

**STRATEGIC COST MANAGEMENT AND PERFORMANCE OF SELECTED
MANUFACTURING FIRMS IN LAGOS AND OGUN STATES, NIGERIA**

BY

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CERTIFICATION

We the undersigned hereby certify that this thesis has been read approved as meeting the requirements of the Department of Accounting, Faculty of Management Sciences, University of Ilorin, Ilorin, Nigeria for the award of Doctor of Philosophy (Ph.D.) Degree in Accounting.

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DEDICATION

This Thesis is dedicated to the Lord God Almighty, the Father of our Lord Jesus Christ

DECLARATION

I, ADIGBOLE Ezekiel Aiyenijo hereby declare that this thesis entitled “Strategic Cost Management and Performance of Selected Manufacturing Firms in Lagos and Ogun States of Nigeria.” is a record of my research work. It has neither been presented nor accepted in any previous application for a higher degree. All sources of information have been specifically acknowledged.

In addition, the research work has been ethically approved by the University Ethical Review Committee.

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ABSTRACT

Rising cost of production has threatened the survival of manufacturing firms in Nigeria. These firms rely on the use of traditional approaches to managing costs most times. However, these approaches often failed to yield the desired results, especially in this contemporary time of intense competition and change in firms' cost structure. This therefore makes it imperative for firms to implement costing strategies in order to remain competitive and profitable. Hence, this study examined the effect of strategic cost management on performance of selected manufacturing firms in Lagos and Ogun States. The objectives of this study were to: (i) examine the implementation of strategic cost management techniques by manufacturing firms; (ii) examine the influence of strategic cost management practices on accurate cost information; (iii) assess the impact of Activity-Based Costing (ABC), Activity-Based Management (ABM), Target Costing (TC) and Life Cycle Costing (LCC) practices on performance; (iv) examine the effect of customer value enhancement on performance; and (v) evaluate the impact of accountants' competency on strategic cost management practices.

Survey research design was employed. The population of the study consisted of three hundred and eighty five respondents (385), comprising accountants and internal auditors in seventy seven (77) listed manufacturing firms having head offices or factories in Lagos and Ogun States. The sample of the study consisted of three hundred and twenty five (325) respondents in sixty five (65) manufacturing firms selected randomly from the population. Primary data were collected through questionnaire administration. Data analysis was done using both descriptive statistics and structural equation modeling (partial least squares version).

The findings of the study were that:

- (i) strategic cost management techniques are being implemented moderately in the sampled manufacturing firms (at a minimum average of 4.3 in 7 point scale);
- (ii) strategic cost management practices (activity-based costing, activity-based management and target costing) have positive effects on accurate cost information ($\beta = 0.454, p < 0.01$; $\beta = 0.196, p < 0.05$; $\beta = 0.170, p < 0.10$, respectively);
- (iii) ABC and ABM have positive effects on performance ($\beta = 0.173, p < 0.10$; $\beta = 0.230, p < 0.05$, respectively); while TC and LCC have insignificant effects on performance ($\beta = 0.035, p > 0.10$; $\beta = 0.069, p > 0.10$);
- (iv) customer value enhancement has positive effect on performance ($\beta = 0.310, p < 0.01$); and
- (v) accountants' competency has positive impact on ABC, ABM and TC practices ($\beta = 0.399, p < 0.01$; $\beta = 0.372, p < 0.01$; $\beta = 0.248, p < 0.05$, respectively).

The study concluded that strategic cost management practices are relevant for performance improvement; accessing accurate cost information and enhancing customer value. The study recommended that manufacturing firms should implement strategic cost management practices to improve their performance, secure accurate cost information and enhance customer value. Manufacturing firms should also invest in the training of their accountants with a view to improving their competency which eventually will enhance ABC, ABM and TC implementation.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The contemporary business environment of today requires that manufacturing firms deploy sophisticated cost management system that will enable them cope with the challenges of cost management occasioned by the competitive and dynamic nature of the industry. Companies need to continually introduce new measures for managing their costs in order to remain competitive. The business environment of today is characterised by the globalisation of business, intense competition, advanced manufacturing technology, changes in customers' demand and expectation, and shortening product life cycles (Dent, 1996; Baines & Langfield, 2003; Chenhall, 2008; and Abdel-Kader & Luther, 2008). These changes have lead many manufacturing firms to radically change the method of their operations thus requiring a strategic approach to cost management practices in firms (Tuanmat & Smith, 2011; Hamood, Omar & Sulaiman, 2013; Pavlatos & Kostakis, 2015; and Baharudin & Jusoh, 2015).

Stiff competition and globalisation of markets are some of the changes that characterised the contemporary business environment. Besides, the orientation of the market has changed from being a seller's market to the buyer's market. In a buyer's market, customers are now more sophisticated and knowledgeable, less loyal and more cautious than in the past. They demand products that meet their specifications and expect high quality products at low prices and low cost of ownership (Lynch, 1999). The changed market orientation entails that customers now have to choose from a variety of products and so could demand for greater quality, better price and product performance (Apak, Erol, Elagöz & Atmaca, 2012). This situation necessitates that firms should implement effective cost management techniques to achieve product cost reduction and high performance, while not sacrificing product quality, functionality, and lead time (Omar, Sulaiman, Hui, AbdullRahman & Hamood, 2015).

Furthermore, the contemporary environment of manufacturing companies is characterised by the advancement in manufacturing and information technology. The manufacturing environment, over the years, is changing with the introduction of advanced production techniques such as just-in-time production systems; computer aided manufacturing, use of robots for manufacturing, etc. All these are meant to reduce or eliminate waste, and to improve quality and performance (Modarres, Ansari and Willis, 2001). The result of the improved automation of manufacturing activities is the increase in facilities' costs in comparison to material and labour cost of production. This has resulted to a change in the cost structure of the manufacturing firms. Overhead costs, which before the advent of advanced manufacturing technologies were insignificant part of production costs have dramatically increased due to depreciation, engineering cost and data processing cost. These changes have resulted in high overhead rates and drastic reduction in the cost of labour (Blocher, Chen, & Lin, 1999). Strategic cost management is, therefore, required to effectively manage production costs to secure an enhanced organizational performance (Henry, Boiral, & Roy, 2016; Ahmad, 2017). Besides, the world wide competitive pressures, industrial growth, advancement in manufacturing technology and the need to be customer-focused have created the need for manufacturing companies to create strategic position and sustain competitive advantage.

Focusing on Nigeria, the cost of production of goods and services in the country is quite high as large amount of overhead costs have to be incurred. For instance, companies have to generate their own power for production as electricity facilities in the country does not function well. It was reported in the survey conducted by the Manufacturers Association of Nigeria (MAN) that expenditure on self generated energy in the manufacturing sector had increased from N58.82b in 2015 to N129.95b in 2016 (Okon, 2017). This situation calls for radical improvement in managing production cost in manufacturing firms. Besides, other infrastructural facilities such as good roads are lacking. Imeokparia (2013) noted that between 2000 and 2009, over 834 Nigerian manufacturing firms have had to close factories and some had to relocate to other countries as a result of high cost of production.

This implies that Nigerian manufacturing companies need strategic cost management practices to effectively manage their production cost so that they can remain competitive and profitable.

Strategic cost management which in some countries, is regarded as strategic management accounting can provide cost information to assist in making strategic decisions and sustaining competitive advantage when a company operates in an intensive competitive environment (Foster & Swenson, 1997; Sulaiman, Ahamad & Alwi, 2005). In this contemporary competitive environment, it is important for firms to have meaningful information about cost and performance of their products, services and customers in order to help make managerial decisions. Strategic cost management has a broad focus that include cost management, revenue increase, productivity management and enhancement of strategic position of the firm (Chaikainbang, Ussahawanitchakit & Boonlua, 2012).

1.2 Statement of the Problem

In today's global competitive environment, firms cannot afford the risk of making decisions that are based on inaccurate or incomplete information due to faulty method of cost allocations under the traditional cost management system. The need to obtain accurate and complete information for cost reduction and enhancement of performance cannot be satisfactorily met under the traditional cost management system as it does not capture non-financial information. The focus of the traditional cost management is the provision of information mainly for the preparation of financial reports. It was asserted by Hansen and Mowen (2000) that for many decades, financial reporting was the driving force for the design of traditional cost management system. Due to this fact, firms are not able to take a strategic approach in effectively management of their costs. Therefore, there is a need for an effective cost management system to provide management with both financial and non-financial information for both short and long term use in gaining competitive advantage and performance enhancement (Noordin, Zainudin, Mail, Mail & Sariman, 2015). With increasing competition, accurate cost calculation of products has become important for businesses. Businesses need more accurate cost information than before in order to do the correct pricing and compete in the market.

Hence, the true costs incurred throughout the life of products before production or designs have to be known. This calls for the implementation of an integrated systems of activity - based costing, target costing and life cycle costing to generate the right cost information of products (Pazarceviren, 2015).

Although, strategic cost management tools such as activity – based costing, activity – based management, target costing, and life cycle costing have been empirically proved to have been applied successfully in developed countries, and although some of them were introduced decades ago, still, their degree of implementation varies in developing countries (Saaydah & Khatatneh (2014). In fact, in Nigeria, the study of the implementation of strategic cost management techniques and their impact on performance is scarce, not much works have been done in the dimensions this study set out to achieve. For firms operating in a competitive business environment, it is imperative to establish links with customers and suppliers, and for the management to strive to get all the processes controlled. This cannot be achieved without comprehensive information that includes those of customers and suppliers. Unfortunately, the traditional cost management cannot produce this kind of information; hence, there is need for new cost management systems that will produce comprehensive and accurate information that also relates to customers and suppliers. However, it is germane to investigate how the implementation of strategic cost management in firms can lead to the production of accurate information.

With strategic cost management systems, firms should be able to reduce their cost and hence be able to improve their revenue and profit. This may not be possible under the traditional cost management systems. As products cost become reduced, it would lead to low prices and higher patronage from customers thus making the producing firms become cost leaders as they attain competitive advantage. It is therefore important to find out whether the application of activity-based costing, activity - based management, target costing and life cycle costing (strategic cost management techniques) by firms is enhancing their competitive advantage and performance.

Furthermore, a new cost management system is required because of the need for cost management systems to have strategic influence on cost which the traditional cost management fails to do. The standard costing and budgetary control (the traditional cost management systems), for example, focus only on the production stage of a product life-cycle (Tatikonda & Tatikonda 1994 as cited in El-Kalety, 2006). It is thus relevant to determine how the implementation of life cycle costing and target costing as strategic cost management techniques can be able to enhance competitive advantage and performance improvement in manufacturing firms.

There appears to be dearth of empirical studies on strategic cost management practices in Nigeria and where such studies have been carried out only one technique of strategic cost management was usually examined. Imeokparia (2013) only examined activity-based costing impact on performance. Idowu (2014) studied only target costing impact on competitive position of selected firms. Again, Imeokparia and Adebisi (2014) studied target costing impact on performance of manufacturing firms. There is the need to carry out a comprehensive study of other strategic cost management techniques such as activity based management and life cycle costing. This study sets out to determine the current state of practices of strategic cost management techniques (activity - based costing, activity - based management, target costing, and life cycle costing) in selected Nigerian manufacturing companies and explore their impact on the companies' competitive position and organizational performance.

1.4 Research Questions

The research questions which this study sets out to address are:

- i. What is the extent of the implementation of strategic cost management techniques in the sampled Nigerian manufacturing companies?
- ii. How do strategic cost management practices influence accurate cost information, competitive advantage, and customer value enhancement?
- iii. What is the direct impact of strategic cost management practices on the organisational performance of the selected firms?

- iv. How do accurate cost information, competitive advantage, and customer value enhancement influence the organisational performance of the selected firms?
- v. How do accountant competency, technology growth, and competitive volatility affect the implementation of strategic cost management techniques?
- vi. What are the mediating effects of the combination of accurate cost information, competitive advantage, and customer value enhancement on the relationships between strategic cost management practices and organisational performance?

1.5 Objectives of the Study

The broad aim of this study is to examine strategic cost management and performance of selected manufacturing firms in Lagos and Ogun states of Nigeria. The specific objectives are to:

- i. appraise the extent of strategic cost management techniques implementation in the sampled manufacturing firms;
- ii. examine the influence of strategic cost management practices on accurate cost information, competitive advantage and customer value enhancement in the sampled firms;
- iii. assess the direct impact of strategic cost management practices on organisational performance of the sampled firms;
- iv. evaluate the influence of accurate cost information, competitive advantage and customer value enhancement on the organisational performance of the sampled companies;
- v. examine the influence of technology growth, competitive volatility and accountant competency on the implementation of strategic cost management techniques; and
- vi. assess the mediating effects of accurate cost information, competitive advantage and customer value enhancement combined on the relationships between strategic cost management practices and organisational performance.

1.5. Hypotheses of the Study

The following null hypotheses are formulated for testing in this study. Research question was not subjected to hypothesis testing as descriptive statistics were used in answering the question.

- Ho₁ Strategic cost management practices do not significantly influence accurate cost information, competitive advantage and customer value enhancement in the sampled firms.
- Ho₂ Strategic cost management practices do not have a direct significant effect on organisational performance of the sampled manufacturing firms.
- Ho₃ Accurate cost information, competitive advantage and customer value enhancement do not significantly influence organisational performance of the sampled manufacturing firms.
- Ho₄ Accountant competency, technology growth, and competitive volatility do not significantly affect the implementation of strategic cost management techniques.
- Ho₅ Accurate cost information, competitive advantage and customer value enhancement combined do not significantly mediate on the relationships between strategic cost management practices and organisational performance.

1.6 Justification for the Study

Most of the studies on strategic cost management carried out in Nigeria focused mainly on the examination of one technique of strategic cost management at a time. It is imperative to examine more than one technique in order to establish the extent of the usage of strategic cost management techniques in Nigerian manufacturing firms.

It was also observed that most of the studies on the impact of strategic cost management on performance in manufacturing companies in Nigeria only focused on direct impact. However, this study not only focused on direct impact of strategic cost management techniques on performance but also examined indirect impact of these techniques. Thus, this work introduced mediating variables into the relationships between strategic cost management practices and organizational performance.

Ordinary least squares regression and correlation analytical techniques appeared to be the common method of analyses used in strategic cost management research in Nigeria. However, this study was

meant to demonstrate that Structural Equation Modeling (SEM) as a second generation regression analysis can be applied in modeling complex relationships that can be found in strategic cost management research in Nigeria.

This study also sought to increase the frontier of knowledge in the area of strategic cost management implementation and its role in enhancing performance of manufacturing companies. Using resource-based view and contingency theories to study strategic cost management implementation; the study fills the gap in the dearth of literature on strategic cost management application in Nigeria.

This study also contributes to the discourse on the subject matter within the country and at the international levels as it serves as an empirical work on strategic cost management implementation in the Nigerian manufacturing companies. Thus, the study will be an immense contribution coming from Nigeria as a developing country.

Besides, this study is of relevance to manufacturing firms in Nigeria as it shows the techniques of strategic cost management that can be deployed for gaining competitive advantage, strategic positioning and enhancement of performance. The companies can also gain the understanding of how these techniques are being used to achieve good performance.

Also, this study, on the long run is beneficial to the country as the prosperity of manufacturing companies could positively affect the economic development of Nigeria. As manufacturing firms in Nigeria apply strategic cost management techniques as presented in this study, they will be able to have their cost reduced, gain competitive advantage, and maximise profit. This will then enhance the contributions of manufacturing sector to the gross domestic product of the country.

Lastly, this study will be beneficial to researchers, students of cost and management accounting, marketing, and other allied subjects as it serves as a valuable reference material on strategic cost management applications. Accounting professional bodies and other policy makers will also find it as reference materials for consultation.

1.7 Scope of the Study

Strategic cost management has numerous techniques or practices such as activity-based costing/management, target costing, kaizen costing, life cycle costing, quality costing, value chain analysis, business process re-engineering, bench-marking, balance score card, just in time, among others. However, this study focused on activity - based costing, activity – based management, target costing, and life cycle costing aspects of strategic cost management practices. These are also referred to as strategic cost management dimensions in the study. These techniques are selected for study as these are the most significant forms of strategic cost calculations which could have some impact on organisational performance. Also, these practices have been focused on because their influence bear directly on the cost of product and with effective management of product costs, firms' profitability can be enhanced. In addition, this study examined performance measures (financial and non financial) such as profit, return on capital employed, cost reduction, sales volume, customer satisfaction, product quality and market share.

Furthermore, this study focused on the manufacturing firms because most strategic cost management techniques are mostly implemented in the manufacturing firms than in service firms. The manufacturing industry also has the most developed cost and management accounting systems. Sixty-five(65) listed manufacturing firms were sampled in the study and which have their head offices or factories located in Lagos and Ogun states. The reason for choosing quoted companies is that they have the financial capacity in their systems to deploy strategic cost management techniques in their. Lagos and Ogun states (South - West Nigeria) were selected as study area because they are the commercial nerve centre of the country and besides, most listed manufacturing companies in Nigeria either have their factories or head offices located in these chosen area (Lagos and Ogun states).

The data collected for the study were collected at a point in time (cross sectional data) across the sampled manufacturing firms in the period- October to December, 2017.

CHAPTER TWO

LITERATURE REVIEW

In this chapter, relevant literature, relating to strategic cost management implementation and performance, were reviewed. Firstly, the literature relating to the concept, principles, techniques and workings of strategic cost management techniques were reviewed. This is followed by identifying and reviewing relevant theories underpinning the study. The chapter also reviewed the empirical studies on strategic cost management implementation and firm performance. It is concluded by proposing a model of study based on the resource-based view and contingency theory.

2.1 Conceptual Review

2.1.1 Definition and Purpose of Strategic Cost Management

In 1989, Shank (1989: 50) developed the strategic cost management idea which he described as a paradigm shift and defined it as managerial use of cost information explicitly directed at one or more of the four stages of the strategic management cycle: formulating strategies; communication those strategies throughout the organisation; developing and carrying out tactics to implement the strategies; and developing and implementing controls to monitor the success of the objectives.

Shank noted that the explicit attention to the strategic context distinguished strategic cost management from management accounting. According to him, strategic cost management result emerged from the blending of three themes each drawn from strategic management. These three themes are: (i) Value chain analysis, (ii) Strategic positioning analysis, and (iii) Cost driver analysis.

Different researchers and authors have their opinions of strategic cost management is. For instance, Cooper and Slagmulder (1998) opined that strategic cost management is the application of cost management techniques so that they simultaneously improve the strategic position of a firm and reduce costs. Hovath and Brokemper (1998), averred that strategic cost management has emerged as a key element to attain and sustain a strategic advantage through long-term anticipation and formation of

cost levels, cost structure and cost behaviour pattern for products, process, and resources. According to them, it was for these reasons that strategic cost management must provide managers with complete information. It is noted that strategic cost management 'sees' products, process and resources themselves as creative objects for attaining a strategic competitive advantage (Hovath & Brokemper, 1998). This goal might not be achieved under the traditional cost management.

Potter (1998) is another contributor to the development of strategic cost management. Potter has suggested that a firm has a choice of three generic strategies (cost leadership, differentiation and focus) in order to achieve a sustainable advantage. Potter (1998) advocates that where cost leadership strategy is selected, strategic cost analysis should be used. Furthermore, Porter's use of the concept of value chain analysis in undertaking strategic cost analysis is a major contribution to strategic cost management.

In contributing to the discourse on strategic cost management, Hinterhuber (1997) argued that cost management is a necessary course of action which acquires strategic significance the more it increases the number of options for discovering new opportunities or inventing in new markets. Strategic cost management tends to be an integrated proactive part of strategic management aimed at satisfying all the key stakeholders. Hinterhuber (1997) also noted that strategic cost management should be part of the strategy of a business in order to achieve a radical and long-term increase in the value of the company.

Cost management, as pointed out by Hongren, Foster and Datar (2000), is not practiced in isolation as it is often carried out as a key part of general management strategies and their implementation. Cost management has a broad focus that includes continuous reduction of costs. Strategic cost management as is defined by Hongren et al.(2000) is the set of actions that managers take to satisfy customers while continuously reducing and controlling cost. Cost management is also regarded as a cost - down mentality (Sakurai, 1992). Kafo, (1993) has noted that in today's ever changing environment, pursuing

every possible opportunity to reduce cost is surely a good strategy, but warns that it is essential to avoid reducing costs without regard for the quality, functions and characteristics of the product from the customers' point of view.

Most of the times, it is thought that strategic cost management is only concern with cost reduction. Even though the importance of cost cannot be over emphasised, for companies to maximise profit, they must equally seek to increase profit, which can be facilitated by strategic cost management. For the companies to be successful in this 21st Century, cost will not only be the most important factor to be managed, but also value and revenue must be put into consideration (McNair, 2000).

According to Hilton, Maher and Sanity (2001), strategic cost management is a philosophy, an attitude and a set of techniques that contributes in shaping the future of the company. It is a philosophy because strategic cost management is not only about cost management but also about value and revenue improvement in order to achieve productivity improvement, maximisation of profit and improved customer satisfaction (McNair, 2000). Strategic cost management also represents a productive attitude of recognizing that all the costs of the products and services resulting from the management decisions within the company and with the customers and suppliers. It is a set of reliable techniques and these techniques or instruments may be used individually to support a specific goal or together to serve the overall needs of the organisation. A set of strategic cost management techniques/practices, that function together to support the organisation's goals and activities is called strategic cost management system (Hilton *et al.*, 2001)

From the various definitions given here, it can be said that strategic cost management is concerned mainly about three things: cost management, value creation, and revenue enhancement. These are meant to achieve the four main objectives of: productivity improvement, customers' satisfaction, profit maximisation and strategic positioning improvement (McNair, 2000). All these four objectives can be regarded as organisational performance measures.

2.1.2 Strategic Cost Management Themes

The emergence of strategic cost management was the results of Shank (1989) blending three themes borrowed from strategic management literature - value chain analysis, strategic positioning analysis and cost driver analysis together. These three themes together, according to Shank (1989) represent a coherent framework for thinking about managerial accounting. Such a framework can be called a paradigm, which is sufficiently different from the conventional framework. These themes are examined below:

Value Chain Analysis:

This first theme on which strategic cost management is anchored relates to efforts on cost management. Shank (1989) noted that in explaining value chain analysis this question can be asked: how do we organise our thinking about cost management? In strategic cost management framework, managing costs effectively requires a broad focus, external to the firm. Porter (1985) has called this 'value chain'.

The 'value chain' for any business is the linked set of value-creating activities all the way from the basic raw materials sources for the component suppliers to the ultimate end used product delivered into the hands of the final consumers. This focus is external to the firm as each firm is seen in the context of the overall chain of value-creating activities of which it may probably only a part of the chain. There is no firm that spans the entire value chain in which it operates. The value chain framework is a method for breaking down the chain of activities that runs from basic raw materials to the end use customers into strategically relevant segments in order to understand the behaviour of cost and the sources of differentiation (Shank & Govindarajan, 1992). Since no two firms, even in the same industry, compete in exactly the same set of markets with exactly the same set of suppliers; the overall value chain for each firm is unique. Suppliers not only produce and deliver inputs used in a firm's

value activities but they importantly influence the firm’s cost /differential position. Similarly, customer’s action can have a significant impact on the firm’s value activities.

Furthermore, value chain analysis is used to analyze, coordinate and optimize linkages between activities in the value chain, by focusing on the interdependence between these activities (Abbeelee, Roodhooft & Warlop, 2011). It is a mechanism that facilitates the optimisation and coordination of interdependent activities in the value chain, which may cut across organisational boundaries, and accounting information is an important constituent of value chain analysis (Dekker, 2003).

Porter (1985) noted that value chain activities can be divided into nine generic types which are linked to each other and to the activities of a firm’s suppliers, channels and buyers. They are mainly grouped into primary and supporting activities. Five of the activities are primary activities which are directly concerned with the activities that create the products, market them, deliver them and give service to the customers; each of these primary activities has a linkage with support activities. Four of the activities even though are not directly involved in production, may increase effectiveness of each of the primary activities (Xue, 2005)

The original focus of Porter’s value chain of a firm is as follow:

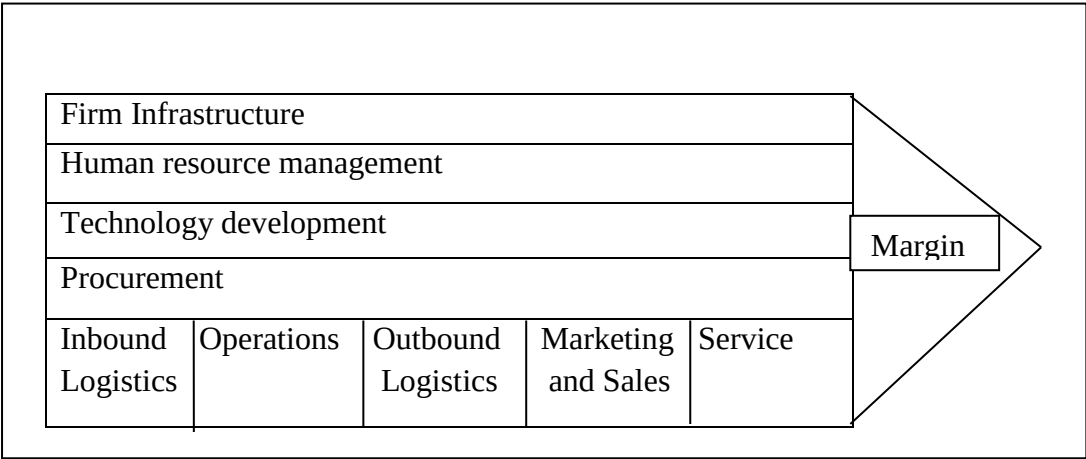


Figure 2.1: The Value Chain of a Firm (Porter, 1985:35)

According to Thompson, Gamble and Strickland (2005); Kirli, and Gümü (2011), Figure 2.1 can be explained thus,

(A) The primary activities following Porter's work as can be seen above are:

- i. Inbound Logistics: These activities include incurring costs, and acquiring assets, for example payments for fuel, energy, raw materials, parts and components; as well as activities relating to receiving, storing, inspection and inventory management.
- ii. Operations: These activities include converting input into final product, assembly, packaging, equipment maintenance, quality assurance and environmental protection activities.
- iii. Outbound Logistics: These activities include ware-housing, order purchasing, order picking and packaging, shipping, and delivery vehicle operations.
- iv. Marketing and Sales: Activities relating to sales force effort, advertising and promotion, marketing research and planning fall under this class of activities.
- v. Service: Servicing activities include providing assistance to buyers in various forms such as installation, spare parts delivery, maintenance and repair.

(B) Support activities

Xue (2005) submitted that support activities include:

- i. Firm Infrastructure: This serves the company's needs and ties its various parts together, it consists of functions or departments such as accounting, legal, finance, planning public affairs, government relations, quality assurance and general management.
- ii. Human resource management: Consists of all the activities involved in recruiting, hiring, training, developing, comparing and if necessary, dismissing and laying off personnel.
- iii. Technology development: Pertains to equipment, hardware, software, procedures and technical knowledge brought to bear in the firm's transformation of input into output.
- iv. Procurement: This is concerned with how resources are acquired for a business e.g. Sourcing and negotiating with materials suppliers.

With the value chain of a company operations segregated into primary and support activities, the company's cost structure can easily be seen and its impact on cost value understood (Herger & Morris, 1989). Each activity in the value chain gives rise to cost and tied up asset; assigning the company's operating costs and assets to each activity in the chain; and provides cost estimate and capital requirements. The totality of the cost of all the various activities in a company's value chain defines the company's internal cost structure (Thompson, Gamble & Strickland, 2005)

Strategic Positioning Analysis

This concept deals with the role which cost management play in a firm. It is mainly concern with the uses of management accounting information. In strategic cost management, the role of cost analysis differs in important ways depending on how the firm has chosen to compete in the market. Following the delineation by Porter (1980) of the basic strategy choices, a business can either compete by having lower costs (cost leadership) or offering superior products (product differentiation). Each of these two strategies demands very different conceptual frameworks (Dess & Davis, 1984; and Gilbert & Strebel, 1987). Since differentiation and cost leadership strategies involve different managerial mind set, they also require different cost analysis perspectives (Shank, 1989). Some studies have however concluded that the combination of the two strategies (low cost and differentiation) is optimum (Miller & Dess, 1993).

Chenhall and Langfield-Smith (1998) have discovered that higher performing firms that place a strong emphasis on product differentiation strategy gain high benefits from benchmarking, employee-based measures, strategic planning techniques and balance score card; while in contrast, higher performing firms that place a strong emphasis on low price, (cost leadership) use the mind of activity- based costing. The linkage of cost information from strategic cost management system to the business strategy of a firm is the focus of strategic positioning analysis. It has been proved empirically that companies with cost leadership strategy use activity-based costing, business performance re-

engineering and benchmarking; while companies with differential strategy use activity-based management (Bilbrey, 2009; Johnson, 1988; Alsoboa & Aldeheyat, 2013).

Business strategies

For firms to achieve competitive advantage over their competitors they should adopt strategies that include the entire value chain starting from the provision of goods material, product design, improvement in operations, increased flexibility and reduced costs, and the creation of marketing channels appropriate for delivering the products to the consumers immediately at competitive prices (Alsoboa & Aldehayyat, 2013). Porter (1980) has developed strategies that companies can choose to operate in. These strategies, referred to as generic strategies, are: cost leadership, product differentiation, and focus. These are examined below:

Cost leadership

This strategy is mainly about reducing costs. The companies operating this strategy are called cost leaders. They are able to sell their products at reduced prices since they are able to produce at lower cost compared to their competitors. This position of low cost provider protects the company against all five of the competitive forces: rivalry among existing firms, consumer power, the power of suppliers, new entrants to the market, and confronting the substitution of products or services.

Product differentiation strategy

This strategy is meant to outperform the competitors in meeting the needs of the consumer by providing them with high quality products at prices above that of the market. Porter (1980) has noted that this strategy achieves significant advantages for the enterprise in the face of competitive forces, including consumer loyalty, creation of barriers to new entrants and establishment of a better process of replacement.

Focus strategy

This strategy is a combination of the cost leadership and product differentiation strategies and leading the organisation's efforts to focus on a particular sector (niche) market instead of focusing on the market sector as a whole (Jusoh & Parnell, 2008). With this strategy, it is hoped that the competitor who specialises in a particular sector or market will serve the industry better than if it is left to the

competitors in general. A prerequisite for focus strategy is to target a sector that is somewhat different from the other market sectors (Porter, 1980).

It has been suggested that any of the above strategies can lead a firm to gain competitive advantage over its competitors. A firm should strive to achieve competitive advantage position in order to enhance its performance relative to its competitors (Zhou, Brown & Dev, 2009; Majeed, 2011; Alimin, Raduan, Haslinda & Jegak, 2015)

The Cost Driver Analysis

In strategic cost management it is acknowledged that cost is caused or driven by many factors that are interrelated in complex ways. In the traditional management accounting, cost is a function, primarily of only one cost driver - output volume. According to Shank (1989) , cost concepts related to output volume permeate the thinking and writing about cost (fixed and variable costs, average cost and marginal cost, cost- volume - profit analysis, break even analysis, flexible budgets, contribution margin, etc.). He further notes that in strategic cost management, output volume parse is seen to capture very little of the richness of cost 'behaviour'. Management accounting tends to draw upon the simple models of basic micro-economics; while strategic cost management on the other hands draw upon the richer models of the economics of industrial organisation (Scherer, 1980).

Cokins and Capusneanu, (2010) describe cost driver as:

- i. Based on strategic purpose: Cost driver means a factor which causes or produces a change at the cost level. Porter (1985) shows how 'cost behaviour depends on a number of structural factors, called factor of development costs'. A cost factor is the economic logic that explains the cost level for any activity and at a certain level.
- ii. Based on accounting purpose: Cost driver means the cause factor that changes the nature of costs to be allocated, in effect called allocation base. In the accounting terms, the activity consumes resources, and the activities are based on their underlying triggers, (e.g. products, service lines, and customers).

- iii. Based on the measurable effect: Cost driver means the unit of measure of activity. That is the factor by which the cost of a process varies directly (Brimson, 1991)

Furthermore, according to Riley (1987), cost drivers can be broken into:

(a) Structural cost drivers – this is based upon the industrial organization literature (Scherer, 1980) and have the following types:

- (i) Scale – this is how big an investment to make in management; R&D and marketing resources.
- (ii) Scope-Degree of vertical integration. Horizontal integration is more related to scale.
- (iii) Experience- This is based on the number of times in the past the firm has already done what it is doing again.
- (iv) Technology-What process technologies are used at each step of the firm's value chain.
- (v) Complexity-How wide a line of products or services to offer to customers

Each structural driver involves choices by the firm that drive product cost. With certain assumptions the cost calculus of each structural driver can be specified.

(b) Executional cost drivers- These are determinants of a firm's cost position which hinges on its ability to "execute successfully".

The list of executional cost drivers are:

- (i) Work-force involvement (participation).
- (ii) Total quality management- Achieving product quality.
- (iii) Capacity utilization- (Given the scale choices on plant construction).
- (iv) Plant layout efficiency- (How efficient against current norms is the layout).
- (v) Product configuration- (Is the design or formulation effective).

2.1.3 Guiding Principles of Strategic Cost Management

Berliner and Brimson (1988) and Freedman (1993), have identified the following guiding principles that are necessary for effective cost management and for achieving the goals of strategic cost management as:

Identification of factors affecting cost and revenue structure of the business

It is very critical for a firm to understand what causes cost in the organisation so that the management can focus improved efforts on the areas that will produce the best results (Miller, 1992). Companies should have accurate information about what their true costs are. With the development of a true cost, unprofitable products or customers can be eliminated.

Identification of the firm's value chain and selection of activities to produce or sustain competitive advantage

This selection process requires the knowledge of the cost and value of each activity. Through strategic cost management, efforts can be focused on improving the strategic activities of the company, tracing of costs to value chain activities and maximising the use of activity cost information for managing strategic value chain activities to its advantage (Donelan and Kaplan, 1998).

Understanding and reducing inter-functional complexity

Swenson (1998) noted that a company's complexity increases as a result of: the expansion of the breath of its product line; when each of its product uses more unique components; and availability of several options of processes for manufacturing its products. Organizational complexity makes effective cost management difficult. The costs associated with the complexity reduce as manufacturing processes are simplified and standardized and as company offer fewer product options. Excessive product and process complexity tends to drive costs up, increase lead time, and makes quality more difficult to control.

Increasing effectiveness and continuous cost improvement

Effective cost management never stops and it does not have to be painful. A company should constantly review its cost structure in order to select the costs that generate profits. Hence, such strategic cost management should become standard operating procedure. Opportunities should be constantly identified by the management and employees for the elimination and reduction of unprofitable work. Profits can be maximised when a company only incurs costs that are specifically linked to revenues generation.

Training of employees

Cost management is a learned business skill and so investing in educating the work force about costs makes a critical difference. McMahon (2001) posits that in an organisation that practices cost management, employees should be made to know that they are responsible for managing cost, have the requisite skills to do so, receive positive reinforcement for cost management and get timely feedback on the results.

Involvement of employees in decisions

Employees should be made to understand the company's objectives and have accurate cost information. Lewis and Luecal (1998) opined that soliciting input from the employees will not only give management a better understanding but will also give the employees more motivation to become involved. Companies that actively seek suggestion from their employees will undoubtedly find better and more cost effective ways to do things.

Usage of strategy to manage cost

Organisations with a clear and effective strategy, well communicated and understood, will be much more successful in managing costs than those which are strategically confused (Freedman, 1993). Strategic cost management should use the organisation's strategy as the intra-screen for making decisions on costs (Grundy, 1995). When a company is strategically focused, it will be able to economically, effectively and efficiently allocate resources to business areas that contribute to

stakeholders' value and avoid the need for radical treatment. Strategic cost management should be part and influenced by the strategy of a company.

2.1.4 Strategic Cost Management Objects

Strategic cost management objects are accounting data items for which a separate cost measurement is recorded. The main objects of cost management are: products or service, processes and resources. According to Arnaout *et al.* (1997) and Kajuter (2004), strategic cost management objects are products, processes, and resources. These cost objects give rise to cost incurrence and are examined as follows:

Products or service or product programme

Strategic cost management ensures that a firm's product or service is able to compete in the market favourably. It also ensures that the cost of products is effectively managed and product quality is achieved.

Resources as a strategic cost management object

Resources are means or inputs by which products or services (output) are created through a business process (Kajuter, 2004). Resources include: money, materials, fixed assets, human resources and energy (Hansen & Mowen, 2000). In managing cost resources consumption or utilisation must be effectively maximized for the improvement of the firm's productivity (Schroeder, Bates & Junttila, 2002; Maher, 1997).

Process as a strategic cost management object

Process is the activity required to convert resources into products (output). In a firm the processes involved in transforming materials into a finished product constitutes its value chain. Strategic cost management therefore ensures that the activities of the firm is effectively and efficiently managed. Improving the competitive position of a company involves raising the quality of the products and services provided to the customers; and designing and producing these products and services more quickly, and doing so in a manner that minimizes costs and increases revenues (Hooley & Saunders, 1993; Porter, 1998). In order to achieve the competitive objective, a company must seek to improve its

processes, the process input (resource) and the processes output (product). Business improvement can be achieved through the improvement of the process and activities of a company.

2.1.5 Strategic Cost Management Techniques / Practices

Strategic cost management is implemented through the use of techniques or tools. There are varieties of techniques with strategic orientation that can be used in effecting cost management. However only four are the focus of this study and these are reviewed here: activity - based costing, activity –based management, target costing, and life cycle costing.

2.1.5.1 Activity - Based Costing

The emergence of activity - based costing

During the 1980s, the limitations of the traditional costing system was becoming obvious as it was designed for manufacturing companies when there were few products and when the direct material and labour costs were dominant parts of factory costs (Drury 2004). These limitations include: the use of a single cost driver that was also volume - based (e.g. direct labour hour rate or machine hour rate) in cost allocation process which distorts product cost information (Cooper & Kaplan, 1998; Blocher, *et al.*, 1999). There was also the assumption that products or service are the real consumers of resources instead of activities (Blocher, *et al.*, 1999; Hansen & Mowen, 2000). Also, the traditional costing system could not cope with the contemporary manufacturing settings where firms now produce multiple products or services due to high automation of manufacturing activities (Drury, 2004). Other factors that necessitated the emergence of activity based costing were: increased in overhead costs; intense global competition of 1980s, which made decision errors possible and costly due to poor information from the traditional costing systems (Drury, 2004; Fei & Isa, 2010) and the cost of processing information decreased and accurate product cost was being demanded (Holzer, & Norvekht, 1991). Thus, activity – based was developed in order to overcome the problems of the traditional absorption system (Turney, 1996; Hansen & Mowen, 2000).

The works of Cooper and Kaplan (1998 & 1999); Turney (1989 & 1996) provided the direction to the development of activity - based costing. Innes and Mitchell (1991), Turney (1996) and Cokin, (1996) extended the idea of activity - based costing to include activity based management thus shifting their focus from measurement process and product cost analysis to process improvement. Activity - based costing/management have been described as the most important management accounting innovations of the twentieth century (Johnson, 1990).

The concept of activity- based costing

Activity - Based Costing (ABC) can be described as 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 (Krumwiede & Roth, 1997). ABC can be considered as one of the most talked about techniques for improving strategic cost management and performance in organizations (Kumar & Mahto, 2013). As noted by Qian and Ben-Arieh (2008), because the role of cost estimation for products and services has become more critical nowadays, there is the need to ensure effective cost allocation.

Activity concept is the centre of ABC which Bebcos, Cauvin and Gosselin (2002: 232) describe as, “group of actions or tasks that add value to a product or service and which generate costs and resource consumption. A homogeneous set of activities is called ‘process’ ” Kaplan (1992) described activity-based costing system as an allocation procedure by which overhead costs are assigned to products or services via activities.

The key idea of activity - based costing is that activities consume resources and products consume activities. The technique also uses a two stage allocation process but in contrast to the traditional costing system, it relates the firm’s resources to activities performed by these resources and then links the cost of these activities to cost objects such as products or services (Sakurai, 1996; Cooper and Kaplan, 1998; Bekcioğlu, Gurel, & Kizilyalcin, 2014). With this process, activity - based costing is

able to measure more accurately, the costs of activities that are not proportional to the volume of outputs produced. The working of activity-based costing is shown diagrammatically as follow.

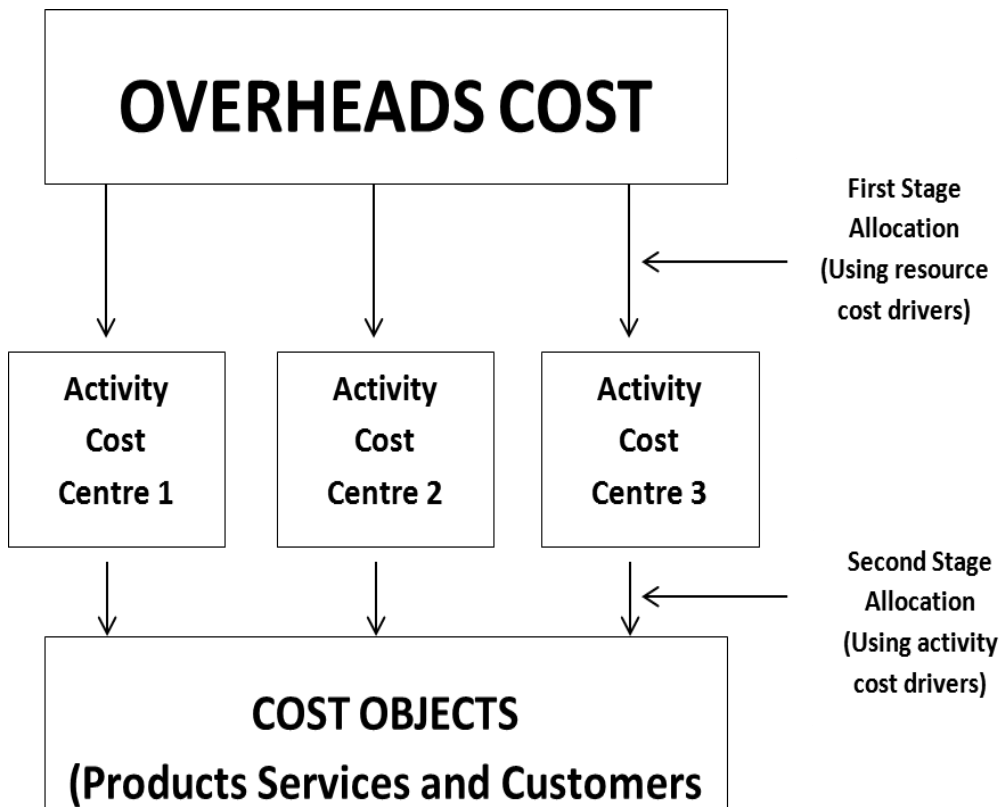


Figure: 2.2 : .ABC Allocation Process (Drury, 2012: 254).

From Figure 2.2, it can be seen that the first stage allocation is a resource cost assignment process, which uses appropriate resource cost drivers to assign overhead costs to activity pools or group of activities called activity centres (Blocher *et al.*, 1999). The second stage is an activity cost assignment process by which the costs of activities are assigned to cost objects using appropriate activity driver. Activity –based costing differs from the traditional absorption costing system in two respects, (Innes *et al*, 1994). At the first stage of allocation, cost pools are defined as activities cost centre rather than cost centres, and at the second stage, the cost drivers used for assigning activity costs to cost objectives are activity drivers based on cause-effect relationships. The traditional costing system uses a single volume based driver which does not have cause-effect relationship. By modifying the two stage process, activity - based costing is able to produce accurate product cost information.

Objectives of activity based costing

The objectives of activity - based costing as noted by Turney (1996), Cooper and Kaplan (1999) and Thompson and Strueland (2001) are:

- (i) to provide accurate product cost information for product costing, setting of selling price, and determination of market channel; This is the paramount aim of ABC technique.
- (ii) to provide relevant cost information for strategic cost management purposes;
- (iii) and to provide information for the management in formulating and implementing business strategies which can aid the attainment of competitive advantage.

The design of activity-based costing

The activity-based costing can be implemented through four steps as given by Drury (2004):

- i. identifying the major activities that take place in an organisation,
- ii. assigning cost to cost pools or activity cost centre,
- iii. determining the cost driver for each major activity, and
- iv. assigning the cost of activities to products or service (cost object) according to the product demand for activities.

Looking at the cost allocation procedure of activity-based costing as shown in Figure 2.2, the first two steps involved in its implementation constitute the first stage, while the last two relate to the second stage of the allocation procedure. In designing an activity-based costing system, a team is normally constituted which is made up of various experts from the various departments across the organisation.

The steps involved in the design of ABC are discussed below:.

Step 1: Identification of major activities

The concept of activity is central to activity-based costing, and so, it is the starting point. Activities are made-up of a combination of work or tasks and are described by verbs associated with tasks (Cooper & Kaplan, 1998). Activities can be identified by finding out what is being done with the resources committed in the overhead. Through an activity analysis, activities can be identified.

Activity analysis involves gathering data from existing documents and records and using questionnaire survey, observation and interview of key personnel in the company. Some of the questions that may be asked from employees or management according to Mac Artur (2000) include: ()

- i. What work or activities do you do?
- ii. How much time do you spend performing the activities?
- iii. What resources are needed to perform such activities?
- iv. Which operational data best reflect the performance of the activities?
- v. What value does the activity have for the organisations?

Activity analysis could also start by examining a physical plan of the workplace in order to identify how all work space is being used and the payroll listings (to ensure all relevant personnel have been taken into account) (Innes & Mitchell, 1995).

