (OP), the structural equation of the relationships among the variables involved in the study is specified in pictorial form. In Figure 1, the independent

variables known as the exogenous variables are Activity Based Costing Application (ABCA), Target Costing Implementation (TCI) and Life Cycle Costing Orientation (LCCO) representing activity based costing, life cycle costing and target costing respectively, and the dependent variable as Organizational Performance (OP).

Figure 1: The Study's Structural Model

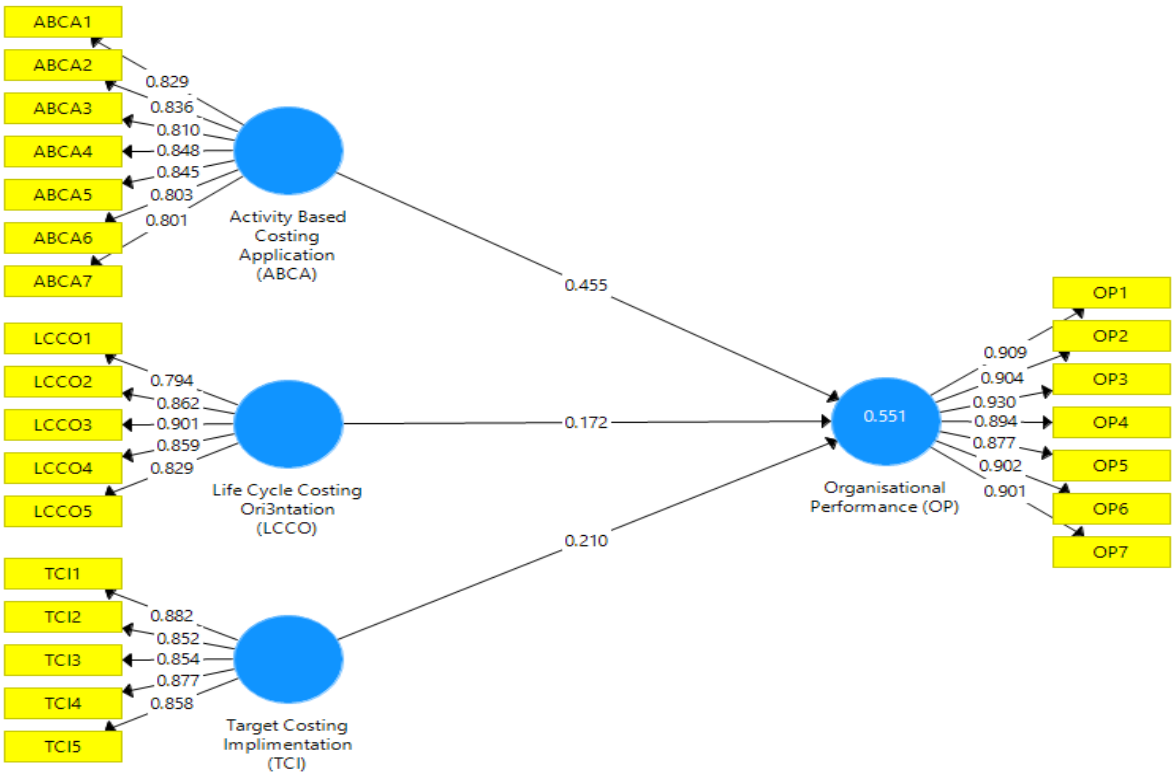


ANALYSIS AND DISCUSSION OF RESULTS

The PLS-SEM data analysis was carried out in two steps. The first step used the PLS algorithm in SmartPLS 3 to produce some preliminary test results which were used in evaluating the measurement model. The second step used the SmartPLS algorithm to obtain the β values, the R^2, and Smart PLS bootstrapping process to obtain the t-statistic and the p-values which indicate the significance value of the β. The values produced in the second step were used in evaluating the structural model that defines the relationships among the variables.

The measurement model defines the relationships between the latent (construct) variables and their manifest (indicators) variables. In the preliminary test for evaluating the measurement model, the PLS algorithm of SmartPLS 3 produced results for Indicators Reliability, Construct Reliability and Validity, Convergent Validity, and Discriminant Validity. The results are presented in Figure 2 below.

