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Adoption of management accounting innovations in the Kenyan Manufacturing Industry

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ADOPTION OF MANAGEMENT ACCOUNTING INNOVATIONS IN THE KENYAN MANUFACTURING INDUSTRY

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DECLARATION

I declare that this thesis is my original work and has not been presented to any other university for a ward of a degree. Any work done by other people has been duly acknowledged. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person. It has been examined by a board of Examiners of the Strathmore University

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APPROVAL

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DEDICATION

This research study is dedicated to the Almighty God for His grace, provision and protection that saw me through my study successfully. I also dedicated this research to my loving parents; George Otieno and Lillian Otieno for their commitment, support and unfailing love that have enabled me come this far in my academic pursuit. God bless them.

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ABSTRACT

The purpose of this study was to investigate the adoption of management accounting innovations in the Kenyan manufacturing industry. The study was grounded on three objectives; to determine the techniques of management accounting innovations adopted in the Kenyan Manufacturing Industry, to determine the extent of adoption of management accounting innovations in the Kenyan Manufacturing Industry, to establish the determinant factors in the process of adopting management accounting innovations in the Kenyan Manufacturing Industry. The study adopted both descriptive and explanatory research designs while targeting all the 25 manufacturing companies registered with the NSE. Questionnaires and interview guides were used as instruments of collecting both qualitative and quantitative data. Descriptive analysis method was deployed in carrying out data analysis whereas inferential analysis; regression and correlational analyses were applied to establish the nature of relationship between the variables.The results of the findings indicate that the recently developed MAIs are less often used compared to the traditional techniques. The findings also depicted that the extent of adoption for the recently developed MAIs is comparatively lower than other traditional techniques such as budgeting for planning and controlling costs. The companies also experience several challenges including high costs involved in adopting MAIs and insufficient information on the MAIs. The results also indicated that the determinant factors in the adoption of MAI include type of information to be captured, foreseen benefits of the innovations, nature of the business, availability of resources and initial cost to be incurred on the adopted innovation. The study established that the benefits of adoption of MAIs are improved organisational operation efficiency including quality information and business response, better response within the sector' business environment, improved organization's accountability and enhanced timeliness in reporting. The study concluded that techniques of MAI and benefits of diffusion of MAIs strongly correlate with the extent of adoption of MAIs while challenges of diffusion of MAIs mildly correlates with the extent of adoption of MAIs. The study further established that determinant factors in the diffusion of MAIs has a weak correlation with the extent of adoption of MAIs. The study recommends that the management of the various organisations should support the process of diffusing the MAI while the innovators should seek to provide enough information on the innovations and also establish good interactions with the adopters of the inventions. The findings of this study enhance the understanding of adoption of MAIs in the Kenyan manufacturing industry hence providing managers and policyholders with relevant information that facilitate the development of strategies, regulations, guidelines and policies in relation to adoption MAIs. The results of the study also aid further research on other aspects of MAI through offering reference to other researchers while also enhancing the contingency, institutional and diffusion of innovation theories.

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ABBREVIATIONS

ABB	Activity Based Budgeting
ABC	Activity Based Costing
ABM	Activity Based Management
DOI	Diffusion of Innovation Theory
GDP	Gross Domestic Product
IFAC	International Federation of Accountants
JIT	Just-In-Time
KAM	Kenya Association of Manufacturers
MAI	Management Accounting Innovation
NSE	Nairobi Securities Exchange
OLS	Ordinary Least Squares
SMEs	Small and Medium Enterprises
TQM	Total Quality Management

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Over the past years, the world economy has experienced unexpected changes from the dynamics of competition, the globalization of markets, the evolution of stocks, to the technological advances in the field of information and communications (Urquidi & Ripoll, 2013). The Kenyan Manufacturing Industry has also changed considerably especially in the twenty-first century compared to what existed decades ago. The success in many business institutions are measured by the levels of efficiency attained. According to Yang (2006), performance, which is a quality of any company, is attained when organizations are able to register higher returns. In the wake of the changing global business platform, management accounting systems can be used to support managers to access and use necessary management accounting practices to achieve a firm's objectives and consequently improve their performance. Arising from this realization, the need for a new menu of responsive management accounting principles became an immediate necessity, and this led to the birth of Management Accounting Innovations (MAIs). Management accounting practices are important to the success of an organization.

Chenhall (2008) refers to management accounting innovations as strategic management accounting "to connect the strategies to value chain and link activities across the organization that relates to cost objects". Horngren et. al., (2009) categorize these practices as being cost practices, information for decision making, budgeting and performance and strategic analyses. According to Magdy and Robert (2006), these new techniques have affected the whole process of management accounting including planning, controlling, decision-making, and communication. There are different stages of the innovation and change processes attached to the studies of management accounting practices ranging from the adoption decision to the implementation and the success of the implementation (e.g. Brown, Booth & Goacobbe, 2004; Briers & Chua, 2001).

According to the Ferreira (2002) management accounting tools and techniques can are divided into two; the traditional methods and the current innovations. The traditional methods encompass break even sales, strategic planning, budgeting, deviation analysis of budget, product costing and product profitability whereas the current innovations include balanced scorecard, activity based

budgeting, activity based costing, target costing, life cycle of product and its costing, benchmarking, back flush costing, profitability analysis about customer, economic value addition and kaizen approach costing, industry analysis, competitiveness analysis, financial and non-financial measures, product and customer profitability analysis, capital investment evaluation an performance evaluations. Phillip (2012) cites two main reasons why companies should consider and adopt Management Accounting Innovations (MAIs); MAIs improve insight into cost causation which helps in cost control and cost reduction and Activity Based Costing (ABC) lead to more accurate cost data by increasing the number of cost pools used to accumulate overhead and thus changing the basis used to assign overhead to products. Uyar (2010) argued that the problem of the existing ineffective costing system was resolved by the development of innovative management accounting techniques. Economic and rational reasons stir up innovations and therefore to enhance economic efficiency the managers must follow the prescribed methodologies.