The results of the above fact finding efforts will be compiled into an activity dictionary. Cooper and Kaplan (1998) and Hansen and Mowen (2000) have noted that an activity dictionary normally list and define the activities in an organisation along with desired attributes. Activity attributes are non-financial and financial information items that describe individual activities e.g. the activities identified and chosen should be reasonable based on costs attached to them and benefits derived (Drury, 2004), and the ability of cost driver to provide a satisfactory determinant of the cost of the activity (Innes and Mitchell, 1995).

Hilton (2002) has identified the following groups of activities:

- i. Unit level activity – these are the activities that must be done for each unit of production e.g. machine related activity cost pool.
- ii. Batch level activities – these are the activities that must be done for each batch of products rather than units e.g. set-up, receiving and inspection of materials, material handling, packaging and shipping, etc.

- iii. Product sustaining level activities – These are the activities needed to support the entire product line but are not always performed every time a new unit or batch of product is produced, e.g. engineering activities such as designing of products.
- iv. Customer level activities – These relate to the activities on specific customers such as mailing customers, and checking customers' accounts. (Cooper, 1990).
- v. Facility (Or General operations) level activities – The activities are required in order for the entire production process to occur, e.g. plant maintenance preparation, and administrative staff expenses.

In activity-based costing system, activities are combined in relation to their levels. Only those activities that are highly correlated with each other within a level are combined.

Step 2: Assigning costs to activity cost centres

After the activities have been identified, the next step is to identify the cost of activities and then assign them to these activities. The classified costs, according to activities, are called activity cost pool. An activity cost pool is a “bucket” in which costs are accumulated which relate to a single activity in an ABC system (Garison & Noreen, 2000: 200).

Overhead costs can be collected from the accounting records of the organisation and then assigned to the activity cost pool. Since the activities consume resources, the cost of the resources can be assigned to activities by direct tracing, which requires measuring the actual usage of resources by the activities (Hasen & Mowen, 2000). Resource drivers which are measures of the consumption of work activities are used to assign resources to the activities. The following resources drivers, according to Blocher *et al.* (1999), can be obtained from interviews, survey forms, questionnaire, and time keeping system:

- i. meters for utilities;
- ii. number of employees for payroll-related activities;
- iii. the number of set-ups for a machine set-up activity;
- iv. the number of moves for a material handling activity.
- v. machine hour for a machine running activity; and

vi. square feet for a janitorial cleaning activity.

At this second step of activity-based costing, what the systems do is to restate the general ledger costs and reveals how the resources are being consumed by the activities (Cokins, 2001). The reassignment of resources costs to the individual activity contributes to the creation of an ABC database for the organization (El-Kelety, 2006). By focusing on activity and activities cost analysis, ABC brings to the lime-light the incurrence of cost within an organization (Cokins. 1999).

Step 3: Selecting appropriate cost drivers for assigning the cost of activities to cost objects

A cost driver is a characteristic of an activity or event that results in the incurrence of costs by that activity or events (Hilton, 2002). In order to assign the costs attached to each activity, cost centre to product or service a cost driver has to be selected for each activity centre (Drury, 2004). Activity cost drivers are used at this stage after considering these factors: measurability; easy identification, use and understanding; the existence of a direct relationship between the activity cost pool and cost drivers; degree of complexity, diversity and variation of product; and the degree of accuracy of computation (Cooper and Kaplan, 1998; Drury, 2004 ; Cokins & Capusneanu, 2010).

Cooper and Kaplan (1998) advise the designers of ABC systems to select from the following activity cost drivers:

Transaction drivers: These are used when all outputs make essentially the same demand on the activity. Examples are number of setups, receipts and product supported, which count how often the activities are performed (Cooper & Kaplan, 1998).

Duration drivers: This represents the number of times required to perform an activity (Hansen and Mowen, 2000). Examples of this kind of drivers are: setup hours, inspection hours, and direct labour hours. The duration drivers are used when a significant variation exists in the number of activities required for different outputs. Where the variation is the amount of resources required by individual cost objectives, an activity duration drivers should be used.

Intensity drivers: These directly charges for the resources used each time an activity is performed (Drury, 2004). Intensity driver involves direct changing based on the actual activity resources committed to a product. While the duration drivers establish an average hourly rate for performing activity. Cooper & Kaplan (1988) advise that this type of activity cost drivers should be used only when the resources associated with performing an activity are both expensive and vary, depending upon the cost object in terms of both the quantity and prize of resources

Step 4: Assigning the cost of the activities to products or services (cost object).

This final stage in the design of the ABC system entails linking the activity costs to the cost objects (products, services and consumers), which or who are the ultimate consumers of the activities using appropriate cost drivers. Drury (2004) suggests that cost drivers to be used must be measurable in a way that enables it to be identified with individual products. Hence, if set-up hours are chosen as a cost driver, there must be a mechanism for measuring the set-up hours consumed by each product. It was further noted by Drury (2004) that careful selection of cost drivers should be done at the third stage before coming to the fourth and final stage of ABC building. When the cost drivers are applied on activity cost, the cost of the product or service will be obtained. The design of ABC system of any organization must be tailored to suit the need and environment of that organisation. Firms are successful in capturing accurate cost and profit information with the use of ABC systems for value chain and supply chain analysis.

2.1.5.2 Activity - Based Management

Concept and purpose of activity- based cost management

Activity-based costing which was originally meant to provide management with mere accurate product (or service) cost information has been extended today beyond its purely product costing use to include a range of cost management applications. The term Activity Based Management (ABM) or Activity Based Cost Management (ABCM) is used to describe the cost management applications of activity – based costing (Drury, 2004). The use of ABC information for strategic cost management purposes to

make strategic decisions, improve product design and remove waste are the greatest potentials of ABC systems, (Turney, 1996).

Activity-based cost management is also described as a cost management system in which costs are assigned to the products (service that caused the work activity transaction to occur). Work activity transactions are the focus of ABM because the overhead costs have increasingly become logistical transactions – scheduling materials movements, production runs and customs shipments (Brandt, Levint, & Gourdoux, 1999).

Activity-based management (ABM) compliments ABC by using ABC information in the analysis of processes to identify inefficiencies and non- value adding activities (Cooper & Kaplan, 1998). The fundamental principle of ABM is management of cost through the management of activities of an organisation.

The activity-based costing (ABC) and activity-based management are combined in a model called ‘the cross’. The original ABC cross, also called CAM – I cross (developed by consortium for advanced management – international) was designed for two purpose. It is also called the two dimensional activity based costing model (Hilton, 2000). This model is shown in Figure 2.3.

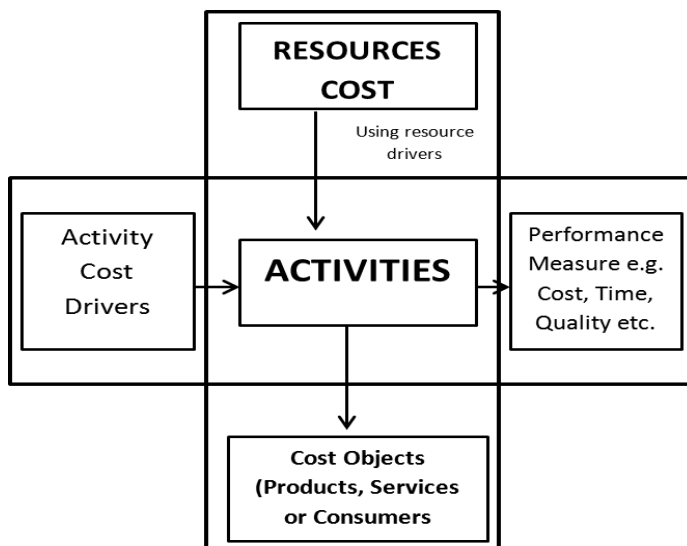


Figure 2.3: The Two dimensional ABC Model/Cross (Hilton, 2000:237)

Figure 2.3 depicts the vertical dimension as the cost assignment view of an ABC system. From the assignment viewpoint, the ABC systems uses a two-stage cost allocation process to assign the cost of

resources to activity and then activity costs to cost object (such as products, services or customers served). The cost assignment view, according to Turney (1996) and Hansen and Mowen (2000), is useful for products costing, strategic cost management, critical decisions analysis (e.g. pricing, product mix, sourcing and product design decision).

The horizontal dimension of the above model shows the process view of ABC system. The emphasis is on the activities themselves, the various processes by which work is achieved in the organisation. The three main building blocks in the process view comprise: cost dimension, activities and performance measures. The left hand side shows the activity analysis and the right hand side shows the evaluation of activities through performance measures such as activity efficiency, time required to complete an activity, and quality of work.

The process view of the ABC's cross reflects the need of the organisations for information about events that influence the performance of the activities – what causes work and how well it is done (Turney, 1996). An organization can use this type of information for cost reduction and improvement of performance and customer value.

In examining the process view of activity-based model, Dierks and Cokins (2001:35) defined activity based management as “a discipline that focuses on the management of activities within business processes as the route to continuously improve both the value received by the customers and the profit earned in providing that value”.

The purposes of the activity – based management, according to Brandt et al. (1999), are to: produce a better understanding of the relationship between costs and activities; improve cost control; reduce work activity cost; increase efficiency of work activities; and provide more accurate, timely performance feedback to managers for improved decision- making.

Steps involved in ABM implementation

Managing activities under activity – based management is a process of relentless and continuous improvement of all aspects of the business. This includes a constant search for improvement opportunities through determining what activities should be performed, and those activities that should be left out. By this way, Turney (1996) notes that ABM can improve strategic position and capability of an organisation by deploying resources to the activities that yield the highest strategic benefits and improving what is important to customers.

The steps involved in activity-based management are step one to three of activity –based costing design (Drury, 2004). Organisations that may not be interested in using ABC for product costing can stop at stage three of ABC system design, in which case they will be practising ABM (Inness & Mitchell 1995). The components of activity – based management are: activity analysis, cost driver analysis, and performance analysis. These are examined as follows.

Analysis of activities

The very core of ABC and ABM is activity analysis. Activity analysis is the detailed identification and description of the activities conducted in an organization (Hilton, 2002). It involves the understanding of why an activity is done, and how well it is done. Activity analysis should results in: (i) what activities are performed, (ii) how many people performed the activities, (iii) the time and resources required to perform and (iv) an assessment of the activities to the organisation (Hansen & Mowen, 2000). Activity analysis can be carried out through the following four steps:

Identification of value - added and non-value added activities

The most important objective of activity - based management is to indicate and eliminate non value-added activities. Non value-added activities are operations that are either (i) unnecessary and dispensable or (ii) necessary but inefficient and improvable (Brimson, 1988). Non-value-added costs, which result from such activities are the cost of activities that can be eliminated with deterioration of product quality performance, or perceived value (Hilton, 2000). Making non-value added cost visible

is one of the major benefits of ABM but perhaps the most difficult to obtain (Keys & Lefevre, 1995). The clarity and understanding between value-added and non-value-added activities can be achieved when people understand and accept the reasons an activity is classified as non-value-added or value added (Hansen and Mowen 2000).

The following criteria (questions) can help in identifying whether an activity is value added or non-value added (Hilton, 2000):

- i. Is the activity necessary? If it is a duplicate or non-essential operation, it is non-value added;
- ii. Is the activity efficiently performed? To answer this question, it will be helpful to compare the actual performance of the activity to a value added baseline established using budgets or targets.
- iii. Is an activity sometimes value added and sometimes non-value added? It may for example, be necessary to move work-in-progress units between production operations but unnecessary to move raw materials around.

Analysis of critical activity

Where an organisation has a large number of activities, it may not be possible to analyse all of them at a time due to time and resources constraints. What can be is to focus on the most critical activities that will add value to the customers or help the effectiveness of the customer. These critical activities are the ones to present significant opportunity for improvements (El-Kelety, 2006). Turney (1996) has suggested the use of Pareto analysis in determining the critical activities. This analysis should be done separately for value-added and non-value-added activities. Activities can be ranked in the descending order of cost and the cumulative percentage of the cost of all the activities can be computed. It can then be found that 20 percent of the activities cause 80 percent of the total cost and such activities deserve analysis.

Comparing activity with bench making

All the activities of the organization should be compared to similar activities in another company or within the organisation that performs the best in the ranking. Bench marking should be done for both value-added and non-valued-added activities with regards to quality, lead time, filterability, costs and customer satisfaction.

Examination of the links between activities

In identifying non-value-added activities, it is important to understand the ways in which activities are linked. A set-up linked activities is called a process. An organisation should focus on the links between the activities in order to highlight the areas of strength or weakness and competitive opportunity or threat (Porter, 1998). Studying product or transaction flows can lead to the unionisation of time and duplication of work where the work should proceed in an uninterrupted, continuous flow.

Cost Driver Analysis

The activities having been analysed, the next step is to determine what causes activity costs. This will entail taking steps to look for the root causes of activity costs (cost drivers). The analysis of cost drivers is the detailed examination, quantification, and explanation of the effects of cost drivers (Dierks & Cokins, 2001). Blocher *et al.*, (1999) has noted that the objective of cost driver analysis is to investigate the root causes of activity cost. The results of this are used by the management in effecting continuous improvement programme that will lead to the reduction of throughput times, improve quality and cost reduction.

Ideally, activity cost drivers should reflect a causal relationship between an activity and the cost object being measured, how often the activity is performed and reflects the level of effort required to complete the activity (Brandt *et al.*, 1999). In cost driver analysis, activity is taken as the starting point and the assessment of the factors that cause a change in activity cost is made. With a deeper understanding of the causes of activity cost and the logical relationship among activities, the manager can be in a better position to manage cost (Brandt *et al.*, 1999).

Performance Measurement Analysis

Performance measurement is not restricted to ABM alone. In activity - based management system performance measures include both the financial and non financial measures which are designed to influence the behaviour of cost management (Gupta & Gallaway, 2003). Multiple performance measures are used in ABM to reflect all the aspects of a company. The activity - based management uses a company's activity cost drivers as a basis of changing performance measurement system. The emphasis of activity performance measures should be on the input and output aspects of activity as noted by Oliver (2000). The selection of performance indicators is on crucial process and its success depends upon a sound analysis of the artificial activities for that particular business. All the performance measures should be linked to achieve the overall objectives of the organisation (Nanni, Dixon & Vollman, 1990).

2.1.5.3: Target Costing

The emergence and development of target costing

Target costing which today is widely used, originated from Japan in 1960s as a cost management tool in companies, even though, its idea was practised at Ford in the United States in the development of the Volkswagen beetle in Germany in the 1930s (Feil, Yook & Kim, 2004). However, the first systematic application and development was by Japanese Toyota in the beginning of the 1960s and it has been used since then by the Japanese companies (Afonso, Nunnes, Paisana & Braga, 2008). Target costing was a mis-translation of the Japanese concept of 'Genka Kikaku' in Japanese language developed in 1960s with an essential feature of cost planning and value analysis (Briciu & Căpuşneanu, 2013). The Japanese companies in 1960s took a simple idea of value engineering and transformed it into a dynamic cost reduction and profit planning system (Ansari & Bell, 1997). The Japanese Cost Society recognised the term 'target costing' as a mis-translation in 1995 and then recommended the use of the term "target cost management" (Feil *et al.*, 2004). Thus, target costing has

been widely adopted in Japan since its introduction (Mc Mann and Nanni, 1995; Tani, Okano, Shimizu, Iwabuchi, Fakuda and Cooray, 1994; Kato, 1993; Rattray, Lord & Shanahan, 2007).

The practice of target costing had remained a secret for years until 1980s when the Western companies discovered that it was a key factor for attaining competitive position by the Japanese companies. Ever since then, they (Western companies) fully embraced and started implementing it to enhance their cost management and increase their competitiveness (Ansari & Bell, 1997, Cooper & Slagmulder, 1997; Monden, 2000).

Some of the reasons that accounted for the development and implementation of target costing, as noted by various researchers are: intensive competition among enterprises and the need to have new methods of maintaining their current market position, through offering of products with lower cost, better quality and technology (Mills & Schmidt, 1990); to minimize production costs by imposing spending limits and avoiding pointless efforts (Wood, 1995); pricing decisions for products are becoming more difficult to make due to the uncertainty surrounding decisions environments (Muharran, 1995); and the need to design products with required technologies and not just with any technology (Al-Dalabeeh, 2012).

Definitions, objectives, and principles of target costing

Various definitions of target costing have been given depending on the angle from which it is approached or on the feature the author wants to highlight; few of these definitions are examined.

Looking at target costing as an instrument of strategic cost management, Shank and Fisher (1999) have noted that target costing 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). Sakurai (1992) has also defined target costing from the strategic approach as a comprehensive means of strategic cost management focusing on total life cycle cost reduction. To achieve life cycle cost reduction, target costing integrated production and marketing functions with engineering as the core discipline. Still looking at target costing as a strategic process, Ansari *et al.*

(1997) describes target costing as a profit planning and cost management system that is market oriented, customer focused, designed centred and cross-functional.

Focusing on cost reduction feature of target costing, Kato (1993:33) defines target costing as, “target costing is a part of a comprehensive strategic profit management system that focuses on reducing the life cycle costs of new products while also improving their quality and reliability” From the various definitions of target costing, it is quite apparent that this technique has a strategic orientation as it is not only forward looking and outward looking but also market- based and has customer satisfaction as target.

From the various definitions given above, the objectives of target costing can be summarised as to achieve cost reduction throughout the life cycle of a produce (Tani *et al* 1994; Horvah & Tani, 1997); to effect profit planning (Sakurai,1996); to satisfy customer’s needs (Tani *et al*, 1994; Juhmani, 2010); to ensure timely introduction and development of new produces (Tani *et al*. 1994; Horvah & Tani, 1997); to ensure high quality of product (Tani *et al.*, 1994); and to help business sustain competitive position (Ansari *et al.*,1997)

Key Principles of target costing

The basic principles of target costing as noted by Ansari and Bell, 1997 are referred to as the key features of target costing and these are examined as follow:

Market orientation: Target costing is a price–led costing as market prices are used to determine allowable or target costs. Target costs are computed using formula such as: market price – required profit margin = target cost.

Customer focus: In target costing customers requirements for quality, cost and time are together incorporated in product and process decision and guide cost analysis. The value (to customer) of any feature and functionality built into the product must be greater than the cost of providing those features

and functions (Sweenson, Ansari, & Bell, 2003). Thus, it is only when the customer is satisfied that the value and cost of the product is justified.

Focus on design: Cost management in target costing required excellence in product and process design. Cost can only be effectively reduced at the product and process design stage, hence, engineering changes must occur before production begins, thus resulting in lower costs and reduced “time of market” for new products (Swenson *et al.*, 2003).

Cross functional involvement: In target costing, cross-functional teams made up of persons, both inside and outside the firm are involved in managing new and renewed products right from the initial development stage. The team should involve all the division of production processes. This makes target costing a multi functional activity (Horvath, 1993).

Value chain involvement: All members of the value chain e.g. suppliers, distributors, service providers, and customers are included in the target costing process. Thus, target costing activities require participation from outside members who are connected via value chain so as not to restrict the effect of target costing. With this, cost reduction effort of target costing will go beyond the walls of the company.

Life cycle orientation: In target costing, efforts are made to minimise costs throughout the life cycle of a product to the advantages of both the producer and consumer. This is done by considering all the costs of owning a product over its life time such as purchase price, operating costs, maintenance and repairs and disposition costs (Ansari *et al.*, 1997b).

Target costing process

Since there are various definitions of target costing so there are several target costing process models. The most important thing is to incorporate the key principle of target costing in the process. The target costing process model adopted for this study is the target costing process step, which was reported by Ellram (2006) to have been practiced in the US companies. He found a very tight linkage between supply management and the designed function in target costing practice especially at step (1), (5) and (6). This process is depicted in Figure 2.4.

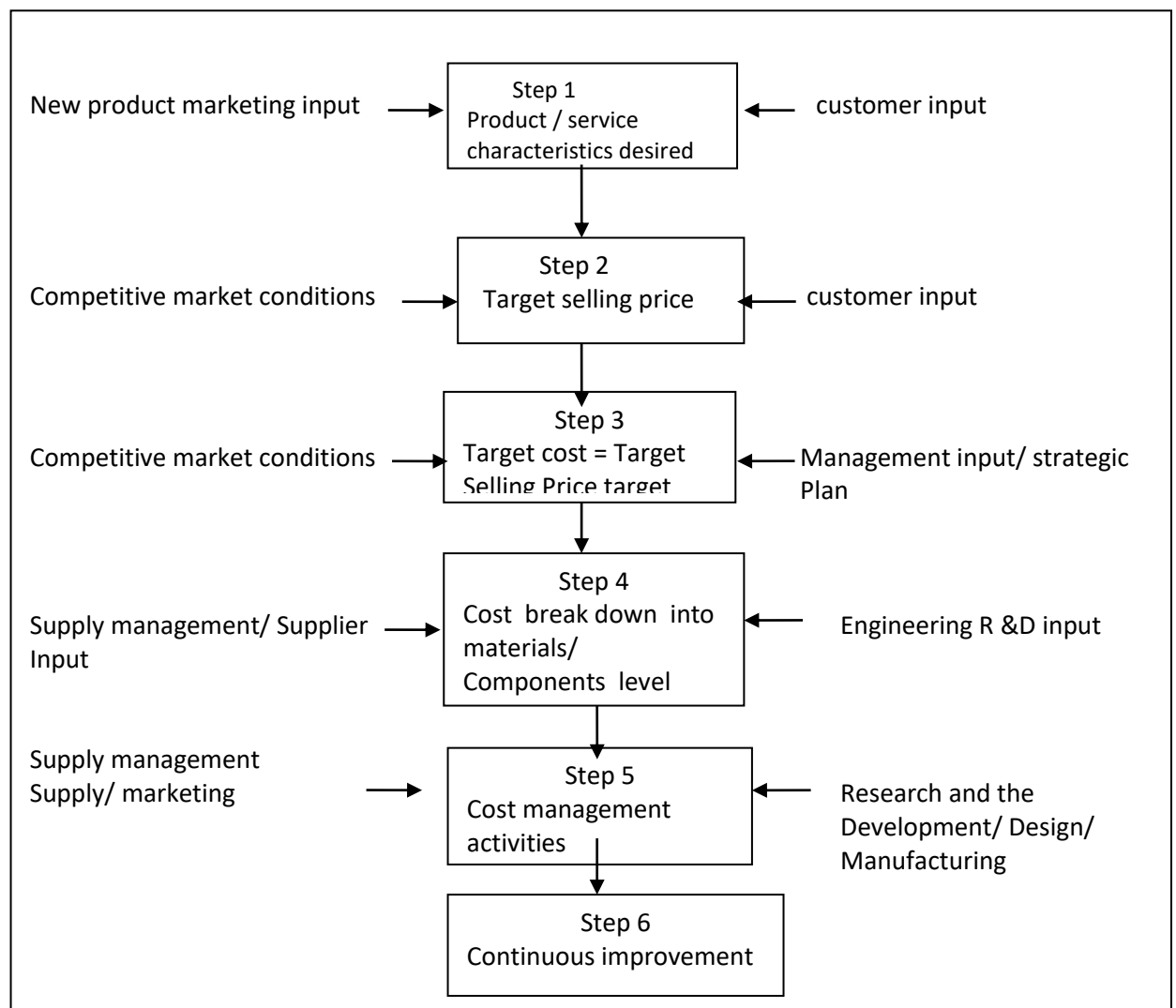


Figure 2.4 : Target Costing Process (Ellram, 2006:15).

Using steps in Figure 2.4, target costing process is explained as follow:

Step 1- Identify desired product/service characters: This is really the first step in target costing which involves the identification of products' quality, specification and functionality desired. To achieve this, data should be collected from the customer whose responses will determine the actual product qualities (Zengen & Ada, 2010). The needs of the customer can be understood from the feedback received (Gopalakrishnan, Samuels & Swenson, 2007). Input is also required from the market.

Step 2 - Target selling price determination: The next step in target costing process as illustrated by Ellram (2006) after the character of the product has been conceived and confirmed by the customers, is to determine the target selling price at which the product will be sold. The price is important in driving the target costing process. The target price determined should be realistic and the process of its determination must be thorough (Cooper & Slagmulder, 1997). Target selling price can be determined through pricing research, customers' views surveys, and reviews of competitors pricing (Gopalakrishnan *et al.*, 2007). For new product concepts, the consumer products marketing department frequently uses internet surveys to establish the price points that are acceptable to consumers). The target selling price established is the one that is acceptable to the customers without affecting the firm's competitive position (Ramanan, 2002).

Step 3: Determination of the target cost

After the establishment of the target selling price, the determined profit margin expected is deducted from the former to arrive at the target cost. The required profit margin is expressed as a contribution margin, while the target is the variable cost only. The expected contribution should be high enough to cover all of its fixed costs and still produce a profit (Gopalakrishnan *et al.*, 2007). The determined target profit should be based on market research and linked to the organisation's long term strategy of product and profit planning (Hamood, Omar & Suleiman (2011). The process of linking target profit determination to the target plan of the firm is considered critical to both the achievement of profitability and success of target costing application (Kolsoy *et al.*, 2008).

The process of determining the target cost in target costing is very crucial and so care must be taken in arriving at the figure. The difference between the target selling prize and the target profit is the target cost or allowable cost which the company can commit to the proposed product. The allowable costs represent the cost at which the product must be manufactured in order to gain the target profit margin provided the product is sold at the target selling price.

There are different approaches for establishing the target cost (Feil, Yook & Kim, 2004).

Tanaka, Yoshikawa, Innes and Mitchell (1993) have identified three methods of setting up target cost (allowable cost) and these are: subtraction method, addition method and the integrated method.

Using the subtraction or deductive method, the target cost is determined by subtracting the target profit from the target sales price. In the subtraction method, the critical factor in obtaining the target cost is the market price and target profit (Hamood *et al.*, 2011). The target cost is set at the level of the allowable cost which is an estimated total cost that will produce the target profit (Sakurai, 1996). The deductive method is also called top down method since it works backwards from the market price to identify the target cost (Hamood, *et al.*, 2011). The addition or engineering method accumulates all the costs based on the current method of technology, production facilities, delivery time, and production volume (Tanaka et al, 1993; Sakurai, 1996). This method is also called the bottom-up method as it is forward looking (Sakurai, 1996). The limitation of this method is that it does not give room for innovative ideas for cost reduction, and it is difficult to be linked with the firm's profit and business plan (Kato, 1993).

The third method is the integrated or combined method as it combines the deductive method (based on market) and the adding-up method (based on the existing technology and capabilities) to set the target costs (Hamood *et al.*, 2011; Tanaka; *el al.*, 1993). This method is mostly preferred as it gives the best results (Sakurai, 1996).

Step 4: Disaggregation of target cost to components and functions

After the tentative target cost (allowable cost) has been set, the next step is to assign cost targets to each of the products and functions (Gopalakrishnan, Samuels & Swenson, 2007). The total allowance cost and target cost can be broken down using functional oriented and component allocation methods (Feil *et al.*, 2004; Ax *et al.*, 2008). The functional method allocate the allowable and target costs to major component blocks and then to their respective sub-assemblies and finally to individual components, while the functional method allocates the allowable and target costs according to the products functional areas. This is appropriate when customers' wants and needs have been assessed,

including the relative value they put on different functions and when costs have been reduced significantly. The steps involved are: defining and classifying the product's functions; evaluating the importance of the functions; and assigning allowable and target costs to each function. The use of functional oriented method is generally preferred to the product component allocation method (Ellram, 2006; Ax, Greve & Nelson, 2008).

Step 5: Realising the target cost through cost management activities

In target costing, cost estimation must be made at the design stages. This facilitates the production process to be in line with those costs that should be avoided, which represents the gap between cost estimation and target cost. All the costs, including marketing and distribution costs should be included in the cost estimate for the success of target costing application (Kolsey *et al.*, 2008).

Once the target cost has been determined and disaggregated into functions and components, the next step is to close the gap between the current cost and the allowable cost so as to develop and produce a new product, which achieves the target cost and at the same time meets the customers' requirement (Ansari, *et al.*, 1997b). This stage, Hamood, *et al.* (2011) opines, is the critical stage in target costing. The objectives at this stage according to Monden (1995) and Cooper & Slagmulder, (1997) are to : optimise the relationship between materials, parts and manufacturing processes; minimize costs; focus design efforts on market driven variables to achieve quality and cost ownership; link product development with customers' desires; and to achieve a sustainable competitive advantage. The closing of gap between the target cost and current cost can be done through cost reduction. This is accomplished using the following tools: Value engineering / analysis for cost reduction; quality function deployment; the use of kaizen costing; and design for manufacturing assembly.

Value engineering/analysis for cost reduction: The major means by which the Japanese manufacturing companies achieve target cost or reduce cost before production starts is value engineering (Monden, 1995). It is the most important tool in attaining the target cost for companies using target costing as noted by Horvath (1993a). According to Monden and Hamada (1991) and Lee

(1991), value engineering was first developed and used in the USA by General Electric (GE) to reduce the purchase parts costs, but was not linked to target profits or targets costs as practised in Japan. Value engineering is a mechanism the Japanese manufacturers use to enhance the value of products by measuring the relationship between the functions performed by products and the costs spent (Lee, 1994). Value engineering can also be described as a systematic inter- disciplinary examination of the factors affecting the cost of a product or service in order to device means at achieving the specified purpose at the required standard of quality and reliability at the target cost. This is aimed achieving the assigned target cost by: identifying improved product designs that reduce the product's cost without sacrificing functionality and quality, and /or eliminating unnecessary functions that increase the product cost and for which customers are not prepared to pay extra (Drury, 2004). In using value engineering, it starts from attaching requirements to functions and features of the product and then tries to find the best technical solution for achieving those requirements within a given cost. According to Ansari, *et al.*, (1997), value engineering is normally conducted in four stages: (i) feature to function analysis, (ii) creative and problem solving, (iii) analysis, and (iv) idea development.

Quality function deployment (QFD): According to Ax *et al.*, (2008), quality function deployment can be a viable tool in making a tradeoff between the conflicting issue of product cost, quality and functionality. This tool can be used in reducing the gap between the current cost and allowable cost. Quality function deployment has been described as the conversion of customer's demand into quality characteristics and developing a design quality for the finished product by systematically deploying the relationship between the demand and characteristics, starting with quality of each functional components and extending the deployment to each part and process (Institute of Management Accountants of Canada, 1994).

The use of Kaizen costing: Kaizen costing is concerned with continuous cost reduction, which is realised for existing products in a company (Cooper, 1995). It focuses on continuous cost reduction and can be used in achieving target cost. Drury (2008) also argues that the focus of Kaizen costing is

on the production processes and that cost reduction can be achieved through the improved efficiency of the production process. Continuous improvement techniques are the recognised ways of making significant reduction to product cost (Williams, 2001). Advocates of target costing appropriately argue that major cost reduction opportunities are best achieved during the conception, design, and development stage of production cycle of a product. However, in cost management, the quest for cost improvements continues even during the production stage. Kaizen costing is meant to reduce cost during the production stage.

Modification to products and its design, supplier management efforts and continual process improvement initiatives are all part of the kaizen costing efforts. Kaizen costing is an important tool in the process of attaining the target cost for companies using target costing (Monden & Hamada, 1991; Horvath, 1993a; Monden, 1995; Ansari et al, 1997b and Cooper & Slagmulder, 1997a).

Design for manufacturing assembly (DFMA): This tool is used throughout product design but before the manufacturing takes place (Swenson *et al.*, 2003). It evaluates the effectiveness of the design with regard to manufacturing operations. The result of this exercise is that it favours quality and improved reliability and serviceability of the product.

Step 6: Continuous improvement by monitoring and repeating of target costing process.

The leading Japanese companies consider target costing to be a dynamic process. Target costing as noted by Zengin and Ada, (2010) requires continuity in improvement of cost management and so whether or not target cost is achieved, effort for continuous improvement should be provided to maintain the profitability and market position of the product. In monitoring of the target costing process, maintaining an accurate assessment of current cost is very important as it serves both as the foundation for the target cost determination and as a report on how well the allowable costs are being achieved (Kato, Boer & Chow, 1995; Ansari *et al.*, 1997b and Cooper & Slagmulder, 1997a).

The process of target costing will be repeated especially as the company introduce new product to the market. Besides, in target costing there are constant cost reduction efforts through Kaizen costing throughout a product life cycle.

Success factors for target costing implementation

Target cost, being a cost management system, requires some factors which are necessary for its implementation. The Japanese companies using target costing successfully were enabled by many factors (Feil *et al.*, 2004; Bekcioğlu, Gurel, & Kizilyalcin, (2014) These success factors are examined as follow:

Firstly, top management support is required for target costing system implementation. It has been reported by Hasegawa (1994) that the ability to align all employees with the mindset of the company's leadership is an improvement factor for achieving the desired result of target costing. Ansari, Bell, Cypher, Dears, Duttom, Fergnson, Hallin, Marx and Zampino (1997) have reported that top management performs the necessary function to ensure that target costs are achieved.

Secondly, team orientation is important for implementing target costing. Every member of target costing team should have a sense of belonging rather than behaving as a lone ranger in accomplishments (Ansari *et al*, 1997b). Monden, (1995); Cooper & Slagmulder, (1997a) and Feil *et al.*, (2004) attest to the fact that the Japanese companies use the cross-functional team in their operations and this team orientation is a critical variable in the success of the target costing process in the Japanese companies.

Thirdly, the sense of commitment to work on the part of all employees must be there. It has been argued by Mouer and Hirosuke, (2005) that Japanese worker's commitment to work and to their place of work accounts for the superior performance of Japanese economy. It is further argued by Streib and Ellers, (1994) that the sense of duty the Japanese feel toward their employer is high to the extent that some of them believe their work comes before their family. This sense of duty, it was noted is visible

in the readiness of Japanese employees to work long hours and their willingness to have short vacations (Martin, Schelb, Snyder & Sparling, 1992).

Mutual trust among the value chain members is also a necessary factor for the effective implementation of target costing system. This will ensure that reliable cost information is released for use by the company. Cooper and Slagmulder, (1997a) and Feil *et al.*, (2004) have noted that in the Japanese companies, mutual trust between managers and employees as well as supplier is a critical element in building effective work relationship and implementing target costing process.

Education and training is another key factor for the successful implementation of target costing.

Feil *et al.*, (2004) have noted that Japanese companies are constantly striving to develop their employees through education, extensive training and job rotations.

Lastly, Information networking is a paramount factor that influences target costing system implementation. Having an excellent information network with the customers and suppliers will facilitate the manufacture of products that meet customer requirements (Feil *et al.*, (2004).

2.1.5.4 Life – Cycle Costing

The concept and objective of life – cycle costing

The life – cycle costing concept was developed by the United State (US) Department of Defense in the early 1960s to increase the effectiveness of the government procurement decisions, and in assessing long term effect of products, (Shields & Young, 1991). After that, the concept was introduced into business but its application was limited until 1980s, when its use became pronounced (Petrova & Zarudnev, 2013). The need for life cycle costing in the modern business environment became imperative as a result of increase in competition that requires companies to develop contemporary costing technique in order to increase profitability and gain competitive advantage (Bengu & Kara, 2010). There is also the need to trace and manage cost not only at the various stages of manufacture but also throughout the life cycle of a product.

The traditional cost management focused attention mainly on managing costs during the manufacturing process but neglect non -manufacturing costs such as research costs, development costs and after sales service costs (Sakurai, 1996). The concept of life cycle costing enables the decision makers to analyse and understand the comprehensive view of the product life cycle cost, from research and development and planning to disposal (Shields & Young, 1991; Sakurai, 1996)

Life cycle costing, as an instrument of strategic cost management, builds on the conceptual framework that facilitates management's ability to exploit internal and external linkages (Hansen & Mowen, 2000). Thus, life cycle costing focuses attention on the total cost that will be incurred during a products' entire life cycle (Woodward, 1997 & Asiedu & Gu, 1998). By focusing of attention on management of the entire cost of the life cycle of a product including its pre production costs, production costs and post production costs, the scope of cost management has been extended beyond the traditional to strategic level (Blocher, Staut, Stokings & Chent, 2008).

Cooper & Slagmulder, (2004) in their study have reported that it is possible to manage costs throughout the product life cycle. Hence, life cycle costing not only gives attention to costs incurred by the producer over the produce cycle (such as design, manufacturing, marketing, logistics and service), but also on the costs that customers will incur such as the cost of acquisition, operation, maintenance, shutdowns and disposal (Petrova & Zarudnev, 2013).

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 from the beginning to the end of the particular product with the aim of minimizing the combined costs. (Testa, Iraldo, Frey & O'Connor, 2011). Horngren, Foster, & 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. The total costs focused on by life cycle costing for identification, analysis and management are a combination of producer's costs such as research and development planning and design, manufacturing and marketing costs and user's (customer's) costs such as operating cost, maintenance and disposal. (Artto,1994).

Woodward (1997) and Lindholm & Suomala (2005) have noted that life cycle costing two major activities that are carried out are: estimating the total costs of a product over its entire life cycle; and also managing the costs at all the phases of the product life cycle. By so doing, attention is also focused on the long term performance of products by employing a variety of cost management tools such as target costing, Kaizen costing and activity based costing management. (Hansen & Mowen, 2000; & Emblemssvag, 2003)

The objectives of life cycle costing, as noted by Petrova & Zerudnev (2013) are:

- to assess whether the operating profits earned during the manufacturing phase will cover the costs incurred during pre and post manufacturing stages (Drury, 2004);
- identify associated costs during the planning period with a given product design, and take necessary action;
- support cost comparisons among different product designed in order to make more informed decisions and among alternative; and lastly,
- to identify the nature and timing of costs to plan and manage effectively (*Kubánková & Hyršlová, 2014*).

The primary role of life cycle costing is to support, during the product planning stage, the analysis of the products life profitability (Tanaka, Yoshikawa, Innes & Mitchell, 1995). 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.

Product life cycle

According to Illic, Milicevic and Cvetkovic (2010), a product begins to 'live' right from the moment the idea of it is born. It is created and launched on the market until its life cycle expires. Product life cycle theory is based on the notion that the product progression of a product in market presence is similar to organic life (Nadeau & Casselman, 2008).

The product life cycle can be viewed in three different ways in the literature as follow:

Product life cycle according to the Manufacturer (Manufacturing view) (Bengu & Kara, 2010).

The stages under the above view are: Product idea or conception stage; Design and development stage; Manufacturing stage; and After sales logistic support stage.

Product life cycle according to Markets (or Marketing View) (Meffert, 2000 & Kotler, 2003), The stages under this view are: Introduction to the market stage; Growth stag; Maturity stage and Decline stage.

Product life according to Consumer (Hansen & Mowen, 2000). The stages under this view are : Buying stage, Operating stage, Support stage, Maintenance stage, and Disposal stage.

The product life cycle model was originally described using only the marketing phase of a product type which means from the time of the launch of the product until its exist from the market (Gabriel, Tschandl & Posch , 2014).

The stages of a product life cycle will further be discussed using the market view. These stages are: the introduction of the product, the growth stage, the maturity stage and the decline phase. This is shown in Figure 2.5

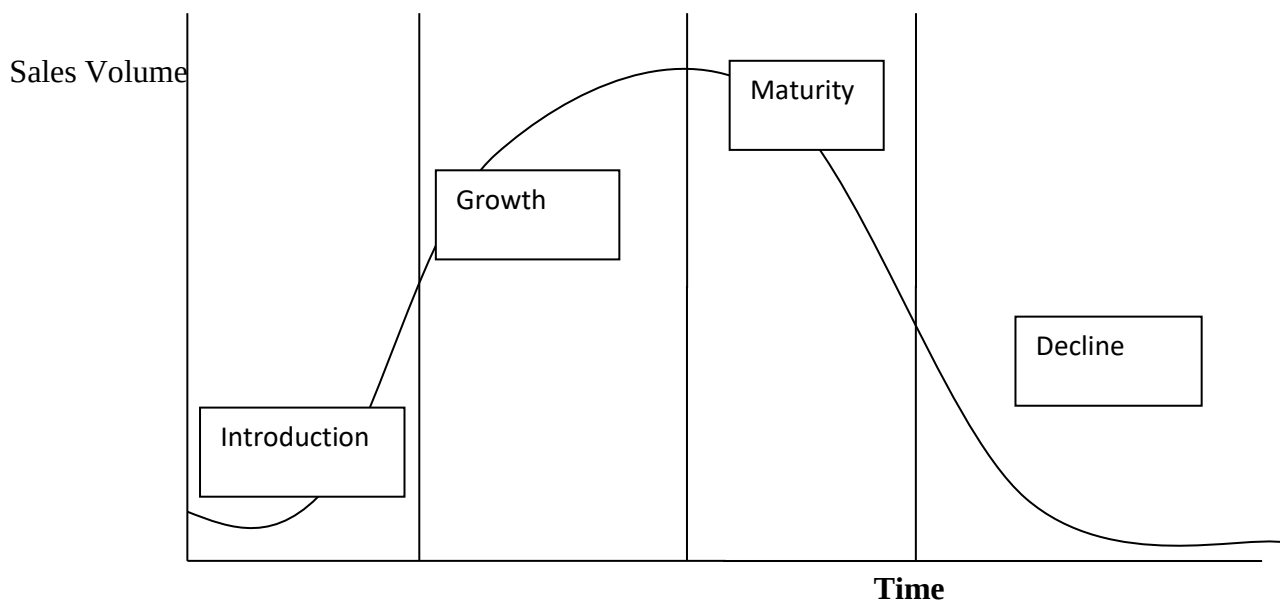


Figure 2.5: Product Life Cycle - Marketing View (Nadeau & Casselman, 2008:406)

Introduction Phase

The introduction phase of a product as can be seen in figure 2.5 is the beginning of a product life cycle using marketing view. This is the launching phase but is preceded by product planning.

Product planning is a systematic decision making process that involves all the related activities of the company about product development and management (Bengu & Kara, 2010). Product planning is followed by the manufacturing stage, and then, marketing of the product starts.

The introduction stage according to Bengu & Kara (2010), is characterised by slow increase in sales, deficiencies, and faults of product are easily corrected; increase in manufacturing of the product; distribution of the product is limited; and high marketing cost incurred. Inefficient cost control exist at this stage as efficient cost control system has not yet been established (Bengu & Kara, 2010).

Growth Stage

At this stage, the product is adopted in principle by the buyers and other features. At this stage are: rapid increase in sales as new buyers participate; profit begins to increase due to excess income over costs; increase in manufacturing and product quality; a brand image is being made through promotions and advertisement, and new properties are added to the product (Bengu & Kara, 2010). Fixed cost per unit begins to decrease at this stage.

Maturity Stage

Bengu & Kara, (2010) have noted that this stage is the longest and perhaps the most important stage of a product's life cycle as this is the stage where sales are its highest amount. However, at the tail end of this stage, sales start to fall. Changes are made to distribution channel and due to the high intensive competition and increasing costs, profitability decrease sets in.

Decline Stage

This is the phase in which the product sales begin to decline apparently due to stiff competition as a result of new products entrance into the market. The production will decrease, manufacturing cost will

also increase but product prices will reduce. Distribution channels are strengthened. The distribution and advertisement costs of the product will also be reduced (Bengu & Kara, 2010).

The product life cycle information can be helpful to the top management of a company in planning and developing of new products and to prevent fluctuations in sales income by marketing these products and or product line.

According to Baybars (1991), the length of a product's life cycle generally depends on the: speed of technological advances, acceptance level of the producer in the market, social and cultural changes and developments, effect of market entry barriers, and presence of new consumers.

The three views points (manufacturing, marketing, and consumer) of product life cycle create these two broad perspectives on life cycle costing: that of the producer and of the customer (Sakurai, 1996 & Hansen & Mowen, 2000).

Under the producer's perspective of product life cycle, the objectives are to identify, analyse and manage the individual product costs throughout its life cycle. In perspective, life cycle costing defines stages of the product life cycle and the product life cycle costs by changes in the type of activities performed such as research and development activities, production activities and logistical activities (Hansen & Mowen, 2000). The product life cycle costs comprise of all the costs incurred by the producer on the entire life of a single product, including costs for: product conception, design, product and process development, production, logistics, marketing, service, and guarantees (Arto, 1994; Hansen & Mowen, 2000). Companies can achieve significant savings of costs during product life cycle even where a product has short life cycle through aggressive cost management focused on product design.

For the customer or user's perspective, life cycle costs represents the costs incurred for purchasing a product and other costs incurred in form of maintenance, repairs, energy, staff needed and disposal. Customer's product life cycle costs can be divided into initial cost (cost of planning, initiation and

realization such as cost of information–gathering and acquisition price) and follow up costs e.g. cost of operation, maintenance and disposal costs (Shields & Young, 1991).

The customer's perspective of life cycle costing emphasises product performance for a given price (Sakurai, 1996). Price can be referred to as cost of ownership which include: purchase costs, operation costs, maintenance costs, and disposal costs. Hence, total customer satisfaction is affected by both purchase price and post purchase costs. The fact that customer satisfaction is affected by post–purchase costs, producers also have a vital interest in managing the level of these costs. It was argued by Hansen & Mowen, (2000) that the manner in which producers exploit the linkage of post purchase activities with producer activities is critical to product life cycle cost management.

Enhancing cost reduction and performance with life cycle costing

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. (Karakaya, 2004 as cited in Bengu & Kara, 2010). Spickova & Myskova (2015) have noted that the main goal of life cycle costing approach is to optimise the life cycle cost of a product without losing its performance.

All these costs at various stage of life cycle can be effectively managed to achieve cost reduction with life cycle costing. In life cycle costing, a company can take many actions at each stage of the product life cycle that can impact on the costs incurred at a stage and the costs incurred in subsequent stages (Berliner & Brimson, 1988; Susman, 1989; Sakurai, 1996; Asiedu & Gu, 1998; and Hansen & Mowen, 2000). Companies should look for the stage at which cost management efforts will lead to cost reduction (Susman,1989). During the early stage (development and design) of a product life cycle, opportunities exist to lower costs that will be incurred in the subsequent stages of the product life cycle. Okano (2001) noted that the most effective strategy for reducing a product's total life cycle cost is to focus cost reduction efforts on those activities that gave rise to costs.