Figure 2: Measurement (Outer) Model Results



Indicators Reliability Test

Reliability is a requirement for the validity of SEM results. The indicator reliability test is measured by indicators loading and indicators reliability. In Table 1, all the indicators used in this model have loadings ranging from 0.794 to 0.930 which are above the required threshold of 0.70 (Ringle, 2006). Also, the indicators reliability range from 0.630 to 0.865, which are above the common threshold criterion of 0.50 (Hair et al., 2014). These results show that all the indicators are reliable and the measurement model is strong.

Construct Consistency Reliability and Validity

The Construct Consistency Reliability which indicates how well a set of manifest variables appraises a single latent construct was evaluated by two measures – Cronbach's Alpha and Composite Reliability (CR). From Table 2, the Cronbach Alpha and the Composite Reliability (CR) values of all the latent variables in the study were above the required value of 0.70. The results therefore show that internal consistency reliability is demonstrated.

Convergent Validity

The Convergent Validity shows the amount of variance captured by the latent variable from its relative manifest (indicator) variables due to measurement errors (Memon and Rahman, 2014). This was tested using Average Variance Extracted (AVE) test. From Table 2, the AVE values of all the constructs in this model, were greater than 0.5 stipulated by Hair *et al*. (2011). This result indicates that convergent validity is confirmed and the model is adequate.

Table 1: Indicator Reliability

Latent Variable	Indicators	Loadings	Indicator Reliability
Activity Based Costing Application (ABCA)	**ABCA1**	**0.829**	**0.687**
	ABCA2	**0.836**	**0.699**
	ABCA3	**0.810**	**0.656**
	ABCA4	**0.848**	**0.719**
	ABCA5	**0.845**	**0.714**
	ABCA6	**0.803**	**0.645**
	ABCA7	**0.801**	**0.642**
Target Costing Implementation (TCI)	**TCI1**	**0.882**	**0.778**
	TCI2	**0.852**	**0.726**
	TCI3	**0.854**	**0.729**
	TCI4	**0.877**	**0.769**
	TCI5	**0.858**	**0.736**
Life Cycle Costing Orientation (LCCO)	**LCCO1**	**0.794**	**0.630**
	LCCO2	**0.862**	**0.743**
	LCCO3	**0.901**	**0.812**
	LCCO4	**0.859**	**0.738**
	LCCO5	**0.829**	**0.687**
Organizational Performance (OP)	**OP1**	**0.909**	**0.826**
	OP2	**0.904**	**0.817**
	OP3	**0.930**	**0.865**
	OP4	**0.894**	**0.799**
	OP5	**0.877**	**0.769**
	OP6	**0.902**	**0.814**
	OP7	**0.901**	**0.812**

Discriminant Validity

Discriminant Validity test is carried out to confirm that the manifest variable in any construct is relevant to the designated latent variable. Discriminant Validity test is measured using Fornell-Larker criterion (Fornell-Larker, 1981) and Heterotrait-Monotrait (HTMT) ratio (Henseler, Ringle and Sarstedt, 2015). Table 3 shows that the values of the square root of AVE, presented diagonally, are larger than other correlation values among the latent variables. The discriminant validity is achieved because the diagonal value is higher than the value in its row and column. Using the Heterotrait-Monotrait (HTMT) ratios to test for Discriminant Validity, the results in Table 4 show that for each pair of latent variables, the values are below the criterion of $HTMT_{0.90}$. This also indicate that the discriminant validity is attained in this study. The HTMT ratio is a notable method of measuring discriminant validity.

Table 2: Construct Reliability and Validity			
Latent Variable	**Cronbach's Alpha**	**Composite Reliability**	**Average Variance Extracted (AVE)**
Activity Based Costing Application (ABCA)	**0.922**	**0.937**	**0.680**
Target Costing Implementation (TCI)	**0.916**	**0.937**	**0.748**
Life Cycle Costing Ori3ntation (LCCO)	**0.904**	**0.928**	**0.722**
Organizational Performance (OP)	**0.962**	**0.968**	**0.815**

Table 3: Fornell-Larcker Criterion for Discriminant Validity Test				
Latent Variable	ABCA	LCCO	OP	TCI
Activity Based Costing Application (ABCA)	**0.825**			
Life Cycle Costing Orientation (LCCO)	0.538	**0.850**		
Organizational Performance (OP)	0.691	0.578	**0.903**	
Target Costing Implementation (TCI)	0.682	0.768	0.652	**0.865**

Table 4: Heterotrait-Monotrait (HTMT)				
Latent Variable	**ABCA**	**LCCO**	**OP**	**TCI**
Activity-Based-Costing Application (ABCA)				
Life Cycle Costing Orientation (LCCO)	**0.587**			
Organizational Performance (OP)	**0.727**	**0.615**		
Target Costing Implementation (TCI)	**0.738**	**0.847**	**0.691**	

The results of the various preliminary tests, above are satisfactory in implying that the measurement (manifest) variables are able to measure their constructs correctly and that the constructs are able to measure what they are intended to measure. With the outer model properly evaluated, we proceed to evaluate the structural or inner model of the study.