Adoption of accounting innovations through organizations is of particular interest to researchers (Alcouffe *et al.* 2008; Ax & Bjornenak, 2005 and Tillmann & Goddard, 2008), policy makers and practitioners, given the frequency by which the ideas have been advocated for; research in Management Accounting Innovations (MAIs) has now started to proliferate (Irvine and Elisa, 2004). Gosselin (2007) however claimed that most of the literature about studies on adoption of Management Accounting Innovation (MAI) has focused upon examining the association between diffusion of Management Accounting Innovation and the demand side factors that influence diffusion including management support, training, size of company, competition, product diversity and internal resource rather than supply-side factors that include consultant companies, accounting bodies, accounting research, accounting education and accounting journals. Khajavi and Nazeni (2010) defined adoption of an innovation as the momentum gained by an innovation over time within a specified group of people. Hassan, Davood and Danture (2010) cite these environmental factors as social, cultural, organizational (inclusive of capabilities) context in which adoption takes place and accounting staff capabilities. However, Irvine and Elisa (2004) argued that diffusion is not an automatic consequence of innovation and its ease of progress is subject to favorable factors existing within its environment. On the other hand, Roger (2003)

asserts that four main elements affect the degree of adoption; time, the innovation, channels employed and the adopting system.

Rogers (2003) established that a strong relationship exists between the process of diffusing an innovation and the degree of adopting the innovation. Rogers however adds that a successful diffusion process is reflected in the degree of adoption of the diffused innovation and that for an innovation to be self-sustaining then it must be widely adopted. Other researchers have deduced a positive relationship between the adoption of management accounting techniques and several organizational aspects such as strategy (Gosselin, 1997) and size, operational structures, technology and internal culture (Chenhall, 2003). Other researchers however assert that the main variables connect to business environmental aspects including industry and national culture (Lin, Z. & Yu, Z., 2002 and Khandwalla, 1972). Chenhall and Langfield-Smith (1998) concluded that techniques that take more of a strategic focus and less concentrate on financial information are more adopted. Maurice (1997) stated that strategy and organizational structure influence the rate of adoption and implementation of ABC techniques. In support of this argument, Chenhall (2003) asserts that to ensure successful adoption, the techniques employed by different firms should revolve around internal organizational characteristics including organizational culture and structures. On the other hand, Rogers (2003) cites factors that determine the success of adoption of innovations as the degree of benefit the innovation will bring to the organization and the ease of observing the resultant benefits, the complexity of the innovation, the consistency of the innovation with the adopters' existing values and the potential of the idea for being implemented on a trial basis.

On the extent of adoption of MAIs, Mahmoud, et. al, (2011) viewed that the rate of adoption of traditional management accounting techniques is higher than new-innovated techniques within manufacturing firms. They add that the firms also believe that the traditional methods accrue more benefits as compared to new-developed practices. This is as a result of high business environmental uncertainty and economies that are unstable. A similar argument is raised by Karanja, Mwangi and Nyaanga (2014) who assessed the adoption of modern management accounting techniques in Small and Medium (SMEs) in Kenya and conferred that there is still under-utilization of the modern techniques of management accounting and most of the

information is still undocumented. In Kenya however, most of the study literature on accounting is more biased towards the financial sector and specifically geared towards the fields of financial accounting, adoption of IT (information technology) and access to credit, with only remote literature existing with regard of the adoption of MAIs (Makau, Wawire, & Ofafa, 2013), (Waweru, 2012) and (Aduda, Mogutu, & Githinji, 2012)]. Wangari (2008) only sought to determine the most utilized budgeting techniques in her study on budgeting in manufacturing firms in Kenya. She concluded that most of these organizations utilize incremental and activity based budgeting. Generally, techniques that take more of a strategic focus and less concentrate on financial information are more adopted (Chenhall and Langfield-Smith, 1998).

With increased globalization and competition, the environment within which manufacturing is being undertaken has considerably transformed. Organizations are further met with the need of having accurate cost information since the old costing methods are not efficient in supplying accurate costing information to organizations undertaking changes (Khajavi & Nazeni, 2010). In East Africa, Kenya has the largest economy. The country was ranked 72nd economy in the world after registering a GDP of $69.98 billion in 2015 (Odero et al., 2015). Despite the fact that Kenya is industrially the most developed country in East Africa, its manufacturing sector still contributes little to its GDP (World Bank, 2015). Constant government interference with the private sector and import substitution policies resulted to the manufacturing sector being uncompetitive (World Bank, 2015). The country' Industrial activity is mainly distributed and established within its cities; Nairobi, Mombasa and Kisumu. The dominant industry within the country is the food processing industry; grain and sugarcane milling, beer production and the fabrication e.g. vehicles. Kenya also has an oil refinery which processes imported crude petroleum into petroleum products, mostly for domestic markets. Additionally, the country has a well developing informal sector that engages in manufacturing of household goods, motor vehicle parts and farm Instruments at a small scale.

1.2 Problem Statement

With increase in global competition, accurate cost information has become imperative. In this backdrop, businesses throughout the world have realized that the continued use of traditional costing methods that do not take into account the power and efficiency to supply accurate costing information for organizations undergoing changes significantly affect the decision making ability (Khajavi and Nazeni, 2010). Many research experts have also indicated the several

organisational benefits that can be accredited to newly developed management accounting innovations. Such benefits include improved competitiveness, enhance organisational efficiency, improved accountability, enhanced organisational sustainability and ease in measurement of organisational performance (Dick-Forde, Burnett & Devonish, 2007; Lin & Yu, 2002). However, other researchers such as Karanja, Mwangi and Nyaanga (2014), have revealed that these newly developed innovations are less adopted in developing economies as compared to the traditional methods.

Conflicting and similar views have been floated by different scholars that relate to adoption of MAIs. Massoud and Mohd (2015) in their study on diffusion of Management Accounting Practices in Iranian Manufacturing Companies concluded that the adoption rates of traditional management accounting techniques are higher than new-developed techniques in Iranian firms. They however also indicated that Iranian firms have obtained satisfactory benefit from some new-developed practices which shows that they are beginning to realize the benefits and are starting to implement more of these new practices in the future. A similar argument is raised in a study conducted by Karanja, Mwangi and Nyaanga (2014) on Kenyan SMEs while assessing the adoption of modern management accounting techniques in Small and Medium (SMEs) in developing countries, the research conferred that there is still under-utilization of the modern techniques of management accounting and most of the information is still undocumented. A contrary conclusion is however arrived at by Philmore and Diana (2011), who state that the recent years have recorded a higher use of Management Accounting practices among the manufacturing and industrial sectors in developing economies. Similarly, Urquidi and Ripoll (2013) concluded that recently developed management tools have been appropriated by the need for enough, brief and specific information by part of the organizations. The duo assessed the management accounting practices that are currently being used by four and five star hotels.