The emphasis of life cycle costing is on cost reduction (Sakurai, 1996). The most effective strategy for reducing a product's total life cycle cost should be to clearly recognise that actions taken in the early

stages of the product life cycle can lower costs for later production and consumption stages (Hansen & Mowen, 2000). During the product conception stage, the company should determine how customers consider various product attributes such as product performance, features and price (Susman, 1989). It has been reported that 70 – 90% of the product life cycle costs are committed or ‘locked in’ during the development and design, hence it is sensible to emphasis management of activities during this phase of a product life cycle (Artto, 1994; Asiodu & Gu, 1998, & Hansen & Mowen, 2000; and Berliner & Brimson, 1988).

It has been noted by Shield and young (1991), and Hansen & Mowen, (2000) that other approaches such as advanced manufacturing technology, share technology and design for and manufacture and assembly, can be used in life cycle costing to lower manufacturing and other costs. In life cycle costing, target costing can be used to achieve cost reduction at the product development and design stages (Artto, 1994; Sakurai, 1996). While cost reduction at the production stage can be achieved by using advanced manufacturing technology like; computer aided design, computer aided engineering, robotics, etc. (Susman, 1989). Using advanced technologies can reduce costs by having less inventories, less floor space, shorter throughput time, giving lower set up time and higher quality.

In life cycle costing, product cost can also be reduced by scientifically matching capacity of production to the demand of the products so that excess capacity and excess stocks for storage will be avoided. In life cycle costing it can be said that efforts are usually made to reduce cost at all the life cycle phases of a product, as this is one of the major objectives of this cost management technique.

Enhancement of performance using life cycle costing.

In addition to cost management, life cycle costing focuses attention on the long term performance of products (Artto, 1995; Sakurai, 1996; Asiedu & Gu, 1998).

With life cycle costing, a producer should continuously think about the product life cycles from both marketing and production perspectives in order to maximize product life cycle profits. Hansen & Mowen, (2000) opined that the stages of these two perspectives of product life cycle should be

connected to each other in order to achieve maximum performance. Where there is no understanding of the two perspectives, profit could be maximised at the expense of consumers which may not last long. Susman (1989); Meffert (2000); and Kotler (2003), in their various studies have argued that the producer can take actions at the beginning and during the product life cycle to achieve revenue enhancement. For a company to maximise a product life cycle return, the following factors require effective management.

Firstly, there should be design costs out of the product. Since most of the product life cycle cost will have to be committed at the design and development stage, effective cost management efforts must be deployed to effectively manage cost at that stage. There should be networking among the various experts in the company. By reducing costs, performance (revenue) will be enhanced.

Secondly, in order to maximise profits, the time-to-market should be minimised by a company. As in this world of stiff competition, competitors watch each other keenly to see what new product will be launched. It is important to get any new product into the market place as quickly and as possible, so that it has as long as possible time to establish the product in the market and to make profits before competition increases.

Lastly, to maximise performance, the length of the life cycle should be maximised. The longer the life cycle, the greater the profit that will be generated assuming that production ceases once the product goes into decline and becomes unprofitable. One way to maximise the life cycle is to get the product to market as quickly as possible because this could maximise the time in which product generates profits.

2. 1. 6 Antecedents of Implementation of Strategic Cost Management Techniques

The implementation of strategic cost management techniques can be carried in the following environment which could be peculiar to the firm implementing such techniques. Few of these antecedents are the focus of this study.

Accountant Competency

Accountant competency refers to the accountant (financial, cost, and management) existing capacity that helps predict competence performance in strategic cost management implementation. It encompasses knowledge, ability, skills, attitudes, experiences and competence of either as a financial accountant, cost accountant or management accountant in relation to strategic cost management in order to achieve high performance (Fowler, 1999; Kennedy & Dresser, 2005; Toutiset & Choojan 2011). The competence of the accountant determines the implementation of strategic cost management techniques, 2017)

Technology Growth

Technology growth refers to the attainment of requisite technological capability by a firm to support the implementation of strategic cost management. Technology is associated directly with the firm's ability to enhance technology for the objective of performing its stores of knowledge and learning between firms (Laonamtha *et al.*, 2013). Technology growth also describes the achievement of information systems implementation (set of interrelated components used to collect, process, store and disseminate information to support decision-making, and management controls in an organisation). Technology is one of the driving forces behind the change and improvement in management accounting practices especially improvement in information technology (Szychta, 2002; Waweru, 2004; Ahmad, & Zabri 2015). Abdel-Masoud, Dugdale and Luther (2005) have noted in their study that relatively sophisticated management accounting practices exist in firms that have made significant investment in automated manufacturing technology (AMT), total quality management (TQM) and just in time (JIT).

Competitive Volatility

Competitive volatility is a situation of unpredictability of external conditions and change that may affect the competitive environment when the number of competitors in a market increases and it is difficult to predict strategic moves that increase dramatically (Yasamoru & Ussahawanitchakit, 2011,

as cited in Kaneko *et al* (2013). In competitive volatility situation, the level of competition among competitors in the market is increased, there is more violent and there is lack of opportunity for future growth (Auh & Meuguc, (2005). In times of stiff competition, firms tend to look for ways of managing their costs in order to remain competitive and so they have to come up with strategic cost management techniques that will help them to achieve their objectives. Necessity, it is often said is the mother of invention. Due to the fact that the competitive environment is volatile, firms have to implement strategic cost management techniques that will help them to cope with the situation (Tuanmat & Smith, 2011; Hamood, Omar & Sulaiman , 2013; Pavlatos & Kostakis, 2015; Baharudin & Jusoh, 2015). Hence, competitive volatility will influence the implementation of strategic cost management techniques in manufacturing firms.

2.1 .7 Outcomes of Strategic Cost Management Techniques

The effective implementation of strategic cost management techniques in a firm will results in the following, aside from achieving the main aim of performance enhancement:

Accurate cost information

The implementation of strategic cost management techniques in a firm delivers accurate cost information (Noordin, Zainudin, Mail, Mail & Sariman, 2015; Pazarceviren, 2015). This is particularly true when activity – based costing, activity based management, target costing and life cycle costing are used. Accurate cost information is relevant for taking strategic decisions such as product mix, sourcing, pricing, process improvement and evaluation of business performance (Swenson, 1995). Such information is broad, forward looking, outward looking and market focus. With accurate cost information performance of a firm can be enhanced.

Competitive Advantage

Competitive advantage, which can results from the implementation of strategic cost management techniques is the ability of a firm to outperform competitors in the market thereby creating a strategic position for itself (Wickralasinghe & Alawattage, 2007). It is something that has been done by a firm

better than its competitors and which gives it an edge in the market place. According to Porter (1985), competitive advantage is a firm's capacity to create and sustain superior performance, and this depends on two major factors: attractiveness of the industry in which the firm competes; and the firm's relative competitive position. The use of ABC, activity - based management, target costing and life cycle costing can enable a firm gain cost advantage that can result to competitive advantage.

Customer Value Enhancement

Customer value enhancement refers to the firm's capability of being able to launch new product and services to the market. The purpose of this is to achieve customers' satisfaction, and make decisions based on useful information that is all inclusive (both financial and non-financial information) so as to respond to the requirement of the best stakeholders (Ulaga & Eggert, 2002). When a firm effectively implements strategic cost management techniques, especially target costing, the value receivable by its customers will be enhanced.

2.1.8 Organisational Performance

Performance is the output or result of an organisation measured in financial or non financial or quantitative or non quantitative terms. Performance is one type of effectiveness indicator.

In relating performance to firm, Yamin Gunasekruan and Mavondo (1999) have describe performance as the extent to which an organisation achieves its market oriented and financial goals. They noted that a broader conceptualisation of business performance is to emphasize on indicators of operational performance (i.e. non financial) in addition to indicators of financial performance. Hassan, Shaukat, Naivaz, and Naz, (2013) have examined firm performance by classifying them into financial performance, innovative performance, marketing performance, and production performance. These are measured as follow:

- i. **Financial performance** measures include: increase in profit, return on investment and returns on assets (Gopalakrishnan, 2000).

- ii. **Marketing performance** measures are: increase in sales, market share, profitability and customer satisfaction.
- iii. **Production performance** is the combination of achievement in all elements of the production performance such as: quality improvement with respect to cost reduction, improvement in quality, speed to market and production flexibility. Production performance ultimately leads organisation directly to profitability (Gunday, Ulusoy, Kilic & Alpkan, 2011).
- iv. **Innovation performance** is reflected in new product success. The indications of innovation performance are: research and development inputs, new product announcement, patent citation and patent count (Hagedoorn & Cloudt, 2003).

Singh, Sandhu, Metri and Kaur (2010) have observed that in performance measurement in any organisation, focus should be on these two factors, namely: those that relate to results and those which relates to the determinants of the result. They further identify six primary firm performance constructs as: market performance, supply chain competencies, stakeholder satisfaction, innovation and learning, customer satisfaction and financial performance.

Looking at firm's performance from two perspectives of: presence in marketplace and profit generation, Yamin, Gunasekruan and Mavondo (1999) and Green and Inman (2005) have classify measures of organisational performance into; market performance and financial performance.

Carter and Narsimhan (1996) also classified organisational performance measures into: growth, profitability and market share. This is supported by Chen, Lu and Chiou (2006) when they classified organizational performance measures into: Market share, Sales growth, and Profit margin.

Kaplan and Norton (1996) in their Balanced Scorecard (BSC) argue that performance measurement should be aligned with the strategic goals of the organisation. They emphasise that an organisation's vision and strategy is best achieved when the organization is viewed from the following four perspectives: Customer perspective, internal business operations perspective, Learning and growth

perspective, and financial perspective. The alignment of performance measurement with these perspectives is what is called the philosophy of balanced scorecard.

Performance measures that are in line with the balanced scorecard principles are (Leauby & Wentzel, 2002; Isehin, Mia & Sands, 2008):

- i. **Financial perspective**—Measures are: Market shares, revenue growth, operating profit, returns on equity, growth in margin, stock market performance, and return on assets.
- ii. **Customer perspective**—Measures are: Market shares, customer satisfaction, customer retention and loyalty, quality customer service, and customer profitability.
- iii. **Internal Business process**—Measures are: Innovation, process quality, cost reduction, delivery time, new product time to market, supplier satisfaction, and error rates on shipment.
- iv. **Learning and Growth**—Measures are: Employee satisfaction, information technology, and employee quit rate.

Another view about firm performance is that of Azar and Taghavi (2008) that suggest that performance should be based on two criteria of: financial and market.

Vivek and Ravinandran (2009) have also identified these six measures of firm - return on investment, market share, sales, profit margin on sales and overall competitive position.

Finally, Page, Jagger, Tomkin and Henwood (2006) reported that the following set of ‘core’ measures of firm performance have general applications:

Productivity – measured by Gross added value per employee, total turnover %

Profitability – measured by return on asset

Quality – measured by number of defects in a given number of product and customer satisfactions.

Innovations – measures by sales from view or adopted product or services.

Staff performance.

From the analysis made here, it can be seen that performance measurement has gone beyond financial measures as they are fraught with some limitations of the traditional performance reporting system. It has also been argued that non- financial performance indicators are the drivers of the future financial performance (Kaplan & Norton 1996).

2.1.9 Implementation of Strategic Cost Management Techniques and Performance

The use of strategic cost management techniques have some impacts on the firm's performance (increase in profits, cost reduction, customer satisfaction, product quality).

The importance of Activity - Based Costing/Management (ABC/M) in enhancing cost reduction in an organization cannot be over emphasized. The cost information derived from ABC/M can affectively be used in taking strategic decision of effecting cost reduction. The activity- based management aspect of ABC is a strategic tool for cost management. This is possible because activity –based management focuses on activity, and the effective management of the activity in an organisation will lead to cost reduction. The analysis of an organization's activity will reveal value added activity and non- value added activity. According to Turney (1991) and Hilton, (2002), once non - value added activities have been identified, the following techniques may be used to reduce the resulting non- value added costs: activity reduction, activity elimination, activity selection; and activity sharing.

Furthermore, activity-based costing / management possibility of enhancing financial performance in an organization was for a long time not supported with empirical evidence (Bromwich & Bhimani, 1989; Innes & Mitchell,1990); Mc Gowan, 1998). However, today, it has been proved empirically that activity based costing/management has a positive impact on firm performance either directly or indirectly (Shields, Dang & Kato, 2000). Ebben and Johnson (2005), provide evidence that reducing unnecessary costs can improve a company's financial performance. The firm offering high quality product from production process efficiency which ABC/M facilitate, can charge premium prices and increase profit margin on sales and return on investments (Rattanaphaphtham & Ussahawanitchakit

2010). Besides, it has been noted by Camal, Acar and Tanriverdi, (2006) that increase in competitive advantages due to cost advantages derivable from ABC/M encourages firms to achieve high financial performance. Thus ABC/M facilitates the enhancement of customer's value which leads to customer's satisfaction.

Target costing on the other hand can assist a firm in producing products with lower cost, better quality and technology (Mills and Schmidt, 1990). Target costing achieves lower product or service cost by minimising production costs through the imposition of spending limits, and avoiding waste (Wood, 1995).

Life cycle costing is also relevant for performance enhancement and cost reduction. The organisation 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).

2.2 Theoretical Framework of the Study

The theories of management accounting reviewed which formed the theoretical background for this study are contingency theory, resource based view, transaction cost theory and dynamic capability theory.

2.2.1 Contingency Theory

Before the emergence of the contingency theory approach to management accounting in the mid-1970s, it was assumed that an optimal management accounting information system design existed that was applicable, to some extent, to all organisations (Drury, 2004; Wickramasinghe & Alawattage, 2007). The contingency theory has been a popular theoretical framework in accounting research (Cinquini and Tenucci, 2010).

The contingency theory of management accounting which was formulated by Otley (1980) is based on the premise that there is no universally appropriate accounting system which applies equally to all organisations in all circumstances (Otly, 1994); instead, accounting systems are shaped by

environmental (Otley, 1978; Harrison, 1992; Abbadi, 2013) and organisational (Chenhall & Morris, 1986) factors. These factors are considered to be contingent factors. What the contingent theorists argue is that management accounting systems are functions of certain contingent factors. Therefore, management accountants can follow this mantra and then design a suitable accounting system instead of believing in one best system which is available everywhere for everybody (Wickramasinghe & Alawattage, 2007). Contingency theory suggests that the need for efficient organisational structures, processes and competent management accounting system is contingent on organisational and environment characteristics. These variables influence changes in the structure and sophistication of cost management system or advance cost accounting techniques (Cogwin & Bouwinman, 2002; Drury & Tayles, 2005). The theory focuses on contingent factors associated with business circumstances and their relationships with organisational systems and effectiveness. Chenhall (2003) affirms that early management accounting research drew on contingent factors to examine the significance of environment, technology, structure and the size to the design of management accounting system. Contingency theory provides an explanation as to why management accounting systems vary among firms operating in different countries and within the same country as well.

The contingency theory hypothesises that organisational structure is a function of context and that this context is simultaneously determined by both external and internal environment including organizational factors (Anderdon & Lenen, 1991). Organisational structure refers to the strategies that can increase the efficiency of the organisation which is affected by the various contexts of internal and external management of environmental factors within the organisational culture, technology, and size of the company (Kaneko, Ussahawanitchakit & Muenthaisong, 2013). Chaikannbang & Ussahawanitchakit (2012) have noted that external factors are organisational issues such as competition and environmental uncertainty; while internal factors are organisational issues which include resources, technology and culture. Accounting researchers have interpreted organisational structure to include management accounting techniques such as; planning and controlling,

performance measurement and cost management, and the formal and informal information decision-making methods that can enhance a firm's performance (Anderson & Lenen, (1999) as cited in Tontiset & Ussahawanitchakit, 2009).

Fisher, (1995) lists the major contingency factors and classifies them into five broad categories as: The external environment (uncertain and certain, static and dynamic, simple and complex, turbulent and calm); and competitive strategy and strategic mission (low cost and differentiation, defender and prospector, product life cycle - build, hold, invest and divest). The other internal factors are: technology (small batch, large batch, process production, mass production and interdependence – pooled, sequential and reciprocal); business unit, firm and industry variables (firm size, firm diversification, organizational structure and industry variables); and knowledge and observability factors (knowledge). Chenhall (2003) has classified contingency factors that have a major effect on management accounting practices into five main elements as: environment, technology, organizational size, structure, strategy and national culture. The following contingent factors have also been empirically observed: Organizational size (Waweru, Hoque & Uliang, 2004 as cited in Abbadi, 2013), Sophistication of level of operations (Haldma- Laats, 2002 as cited in Abbadi, 2013).

In the light of the discussion so far, this study indicates that the following contingency factors: top management support, technology growth, and competitive volatility will influence the various dimensions of strategic cost management to achieve organizational performance.

In applying contingency to this study it can be said that the contingency - based approach assumes that strategic cost management practices are influence by contingent factors and that organizational performance is enhanceds. Where a strategic cost management practice is an approximate for an organization, then, it is probably leads to competitive advantage and enhancement of organisational performance.

2.2.2 Resources – Based View

The resources - based view is a rising and dominant theoretical background in the strategic literature that addresses the questions of an organization's identity, and it is mainly concerned with the sources and nature of capabilities (Theriou, Aggelidis & Theriou, 2009). Barney (1991) has noted that the resources - based view has an intra -organizational focus and argues that performance is a result of firm specific resources and capabilities. Teeche, Pinsno and Shuen, (1991) posit that the basis of resources- based view theory is that the successful firms will find their future competitiveness on the development of distinctive and unique capabilities, which may be tangible or intangible in nature.

The resource –based view focuses on the presence of competitive advantage and is normally attained by the firms that have special resources, which their competitors do not have (Reed & Defillipi, 1990). Firms have increased competitive advantage when they can create value and succeed in their strategy based on the firms' resources (Kaneko, *et al.* 2013). How their firms' resources and their capabilities will strongly have positive impact on their performance can be explained by the resource - based view (Rattanaphaphthan *et al.*, 2010).

Barney (1991) observed that, the resource – based view define firm resources as all assets capabilities, organizational processes, firm attributes, and information knowledge controlled by a firm. It proposes that a firm has a competitive advantage when it creates a successful strategy based on its resource that cannot be duplicated by a current or potential competitor. The theory further states that the resources and capability must be rare, valuable, non– imitable, non substitutable and not transferable. Tontiset and Ussahawanitchakit, (2009) have noted that the bundles of resources are heterogeneously distributed across firms, and that the resource differences persist over time. Aubert and Weber (2001) argue that the firm resources that can earn it a competitive advantage must be those that are valuable, rare, imperfectly imitable and have no easy substitute. These four characteristics in combination enable a firm achieve a competitive advantage. Valuable resources are those that generate high

returns; resources that are rare, those that cannot be obtained by competitors; and resources that are difficult to imitate by rival companies.

According to Grant (2001), resources are inputs into the production process; they are the basic units of analysis; the individual resources of the firms include items of capital equipment, skills of individual employees, patents, brand name, finance, etc. In identifying the resources of the firm, Grant (2001) further provides the six major categories of resources of the firm as: financial resources, physical resources, human resources, technological resources, reputation, and organizational resources.

The resources – based view emphasises that firm's resources are the most important determinants of competitive advantage and performance. As Barney (1991) and Peteraf and Barney (2003) have noted, two assumptions are made when analyzing the sources of competitive advantage. Firstly, it is assumed that firms within an industry may be heterogeneous with respect to the bundle of resources that they control. Secondly, it assumes that resources heterogeneity may persist over time because the resources used to implement the firm's strategies are not perfectly mobilise. The resources uniqueness is considered a necessary condition for a resources bundle to contribute to competitive advantage. Also, Peteraf (1993) presents four conditions underlying sustained competitive advantage that include: superior resources (heterogeneity within an industry), ex post limit to competition, imperfect resources mobility, and ex ante limits to competition. Barney (1991) and Peteraf (1993) frameworks are in agreement as shown in their joint work in Peteraf and Barney (2003).

The resource – based view variables used in this study to explain the relationship among strategic cost management practices, competitive advantage and organizational performance is accountant competency. Thus, this study proposes accountant competency as a resource and capability to create and sustain competitive advantage and enhance organizational performance.

2.2.3. Transaction Cost Theory

Transaction cost theory, otherwise known as transaction cost economy, is a central theory in the field of strategy as it addresses the questions about why firms exist in the first place, why companies

expand or source out activities to the external environment, how firms define their boundaries, and how they ought to govern operations. In transaction cost theory, the starting point is the individual transaction. According to this theory, all economic activity revolves around a transaction, which is simply some form of exchange of a good or service between two or more economic actors (William & Robert (2006). To optimise that exchange, an appropriate governance mechanism must be matched to the nature of the transaction (Williamson, 1985).

Transaction cost theory focuses on transaction and costs that pertain to the conduct of transactions by one institutional mode rather than another (Williamson, 1981). Central to transaction cost theory is that transaction is the unit of analysis and the motive of the firm is always to minimise transaction costs (Williamson, 1985; Chaikambang, 2016). The theory thus postulates that firms try to minimize the cost of exchanging resources with the environment, and the bureaucratic costs of exchanges within the firm. Managers must therefore weigh the internal transaction costs against the external transaction costs, before the company decides whether or not to keep some activity in-house, or to outsource the activity to the environment.

In the transaction cost theory, there are three alternate forms of governance mechanisms and these are – ‘market’ governance, where prices govern; ‘intermediate’ governance, where complex contracts and strategic alliances govern; and ‘hierarchical’ governance where managers govern within the boundaries of the firm (Barney, 1999). Each form is supported by a different form of contract law, and each employs its own coordination and control systems. (David & Han, 2004). Transaction cost theory maintains that there are ‘rational economic reasons’ for choosing the means of governing transactions (Williamson, 1985). This is captured in what Williamson (1991) called the ‘discriminating alignment hypothesis,’ which holds that transactions, which differ in their attributes, are aligned with governance structures - i.e., market, hybrid, or hierarchy - in a discriminating (i.e., transaction-cost-economizing) way. In other words, the governance mode (hierarchy, hybrid, or market) that minimizes transaction costs is the preferred option.

The principal attributes of transactions are - asset specificity, uncertainty, and infrequency. Williamson (1985) has observed that there are transaction difficulties and associated costs, which increase when transactions are characterised by *asset specificity* (transactions which require high investments, which are specific to the requirements of a particular exchange relationship); *uncertainty* (ambiguity as to transaction definition and performance); *infrequency* (transactions which are seldom undertaken)

Properties of the transaction determine the governance structure. Asset specificity refers to the non-trivial investment in transaction-specific assets (Williamson, 1985). The level of customised equipment or materials involved in the transaction between the buyer and supplier relates to the degree of asset specificity. When asset specificity and uncertainty are low, and transactions are relatively frequent, transactions will be governed by the markets. Governance through markets can be described as discrete contracts that are short-term, bargaining relationships between highly autonomous buyers and suppliers designed to facilitate an economically efficient transfer of property rights (Ring & Van de Ven, 1992). High asset specificity and uncertainty lead to transactional difficulties with the transaction held internally within the firm – hierarchical governance. Medium levels of asset specificity lead to bilateral relations in the form of co-operative alliances between the organisations – intermediate governance. Williamson (1985) argues that the decision will always be made in relation to the scope for cost reduction and the importance of asset specificity. Therefore, the company should outsource activities if to carry them out internally would require excessive investment to get the lowest unit cost.

This study applies transaction cost theory in the context of implementation of the strategic cost management techniques and performance of manufacturing companies. Shank and Govindarajan (1992); McNair, Polutnik and Silvi (2001) have noted that strategic cost management is not only meant to manage cost strategically but to also enhance firm's performance. As strategic cost

management seeks to improve cost and value competitiveness of the firm, its profitability will also be improved (Cooper & Slagmulder, 2003).

2.2.4. Dynamic Capability Theory

Dynamic capability focuses on how organisations are able to create capabilities that give them surviving advantage in the market place. Organisation is viewed to be a set of interdependent operational and administrative routines which slowly evolve on the basis of performance feedback (Nelson & Winter, 1982). Long term competitive success is based on superior capabilities in things like research and development, operations or marketing. The dynamic capabilities framework has become one of the leading perspectives on the firm in the field of strategic management (Di Stefano, Peteraf, & Verona, 2010).

There are different definitions of dynamic capabilities with different authors looking at the concept from their own perspectives. Teece *et al.* (1997) define dynamic capabilities as the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments. Dynamic capabilities are the organisational and strategic routines by which firms achieve new resource configurations as the market emerge, collide, split, evolve and die (Eisenhardt and Martin, 2000). Dynamic capabilities are essentially change-oriented capabilities that help the firms redeploy and reconfigure their resource base to meet evolving customer demands and competitor strategies (Zahra and George, 2002). It is a newer source of competitive advantage in conceptualising how the firms are able to cope with the environmental changes (Lu et al., 2010).

It is claimed that dynamic capabilities enable firms to gain competitive advantage in rapid (technological) changing markets (Teece, 2007). Zahra and George (2002) have noted that dynamic capabilities also enable the firms to adapt to internal and external changes by developing capabilities to deal with change.

Dynamic capability seeks to explain long-run growth and firm survival (or failure) by detailing how the firms can create, extend, integrate, modify, and deploy their resources while simultaneously

managing competitive threats and effectuating necessary transformations (Teece, 2010). The dynamic capabilities approach helps explain why intangible assets, including a firm's collective knowledge and capabilities, have become the most valuable class of assets in a wide range of industries (Hulten & Hao, 2008).

As noted, dynamic capabilities enable an enterprise to profitably build and renew resources, reconfiguring them as needed to innovate and respond to (or bring about) changes in the market and in the business environment more generally (Pisano & Teece, 2007; Teece et al., 1997).

Eisenhardt & Martin (2000) have noted that the theory of dynamic capabilities arose from a key shortcoming of the resource-based view of the firm. The RBV has been criticised for ignoring the factors surrounding resources, instead assuming that they simply "exist". Considerations such as how resources are developed, how they are integrated within the firm and how they are released have been under-explored in the literature. Dynamic capabilities attempt to bridge these gaps by adopting a process approach: by acting as a buffer between the firm resources and the changing business environment, dynamic resources help a firm adjust its resource mix and thereby maintain the sustainability of the firm's competitive advantage, which otherwise might be quickly eroded. So, Eisenhardt & Martin (2000) have further noted that while the RBV emphasizes resource choice, or the selecting of appropriate resources, dynamic capabilities emphasize resource development and renewal. It can therefore be said that dynamic capability theory is a developmental offshoot of the resource based view (Krzakiewicz & Cyfert, 2017). Dynamic capability theory now complements the resource based view.

There are several routines that have been suggested by various authors that can help the firms develop dynamic capabilities (Inan & Bititci, 2015). Some of these routines, apart from learning include sensing, seizing, leveraging, transformation and reconfiguration, are routines to develop dynamic capabilities (Teece, Pisano & Shuen, 1997); Ambrosini & Bowman, 2009).

Sensing refers to the recognition of the market and technological opportunities and the mobilization of requisite resources (Katkalo, Pitelis & Teece , 2010).

Seizing refers to the organisational strategy and infrastructure for making appropriate decisions and absorbing and integrating resources to create and capture value from opportunities (Katkalo *et al.*, 2010).

Transforming refers to the continuous renewal and modification aimed at maintaining competitiveness, as markets and technologies change once again (Katkalo *et al.*, 2010).

Reconfiguration refers to the transformation and recombination of assets and resources, e.g. the consolidation of central support functions that often occur as a result of an acquisition (Ambrosini & Bowman, 2009).

Leveraging involves replicating a process or system that is operating in one business unit into another, or extending a resource by deploying it into a new domain, for instance by applying an existing brand to a new set of products (Ambrosini & Bowman, 2009).

Dynamic capability theory is applied in this study since the competency possessed by the firm's accountants to enable it effectively implement strategic cost management techniques is a capability that can lead to achieving competitive advantage and improved performance.

The theories used in underpinning this study are the contingency theory and the resource based view. These are used in conceptualising the relationships among the antecedents variables, strategic cost management practices, mediating variables and organizational performance.

2.3 Empirical Review

Some empirical studies are reviewed.

Itner, Lanen and Larcker (2002) studied the association between activity-based costing (a strategic cost management practice) and manufacturing performance in the United State. The study was conducted using the data from 1997 Price Water House Coopers and industry week annual census of

manufacturers in the US. It was a survey of the US manufacturing companies using a cross sectional sample of manufacturing plants. The result indicates that extensive use of activity-based costing is associated with higher quality levels and greater improvements in cycle time and quality (types of performance measure) and is indirectly associated with manufacturing cost reduction due to quality and time improvements. The study also found a weak evidence that the association between activity-based costing and accounting profitability is dependent on operational characteristic.

In the study of Cagwin and Bouwman (2002), a survey of 210 internal auditors was carried out and it was found that the firms with diverse product portfolio and with high proportion of overhead cost that uses activity –based costing along with other strategic initiatives such as Just- in -time and total quality management have substantial improvement in their return on investment.

Fridh and Borgenas (2003) carried out a study on the implementation of target costing in Swedish manufacturing companies using a sample of 250 firms. Questionnaire administration was used in collecting the primary data for the study. The results of the descriptive analysis showed that 16.5% of the sampled firms in Sweden used target costing. This shows that target costing was not largely implemented in Sweden.

Tekavcic and Peljhan (2003) investigated activity based cost management practices in 264 Slovenian companies. The aim of the study was to develop a better understanding of activity - based costing (ABC) and activity - based management (ABM) presence in Slovenian companies. It also sought to determine the use of ABC and ABM effect on the performance of Slovenian companies. Data were collected using questionnaire and personal interview with the top managers or intermediate managers. Analysis of data was carried out with the use of ANOVA. The study found that ABC and ABM were mostly implemented by large companies. It also found that the companies implementing ABC and ABM outperformed those companies not implementing the two techniques of strategic cost management. This implies that ABC and ABM usage by firms improve their performance.

Alsaeed (2005) examined the extent of activity based costing implementation in 100 listed companies in Saudi Arabia. The study was meant to understand the reasons that the companies adopted ABC. Questionnaire was used in data collection from the sampled companies. Descriptive statistics were used in analysing the data collected. The findings of the study indicated that one- third of the sampled firms applied ABC and that the finance departments were the most users of ABC. The study also showed that measuring cost accurately; measuring customer profitability, lowering operating costs, improving profitability and eliminating non-value added activities were the highest incentives for the use of ABC.

Tontiset and Ussawanitchakit (2009) have investigated the relationships among cost management effectiveness, cost information usefulness, corporate competitiveness and firm success using the theory of contingency and the resources - based view as a theoretical background. The study revealed that cost management effectiveness plays a role in driving superior corporate competitiveness and firm success. The study also showed that organizational performance is a measure of firm success and that cost management effectiveness can enhance the quality of decision making, competitive advantage and firm performance. The findings of this study is in line with those of Pizzini (2006) and Cadez & Guilding (2008).

Zaman (2009) has investigated the impact of activity - based costing on firm performance in Australian companies. The respondents of this study were finance directors, chief financial officers, cost and management accountants, and other senior executives from all of the seventeen (17) sampled companies in Australia; this constituted the study sample. The data gathering instrument employed for this study was a structured questionnaire. The data collected were analysed using descriptive statistics, factor analysis - principal component method and regression analysis to predict the impact of ABC on overall firm performance. The results of the study indicates that ABC implementation has helped the sampled firms to reduce production cost and lowers the customers cost. It was found that ABC

also helps the firms to increase managerial efficiencies and effectiveness, and increases the firms' revenue (performance).

Al-Khadash and Nassar (2010) have studied the implementation of activity-based costing and its impact on the financial performance of the Jordanian industrial shareholding companies. The purpose of the study was to investigate the improvement in financial performance associated with the use of activity-based costing (ABC). Data were obtained through a cross-sectional questionnaire survey of financial managers of 65 sampled quoted Jordanian companies. Also, the secondary data in form of annual financial report for 2009 was obtained from the sampled firms. All the data collected were analysed descriptively, and simple regression analysis was used to test the association between the awareness level of using ABC and the level of adopting ABC. It was also used to identify the improvement in return on assets as a measure of financial performance which was associated with ABC initiatives. The results of the study shows that the awareness level of using ABC is high among the financial managers, but ABC implementation is not high; also it was found that there is a positive association between ABC implementation and improvement in return on assets.

Another study on strategic cost management instrument – the study of the adoption and benefits of target costing was carried out by Juhmani (2010). The study has investigated the adoption of target costing by Bahraini manufacturing firms. Among the findings of this study is the result showing a statistically significant difference between performances of the firms using target costing and those not using target costing. This difference suggests that higher usage of target costing is usually associated with higher firm performance. This study also supports that of Tani *et al.*(1994) position that target costing practice leads to cost reduction, realization of quality and satisfaction of customer's needs (a performance measure).

In carrying out a study of strategic cost management practices (activity- based costing), Rattaphaphthan and Ussahawanitchakit (2010) have investigated the influence of activity- based costing (ABC) effectiveness on competitive advantage and performance of selected Thai listed firms.

The study used the resources based view and contingency theory to study the variables involved. The study drew its sample of 521 firms from the Stock Exchange of Thailand. The questionnaire mailing method of data collection was employed to collect data from the sampled firms. The variables measured were independent variables, dependent variables (performance), mediating variables, antecedent variables and control variables. The Ordinary Least Square (OLS) regression analysis was used to test the hypothesized relationships among the variables examined after the factor loading of the variables was carried out. Since all the dependent, independent and control variables in this study were either nominal data or categorical data, OLS was the appropriate method for examining the hypothesized relationships (Aulakh, Kotab & Teegen (2000)). The results of the study show that ABC effectiveness is significantly and positively related to production process efficiency, cost advantage, and product planning efficiency; while production process efficiency, cost advantage, product planning proficiency are significantly and positively related to financial performance. The study also shows that where ABC may not have a direct effect on organisational performance it can have an indirect effect through the intervening variable(s) that mediate the relationship between ABC and firm performance (Shield *et al.*, 2000). This study only focuses on a single strategic cost management technique and does not include non- financial performance as part of the dependent variable.

In a comparative study of target costing adoption in the UK, Australia and New Zealand, Yazdifar and Askavany (2011) have investigated the factors contributing to the adoption of this strategic cost management technique. Data were collected using questionnaire distributed among CIMA qualified accountants working in manufacturing and service companies in the studied countries. The study employed questionnaire administration to collect data from 1175 CIMA members in Australia, 366 members in New Zealand and 500 members in UK. The data collected were analyzed using descriptive statistics. The findings of the study show that target costing is equally prevalent among the manufacturing and service firms across the countries sampled and that in terms of levels of implementation there is a significant difference between manufacturing firms and service firms.

Huang, Lai and Chun (2012) have investigated the implementation of target costing systems, business innovation and firm performance in a sample of 189 electronics and information industry manufacturers in China. Questionnaire administration to the sampled firms was employed in data collection. The data collected were analysed using both Pearson correlation analysis and regression analysis. The results of the analysis indicate that the implementation of target costing was positively associated with both business innovation and firm performance. It was also found that business model innovation was positively related to firm performance.

Tontiset and Choojan (2012) have studied strategic cost management success in electrical manufacturing businesses in Thailand. The study which investigated the antecedents and consequence of the practice of strategic cost management in the sampled electronic manufacturing firms employed the resources based view and contingency theory. A mail survey procedure via questionnaire was used in collecting data from a sample of 120 manufacturing firms in Thailand. The ordinary least square (OLS) regression analysis was used in testing of hypotheses. The results of the study showed that the implementation of strategic cost management has a positive significant effect on firm performance. This study is in line with those of Chenhall and Langfield Smith, (1998); Banker, Bardhan, Indranil and Chen (2008); and Cadez and Guilding (2008), which confirm that manufacturing firms implementing strategic cost management techniques have their performance improved. The study has examined strategic cost management generally without focusing on a particular technique.

Ramljak and Rogošić (2012) have carried out a study on strategic management accounting (strategic cost management) practice in Croatia. The purpose of this study was to provide an insight into strategic management accounting practices and their implications on relevance and timeliness of information used by managers. The research surveyed large-sized Croatian companies using questionnaire to collect data from the sampled firms. The data collected were analysed using ANOVA

and Mann Withney statistics. The results of the empirical research indicate that the fundamental purpose of strategic management accounting of providing broad scope of relevant and timely information, is fulfilled. It was also found that the synergistic effect of the different strategic management accounting techniques implemented has a positive impact on cost control and reduction (measure of performance). The empirical results provide the support that strategic management accounting techniques are complementary and their combined effect is very useful for the cost control.

Furthermore, Chaikambang, Ussahawanitchakit and Boolua (2012) examined strategic cost management and goal achievement in Thailand companies. The study investigated the influence of strategic cost management on goal achievement in food business firms using the transaction cost, dynamic capability and contingency theories to formulate the conceptual model for the study. Copies of mailed survey questionnaire were used in data collection from 168 respondents firms. The factor loading of the variable was done. After that, the t - test statistic and the ordinary least squares (OLS) regression analysis were used to test and examined the hypothesised relationships in the study. The results of the study indicate that strategic cost management has a significance effect on the operational excellence in the firm and goal achievement, which manifest in improved performance. It thus confirms the works of Cooper and Slagmulder (1998) and Ilic, Millicevic, and CVetkovic, (2010) which support that strategic cost management helps in achievement of a firm's mission and strategic goal of performance and increase in competitive advantage. This study also did not focus on any particular strategic cost management practices but examined the subject generally.

Huang, Lai, Kao and Chun (2012) have studied target costing, business model innovation and firm performance in 189 electronics and information Chinese firms. The study sought to determine the impact of target costing on business model innovation and firm performance. Questionnaire administration was used in data collection from the sampled firms. The data collected were analysed using Pearson correlation analysis and regression analysis. The results of the study indicate that the

implementation of target costing positively relates to business model innovation and firm performance.

Kaneko, Ussahawanitchakit and Muenthaisong (2013) have investigated the relationship between strategic target costing (a strategic cost management practice) effectiveness and goal achievement in a sample of 336 exporting gem and jewelry businesses. The study examined strategic target costing as an instrument of strategic cost management effectiveness and goal achievement in jewelry companies, using collaborative planning and contingent theories as the theoretical background. Mailed questionnaire method of data collection was used in obtaining data from 336 selected firms. Goal achievement measured by performance was the dependent variable of the study. Revenue, profitability, market share and customer satisfaction were performance measures used. The ordinary least square (OLS) regression analysis was used to test and examine the hypothesized relationships among the variables after the factor loading of the variables. The study reveals that strategic target costing practice has a strong significant impact on organisational goals achievement (Thomson and Gurowka, 2005). This study only focused on strategic target costing as instrument of strategic cost management.

Abdulla and Tareq (2013) have examined the impact of activity-based costing (ABC) on telecom companies performance. The study sampled 27 participants in of five telecom companies (Zain, Orange, Umniah, Mada, and Wi Tripe) in Jordan. To achieve this objective, a questionnaire survey was used, and structured interviews conducted with selected staff in the management accounting and finance departments in the case study companies. Data collected were analysed descriptively. The result of the study indicates a positive relationship between applying the ABC and the telecom companies financial performance. It was noted that the needed infrastructure to implement the ABC was available in telecom companies operations, but there were obstacles preventing telecom companies from applying ABC in their operation to control cost and optimize expenses. The study

called for further research in this respect. The study however shows that ABC is applicable in service firms.

Laonamthan *et al* (2013) have examined the effects of modern cost management (strategic cost management) capability on firm performance in 122 selected auto parts business in Thailand. In the study they found a significant effect of modern cost management capabilities on operational cost effectiveness and organizational performance.

Elhamma and Yifei (2013) have examined the relationships among activity based costing (ABC), management accounting, business strategy (contingent factor) and performance of Moroccan enterprises. The study sampled 62 enterprises (both service and non - service firms) in Morocco using questionnaire as instrument of data collection. The logistic regression was used to analyse the data collected in examining the statistical relationship between business strategy and the adoption of ABC. The results of the study showed that the contingent factor of, business strategy has no significant impact on the implementation of ABC in the sampled firms. However, the study indicates that ABC implementation influences performance in the enterprises studied.

Mijoc, Starcevic and Mijoc (2014) have examined the relationship between contemporary cost management methods and improvement in financial performance. The study aimed at clarifying the conceptual and methodological ambiguities surrounding the justification of using adopted measurement scale. It also studied the impact of target costing, activity-based costing and total quality management. The study sampled 172 Croatian limited liability companies and collected relevant data using questionnaire administration. The data collected were analyzed using correlation analysis. The result of the study showed that financial performance is significantly positively associated with contemporary cost management methods. The study particularly found that TQM is positively associated with financial performance. The study however, found no significant impact of ABC and target costing on the financial performance of the companies studied. The study recommended that

future studies should focus on investigating the influence of individual contemporary cost management methods on performance of companies.

Gliaubicas and Kanapickiene (2015) have examined the impact of contingency factors on the implementation of strategic cost management practices in Lithuanian companies. The study focused on activity based costing, activity based management, target costing, bench making, and life cycle costing implementation in 110 Lithuanian manufacturing companies. The data collection method was the use of mailed questionnaire. The data collected were analyzed using descriptive statistics and multiple regression analysis. The result of the study showed that competition intensity has a strong impact on the implementation of strategic cost management techniques. This is particularly true for activity based costing and bench marking. It also showed that company size has a significant negative influence on all the five strategic cost management techniques examined.

Alsoboa, Al-Ghazzani and Joudeh (2015) have examined the impact of strategic costing techniques on the performance of Jordanian listed companies. The techniques examined included activity-based costing, target costing, life-cycle costing, value chain costing and cost of quality. These techniques are also regarded as strategic cost management techniques. The study sampled 91 listed manufacturing companies and data were collected using questionnaire administration. The data collected were analyzed using both descriptive and inferential statistics; specifically, the hypotheses were tested using multiple regression analysis. The result indicates that ABC, target costing and cost of quality have statistically positive effect on overall performance. While life-cycle costing and value chain costing do not have a statistically significant effect on the performance of the firms studied.

Chaikanbang (2016) has investigated the relationship between strategic cost implementation and its antecedents and consequence. The study, which focused on transportation business in Thailand, examined the influence of strategic cost management implementation on operational efficiency. It also examined the antecedent of strategic cost management implementation. Data were collected from 105

sampled firms using questionnaire administration. The ordinary least square (OLS) regression analysis was used in testing the hypotheses formulated in the study. The result of the analysis indicates that top management support and accountant competency has a significant positive effect on strategic cost management implementation. The study also suggests that strategic cost management implementation positively influences operational efficiency.

Al-Naser and Mohamed (2017) have studied the integration of strategic cost management techniques (total quality management (TQM) and balanced score card (BSC)) for achieving improved performance in Iraqi manufacturing industry. Data were collected by means of questionnaire survey using simple random sampling of 604 manufacturing companies in Iraq. The data collected were analysed using descriptive analysis and Structural Equation Modeling. The results of the analysis show a significant link between TQM and the perspective of BSC (customer, financial, innovation and learning, and internal business process). The study also indicates that TQM is a good technique of strategic cost and management and that it has a direct positive link with the organizational performance from the customer, financial, innovation and learning, and internal business process perspectives of BSC.

In Nigerian, Akenbor and Okoye (2012) investigated the extent of influence of strategic management accounting on competitive advantage in Nigerian manufacturing companies. A total of 100 manufacturing companies were sampled and data were collected using questionnaire. The data were analysed descriptively. The findings revealed that strategic management accounting enhances competitive advantage. This was a shallow study as it was not based on any known theory for strategic management accounting research. It did not focus on a particular cost management practices. The study did not examine the impact of strategic management accounting on performance of Nigerian manufacturing companies. All these lapses leave a gap to be filled.

A further study on strategic cost management practices in Nigerian manufacturing and financial industries was done by Oyewo, (2013). The study examined the extent of usage of strategic cost management in the Nigerian companies (manufacturing and financial industries) with the intent of identifying the factors influencing the adoption. The study also examined how strategic cost management could be used in enhancing a firm survival in recessionary times. The study selected 40 companies comprising 26 manufacturing companies and 14 financial service companies (banks) as sample of the study. The outcomes of the study reveal that strategic cost management techniques are being practised in Nigeria, but that it is more applicable in manufacturing companies than financial service companies. This study however falls short of using any theoretical background in examining the relationship between strategic cost management and company's survival. That is, it was not based on any theory. An in-depth study of the strategic cost management practices was not carried out to determine their applicability in the Nigerian manufacturing companies. This current study is set out to fill the missing gap.

Another study on cost management in Nigeria was carried out by Fagbemi, Abogun and Uadiale (2013). The study sought to appraise the adoption of cost management techniques in selected Nigerian manufacturing companies. It also examined the factors influencing the adoption of contemporary cost management tools. The study used a cross sectional survey research design and collected the primary data through the administration of 150 copies of questionnaire on certain officers of the sampled manufacturing companies. The data collected were analysed using both descriptive statistics and regression analytical too. The study shows some levels of the practice of strategic cost management techniques in Nigeria, but not at the level expected. This can be regarded as a survey of cost management techniques without emphasis on the strategic nature and its role in enhancing organizational performance. If the study had some major elements of strategic cost management then reference ought have been made to the works of Shanks (1989), Shanks and Govindarajan (1992) etc.