The structural (inner) model which specifies the relationship between the exogenous variables (Activity-Based Costing application, Target Costing implementation, and Life Cycle Costing orientation) and endogenous latent variable (Organizational Performance) is presented in Figure 3 which shows the coefficient of determination (R^2) and the path coefficients (β values) in the model. SmartPLS algorithm was used to obtain the β values and the R^2; while Smart PLS bootstrapping process was used to obtain the t-statistic and the p-values.

Since PLS-SEM does not have overall goodness of fit measures (Hulland, 1999), the R^2 and the path coefficients are used in deciding which paths to leave in the model and which to discard (Henseler and Sarstedt, 2013). The R^2 is the overall effect size measure for the structural model; a higher R^2 indicates a higher predictive ability. In SEM, the R^2 can be evaluated based on the threshold of 0.75, 0.50, and 0.25 as large, moderate, and weak, respectively (Hair et al., 2011).

In Figure 3 and Table 5, the endogenous constructs' predictive power shows that Organizational Performance (OP) has R^2 value of 0.551 which shows that the model predictive

capacity is moderate. Thus, Activity Based Costing Application (ABCA), Life Cycle Costing Orientation (LCCO) and Target Costing Implementation (TCI) combined, moderately predict an impact on Organizational Performance (OP).

Figure 3: Structural (Inner) Model

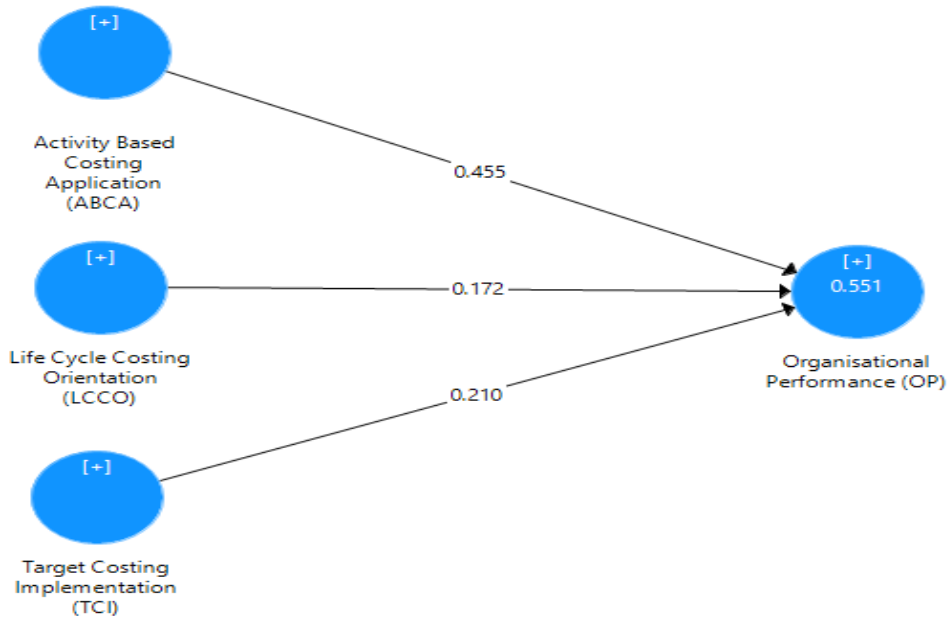


Table 5: Coefficient of Determination (R^2)		
	R Square (R^2)	**R Square Adjusted**
Organizational Performance	**0.551**	**0.545**

Independent Variables: ABCA, LCCO & TCI

Furthermore, the relationship between the constructs in PLS-SEM can be determined by examining their path coefficients and related t-statistics computed through the bootstrapping procedure of SmartPLS. The estimates obtained for the structural model relationships are the results of running of PLS-SEM algorithm. The significance of the coefficients is determined through the bootstrapping process. In this analysis, the bootstrapping procedure was carried out. The results are presented in Table 6. There are three (3) paths coefficients and all the coefficients are significant at 10% significant level and each path coefficient shows a positive effect. Activity Based Costing Application (ABCA) has the highest positive effect on Organizational Performance (OP) with path coefficient of 0.455; followed by Target Costing Implementation (TCI) with 0.210 and Life Cycle Costing Orientation with 0.172. Similarly, the

t-statistic value of each independent variable is greater than zero, which indicates that the null hypotheses is rejected.