In addition, despite the manufacturing industry in Kenya accounting for upto 21% of Kenya's overall GDP according to World Bank (2015), little is still known on the Management Accounting Innovations currently adopted (Karanja, Mwangi and Nyaanga, 2014); most of the study literature on accounting in the country is more biased towards the financial sector and specifically geared towards the fields of financial accounting, adoption of IT (information technology) and access to credit, with only remote literature existing with regard of the diffusion

of MAIs (Makau, Wawire, & Ofafa, 2013; Aduda, Mogutu, & Githinji, 2012). These existing knowledge gaps therefore drives the motivation of this study. Generally, this study sought to make an incremental contribution to the management accounting literature through developing a better understanding of adoption of MAIs in the manufacturing industry by answering research questions based on these specific aspects of research objectives; techniques used in diffusion of MAIs, factors that drive the diffusion, extent of adoption of the diffused MAIs and impact of diffused MAIs.

1.3 Objectives

To achieve the aim of the study, the researcher set both general and specific objectives as discussed in the following section.

1.3.1 General Objectives

The general objective of the study was to examine the adoption of management accounting innovations in the Kenyan Manufacturing Industry.

1.3.2 Specific Objectives

The research was guided by the following specific objectives:

i. To determine the techniques of management accounting innovations adopted in the Kenyan Manufacturing Industry.
ii. To determine the extent of adoption of management accounting innovations in the Kenyan Manufacturing Industry.
iii. To establish the determinant factors in the adoption of management accounting innovations in the Kenyan Manufacturing Industry.

1.4 Research Questions

The research was guided by the following research questions:

i. What management accounting innovations techniques has the Kenyan Manufacturing Industry adopted?
ii. To what extent has the manufacturing industry in Kenya adopted management accounting innovations?
iii. What are the determinant factors in the adoption of management accounting innovations in the Kenyan Manufacturing Industry?

1.5 Scope of the Study

The study aimed at assessing the adoption of management accounting innovations in the Kenyan Manufacturing Industry. The Manufacturing sector is among the well-established industries in the country; the industry therefore provided an interesting case for analysis. The study focused on some of the major aspects relating to adoption of MAIs. These include the adopted MAIs techniques, extent of adoption of the MAIs and the determinant factors in the adoption of MAIs. The population of the study comprised of the employees in the finance department in all the manufacturing firms listed in the NSE. The research also relied mainly on primary data sources. Questionnaire surveys and interview guides were used to obtain the primary data.

1.6 Significance of the Study

The study provides the various stakeholders and the management of various manufacturing organisations in Kenya with information on the techniques that can be adopted by the industry players and factors determining the adoption of management accounting techniques therefore enhancing the overall adoption rates of MAIs within the industry.

The research also describes the Kenyan experience and scenario in relation to adoption of management accounting innovations. This is vital since studies from other regions depict varied results in the rates of adoption including differences in the adoption rates of new and traditional techniques.

With the manufacturing industry registering a rapid growth hence increased competition among product providers and negatively impacting government regulations, the findings of this study is useful to the various level decision makers in facilitating them understand and implement strategies in relation to adoption of MAIs so as to improve their organizations' performance. From a policy perspective, the study provides policyholders with relevant information that facilitate the development of regulations, guidelines and policies in the running and managing the adoption of MAIs in the manufacturing industry. The findings bridge the gap occasioned by a lack of sufficient journals and publications on Management accounting innovations.

The manufacturing industry is a vital sector in the country. It is coupled with social and economic benefits including providing sustainable livelihood for thousands and source of revenue to the country. The findings of the study therefore provide relevant information that seek to enhance its performance therefore improving the social and economic aspects of the Kenyan

populous. The findings of the study also sought to contribute towards the advancement of theories in relation to Management Accounting Innovations within the manufacturing industry. The results of the study also aid further research on other aspects of Management Accounting through offering reference to other researchers.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter covers the theoretical review; literature review on techniques of MAIs, adoption of MAI techniques and the determinant factors in the adoption of MAIs; conceptual framework and the summary of the chapter.

2.2 Theoretical Review

This section describes the theories that have been developed and evolved over time explaining the aspect of diffusion of MAIs. The theories covered are contingency, diffusion of innovation and institutional theories.

2.2.1 Contingency Theory

The contingency theory assumes that several influential aspects facilitate the management of an organisation in deciding on the management accounting practice to be adopted by an organization (Otley, 1980). He further expresses that there is no common standard of management accounting practice that can be applied to all organizations in relating contingency theory to management accounting. Additionally, Burns & Stalker (1961) argued out why management accounting practices may not be similar when making a comparison between organizations. Basically, each entity selects its own management accounting practices. Factors that determine which management accounting practice an organization employs include technological changes and the infrastructure of an organization. For instance, a food manufacturing company may intend to modernize its technology to a more hygienic and efficient way of processing and packaging its food products. The company may opt to install a computer based system. However, the type of qualified personnel that is require to operate such highly complex equipment will influence the type of management accounting practices selected and production costs.

Dugdale (1994) pointed out the mostly used management accounting practices in the manufacturing industry that included budgeting that facilitates cost control and performance evaluation. The findings indicated that budgeting is critical in the management and directing of organizational processes. Budgeting also gives an indication on the eminent seasonal change in

an organization and the possible impact on the organization' financial performance. On the other hand, Luther & Longden (2001) argued that the budgeting plays an important role in the manufacturing industry in the process of managing and controlling costs. This theory is relevant to this study since several factors influence the management decision hence the adoption rates of management accounting techniques within organisations. This is in line with the study' objective of establishing the determinant factors in adoption of MAIs and the extent of adoption of MAIs.

2.2.2 Diffusion of Innovation Theory

The Diffusion of Innovation Theory (DOI) is applied in explaining and predicting the rate at which IT innovations are adopted (Roger, 1995). The Diffusion of Innovation Theory assumes that no single factors can be used to explain an individual's decision to adopt an innovation. The theory is closely linked to rational theories of organizational life which are derived from the theory communication, sociology and economics. It facilitates implementers of technology in advancing new technological developments through creation of predictive accounts in relation to diffusion. Several factors are pointed out by Rogers (1995) that determine the adoption decision including information availability on a new innovation that entails the advantages and compatibility of the technology, past experiences, the social set-up that the innovation is implemented and the communication avenues deployed.