Furthermore, using a cross sectional survey of manufacturing companies in Nigeria, Imeokparia (2013) examined the adoption of activity - based costing and its impact on manufacturing company's profit. The sample of the study was made up of 262 manufacturing companies in the South West of Nigeria. Data were collected through the instrument of questionnaires administered to the sampled manufacturing companies. The regression analysis was used in testing the hypotheses formulated in the study. The results of the study indicate that the manufacturing companies that have adopted activity - based costing has increase in their profitability measured by return on capital employed (ROCE) and other measures. It was also found out that this strategic cost management tool led to cost reduction in the firms practising activity - based costing system. This current study seeks to extend Imeokparia's work to include the examination of additional two techniques of strategic cost management (activity based management, target costing, and life cycle costing) using the contingency theory and resource based view as theoretical background.

Idowu (2014) have examined target costing and competitive advantage in Nigerian manufacturing industry. The main objective of the study was to ascertain the impact of target costing on competitive advantage in Nigerian manufacturing firms. The study sampled 10 quoted manufacturing companies in Nigeria. Survey design was adopted for this study and chief accountants, marketing directors and production engineers were used as the informants. The questionnaire was used as instrument of data collection. The data collected were analysed using analysis of variance (ANOVA) to find out the impact of target costing on competitive advantage in manufacturing firms using difference in proportion. Regression analysis was also used to test the hypotheses formulated in the study. The test shows that target costing enhances cost advantage and quality advantage in competitive manufacturing industry, despite some teething problems encountered by the firms in adopting the technique. The study thus concludes that target costing implementation do have significant positive impact on competitive advantage in the sampled manufacturing firms.

Imeokparia and Adebisi (2014) carried out a study on target costing and performance of manufacturing companies in South Western Nigeria. A survey research method was employed in the investigation of 282 manufacturing firms. The questionnaire was the method employed in data collection from the sampled firms. The ordinary least square and t-test were used for the data analysis. The results of the study show that the level of adoption and application of target costing by manufacturing industry in South Western Nigeria is low. The study also shows that there is positive relationship between the adoption of target costing and return on investment and cost reduction.

2.5 Gaps in Literature Identified

From the empirical review of both the foreign and local studies on strategic cost management and performance the following research gaps were observed by the researcher..

First, it is noted that the resource based - view as a theory is not commonly used in the study of strategic cost management practices in Nigeria. So, but this present study use the resource - based view, a common theory of strategic management research along with the contingency theory as theoretical background for the study. Secondly, the introduction of mediating variables such as: accurate cost information, competitive advantage, and customer value enhancement in the relationship between strategic cost management implementation and performance in manufacturing companies in Nigeria is missing in most Nigerian studies. Thirdly, activity – based management, target costing, and life cycle costing have not been adequately researched in Nigeria. Thus, This study extends the research in strategic cost management in Nigeria in this respect. Fourthly, most of the studies reviewed (both international and local) employed ordinary least square (OLS) as analytical methodology which may not be appropriate in all situations. This is a major missing gap filled by employing partial least square structural equation modeling (PLS - SEM) in the analysis of the data in this study. The conceptual model of this study as shown in Figure 2.6 further shows how the gaps were filled in this study.

2.5 Conceptual Model

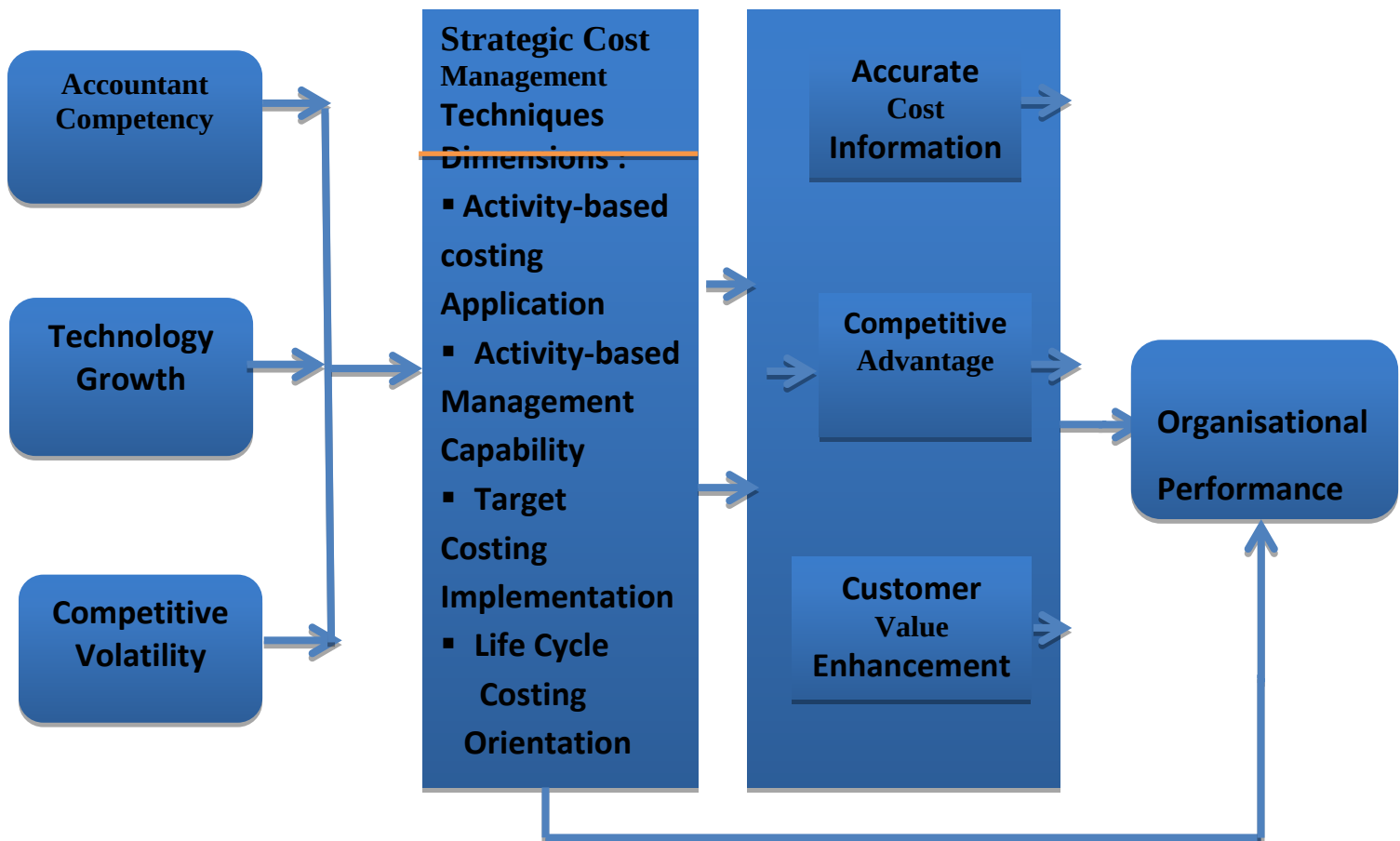


Figure 2.6: Conceptual Model of Strategic Cost Management and Performance of Selected Manufacturing Companies in Lagos and Ogun States, Nigeria (Researcher’s Conceptualisation, 2018)

The conceptual model for this study is shown in Figure 2.6 based on the contingency theory, and the resource based view. The model is based on the following assumptions: factors affecting cost and revenue structure of the business are identified; the firm value chain is identified and selection of activities to sustain competitive advantage made; inter – functional complexity is understood and reduced; there is continuous cost improvement; employees are properly trained and involved in decision making; and strategy is used in cost management.

The first set of variables, namely: Accountant competency, technology growth and competitive volatility are regarded as the antecedent variables in this study, which tend to influence the implementation of strategic cost management techniques.

The next set of variables (independent variables), namely: Activity Based Costing (ABC) application, Activity – Based Management (ABM) capability, target costing implementation and life cycle costing orientation, represent the implementation of ABC, ABM, target costing and life cycle costing techniques to achieve accurate cost information, competitive advantage, customer value enhancement and organizational performance.

The third set of variables in the conceptual model, which are: accurate cost information, competitive advantage and customer value enhancement, are regarded as the mediating variables in the relationship between strategic cost management techniques implementation, and organisational performance. These variables in turn can influence performance in a firm.

The last variable in the conceptual model is the dependent variable – organisational performance. This is measured using both financial and non financial criteria such as profit, return on capital employed, cost reduction, sales volume, customer satisfaction, product quality and market share.

CHAPTER THREE

METHODOLOGY

This chapter explains the research design, population and sampling procedure, nature and sources of data, and data collection procedure. The chapter also explains the questionnaire development, measurement of variables, reliability and validity, method of data analysis, and structural model specifications.

3.1 Research Design

The study employed a cross - sectional survey research method to examine the implementation of strategic cost management techniques and their impact on organisational performance of selected manufacturing firms in Lagos and Ogun states of Nigeria. For a study of this nature, survey design was appropriate as it allowed for the examination of statistical associations at any particular point in time, and large sample could be drawn from the study population. This was also to ensure that detailed responses for the study were obtained.

3.2 Population and Sampling Procedure

The population of this study consisted of 77 quoted manufacturing firms (385 respondents) having their head offices or factories located in Lagos and Ogun States . These two states were chosen in this study because Lagos is the commercial nerve centre of the country and which has spilled over to surrounding cities located in Ogun state (e.g. Agbara, Ota, Ifo, and Sagamu). The listed companies were extracted from Nigerian Stock Exchange Fact book, 2015/2016. The manufacturing industry was chosen because it is the industry that has the most developed cost and management accounting systems (Christensen, 2010). Strategic cost management practices are common in manufacturing companies. Quoted manufacturing companies are focused on because of their large capital base and the possession of financial resources to deploy strategic cost management systems in their firms. The information on the location of the quoted companies was also obtained from 2015/2016 fact book of the Nigerian Stock Exchange.

The sample size of 65 quoted manufacturing companies (325 respondents) determined statistically was selected. The sample size was calculated using the Taro Yamane formula (Imeokparia, 2013). See Appendix VII for the procedure used in arriving at 65 sample size. The specific 65 manufacturing companies used were selected from the various sub-sectors of the manufacturing sectors.

3.3 Data Types and Data Collection Procedure

Primary data were the main data collected and used in this study. The primary data were collected with the use of a questionnaire administration. Five (5) copies of the questionnaire were administered to each of the sixty five (65) companies (325 respondents) that were sampled. The questionnaires were targeted at the financial accountants, cost accountants, management accountants, chief accountants/finance directors and the chief internal auditors of the manufacturing companies under study. These officers of the company, it was believed were knowledgeable in cost and management accounting and so could provide answers to questions on strategic cost management practices (Singh, 2013). Therefore, given the sample size of 65 companies, a total of three hundred and twenty five (325) copies of the questionnaire were administered. After several visits made to the sampled companies, two hundred and forty – four (244) copies of the administered questionnaires were retrieved out of which eleven (11) were unusable due to improper filling by the respondents. The valid copies of the questionnaire finally used for analysis were two hundred and thirty three (233) from 57 manufacturing firms, which represents 71.7% success rate of return. This success rate of return is very satisfactory as noted by Baruch and Holton (2008) that the average response rate for studies that utilized data collected from individuals was 52.7 percent.

3.4 Questionnaire Development

The questionnaire was structured into seven (7) sections as follows:

Section one asked for personal information about the respondents. Section two contained information on the respondent's company. Section three was meant to determine the extent of the application of

strategic cost management practices in the manufacturing companies. Sections four to six were meant to evaluate each of the constructs (variables) in the conceptual model of the study. Section four contained the assessments of strategic cost management techniques: activity –based costing application, activity - based management, capability, life cycle costing orientation; and target costing implementation. Section five contained the assessment of consequences of strategic cost management practices: accurate cost information, competitive advantage, and organizational performance. Section six evaluates the contingency theory and resources - based view factors of: accountant competency, technology growth, and competitive volatility influencing the implementation of strategic cost management techniques in the company. Lastly, section seven asked open ended questions on respondent's opinions and suggestions.

3.5 Variable Measurement

Organisational performance

Organisational performance (the main dependent variable) was measured in this study using a seven items consisting of : profit, return on investment (ROI), cost reduction, sales volume, customer satisfaction, product quality and market share adopted from Aksoylu (2013). Performance was assessed in two ways as follows: Firstly, the organisation performance was assessed on changes in the seven items of firm performance indicators as a result of the application of strategic cost management practices using a seven-point Likert scale ranging from: greatly decreased (1) to greatly increased(7). Secondly, the organisation's current performance was assessed in comparison with its competitors, also using a seven-point Likert scale ranging from very significantly lower than (1) to very significantly higher than competitors (7).

The average of the above was used in measuring organizational performance. The reason for using the above composite assessment of organization performance was to have a more robust assessment of organizational performance.

Activity-Based Costing Application

Activity based costing application was measured using seven items developed from literature the review that included: the company applies modern costing techniques; procedure exist in the company for the determination of activities required for the manufacture of its products; the company's operations are transformed into specific activities; cost drivers are determined for each activity in the company; there is adequate records keeping of cost drivers and activities of the company; there is linkage of cost and activities to determine activity cost; and allocations of cost to products are done using appropriate activity consumption rate. These items were measured using seven-point Likert scale ranging from - strongly disagree (1) to strongly agree (7).

Activity – Based Management Capability

Activity –based management capability was measured in this study using six items developed from literature review and which include: analysis of value chain activity of the company is carried out; the relationships and linkages between activities of the company are determined; analysis of activities into added value and non added value activities and determination of performance measures for each activity; the causes of the company's activity cost is normally investigated; the company examines and qualifies the effect of cost drivers; and activities required for the manufacture of products which drive costs are effectively managed. These items were measured using seven-point Likert scale ranging from - strongly disagree (1) to strongly agree (7).

Target Costing Implementation

Target costing implementation was measured using seven items developed from literature review comprising of : Conducting market survey to determine customers requirements; determination of target price; determination of target profit margin; estimating allowable cost; Setting preliminary product design that include customers specifications and determination of the produce cost; making improvement and adjustment on current design; and conversion of proposed design that achieves

target cost into an actual product. These items were measured using seven–point Likert scale ranging from - strongly disagree (1) to strongly agree (7).

Life-cycle costing orientation

Life cycle costing orientation was measured in this study using six items developed from literature reviewed and these include: information about customers and competitors are gathered; costs at each stage of the product life cycle of the produce are properly determined for the purpose of cost management; the stage and time of achieving improved revenue and cost reduction for all the stages of the product life cycle is determined; other tools of strategic cost management such as target costing and value engineering are used in effecting cost reduction at each of product life cycle; and there is trade off and balancing between standard and respond time and selling price. These items were measured using seven–point Likert scale ranging from - strongly disagree (1) to strongly agree (7).

Accurate Cost Information

In this study, accurate cost information was measured using four items developed from literature reviewed that include: allocation of indirect cost based on activities performed; use of multiple cost drivers for cost allocations; cost drivers used must have cause and effect relationship with production overhead; and cost information generated is timely, relevant and reliable for strategic decisions. These items were measured using seven–point Likert scale ranging from - strongly disagree (1) to strongly agree (7)

Competitive advantage

Competitive advantage was measured here with seven items adopted with modification from Hwaity (2013) and these are: usage of strategic cost management to achieve improved performance; able to sell products at lower cost; achieving efficiency in production leading to cost reduction; being able to launch higher quality products at higher prices into market; quality raw materials are sourced at cheaper price leading to lower product cost; achievement of higher margin, greater returns on asset; and

creation of a brand name for its self in the market. These items were measured using seven–point Likert scale ranging from - strongly disagree (1) to strongly agree (7)

Customer value enhancement

Customer value enhancement was measured in this study using four items developed from the review of literature and it includes: products are manufactured to the requirement of customers; customers receive value for their money; the firm ensures that only quality products are launched into the market; and the quality of the firm's after sales service satisfies the customers. These items were measured using seven–point Likert scale ranging from - strongly disagree (1) to strongly agree (7)

Antecedent Variables

The antecedent variables in this study are: Top management support, accountant competency, corporate resource facilitation, technology growth, and competitive volatility. All the variables here were measured using a seven- point Likert scale, ranging from 1(Strongly disagree) to 7 (Strongly agree).

Accountant Competency

Accountant competency in this study was measured using five items adopted from Chanopas, Krain and Khang, (2006); Rattanaphaphthan *et al.*, (2010); Desai & Pandya (2006), which include: the accountant is knowledgeable in strategic cost management techniques implementation; the accountant is trained in strategic cost management; the accountant possess cognitive ability, experience and skills in strategic cost management; the accountant possess the ability to apply modern information technology; and knowledge sharing is in existence in the organization.

Technology growth

Technology growth was measured here using four items adopted from Prasad, Ramamurthy and Naidu, (2001) (as cited in Chikanbang *et al* (2012); Kaneko *et al*, 2013. These are: the company has ability of creativity towards innovation with research and development; has ability to deploy modern

production technology; has ability to analyze the market transactions process; and accurate financial and non- financial information can be processed with latest information technology.

Competitive Volatility

Competitive volatility was measured by four items through competitive environment: the market competition is turbulent; the competition is dynamic; the competition is complex; and it is unpredictable and difficult to predict (Yasamorn & Ussahawanitchakit, 2010).

3.6 Validity and Reliability

The research instrument – (questionnaire) was subjected to content validity as copies of the initial draft were vetted by experts in cost and management accounting research and postgraduate lecturers in accounting and finance for their suggestions. In addition, some of the variables measured were adopted from works that have been done in developed countries.

To further ensure validity, a pilot study for the questionnaire was conducted before administering the questionnaire for the main study. Thirty (30) copies of the original questionnaire were administered to thirty selected chartered accountants working in manufacturing companies in Lagos. This provided a trial run for the questionnaire, which involved testing the wordings of question, identifying ambiguous questions, testing the techniques that was used to collect data, and measuring the effectiveness of standard invitation to respondents.

With the nature of the method of analysis used for this study – Structural equation modeling, partial least square version (PLS - SEM), the following tests were carried out to ensure validity and reliability: indicator reliability test, constructs internal consistency reliability test, construct reliability and validity test and discriminant validity test. They are reported in chapter four.

3.7 Methods of Data Analysis and Model Specification

The data collected were analyzed using both descriptive and inferential statistical methods. The descriptive method which involved the descriptive analysis of data collected made use of frequency count, percentages, mean and standard deviation. Descriptive analysis was also used in determining the extent of the implementation of strategic cost management techniques in the sampled companies.

The inferential statistical method used was the Structural Equation Modeling (SEM). Structural Equation Modeling (SEM) is a second generation regression analytical method. Specifically, Partial Least Squares (PLS) version of SEM was used in this study. Partial Least Squares (PLS) analysis is an alternative to OLS regression, canonical correlation, or covariance-based Structural Equation Modeling (SEM) (Garson, 2016). Partial least squares is a statistical methods for modeling complex multivariable relationships among manifest and latent variables. The PLS analysis carried out was facilitated with the use of SmartPLS 3.0 software (Ringle, Wender & Becker, 2015). This software was used in analyzing both the measurement and structural models. The PLS algorithm was used in determining the measurement model, while bootstrapping method was used in assessing the structural model (Hair, Sarsted, Hopkins & Kuppelwieser, 2014).

Structural Equation Modeling (SEM) was used because of its suitability for this study and its many advantages over the more commonly used regression analysis. First, SEM is able to analyse a series of structural equations simultaneously in a single analysis. Second, PLS has the ability to model multiple dependents as well as multiple independents variables. Third, PLS –SEM is particularly useful when a dependent variable in one equation becomes an independent variable in another equation (that is the existence of mediating variables) thereby allowing the examination of direct and indirect impacts (Smith and Langfield-Smith, 2004); and lastly, SEM makes it possible to determine several measures of reliability and validity tests (Baines & Langfield-Smith 2003; Homburg 1992). The PLS version of SEM was employed because it allows for smaller sample and make no requirement of data normality for its use.

PLS – SEM analysis is normally done using two – steps: Firstly, the measurement model is evaluated and secondly, the structural model is then evaluated (Hult, Ringle, and Sarstedt (2014). The measurement model, otherwise known as the outer model defines the relationships between the constructs (latent variables) and their corresponding observed (manifest) variables; while the structural model shows the relationships between latent (construct) variables.

Model Specification

The structural equation modelling (SEM), Partial least square (PLS) version was used to test and examine the hypothesized effects of strategic cost management techniques on organizational performance via accurate cost information, competitive advantage, and customer value enhancement as mediators.

In order to understand the hypothesized relationships in this study, nine equations were developed for achieving five of the objectives of the study. However, the statement of these equations are not compulsory in PLS-SEM modeling.

Models:

Equation.1a. $ACI = \beta_01 + \beta_1ABCA + \beta_2ABMC + \beta_3TCI + \beta_4LCCO + \varepsilon$

b. $CA = \beta_02 + \beta_5ABCA + \beta_6ABMC + \beta_7TCI + \beta_8 LCCO + \varepsilon$

c. $CVE = \beta_03 + \beta_9ABCA + \beta_{10}ABMC + \beta_{11}TCI + \beta_{12} LCCO + \varepsilon$

Equation 2: $OP = \beta_04 + \beta_{13}ACI + \beta_{14}CA + \beta_{15}CVE + + \varepsilon.$

Equation 3a. $ABCA = \beta_05 + \beta_{16}\hat{AC} + \beta_{17}\hat{TG} + \beta_{18}\hat{CV} + \varepsilon$

b. $ABMC = \beta_06 + \beta_{19}AC + \beta_{20}TG + \beta_{21}CV + \varepsilon.$

c. $TCI = \beta_07 + \beta_{22}AC + \beta_{23}TG + \beta_{24}CV + \varepsilon$

d. $LCCO = \beta_08 + \beta_{25}AC + \beta_{26}TG + \beta_{27}CV + \varepsilon$

Equation 4: $OP = \beta_09 + \beta_{28} \hat{ABCA} + \beta_{29} \hat{ABMC} + \beta_{30} \hat{TCI} + \beta_{31} \hat{LCCO} + \varepsilon.$

Where:

ACI = Accurate cost Information

CA = Competitive advantage

CVE = Customer value enhancement

OP = Organisational performance

ABCA = Activity-based costing application

ABMC = Activity –based Management Capability

TCI = Target Costing Implementation

LCCO	=	Life cycle costing orientation
AC	=	Accountant Competency
TG	=	Technology Growth
CV	=	Competitive Volatility
$\beta_0, \beta_1, \dots, \beta_9$	=	Intercept
$\beta_1, \beta_2, \dots, \beta_{31}$	=	Parameter estimates - independent variables, mediating variables, antecedent variables and control variables (co-efficient)
ε	=	Error term

A-Priori Expectations

These were based on the signs and the size of the value of the co-efficient (β) of the variables being considered. The positive sign indicates that the more the value of the independent variable increase the more the value of dependent variables increase. The size explains the changes in independent variables that lead to changes in dependent variables.

The a- priori expectation of the independent variables on the dependent variable is:

$\beta > 0$: (Positively correlated)

Estimation Criteria

The following estimation criteria were used in this study:

Where P – value is less than or equal to 0.01 (1%), or 0.05 (5%), or 0.10 (10%) we reject the null hypothesis and accept the alternative hypothesis at 1% or 5% or 10% significance level as the case may be ; but where the reverse is the case we accept the null hypothesis and reject the alternative hypothesis.

Structural Equation Modeling of the Relationships among the Constructs (Variables) studied

The models presented in form of equations above are now depicted in SEM format in Figure 3.1 showing the pathways with the use of arrows. An arrow starts from the exogenous (independent) variable and pointing to the endogenous (dependent) variable. Looking at the constructs in the model, Organisational performance is the main dependent variable, followed by the mediating variables (which are independent and dependent variables) - Accurate cost information, Competitive advantage, and Customer value enhancement; these are followed by Activity based costing application, Activity

based management capability, Target costing implementation, and Life cycle costing orientation (which are independent and dependent variables); and lastly, Accountant competency, Competitive volatility, and Technology growth are independent variables. In SEM modeling the mathematical equations are irrelevant as the pictorial path model is enough for running the model using the appropriate software. In this study, SmartPLS 3.0 software was used in the SEM analysis done.

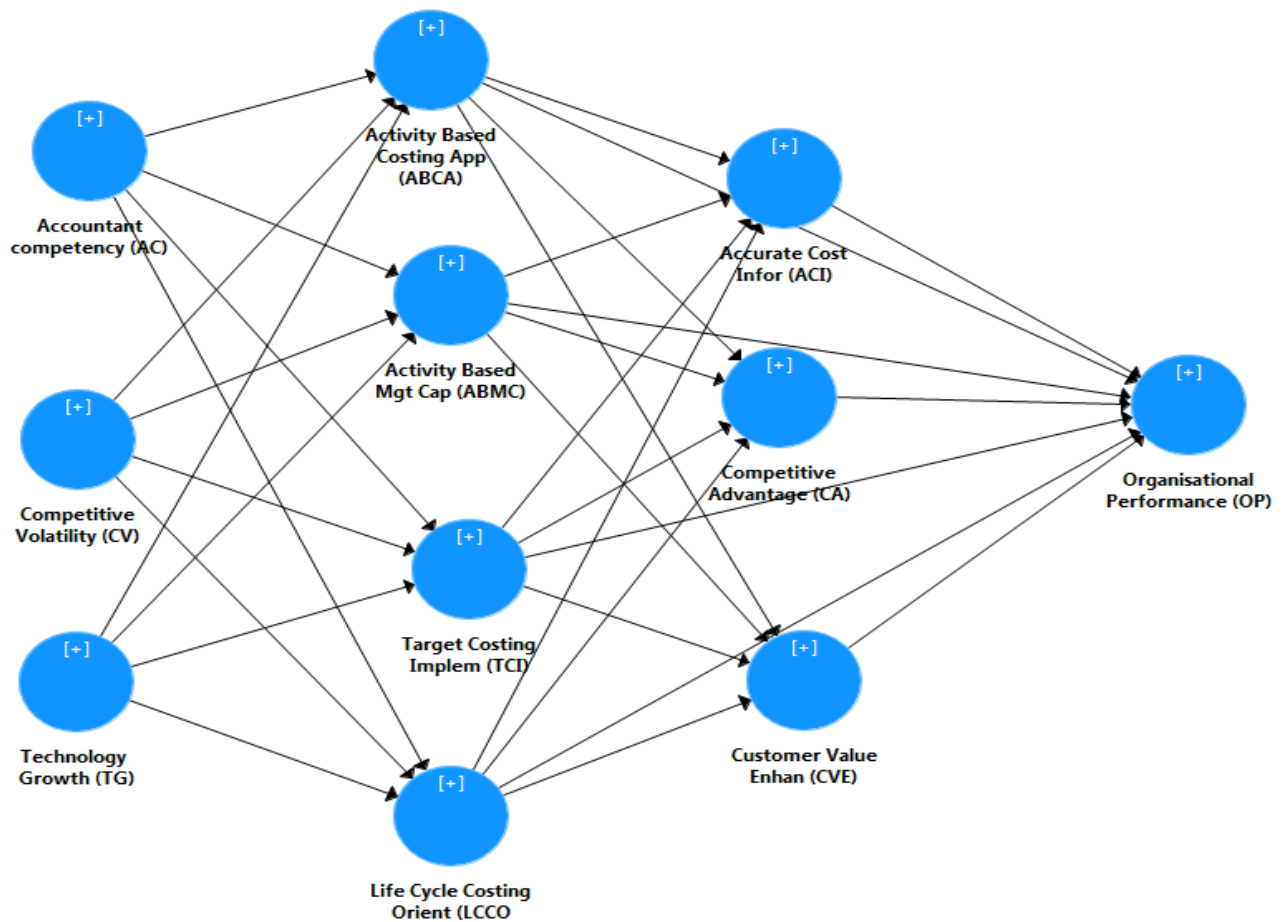


Figure 3.1: PLS - SEM Model of the Study (Researcher's Drawing, 2018)

3.8 Sample Size Adequacy under PLS –SEM

Even though PLS – SEM permits a small sample size, there is still the need to determine the adequacy of the sample size chosen under SEM. Hence, the sample size of this study is assessed using Hair, Ringle and Sarstedt (2011) procedure for computing the minimum sample size requirement for use when PLS - SEM is applied. The minimum sample size according to this method, should be equal to the higher of the following: (i) ten times, the

highest number of formative indicators used to measure one or (ii) ten times the highest number of paths directed at a particular latent construct in the structural model. This study used only reflective indicators, therefore, the second option is used– the highest number of structural paths directed at a particular latent construct in the structural model. In this case, the highest number of structural paths is directed at organizational performance and it is 7 (see Figure 3.1). Hence, the minimum sample size will be $7 \times 10 = 70$.

This is applied using Cohen's (1988) table (as cited in Boachie – Mensah and Acquah, 2015) for determining the minimum sample size in PLS-SEM. Using the table by choosing a minimum significant level of 0.01 and a minimum R^2 of 0.10 under row 7, the minimum sample size is found to be 228 (See Cohen Table in Appendix I). The final sampled size of this study is 233. Since $233 > 228$, then the minimum sample size requirement was duly met.

3.9 Ethical Consideration

The procedures and the objectives of the study were explicitly made known to all the volunteer respondents before they participated in this study. The respondents were well assured that their identity and information disclosed would be kept with utmost confidentiality and that the information disclosed would be used for research purpose only.

An ethical approval was sought and received from the Ethical Committee of the University of Ilorin, Ilorin for the conduct of this study.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.1 Data Presentation

4.1.1 Response Analysis of Questionnaires Administered

A total of 325 copies of the questionnaire were administered to the targeted audience in sixty five (65) sampled manufacturing firms in Lagos and Ogun states. From Table 4.1, it can be seen that 233 copies of the questionnaire properly filled were returned and this represents 71.7% success rate.

The data analysis done in this study was based on the 233 responses obtained. 11 copies of the questionnaire were also returned but not properly filled, representing 3.4% and so could not be used for analysis, while 81 copies of the questionnaire (24.9%) were not returned.

Table 4.1 : Response Analysis of Questionnaire Administered

	Number of Questionnaires	Percentage
Copies of questionnaire properly filled and Returned	233	71.7
Copies of questionnaire Returned but Not properly filled	11	3.4
Unreturned copies of Questionnaire	81	24.9
Total copies of questionnaire Administered	325	100

Source: Researcher's Field Survey, 2018

4.1. 2 Demographic Data of the Respondents

Table 4.2 shows the demographic characteristics of the respondents. From the table, the positions occupied by the respondents can be seen and it shows that majority of the respondents are cost accountants, management accountants and financial accountants as they accounted for the 83.3% of the total respondents. This implied that the respondents were well knowledgeable about the subject matter of this research and so were able to provide valid answers to the questions raised in the questionnaire.

In respect to the working experience of the respondents, Table 4.2 shows that majority (64.8%) of the respondents have at least 6 years of work experience. By this result, it shows that the respondents have enough experience to speak about their companies' cost and management systems.

The qualifications of the respondents as shown in Table 4.2 indicates that majority (59.7%) of the respondents have first degree; followed by masters and ACA / ACCA holders with 13.7%, respectively. This result shows that the respondents are well educated persons and so could be knowledgeable in strategic cost management techniques.

The respondents' gender as shown in Table 4.2 indicates that majority (81.5%) of the respondents are males, while females constituted 18.5%.

Table 4.2 which shows the ages of the respondents indicates that majority (97.9%) of the respondents were at least 25 years old. This implies that the respondents are matured persons and so could offer matured opinions in the questionnaire.

Table 4.2 : Demographic Data of the Respondents

Variables	Frequency	Percentage (%)
Position in the Firm		
Cost Accountant	55	23.6
Management Accountant	51	21.9
Financial Accountant	88	37.8
Chief Accountant / Finance Controller	29	12.4
Chief Internal Auditor	10	4.3
Total	233	100
Working Experience		
5 Years and Below	82	35.2
6 - 10 Years	92	39.5
11 - 15 Years	39	16.7
Above 15 Years	20	8.6
Total	233	100
Qualifications		
Diploma/ NCE	22	9.4
B.Sc./BA/HND	139	59.7
M.Sc./M.A.	32	13.7
Ph. D.	3	1.3
ACA/ACCA & B.Sc. HND/M.sc/MA/Ph.d.	32	13.7
ACA/ACCA/FCA	5	2.2
Total	233	100
Gender		
Male	190	81.5
Female	43	18.5
Total	233	100
Age		
Under 25	5	2.1
25 – 30 Years	80	34.3
31 – 40 Years	110	47.3
41 – 50 Years	30	12.9
51 and Above	8	3.4
Total	233	100

Source: Researcher's Field Survey (2018)

4.1.3 : Distribution of Respondents according to Sub - Sectors in the Manufacturing Sector

Table 4.3 shows the distribution of the respondents according to the sub - sectors of the manufacturing sector. From the table it can be seen that the Food and Beverage sub –sector has the highest percentage of respondents with 18%, followed by the Industrial and Domestic Product with 16.7%, Chemical and Paints 14.6%, Pharmaceuticals 14.2%, and so on. The entire results show that the study covers the entire manufacturing sector in the chosen area of the study.

Table 4 .3: Distribution of Respondents by Sub - Sectors of Manufacturing Sector

S/N	Manufacturing Sub - Sector	Number of Respondents	Percentage
1	Agro - Allied	4	1.7
2	Conglomerates	6	2.6
3	Breweries	10	4.3
4	Food and Beverages	42	18
5	Personal/ Household Products	10	4.3
6	Pharmaceuticals	30	14.2
7	Industrial and Domestic Products	39	16.7
8	Building Materials	14	6
9	Chemical and Paints	34	14.6
10	Packaging	12	5.2
11	Machinery	8	3.4
12	Basic Metal, Iron and Steel and Fabricated Metal Products	8	2.1
13	Petroleum Products	4	1.7
14	Emerging Markets	12	5.2
	TOTAL	233	100

Source : Researcher's Field Survey (2018)

4.1.4 : Respondents' Companies Demographic Data

Table 4.4 shows the characteristics of the respondents' companies. From the table, 47.4% of respondents' companies have been in existence for at least 10 years, followed by the companies that have been in existence for between 6 to 10 years, 36.8%. This result shows that the respondents companies have been in existence for a long time and so could operate modern cost management systems.

In respect to the number of products manufactured by the respondents' companies, Table 4.4 shows that the era of manufacturing of a single product by manufacturing companies has given way to the era of production of multiple products since majority (61.4%) of the sampled companies produce multiple products. This change in manufacturing setting necessitates the deployment of strategic cost management techniques.

On the nature of production in the respondents' companies, it can be seen in Table 4.4 that most (70.2%) of the companies were involved in processing /manufacturing of products , while only 29.8% were involved in assembling. This result actually showed that the companies studied were manufacturing companies.

Table 4.4: Respondents' Companies Demographic Data

Variables	Frequency	Percentage
Period of Existence of your Firm		
5 Years and Below	9	15.8
6 - 10 Years	21	36.8
10 Years and Above	<u>27</u>	<u>47.4</u>
Total	<u>57</u>	<u>100</u>
Number of Product Manufactured		
Single	9	15.8
Two	13	22.8
Multiple	<u>35</u>	<u>61.4</u>
Total	<u>57</u>	<u>100</u>
Nature of Production		
Assembling	17	29.8
Processing /Manufacturing	<u>40</u>	<u>70.2</u>
Total	<u>57</u>	<u>100</u>

Source : Researcher' Field Survey (2018)

4.2 Descriptive Analysis of Respondents' Opinions (Data)

4.2.1: Adoption of Strategic Cost Management Practices

As part of determination of whether respondents' companies adopt strategic cost management techniques, respondents were asked to categorise their companies in Question 2 of Section B of the Questionnaire. The result in Table 4.5 shows that 91% of the respondents indicated their companies were familiar with strategic cost management techniques; while 9% indicated that their companies were not familiar with these techniques. The result also show that 90.6% of the respondents indicated that their companies were currently using strategic cost management techniques; while 9.4% indicated otherwise. With these results, it can be said that majority of the respondents companies currently apply strategic cost management techniques.

Table 4.5: Category of Respondents Companies in Respect of Adoption of Strategic Cost Management Practices

1. My company is familiar with strategic cost management techniques		Frequency	Percent
	Yes	212	91.0
	No	21	9.0
	Total	233	100
2 My company is currently using strategic cost management techniques			
	Yes	211	90.6
	No	22	9.4
	Total	233	100

Source : Researcher's Computation (2018)

4.2.2 : Extent of Implementation of Strategic cost management

Respondents were asked to rate the extent of the implementation of strategic cost management techniques in their companies in Question 3 of Section two of the questionnaire. The results are presented in

Table 4.6. In the table, with reference to the extent to which activity based costing was being implemented: 5.6% of the respondents indicated to no extent; 8.6% indicated to a very limited extent; 10.3% indicated to a limited extent; 20.2% were of the opinion that this instrument was moderately

used; 18.5% indicated it was considerably implemented; 16.7% signaled that ABC was implemented to a great extent; while 20.2 % indicated that the instrument was implemented to a very great extent. It can be inferred from the result that majority (75.6%) of the respondents were of the opinion that ABC was being implemented in the sampled companies at a level that was moderate.

From Table 4.6 with reference to the extent of Activity based management (ABM) implementation, 5.6% of the respondents indicated to no extent; 7.7% indicated to a very limited extent; 13.3% indicated to a limited extent; 16.7% were of the opinion that this tool was moderately used; 21.5% indicated it was considerably implemented; 17.2% signaled that ABM was implemented to a great extent; while 16.7 % indicated that this tool was being implemented to a very great extent. With this result, it can be said that activity based management was being implemented to a level that was at least moderate since 72% of the respondents so indicated.

Looking at Table 4.6 on the extent of implementation of Target costing, 6% of the respondents were of the opinion that this practice was being implemented to no extent; 11.6% indicated that the instrument was being used to a very limited extent; 15.9 signaled that the tool was used to a limited extent; 17.2% indicated that it was used to a moderate extent; 17.6% indicated it was implemented to a considerable extent; 12.4% indicated that the tool was used to a great extent; and while 19.3% of the respondents were of the opinion that the implementation of Target costing was used to a very great extent. This result showed that Target costing was being implemented in the sampled companies at least to a moderate extent and which was confirmed by 66.5% of the respondents.

Lastly, the extent of the implementation of Life cycle costing (LCC) as can be seen in Table 4.6 showed that 12.4% of the respondents were of the view that the tool was used to no extent; 8.6% indicates that LCC was implemented to a very limited extent; 13.7% signaled it was used to a limited extent; 18.9% indicated that the tool was implemented to a moderate extent; 11.6% indicated that the instrument was used to a considerable extent; 17.6% indicated LCC was implemented to a great extent; and while 17.2% of the respondents were of the opinion that Life cycle costing was implemented in the sampled firms to a very great extent. It can be inferred from the result that most

(65%) of the respondents were of the opinion that Life cycle costing was being implemented at a level that was at least moderate.

Table 4. 6 : Extent of Implementation of Strategic Cost Management Techniques

Activity based Costing			Frequency	Percentage
To No extent at all	-	1	13	5.6
To a very limited extent	-	2	20	8.6
To a limited extent	-	3	24	10.3
To a moderate extent	-	4	47	20.2
To a considerable extent	-	5	43	18.5
To a great extent	-	6	39	16.7
To a very great extent	-	7	47	20.2
Total			233	100.0
Activity based management			Frequency	Percentage
To No extent at all	-	1	16	6.9
To a very limited extent	-	2	18	7.7
To a limited extent	-	3	31	13.3
To a moderate extent	-	4	39	16.7
To a considerable extent	-	5	50	21.5
To a great extent	-	6	40	17.2
To a very great extent	-	7	39	16.7
Total			233	100.0
Target Costing			Frequency	Percentage
To No extent at all	-	1	14	6.0
To a very limited extent	-	2	27	11.6
To a limited extent	-	3	37	15.9
To a moderate extent	-	4	40	17.2
To a considerable extent	-	5	41	17.6
To a great extent	-	6	29	12.4
To a very great extent	-	7	45	19.3
Total			233	100.0
Life cycle costing			Frequency	Percentage
To No extent at all	-	1	29	12.4
To a very limited extent	-	2	20	8.6
To a limited extent	-	3	32	13.7
To a moderate extent	-	4	44	18.9
To a considerable extent	-	5	27	11.6
To a great extent	-	6	41	17.6
To a very great extent	-	7	40	17.2
Total			233	100.0

Source : Researcher's Field Survey (2018)

4.2.3 Reasons for Implementing Strategic Cost Management Techniques

Respondents were asked to indicate the reasons for implementing strategic cost management techniques in their companies in Question 4 of Section B of the Questionnaire. The results are presented in Table 4.7. From the table, majority of the respondents indicated ‘yes’ to the following as the reasons for implementing Strategic cost management techniques in their firms:

to reduce production cost (92.3%); to aid in proper allocation of overheads cost (93.6%); to enhance company’s revenue (95.7%); to improve cost control and management (96.6%); to improve product quality through production efficiency (89.3%); to provide accurate cost information (94.4%); and to enhance company’s competitive position (88.8%). It can therefore be said that Strategic cost management techniques are being used for multiple purposes as indicated above.

Table 4. 7 : Reasons for using Strategic cost management techniques:

		Frequency	Percentage
To reduce production cost			
	Yes	215	92.3
	No	18	7.7
	Total	233	100.0
To aid in proper allocation of overheads cost.			
	Yes	218	93.6
	No	15	6.4
	Total	233	100.0
To enhance company’s revenue			
	Yes	223	95.7
	No	10	4.3
	Total	233	100.0
To improve cost control and management			
	Yes	225	96.6
	No	8	3.4
	Total	233	100.0
To improve product quality through production efficiency			
	Yes	208	89.3
	No	25	10.7
	Total	233	100.0
To provide accurate cost information			
	Yes	220	94.4
	No	13	5.6
	Total	233	100.0
To enhance company’s competitive position			
	Yes	207	88.8
	No	26	11.2
	Total	233	100.0

Source: Researcher’s Survey (2018)

4.3 : Descriptive Analysis of Findings for all Variables in the Conceptual Model

4.3.1: Descriptive Analysis of Findings for Activity based costing application (ABCA)

Activity based costing application reflects the practice of Activity based costing as a strategic cost management technique in the sampled firms. This construct was measured by seven (7) items as contained in the questionnaire on a seven point Likert scale of : Strongly disagree (1), Disagree (2), Somewhat disagree (3), Neutral (4), Somewhat agree (5), Agree (6), and Strongly agree (7). Table 4.8 shows how the respondents scored each of the seven items on the Likert scale. From the table majority (56.7%) of the respondents at least, somewhat agreed to the statement of item one (1) used in measuring ABCA. It can thus be said that multiple cost drivers are being used by the sampled firms in the application of modern costing techniques. On item two (2) used in measuring ABCA 56.6% of the respondents at minimum, indicated somewhat agreed to the statement. This shows that the sample firms have procedures for the determination of activities required for production. On item three (3), 58.7% of the respondents indicated at minimum, ‘somewhat agree’ to the statement. This shows that cost driver for each activity in the sampled firms are normally determined. For item four (4) used in measuring ABCA, 67% of the respondents indicated at minimum, ‘somewhat agree’ to the statement. This shows that costs are normally linked to activities in determination of cost for each activity. Majority (63.5%) of respondents scored item five at indicated at minimum, ‘somewhat agree’ to the statement.. It can then be said that the sampled firms’ operations are transformed into specific activities. On item six (6) most (66.8%) of the respondents scored the item at minimum, ‘somewhat agree’. This indicates that the sample firms keep records of cost drivers and activities. Lastly, for item seven (7), majority (71.6%) of the respondents scored it at a minimum,’ somewhat agreed’. It can then be inferred that the allocation of costs to product in the sampled firms are done using appropriate consumption rate.

Table 4.8: Measures of Activity Based Costing Application (ABCA) (n = 233)

Activity Based Costing Application (ABCA) Variable	Strongly Disagree 1 %	2 %	3 %	4 %	5 %	6 %	Strongly Agree 7 %	Total %
ABCA 1	9.0	12.2	11.6	11.6	24.5	16.7	15.5	100
ABCA 2	2.6	8.2	14.2	18.5	22.3	23.6	10.7	100
ABCA 3	4.3	5.6	13.3	18.0	21.0	25.3	12.4	100
ABCA 4	3.0	7.7	8.2	14.2	26.2	22.3	18.5	100
ABCA 5	3.4	4.7	13.3	15.0	24.0	24.9	14.6	100
ABCA 6	5.2	5.6	7.3	15.5	21.9	25.3	19.3	100
ABCA 7	3.4	4.7	7.7	12.4	25.3	30.0	16.3	100

Source: Researcher's Computation (2018)

4.3.2: Descriptive Analysis of Findings for Activity Based Management Capability (ABMC)

Activity based management capability reflects the practice of Activity based management as a strategic cost management technique in the sampled firms. This construct was measured by six (6) items as contained in the questionnaire on a seven point Likert scale of : Strongly disagree (1), Disagree (2), Somewhat disagree (3), Neutral (4), Somewhat agree (5), Agree (6), and Strongly agree (7). Table 4.9 shows how the respondents scored each of the seven items on the Likert scale. From the table, majority (58.9%) of the respondents at least, indicated somewhat agreed to the statement of item one (1) used in measuring ABMC. It can thus be said that the sampled firms normally carried out the analysis of their activities value chain. On item two (2) used in measuring ABMC 56.7% of the respondents indicated at minimum, 'somewhat agree' to the statement. This indicates that the sampled firms investigate causes of their activities' cost. On item three (3), 61% of the respondents indicated at minimum, 'somewhat agree' to the statement. This shows that the firms normally classified their activities into added value and non – added values activities and performance measures determined for each activity. For item four (4) used in measuring ABMC, 61.4% of the respondents indicated at minimum, 'somewhat agree' to the statement. This implies that the sampled firms examine and qualify the effect of cost drivers. For item five (5) used, majority (65.3%) of the respondents scored the item

at minimum, ‘somewhat agree’. It can then be said that the sampled firms effectively manage activities that drive manufacturing costs. Lastly, for item six (6), majority (68.2%) of the respondents scored it at minimum, ‘somewhat agree’. It can then be inferred that the sampled firms establish linkage between their activities.