Table 6: Path Coefficients with Significance Value

Paths	Hypothesis	Coefficient (β)	Standard Deviation	T- Statistics (β/STDEV)	P-Values	Significant?
ABCA -> OP	[1]	0.455	0.065	7.031	**0.000**	YES
TCI -> OP	[2]	0.210	0.094	2.221	**0.026**	YES
LCCO -> OP	[3]	0.172	0.094	1.837	**0.066**	YES

Discussion of Results

In determining the impact of Activity-Based Costing on Organizational Performance of the sampled firms, the results indicate that Activity Based Costing Application (ABCA) has a direct significant influence on Organizational Performance ($\beta = 0.455$, $p < 0.01$). This result indicates that Activity-Based Costing application positively relates to Organizational Performance. This result supports the findings of many prior studies such as Ali, Malo-Alain, and Haque, 2015; Noordin, et al., 2015; Adigbole and Oludoyi, 2015; Ebben, et al., 2010; Elhamma and Yifei, 2013. Therefore, the hypothesis, *Ho 1: Activity-Based Costing has no significant impact on organizational performance of manufacturing firms* is not supported.

Likewise, the Target Costing Implementation (TCI) has a positive significant impact on the Organizational Performance of the sampled companies. As shown in Table 6, TCI has a significant positive influence on Organizational Performance ($\beta = 0.035$, $p > 0.10$). This implies that the implementation of Target Costing technique does enhance the performance of the firms. The finding of this study is consistent with the outcome of the studies of Alsoboa et al. (2015), Imeokparia and Adebisi (2014), Kaneko et al. (2013), and Huang, Lai and Chun (2012), which report positive effect of target costing implementation on the overall financial performance, return on investment and cost reduction, and strong impact on organizational achievement**.** Hence, the hypothesis, *Ho 2: Target costing has no significant effect on organizational performance of manufacturing firms* is not supported.

Also, the impact of Life Cycle Costing (LCC) on Organizational Performance of the sampled firms is positive. This result supports the findings of Petrova and Zarudnev (2013) and Ilic, Millicevie and Cvetkovic, et al. (2010), which indicate that a successful implementation of LCC leads to improvement in firm's profitability and strategic goals related to the achievement of firm's competitiveness and profitability, and Bengu and Kara (2010) who argue that the management of a product cost throughout its life cycle can deliver cost reduction and profitability. Life Cycle Costing Orientation (LCCO) has a significant positive influence on Organizational Performance with the $\beta = 0.173$ and $p > 0.10$. Hence, we conclude that the hypothesis, *Ho 3: Life Cycle Costing has no significant influence on organizational performance of manufacturing firms* is rejected.

CONCLUSSION AND RECOMMENDATION

This study investigated the influence of Strategic Cost Management approaches of Activity-Based Costing, Target Costing, and Life Cycle Costing on Organizational Performance of manufacturing firms. The results indicate that these Strategic Cost Management methods have positive impact on firm performance. In the highly automated industry and complex manufacturing processes, we recommend that Nigerian manufacturing firms consider implementing strategic cost management practices as they strive to enhance firm performance and strengthen competitive advantage against foreign competitors.

We would like to acknowledge that this study is without a limitation regarding generalization. Because the sample firms are from two states in the western part of Nigeria, there could be a question about whether the sample is representative of the population of manufacturing firms in Nigeria. Hence, the results of this study should be generalized to the populations with caution. Further studies should endeavor to replicate this study in other parts of the country. Furthermore, future work should consider studies that examine influence of other SCM methods such as Balance Scorecard, Total Quality Management in the manufacturing industry.

REFERENCES

Abdel-Kader, M. and Luther, R. (2008). The impact of firm characteristics on management accounting practices: a UK based empirical analysis. *The British Accounting Review, 40* (1), 2-27.

Abdullah, N.H.N. and Said, J. (2016). Strategic management accounting practices and value creation: towards good governance and accountability in government linked companies. *International Conference on Accounting Studies (ICAS)*, 15(18), 107-114.