According to Wolfe (1994), the theory explains the rates of adoption by the innovation characteristics and the set-up of the social environment. Prescott and Conger (1995), Rogers (1995) and Nolan (1979) argue that the DOI model entails the following assumptions; Each innovation has a unique feature that easily identifies it among the interested party, the innovation moves concretely from the innovator to down the adaptor via a diffusion channel, several push and pull factors determine the choice of an adopter, communication channels explaining the technology and other relevant information determine the decision to adopt, the process of diffusion is shaped up through unique stages that are determined by several forces identifiable by differences in the adoption rate and that the diffusion process doesn't provide for feedback or history since the time scales are relatively short. The theory of diffusion of innovation is relevant to the study in that the theory' primary objective is to identify, describe or predict the rate or levels of adoption of innovations and their resultant trends with time; this is in line with the study's objective of determining the extent of adoption of MAIs in the manufacturing industry in Kenya.

2.2.3 Institutional Theory

This theory tries to explain the role of accounting within a social environment (Mäki, 1993). Institutional theories may be applied as devices in explaining the changes in management accounting, as it allows accounting to be viewed as a socially rooted practice. According to Scapens (1994), the theory assumes an institution as a way of thought or action of some prevalence and permanence, which is embedded in the habits of a group or the customs of a people that influence the decision making processes.

Several approaches are attached to the institutional theory (Mäki, 1993; DiMaggio & Powell, 1991). The approaches include; the New Institutional Economics (NIE) differentiates itself most from other approaches as it retains a notion of bounded rationality and it assumes (limited) economic optimization 'through economizing on transaction costs' (Scapens, 1994); Old Institutional Economics (OIE) emphasizes the enabling and constraining qualities of institutions. It assumes considerable uncertainty in the range of alternatives available to agents and in the possibility that agents can evaluate these alternatives in time and New Institutional Sociology (NIS) focuses primarily on how and why firms conform to institutionalized beliefs in society. While institutions are an integral part of organizational life in the view proposed by OIE, the view held by NIS treats institutions as largely exogenous to the firm. Table 2.1 summarizes the main aspects of the three features of institutional theory. The relevancy of the theory in relation to this study is embedded in the fact that the social context acts as a determinant factor in the success of the process of adoption MAIs.

Table 2.1: Features of Institutional Theory

	New Institutional Economics (TCE-variant)	New Institutional Sociology	Old Institutional Economics and the works inspired by OIE
Unit of Analysis	Transaction	Organization	Social (sub) group
Assumptions on individual	Bounded rational	Institutional determinism	Individual constructs social realities
Changes addressed	Governance structure	Institutionalized formal practices (budgeting; Activity Based Costing)	Behavioral regularities
Institutional focus	Efficiency	External legitimacy	Behavioral regularities

Source: Phillips et al. (2004)

2.3 Techniques of MAIs

There currently exist a number of management accounting techniques. Ferreira (2002) categorized these techniques into two groups; the traditional methods and the current innovations. The new techniques have affected the whole process of management accounting including planning, controlling, decision-making, and communication (Magdy & Robert, 2006). Triest and Elshahat, (2007) confirm in their research an existing gap in studies conducted on management accounting practices in countries positioned on the eastern part of the world. This further explains the under-utilization of management accounting practices in this region. The duo also discovered that management accounting was applied only at introductory level but not at advanced levels. In support of this assertion, Sulaiman, Ahmad and Alwi (2004) argued that the level of adoption of management accounting techniques in developing economies is still unsatisfactory. On the other hand, Chenhall and Langfield-Smith (1998) concluded that the rate of adoption of traditional management accounting practices is higher than the more recent developed techniques.

Different scholars have categorized the management accounting innovations into three different groups, namely: strategic focus practices, planning practices and performance evaluation practices;

2.3.1 Strategic Focus Practices

These practices entail techniques such as activity-based costing (ABC), value chain analysis (VCA), target costing (TC), balanced scorecard (BSC), product life cycle analysis and benchmarking. These practices facilitate organizations connect their operations to several strategic targets (Chenhall & Langfield-Smith, (1998). According to Hofstede (1980), the level of adoption of these techniques is dependent on the degree of a firm's uncertainty avoidance. For instance, Anglo-American and European regions register a higher number of early adopters of strategically focused MAIs compared to their counterparts in developing economies due to their low uncertainty avoidance.

2.3.2 Planning Practices

Planning practices in traditional accounting includes budgetary systems that facilitate planning for resources in the short-term while utilizing both capital budgeting and strategic planning for long-term resource planning (Chenhall & Langfield-Smith, (1998). Several researchers argue that planning practices such as activity based budgeting and budgeting for strategy, daily operations and controlling costs, have continued dominating in their use as planning techniques assisting in effective decision making. Many large organizations in USA and Australia which have a low level of uncertainty avoidance adopt more strategic planning practices which cover broader scope of time Sinha (1990). This is unlike organizations in countries that are still developing which have a high level of uncertainty therefore use these techniques for long term planning. A study carried out by Angelakis *et al.* (2010) on adoption and benefits of management accounting practices revealed that budgeting practices in Greece are extensively utilized for financial position's planning, coordination of business activities and performance evaluation.

2.3.3 Performance evaluation practices

These techniques are a vital function of management accounting and are used in evaluating both financial and non-financial gains. The major practices adopted world-wide under this category are financial measures, non-financial measures (operational, innovation, employees and customers) and benchmarking. Burnett, *et al.* (2005) in their study also determined the level of adoption of performance evaluation in companies and concluded that more companies adopted benchmark practices that entailed both internal and external benchmarking compared to economic value added practices. On the other hand, according to Chenhall & Langfield-Smith, (1998), developing countries that generally have a high level of collectivism compared to

individual performance, financial measures are more adopted compared to non-financial measures. The organizations evaluate individuals as a group and rewards paid depending on the achievement of companies' targets.

According to Wolfe (1994), understanding diffusion as an element of adoption results to understanding change and can therefore be used as a potential measure of change. Ax and Bjørnenak, (2007) suggest several aspects that may be used to measure success including the level of innovations adopted and implemented, the number of articles, books and journals on innovations and the count of people being trained on the innovation. They however conclude that the levels of adoption remain as the main measure of success in adoption.