Table 4.9: Measures of **Activity Based Management Capability (ABMC)** (n = 233)

Activity Based Management Capability (ABMC) Variable	Strongly Disagree 1 %	2 %	3 %	4 %	5 %	6 %	Strongly Agree 7 %	Total %
ABMC 1	9.4	9.4	9.9	12.4	25.8	18.5	14.6	100
ABMC 2	3.0	8.6	18.0	13.7	26.2	16.3	14.2	100
ABMC 3	4.7	6.4	12.9	15.0	33.9	15.5	11.6	100
ABMC 4	4.3	5.2	15.0	14.2	28.3	21.9	11.2	100
ABMC 5	4.3	7.7	13.7	9.0	30.9	18.0	16.4	100
ABMC 6	3.9	4.7	10.3	12.9	29.6	24.0	14.6	100

Source: Researcher’s Computation (2018)

4.3.3: Descriptive Analysis of Findings for Target Costing Implementation (TCI)

Target costing implementation reflects the practice of Target costing as a strategic cost management technique in the sampled firms. This construct was measured by five (5) items as contained in the questionnaire on a seven point Likert scale. Table 4.10 shows how the respondents scored each of the seven items on the Linkert scale of: Strongly disagree (1), Disagree (2), Somewhat disagree (3), Neutral (4), Somewhat agree (5), Agree (6), and Strongly agree (7). On the use of item one (1) in measuring Target costing implementation majority (60.5%) of the respondents at least, indicated somewhat agreed to the statement. It can thus be said that the sampled firms carry out market survey to determine customers’ specifications before products are manufactured. On item two (2) used in measuring TCI, Majority (65.6%) of the respondents indicated at minimum, ‘somewhat agree’ to the statement. This shows that the sampled firms determine target price and target profit of new products before they are produced. On item three (3), 66.1% of the respondents indicated at minimum, ‘somewhat agree’ to the statement. This indicates that the sampled firms research and set competitive

prices for their new products.. For item four (4) used in measuring TCI, 61.4% of the respondents indicated at minimum, ‘somewhat agree’ to the statement. This implies that the sampled firms estimate allowable production costs of new products. Lastly, for item five (5), majority (67.4%) of the respondents scored it at a minimum of ‘somewhat agreed’. It can then be inferred that the sampled firms make improvement and adjustments on the current design of proposed products to achieve target cost and cost reduction.

Table 4.10: Measures of Target Costing Implementation (TCI) (n = 233)

Target Costing Implementation (TCI) Variable	Strongly Disagree 1 %	2 %	3 %	4 %	5 %	6 %	Strongly Agree 7 %	Total %
TCI 1	12.9	8.2	9.0	9.4	18.0	22.3	20.2	100
TCI 2	6.4	7.7	9.4	10.7	24.0	22.3	19.3	100
TCI 3	5.6	5.6	12.0	10.7	25.8	21.0	19.3	100
TCI 4	6.4	6.0	9.0	17.2	23.2	21.9	16.3	100
TCI 5	6.0	6.9	6.4	13.3	27.9	23.6	15.9	100

Source: Researcher’s Computation (2018)

4.3.4: Descriptive Analysis of Findings for Life cycle costing orientation (LCCO)

Life cycle costing orientation reflects the practice of Life cycle costing as a strategic cost management technique in the sampled firms. This construct was measured by five (5) items as contained in the questionnaire on a seven point Likert scale. Table 4.11 shows how the respondents scored each of the seven items on the Linkert scale of: Strongly disagree (1), Disagree (2), Somewhat disagree (3), Neutral (4), Somewhat agree (5), Agree (6), and Strongly agree (7). From the table for item one (1), majority (66.5%) of the respondents indicated at minimum, ‘somewhat agree’ to the statement. It can thus be said that the sampled firms gather information about their customers and competitors. As for item two (2) used in measuring LCCO, 65.7% of the respondents indicated at minimum, ‘somewhat agree’ to the statement. This shows that the sample firms determine costs to be incurred at each stage of their products’ life cycle. On item three (3), 60.9% of the respondents indicated at minimum,

‘somewhat agree’ to the statement. This shows that the sampled firms determine the stage and time of achieving improved revenue and cost reduction in their products’ life cycle. For item four (4) used in measuring LCCO, 64.8% of the respondents indicated at minimum, ‘somewhat agree’ to the statement. This implies that the sampled firms use target costing and value engineering to effect cost reduction at each stage of their products’ life cycle. Lastly, for item five (5), majority (62.3%) of the respondents scored it at a minimum, ‘somewhat agree’. It can then be inferred that the sampled firms make a trade off and balancing between standard specified by customers in terms of quality and response time and the selling price.

Table 4. 11 Measures of Life Cycle Costing Orientation (LCCO) (n = 233)

Life Cycle Costing Orientation (LCCO) Variable	Strongly Disagree 1 %	2 %	3 %	4 %	5 %	6 %	Strongly Agree 7 %	Total %
LCCO 1	7.3	6.0	7.3	12.9	19.3	30.9	16.3	100
LCCO 2	7.3	5.6	6.9	14.6	18.9	28.3	18.5	100
LCCO 3	6.0	4.7	12.0	16.3	16.7	32.6	11.6	100
LCCO 4	6.0	4.3	8.6	16.3	21.5	30.9	12.4	100
LCCO 5	6.4	5.6	10.3	15.5	22.3	31.8	8.2	100

Source: Researcher’s Computation (2018)

4.3.5: Descriptive Analysis of Findings for Accurate cost information (ACI)

Accurate cost information reflects the outcome of the practice of strategic cost management techniques in the sampled firms. From Table 4.12, it will be seen that this construct was measured by four (4) items as contained in the questionnaire on a seven point Likert scale of: Strongly disagree (1), Disagree (2), Somewhat disagree (3), Neutral (4), Somewhat agree (5), Agree (6), and Strongly agree (7). From the table for item one (1), majority (61.4%) of the respondents indicated at minimum, ‘somewhat agree’ to the statement. Hence, it can be said that the sampled firms allocate indirect costs based on activities performed. As for item two (2) used in measuring ACI, majority (61.4%) of the respondents indicated at minimum, ‘somewhat agree’ to the statement. This shows that the sampled firms use multiple cost drivers in cost allocations. On item three (3), 63.6% of the respondents

indicated at minimum, ‘somewhat agree’ to the statement. This shows that cost drivers use in the sampled firms for cost allocations have cause and effect relationships with production overheads. Lastly, for item four (4), majority (67.3%) of the respondents scored it at a minimum, ‘somewhat agree’. It can then be inferred that the sampled firms generate accurate cost information that is timely, relevant and reliable for strategic decisions.

Table 4. 12 : Measures of Accurate Cost Information (ACI) (n = 233)

Accurate Cost Information (ACI) Variable	Strongly Disagree 1 %	2 %	3 %	4 %	5 %	6 %	Strongly Agree 7 %	Total %
ACI 1	9.4	9.0	7.3	12.9	20.2	19.7	21.5	100
ACI 2	6.0	9.4	9.4	13.7	20.6	21.9	18.9	100
ACI 3	5.6	6.9	11.2	12.9	21.5	23.6	18.5	100
ACI 4	9.0	3.9	6.9	12.9	21.0	22.3	24.0	100

Source: Researcher’s Computation (2018)

4.3.6: Descriptive Analysis of Findings for Competitive Advantage (CA)

Competitive advantage reflects the outcome of the practice of strategic cost management techniques in the sampled firms which gives them a competitive edge in the market place. From Table 4.13, it will be seen that this construct was measured by seven (7) items as contained in the questionnaire on a seven point Likert scale of: Strongly disagree (1), Disagree (2), Somewhat disagree (3), Neutral (4), Somewhat agree (5), Agree (6), and Strongly agree (7). From the table for item one (1), majority (56.7%) of the respondents indicated at minimum, ‘somewhat agree’ to the statement. Hence, it can be said that the sampled firms achieve competitive advantage which leads to performance improvement as a result of strategic cost management implementation. As for item two (2) used in measuring CA, 68.3% of the respondents indicated at minimum, ‘somewhat agree’ to the statement. This shows that the sample firms are able sell their products at lower cost in comparison with their competitors. On item three (3), majority (70%) of the respondents at minimum, indicated ‘somewhat agree’ to the statement. This implies the sampled firms are efficient in production and which results in cost

reduction. For item four (4), majority (70.4%) of the respondents scored the item, at minimum, 'somewhat agree'. It can then be said that the sampled firms are able to launch high quality products that are acceptable into the market. In respect of item five (5), 66.6% of the respondents indicated at minimum, 'somewhat agree' to the statement. The result shows that the sampled firms are able to source for their raw materials at reduced prices, thus leading to lower products cost. As for item six (6), 62.2% of the respondents signaled at a minimum, 'somewhat agree' to the statement. This shows that the sampled firms achieve higher profit margin and greater return on their assets in comparison with their competitors.

Lastly, for item seven (7), majority (68.7%) of the respondents scored it at a minimum, 'somewhat agree' (4). It can then be inferred that the sampled firms have created brand names for themselves.

Table 4.13: Measures of Competitive Advantage (CA) (n = 233)

Competitive Advantage (CA) Variable	Strongly Disagree 1 %	2 %	3 %	4 %	5 %	6 %	Strongly Agree 7 %	Total %
CA 1	6.9	5.6	6.9	6.9	10.7	24.5	21.5	100
CA 2	6.9	3.4	6.0	15.5	25.8	25.8	16.7	100
CA 3	6.4	3.4	8.6	11.6	27.5	24.9	17.6	100
CA 4	5.6	2.6	8.6	12.9	24.9	26.2	19.3	100
CA 5	9.0	3.0	7.3	14.2	24.5	26.2	15.9	100
CA 6	9.4	4.7	5.2	18.5	19.7	24.5	18.0	100
CA 7	7.7	3.9	6.0	13.7	21.9	20.2	26.6	100

Source: Researcher's Computation (2018)

4.3.7: Descriptive Analysis of Findings for Customer Value Enhancement (CVE)

Customer value enhancement reflects the outcome of the practice of strategic cost management techniques in the sampled firms. From Table 4.14, it will be seen that this construct was measured by four (4) items on a seven point Likert scale of: Strongly disagree (1), Disagree (2), Somewhat disagree (3), Neutral (4), Somewhat agree (5), Agree (6), and Strongly agree (7). From the table for item one (1), majority (64.4%) of the respondents indicated at minimum, 'somewhat agree' to the statement.

Hence, it can be said that the sampled firms manufacture products to suite their customers' satisfaction. As for item two (2) used in measuring ACI, 72.1% of the respondents indicated at minimum, 'somewhat agree' to the statement. This indicates that the sample firms' customers receive value for their money. On item three (3), 69.1% of the respondents indicated at minimum, 'somewhat agree' to the statement. This shows that the sampled firms launch high quality products into the market. Lastly, for item four (4), majority (67.8%) of the respondents scored it at minimum, 'somewhat agree' (4). It can then be inferred that the sampled firms render high quality after sale service to the satisfaction of their customers.

Table 4. 14 Measures of Customer Value Enhancement (CVE) (n = 233)

Customer Value Enhancement (CVE) (Variable	Strongly Disagree 1 %	2 %	3 %	4 %	5 %	6 %	Strongly Agree 7 %	Total %
CVE 1	9.4	8.2	9.0	9.0	16.3	17.2	30.9	100
CVE 2	4.3	6.4	6.9	10.3	21.0	21.5	29.6	100
CVE 3	6.0	6.0	7.3	11.6	20.6	20.6	27.9	100
CVE 4	6.9	4.7	5.6	15.0	20.2	20.6	27.0	100

Source: Researcher's Computation (2018)

4.3.8: Descriptive Analysis of Findings for Organisational Performance (OP)

Organisational performance, which reflects the major outcome of the practice of strategic cost management techniques, comprises both financial and non financial performance in the sampled firms. This was measured in two ways – change in organisational performance after implementing strategic cost management techniques and current performance of firms in comparison with competitors.

A - Change In Organizational Performance After Implementing Strategic Cost Management Techniques

From Table 4.15, it will be seen that this construct (Organisational performance) was measured by seven (7) items as contained in the questionnaire on a seven point Likert scale of: Greatly decrease (1),

Decrease (2), Slightly decrease (3), No change (4), Slightly increase (5), Increase (6), and Greatly increase (7). From the table for items one (1), two (2), three (3), four (4), five (5), six (6) and seven (7) majority of the respondents with 67%, 72.1%, 72.2%, 69.1%, 72%, 74.2%, 70.7% respectively indicated at minimum, ‘Slightly increase’ to the statements. Hence, it can be said that return on investment, profit, sales volume, cost reduction, customer satisfaction, product quality and market share have all improved as a result of the implementation of strategic cost management techniques in the sampled firms.

Table 4.15: Measures of Organisational Performance - A (n = 233)

Organisational Performance (OP) - A Variable	Greatly Decrease 1 %	2 %	3 %	4 %	5 %	6 %	Greatly Increase 7 %	Total %
OP 1	9.9	5.6	6.4	10.3	23.6	23.6	20.6	100
OP 2	3.0	5.6	6.0	13.3	20.2	27.9	24.0	100
OP 3	3.4	6.9	7.3	10.3	21.5	31.8	18.9	100
OP 4	6.0	3.0	8.6	13.3	21.9	23.6	23.6	100
OP 5	4.3	4.3	7.3	12.0	27.0	25.3	19.7	100
OP 6	3.9	5.6	6.4	9.9	22.7	26.6	24.9	100
OP 7	2.1	6.0	6.9	14.2	21.0	27.0	22.7	100

Source: Researcher’s Computation (2018)

B - Assessment of current performance in comparison with competitors : From Table 4.16, it will be seen that this construct (Organisational performance) was measured by seven (7) items as contained in the questionnaire on a seven point Likert scale of: Significantly lower than (1), Lower than (2), Slightly lower than (3), No difference (4), Slightly higher than (5), Higher than (6), and Significantly higher than (7). From the table for items one (1), two (2), three (3), four (4), five (5), six (6) and seven (7) majority of the respondents with 68.7%, 68.6%, 71.2%, 66.1%, 70.8%, 73%, and 68.2% respectively indicated at minimum, ‘Slightly higher than’ to the statements. Hence, it can be inferred that return on investment, profit, sales volume, cost reduction, customer satisfaction, product quality and market share of the sampled firms are higher than their competitors. The details of these are in

Table 4.16.

Table 4.16 Measures of Organisational Performance - B (n = 233)

Organisational Performance (OP) -B Variable	Significantly Lower Than 1 %	2 %	3 %	4 %	5 %	6 %	Significantly Higher Than 7 %	Total %
OP 1	8.2	7.3	5.2	10.7	24.5	20.2	24.0	100
OP 2	4.3	6.0	5.6	15.5	22.3	23.2	23.1	100
OP 3	4.7	4.7	8.2	11.2	27.0	21.5	22.7	100
OP 4	3.9	8.6	8.6	12.9	23.6	21.0	21.5	100
OP 5	2.6	5.6	6.9	14.2	22.7	26.2	21.9	100
OP 6	4.3	5.6	6.4	10.7	24.9	21.9	26.2	100
OP 7	6.4	3.9	7.7	13.7	21.5	27.0	19.7	100

Source: Researcher's Computation (2018)

4.3.9: Descriptive Analysis of Findings for Accountant Competency (AC)

Accountant Competency is an antecedent of the implementation of strategic cost management techniques in the sampled firms. From Table 4.17, it will be seen that this construct was measured by five (5) items on a seven point Likert scale of: Strongly disagree (1), Disagree (2), Somewhat disagree (3), Neutral (4), Somewhat agree (5), Agree (6), and Strongly agree (7). From the table, for item one (1), majority (66.9%) of the respondents indicated at minimum, 'somewhat agree' to the statement. Hence, it can be said that in the sampled firms the cost/ management/ financial accountants are knowledgeable in strategic cost management. As for item two (2) used in measuring AC, 60.2% of the respondents indicated at minimum, 'somewhat agree' to the statement. This indicates that in the sample firms, accountants are regularly trained in strategic cost management. On item three (3), 69.5% of the respondents indicated at minimum, 'somewhat agree' to the statement. This shows that in the sampled firms the accountants possess the cognitive ability, experience and skill in strategic cost management. In reference to item four (4), majority (71.2%) of the respondents scored it at a minimum, 'somewhat agree'. It can then be inferred that accountants in the sampled firms possess the ability to apply modern information technology. Lastly, for item five (5), 74.1% of the respondents indicated at minimum, 'somewhat agree' to the statement. This shows that there is knowledge sharing arrangement in the sampled firms.

Table 4.17: Measures of Accountant Competency (AC) (n = 233)

Accountant Competency (AC) Variable	Strongly Disagree 1 %	2 %	3 %	4 %	5 %	6 %	Strongly Agree 7 %	Total %
AC 1	6.4	9.9	7.7	9.0	21.0	21.9	24.0	100
AC 2	3.9	10.7	12.4	12.9	20.2	18.5	21.5	100
AC 3	3.4	7.3	6.9	12.9	21.0	26.6	21.9	100
AC 4	3.4	6.0	6.0	13.3	21.0	23.2	27.0	100
AC 5	3.4	5.2	6.4	10.3	24.5	23.6	26	100

Source: Researcher's Computation (2018)

4.3.10: Descriptive Analysis of Findings for Technology Growth (TG)

Technology growth is an antecedent of the implementation of strategic cost management techniques in the sampled firms. From Table 4.18, it will be seen that this construct was measured by four (4) items on a seven point Likert scale of: Strongly disagree (1), Disagree (2), Somewhat disagree (3), Neutral (4), Somewhat agree (5), Agree (6), and Strongly agree (7). From the table for item one (1), majority (61.9%) of the respondents indicated at minimum, 'somewhat agree' to the statement. Hence, it can be said that the sampled firms have ability of creativity towards innovation, research and development. As for item two (2) used in measuring Technology growth, 67% of the respondents indicated at minimum, 'somewhat agree' to the statement. This shows that the sample firms have ability to deploy modern production technology to enhance production efficiency. On item three (3), 51% of the respondents at minimum, indicated 'somewhat agree' to the statement. This shows that the sampled firms have ability to analyse market transactions process. Lastly, for item four (4), majority (72.9%) of the respondents scored it at a minimum of 'somewhat agree'. It can then be inferred that in the sampled firms accurate financial and non- financial information can be processed using the latest information technology.

Table 4. 18 : Measures of Technology Growth (TG) (n = 233)

Technology Growth (TG) Variable	Strongly Disagree 1 %	2 %	3 %	4 %	5 %	6 %	Strongly Agree 7 %	Total %
TG 1	8.2	6.9	9.9	13.3	20.2	17.	24.5	100
TG 2	3.4	7.3	7.3	15.0	20.2	24.	22.3	100
TG 3	4.3	10.7	12.9	21.0	24.0	22.	4.3	100
TG 4	3.9	5.6	4.7	12.9	22.7	23.	26.6	100

Source: Researcher's Computation (2018)

4.3.11: Descriptive Analysis of Findings for Competitive Volatility (CV)

Competitive volatility is an antecedent of the implementation of strategic cost management techniques in the sampled firms. From Table 4.19, it will be seen that this construct was measured by four (4) items on a seven point Likert scale of: Strongly disagree (1), Disagree (2), Somewhat disagree (3), Neutral (4), Somewhat agree (5), Agree (6), and Strongly agree (7). From the table for item one (1), majority (64.8%) of the respondents indicated at minimum, ‘somewhat agree’ to the statement. Hence, it can be said that the sampled firms operate in competitive environment that is turbulent. As for item two (2) used in measuring Competitive volatility, 70.4% of the respondents indicated at minimum, ‘somewhat agree’ to the statement. This shows that the sample firms’ competitive environment is dynamic. On item three (3), 72.1% of the respondents at minimum, indicated ‘somewhat agree’ to the statement. This shows that the sampled firms’ competitive environment is complex. Lastly, for item four (4), majority (67%) of the respondents scored it at a minimum of somewhat agree. This indicates that the sampled firms’ competitive environment is unpredictable.

Table 4. 19 : Measures of Competitive Volatility (CV) (n = 233)

Competitive Volatility (CV) Variable	Strongly Disagree 1 %	2 %	3 %	4 %	5 %	6 %	Strongly Agree 7 %	Total %
CV 1	6.4	6.4	9.4	12.9	22.3	21.5	21.0	100
CV 2	4.3	4.7	9.4	11.2	23.6	24.5	22.3	100
CV 3	5.6	5.2	8.6	8.6	21.9	30.5	19.7	100
CV 4	4.3	4.3	9.0	15.5	15.5	28.3	23.2	100

Source: Researcher’s Computation (2018)

4.3.12: Problems Encountered in the Implementation of Strategic Cost Management Techniques

From Table 4.20, at least 92.3% of the respondents indicated that their companies have problems in the implementation of strategic cost management techniques such as the techniques being too expensive to implement; lack of enough requisite skill for implementation and difficulty in configuration of strategic cost management techniques. This implied that the sampled companies have challenges in the implementation of strategic cost management techniques.

Table 4. 20 : Problems Hindering Effective Implementation of Strategic Cost Management Techniques

		Frequency	Percentage
Too Expensive in implementation			
	Yes	215	92.3
	No	18	7.7
	Total	233	100.0
Lack of enough requisite skill for implementation			
	Yes	218	93.6
	No	15	6.4
	Total	233	100.0
Difficulty in configuration of Strategic cost management techniques			
	Yes	223	95.7
	No	10	4.3
	Total	233	100.0

Source: Researcher's Survey results (2018)

4.4 Data Analysis

4.4. 1 Extent of Implementation of Strategic cost Management Techniques

Table 4.21 shows the extent of implementation of strategic cost management techniques in the sampled companies. From the table, it is evident that the four strategic cost management techniques were being used at varying degrees in the sampled firms. The overall descriptive statistics in Table 4.21 indicate the implementation of Activity Based Costing (ABC) has the highest mean score of 4.68, followed by Activity Based Management (ABM) with a mean score of 4.57, then followed by Target Costing (TC) (4.43) and Life Cycle Costing (LCC) (4.30). These results imply that ABC and ABM are the mostly used strategic cost management techniques, followed by Target costing and lastly, LCC.

Table 4. 21 : Descriptive Statistics of Extent of Implementation of Strategic cost Management Techniques

Strategic cost Management Techniques	N	Minimum	Maximum	Mean	Standard Deviation
Activity Based Costing (ABC)	233	1.00	7.00	4.682	1.77931
Activity Based Management (ABM)	233	1.00	7.00	4.566	1.77776
Target Costing (TC)	233	1.00	7.00	4.433	1.84440
Life Cycle Costing (LCC)	233	1.00	7.00	4.300	1.97284

Source: Researcher's Computation (2018)

4.4.2 PLS - SEM Analysis

PLS – SEM analysis was done using two steps: Firstly, the evaluation of the measurement model which defines the relationships between the construct variables and their manifest variables. And secondly, the evaluation of the structural model that defines the relationships among the construct variables was done; and then the hypotheses tested.

4.4.2.1 Measurement Model Evaluation

This study carried out this first step by running the PLS algorithm in Smart PLS 3.0 software. The measurement model evaluation is aimed at assessing the consistency and validity of the manifest (reflective indicators) variables (Memon and Rahman, 2014). Consistency evaluations are assessed through individual manifest and construct reliability tests. While validity of the variables is determined by convergent and discriminant validity tests. The result of PLS algorithm ran in Smart PLS 3.0 is shown in Figure 4.1. From the figure all the 11 latent variables can be seen in oval shapes joined with arrows.

Arrows from each latent variables lead out to the indicator (manifest variable) in a rectangular shape. The indicator variables in this model are reflective type and in assessing the reflective indicator variables these tests are carried out – indicator reliability, convergent validity and discriminant validity.

Reflective Indicator (manifest variable) Reliability

As part of the measurement model evaluation is the determination of indicators reliability. This specifies which part of an indicator's variance can be explained by the underlying latent variable. As

can be seen in Table 4.22, all the indicators used in this model have loadings ranging from 0.800 to 0.929 and are above the required threshold of 0.70 (Ringle, 2006). The indicators reliability as shown in Table 4. 22 is measured by the square of the manifest (indicator) measurement loadings range from 0.610 to 863, which are above the common threshold criterion of 0.50 (Hair *et al*, 2014). The common threshold criterion is that more than 50% of an indicator’s variance should be explained by the latent construct. These results show that all the indicators are reliable and the measurement model is strong. They also show that the reflective model in the study is well fitted (Henseler, Ringle and Sarstedt, 2012).

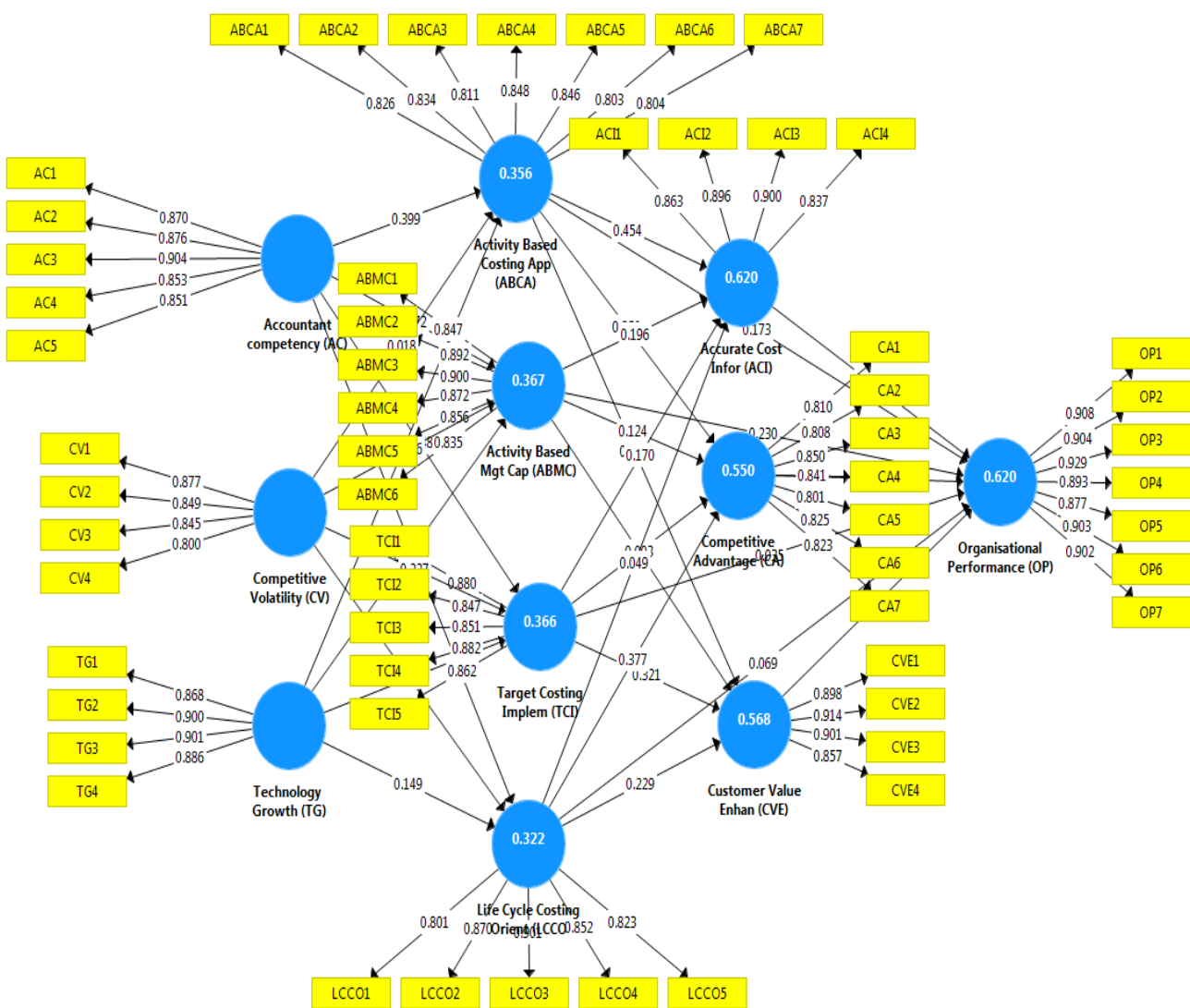


Figure 4.1: Measurement Model (Researcher’s SmartPLS 3.0 Results, 2018)

Table 4. 22: Indicator Reliability

Latent Variable	Indicators	Loadings	Indicator Reliability
Accountant Competency (AC)	AC1	0.870	0.757
	AC2	0.876	0.767
	AC3	0.904	0.817
	AC4	0.853	0.728
	AC5	0.851	0.724
Accurate Cost Information (ACI)	ACI1	0.863	0.745
	ACI2	0.896	0.803
	ACI3	0.900	0.810
	ACI4	0.837	0.701
Activity Based Costing Application (ABCA)	ABCA1	0.826	0.682
	ABCA2	0.834	0.696
	ABCA3	0.811	0.658
	ABCA4	0.848	0.719
	ABCA5	0.846	0.716
	ABCA6	0.803	0.645
	ABCA7	0.804	0.646
Activity Based Mgt Capability (ABMC)	ABMC1	0.847	0.717
	ABMC2	0.892	0.796
	ABMC3	0.900	0.810
	ABMC4	0.872	0.760
	ABMC5	0.856	0.733
	ABMC6	0.835	0.697
Competitive Advantage (CA)	CA1	0.810	0.656
	CA2	0.808	0.653
	CA3	0.850	0.723
	CA4	0.841	0.707
	CA5	0.801	0.642
	CA6	0.825	0.681
	CA7	0.823	0.677
Competitive Volatility (CV)	CV1	0.877	0.769
	CV2	0.849	0.721
	CV3	0.845	0.714
	CV4	0.800	0.640
Customer Value Enhancement (CVE)	CVE1	0.898	0.806
	CVE2	0.914	0.835
	CVE3	0.901	0.812
	CVE4	0.857	0.734
Life Cycle Costing Orientation (LCCO)	LCCO1	0.801	0.642
	LCCO2	0.870	0.757
	LCCO3	0.901	0.812
	LCCO4	0.852	0.726
	LCCO5	0.823	0.677
Organisational Performance (OP)	OP1	0.908	0.824
	OP2	0.904	0.817
	OP3	0.929	0.863
	OP4	0.893	0.797
	OP5	0.877	0.769
	OP6	0.903	0.815
	OP7	0.902	0.814
Target Costing Implementation (TCI)	TCI1	0.880	0.774
	TCI2	0.847	0.717
	TCI3	0.851	0.724
	TCI4	0.882	0.778
	TCI5	0.862	0.743
Technology Growth (TG)	TG1	0.868	0.753
	TG2	0.900	0.810
	TG3	0.901	0.812
	TG4	0.886	0.785

Source: Researcher's SmartPLS 3.0 Results, 2018

Construct Internal Consistency Reliability

The construct consistency reliability is evaluated by two measures – Cronbach's Alpha and composite reliability (CR). These two measures indicate how well a set of manifest variables appraises a single latent construct (Memon & Rahman, 2014; Tjong & Soenarno, 2018). In comparison to Cronbarch's alpha, composite reliability is considered a better measure of internal consistency in PLS - SEM based research because it employs the standardised loadings of the manifest variables. The interpretation of composite reliability score and Cronbarch's alpha is similar. A minimum value of Cronbarch's Alpha is 0.70 and for composite reliability a minimum value of 0.70 is considered acceptable (Hair, Ringle & Sarstedt, 2011). From Table 4.23 the Cronbarch's alpha of all the latent variables vary from 0.865 to 0.962, which are above the minimum of 0.70 required. The composite reliability values from the same table range from 0.928 – 0.966, which are above the minimum stipulated value of 0.70. The Cronbarch's alpha and composite reliability results therefore show that internal consistency reliability has been demonstrated among all the reflective latent variables.

Convergent validity

Convergent validity is tested using Average Variance Extracted (AVE) test. It shows the amount of variance captured by latent variable from its relative manifest variables due to measurement errors (Momon & Rahman, 2014). In an adequate model, AVE should be greater than 0.5 as stipulated by Hair *et al.*, (2011). The AVE values of all the constructs in this model as shown in Table 4.23 vary from 0.677 to 0.815. This implies that all the AVE values are greater than the acceptable threshold of 0.5 and so convergent validity is confirmed.

Table 4.23: Construct Reliability and Validity

Latent Variable	Cronbach Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Accountant Competency (AC)	0.920	0.940	0.759
Accurate Cost Information (ACI)	0.897	0.928	0.764
Activity Based Costing Application (ABCA)	0.922	0.937	0.680
Activity Based Magement Capability (ABMC)	0.934	0.948	0.752
Competitive Advantage (CA)	0.920	0.936	0.677
Competitive Volatility (CV)	0.865	0.908	0.711
Customer Value Enhancement (CVE)	0.915	0.940	0.797
Life Cycle Costing Orientation (LCCO)	0.904	0.929	0.723
Organisational Performance (OP)	0.962	0.969	0.815
Target Costing Implementation (TCI)	0.916	0.937	0.748
Technology Growth (TG)	0.912	0.938	0.790

Source: Researcher's SmartPLS 3.0 Results, 2018

Disriminant Validity

Discriminant validity is carried out to confirm that the manifest variable in any construct is relevant to the designated latent variable. The square root of AVE in each latent variable can be used to determine discriminant validity if this value is larger than other correlation values among the latent variables (Farnell - Larker,1981). From Table 4.24, the diagonal values (in bold) are the square root of AVE, while the other values are the correlations between the related constructs. In this situation, the discriminant validity is achieved when a diagonal value is higher than the value in its row and column. The entire results indicate that there is discriminant validity.

Table 4.24 : Farnell – Larcker Criterion for Discriminant Validity Test

Latent Variable	AC	ACI	ABCA	ABMC	CA	CV	CVE	LCCO	OP	TCI	TG
Accountant Competency (AC)	0.871										
Accurate Cost Information (ACI)	0.584	0.874									
Activity Based Costing Application (ABCA)	0.578	0.754	0.825								
Activity Based Mgt Capability (ABMC)	0.581	0.712	0.804	0.867							
Competitive Advantage (CA)	0.524	0.765	0.655	0.630	0.823						
Competitive Volatility (CV)	0.707	0.502	0.471	0.521	0.545	0.843					
Customer Value Enhancement (CVE)	0.611	0.731	0.645	0.609	0.758	0.515	0.893				
Life Cycle Costing Orientation (LCCO)	0.463	0.541	0.539	0.591	0.641	0.552	0.640	0.850			
Organisational Performance (OP)	0.751	0.673	0.689	0.690	0.633	0.662	0.700	0.575	0.903		
Target Costing Implementation (TCI)	0.552	0.657	0.681	0.715	0.620	0.550	0.704	0.770	0.650	0.865	
Technology Growth (TG)	0.767	0.565	0.537	0.537	0.591	0.788	0.583	0.509	0.722	0.557	0.889

Source: Researcher's SmartPLS 3.0 Results, 2018

Cross Loadings

Cross loadings is an alternative to Average Variance Extracted (AVE) as a method of assessing discriminant validity for reflective models. To examine the cross loading is by observing the cross correlation among the latent variables. At a minimum, no indicator variable should have a higher correlation with another latent variable than with its own latent variable (If it does, the model is inappropriately specified. Table 4.25 presents the outer loadings which revealed that all the indicators measure their block relatively well because the cross correlations generated for each of the latent variables were more than the inter correlation generated when a latent variable is crossed with another latent variable. With this results, discriminant validity is established.

Table 4.25 : Cross Loadings

	AC	ACI	ABCA	ABMC	CA	CV	CVE	LCCO	OP	TCI	TG
AC1	0.870	0.589	0.556	0.544	0.515	0.381	0.557	0.446	0.625	0.587	0.483
AC2	0.876	0.489	0.480	0.527	0.538	0.410	0.563	0.434	0.605	0.579	0.477
AC3	0.904	0.521	0.512	0.536	0.510	0.322	0.482	0.387	0.489	0.540	0.348
AC4	0.853	0.466	0.491	0.447	0.595	0.464	0.556	0.484	0.626	0.570	0.490
AC5	0.851	0.467	0.472	0.469	0.577	0.433	0.568	0.472	0.589	0.597	0.468
ACI1	0.517	0.863	0.625	0.622	0.502	0.360	0.493	0.423	0.528	0.544	0.422
ACI2	0.527	0.896	0.683	0.607	0.536	0.332	0.491	0.461	0.492	0.509	0.394
ACI3	0.507	0.900	0.684	0.608	0.566	0.458	0.591	0.528	0.642	0.631	0.500
ACI4	0.491	0.837	0.643	0.653	0.553	0.477	0.557	0.516	0.631	0.640	0.484
ABCA1	0.531	0.666	0.826	0.667	0.548	0.473	0.502	0.516	0.600	0.601	0.465
ABCA2	0.513	0.673	0.834	0.657	0.543	0.431	0.489	0.516	0.578	0.619	0.461
ABCA3	0.444	0.578	0.811	0.652	0.523	0.435	0.486	0.478	0.561	0.625	0.464
ABCA4	0.498	0.681	0.848	0.694	0.541	0.431	0.533	0.519	0.569	0.600	0.416
ABCA5	0.507	0.640	0.846	0.691	0.497	0.620	0.585	0.416	0.695	0.553	0.647
ABCA6	0.412	0.532	0.803	0.655	0.428	0.599	0.461	0.375	0.633	0.464	0.663
ABCA7	0.415	0.558	0.804	0.627	0.468	0.636	0.563	0.404	0.690	0.495	0.719
ABMC1	0.581	0.665	0.723	0.847	0.439	0.620	0.545	0.403	0.634	0.445	0.634
ABMC2	0.521	0.637	0.689	0.892	0.443	0.603	0.501	0.417	0.610	0.438	0.677
ABMC3	0.509	0.629	0.702	0.900	0.609	0.418	0.610	0.435	0.592	0.542	0.469
ABMC4	0.465	0.618	0.705	0.872	0.705	0.467	0.690	0.459	0.602	0.605	0.522
ABMC5	0.481	0.586	0.677	0.856	0.658	0.425	0.642	0.461	0.586	0.582	0.466
ABMC6	0.454	0.558	0.684	0.835	0.703	0.444	0.610	0.535	0.573	0.567	0.518
CA1	0.593	0.548	0.468	0.652	0.810	0.450	0.610	0.576	0.526	0.531	0.459
CA2	0.523	0.509	0.414	0.590	0.808	0.410	0.628	0.521	0.547	0.477	0.493
CA3	0.566	0.537	0.448	0.720	0.850	0.491	0.625	0.523	0.586	0.495	0.559
CA4	0.537	0.566	0.449	0.658	0.841	0.461	0.667	0.536	0.521	0.531	0.487
CA5	0.524	0.475	0.422	0.561	0.801	0.440	0.639	0.479	0.530	0.504	0.514
CA6	0.510	0.491	0.417	0.611	0.825	0.469	0.557	0.513	0.470	0.496	0.438
CA7	0.509	0.496	0.391	0.604	0.823	0.412	0.638	0.538	0.454	0.537	0.448
CV1	0.397	0.451	0.596	0.466	0.477	0.877	0.459	0.500	0.571	0.512	0.670
CV2	0.468	0.514	0.666	0.457	0.523	0.849	0.459	0.494	0.597	0.518	0.703
CV3	0.351	0.399	0.555	0.345	0.385	0.845	0.394	0.431	0.506	0.402	0.612
CV4	0.358	0.374	0.554	0.411	0.436	0.800	0.416	0.426	0.552	0.405	0.667
CVE1	0.566	0.547	0.570	0.663	0.681	0.472	0.898	0.574	0.610	0.640	0.537
CVE2	0.628	0.600	0.581	0.713	0.733	0.491	0.914	0.595	0.654	0.673	0.536
CVE3	0.586	0.527	0.544	0.643	0.655	0.446	0.901	0.564	0.635	0.635	0.525
CVE4	0.517	0.496	0.483	0.583	0.634	0.426	0.857	0.550	0.597	0.560	0.483
LCCO1	0.412	0.436	0.339	0.446	0.503	0.412	0.450	0.801	0.407	0.605	0.360
LCCO2	0.513	0.554	0.405	0.515	0.564	0.470	0.564	0.870	0.458	0.730	0.416
LCCO3	0.527	0.540	0.450	0.476	0.597	0.522	0.604	0.901	0.542	0.688	0.498
LCCO4	0.412	0.500	0.407	0.417	0.520	0.482	0.546	0.852	0.515	0.619	0.449
LCCO5	0.420	0.474	0.359	0.443	0.534	0.452	0.544	0.823	0.516	0.626	0.430
OP1	0.659	0.647	0.720	0.673	0.594	0.657	0.649	0.545	0.908	0.625	0.666
OP2	0.601	0.628	0.707	0.627	0.590	0.611	0.605	0.513	0.904	0.598	0.660
OP3	0.657	0.643	0.701	0.646	0.610	0.646	0.652	0.538	0.929	0.633	0.672
OP4	0.625	0.635	0.665	0.583	0.536	0.575	0.591	0.519	0.893	0.582	0.640
OP5	0.594	0.597	0.643	0.522	0.521	0.525	0.624	0.494	0.877	0.548	0.635
OP6	0.597	0.596	0.644	0.581	0.586	0.552	0.663	0.515	0.903	0.557	0.623
OP7	0.617	0.611	0.659	0.611	0.560	0.611	0.633	0.509	0.902	0.561	0.663
TCI1	0.650	0.653	0.554	0.617	0.563	0.471	0.656	0.625	0.613	0.880	0.514
TCI2	0.531	0.626	0.442	0.542	0.492	0.475	0.560	0.660	0.560	0.847	0.441
TCI3	0.589	0.606	0.496	0.566	0.526	0.486	0.597	0.644	0.582	0.851	0.478
TCI4	0.583	0.605	0.441	0.574	0.542	0.470	0.587	0.661	0.507	0.882	0.462
TCI5	0.586	0.599	0.448	0.538	0.554	0.478	0.638	0.743	0.545	0.862	0.506
TG1	0.486	0.447	0.668	0.504	0.551	0.682	0.519	0.463	0.633	0.490	0.868
TG2	0.492	0.510	0.661	0.543	0.554	0.713	0.518	0.486	0.673	0.505	0.900
TG3	0.471	0.469	0.697	0.468	0.487	0.708	0.523	0.425	0.636	0.489	0.901
TG4	0.462	0.482	0.703	0.491	0.510	0.699	0.515	0.432	0.623	0.495	0.886

Source: Researcher's SmartPLS 3.0 Output, 2018

Test of Discriminant Validity using Heterotrait – Monotrait (HTMT) Ratio

Although in SmartPLS, the examination of cross loadings and the use of Fornell – Larker criterion are accepted methods for assessing discriminant validity in PLS model, these methods have limitations. Hence, Henseler, Ringle and Sarstedt (2015) have developed a better method of detecting discriminant validity known as Heterotrait – Monotrait (HTMT) ratio. In a well-fitting model, heterotrait correlations should be smaller than monotrait correlations, implying that the HTMT should be smaller than 1. When the HTMT value is below 0.90 ($HTMT_{0.90}$), then discriminant validity has been established between a given pair of reflective constructs (Henseler, Ringle & Sarstedt, 2015). From Table 4.26, the HTMT ratio for each pair of latent variables is below 0.90 and using the criterion of $HTMT_{0.90}$ as a cutoff, the results therefore showed that discriminant validity was met in this study using HTMT ratio.

Table 4.26 : Heterotrait – Monotrait (HTMT)

Latent Variable	AC	ACI	ABCA	ABMC	CA	CV	CVE	LCCO	OP	TCI	TG
Accountant Competency (AC)											
Accurate Cost Information (ACI)	0.640										
Activity Based Costing Application (ABCA)	0.623	0.824									
Activity Based Mgt Capability (ABMC)	0.622	0.776	0.866								
Competitive Advantage (CA)	0.567	0.840	0.708	0.678							
Competitive Volatility (CV)	0.788	0.565	0.518	0.572	0.604						
Customer Value Enhancement (CVE)	0.663	0.804	0.698	0.656	0.825	0.575					
Life Cycle Costing Orientation (LCCO)	0.506	0.601	0.587	0.641	0.701	0.619	0.701				
Organisational Performance (OP)	0.796	0.723	0.727	0.726	0.670	0.722	0.745	0.615			
Target Costing Implementation (TCI)	0.597	0.724	0.738	0.772	0.675	0.612	0.766	0.847	0.691		
Technology Growth (TG)	0.838	0.624	0.582	0.581	0.644	0.885	0.639	0.558	0.770	0.608	

Source: Researcher's SmartPLS 3.0 Results, 2018

Measurement (Outer) model significance

Wong (2013) suggested that all outer model loadings should be significant at the chosen alpha level.

In this model as can be seen in Appendix II all the outer model loadings are larger than 1.65, meaning that all the outer model loadings are significant at 10% level.

4.4.2.2 Structural Model Assessment

The structural (inner) model of this study, which specifies the relationship between the exogenous and endogenous latent variables, can be seen in Figure 4.2 showing all the latent variables, the coefficient of determination (R^2) and the path coefficients (β values) in the model. In this study, SmartPLS algorithm was used to obtain the β values and the R^2 ; while SmartPLS bootstrapping was used to obtain the t – statistic and the p – values used in testing the significant values.

Before evaluating the structural model there was the need to check for collinearity among the exogenous variables as this is a potential issue in the structural model.