Adigbole, E.A. (2018). Strategic Cost Management and Performance of Selected manufacturing firms in Lagos and Ogun States, Nigeria. *Unpublished Doctoral Thesis.* University of Ilorin, Nigeria.

Adigbole and Oludoyi (2015). Impact of Activity-Based Costing Implementation on Performance of Selected Manufacturing Firms in Kwara State Nigeria. *ICAN Journal of Accounting and Finance, Special Edition, 1, 30-45.*

Aksoylu, S. E. A (2013). Effects of Strategic Management Accounting Techniques on Perceived Performance of Businesses. *Journal of US-China Public* A*dministration*, 10(10), 1004-1017.

Albalaki, F.M.M., Abdullah, Z. and Kamardin, H. (2019). The influence of external contingency factors and Activity-Based Costing implementation on organizational performance. *Jurnal Pengurusan*, 55, 111-124.

Ali, S., Malo-Alain, A.M. and Haque, M. I. (2015). Impact of activity based costing on Firms' performance in Saudi Arabia. *Scientific International*, *27*(1), 597-606.

Alsoboa, S., Al-Ghazzawi, A., and Joudeh, A. (2015). The impact of strategic costing techniques on performance of Jordanian listed manufacturing companies. *Research Journal of Finance and Accounting, 6* (10), 116-127.

Ansari, S.L and Bell, J.E. (1997). *Target costing: The next frontier in strategic cost management.* Irwin, Chicago: Professional publishing Homewood.

Baines, A. and Langfield-Smith, K. (2003). Antecedents to management accounting change: A structural equation approach. *Accounting, Organizations and Society*, 28, 675-698.

Basu, R., Bhola, P., Ghosh, I. and Dan, P.K. (2016). Critical linkages between quality management practices and performance from India IT enabled services SMEs. *Total Quality Management*, 29(8), 881-919.

Bengu, H. and Kara, E. (2010). Product life cycle costing methodology. *Banking and Finance Letters,* 2, (3), 325-333.

Berliner C. and Brimson J.A. (Eds.). (1988). Cost Management for Today's Advanced Manufacturing. *Boston Harvard Business School Press*, 22-33, and 140-141.

Blocher, E. J., Chen, K. H., and Lin, T. W. (2002). *Cost management: A strategic emphasis*. Boston, MA: McGraw-Hill/Irwin.

Cescon, F., Costantini, A. and Grassetti, L. (2018). Strategic choices and strategic management accounting in large manufacturing firms. *Journal of Management and Governance*, 07(August), 1-32.

Chaikainbang, C., Ussahawanitchakit, P., and Boonlua, S., (2012), Strategic cost management and goal achievement: Evidence from food business in Thailand, *International Journal of Business Strategy*, 12(4), 1-27.

Cheng, J. and Lin, I. (2018). Empirical research on the power of decision-making in strategic cost management and corporation competitiveness the case study of Taiwan Enterprises. *The International Journal of Organizational Innovation*, 11(1), 1-24.

Cooper, R. and Kaplan, R.S. (1999). *The Design of Cost Management system.* London: Prentice Hall.

Cooper, R. and Slagmulder, R. (1998). Strategic Cost Management: The scope of strategic cost management. *Management Accounting, 79(*8), 16-18.

Drury, C. (2012). *Management and cost Accounting*, 8th ed., Andover, Hampshire: Cengage Learning EMEA.

Ebben, J.J. and Johnson, C.A. (2005), Efficiency, flexibility, or both? Evidence linking strategy to performance in small firms. *Strategic Management Journal, 26*, 1249-1259.

Elhamma, A. and Yi Fei, Z. (2013). The relationship between activity-based costing, business strategy and performance in Moroccan enterprises. *Accounting and Management Information Systems,* 12(1), 22–35.

Ellram. L. M. (2006). The implementation of target costing in the United States: Theory Versus Practice. *Journal of Strategic Cost Management*, 10-19.

Emiaso, D. and Egbunike, A. P. (2018) Strategic Management Accounting Practices and Organizational Performance of Manufacturing Firms in Nigeria. *Journal of Accounting and Financial Management*, 4(1), 10-18.

Ezugwu, B.C. and Agu, O.A. (2016). The effect of Total Quality Management on performance in public enterprise. *International Journal of Advanced Research in Management and Social Sciences,* 5(8), 99-118.

Fornell, C. and Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39 -50.