2.4 Adoption of MAI Techniques

According to Mazza and Alvarez (2000), innovations should be made compatible with the people environment of the adopters. They also assert that legitimization alongside cultural discourses make-up the main resources required to facilitate the popularization hence adoption of a management accounting innovation. One of the ways through which the innovators can popularize and improve the adoption of an innovation to a specific location is through linking the design characteristics and the aspects of the innovations to the demand, liking and knowledge of the adopters. Kennedy and Fiss (2009) reveal that early and late adopters to any innovation are both affected by the need to attain efficiency and legitimacy since the two are complimenting aspects. An innovation is as successful, in relation to adoption, as the techniques used to diffuse it within a system. According to Chenhall (2003), an organization' internal culture and structure are among the internal organization techniques used in ensuring success in adopting management accounting innovations. Organizations have to establish and maintain a culture and structure that facilitate the process of adopting MAIs. This argument is also reiterated by Maurice (1997) in their study on the rate of adoption and implementation of ABC techniques.

Several researchers argue out the different aspects that can be applied in measuring adoption hence diffusion. For instance, Bjørnenak (1997) asserts that likely adopters´ contacts with the implementers of MAIs best explain the rate of adoption in comparison to efficient choice of variables. This is also reiterated in the findings submitted by Malmi (1999). According to Modell (2009), adoption of additional and related Management Accounting Innovations describes the success of the process of the diffusion of MAIs. Mahmoud, et. al, (2011) found out that lack of

professionals and enough information may hinder the adoption of MAI in their study on the Implementation of Management Accounting Innovations. Their study was limited to Jordanian industrial companies that are listed on the Amman stock exchange. Besides, Clarke et al. (1999) attaches low rates of adopting an innovation in their study of Ireland to the lack of mandatory additional professional education on management accounting, lack of executive MBA programmes and practitioner journal targeting the field of management accounting. Besides, Modell (2009) argued that diverse underlying dynamics such as power relations that define the type of relationship between a parent company and the subsidiary or between two subsidiaries, determine the success of adoption of MAIs. Generally, the adoption rates of MAIs differ depending on the nature of the MAI practice.

Earlier studies conducted on adoption of MAIs studies have generally focused on the demand by an organization for innovations and also stressed the place of potential adopters of the innovation(s) in determining the direction of the communication process (Christian & Trond, 2005). The research studies have considered the information aspect as a less impactive aspect in the entire process of adoption. On the other side, additional studies such as Abrahamson and Fairchild (1999), have considered the supply side seeking to actively control the information aspect of the likely adopters. More studies indicate that not all MAIs may successfully be adopted and implemented within an organization.

2.5 Determinant Factors in the adoption of MAIs

Several studies have investigated the effects of different factors influencing the level of utilization of management accounting technologies. Some researchers have concluded that adoption of management accounting is driven by two main factors; an organization's internal characteristics and environmental factors (Chenhall, 2003; Gosselin, 1997 and Ciambotti, 2001). These factors may further appear as challenges or benefits to the adopters of an innovation. According to Chenhall (2003), an organization's internal characteristics is determined by aspects such as organisational resources including human capital, financial resources and assets; communication channels and technological capabilities; organisational structure and organisational culture whereas Ciambotti (2001) asserts that proxy of measure for an organisation' environmental factors include industry features such as cost structure, competitiveness, regulations and laws; national culture and knowledge resources including books, journals and conferences. However, In his study, Wolfe (1994) states that studies on

adoption of management accounting innovations has progressed under varied views ranging from economic to social-organizational processes. The economic perspectives argue that these innovations are as a result of economic reasons hence managers embrace the methodologies prescribed in order enhance economic organizational economic performance.

To answer the question why innovations are and may be successfully adopted or completely rejected, Abrahamson (1991) developed a 4-phased matrix. The four elements include; efficient choice, force, fashion and fads: The efficient-choices perspective views that choices are arrived with an assumption that there are benefits and efficiencies that an organization can be achieve as a result of adopting such innovations. However, there are instances where technically inefficient innovations are diffused or efficient innovations rejected. On the other hand, forced view argues that selection can occur when powerful organizations, such as governmental agencies (DiMaggio & Powell, 1991), a powerful purchaser (Malmi, 1999), and headquarters and parent companies (Dossi and Patelli, 2008) force the adopters to implement a particular technology. Hence, those who are to adopt the innovations, for example a subsidiary company, have a very minor role to play in the determining the type of choices to be settled for (Lapsley and Wright, 2004) while the fashion perspective results to imitating specific technologies promoted by "fashion-setting organizations" or "fashion setters" including consultants, without necessarily considering the efficiency of these technologies (Malmi, 1999). Lastly, the fad view argues that adoption of innovations is mostly as a result of legitimacy as compared to rational reasons.

2.5.1 Organization's Internal Characteristics

Gosselin (1997) and Chenhall (2003) cite organizational structure, culture and strategy as aspects that define an organization's internal characteristics. They further describe these characteristics as including firm's size, operational complexity, employed technology and staff capabilities. The decision to adopt and implement an accounting innovation involves the assessment of several dimensions within an organization including the intent of the innovation, economic assessment including the cost involved and the applicability of the innovation which should capture the existing organizational capabilities. According to Innes and Mitchell (1990), these internal organizational factors can be categorized as either being facilitators or catalyst. Catalyst factors according to the two, captures aspects that are directly associated to change and the timing of change. They include aspects such as loss of market share, reduced profitability and sudden improvement of staff capabilities through hiring or training. Facilitators represent factors that are

conducive to a management accounting change such as availability of adequate staff to implement the innovations and resources needed.

Bjørnenak (1997) conducted a study on the diffusion of Activity Based Costing within Norwegian manufacturing companies and concluded that there existed three categories of adoption processes that an organisation can undertake internally. The initial adoption process depends on the 'movement by skilled workers' who stir up change while working as agents of the change while the second adoption process was a 'contagious' process, where information on the innovation is smoothly, continuously and randomly spread. Hierarchical adoption was also identified to take place through information being released in a trickle-down process from the source/innovators down to the adopters who are assumed to be inn smaller units.