Collinearity Assessment

It is suggested that colinearity among the independent variables should be tested as this will determine the development of good PLS – SEM models. Variance inflation factor (VIF) of above 5 indicated collinearity problem among the independent variables (Pallant, 2007; Hair *et al.*, 2011). The VIF of the independent variables in this study can be seen in Table 4.27, which range from 2.480 to 3. 817. These figures indicate the absence of collinearity problem among the exogenous variables as the VIF of the variables are all less than five.

Table 4.27: Collinearity Test

First Set : Independent variables	VIF	Tolerance	Collinearity problem (VIF > 5 ?)
Accurate Cost Information (ACI)	3.705	0.27	NO
Activity Based Costing Application (ABCA)	3.621	0.28	NO
Activity Based Management Capability (ABMC)	3.479	0.29	NO
Competitive Advantage (CA)	3.398	0.29	NO
Competitive Volatility. (AV)	2.831	0.35	NO
Customer Value Enhancement. (CVE)	3.188	0.31	NO
Life Cycle Costing Orientation (LCCO)	2.871	0.35	NO
Target Costing Implementation (TCI)	3.817	0.26	NO
Dependent Variable : Organisational Performanc(OP)			
Second Set: Independent variables			
Activity Based Costing Application (ABCA)	3.035	0.329	NO
Activity Based Mgt Capability (ABMC)	3.351	0.298	NO
Life Cycle Costing Orient. (LCCO)	2.480	0.403	NO
Target Costing Implementation (TCI)	3.469	0.288	NO
Dependent Variables: ACI, CA & CVE			
Third Set: Independent variables			
Accountant Competency (AC)	2.603	0.384	NO
Competitive Volatility (CV)	2.831	0.353	NO
Technology Growth (TG)	3.435	0.291	NO
Dependent Variables : ABCA, ABMC, LCCO & TCI			

Source: Researcher's SmartPLS 3.0 Results, 2018

Evaluation of Coefficient of Determination (R^2)

PLS – SEM has no proper overall goodness of fit measures (Hulland, 1999) and so does not use goodness of fit (GOF) index; instead, researchers are advised to carefully evaluate the R^2 , and the path coefficients, particularly their significance in order to decide upon which paths to leave in the model and which to discard (Henseler & Sarstedt, 2013). The structural model is evaluated through the assessment of R^2 values (that is, coefficient of determination) (Hair *et al.*, 2012). The R^2 is the overall effect size measure for the structural model. It is the percentage of the variance in the dependent or endogenous variable that is explained by the independent or exogenous variable. A higher R^2 indicates a higher predictive ability. 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).

On the examination of Figure 4.2 and Table 4.28, the endogenous constructs's predictive power shows that Organisational Performance (OP) and Accurate Cost Information (ACI) have R^2 values of 0.62 and 0.62, respectively, which are considered to be far more than moderate. In the same vein,

Competitive Advantage (CA) and Customer Value Enhancement (CVE) have R^2 values of 0.550 and 0.568, respectively, which are also more than moderate. The remaining four endogenous variables - Activity based Costing Application (ABCA), Activity Based Management Capability (ABMC), Life Cycle costing Orientation (LCCO) and Target Costing Implementation (TCI) have R^2 values of 0.356, 0.367, 0.322 and 0.366, respectively, which are above the minimum R^2 . Overall, it can be said that the model predictive capacity is good.

The primary outcome of the model (main dependent variable) is organisational performance which has an R^2 of 0.62. This implies that variance in this variable has 62% jointly explained by Accurate Cost information (ACI), Competitive Advantage (CA), Customer Value Enhancement (CVE), Activity Based Costing Application (ABCA), Activity based management capability (ABMC), Target costing application (TCI) and Life Cycle Costing Orientation (LCCO). Also, Activity based costing application (ABCA), Activity Based Management Capability (ABMC), Target Costing Implementation (TCI) and Life Cycle Costing Orientation (LCCO) jointly explained 62% variance in Accurate cost information with R^2 of 0.62, 55% variance in Competitive advantage with R^2 of 0.550 and 56.8% variance in Customer value enhancement with R^2 of 0.568. Lastly, Accountant competency , Competitive volatility and Technology growth jointly explained 35.6% variance in Activity based costing application, 36.7% variance in Activity based management capability, 36.6% variance in Target costing application and 32.2% variance in Life cycle costing orientation.

Table 4.28: Coefficient of Determination (R^2)

	R Square (R^2)	R Square Adjusted
Accurate Cost Infor (ACI)	0.620	0.613
Activity Based Costing App (ABCA)	0.356	0.348
Activity Based Mgt Cap (ABMC)	0.367	0.358
Competitive Advantage (CA)	0.550	0.542
Customer Value Enhan (CVE)	0.568	0.561
Life Cycle Costing Orient (LCCO)	0.322	0.313
Organisational Performance (OP)	0.620	0.608
Target Costing Implem (TCI)	0.366	0.358

Source: Researcher SmartPLS Result, 2018

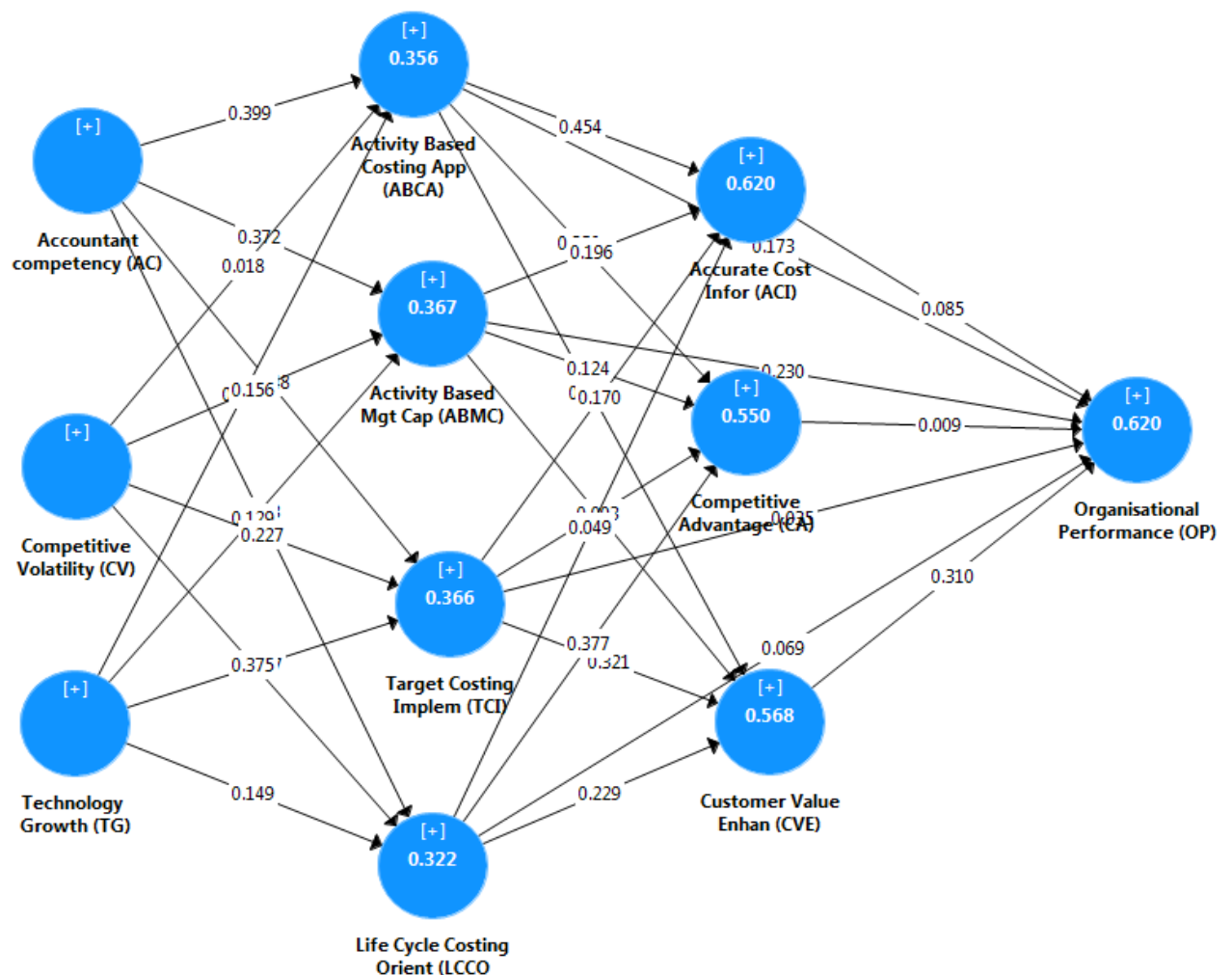


Figure 4.2: Structural Model and PLS – SEM Estimates (Researcher SmartPLS Result, 2018)

The (f^2) Effect Size

The f^2 effect size measure is another name for the R^2 change effect. The f^2 can be computed manually using this equation:

$$f^2 = \frac{(R^2_{\text{original}} - R^2_{\text{omitted}})}{(1 - R^2_{\text{original}})}$$

The f^2 equation expresses how large a proportion of unexplained variance is accounted for by R^2 change (Hair *et al.*, 2014). The assessment of the f^2 effect size is based on these values : 0.02 value indicate small f^2 effect size, 0.15 shows medium and 0.35 shows large f^2 effect size, and f^2 effect size below 0.02 shows no effect (Hair *et al.*, 2017, Fischer, 2012).

From Table 4.29, looking at the first set of dependent variable – (Organisational performance); Activity based costing application ($f^2 = 0.02$), Activity based management capability ($f^2 = 0.04$) and Customer value enhancement ($f^2 = 0.08$) have more than small effect size on Organisational performance (OP); while Accurate cost information, Competitive advantage, Life cycle costing Orientation, and Target costing implementation showed no effect size on Organisational performance (OP) as their effect size value are below the minimum threshold of 0.02. These results indicate that Activity based costing application, Activity based management capability and Customer value enhancement have more effects on Organisational performance than other constructs influencing it.

Looking at the second sets of variables (B) in Table 4.29, (ACI, CA & CVE); Activity based costing application ($f^2 = 0.18$) has more than medium effect on Accurate cost information (ACI); Activity based management capability ($f^2 = 0.03$) has more than small effect on Accurate cost information (ACI); Target costing implementation ($f^2 = 0.022$) shows small effect on Accurate cost information ; while life cycle costing ($f^2 = 0.03$) shows no effect size on Accurate cost information (ACI). Activity based costing application ($f^2 = 0.09$) and Life cycle costing orientation ($f^2 = 0.13$) have more than small effect size on Competitive advantage (CA); while Activity based management capability and Target costing implementation show no effect size on Competitive advantage (CA). Activity based costing application ($f^2 = 0.07$), Life cycle costing orientation ($f^2 = 0.05$) and Target costing implementation ($f^2 = 0.07$) have more than small effect size on Customer value enhancement

(CVE); while Activity based management capability showed no effect size on Customer value enhancement (CVE). This results indicate that Activity based management capability has lesser effect on Customer value enhancement (CVE) when compared to other variables affecting it.

On the examination of the third sets of variables (C) on Table 4.29 Accountant competency ($f^2 = 0.095$) shows more than small effect size on Activity based costing application, and Technology growth ($f^2 = 0.02$) has small effect on Activity based costing application; while Competitive volatility shows no effect size on Activity based costing application. Accountant Competency ($f^2 = 0.08$) has more than small effect size on Activity based management capability; while Competitive volatility and Technology growth have no effect size on Activity based management capability. Competitive volatility has more than small effect size on Life cycle costing orientation; while Accountant competency and Technology growth show no effect size on Life cycle costing orientation. Accountant Competency ($f^2 = 0.04$) and Competitive volatility ($f^2 = 0.03$) shows more than small effect size on Target costing implementation; while Technology growth shows no effect size on Target costing implementation.

Table 4.29: f Square

(A) - Independent Variables	1 st Set of Dependent Variable. – Organisational (OP)			
	f ² Effect Size			
Accurate Cost Infor (ACI)	0.01			
Activity Based Costing App (ABCA)	0.02			
Activity Based Mgt Cap (ABMC)	0.040			
Competitive Advantage (CA)	0.000			
Customer Value Enhancement (CVE)	0.08			
Life Cycle Costing Orient (LCCO)	0.00			
Target Costing Implem (TCI)	0.00			
(B) - Independent Variables	2 nd Set of Dependent Variables			
	ACI	CA	CVE	
	f ² Effect Size	f ² Effect Size	f ² Effect Size	
Activity Based Costing App (ABCA)	0.18	0.09	0.07	
Activity Based Mgt Cap (ABMC)	0.03	0.010	0.000	
Life Cycle Costing Orient (LCCO)	0.00	0.13	0.05	
Target Costing Implem (TCI)	0.02	0.000	0.07	
(C) - Independent Variables	3 rd Set of Dependent Variables			
	ABCA	ABMC	LCCO	TCI
	f ² Effect Size	f ² Effect Size	f ² Effect Size	f ² Effect Size
Accountant Competency (AC)	0.10	0.08	0.00	0.04
Competitive Volatility (CV)	0.00	0.01	0.07	0.03
Technology Growth (TG)	0.02	0.01	0.01	0.02

Source: Researcher's SmartPLS Result, 2018

Predictive Relevance (Q^2)

The predictive relevance of the models can further be determined aside from evaluating the R^2 by using Stone-Geisser's Q^2 value (Stone, 1974; Geisser, 1974) through the blindfolding process in PLS –SEM. This represents an evaluation criterion for the cross-validated predictive relevance of the PLS path model. The predictive relevance (Q^2) values larger than 0 suggests that the model has predictive relevance for a particular endogenous variable, while values of 0 and below show a lack of predictive relevance (Hair *et al.* 2017). Looking at Table 4.30, the Q^2 values of all the endogenous constructs (variables) are above 0, hence, the results indicate that the model has predictive relevance.

Table 4.30: Construct Crossvalidated Redundancy Index (Q^2)

Endogenous variables	Q^2
Accurate Cost Information (ACI)	0.439
Activity Based Costing App (ABCA)	0.224
Activity Based Mgt Cap (ABMC)	0.255
Competitive Advantage (CA)	0.345
Customer Value Enhancement (CVE)	0.421
Life Cycle Costing Orientation (LCCO)	0.213
Organisational Performance (OP)	0.467
Target Costing Implementation (TCI)	0.253

Source: Researcher's SmartPLS Result, 2018

Assessment of Path Coefficients of the Structural Model

The relationship between constructs in PLS - SEM can be determined by examining their path coefficients and related t- statistics computed through the bootstrapping procedure. The estimates obtained for the structural model relationships are the results of the running of PLS –SEM algorithm and this represents the hypothesised relationships among the constructs. And the significance of the

coefficients are determined through the bootstrapping process. In this analysis, the bootstrapping procedure carried out 5,000 samples and 10% level of significance to determine the t- values and p-values of the coefficients. The results of the bootstrapping process can be seen in the Figure in Appendices IIa & b and also presented in Table 4.31. From Table 4.31, it can be seen that all the path coefficients show a positive effect. Activity Based Costing Application (ABCA) has the highest positive effect on Accurate Cost Information (ACI) with path coefficient of 0.454; while Activity Based Management Capability (ABMC) has the lowest positive effect on Customer Value Enhancement (CVE) with path coefficient of 0.001. There are 31 direct paths coefficients as can be seen in Table 4.31 out of which 19 are significant at maximum of 10% significant level, while 12 are not significant. This was further examined in the test of the hypotheses in this study.

4. 5 Testing of Hypotheses

The nature of hypothesis testing in SEM is not conventional as the various paths constitute the hypotheses normally tested in the analysis. In view of this, the main five hypotheses formulated in this study are broken down into 35 sub- hypotheses that are tested here, below:

Strategic Cost Management Practices (ABCA, ABMC, TCI and LCCO) and Accurate Cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE)

The above constitutes the first main hypothesis which is broken into 12 subs – hypotheses (Sub – hypothesis 1a - 3d) as tested below:

Activity based costing application, Activity based management capability, Target costing implementation and Life cycle costing orientation and Accurate cost information

Sub-Hypothesis 1a: Activity Based Costing Application (ABCA) does not significantly influence Accurate Cost Information (ACI).

This hypothesis defines the relationship between ABCA and ACI. As can be seen in Table 4.31 Activity Based Costing Application (ABCA) has a direct significant positive influence on Accurate

cost information (ACI) ($\beta = 0.454$, $p < 0.01$). This result shows that Activity based costing application changes in direct proportion to Accurate cost information with a coefficient of 0.454. There is therefore a positive significant relationship between ABCA and ACI. The coefficient of this path is significant. Hence, the hypothesis that Activity based costing application does not significantly influence Accurate cost information is not accepted.

Sub-Hypothesis 1b : Activity Based Costing Management Capability (ABMC) does not significantly influence Accurate Cost Information (ACI)

The above hypothesised the relationship between ABMC and ACI. Table 4.31 shows that Activity based management capability (ABMC) has a direct significant positive influence on Accurate cost information (ACI) ($\beta = 0.196$, $p < 0.05$). This shows that Accurate cost information changes in direct proportion to Activity based management capability with a coefficient of 0.196 signaling a direct positive relationship between ABMC and ACI. The coefficient of this path is significant. Hence, the hypothesis that Activity Based Costing Management capability does not significantly influence Accurate Cost Information is not accepted.

Sub -Hypothesis 1c : Target Costing Implementation (TCI) does not significantly influence Accurate Cost Information (ACI)

This hypothesized the relationship between TCI and ACI and from Table 4.31, the result indicated that Target costing implementation has a direct significant positive impact on Accurate cost information ($\beta = 0.170$, $p < .10$). This means that Accurate Cost Information changes in direct proportion to Target costing implementation, thus, showing a significant positive relationship between the two variables. Hence, the hypothesis stating that Target Costing Implementation (TCI) does not significantly influence Accurate Cost Information (ACI) is not accepted.

Sub -Hypothesis 1d: Life cycle costing orientation (LCCO) does not significantly influence Accurate cost information (ACI).

This hypothesis defines the relationship between LCCO and ACI. From Table 4.31, it can be seen that Life Cycle Costing Orientation has a positive insignificant impact on Accurate cost information ($\beta = 0.049$, $p > .10$). This result indicated that there is no significant impact of LCCO on ACI, and hence, the hypothesis stating that Life Cycle Costing Orientation (LCCO) does not significantly influence Accurate Cost Information (ACI) is accepted.

Activity based costing application, Activity based management capability, Target costing implementation and Life cycle costing orientation And Competitive Advantage

Sub - Hypothesis 2a: Activity Based Costing Application (ABCA) does not significantly influence Competitive Advantage (CA).

The result in Table 4.31 shows that Activity based costing application (ABCA) has a direct significant influence on Competitive advantage (CA) ($\beta = 0.350$, $p < .01$). This implies that Competitive advantage changes in direct proportion to Activity based costing application, thus, showing a significant positive relationship between the two variables. Hence, the hypothesis stating that Activity based costing application (ABCA) does not significantly influence Competitive advantage (CA) is not accepted.

Sub - Hypothesis 2b Activity based management capability (ABMC) does not significantly influence Competitive advantage (CA)

From Table 4.31, the results shows that Activity based management (ABMC) though has a positive impact on Competitive advantage but it is not significant ($\beta = 0.124$, $p < .10$). This implies that Activity based management capability has no significant impact on Competitive advantage. Hence, the hypothesis stating that Activity Based Management Capability (ABMC) does not significantly influence Competitive Advantage (CA) is accepted.

Sub - Hypothesis 2c: Target Costing Implementation (TCI) does not significantly influence
Competitive Advantage (CA)

The result in Table 4.31 indicates that Target Costing Implementation (TCI) has a positive insignificant impact on Competitive Advantage ($\beta = 0.003$, $p > 0.10$). This clearly shows that there is a very weak relationship between the two variables. Hence, the hypothesis stating that Target Costing Implementation (TCI) does not significantly influence Competitive Advantage (CA) is accepted.

Sub - Hypothesis 2d: Life Cycle Costing Orientation (LCCO) does not significantly influence
Competitive Advantage (CA)

The result in Table 4.31 shows that Life Cycle Costing Orientation (LCCO) has a direct positive significant influence on Competitive Advantage (CA) ($\beta = 0.377$, $p < 0.01$). This implies that Competitive advantage changes in direct proportion to Life cycle costing orientation, thus, showing a significant positive relationship between the two variables. Hence, the hypothesis stating that Life Cycle Costing Orientation (LCCO) does not significantly influence Competitive Advantage (CA) is not accepted.

Sub - Hypothesis 3a: Activity Based Costing Application (ABCA) does not significantly influence
Customer Value Enhancement (CVE)

The result in Table 4.31 shows that Activity Based Costing Application (ABCA) has a direct significant positive influence on Customer value enhancement (CVE) ($\beta = 0.302$, $p < 0.01$). This indicates that Customer value enhancement varies in the same proportion with changes in Activity based costing application showing a significant positive relationship between the two variables. Hence, the hypothesis stating that Activity Based Costing Application (ABCA) does not significantly influence Customer Value Enhancement (CVE) is not accepted.

Sub - hypothesis 3b: Activity Based Management Capability (ABMC) does not significantly influence Customer Value Enhancement (CVE)

This hypothesis defines the relationship between Activity Based Management Capability and Customer Value Enhancement. As can be seen in Table 4.31, Activity Based Management Capability (ABMC) has a positive insignificant influence on Customer Value Enhancement (CVE) ($\beta = 0.001$, $p > 0.10$). The results clearly show a very weak relationship between the hypothesised variables. Hence the hypothesis which states that Activity Based Management Capability (ABMC) does not significantly influence Customer Value Enhancement (CVE) is accepted.

Sub -Hypothesis 3c: Target Costing Implementation (TCI) does not significantly influence Customer Value Enhancement (CVE)

The result in Table 4.31 shows that Target Costing Implementation (TCI) has a direct positive significant influence on Customer Value Enhancement (CVE) ($\beta = 0.321$, $p < 0.01$). This implies that Customer Value Enhancement varies in the same proportion with changes in Target costing implementation, thus, showing a significant positive relationship between the two variables. Hence, the hypothesis stating that Target Costing Implementation (TCI) does not significantly influence Customer Value Enhancement (CVE) is not accepted.

Sub -Hypothesis 3d: Life Cycle Costing Orientation (LCCO) does not significantly influence Customer Value Enhancement (CVE)

From Table 4.31, Life Cycle Costing Orientation (LCCO) has a direct positive significant influence on Customer Value Enhancement (CVE) ($\beta = 0.229$, $p < 0.01$). This implies that Customer Value Enhancement varies in direct proportion to Life Cycle Costing Orientation (LCCO), thus, showing a significant positive relationship between the two variables. Hence, the hypothesis stating that: Life Cycle Costing Orientation (LCCO) does not significantly influence Customer Value Enhancement (CVE) is not accepted.

Strategic Cost Management Practices (ABCA, ABMC, TCI and LCCO) and Organisational Performance (OP)

In examining the relationships between strategic cost management techniques and organisational performance four hypotheses were tested (Ho4a – 4d).

Sub -Hypothesis 4a: Activity Based Costing Application (ABCA) does not significantly influence Organisational Performance (OP)

This hypothesis examines the relationship between Activity Based Costing Application and Organisational performance and from Table 4.31, it can be seen that Activity based costing application (ABCA) has a direct significant influence on organisational performance (OP) ($\beta = 0.173$, $p < 0.10$). This result indicates that Activity – based costing application positively relates to Organisational performance. With this result, the hypothesis stating that Activity Based Costing Application (ABCA) does not significantly influence Organisational Performance (OP) is not accepted.

Sub -Hypothesis 4b : Activity Based Management Capability (ABMC) does not significantly influence Organisational Performance (OP)

From Table 4.31, it can be seen that Activity Based Management Capability (ABMC) (ABMC) has a direct significant influence on organisational performance (OP) ($\beta = 0.230$, $p < 0.05$). This result indicates that Organisational performance varies in the same proportion with changes in activity – based management capability. With this result, the hypothesis stating that: Activity Based Management Capability (ABMC) does not significantly influence Organisational Performance (OP) is not accepted.

Sub -Hypothesis 4c : Target Costing Implementation (TCI) does not significantly influence Organisational Performance (OP)

The result in Table 4.31 shows that Target Costing Implementation (TCI) has a direct insignificant positive influence on Organizational Performance (OP) ($\beta = 0.035$, $p > 0.10$). This result indicates that

even though Target costing implementation has a positive relationship with Organisational performance, it is not significant. With this result, the hypothesis stating that Target Costing Implementation (TCI) does not significantly influence Organisational Performance (OP) is accepted.

Sub - Hypothesis 4d : Life Cycle Costing Orientation (LCCO) does not significantly influence Organisational Performance (OP)

From Table 4.31, Life Cycle Costing Orientation (LCCO) has a direct insignificant positive influence on Organisational Performance (OP) ($\beta = 0.069$, $p > 0.10$). This result indicates that even though Life Cycle Costing Orientation (LCCO) shows a positive relationship with Organisational performance it is not significant. With this result, the hypothesis stating that Life Cycle Costing Orientation (LCCO) does not significantly influence Organizational Performance (OP) is accepted.

Accurate Cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE) and Organisational Performance (OP)

In examining the relationships between each of: Accurate Cost Information (ACI), Competitive Advantage (CA), Customer Value Enhancement (CVE), and Organisational Performance (OP), three sub -hypotheses (Ho 5a – 5c) were tested.

Sub-Hypothesis 5a : Accurate Cost Information (ACI) does not significantly influence Organisational performance (OP)

From Table 4.31 Accurate cost information has an insignificant influence on Organizational Performance (OP) ($\beta = 0.085$, $p > 0.10$). This result indicates that even though Accurate Cost Information (ACI) shows a positive relationship with Organisational performance, it is not significant. Hence, the hypothesis stating that Accurate Cost Information (ACI) does not significantly influence Organisational Performance (OP) is accepted.

Sub -Hypothesis 5b: Competitive Advantage (CA) does not significantly influence Organisational Performance (OP)

The result in Table 4.31 shows that Competitive Advantage (CA) has a direct insignificant influence on Organisational Performance (OP) ($\beta = 0.009$, $p > 0.10$). This result indicates that even though Competitive advantage (CA) shows a positive relationship with Organisational performance, it is not significant. Hence, the hypothesis stating that Competitive Advantage (CA) does not significantly influence Organisational Performance (OP)) is accepted.

Sub - Hypothesis 5c: Customer Value Enhancement (CVE) does not significantly influence Organisational Performance (OP)

From Table 4.31, it can be seen that Customer Value Enhancement (CVE) has a direct significant influence on Organisational performance ($\beta = 0.310$, $p < 0.01$). This result indicates that Customer Value Enhancement (CVE) has a positive relationship with Organisational performance. With this result, the hypothesis stating that Customer Value Enhancement (CVE) does not significantly influence Organisational Performance (OP) is not accepted.

Accountant Competency (AC), Competitive Volatility (CV), And Technology Growth (TG) And Activity Based Costing Application (ABCA), Activity Based Management Capability (ABMC), Target Costing Implementation (TCI) And Life Cycle Costing Orientation (LCCO)

In examining the relationships among the above variables hypotheses 6a to 9c were tested.

Sub - Hypothesis 6a: Accountant Competency (AC) does not significantly influence Activity Based Costing Application (ABCA)

From Table 4.31, it can be seen that Accountant Competency (AC) has a direct significant influence on Activity Based Costing Application (ABCA) ($\beta = 0.399$, $p < 0.01$). This result indicates that Accountant Competency (AC) has a positive relationship with Activity Based Costing Application

(ABCA). Hence, the hypothesis stating that Accountant Competency (AC) does not significantly influence Activity Based Costing Application (ABCA) is not accepted.

Sub-Hypothesis 6b: Competitive Volatility (CV) does not significantly influence Activity Based Costing Application (ABCA)

The result in Table 4.31 shows that Competitive Volatility (AC) has a direct insignificant influence on activity Based Costing Application (ABCA)) ($\beta = 0.018$, $p > 0.10$). This result indicates that though Competitive Volatility (AC) has a positive relationship with Activity based costing application (ABCA), but it is not significant. Hence, the hypothesis stating that Competitive Volatility (AC) does not significantly influence Activity Based Costing Application (ABCA) is accepted.

Sub - Hypothesis 6c: Technology growth (TG) does not significantly influence Activity Based Costing Application (ABCA)

This hypothesis defines the relationship between the above two variables. From Table 4.31, it can be seen that Technology Growth (TG) has a direct positive significant influence on Activity Based Costing Application (ABCA) ($\beta = 0.217$, $p < 0.05$). This result indicates that as Technology Growth (TG) improves, there is a probability that Activity Based Costing Application (ABCA) will improve in the same proportion. Hence, the hypothesis stating that:

Technology Growth (TG) does not significantly influence Activity Based Costing Application (ABCA) is not accepted.

Sub - Hypothesis 7a: Accountant Competency (AC) does not significantly influence Activity Based Management Capability (ABMC).

This hypothesis defines the relationship between the above two variables. From Table 4.31, it can be seen that Accountant Competency (AC) has a direct positive significant influence on Activity Based Management Capability (ABMC)) ($\beta = 0.372$, $p < 0.01$). This result indicates that as Accountant Competency (AC) improves, there is a probability that Activity based management (ABMC) will

improve. Hence, the hypothesis stating that Accountant Competency (AC) does not significantly influence Activity Based Management Capability (ABMC) is not accepted.

Su - Hypothesis 7b: Competitive Volatility (CV) does not significantly influence Activity Based Management Capability (ABMC).

This hypothesis defines the relationship between the above two variables. From Table 4.31, it can be seen that Competitive Volatility (CV) has a direct positive significant influence on Activity Based Management Capability (ABMC)) ($\beta = 0.156$, $p < 0.10$). This result indicates that as Competitive Volatility (CV) improves, there is a probability that Activity Based Management Capability (ABMC) will improve in the same manner. Hence, the hypothesis stating that Competitive Volatility (CV) does not significantly influence Activity Based Management Capability (ABMC) is not accepted.

Sub -Hypothesis 7c: Technology Growth (TG) does not significantly influence Activity Based Management Capability (ABMC).

From Table 4.31, it can be seen that Technology Growth (TG) has a direct insignificant influence on Activity Based Management Capability (ABMC) ($\beta = 0.129$, $p > 0.10$). This result indicates that even though there is a positive relationship between Technology Growth (TG) and Activity based management capability (ABMC), it is not significant. Hence, the hypothesis stating that Technology Growth (TG) does not significantly influence Activity Based Management Capability (ABMC) is accepted.

Sub - Hypothesis 8a: Accountant Competency (AC) does not significantly influence Target Costing Implementation (TCI).

The result in Table 4.31 shows that Accountant Competency (AC) has a direct positive significant influence on Target Costing Implementation ($\beta = 0.248$, $p < 0.05$). This result indicates that as Accountant Competency (AC) improves, there is a probability that Target Costing Implementation

(TCI) will improve in the same manner. Hence, the hypothesis stating that Accountant Competency (AC) does not significantly influence Target Costing Implementation (TCI).is not accepted.

Sub -Hypothesis 8b: Competitive Volatility (CV) does not significantly influence Target costing implementation (TCI).

The result in Table 4.31 shows that Competitive Volatility (CV) has a direct positive significant influence on Target Costing Implementation ($\beta = 0.227$, $p < 0.05$). This result indicates that as Competitive Volatility (CV) improves, there is a probability that Target Costing Implementation (TCI) will improve in the same manner. Hence, the hypothesis stating that Competitive Volatility (CV) does not significantly influence Target Costing Implementation (TCI).is not accepted.

Sub -Hypothesis 8c: Technology Growth (TG) does not significantly influence Target Costing Implementation (TCI).

The result in Table 4.31 shows that Technology Growth (TG) has a direct positive significant influence on Target Costing Implementation with ($\beta = 0.093$, $p < 0.10$). This result indicates that as Technology Growth (TG) improves, there is a probability that Target Costing Implementation (TCI) will improve in the same direction. Hence, the hypothesis stating that Technology Growth (TG) does not significantly influence Target Costing Implementation (TCI) is not accepted.

Sub -Hypothesis 9a: Accountant Competency (AC) does not significantly influence Life Cycle Costing Orientation (LCCO).

The result in Table 4.31 shows that Accountant Competency (AC) has a direct insignificant influence on Life Cycle Costing Orientation ($\beta = 0.083$, $p > 0.10$). This result indicates that as Accountant Competency (AC) improves, there is a probability that there will be no significant improvement in Life Cycle Costing Orientation (LCCO). Hence, the hypothesis stating that Technology Growth (TG) does not significantly influence Target Costing Implementation (TCI) is accepted.

Sub -Hypothesis 9b: Competitive Volatility (CV) does not significantly influence Life Cycle Costing Orientation (LCCO)

The result in Table 4.31 shows that Competitive Volatility (CV) has a direct positive significant influence on Life Cycle Costing Orientation (LCCO)) ($\beta = 0.375$, $p < 0.01$). This result indicates that as Competitive Volatility (CV) improves, there is a probability that Life Cycle Costing Orientation (LCCO) will improve in the same manner. Hence, the hypothesis stating that Competitive Volatility (CV) does not significantly influence Target Costing Implementation (TCI) is not accepted.

Sub -Hypothesis 9c: Technology Growth (TG) does not significantly influence Life Cycle Costing Orientation (LCCO)

The result in Table 4.31 shows that Technology Growth (TG) has a direct insignificant influence on Life Cycle Costing Orientation ($\beta = 0.149$, $p > 0.10$). This result indicates that as Technology Growth (TG) improves, there is a probability that will be no significant improvement in Life cycle Costing Orientation (LCCO). Hence, the hypothesis stating that Technology Growth (TG) does not significantly influence Life Cycle Costing Orientation (LCCO) is accepted.

Table 4. 31 : Path Coefficients with Significance Values

Paths	Sub-Hypotheses	Coefficient (β)	Standard Deviation	T- Statistics (β / STDEV)	P -Values	Significant ?
ABCA -> ACI	1a	0.454	0.088	5.182	0.000*	Yes
ABMC -> ACI	1b	0.196	0.098	2.039	0.041**	Yes
TCI -> ACI	1c	0.170	0.099	1.720	0.085***	Yes
LCCO -> ACI	1d	0.049	0.075	0.656	0.512	No
ABCA -> CA	2a	0.350	0.118	2.974	0.003**	Yes
ABMC -> CA	2b	0.124	0.126	0.977	0.328	No
TCI -> CA	2c	0.003	0.099	0.034	0.973	No
LCCO -> CA	2d	0.377	0.085	4.417	0.000*	Yes
ABCA -> CVE	3a	0.302	0.098	3.076	0.002*	Yes
ABMC -> CVE	3b	0.001	0.101	0.010	0.992	No
TCI -> CVE	3c	0.321	0.096	3.338	0.001*	Yes
LCCO -> CVE	3d	0.229	0.081	2.824	0.005*	Yes
ABCA -> OP	4a	0.173	0.094	1.836	0.066***	Yes
ABMC -> OP	4b	0.230	0.093	2.481	0.013**	Yes
TCI -> OP	4c	0.035	0.096	0.368	0.713	No
LCCO -> OP	4d	0.069	0.084	0.819	0.413	No
ACI -> OP	5a	0.085	0.105	0.806	0.420	No
CA -> OP	5b	0.009	0.104	0.091	0.928	No
CVE -> OP	5c	0.310	0.092	3.386	0.001*	Yes
AC -> ABCA	6a	0.399	0.109	3.662	0.000*	Yes
CV -> ABCA	6b	0.018	0.085	0.211	0.833	No
TG -> ABCA	6c	0.217	0.101	2.157	0.031**	Yes
AC -> ABMC	7a	0.372	0.084	4.425	0.000*	Yes
CV -> ABMC	7b	0.156	0.085	1.841	0.066***	Yes
TG -> ABMC	7c	0.129	0.083	1.560	0.119	No
AC -> TCI	8a	0.248	0.112	2.209	0.027**	Yes
CV -> TCI	8b	0.227	0.094	2.427	0.015**	Yes
TG -> TCI	8c	0.187	0.112	1.673	0.094***	Yes
AC -> LCCO	9a	0.083	0.138	0.602	0.547	No
CV -> LCCO	9b	0.375	0.103	3.650	0.000*	Yes
TG -> LCCO	9c	0.149	0.126	1.190	0.234	No

Note: * $p < 0.01$; ** $p < 0.05$; *** $p < 0.10$

Source: Researcher's SmartPLS Result, 2018

Mediation Analysis

Effect of Accurate Cost Information, Competitive Advantage and Customer Value

Enhancement on the Relationship Between Strategic cost Management Techniques and Organisational Performance

In determining the combined mediating effect of Accurate Cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE), four sub- hypotheses (Ho10a – 10d) were tested.

In testing the combined mediating effect of Accurate cost information, Competitive advantage and Customer value enhancement on the relationship between Strategic cost management practices (Activity based costing application, Activity based management capability, Target costing implementation and Life cycle costing orientation) and Organisational Performance, mediation analysis was first carried out. This analysis used the procedure of Hair *et al.* (2014) for testing mediation effect in PLS – SEM as this method is preferred in SEM to other methods. The procedure involved is as follows:

Firstly, determine the significance of the direct effect of Activity Based Costing Application (ABCA), Activity Based Management Capability (ABMC), Target Costing Implementation (TCI) and Life Cycle Costing Orientation (LCCO) on Organisational Performance (OP) without the inclusion of the mediating variables in the path model.

The above was achieved by excluding the mediating variables (Accurate Cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE)) from the path model, then, bootstrapping process, with 200 samples, were ran to generate the significance of the direct effect. The results of that process are shown in the Figure in Appendix IV b. The results show that Activity Based Costing Application (ABCA), Activity Based Management Capability (ABMC), Target Costing Implementation (TCI) and Life Cycle Costing Orientation (LCCO) all have direct significant effects on Organisational performance (OP) ($\beta = 0.312, p < 0.01$; $\beta = 0.244, p < 0.01$; $\beta = 0.148, p < 0.10$;

and $\beta = 0.151$, $p < 0.10$, respectively). Therefore, it can be inferred that, the inclusion of ACI, CA and CVE as mediating variables in the PLS – SEM model of the study are justified.

Secondly, determine the significance of the indirect effect of Activity Based Costing Application (ABCA), Activity Based Management Capability (ABMC), Target Costing Implementation (TCI) and Life Cycle Costing Orientation (LCCO) via the mediating variables (Accurate Cost Information, Competitive Advantage and Customer Value Enhancement).

The determination of the significance of indirect paths is necessary to verify that ACI, CA and CVE mediate the relationships between strategic cost management techniques and organisational performance. The SmartPLS 3.0 algorithm results as can be seen in Table 4.32 show that Activity Based Costing Application (ABCA) and Target Costing Implementation (TCI) do have a significance indirect effect on Organisational Performance (OP) via Accurate cost information, Competitive advantage and Customer value enhancement ($\beta = 0.135$, $p < 0.10$; $\beta = 0.114$, $p < 0.10$, respectively). By this result, it implies that Accurate cost information, Competitive advantage and Customer value enhancement absorbed some of the direct effect of Activity Based Costing Application (ABCA) and Target Costing Implementation (TCI). On the other hand, Activity Based Management Capability (ABMC) and Life Cycle Costing Orientation (LCCO) do not have significant indirect effects on Organisational Performance ($\beta = 0.018$, $p > 0.10$; $\beta = 0.079$, $p > 0.10$, respectively). This implies that Activity Based Management Capability (ABMC) and Life Cycle Costing Orientation (LCCO) relationships with Organisational performance cannot be mediated by Accurate cost information, Competitive advantage and Customer value enhancement.

Thirdly, determine how much of the direct effect, the indirect effect absorbed via the mediating variables (Accurate cost information, Competitive advantage and Customer value enhancement).

Once the significance of the indirect effect is established, the magnitude of the mediation can be measured using Variance Accounted For (VAF).

Variance Accounted For (VAF) = Indirect effect/ Total effect (Direct effect + Indirect effect).

Mediation is said to be partial when the Variance Accounted For (VAF) is from 0.20 to 0.8 threshold and full mediation achieved when VAF exceeds 0.80; but VAF smaller than the 0.20 threshold indicates no mediating effect (Hair, Hult, Ringle & Sarstedt, 2013; Wong, 2016).

From Table 4.33 it can be seen that Accurate Cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE) combined has a partial mediating effect on the relationship between Activity Based Costing Application (ABCA) and Organisational performance (OP) since it has a VAF of 0.43 which exceeds the threshold of 0.20. This result reveals that 44% of the effect of ABCA on Organisational performance is explained via Accurate Cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE). Accurate Cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE) combined also has a partial mediating effect on the relationship between Target Costing Implementation (TCI) and Organisational Performance (OP) with a VAF value of 0.77. This result also reveals that 77% of the effect of Target costing implementation on Organisational performance is explained via Accurate Cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE).

Also, from Tables 4.32 & 4.33, it is seen that the mediating variables combined have no mediating effect on the relationships between Activity Based Management Capability (ABMC) and Organisational performance; and between Life Cycle Costing Orientation (LCCO) and Organisational performance (OP). The implication of these results is that the mediating variables do not play any role in the relationship between Activity based management capability (ABMC) and Organisational Performance; and in the relationship between Life Cycle Costing Orientation (LCCO) and Organisational Performance.

Test of Mediation Hypotheses

Sub - Hypothesis 10: Accurate cost information, Competitive advantage and Customer value enhancement combined does not mediate on the relationships between Strategic cost management practices (Activity Based Costing Application (ABCA), Activity Based Management Capability (ABMC), Life Cycle Costing Orientation (LCCO) and Target Costing Implementation (TCI) and Organisational Performance (OP)).

Four sub- hypotheses flowed from the above and were tested here:

Sub-Hypothesis 10a: Accurate cost information, Competitive advantage and Customer value enhancement combined does not mediate on the relationship between Activity based costing application and Organisational performance.

With the results in Tables 4.32 & 4.33, Accurate Cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE) combined has a significant mediating effect on the relationship between Activity Based Costing Application (ABCA) and Organisational performance ($\beta = 0.135$, $p < 0.10$). By this result, the above hypothesis is not accepted. This implies that the mediating variables can enhance the impact of Activity Based Costing Application (ABCA) on Organisational performance.

Sub-Hypothesis 10b: Accurate cost information, Competitive advantage and Customer value enhancement combined does not mediate on the relationship between Activity based management capability (ABMC) and Organisational performance.

From the results in Tables 4.32 & 4.33, Accurate Cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE) combined has no significant mediating effect on the relationship between Activity Based Management Capability (ABMC) and Organisational performance ($\beta = 0.018$, $p > 0.10$). By this result, the above hypothesis is accepted. This implies that the mediating variables cannot enhance the impact of Activity Based Management Capability

(ABMC) on Organisational performance.

Sub-Hypothesis 10c: Accurate Cost Information, Competitive advantage and Customer Value

Enhancement combined does not mediate on the relationship between Life Cycle Costing Orientation (LCCO) and Organisational Performance (OP)

The results in Tables 4.32 & 4.33 show that Accurate (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE) combined has no significant mediating effect on the relationship between Life Cycle Costing Orientation (LCCO) and Organisational Performance (OP)

($\beta = 0.079$, $p > 0.10$). By this result, the above hypothesis is accepted. This implies that the mediating variables cannot enhance the impact of Life Cycle Costing Orientation (LCCO) on Organisational performance.

Sub-Hypothesis 10d: Accurate cost information, Competitive advantage and Customer value

enhancement combined does not mediate on the relationship between Target costing implementation (TCI) and Organisational performance.

From Tables 4.32 & 4.33, Accurate cost information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE) combined has significant partial mediating effect on the relationship between Target Costing Implementation (TCI) and Organisational Performance ($\beta = 0.114$, $p < 0.10$). By this result, the above hypothesis is not accepted. This result implies that the mediating variables can enhance the impact of Target Costing Implementation (TCI) on Organisational Performance.

Table 4.32: Indirect Effect with Significance Values

	Hypotheses	Coefficient (β)	Standard Deviation (STDEV)	T Statistics (β /STDEV)	P Values	Significant ?
Activity Based Costing App (ABCA) -> Organisational Performance (OP)	Sub - hypothesis 10a	0.135	0.070	1.924	0.054*	Yes
Activity Based Mgt Cap (ABMC) -> Organisational Performance (OP)	Sub - hypothesis 10b	0.018	0.046	0.390	0.696**	No
Life Cycle Costing Orient (LCCO -> Organisational Performance (OP)	Sub - hypothesis 10c	0.079	0.050	1.560	0.119**	No
Target Costing Implem (TCI) -> Organisational Performance (OP)	Sub - hypothesis 10d	0.114	0.059	1.947	0.052*	Yes

Source: Researcher's SmartPLS Result, 2018

Notes: * Significant ($p < 0.10$)

** Not significant ($p > 0.10$)

Table 4.33: Mediation Analysis

Relationship Variable	Direct Effect	Indirect Effect	Total Effects	VAF (Indirect effect/ Total effect)	Mediating Effect
Activity Based Costing App (ABCA) -> Organisational Performance (OP)	0.173	0.135	0.308	0.44	Partial
Activity Based Mgt Capability (ABMC) -> Organisational Performance (OP)	0.230	0.018	0.246	-	No mediation
Life Cycle Costing Orient (LCCO -> Organisational Performance (OP)	0.069	0.079	0.148	-	No mediation
Target Costing Implementation (TCI) -> Organisational Performance (OP)	0.035	0.114	0.149	0.77	Partial

Source: Researcher's Computation Result, 2018

4. 6. Discussion of the Findings

The discussion of the findings of this study is guided by the research questions raised in this study.

Research question one (1): What is the extent of implementation of strategic cost management techniques in the sampled firms?