Gliaubicas. D. and Kanapickienen, R. (2015). Contingencies impact on strategic cost management usage in Lithuanian Companies. *Procedia - Social and Behavioral Sciences*, 213, 254-260.

Gopalakrishnan, M., Samuels, J., and Swenson, D. (2007). Target costing at a consumer products company. *Strategic Finance*, 37-4 usage1.

Gunday, G., Ulusoy, G., Kilic, K., and Alpkan, L. (2011). Effets of innovation types on firm performance. *International Journal of Production Economy*, 133(2), 662 – 676.

Hagedoorn, J. and Cloodt, M (2003). Measuring innovation performance: Is there an advantage in using multiple indicators? *Research Policy*, 32(8), 1365-1379.

Hair, J.F., M., Ringle, C.M. and Sarstedt, M., (2011). PLS –SEM: Indeed a silver g research. *Journal of Marketing Theory and Practice, 19*(3), 139-151.

Hair Jr, J., Sarstedt, M., Hopkins, L., and Kuppelwieser, G. V. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, *26*(2), 106-121.

Hamood, H., Omar, N. and Suleiman, S. (2013). Target costing practice: A review of literature. *Asia-Pacific Management Accounting Journal, 6 (1), 25-46.*

Hassan, M.U., Shaukat, S., Nawaz, M.S., and Naz, S. (20013), Effect of innovation types on firm performance: An empirical study on Pakistan manufacturing sector and *Pakistan Journal of Commerce and Social Sciences*, vol. 7(2), 243 – 262.

Henseler, J., Ringle, C.M. and Sarstedt, M. (2015), "A new criterion for assessing discriminant validity in variance-based structural equation modeling", *Journal of the Academy of Marketing Science*, 43(1), 115-135.

Henseler, J and Sarstedt, M. (2013). Goodness-of-fit indices for partial least squares path modeling. *Computational Statistics*, 28, 565–580.

Horngren, C., Foster, G. and Datar, S. (2000). *Cost Accounting: A Managerial Emphasis*, 10th ed. New Jersey: Practice-Hall Inc.

Huang, H. C., Lai, M. C., Kao, M. C. and Chun, Y. C. (2012). Target costing, business model innovation and firm performance: An empirical analysis of Chines firms. *Canadian Journal of Administrative Sciences, 29*(4), 322 -335.

Hulland, J. (1999). Use of partial least squares (PLS) in strategic management research: A review of four recent studies. *Strategic Management Journal, 20*(2), 195-204.

Illic, B., Millicevic, V. and CVetkovic, N. (2010). The Strategic Cost Management and the Product Life Cycle Concept. *Megatrend Review, 7*(1), 193-208.

Imeokparia L. (2013). *Activity-Based Costing and the Performance of Manufacturing Industries in South-Western Nigeria.* Unpublished Doctoral Thesis in Business Administration, Babcock University, Nigeria. 1-2.

Imeokparia, L. and Adebisi, S. (2014). Target costing and performance of manufacturing Industry in South – Western Nigeria. *Global Journal of Management and Business Research, 14*(4), 1-9.

Ismail, K., Isa, C.R., Mia, L. (2018). Market Competition. Lean manufacturing practices and the role of management accounting systems (MAS) information. *Jornal Pengurusan*, 52, 47-61.

Janjic, V., Karapavlovic,N. and Damjanovic, J. (2017) Techniques of strategic cost management - the case of Serbia. *Economic Themes*, 56(3): 321-334.

Juhmani, O.I.H. (2010). Adoption and benefits of target costing in Bahraini manufacturing companies. *Journal of Academy of Business and Economics*, 10(1), 113-122.

Kaneko, P., Ussahawanitchakit, P and Muenthaisong, K., (2013). Strategic target costing effectiveness and goal achievement: Empirical evidence from exporting gem and jewelry Business in Thailand, *International Journal of Business Strategy*, 13(3), 127-157.

Kaplan, R.S and Norton, D.P. (1996). *The balanced scorecard: Translating strategy into Action.* Boston: Harvard Business School.

Kariuki, S.N. and Kamau, C.G. (2016). Organizational contingencies influencing the adoption og strategic management accounting practices among manufacturing firms in Kenya. *International Journal of Advanced Research in Management and Social Sciences*, 5(4), 167-182.

Krumwiede, K. and Roth, H. (1997). Implementing information technology innovations: the activity-based costing example. *S.A.M. Advanced Management Journal*, 62, (4), 4- 3.