2.5.1.1 Organisational Structure

Organizational structure refers to how an organization coordinates its human resources both as individuals or teams. For an organization to achieve its goals and objectives, individual work needs to be planned and well-managed. Structure is therefore an important tool in attaining coordination, as it defines reporting relationships, delineates formal communication channels, and explains how independent actions of teams and or individuals can be centrally coordinated. Organizational structures can either be viewed as being mechanistic or organic. Mechanistic structures are more bureaucratic. Communication tends to follow formal channels and employees are given specific job descriptions delineating their roles and responsibilities. The main advantage of a mechanistic structure is its efficiency but disallows innovations (Sine, Mitsuhashi and Kirsch, 2006). Sine, Mitsuhashi and Kirsch also add that this structure is attributed to the firm performance in new ventures. Mechanistic organizations are often rigid and resist change, making them unsuitable for innovativeness and taking quick action. Therefore, in organizations that are trying to maximize efficiency and minimize costs, mechanistic structures provide advantages. Contrary to mechanistic structures, organic structures are flexible and decentralized, with. Organic structure, allows for more flexible channels of communication within an organization. Employee's responsibilities are made broader and are usually asked to execute duties based on the organizational needs and their expertise levels (Burns and Stalker, 1961).

2.5.1.2 Organisational Culture

According to Schein (2004), organizational culture refers to a pattern of shared basic assumptions that a group has learned as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid and therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems. Organizational cultures enhance specific new adaptations and inhibit others. Some cultures are best suited in environments that are fast and keep changing, while others fit best in slow incremental developments. The correct culture best fits an organization's direction and strategy as it works towards achieving its objectives and beat its challenges. Quinn and Cameron (1999), suggests four types of organizational culture: Clan, Adhocracy, Market, and Hierarchy. Clan culture allows for a friendly working environment. It views the heads of the organizations as mentors. On the other hand, hierarchy culture is greatly formalized and structured. It defines procedures of what people do. Market culture is based on results and is goal focused hence creating competitive people while adhocracy culture creates a dynamic and entrepreneurial organizational environment. The leaders here are seen as being innovators and risk takers.

2.5.2 Environmental Factors

According to Hofstede (1980), Khandwalla (1972) and Ciambotti (2001) the main variables describing the aspect of environmental factors include national culture and industry features. The industry' cost structure, change in production technology and market competitiveness according to Innes and Mitchell (1990) describe a firm's environmental factors. They however term them as motivators since they influence the general observed change.

Lapsley and Wright (2004) viewed that the adoption process cannot be undertaken without internal actors developing networks external to their organization through a process called boundary spanning. In line with this argument, Bjornenak (1997) states that adopters of any innovation need to be persuaded; this can be attained through information and demonstration. He also stresses on the vitality of infrastructure that enhance adoption which include books, seminars and conferences that may be applied in convincing and informing the potential adopters. Abrahamson (1996) adds that an innovation should be accompanied and preceded by an increase in the number of publications on the innovation within the industry. MAIs should not

be fixed but flexible in order to allow them be more attractive hence ensuring a successful diffusion process (Ax & Bjørnenak, 2007).

2.5.3 Challenges of Adoption of MAIs

Several studies have indicated different challenges that affect the process of adoption of MAIs within various economic sectors. These challenges range from lack of sufficient information, effectiveness of organisational structures and systems and applicability of the innovation;

Evidence show that accounting as a study and as a practice has a real existing gap. This gap is however not attributed to the development and growth of accounting as academic but to the low research conducted on accounting and more specifically on management accounting as a field (Inanga & Schneider, 2005). This leaves the field of management accounting greatly untapped as a result of scarcity of available information hence limiting the number of accounting innovations adopted as a result of insufficient information.

Adoption is not an automatic consequence of innovation and its ease of progress is subject to favorable factors existing within its environment (Irvine & Elisa, 2004) as Wolfe (1994) significantly links adoption with the competitiveness and effectiveness of the organization. According to Chenhall (2003), an organization' internal culture and structure are among the internal organization aspects used in ensuring success in the process of adopting management accounting innovations. These aspects define how effective an organization is in coordinating its human resources both as individuals or teams. Most organisations however suffer from a lack of effectiveness in adopting innovations that may be occasioned by poor quality of human capital available and non-supportive organisational structures and cultures (Irvine and Elisa, 2004). Other internal organisational challenges according to Bjørnenak (1997) include a lack of adequate resources, inefficient communication channels and unwillingness to make organizational changes or out of theoretical academic objections.

Chenhall and Langfield-Smith (1998) noted that compatibility of an innovation in a different environment has proved to be a challenge in the process of adopting MAIs. The duo assert that that some innovative tools resulting from the western context may not be necessarily applicable within the European region citing cultural and historical dissimilarities in the development of costing systems. A similar conclusion is made by Etemadi, Dilami, Bazaz and Parameswaran

(2009) who state that the implementation of MAIs developed in western and more advanced economies for effective management of performance may not be useful in the Iranian context.

Ax & Bjørnenak, (2007) viewed that ineffective interactions between the innovators and adopters hampers adoption. This may result to incomplete awareness of benefits of an innovation hence organisations may fail to adopt. They further argue that barriers to adoption may also arise that entail influence from parent organization in the event of a subsidiary firm, industrial laws and regulations, and information field which depicts the extent of contacts the adopter has made with the innovator within a specified period. These factors are however out of the control of a single organisation.

2.5.4 Benefits of Adoption of MAIs

Many changes in accounting can be directly or indirectly be associated to adoption of MAIs (Trond, 2005). Fowzia and Nasrin (2010) state that several innovative management accounting techniques have been developed capturing varied economic sectors. The most notable innovations include the Balance ScoreCard, Activity Based Costing (ABC), Activity Based Budgeting (ABB) and Activity Based Management (ABM) and Strategic Management Accounting. These innovations support modern technologies and processes of management including Total Quality Management (TQM) and seek to attain a competitive advantage so as to be at par with the global challenge in competition (Abdel-Kader and Luther, 2002). It is therefore argued that these new innovations have influenced the entire aspect of management accounting that entails planning, controlling, decision-making and communication therefore shifting focus from just simple financial control and cost determination to including complex processes such as value creation through utilization of resources in an improved manner (Abdel-Kader and Luther, 2002).