This question sought to find out the extent of usage of activity based costing, activity based management, target costing and life cycle costing as strategic cost management techniques in the sampled manufacturing firms. Based on the analysis of the extent of implementation of strategic cost management techniques in the sampled firms, it is evident that the four strategic cost management techniques examined - Activity based costing, activity based management, target costing, and life cycle costing were being implemented. The finding shows that ABC was the most implemented strategic cost management technique in the sampled manufacturing companies. This result is consistent with the study of Ramljak and Rogosic (2012), who observed that activity based costing was the mostly used strategic management accounting technique in Croatian manufacturing companies. The finding is also consistent with the findings of Imeokparia (2013), which found that ABC was mostly used by quoted manufacturing companies in South Western Nigeria.

Also, arising from the analysis of the extent of implementation of strategic cost management techniques in the samples firms, activity based management was the next technique being implemented by the sampled companies. This result shows that, to a moderate extent, activity based management was being practiced in the Nigerian manufacturing companies. This technique is an extension of activity based costing and it focused on the management of the firms' production activities to achieve effective cost management and reduction (Cinquini & Tennuci, 2010).

The implementation of target costing from the finding of this study was the next strategic cost management technique in terms of usage as it also had a moderate implementation. The finding shows that the Nigerian quoted manufacturing companies are implemented target costing even though at a moderate extent, This study provides support to the findings of Yazdifar and Askavany (2011), who

reported that target costing was prevalent among the manufacturing and service firms. It also supports the study of Imeokparia and Olabisi (2014) that reported the extent of usage of target costing and its impact on performance of the manufacturing companies in South Western Nigeria.

Life cycle costing was the least technique of strategic cost management implemented in the sampled companies. The finding, which indicates a moderate extent of implementation, is in line with the study of Gliubicas and Kanapickiene (2015), which reported some level of implementation of life cycle costing in the Lithuanian manufacturing companies. It is also in line with the work of Alsoboa, Al-Ghazzani and Joudeh (2015) that reported the extent of implementation of life cycle costing in the listed Jordanian manufacturing companies.

Research question two (2): How do strategic cost management practices influence Accurate cost information (ACI), Competitive advantage (CA) and Customer value enhancement (CVE)?

This question was meant to determine how each of the four constructs - Activity Based Costing Application (ABCA), Activity Based Management Capability (ABMC), Target Costing Implementation (TCI), and Life Cycle Costing Orientation (LCCO) influence Accurate cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE).

Activity based costing application, Activity based management capability, Target costing Implementation, and Life cycle costing orientation are used as proxies for the four strategic cost management practices - Activity based costing, Activity based management, Target costing and Life cycle costing respectively.

For research question two to be adequately addressed, hypothesis one (H_{01}) formulated was broken down into twelve (12) sub-hypotheses under four (4) classes and these have been tested in this study. The results of the testing of these hypotheses are discussed hereafter.

Activity Based Costing Application (ABCA) and Accurate Cost Information (ACI)

From the testing of sub- hypothesis (H_0)1a it was rejected and it can therefore be said that activity based costing application significantly influence accurate cost information positively. This finding implies that the effective practice of activity based costing in a manufacturing company can enhance the generation of accurate cost information for strategic decision making. Strategic cost management thus enable a firm to be able to produce both financial and non-financial cost information about a product or service, which can be relevant for cost control and management decision making. This finding is consistent with that of Ramljak and Rogošić (2012), who found that the fundamental purpose of strategic management accounting (strategic cost management) was the provision of broad scope of relevant and timely information. It also supports Imeokparia (2014) study who reported that activity based costing system generate more accurate product cost information than the traditional costing systems. The finding further confirms the study of Noordin *et al.* (2015) which found that accurate product related information, competitor information and customer accounting information were generated from strategic cost management system.

Activity based management capability (ABMC) And Accurate cost information (ACI)

From the result of the testing of sub- hypothesis (H_0)1b, it can be concluded that activity based management capability has a positive significant influence on accurate cost information. This attests to the fact that activity based management practice can enhance accurate cost information generation in a firm, especially, through activities and cost drivers analyses. This finding supports the study of Gupta and Gallaway (2003), who found that activity based management system could enhance both financial and non – financial cost information that are designed to influence the behaviour of cost management. With the implementation of activity based management, undistorted information is reported to the management for making informed decisions.

Target Costing Implementation (TCI) and Accurate Cost Information (ACI)

Sub - hypothesis (H₀)_{1c} was not accepted after testing it thereby implying that target costing implementation significantly influenced accurate cost information. The result of the analysis also shows that there is a positive relationship between target costing implementation and accurate cost information. This finding implies that the usage of target costing can enable a firm generate undistorted financial and non - financial cost information for effective cost management decisions. The outcome of this study is consistent with the study of Mehdi, Vahid and Mohammadreza (2012), who argued that target costing generates accurate information for value – based pricing decisions.

Life Cycle Costing Orientation (LCCO) and Accurate Cost Information (ACI).

The result of the testing of Sub- hypothesis (H₀)_{1d} shows that there is a positive relationship between life cycle costing orientation and accurate cost information but not significant. Hence, the study found that life cycle costing orientation does not significantly influence accurate cost information. This study thus shows that the implementation of life cycle costing, as a technique of strategic cost management, cannot lead to the generation of accurate cost information in a firm. This can be as a result of the fact that accurate cost information generation may not be the primary focus of life - cycle costing as it mainly focuses on the effective management of costs of a product throughout its life cycle stages. Besides, the extent of implementation of life cycle costing in the sampled companies was the least and so this could account for this result.

Activity Based Costing Application (ABCA) And Competitive Advantage (CA)

The testing of sub- hypothesis (H₀)_{2a} shows that Activity Based Costing Application (ABCA) has a significant positive influence on Competitive Advantage (CA). It implies that the more Activity Based Costing (ABC) is practiced the more the sampled firms gain competitive advantage. This shows that when a firm is able to determine the true cost of products being manufactured, it can have its production costs reduced, which can result in cost advantage and then to competitive advantage. This finding is consistent with the study of El - Dyasty (2007), who established that ABC technique

ensures the competitiveness of a company. This view also agrees with Cagwin and Bonman (2002), Kennedy and Affleck – Graves (2001), and Blocher *et al.* (2001), who found that ABC implementation provided information for activity management in achieving competitive advantage.

Activity Based Management Capability (ABCA) and Competitive Advantage (CA)

Based on the result of the testing of sub- hypothesis (H_0) 2b, it means that, even though Activity Based Management Capability (ABMC) has a positive impact on Competitive advantage, it is not significant. Hence, the implementation of Activity Based Management (ABM) in the sampled companies does not significantly impact on their competitive advantage position. This is not supposed to be so as the effective management of a company's activities could lead to cost reduction and could translate to the achievement of cost advantage, thus, resulting in competitive position. The finding of this study is not consistent with the study of Hooshang (2004), who reported that activity based cost management provided managers with strategic view of the activities that were essential to the competitive nature of the enterprise. It is also at variance with the finding of Blocher *et al.* (2001), who found that ABM application improved the competitive position of a firm. This present finding could be as a result of lack of effective implementation of activity based management, and where this technique is not effectively used, good results may not be realised.

Target Costing Implementation (TCI) and Competitive Advantage (CA)

The result of the testing of sub-hypothesis (H_0) 2c is that Target Costing Implementation (TCI) does not significantly influence competitive advantage. The import of this is that the implementation of target costing in the sampled companies did not lead to improvement in the competitive position of the firms. This finding disagrees with that of El –Dyasty (2007), who reported that target costing could enhance the ability of a company to be able to survive and compete successfully. This view was also held by Guilding, Craves and Tayles (2000), who claimed that target costing, as a contemporary cost management technique can be used in achieving competitive advantage. The finding of this current study could be the result of the sampled firms not using target costing to secure competitive position.

Life Cycle Costing Orientation (LCCO) and Competitive Advantage (CA)

The testing of sub- hypothesis (H_0) 2d shows that, Life Cycle Costing Orientation (LCCO) significantly influenced Competitive Advantage (CA) in the sampled companies. This implies that the application of life cycle costing in the sampled manufacturing companies impacted significantly on the competitive positions of the firms. This finding is consistent with that of Petrova and Zarunev (2013), who reported that a successful implementation of Life Cycle Costing (LCC) provided a competitive advantage for the company. It is also in line with the finding of Ilic, Milicevic and Cvetkovic (2010), who reported in their study that LCC helped to realize strategic goals related to the achievement of company's competitiveness. This view was also held by Bengu and Kara (2010) who argued that competitive advantages could be gained from managing the cost of today and future, which is the focus of LCC.

Activity Based Costing Application (ABCA) And Customer Value Enhancement (CVE)

The result of testing of sub- hypothesis (H_0)3a is that, Activity based costing application (ABCA) significantly influenced Customer Value Enhancement (CVE) positively. This implies that the implementation of activity based costing in the sampled companies led to customer value enhancement. One of the goals of strategic cost management is to enhance the value received by customers so that the firm can continue to make profit. It is only when customers have value for their money that they continue to patronise the company's product. This finding is consistent with the study of El - Dyasty (2007), who reported that ABC technique implementation ensured customer value enhancement which could translate to increase in firm's performance.

Activity Based Management Capability (ABMC) and Customer Value Enhancement (CVE)

The testing of sub- hypothesis (H₀) 3b defined the relationship between the above variables and from the result, it was concluded that activity Based Management Capability (ABMC) though positively relates to Customer Value Enhancement (CVE) but has no significant impact on the latter. Hence, the implementation of Activity Based Management (ABM) technique in the sampled companies did not lead to customer value enhancement. This finding is not consistent with the study of Blocher *et al.* (2001), who found that ABM application can improve value for customers and profit for the company. It is also at variance with Hooshang (2004), who reported that ABM application could enhance customer's value through value chain analysis. The finding of this present study could be as a result of the manner in which activity based management was implemented in the sampled companies. The technique implemented might not focus on customer value, hence the right result might not be achieved.

Target Costing Implementation (TCI) and Customer Value Enhancement (CVE)

In determining the influence of Target Costing Implementation (TCI) on Customer Value Enhancement, sub-hypothesis (H₀) 3c was tested and the result is that Target Costing Implementation (TCI) in the sampled firms significantly influenced Customer value enhancement. The import of this result is that the usage of target costing in the sampled firms positively enhanced customer value. Target costing, being a market- based oriented technique, has as its focus the satisfaction of customers. That is why this technique of strategic cost management is able to enhance customer value. The finding of this study is in line with the view of Huang, Lai, Kao and Chen (2012), who reported that target costing implementation secured product quality and achievement of cost advantage. It is also consistent with the finding of El –Dyasty (2007), who argued that target costing application could lead to customer value enhancement. This view was also supported by Guilding, Cravenes and Tayles (2000) who considered target costing as a contemporary cost management for achieving customer value enhancement.

Life Cycle Costing Orientation (LCCO) influence Customer Value Enhancement (CVE)

The testing of sub - hypothesis (H_0) 3d results in the conclusion that, Life Cycle Costing Orientation (LCCO) significantly influenced Customer Value Enhancement (CVE) in the sampled firms. Thus, the implementation of Life Cycle Costing (LCC) in the sampled firms do positively influence Customer value enhancement (CVE). The effective management of product cost and quality throughout its life span could lead to cost reduction and enhancement of customer value. This finding supports Petrova and Zarudnev (2013), who found that a successful implementation of LCC provided customer value enhancement. The finding is also consistent with Ilic, Milicevic, Cvetkovic (2010) and Bengu and Kara (2010), who found that life cycle costing application enhanced customer value.

Research Question Three: What is the Direct Impact of Strategic Cost Management Techniques on Organisational Performance (OP) of the Sampled Firms

This research question was meant to determine the direct impact of each of the strategic cost management techniques - activity based costing, activity based management, target costing and life cycle costing on organisational performance of the studied firms. These techniques are proxied by Activity Based Costing Application (ABCA), Activity Based Management Capability (ABMC), Target Costing Implementation (TCI) and Life Cycle Costing Orientation (LCCO), respectively.

To adequately addressed research question three, hypothesis two (H_{02}) formulated was broken down into four (4) sub- hypotheses as: sub –hypotheses 4a, 4b, 4c and 4d and these have been tested in this study. The results of the testing of these sub-hypotheses are discussed hereafter.

Activity Based Costing Application (ABCA) and Organisational Performance (OP)

In determining the impact of Activity Based Costing Application (ABCA) on Organizational Performance (OP) of the sampled firms, sub- hypothesis (H_0) 4a was tested and the result is that Activity Based Costing Application (ABCA) significantly impacted on Organizational Performance (OP). The result also shows a positive relationship between the two variables. This result implies that

the successful implementation of activity based costing (ABC) in the sampled firm has led to improvement in organisational performance in terms of return on investment, profit, sales volume, cost reduction, customer satisfaction, product quality and market share. This finding supports the findings of various studies conducted on the relationship between ABC and firm performance. Some of those studies include: Imeokparia (2013), who reported that manufacturing companies that adopted ABC had increase in their profitability measured by return on capital and cost reduction; Alsoboa *et al.* (2015), who found a statistically significant positive effect of ABC implementation on overall performance of manufacturing firms studied; Elhamma and Yifei (2013), who indicated in their study that ABC implementation influences performance of the enterprise; Abdulla and Tareq (2013), who indicated a positive relationship between ABC application and telecom companies financial performance in their study; Rattaphaphthan and Ussahawanitchakit (2010), that showed in their study that ABC effectiveness had a direct significant and positive relationship with firm's financial performance; and Al-Kehadash and Nassar (2010), who found a positive association between ABC implementation and return on investment. This present study is also consistent with the findings of Zaman (2009); El- Dyasty (2007); Pizzani (2006); and Alsaeed (2005), who all found that ABC technique enhanced firm's profitability. The finding of this present study is however at variance with the finding of Mijoc, Starcevic and Mijoc (2014) who found no significant impact of ABC implementation on financial performance of the companies studied. This is one of the few studies that is not in agreement with this current study.

Activity Based Management Capability (ABMC) and Organisational Performance (OP)

To determine the impact of Activity Based Management Capability (ABMC) on Organisational Performance (OP) of the sampled firms, sub-hypothesis (H_0) 4b was tested. The result is that Activity Based Management Capability (ABMC) has a significant positive impact on Organisational Performance (OP). Thus, it can be said that Activity Based Management (ABM) practice in the sampled firms enhances organisational performance. With the effective implementation of ABM

through cost drivers analysis, activity analysis and activities management, firm's costs can be reduced and this could translate to improvement in profits. The finding of this study is consistent with Hooshang's (2004) proposition that activity based cost management is a powerful tool for achieving continuous improvement, competitive advantage and profitability. It is also in agreement with the outcome of Tekavcic and Peljhan (2003), who reported in their study, that on average, companies which implemented ABM perform better than those companies which fail to do so. This present result also supports the finding of Blocher, Chen and Lin (2002) that found ABM application to have improved the profitability position of companies.

Target Costing Implementation (TCI) and Organizational Performance (OP)

To determine the relationship between the above two variables, sub- hypothesis (Ho) 4c was tested. The result is that Target Costing Implementation (TCI) did not directly significantly impact on the Organisational Performance (OP) of the sampled companies though positive relationship exist between the two variables. This implies that the implementation of Target Costing (TC) technique in the sampled firms did not directly enhance the performance of the firms. According to the literature, it is expected that the effective implementation of target costing technique should lead to cost reduction and improvement in performance. This finding agrees with that of Mijoc, Starcevic and Mijoc (2014), which found that the application of target costing does not improve financial performance. This is however one of the few studies reporting insignificant impact of TC on performance. The finding of this current study is inconsistent with the outcome of the study of Alsoboa *et al* (2015), who found a statistically significant positive effect of TC implementation on the overall performance, financial performance and market performance of the sampled companies. This present finding also contradicts earlier studies such as Imeokparia and Adebisi (2014), who found a strong positive impact of TC adoption on return on investment and cost reduction; Terdpaopong and Visedsun (2014) who found quality improvement and cost reduction as a result of implementation of target costing; Kaneko *et al* (2013) who reported that strategic target costing practice has a strong significant impact on

organizational goals achievement; Huang, Lai, Kao and Chen (2012), who reported that target costing implementation positively influence business model innovations and firm performance; and Rattray, Lord and Shanahan (2007) who found that higher achievement of TC is associated with higher firm performance. The reason this present finding is not consistent with majority of the studies on impact of target costing on performance could be that the implementation of this technique in the sampled companies was not in accordance with the fundamental principles of the application of TC such as: management support, employees involvement in the implementation of the technique, commitment to improving products and processes and customer satisfaction. Target costing, being a multi-tasking activity, also requires cross – functional understanding for its successful implementation. And so, where target costing is not properly implemented, the envisaged benefits in terms of improved performance may not be realised.

Life Cycle Costing Orientation (LCCO) and Organizational Performance (OP)

Sub-hypothesis (H₀) 4d was tested to determine the relationship between the above two variables and the result is that Life Cycle Costing Orientation (LCCO) did not significantly influence Organisational Performance (OP) of the sampled companies though it showed a positive relationship between the two variables. The implication of this result is that Life Cycle Costing (LCC) implementation in the sampled firms does not lead to improvement in their performance. This finding is not expected as life cycle costing which deals with the determination and management of cost at each stage of a product life cycle ought to lead to cost reduction and ultimately to performance improvement. The problem can be lack of effective implementation of this strategic cost management technique. The outcome of this study is however in line with the finding of Alsoboa *et al* (2015) that life cycle costing does not have a statistically significant impact on the performance of the sampled firms. The finding of this study is however at variance with the study of Petrova and Zarudnev (2013), who reported that a successful implementation of LCC leads to improvement in firm's profitability. Ilic *et al.* (2010) also noted in their study that LCC helps companies realise strategic goals related to the achievement of the

company's competitiveness and profitability. This present finding is also at variance with that Bengu and Kara (2010) who argued that the management of product costs throughout its life time which implies the management of today and future cost of a product can deliver cost reduction and profitability.

Research Question Four (4): How do Accurate Cost Information (ACI), Competitive Advantage (CA), and Customer Value Enhancement (CVE) influence Organisational Performance (OP) of the sampled Firms ?

For research question four to be adequately answered, hypothesis three (H_{O3}) formulated was broken down into three sub- hypotheses as: sub- hypotheses 5a, 5b and 5c. The results of the testing of these sub- hypotheses are discussed below:

Accurate Cost Information (ACI) and Organisational Performance (OP)

Sub-hypothesis 5a was tested to determine the relationship between the above two variables, and it can be said that Accurate Cost Information (ACI) had no significant influence on the performance of the sampled firms. The import of this is that accurate cost information generated from strategic cost management systems in the sampled firms does not lead to enhancement of the firms' organisational performance. This should not be so as it is expected that the use of accurate cost information can help a firm in taking effective cost management decisions that can result in cost advantage or cost reduction, which may lead to improvement in profits. As a matter of fact, a firm that operates without good quality cost information operates in darkness. This finding is not consistent with the study of Buaphaun and Ussahawanitchakit (2009), which reported that accurate cost information has a significant positive impact on firm performance. It also contradicts the study of Kennedy and Affleck-Granes (2011) which found that accurate cost information of activity based costing can be valuable for making decisions that will enhance the profitability and the market value of the firm.

Competitive Advantage (CA) and Organisational Performance (OP)

The result of testing of sub-hypothesis 5b is that competitive advantage had no significant impact on the organisational performance of the sampled firms. This implies that competitive advantage in the sampled firms does not enhance their performance. This is rather surprising as competitive advantage gained by a firm over its competitors ought to enhance its financial performance. This finding is not in line with the resource based view which holds that a firm's performance is a result of the firm's specific resources, and its capabilities that lead to competitive advantage and which results in enhanced performance (Barney, 1991). This present finding does not support the studies of by Kaneko, *et al.* (2013) and Rattanaphaphthan *et al.* (2010) who found that increased competitive advantages resulting from firms' resources and their capabilities have positive impact on the firms' performance. The finding of this current study is also at variance with the study of Petrova and Zarudnev (2013), which reported that competitive advantage derived from the implementation of strategic cost management techniques can lead to enhanced performance. This present finding also contradicts Majeed (2011), who found that competitive advantages leads a company towards attaining high performance; and Bengu and Kara (2010) which found that achieving competitive advantage can result in enhanced profitability. The reason why the finding of this present study is at variance with the previous studies could be the way the sampled firms managed their competitive positions, and if not properly managed, the expected performance enhancement might not be achieved. Attaining success may be easy but managing it can be a problem which can lead to a loss of benefits that may come with it.

Customer Value Enhancement (CVE) and Organisational Performance (OP)

In testing sub-hypothesis 5c, the result is that Customer Value Enhancement (CVE) had a positive significant influence on Organisational Performance (OP) of the sampled firms. This result implies that the implementation of strategic cost management techniques by the sampled firms to achieve customer value enhancement has led to the improvement in firms performance. This finding is

expected as it is the only firms that satisfy their customers in terms of good price, product quality and efficient customer service delivery that can survive and remain profitable in this contemporary business environment that are characterised with intensive competition, customers' changing requirements and shortening product life cycle. Customer value enhancement is a strategic weapon for attracting and retaining customers for profitability. This finding supports the study of Juhmani (2010), which found that target costing as a technique of strategic cost management can enhance customer value and which can translate to firm's performance improvement. This finding is also in line with that of Bengu and Kara (2010); and Ilic *et al.* (2010). The finding of this current study is also consistent with the finding of El- Dyasty (2007), who reported that target costing can enhance customer value creation and which will further lead to improvement in firm's performance.

Research Question Five: How do Accountant Competency (AC), Technology Growth (TG) and Competitive Volatility (CV) affect the Implementation of Strategic Cost Management techniques?

Research question five was meant to determine the effect of these contingency and resource based view factors - accountant competency, technology growth and competitive volatility on the implementation of activity based costing, activity based management, target costing and life cycle costing techniques. To adequately answer this research question, hypothesis four (H_{O4}) was formulated and it is broken down into twelve (12) sub – hypotheses as: sub-hypotheses 6a, 6b, 6c; 7a, 7b, 7c; 8a, 8b, 8c; 9a, 9b and 9c. The results of the testing of these sub- hypotheses are discussed below:

Accountant competency (AC) and Activity based costing application (ABCA)

In relating Accountant competency (AC) to Activity based Costing Application (ABCA) sub - hypothesis 6a was tested and the result is that Accountant Competency (AC) has a significant positive effect on Activity based costing application (ABCA). This result suggests that the competency of the accountants is very relevant for the implementation of activity based costing (ABC) technique in the sampled firms. Without the management/ cost/ financial accountants being proficient in strategic cost

management techniques, ABC implementation will not be effective. This finding supports that of Chaikambang (2016), who reported that accountant competency has a significant positive effect on strategic cost management implementation is also supported by this current study. This present finding is also consistent with that of Chaikambang *et al.* (2012), who reported that accountant competency readiness has a positive significant effect on cost allocation effectiveness evaluation (ABC). This current study is also in line with the finding of Rattanaphaphtham and Ussahawanitchakit (2010) who reported that cost accountant competency has a direct positive influence on ABC effectiveness.

Competitive Volatility (CV) and Activity Based Costing Application (ABCA)

The result of testing sub - hypothesis 6b is that Competitive Volatility (CV) has no significant effect on Activity Based Costing Application (ABCA). This implies that competitive volatility as a contingent factor does not determine the level of implementation of Activity Based Costing (ABC) in the sampled firms. This finding is not expected as intensive competition in the business environment ought to compel firms to look for better ways of doing things in order to remain competitive. Strategic cost management technique such as ABC is a better method of determining accurate product cost information. The finding of this study is not consistent with the contingency theory which holds that environmental factor such as competitive volatility shapes the extent of implementation of management accounting control system and ABC is part of this system. This finding, however, supports that of Fei and Isa (2010), who found no significant relationship between ABC implementation and competition. It also supports the finding of Brierley (2008) that reported insignificant influence of competition on ABC implementation. The present finding is at variance with the results of Akinyomi (2014), who reported that competition influence the implementation of ABC in Nigerian manufacturing companies; Fadzi and Rababa (2012) that reported a positive and significant relationship between ABC implementation and competition; Chaikambang *et al.* (2012), who found that competitive volatility has a positive significant effect on the dimension of strategic cost management such as cost allocation effectiveness evaluation; and Ax, Greve & Nillsson (2008),

that found that the adoption of strategic cost management technique and the intensity of competition positively relates.

Technology Growth (TG) and Activity Based Costing Application (ABCA)

The result of testing sub - hypothesis 6c is that Technology Growth (TG) has a significant positive impact on Activity based costing application (ABCA). This evidence indicates that technology improvement influences the implementation of activity based costing in the sampled firms. Hence, improvement in technology in production and modern information processing technology will lead to effective implementation of ABC. This finding is consistent the contingency theory which holds that internal environmental factor such as technology improvement in a firm can determine the extent of implementation of management accounting control system. This finding is also in line with the studies of Kariuki and Kamau (2016), which found that contingent factor of advanced manufacturing technology significantly influences the adoption of strategic cost management techniques among manufacturing firms in Kenya; Ahmad and Zabri (2015), which found that technology is relevant for the implementation of strategic management accounting techniques; Ajibolade (2013) who reported a strong correlation between technology and management accounting system implementation; and Chai-Amonphaisal and Ussahawanitchakit (2010), who noted that advanced manufacturing technology capability positively relates with the implementation of strategic management accounting (Strategic cost management).

Accountant Competency (AC) and Activity Based Management Capability

The result of testing sub –hypothesis 7a is that Accountant Competency (AC) has a positive significant effect on Activity Based Management Capability (ABMC). This implies that accountant competency is crucial for the implementation of Activity Based Management (ABM) technique in the sampled firms. For an effective implementation of ABM the cost/management / financial accountants must have the requisite skills and knowledge to do that. This finding supports the study of Chaikambang (2016), who reported that accountant competency has a significant positive effect on strategic cost

management implementation. It is also consistent with the finding of Rattanaphaphtham and Ussahawanitchakit (2010), who reported that cost accountant competency has a direct positive influence on ABC/ABM effectiveness.

Competitive Volatility (CV) and Activity Based Management Capability (ABMC)

The result of testing sub –hypothesis 7b is that Competitive Volatility (CV) has a positive significant effect on Activity Based Management Capability (ABMC). This shows that competitive volatility determines the implementation of Activity Based Management (ABM) in the sampled firms. ABM as a technique of strategic cost management is also a ‘child’ of necessity occasioned by the intensive competition in the business environment of today. This finding is consistent with the contingency theory of management accounting. This evidence also supports the finding of Gliubicas and Kanapickiene (2015) study that found that competition intensity has a strong impact on the implementation of strategic cost management techniques, especially, on activity –based costing/ABM. It also supports the finding of Chaikambang *et al.* (2012), which showed that competitive volatility has a positive significant effect on strategic cost management techniques implementation.

Technology Growth (TG) and Activity Based Management Capability (ABMC)

On the effect of technology growth, the test result of sub –hypothesis 7c indicates that Technology Growth (TG) has no significant effect on Activity Based Management Capability (ABMC). This shows that the level of technological growth does not determine the extent of implementation of activity based management technique in the sampled firms. This may not be right as high information technology is required for effective cost drivers and activity analyses. However, this finding was also reported by Chaikambang *et al.* (2012), who found that technology learning capability has no effect on all dimensions of strategic cost management examined.

Accountant Competency (AC) and Target costing implementation (TCI)

In respect of the testing of sub-hypothesis 8a, Accountant Competency (AC) has a positive significant effect on Target Costing Implementation (ACI) in the sampled firms. This result shows that the possession of an appropriate skill and knowledge by the accountant is essential for the implementation of target costing as a technique of strategic cost management. This finding again is consistent with the study of Chaikambang *et al* (2016) that found accountant competency as a significant determinant of the extent of the implementation of strategic cost management practices. It also supports the finding of Rattanaphaphtham and Ussahawanitchakit (2010), who reported that cost accountant competency has a direct positive influence on implementation of strategic cost management techniques.

Competitive Volatility (CV) and Target costing implementation (TCI)

The result of the testing of sub - hypothesis 8b indicates that Competitive Volatility (CV) has a positive significant effect on Target Costing Implementation (ACI) in the sampled firms. The result really shows that the competitive environment in which a firm exists determines the extent of implementation of target costing technique. The introduction of target costing is a product of intensive competition and it is a strong competitive weapon for achieving competitive advantage. This finding supports the outcome of Gliubicas and Kandpickiene (2015) that found competition intensity as a strong determinant of the implementation of target costing as a strategic cost management practice. The finding is also consistent with the study of Ax *et al.* (2008), which argued that target costing adoption positively correlates with the intensity of competition. This current study also agrees with Helms, Ettkin, Baxter, and Gordon (2003), who have noted in their study that target costing can best be implemented in circumstances of intense competition. This current evidence also supports Hibbets, Albright, & Funk (2003) finding that the presence of a strong competitive force leads to the implementation of target costing.

Technology growth (TG) and Target costing implementation (TCI)

To determine the effect of Technology Growth (TG) sub – hypothesis 8c was tested and the result is that Technology growth (TG) has a positive significant effect on Target costing implementation (TCI) in the sampled firms. This result means that the level of technology, whether in production or information processing, determines the extent of implementation of target costing in manufacturing firms. Target costing being a strategic cost management technique requires high technology for its implementation. This finding is in agreement with the contingency theory of management accounting. This finding is also in line with the study of Kariuki and Kamau (2016), who reported that advanced manufacturing technology significantly influences the adoption of strategic management accounting (strategic cost management) among manufacturing firms. It also supports the finding of Waweru *et al.* (2004) which found a positive impact of technology advances on the extent of change in management accounting practices. It is also consistent with the study of Haldma and Laats (2002) that found some evidence that changes in cost and management accounting practices are associated with changes in technology level in the firms studied. Hibbets *et al.* (2003) has also found that target costing is best implemented in high technology environment and that it is a critical factor for its successful usage. Technology is also found to be a factor that drives the implementation of target costing (Ellram and Zsidisin, 2002).

Accountant Competency and Life Cycle Costing Orientation

The result of the testing of sub – hypothesis 9a was indicates that Accountant Competency (AC) has no significant effect on Life Cycle Costing Orientation (LCCO). This implies that accountant's appropriate skills and knowledge are not a determinant of the level of implementation of life cycle costing. This may not be so as the accountant's knowledge in strategic cost management is relevant for the implementation of any of its techniques. This finding contradicts the study of Chaikambang *et al* (2016) that found accountant competency as a significant determinant of the extent of implementation of strategic cost management practices. It is also not in agreement with the finding of

Rattanaphatham and Ussahawanitchakit (2010), who reported that cost accountant competency has a direct positive influence on the implementation of strategic cost management techniques such as life cycle costing.

Competitive Volatility (CV) and Life Cycle Costing Orientation (LCCO).

The result of sub – hypothesis 9b testing is that, Competitive Volatility (CV) has a positive significant effect on Life Cycle Costing Orientation (LCCO). This means that competitive volatility determines the extent of implementation of life cycle costing (LCC) technique. LCC is also a product of the intensive competition in the business environment of today and it is a veritable tool for achieving competitive advantage. This finding supports the study of Gliubicas and Kandpickiene (2015), who has noted that competition intensity has a strong impact on the implementation of strategic cost management techniques. It also supports Chaikambang *et al.* (2012) finding that competitive volatility has a positive significant effect on strategic cost management. The finding is also consistent with the study of Al - Omiri and Drury (2007) that found a positive relationship between intensity of market competition and the employment of sophisticated management control. It is also in agreement with the finding of Abdel – Maksound *et al.* (2005), who reported that intensive competition affects the implementation of modern costing techniques.

Technology Growth (TG) and Life Cycle Costing Orientation (LCCO)

The testing of sub –hypothesis 9c shows that Technology Growth (TG) has no significant effect on Life Cycle Costing Orientation (LCCO). This implies that technology is found not to influence the level of implementation of life cycle costing technique. This result is not expected as technology is quite relevant for the implementation of LCC. This finding contradicts the contingency theory of management accounting. This finding is also not consistent with the study of Chai-Amonphaisal and Ussahawanitchakit (2010), which found that advanced manufacturing technology positively influence strategic management accounting implementation. The finding is also not in agreement with the result of Abdel – Maksound *et al.* (2005), which suggests that technology can be an important factor that

affects the use of management accounting practices in firms. The reason why this current study is at variance with some previous studies can be as a result of the sampled firms not having appropriate technology for the implementation of LCC.

Research Question Six: What is the mediating effects of Accurate Cost Information, Competitive Advantage and Customer Value Enhancement Combined on the Relationships between Strategic Cost Management Practices and Organisational Performance?

The above research question is meant to determine the mediating role of the combination of accurate cost information, competitive advantage and customer value enhancement on the relationships between strategic cost management practices (activity based costing application, activity based management capability, target costing implementation and life cycle costing orientation) and organisational performance.

To address the above research question hypothesis five (H_{05}) was formulated and broken into four (4) sub- hypotheses as: sub-hypotheses 10a, 10b, 10c and 10d. The results of testing these hypotheses are discussed hereunder:

Mediation of Accurate Cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE) on the relationships between Activity Based Costing Application (ABCA) and Organisational Performance (OP)

To determine the mediating role of accurate cost information, competitive advantage and customer value enhancement, sub-hypothesis 10a was tested, and the result is that Accurate Cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE), combined, has a significant mediating effect on the relationship between Activity Based Costing Application (ABCA) and Organisational Performance (OP). The mediating effect, even though, partial is statistically significant. This result implies that Activity Based Costing (ABC) has a positive indirect significant effect on organisational performance and this is facilitated by accurate cost information, competitive

advantage and customer value enhancement. The import of this result is that, when a firm implements ABC and concentrates efforts on achieving accurate cost information, competitive advantage and customer value enhancement, its performance will improve. This finding is consistent with the study of Rattaphaphthan and Ussahawanitchakit (2010), which found that where ABC may not have a direct effect on organisational performance it can have an indirect effect through the intervening variables that mediate the relationship between ABC and firm performance. This finding also agree with the studies of Banker *et al.* (2008), who found that ABC practice has an indirect positive impact on performance; Itner *et al.* (2002) also found that ABC indirectly affects manufacturing cost reduction.

Mediation of Accurate Cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE) on the relationship between Activity based management capability (ABMC) and Organisational Performance (OP)

In determining the mediating role of Accurate Cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement, sub-hypothesis 10b was tested, and the result is that Accurate Cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE), combined, has no significant mediating effect on the relationship between Activity Based Management Capability (ABMC) and Organisational performance (OP). This implies that the mediating variables do not play any important role in the relationship between activity based management (ABM) and organizational performance. This finding is contrary to the study of Rattaphaphthan and Ussahawanitchakit (2010); and that of Itner *et al.* (2002) who found that ABC indirectly affect manufacturing cost reduction (performance). The inappropriate implementation of ABM in the sampled firms may account for this current result.

Mediation of Accurate Cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE) on the relationship between Target Costing Implementation (TCI) and Organisational Performance (OP)

To determine the mediating role of accurate cost information, competitive advantage and customer value enhancement, sub-hypothesis 10c was tested and the result is that Accurate Cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE), combined, has a significant mediating effect on the relationship between Target Costing Implementation (TCI) and Organisational Performance (OP). The mediating effect, even though, partial is statistically significant. This result means that the mediating variables (accurate cost information, competitive advantage and customer value enhancement) play an important role in facilitating the relationship between Target Costing (TC) implementation and organisational performance. Thus target costing technique has a positive significant indirect impact on organisational performance. This finding is consistent with the study of Huang (2012), who found that target costing implementation in manufacturing companies has indirect impact on firm performance through intervening variables. The finding is also in agreement with Baines and Langfield –Smith (2003), who found that the implementation of management accounting systems had an indirect impact on firm performance thus suggesting that other organisational factors can mediate the relationship.

The role of the mediating variables- Accurate Cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE) in the structural model can further be appreciated when it is observed that the R^2 of organisational performance (OP) is higher in the model when the mediating variables are included (see Figure 4.2 and Appendix II).

Mediation of Accurate Cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE) on the relationship between Life Cycle Costing Orientation (LCCO) and Organisational Performance (OP)

Finally, in determining the mediating role of accurate cost information, competitive advantage and customer value enhancement, sub-hypothesis 10d was tested, and the result is that Accurate Cost Information (ACI), Competitive Advantage (CA) and Customer Value Enhancement (CVE) combined has no significant mediating effect on the relationship between Life Cycle Costing Orientation (LCCO) and Organisational Performance (OP). This result implies that the mediating variables do not play an important role in the relation between life cycle costing and organizational performance sampled firms. This outcome is contrary to the finding of Baines and Langfield –Smith (2003), who found that the implementation of management accounting practices has an indirect impact on firm performance, thus suggesting that other organizational factors can mediate the relationship.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

This study examined the implementation of strategic cost management techniques and organisational performance of selected manufacturing companies in South Western Nigeria. Specifically, the study investigated - the extent of implementation of strategic cost management techniques in the sampled companies; the impact of antecedent variables – accountant competency, competitive volatility and technology growth on activity based costing , activity based management, target costing and life cycle costing techniques; impact of activity based costing , activity based management, target costing and life cycle costing on accurate cost information, competitive advantage and customer value enhancement; direct impact of activity based costing , activity based management, target costing and life cycle costing on organisational performance; impact of accurate cost information, competitive advantage and customer value enhancement on organisational performance; and lastly, mediating effect of accurate cost information, competitive advantage and customer value enhancement on the relationships between activity based costing , activity based management, target costing and life cycle costing and organisational performance.

Partial Least Square (PLS) version of Structural Equation Modeling (SEM) was used in analyzing and testing of the hypotheses in this study.

The summary of the major findings of this study are:

First, it was found that strategic cost management techniques are being implemented in the sampled manufacturing companies at varying degrees. Second, Activity Based Costing (ABC) and Activity Based Management (ABM) are the mostly used strategic cost management techniques followed by Target Costing (TC) and Life Cycle Costing (LCC) in that order. Third, activity based costing, activity based management and target costing techniques have significant positive influences on accurate cost information; while life cycle costing technique has no significant influence on accurate

cost information. Fourth, activity based costing, and life cycle costing techniques have significant influence on competitive advantage; while activity based management and target costing techniques have no significant influence on competitive advantage. Fifth, activity based costing, target costing and life cycle costing techniques have significant positive influence on customer value enhancement; while activity based management technique has no significant influence on customer value enhancement. Sixth, activity based costing and activity based management technique have significant direct impact on organisational performance; while target costing and life cycle costing techniques have no significant direct impact on organisational performance. Seventh, customer value enhancement has significant positive effect on organisational performance; while accurate cost information and competitive advantage have no significant effect on organisational performance. Eighth, accountant competency and technology growth have significant impact on the implementation of activity based costing; while competitive volatility has no significant impact on activity based costing.

Ninth, accountant competency and competitive volatility have significant impact on the implementation of activity based management; while technology growth has no significant impact on Activity based management. Tenth, accountant competency, competitive volatility and technology growth have significant positive impact on target costing implementation thus consistent with the contingency theory. Eleventh, accountant competency has significant positive impact on life cycle costing implementation; while competitive volatility and technology growth have no significant impact life cycle costing implementation. Twelfth, accurate cost information, competitive advantage and customer value enhancement combined have significant positive mediating effect on: (i) the relationship between activity based costing and organisational performance and (ii) the relationship between target costing and organisational performance; while accurate cost information, competitive advantage and customer value enhancement combined has no significant mediating effect on: (i) the relationship between activity based management and organisational performance and (ii) the relationship between life cycle costing and organizational performance. Last, it was found that

of all the variables influencing organisational performance in the path model of the study activity based costing, activity based management and customer value enhancement appeared to be the strongest factors. This was determined by their f^2 effect size

5.2 Conclusions

Arising from the descriptive analysis and testing of hypotheses carried out using PLS-SEM, the study discovered that activity based costing, activity based management, target costing and life cycle costing techniques are being implemented moderately in the Nigerian manufacturing companies. Hence, strategic cost management is applied in the manufacturing companies in Nigeria.

It was also noted that the implementation of activity-based costing, activity-based management and target costing techniques can lead to the generation of accurate cost information in manufacturing companies. Also, the implementation of activity based costing and life cycle costing techniques can enhance the competitive advantage position of manufacturing companies in Nigeria. This can be so as these techniques seek to ensure firms secure cost advantage and could lead to competitive advantage. However, activity-based management and target costing techniques implementation may not automatically enhance the competitive position of a firm. Customer value enhancement can be achieved in manufacturing firms by deploying activity based costing, target costing and life cycle costing techniques in their costing systems.

In addition, the implementation of activity based costing, and activity based management techniques in manufacturing firms can directly enhance their performance. Target costing implementation can indirectly make manufacturing to firms to be more profitable when accurate cost information, competitive advantage and customer value enhancement are pursued along with it. However, the usage of life-cycle costing may not enhance a firm's performance whether directly or indirectly especially when not properly implemented; this has been found to be true in this study.

Accurate cost information may not translate to enhancement of a firm's performance directly except where conscious efforts are made by firms to enhance performance. From the findings of this study it

is discovered that competitive advantage does not enhance firms performance automatically except other factors influencing performance are taken care of and effective cost management is done. The satisfaction of customers' requirement is a key for achieving organizational performance. When a firm pursues the enhancement of customer value, it tends to make more profit provided measures are in place for cost reduction and management.

Accountant competency and technology growth are factors to consider in the implementation of activity-based costing technique. While competitive volatility may not be an issue in implementing this technique (ABC). As for the implementation of target costing technique, accountant competency, technology growth and competitive volatility are important factors to be considered as these contingent factors can enhance its implementation. Also, the implementation of life-cycle costing technique can be enhanced by competitive volatility, while accountant competency and technology growth do not affect the implementation. Accountant competency and competitive volatility are factors that can enhance the implementation of activity-based management while technology growth may not be an issue. Contingency factors, technology growth, competitive volatility and resource-based factors (accountant competency) are important factors that can affect the implementation of strategic cost management practices.

The achievement of accurate cost information, competitive advantage and customer value enhancement in a firm can enhance the implementation of activity-based costing technique for achieving organisational performance. This is also true for the deployment of target costing for achieving organizational performance. Thus, through the mediating variables of accurate cost information, competitive advantage and customer value enhancement, target costing technique can be facilitated to have an indirect positive significant impact on organisational performance. However, accurate cost information, competitive advantage and customer value enhancement may not be able to enhance the relationship between activity based management implementation and organizational performance. This also goes for the implementation of life cycle costing for achieving performance.

5.3 Recommendations

In the light of the findings of this study, the following recommendations are made:

- i. Manufacturing companies that want to improve their organisational performance should consider implementing Activity Based Costing (ABC), Activity Based Management (ABM) and target costing techniques if they have not done so. These techniques of strategic cost management have been proved empirically to significantly impact on the performance of manufacturing companies, whether directly or indirectly.
- ii To improve the accuracy of cost information and enhance customer value, ABC, ABM and target costing techniques are suggested to be implemented by companies that are yet to do so as these techniques have been found to enhance accurate cost information and ensure customers' expectations in terms of prices, quality and delivery time are met.
- iii The companies that want to attain competitive advantage position should improve on the implementation of Activity Based Costing (ABC) and Life Cycle Costing (LCC) as these techniques have been found to deliver competitive advantage for their implementers.
- iv To remain competitive and be able to possess the ability to maximize profits, companies should focus on the effective management of the value deliver to their customers at all times as the satisfaction of customers is the key to the improvement in profitability.
- v When designing ABC, ABM and target costing systems companies should always consider the competency of their cost accountants, management accountants and financial accountants in being able to effectively implement these strategic cost management techniques to achieve the desired results. Companies should therefore invest in the training and re-training of their accountants to make them proficient in implementing strategic cost management.
- vi Companies should also consider the competitive environment in which they operate before implementing ABM, LCC and target costing techniques as competitive volatility has been found to influence these techniques. More so, these tools are market oriented techniques of

strategic cost management, hence companies must keep abreast with the situations of the market.

- vii Companies should further take into consideration their technological capability before implementing ABM and target costing systems as these techniques require high technology of information processing and modern production technology. The design and manufacturing of products that will meet the expectations of the customers require the deployment of high technology in manufacturing activities.
- viii Companies implementing ABC and target costing techniques should focus on producing accurate cost information, competitive advantage and customer value enhancement as they will enable these techniques of strategic cost management to improve organizational performance.
- ix Accounting professional bodies such the Institute of Chartered Accountants of Nigeria (ICAN) has a role to play in enhancing their members competency towards the effective implementation of strategic cost management practices in Nigeria. Hence, ICAN should make members continuous professional education (MCPE) to be more robust by incorporating constant training of members in the manufacturing industry on the implementation of strategic cost management.
- x Finally, it is recommended that the National University Commission (NUC) in Nigeria should consider including strategic cost management as a compulsory course in the syllabi of undergraduate and postgraduate levels in the accounting discipline.

5.4 Contribution to Knowledge

This study has made contributions to knowledge in the area of accounting in the following respects:

Firstly, this study has introduced a more comprehensive model for the understanding of how strategic cost management techniques affect the organisational performance of the manufacturing firms. This was made possible with the use of partial least square structural equation modelling (PLS – SEM) a second generation regression analysis. The application of this tool in cost and management accounting research in Nigeria is rare. The use of PLS-SEM enabled the researcher to examine the multiple interrelationships among the antecedent variables, strategic cost management techniques, the mediating variables and organisational performance. This study has therefore proved the use of PLS-SEM to be a viable tool of analysis in strategic cost management research in Nigeria. In this respect, research gap has been filled and knowledge added to the existing literature in Accounting. More so, the study has set out the methodological steps involved in the use of PLS-SEM in the management accounting research.

Secondly, this study contributes to knowledge by analysing the relationships among activity based costing implementation, accurate cost information and organisational performance as previous studies on ABC in Nigeria only relate it to performance. It was thus found that ABC significantly influences accurate cost information and that accurate cost information does not significantly influence organisational performance. This type of examination of the relationships among the variables study is scarce in cost and management accounting research in Nigeria.