Mahmud, I., Anitsal, I. and Anitsal, M.M. (2018). Revisiting responsibility accounting: what are the relationships among responsibility centers? *Global Journal of Accounting and Finance*, 2(1), 84-98.

Mateos-Ronco, A. and Mezquida, J.M.H. (2016). Developing a performance management model for the implementation of TQM practices in public education centres. *Total Quality Management*, 29(5-6), 546-579.

Memon, A.H. and Rahman, I.B. (2014). SEM-PLS analysis of inhibiting factors of cost performance for large construction projects in Malaysia: Perspective of clients and consultants. *The Scientific World Journal*, 2014, 1-9.

Mijoč, J., Starčević, D. P. and Mijoč, I (2014). Investigation of the relationship between contemporary cost management methods and improvement in financial performance. *Economic Research-Ekonomska*, 27(1), 393–413, (Online): http://www.tandfonline.com/loi/rero20. Accessed on 20 -8- 2017.

Noordin, R., Zainudin, Y., Mail, F., Mail, R. and Sariman, N.K (2015). Performance outcome of strategic management accounting information usage in Malaysia: insights from Electrical and Electronics companies. *Procedia Economics and Finance*, 31, 13-25.

Pavlatos, O. (2018). Strategic cost management, contingent factors and performance in service. *Accounting and Management Information Systems*, 17(2), 215-233.

Petrova, A.I and Zarudnev A.I. (2013). Strategic cost management. *European Researcher 4*(4), 1009-1013.

Rattanaphaphtham, K. and Ussahawanitchakit, P. (2010). Activity-based costing effectiveness: How does it influence competitive advantage and performance of Thai- Listed firms*? International Journal of Business Strategy*, *10*(2), 1-21.

Ringle, C. M. (2006). *Segmentation for path models and unobserved heterogeneity: The finite mixture partial least squares approach*. Hamburg, Germany: Research Papers on Marketing and Retailing, No. 35, University of Hamburg.

Shank, J. and Govindarajan, V. (1989): Strategic Cost Analysis: The Crown Cork and Seal Case. *Journal of Cost Management*, Winter, 5-27.

Shank, J. and Fisher, J. (1999). Target Costing as a Strategic Tool. *Sloan Management Review*, Fall, 41(1), 73-82.

Shuah, H., Malik, A and Malik, M.S. (2011). Strategic management accounting: A messiah for management accounting. *Australian Journal of Business and Management, 1*(4), 1-7.

Singh, R. (2013). Doing organized garment retailing business in India: A critical analysis. *American Journal of Industrial and Business Management*, 3, 472-479.

Spickova, M. and Myskova, R. (2015). Cost efficiency evaluation using life cycle costing as strategic method. *Procedia Economics and Finance*, 34, 337-343.

Stevcevska, D.S., Stojanova, m., Hristova, S. and Mrsik, J. (2020). The impact of organizational characteristics on the adoptopn of comtemporary cost management techniques by the textile industry in North Macedonia. *Accounting and Management Information Systems*, 19(1), 65-88.

Testa, F., Iraldo, F., Frey, M. and O'Connor, R. (2011). Life cycle costing, a view of potential application: from cost management tool to eco – efficiency measurement. *Supply Chain Management,* Dr. Pengzhong Li (Ed), 569 – 590.

Tontiset, N. and Ussahawanitchakit, P. (2009). Effects of cost management effectiveness on cost information usefulness, corporate competitiveness and firm success: an empirical study of Thai Manufacturing Firms, *Journal of Academy of Business and Economics*, 9(2), 91-101.

Tontiset, N., and Choojan, J. (2012), The successful of strategic cost management of electronic manufacturing business in Thailand: An empirical research of its antecedents and consequences, *International Journal Business strategy*, 12(3), 133-149.

Turney, P. (1996). Activity-Based Costing: The Performance Breakthrough. London: Peter B. Publication.

Wegmann, G. (2019). A typology of cost accounting practices based on Activity-Based Coasting - a strategic cost management approach. *Asian Pacific Management Accounting Journal*, 14(2), 161-184.

Zaman, M. (2009). The impact of activity based costing on firm performance: The Australian experience. *International Review of Business Research Papers*, 5(4), 200-208.

Zengin, Y., and Ada, E. (2010). Cost management through product design: Target costing approach. *International Journal of Production Research*, *48*(19), 5593-561.