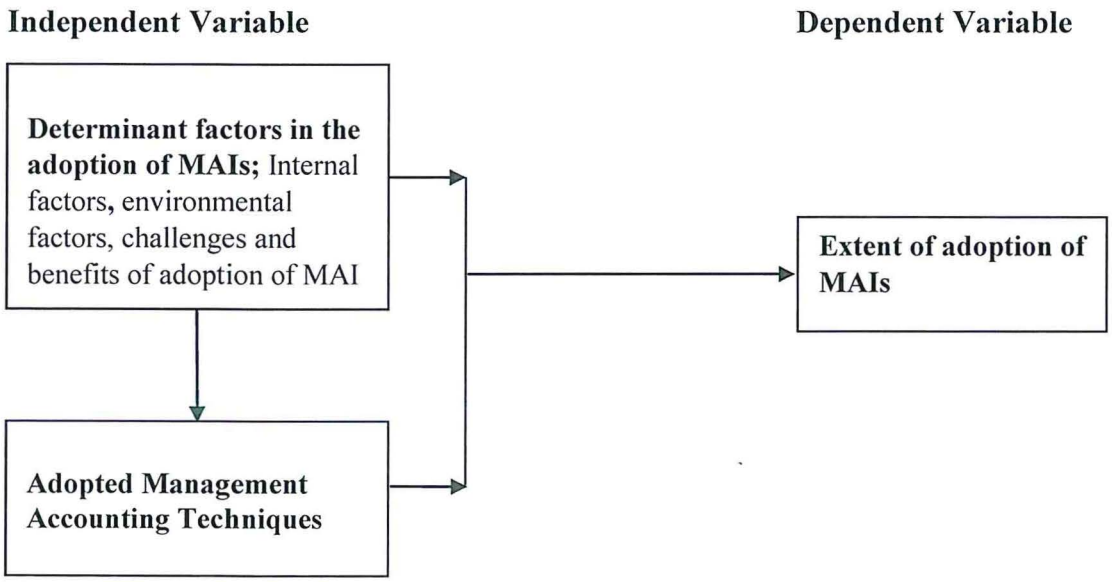
The criticality of adopting new and advanced management accounting innovations has been counted to be more vital to organizations that have a more strategic approach to business hence more efficient in responding to the current high business competitiveness globally. Many experts therefore discredit the worthiness of the traditional management accounting since it fails to address the needs in this new business operating environment that is characterized by issues such as competition, efficiency, accountability, sustainability and measurement of performance (Dick-Forde, Burnett and Devonish, 2007). It has also been revealed by a study conducted by Lin and

Yu (2002) that the innovative management accounting practices developed by organizations in Japan such as TQM, JIT, target costing and activity based costing having been adopted by companies in North America have resulted to improved efficiency in production, organizational profitability and competitiveness.

In relation with the argument by Khajavi and Nazeni (2010), the traditional methods used in costing and managing accounting have been have lost popularity as a result of a lack of power and inefficiency in fully supplying towards the demands of organizations that are undergoing transformation. Several studies indicated that management accountants were continually getting dissatisfied with the old methods of management accounting. Additional proof further indicated that the methods could also not adopt to the new conditions that demanded information as a result of technological changes in manufacturing sector globally. Management accounting innovations therefore sought to solve these matters. Gupta and Baxendale (2008) add that with an advancement in technology within organizations today, overhead cost depends on the product diversity and volume and how complex the operations are. The traditional costing accounting systems are therefore less beneficial in such business environments since they are unable to offer adequate support.

2.6 Conceptual Framework

Figure 2.1: Conceptual framework



2.9 Summary

AlKhadash and Feridun (2006) in their study on impact of strategic initiatives in management accounting on corporate financial performance concluded that awareness level of the vitality of deploying management accounting innovations like ABC has increased with the financial managers in the Jordanian industrial sector citing a good business environment to adopt the new management accounting innovations including availability of funding alongside human skills. They however do not address the methodologies employed by the companies in adoption of the innovations. On the other hand, in a study on the extent to which management accounting innovations (MAIs) are applied in the manufacturing sector in Jamaica carried out by Phillip (2012), the study revealed that companies adopting MAIs have more reliable information for decision making, higher levels of profitability and competitiveness when compared with non-adopting companies. The study however did not address the issue that determine the adoption of MAIs within the sector.

Massoud and Mohd (2015) present a contrary opinion in their study on diffusion of Management Accounting Practices in Iranian Manufacturing Companies. They concluded that the adoption rates of traditional management accounting techniques are very higher than new-developed techniques in Iranian firms. They however also indicated that Iranian firms have obtained satisfactory benefit from some new-developed practices which shows that they are beginning to realize the benefits and are starting to implement more of these new practices in the future. Urquidi and Ripoll (2013) in their study on the choice of management accounting techniques in the hotel sector analyzed the management accounting practices that are currently being used by four and five star hotels. They concluded that recently developed management tools have been appropriated by the need for enough, brief and specific information by part of the organizations. The study however did not address whether techniques used in adoption of MAIs or benefits derived from MAIs play a role in the adoption rate of MAIs.

From literature reviewed, although there are several studies relating to adoption of Management Accounting Innovations within the manufacturing sector, that avail recommendations towards effective absorption of these innovations, little is known by the researchers on the topic of adoption of MAIs in the Kenyan Manufacturing Industry. This study therefore sought to bridge this gap through providing a better understanding of adoption of MAIs in the industry by

measuring aspects such as techniques of MAIs adopted within the industry, extent of adoption of MAIs and the determinant factors in the adoption of MAIs.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the blueprint of the research methodology that was used in conducting the study. It covers the processes from data collection to measurement and data analysis covering; research design, population and sampling, data collection and analysis, reliability and validity of research instruments and ethical issues.

3.2 Research Design

Thornhill et. al, (2003) indicates that a research design should take into consideration the sources of data for a study and the possible constraints the researcher has to encounter including time, money and ethical issues. He therefore defines a research design as the overal plan of the reseracher in answering the research question. An argument by Zainal (2007) states that the researcher can either select a single-case or a multiple-case design this being determined by the issue under study. A design therefore seeks to describe a subject through creating a profile of a group of problems, people, or events, by the obtaining data and tabulating frequencies on the research variables or their interaction. Both descriptive and explanatory survey designs were employed by the researcher in carrying out the study. The design analyzed the MAI techniques adopted, factors that drive adoption of the MAIs and the extent of adoption of the MAIs

3.3 Population

Mugenda and Mugenda (2003) defines a population as a general set of individuals, cases or objects that bear some relatable but observable characteristics whereas the target population is the population to which a researcher wants to generalize the results of a study. The study's target population consisted of all the 25 manufacturing companies in Kenya that are listed with the NSE and registered under the Kenya Association Manufacturers (KAM).