Thirdly, this study has introduced mediating variables (accurate cost information, competitive advantage and customer value enhancement) in the relationships that had been studied in Nigeria before (That is ABC and performance and target costing and performance). It was found that accurate cost information, competitive advantage and customer value enhancement, combined, significantly mediates on the relationships between ABC and organisational performance and between target costing and organisational performance. The investigation of these relationships is

not common in cost and management accounting research in Nigeria. Hence, this is a contribution of this study to knowledge.

Fourthly, this study has provided an insight into the effect of target costing implementation on accurate cost information, competitive advantage and customer value enhancement. It has been shown that target costing implementation can enhance accurate cost information and customer value enhancement; but it cannot enhance competitive advantage. This finding is a contribution to knowledge as only the evidence of the relationship between target costing and performance has been reported in Nigeria before.

Fifthly, this study investigated the relationships between ABM and accurate information, competitive advantage, customer value enhancement and organisational performance and it was found that ABM enhances accurate cost information and organisational performance; but ABM does not influence competitive advantage and customer value enhancement. These findings contribute to knowledge in the area of ABM research in Nigeria as there is a dearth of empirical findings on the outcomes of implementation of ABM.

Finally, this study contributes to knowledge by providing an insight into the relationships between life cycle costing (LCC) implementation and accurate cost information, competitive advantage and organisational performance. Evidence has shown that LCC implementation can lead to competitive advantage and enhancement of customer value. But it does not influence accurate cost information and organisational performance. These findings contribute to knowledge as the outcomes of the implementation of LCC in the manufacturing firms has been scarcely reported in Nigeria.

5.5 Limitations of the Study

The following are the limitations of this study:

- i. This study is limited to only the manufacturing firms in Nigeria as it did not cover firms in the servicing industry. Hence, the findings of this study cannot be generalised to all firms in Nigeria.
- ii. By the nature of this study – survey research, details relating to the workings of strategic cost management techniques and why some expected outcomes were not being realised in the sampled manufacturing companies could not be obtained. However, case study research could bring out such details.
- iii. Primary data were used in this study as these were opinions expressed by the target respondents which may not be so objective. There could be personal bias in their opinions. However, the workings of strategic cost management and their non financial outcomes are not usually reflected in firms' published financial statements as they are kept internal. Hence, the researcher had no better alternative and caution could only be given that the findings of this study should be used bearing in mind this limitation.

5.6 Suggestions for Further Studies

Arising from the findings of this study the following areas are suggested for further studies:

- i. Further research should be carried out on the impact of target costing implementation on competitive advantage and organisational performance to confirm or refute the findings of this current studies, which is at variance with the previous studies.
- ii. A case study research is suggested to be carried in selected manufacturing companies in Nigeria to study in details the implementation and workings of strategic cost management techniques where personal interview, questionnaire and inspection of records will be employed in data collection.
- iii. Further research could be done out focusing on the implementation of strategic cost management techniques and performance of service rendering companies in order to find out if these current findings will still hold in these companies.

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APPENDIX

Appendix I : Cohen's Table for Determining Sample Size in PLS-SEM

Sample size Recommendation in PLS-SEM												
Maximum number of Arrows pointing at a Construct	Significant Level											
	1%				5%				10%			
	Minimum R ²				Minimum R ²				Minimum R ²			
	0.1	0.2	0.5	0.75	0.1	0.2	0.5	0.75	0.1	0.2	0.5	0.75
2	158	75	47	38	110	52	33	26	88	41	26	21
3	176	84	53	42	124	59	38	30	100	48	30	25
4	191	91	58	46	137	65	42	33	111	53	34	27
5	205	98	62	50	147	70	45	36	120	58	37	30
6	217	103	66	53	157	75	48	39	128	62	40	32
7	228	109	69	56	166	80	51	41	136	66	42	35
8	238	114	73	59	174	84	54	51	143	69	45	37
9	247	119	76	62	181	88	57	46	150	73	47	39
10	256	123	79	64	189	91	59	48	156	76	49	41

Source: Cohen (1988)

Appendix II : Outer Loading Significance

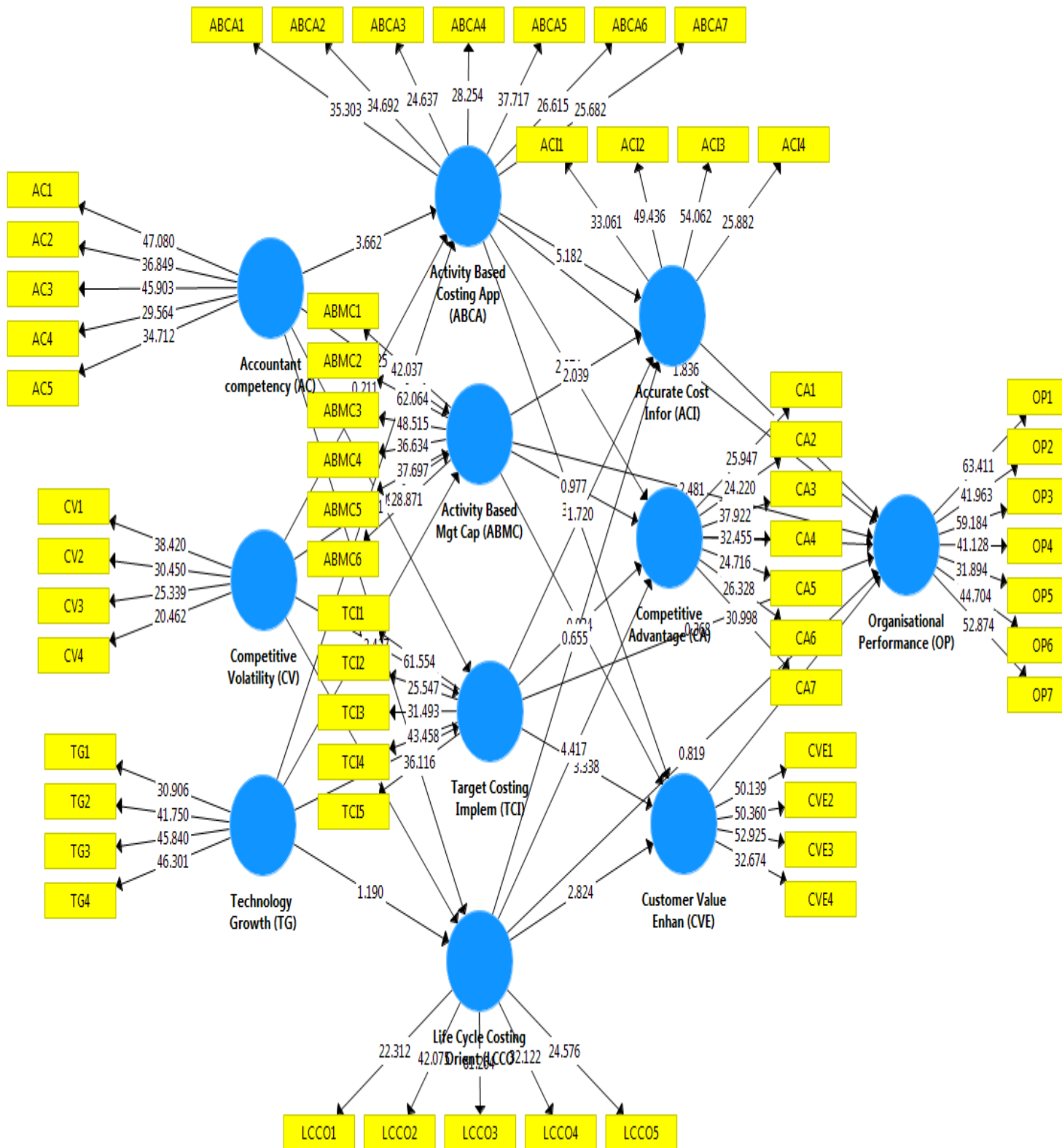
Manifest Variables	Original (O)	Sample Means (M)	Standard Dev (Std Dev)	T Statistics (Std Dev/ O)	P Value
ABCA1 <- Activity Based Costing App (ABCA)	0.826	0.827	0.023	35.303	0.000
ABCA2 <- Activity Based Costing App (ABCA)	0.834	0.834	0.024	34.692	0.000
ABCA3 <- Activity Based Costing App (ABCA)	0.811	0.811	0.033	24.637	0.000
ABCA4 <- Activity Based Costing App (ABCA)	0.848	0.848	0.030	28.254	0.000
ABCA5 <- Activity Based Costing App (ABCA)	0.846	0.846	0.022	37.717	0.000
ABCA6 <- Activity Based Costing App (ABCA)	0.803	0.802	0.030	26.615	0.000
ABCA7 <- Activity Based Costing App (ABCA)	0.804	0.803	0.031	25.682	0.000
ABMC1 <- Activity Based Mgt Cap (ABMC)	0.847	0.847	0.020	42.037	0.000
ABMC2 <- Activity Based Mgt Cap (ABMC)	0.892	0.892	0.014	62.064	0.000
ABMC3 <- Activity Based Mgt Cap (ABMC)	0.900	0.899	0.019	48.515	0.000
ABMC4 <- Activity Based Mgt Cap (ABMC)	0.872	0.871	0.024	36.634	0.000
ABMC5 <- Activity Based Mgt Cap (ABMC)	0.856	0.855	0.023	37.697	0.000
ABMC6 <- Activity Based Mgt Cap (ABMC)	0.835	0.834	0.029	28.871	0.000
AC1 <- Accountant competency (AC)	0.870	0.870	0.018	47.080	0.000
AC2 <- Accountant competency (AC)	0.876	0.876	0.024	36.849	0.000
AC3 <- Accountant competency (AC)	0.904	0.904	0.020	45.903	0.000
AC4 <- Accountant competency (AC)	0.853	0.853	0.029	29.564	0.000
AC5 <- Accountant competency (AC)	0.851	0.850	0.025	34.712	0.000
ACI1 <- Accurate Cost Infor (ACI)	0.863	0.862	0.026	33.061	0.000
ACI2 <- Accurate Cost Infor (ACI)	0.896	0.896	0.018	49.436	0.000
ACI3 <- Accurate Cost Infor (ACI)	0.900	0.900	0.017	54.062	0.000
ACI4 <- Accurate Cost Infor (ACI)	0.837	838	0.032	25.882	0.000
CA1 <- Competitive Advantage (CA)	0.810	0.809	0.031	25.947	0.000
CA2 <- Competitive Advantage(CA)	0.808	0.809	0.033	24.220	0.000
A3 <- Competitive Advantage (CA)	0.850	0.850	0.022	37.922	0.000
CA4 <- Competitive Advantage (CA)	0.841	0.841	0.026	32.455	0.000
CA5 <- Competitive Advantage (CA)	0.801	0.801	0.032	24.716	0.000
CA6 <- Competitive Advantage (CA)	0.825	0.824	0.031	26.328	0.000
CA7 <- Competitive Advantage (CA)	0.823	0.822	0.027	30.998	0.000
CV1 <- Competitive Volatility (CV)	0.877	0.878	0.023	38.420	0.000
CV2 <- Competitive Volatility (CV)	0.849	0.850	0.028	30.450	0.000
CV3 <- Competitive Volatility (CV)	0.845	0.845	0.033	25.339	0.000
CV4 <- Competitive Volatility (CV)	0.800	0.799	0.039	20.462	0.000
CVE1 <- Customer Value Enhance (CVE)	0.898	0.898	0.018	50.139	0.000
CVE2 <- Customer Value Enhance (CVE)	0.914	0.914	0.018	50.360	0.000
CVE3 <- Customer Value Enhance (CVE)	0.901	0.901	0.017	52.925	0.000
CVE4 <- Customer Value Enhance (CVE)	0.857	0.857	0.026	32.674	0.000
LCCO1 <- Life Cycle Costing Orient (LCCO)	0.801	0.799	0.036	22.312	0.000
LCCO2 <- Life Cycle Costing Orient (LCCO)	0.870	0.871	0.021	42.075	0.000
LCCO3 <- Life Cycle Costing Orient (LCCO)	0.901	0.901	0.015	61.264	0.000
LCCO4 <- Life Cycle Costing Orient (LCCO)	0.852	0.852	0.027	32.122	0.000
LCCO5 <- Life Cycle Costing Orient (LCCO)	0.823	0.821	0.033	24.576	0.000
OP1 <- Organisational Performance (OP)	0.908	0.908	0.014	63.411	0.000
OP2 <- Organisational Performance (OP)	0.904	0.904	0.022	41.963	0.000
OP3 <- Organisational Performance (OP)	0.929	0.930	0.016	59.184	0.000
OP4 <- Organisational Performance (OP)	0.893	0.893	0.022	41.128	0.000
OP5 <- Organisational Performance (OP)	0.877	0.878	0.028	31.894	0.000
OP6 <- Organisational Performance (OP)	0.903	0.903	0.020	44.704	0.000
OP7 <- Organisational Performance (OP)	0.902	0.902	0.017	52.874	0.000
TCI1 <- Target Costing Implem (TCI)	0.880	0.881	0.014	61.554	0.000
TCI2 <- Target Costing Implem (TCI)	0.847	0.847	0.033	25.547	0.000
TCI3 <- Target Costing Implem (TCI)	0.851	0.851	0.027	31.493	0.000
TCI4 <- Target Costing Implem (TCI)	0.882	0.882	0.020	43.458	0.000
TCI5 <- Target Costing Implem (TCI)	0.862	0.862	0.024	36.116	0.000
TG1 <- Technology Growth (TG)	0.868	0.869	0.028	30.906	0.000
TG2 <- Technology Growth (TG)	0.900	0.900	0.022	41.750	0.000
TG3 <- Technology Growth (TG)	0.901	0.901	0.020	45.840	0.000

TG4 <- Technology Growth (TG)	0.886	0.887	0.019	46.301	0.000
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Source: Researcher's SmartPLS Results, 2018

Appendix IIIa: Bootstrapping Results showing Paths coefficient

Significance



Source: Researcher's SmartPLS Result, 2018

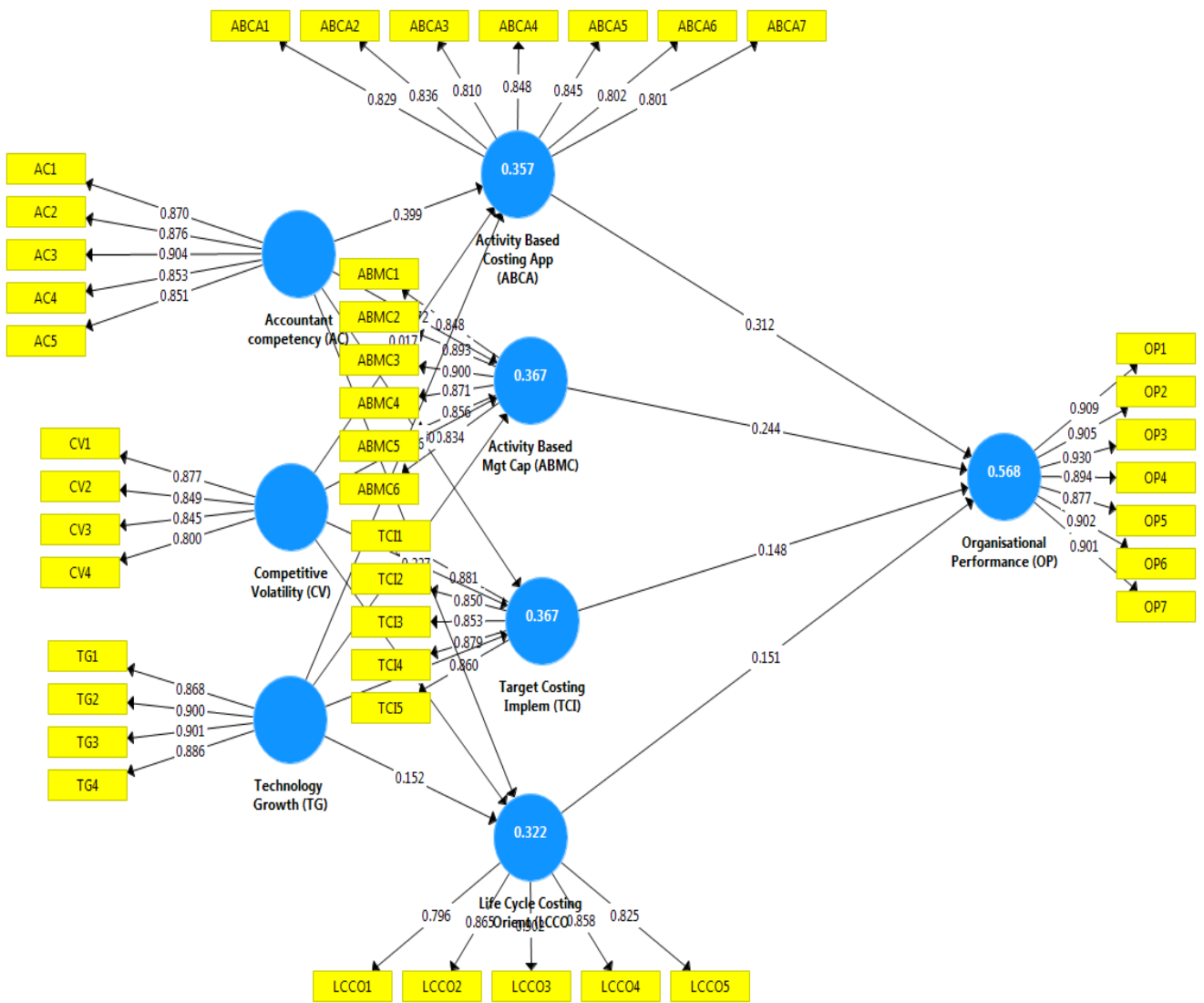
Appendix III b: Bootstrapping Results showing Paths coefficient significance

Table 4.34 Mean, STDEV, T- Values, P-Value

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Accountant competency (AC) -> Activity Based Costing App (ABCA)	0.399	0.394	0.109	3.662	0.000
Accountant competency (AC) -> Activity Based Mgt Cap (ABMC)	0.372	0.367	0.084	4.425	0.000
Accountant competency (AC) -> Life Cycle Costing Orient (LCCO)	0.083	0.067	0.138	0.602	0.547
Accountant competency (AC) -> Target Costing Implem (TCI)	0.248	0.239	0.112	2.209	0.027
Accurate Cost Infor (ACI) -> Organisational Performance (OP)	0.085	0.090	0.105	0.806	0.420
Activity Based Costing App (ABCA) -> Accurate Cost Infor (ACI)	0.454	0.451	0.088	5.182	0.000
Activity Based Costing App (ABCA) -> Competitive Advantage (CA)	0.350	0.347	0.118	2.974	0.003
Activity Based Costing App (ABCA) -> Customer Value Enhan (CVE)	0.302	0.301	0.098	3.076	0.002
Activity Based Costing App (ABCA) -> Organisational Performance (OP)	0.173	0.155	0.094	1.836	0.066
Activity Based Mgt Cap (ABMC) -> Accurate Cost Infor (ACI)	0.196	0.194	0.096	2.039	0.041
Activity Based Mgt Cap (ABMC) -> Competitive Advantage (CA)	0.124	0.125	0.126	0.977	0.328
Activity Based Mgt Cap (ABMC) -> Customer Value Enhan (CVE)	0.001	0.009	0.101	0.010	0.992
Activity Based Mgt Cap (ABMC) -> Organisational Performance (OP)	0.230	0.227	0.093	2.481	0.013
Competitive Advantage (CA) -> Organisational Performance (OP)	0.009	0.019	0.104	0.091	0.928
Competitive Volatility (CV) -> Activity Based Costing App (ABCA)	0.018	0.026	0.085	0.211	0.833
Competitive Volatility (CV) -> Activity Based Mgt Cap (ABMC)	0.156	0.159	0.085	1.841	0.066
Competitive Volatility (CV) -> Life Cycle Costing Orient (LCCO)	0.375	0.386	0.103	3.650	0.000
Competitive Volatility (CV) -> Target Costing Implem (TCI)	0.227	0.239	0.094	2.427	0.015
Customer Value Enhan (CVE) -> Organisational Performance (OP)	0.310	0.313	0.092	3.386	0.001
Life Cycle Costing Orient (LCCO) -> Accurate Cost Infor (ACI)	0.049	0.053	0.075	0.655	0.512
Life Cycle Costing Orient (LCCO) -> Competitive Advantage (CA)	0.377	0.377	0.085	4.417	0.000
Life Cycle Costing Orient (LCCO) -> Customer Value Enhan (CVE)	0.229	0.230	0.081	2.824	0.005
Life Cycle Costing Orient (LCCO) -> Organisational Performance (OP)	0.069	0.069	0.084	0.819	0.413
Target Costing Implem (TCI) -> Accurate Cost Infor (ACI)	0.170	0.171	0.099	1.720	0.085
Target Costing Implem (TCI) -> Competitive Advantage (CA)	0.003	0.005	0.099	0.034	0.973
Target Costing Implem (TCI) -> Customer Value Enhan (CVE)	0.321	0.314	0.096	3.338	0.001
Target Costing Implem (TCI) -> Organisational Performance (OP)	0.035	0.038	0.096	0.368	0.713
Technology Growth (TG) -> Activity Based Costing App (ABCA)	0.217	0.219	0.101	2.157	0.031
Technology Growth (TG) -> Activity Based Mgt Cap (ABMC)	0.129	0.133	0.083	1.560	0.119
Technology Growth (TG) -> Life Cycle Costing Orient (LCCO)	0.149	0.157	0.126	1.190	0.234
Technology Growth (TG) -> Target Costing Implem (TCI)	0.187	0.188	0.112	1.673	0.094

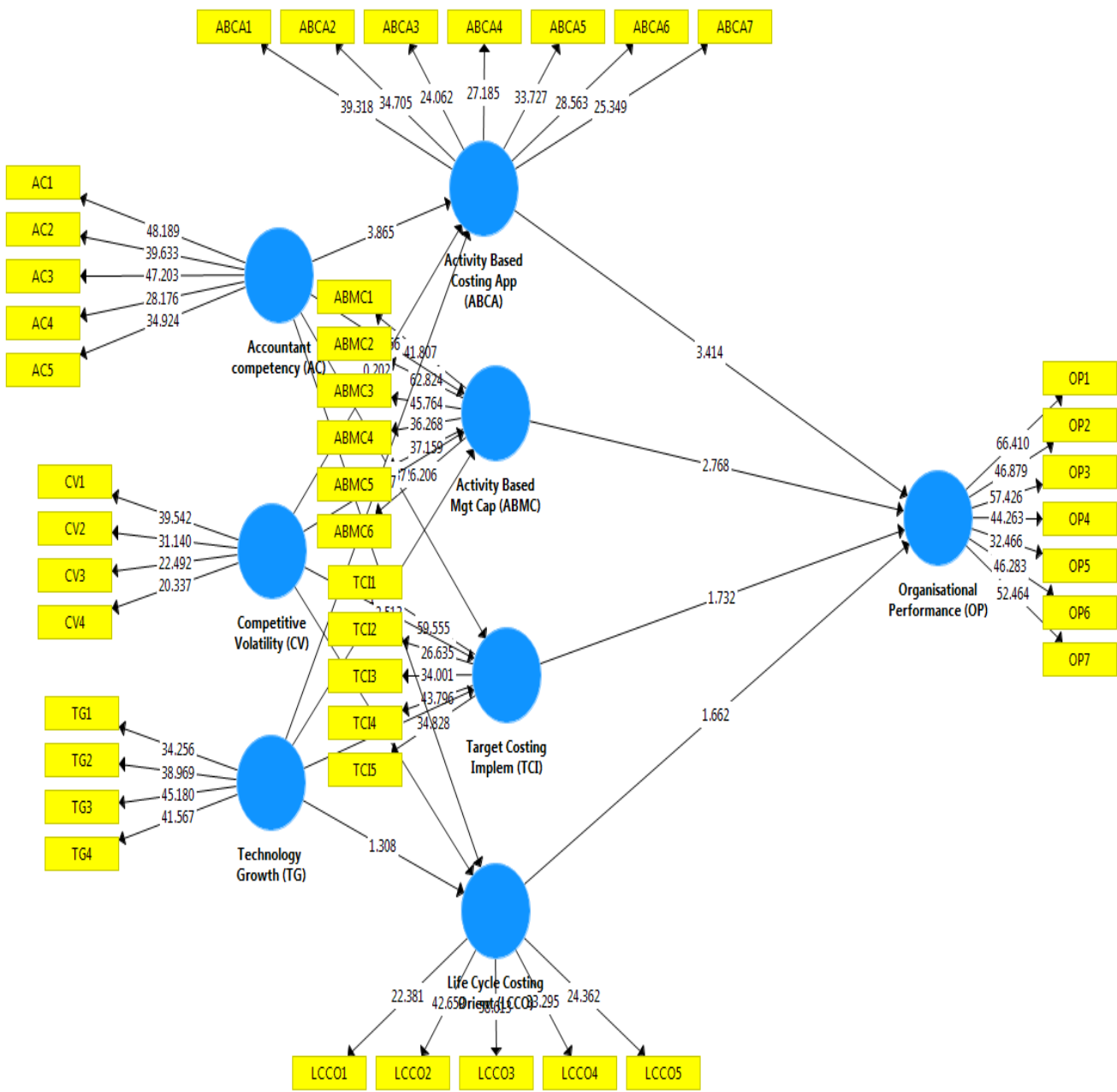
Source: Researcher's SmartPLS Result, 2018

Appendix IVa: SmartPLS Algorithm Results of Direct Impact without Mediating Constructs



Source: Researcher’s SmartPLS Result, 2018

Appendix IVb: SmartPLS Bootstrapping Results of Direct Impact without Mediating Constructs



Source: Researcher's SmartPLS Result, 2018

Appendix V :

Table Total Indirect Effects with Significant Values (Bootstrapping Results)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Accountant competency (AC) -> Accurate Cost Infor (ACI)	0.300	0.295	0.082	3.656	0.000
Accountant competency (AC) -> Competitive Advantage (CA)	0.218	0.204	0.084	2.580	0.010
Accountant competency (AC) -> Customer Value Enhan (CVE)	0.220	0.218	0.093	2.366	0.018
Accountant competency (AC) -> Organisational Performance (OP)	0.264	0.263	0.082	3.231	0.001
Activity Based Costing App (ABCA) -> Organisational Performance (OP)	0.135	0.146	0.070	1.924	0.054
Activity Based Mgt Cap (ABMC) -> Organisational Performance (OP)	0.018	0.023	0.046	0.390	0.696
Competitive Volatility (CV) -> Accurate Cost Infor (ACI)	0.096	0.102	0.066	1.455	0.146
Competitive Volatility (CV) -> Competitive Advantage (CA)	0.168	0.179	0.071	2.355	0.019
Competitive Volatility (CV) -> Customer Value Enhan (CVE)	0.165	0.174	0.068	2.406	0.016
Competitive Volatility (CV) -> Organisational Performance (OP)	0.134	0.141	0.066	2.023	0.043
Life Cycle Costing Orient (LCCO) -> Organisational Performance (OP)	0.079	0.081	0.050	1.560	0.119
Target Costing Implem (TCI) -> Organisational Performance (OP)	0.114	0.115	0.059	1.947	0.052
Technology Growth (TG) -> Accurate Cost Infor (ACI)	0.163	0.166	0.070	2.315	0.021
Technology Growth (TG) -> Competitive Advantage (CA)	0.149	0.156	0.076	1.951	0.051
Technology Growth (TG) -> Customer Value Enhan (CVE)	0.160	0.161	0.077	2.071	0.038
Technology Growth (TG) -> Organisational Performance (OP)	0.149	0.153	0.066	2.255	0.024

Source: Researcher SmartPLS Result, 2018

Appendix VI : QUESTIONNAIRE

QUESTIONNAIRE

Department of Accounting,
University of Ilorin,
P.M.B. 1515,
Ilorin,
Kwara State, Nigeria.

28/03/2016

Dear Sir/Ma,

REQUEST FOR COMPLETION OF QUESTIONNAIRE

I am a Ph. D. student in the Department of Accounting, University of Ilorin, Ilorin. I am carrying out a research titled: **“Strategic cost management practices and organisational performance of selected manufacturing companies in Nigeria”**. This study is aimed at investigating the impact of strategic cost management practices on the organizational performance of selected manufacturing companies in Nigeria. It is being carried out in partial requirement for the award of a Ph. D. Degree in Accounting.

The attached instrument is intended to collect relevant data for the study. The target respondents are: Cost Accountants, Management Accountants, Financial Accountants, Chief Accountants/ Finance Controller and Chief Internal Auditors of the selected manufacturing companies. I hereby solicit your kind cooperation in filling the questionnaire by expressing your opinion as candidly as possible.

Please know that all reported findings will be at aggregate levels and not specific to any organisation. I therefore assure you that your opinions disclosed here will be treated with utmost confidentiality and they will be used purely for research purpose.

Thank you in anticipation of your kind cooperation.

Yours Sincerely,

Adigbole, Ezekiel A.

Ph.D. Student

QUESTIONNAIRE

SECTION A: DEMOGRAPHIC DATA OF THE RESPONDENTS AND THE FIRM

(Please provide the required information by ticking the appropriate option)

- (1) **Position in the organization:**
 Cost Accountant ☐ Management Accountant ☐ Financial Accountant ☐
 Chief Accountant/Financial Controller ☐ Chief Internal Auditor ☐
- (2) **Working Experience in the company:**
 5 years and below ☐ 6 years to 10 years ☐ 11 years to 15 years ☐
 More than 15 years ☐
- (3) **Qualifications:**
 Diploma /NCE ☐ B.Sc./BA/HND ☐ M.Sc./MA/MBA ☐ Ph. D ☐
 Professional accounting qualification **with** academic qualification (ACA, FCA /ANAN,& B.sc./ HND, Masters / Ph. D.) ☐
 Professional accounting qualification **without** academic qualification (ACA/ACCA/FCA) ☐
 Other qualifications (Specify).....
- (4) **Gender:** Male ☐ Female ☐
- (5) **Age:** Under 25 years ☐ 25 to 30 years ☐ 31 to 40 years ☐ 41 to 50 years ☐
 51 and above ☐
- (6) **Sector / Industry to which your company belongs:**
 Agro –Allied ☐ Basic Metal, Iron and Steel and Fabricated Metal Product ☐ Beries ☐
 Building Materials ☐ Chemical and Paints ☐ Conglomerates ☐
 Food and Beverages ☐ Industrial/Domestic Products ☐ Machinery ☐
 Packaging Products ☐ Personal Household Product ☐ Petroleum Production ☐
 Pharmaceuticals ☐ Emerging Market (Others) ☐
- (7) **Period of existence of your firm:** Less or equal to 5years ☐ 10 years ☐
 More than 15years ☐
- (8) **Type(s) of Product Manufactured:** Consumables ☐ Assembled ☐
- (9) **Number of Product (s) Manufactured:** Single T ☐ wo ☐ Multiple ☐
- (10) **Nature of Production:** Assembling ☐ Processing ☐ Manufacturing ☐
- (11) **Turnover of your firm:** Under N 500m ☐ Equal to or Above N 500m ☐

SECTION B: ADOPTION OF STRATEGIC COST MANAGEMENT PRACTICES

- (1) **Into which category does your company falls? (Please tick either Yes or No)**
 (i) My company is familiar with strategic cost management techniques, **Yes / No.**
 (ii) My company is currently using strategic cost management techniques, **Yes / No.**
- (2) **Please tick any one or more of the following strategic cost management techniques that are contained in the cost systems of your company.**
 Activity-based costing ☐ Activity – based management ☐
 Target costing ☐ Life - cycle costing ☐

(3) Please indicate by ticking the extent of the Implementation of Strategic cost management techniques from: 1 (to No extent at all), 2 (to a very limited extent), 3 (to a limited extent), 4 (to a moderate extent), 5 (to a considerable extent), 6 (to a great extent) and 7 (to a very great extent).

Strategic cost management techniques	To no extent at all 1	2	3	4	5	6	To a very great extent
Activity – based costing							
Activity – based management							
Target costing							
Life - cycle costing							

(4) What driving forces are behind your company's decision to implement strategic cost management techniques: Please tick either Yes or No if any or all are true:

Reasons for using Strategic cost management techniques:	YES	NO
(a) To reduce production cost.		
(b) To aid in proper allocation of overheads cost.		
(c) To enhance company's performance.		
(d) To improve cost control and management.		
(e) To improve product quality through production efficiency.		
(f) To provide accurate cost information.		
(g) To enhance company's competitive position.		

SECTION C: ASSESSMENT OF THE IMPLEMENTATION OF STRATEGIC COST MANAGEMENT TECHNIQUES as it affects: Accurate cost information, Competitive advantage, Customer value enhancement and Organisational Performance in your Company.

Please tick as appropriate from the options of: Strongly disagree (1), Disagree (2), Somewhat disagree (3), Neutral (4), Somewhat agree (5), Agree (6), and Strongly agree (7).

(1) Activity – based costing application

What is the extent of your agreement as to the application of Activity –based costing for achieving accurate cost information, competitive advantage, customer value enhancement and performance enhancement and organizational performance ?	SD 1	2	3	4	5	6	SA 7
(a) In the application of modern costing techniques multiple cost drivers are used.							
(b) There are Procedures in the company for the determination of activities required for the manufacture of the firm's product.							
(c) Cost driver for each activity in the firm are determined.							
(d) Costs are linked to activities in order to determine the cost for each activity.							
(e) The company's operations are transformed into specific activities.							
(f) Adequate records of cost drivers and activities of the company are kept.							
(g) Allocations of cost to products are done using appropriate activity consumption rate.							

(2) Activity – based management Capability

What is the extent of your agreement as to the implementation of Activity-based management for achieving accurate cost information, competitive advantage, customer value enhancement and organisational performance?	SD 1	2	3	4	5	6	SA 7
(a) Analysis of the value chain activities of the company is normally carried out.							
(b) The causes of the company's activity costs are normally investigated.							
(c) Activities are usually analysed into added value and non - added value activities and performance measures are determined for each activity.							
(d) The company examines and qualifies the effect of cost drivers.							
(e) Activities required for the manufacture of products which drive costs are effectively managed in the company.							
(f) The relationships and linkages between activities of the company are usually established.							

(3). Target Costing Implementation

What is the extent of your agreement as to the implementation of Target costing to achieve accurate cost information, competitive advantage, customer value enhancement and organizational performance?	SD 1	2	3	4	5	6	SA 7
(a) A market survey is usually conducted to determine the best specifications desired by customers before new products are manufactured.							
(b) Target price and target profit of new products are usually determined before production take place.							
(c) The company usually researched for and sets competitive prices for their new products.							
(d) The desirable or allowable production cost of new products which is determined as the difference between the target selling prices and target profit margin is usually estimated.							
(e) Improvements and adjustments on the current design of the proposed product are usually made in target costing thus leading to cost reduction and achievement of the target cost.							

(4) Life Cycle Costing Orientation

To what extent do you agree as to the implementation of Life - cycle costing for achieving accurate cost information, competitive advantage, customer value enhancement and organizational performance?	SD 1	2	3	4	5	6	SA 7
(a) Information about customers and competitors are gathered by the company .							
(b) Costs incurred at each stage of the product life cycle are properly determined for the purpose of cost management.							
(c) The stage and time of achieving improved revenue and cost reduction for all the stages of the product life cycle are determined.							
(d) Other tools of strategic cost management such as target costing and value engineering are used in effecting cost reduction at each of product life cycle.							
(e) There is trade off and balancing between the standards specified by the customers in term of the quality and response time and the selling price.							

SECTION D : CONSEQUENCES OF STRATEGIC COST MANAGEMENT PRACTICES

Please indicate the extent of your agreement with any of these options-
Strongly disagree (1), Disagree (2), Somewhat disagree (3), Neutral (4),

Somewhat agree (5), Agree (6), and Strongly agree (7).

(1) Accurate cost Information:

Accurate cost Information is achieved as follows resulting from the practice of strategic cost management by the firm and which enhances organizational performance:	SD 1	2	3	4	5	6	SA 7
(a) Allocations of indirect cost of production are based on activities performed.							
(b) Multiple cost drivers are used in cost allocations							
(c) Cost drivers used in allocating costs do have causes and effect relationship with production overheads.							
(d) Accurate cost information generated is timely, relevant and reliable for making strategic decisions in enhancing the company's competitive position and performance.							

(2) Competitive Advantage

Competitive advantage is achieved as follows resulting from the practice of strategic cost management by your firm and which enhances organizational performance:	SD 1	2	3	4	5	6	SA 7
(a) Competitive advantages is achieved with the implementation of strategic cost management in the company and which leads to improvement in organisational performance.							
(b) The company is able to sell its products at lower cost when compared with its competitors.							
(c) The company is efficient in its production and so could avoid unnecessary costs thereby leading to cost reduction.							
(d) The company is able to launch higher quality products into the market and achieves greater product acceptance.							
(e) The company is able to source for quality raw materials at reduced prices and leading to lower product cost.							
(f) The company achieves higher profit margin greater return on assets with valuable resources such or unique competence.							
(g) The company has created a brand name for itself.							

(3) Customer Value Enhancement

Customer Value Enhancement is achieved as follows resulting from the practice of strategic cost management by the firm and which enhances organizational performance:	SD 1	2	3	4	5	6	SA 7
(a) Products are manufactured to suit customers' satisfaction.							
(b) Customers receive value for their money.							

(c) Products launched into the market are of high quality.							
(d) The company renders high quality after sale services to the customers satisfaction							

(4)Organizational Performance

(A) What is the change in the following organizational performance measures after implementing strategic cost management practices (activity –based costing, activity–based management, target costing and life-cycle costing). Please indicate from Greatly decrease (1), Decrease (2), Slightly decrease (3) No change (4), Slightly increase (5), Increase (6) and Greatly increase (7) as to the change in performance.	Greatly decrease 1	2	3	4	5	6	Greatly Increase 7
(a) Return on investment							
(b) Profit							
(c) Sales volume							
(d) Cost reduction							
(e) Customer satisfaction							
(f) Product quality							
(g) Market share							
(B) How well do you believe your company has currently performed as a result of the practice of strategic cost management when compared to your competitors with respect to the following measures of organizational performance: Please indicate from the range: Significantly lower than (1), Lower than (2), Slightly lower than (3), No difference (4), Slightly higher than (5), Higher than (6), and Significantly higher than (7) competitors’..	Significantly lower than 1	2	3	4	5	6	Significantly higher than 7
a) Return on investment							
b) Profit							
c) Sales revenue							
d) Cost reduction							
e) Customer satisfaction							
f) Product quality							
g) Market share							

SECTION E: FACTORS INFLUENCING THE IMPLEMENTATION OF STRATEGIC COST MANAGEMENT PRACTICES

(Please indicate your agreement with any of the following options of Strongly disagree (1), Disagree (2), Somewhat disagree (3), Neutral (4), Somewhat agree (5), Agree (6), and Strongly agree (7).

(1) Accountant Competency

Accountant competency is achieved as follows and it enhances organizational performance in the company. as follows	SD 1	2	3	4	5	6	SA 7
a) The cost/management/financial accountant is knowledgeable in strategic cost management implementation.							
b) The accountant is regularly trained in strategic cost management.							
c) The accountant possess the cognitive ability, experience and skills in strategic cost.							
d) The accountant possess the ability to apply modern information technology.							
e) There is knowledge sharing arrangement in the organization.							

(2) Technology Growth

Technology growth is achieved in the company as follows and it influences the implementation of strategic cost management practices for effective performance in the company:	SD 1	2	3	4	5	6	SA 7
(a) The company has ability of creativity towards innovation with research and development.							
(b) The company has ability to deploy modern production technology to enhance production efficiency.							
(c) The firm has ability to analyze the market transaction process							
(d) Accurate financial and non- financial information can be processed using the latest information technology.							

(3) Competitive Volatility

The Competitive environment of the company is volatile as follows and it influences the implementation of strategic cost management practices in the company to achieve organizational. performance:							
(a) The competitive environment of the company is turbulent.							
(b) The company's competitive environment is dynamic.							
(c) The competitive environment of the company is complex.							
(d) The competitive environment is unpredictable.							

SECTION F: PROBLEMS AND RECOMMENDATIONS FOR IMPROVEMENT OF STRATEGIC COST MANAGEMENT PRACTICES:

Problems hindering the implementation of strategic cost management techniques in your company:

- (i) It is too expensive to implement, **Yes/ No.**
- (ii) There is lack of requisite skill in the company for the implementation of strategic cost management techniques, **Yes / No.**
- (iii) There is difficulty in the configuration of strategic cost management techniques. **Yes / No.**

Recommendations for improvement of strategic cost management techniques:

[illegible]

Appendix VII : LIST OF SAMPLED NIGERIAN MANUFACTURING COMPANIES AND SAMPLING PROCEDURE

(A)

1. Distribution of Manufacturing Companies Population According to Sub- Sectors

The list of quoted manufacturing companies having their head offices located in Lagos and Ogun State is compiled from the Nigeria Stock Exchange fact book 2015/2012 and it shows the following distribution of firms in each subsector of the manufacturing sector.

1.	Agro –Allied	2
2.	Conglomerates	4
3.	Breweries	2
4.	Food and Beverages	12
5.	Personal Household Product	2
6.	Pharmaceuticals	7
7.	Industrial/Domestic Products	12
8.	Building Materials	4
9.	Chemical and Paints	8
10.	Packaging Products	7
11.	Basic Metal, Iron and Steel and Fabricated Metal Product	4
12.	Machinery	2
13.	Petroleum Production	6
14.	Emerging Markets	5
		77

Source: Nigeria Stock Exchange Fact book ,2011/2012

2. Procedure for determining the Sample size

Formular:

$$n = \frac{N}{1+N(e)^2}$$

Where: n = Sample Size, N = Population Size, e = Tolerable error (5%), I = Constant.

$$\begin{aligned}\text{Sample Size} &= \frac{77}{1+77(0.05)^2} \\ &= \frac{77}{1.1925} \\ &= 65 \text{ Companies}\end{aligned}$$

The sample size is distributed proportionally to the fourteen subsectors identified in this study as follows:

1. Agro –Allied	2
2. Conglomerates	3
3. Breweries	2
4. Food and Beverages	10
5. Personal Household Product	2
6. Pharmaceuticals	6
7. Industrial/Domestic Products	10
8. Building Materials	3
9. Chemical and Paints	7
10. Packaging Products	6
11. Basic Metal, Iron and Steel and Fabricated Metal Product	3
12. Machinery	2
13. Petroleum Production	5
14. Emerging Markets	4
	65

(B)

LIST OF QUOTED MANUFACTURING COMPANIES WITHIN THE SAMPLE FRAME

1. 7-up Bottling Co. PLC
2. ABPlast Products PLC
3. ADSwitch PLC
4. African Paints (Nig.) PLC
5. AFRIK Pharmaceuticals PLC
6. Alumaco PLC
7. Aluminum Extrusion Industries PLC
8. ANINO International PLC

9. Ashaka Cement PLC
10. Avon Crowncaps & Containers PLC
11. B.O.G Gases Nigeria PLC
12. Berger Paints Nigeria PLC
13. Cadbury Nigeria PLC
14. Cement Company of Northern Nigeria PLC
15. Champion Breweries PLC
16. Chemical and Allied Products PLC
17. Chevron Oil Nigeria PLC
18. Conoil PLC
19. CUTIX PLC
20. Dangote Cement PLC
21. Dangote Flour PLC
22. Dangote Sugar Refinery PLC
23. DN Meyers PLC
24. Elijah Lakes plc
25. Eterna Oil & Gas PLC
26. .Fidson Healthcare PLC
27. First Aluminum Nigeria PLC
28. Flour Mills Nigeria PLC
29. FTN Cocoa Processor PLC
30. GlaxoSmithKline Consumers Nigeria PLC
31. Golden Guinea Breweries PLC
32. Greif Nigeria PLC
33. Honeywell Flour Mill PLC
34. .Interlinked technology PLC
35. International Breweries PLC
36. IPWA PLC
37. Jos International Breweries PLC
38. Lafarge WAPCO PLC
39. Livestock Feeds PLC
40. .Liz-Olofin and Company PLC
41. May and Baker Nigeria PLC
42. Mobil Oil Nigeria PLC

- 43. .Morrison Industries PLC
- 44. .MRS PLC
- 45. Multi-Trex Integrated Foods PLC
- 46. NAMPAK Nigeria PLC
- 47. .National Salt Company Nigeria PLC
- 48. Neimeth International Pharmaceuticals PLC
- 48. Nestle Nigeria PLC
- 50. Nigeria Breweries PLC
- 51. Nigeria Enamelware PLC
- 52. Nigeria Wire and Cables PLC
- 53. Nigerian Bag Manufacturing Company PLC
- 54. Nigerian Lamps Industries PLC
- 55. .Nigerian Ropes PLC
- 56. Nigerian Sewing Machine Manufacturing PLC
- 57. Nigerian Wire Industries PLC
- 58. NIYAMCO PLC
- 60. Northern Nigeria Flour Mills PLC
- 61. .Oando PLC
- 62. Oluwa Glass Company PLC
- 63. P.S. Mandrides PLC
- 64. Paints and Coating Manufacturers PLC
- 65. Pharma-Deko PLC
- 66. Poly Products (Nigeria) PLC
- 67. Portland Paints and Products PLC
- 68. Premier Breweries PLC
- 69. Premier Paints PLC
- 70. .Presco PLC
- 71. Tantalizers PLC
- 72. The Okumu Oil Palm Company
- 73. .Union Dicon Salts PLC
- 74. UTC Nigeria PLC
- 75. Vitafoam Nigeria PLC
- 76. Vono Products PLC
- 77. West African Aluminum Products PLC.

Source : Extracts from Nigerian Stock Exchange Facts Book, 2015/2016