3.4 Sampling

A well clearly defined sample bears the same characteristics as the entire population hence a study result obtained from such will unbiasedly represent the characteristics of the entire population (Cooper, 2001). Mugenda and Mugenda (2003) stated that a good population representation should include a sample size of between 10% - 30% of the population under study. The sample size of the study therefore included 12 companies that are members of KAM and listed at the NSE which represents 48% of the targeted population. The sample was

determined using the stratified sampling method; the population was divided into four economic strata including agricultural, construction, motor and other allied manufactures. The sample elements included the Chief Financial Officers, Accounting Managers, Assistant Accounting Managers and Accounting Officers from each of the companies. These respondents are better placed to give feedback since they are at a place of decision making and are viewed to have access and understanding of their various organization' accounting strategies relating to MAIs. The three respondents from each organisation were selected so as to enhance the reliability and precision of the collected data. The sample was constituted as indicated in table 3.1.

Table 3.1: Sample Distribution

Category	Population	Percentage sample	Sample size
Agriculture	13	50.0%	6
Construction	5	25.0%	3
Motor	3	8.3%	1
Other allied manufacturers	4	16.7%	2
TOTAL	**25**	**100%**	**12**

Source: researcher (2016)

3.5 Data Collection

Sekeran (2000) defined data collection as the process of information gathering pertaining the object under study using data collection instruments. The study used quantitative and qualitative approaches in collecting primary data. The study used questionnaires and interview guides as instruments of collecting the data. The questionnaires deployed by the study were semi-structured; containing both open-ended and closed-ended questions, capturing each research objective and were used to collect primary data from the respondents. The questionnaires were designed to be completed by the respondents from each of the listed companies with no assistance from the researcher. They were used on the Accounting Managers, Assistant Accounting Managers and Accounting Officers. The questionnaires were distributed with the

help of one trained research assistant after seeking for authorization with the respective human resource departments. The respondents were left with the questionnaires to fill for collection after three to five days so as to improve on the response rate.

Individual interviews were facilitated by pre-designed semi structured and open-ended interview guide. The semi-structured approach enabled the maintenance of focus on the topic under study since time constraints is viewed to be an issue. The guide was designed to allow the respondents provide in-depth information other than locking them in pre-selected answers. The Interviews targeted the Chief Finance officers who were contacted individually at their offices. This was more practical and appropriate since the interviewees are senior managers and may be difficult to organize interviews outside their offices.

3.6 Data Analysis

The research collected and analyze both quantitative and qualitative data. Quantitative data was mainly derived from the close-ended questions in the questionnaires. The questionnaires were first checked for completion in filling then the responses were coded for analysis. To analyze the characteristic set up of the sample and study areas, information on the respondents and the organization were collected and descriptive analysis method applied on the data obtained where frequencies, mean and standard deviations were calculated. To determine the different techniques of MAIs adopted, the research collected information on the MAI techniques used by the various organization and used descriptive analysis method to carry out an analysis on this data by determining the mean and standard deviations of the responses received. Similarly, to establish the determinant factors in the diffusion of MAIs, the research collected information on the extent to which respondents agree with some statement relating to factors driving the process of adoption, list of factors influencing adoption and the degree of influence from each of the factors. Descriptive and explanatory analyses methods were applied, utilizing both mean and standard deviation measures. To determine the extent of adoption of diffused MAIs, the study collected data on the degree of utilization of the innovations and the extent to which respondents often view and agree with some statement relating to MAIs adoptions. The data was then analyzed using descriptive analysis that utilized mean, standard deviation, correlation and regression measures.

Qualitative data was mostly from the open-ended questions in the questionnaires and interview guides. The qualitative data was generally used to improve on the quality of the results obtained

from the quantitative data. Various descriptive statistics measures were determined including proportions and measures of central tendency such as mean, standard deviation (SD), median and ranges. The results were presented in tables, charts and graphs. In addition, inferential statistics was applied to analyse the data including Pearson's correlation and regression analysis that was used to test the strength and nature of association between variables being measured: independent and dependent. The regression analysis model was presented as indicated below;

$$Y = C_0 + C_1X_1 + C_2X_2 + C_3X_3 + C_4X_4 + £$$

Where; Y - Extent of adoption of MAIs = Degree of adoption of a MAI.

X_1- Adopted MAI Techniques = Type of MAI, Frequency and Degree of application of a MAI.

X_2- Challenges of diffusion of MAIs = Type and degree of challenge

X_3- Determinant factors in the diffusion of MAIs = Aspects driving diffusion of MAIs and Frequency of their application.

X_4- Benefits of diffusion of MAIs = Type of benefit and Degree of benefit.

C_0 - Constant

C_1, C_2, C_3, C_4 - Regression coefficients

£- Error term

3.7 Reliability and Validity of Instrument

Joppe (2000) defines reliability as the level of consistency in results over time while accurately representing the population under study using the given operational definition. On the other hand, Validity measures the extent to which the data collection instruments actually measure what they are intended to measure. In order to ensure reliability and validity, the study issued the questionnaires to the respondents, picked them after filling and assessed the responses received. This sought to ensure internal consistency, completeness and accuracy of the questionnaire and affirm the responses from the selected sample. The researcher also checked on how appropriate and comprehensive the content of the questionnaire is in measuring all the constructs of the variables of the study, if the content logically gets at the intended variable, how adequate the sample of items or questions represent the content to be measured and if the instrument format is appropriate.

3.8 Ethical Issues

The study addressed several ethical issues especially for data collection process. Information to be obtained from the respondents was not intrusive but on the respondents volition; absolute sensitivity and caution was exercised. Companies' names were also not be mentioned in the final report but through assigned letter such as "Company X". Respondents were also not coarse to participate in study or neither were they exposed to conditions that might have resulted in physical or mental harm. Finally, objectivity was maintained and the researcher's opinion, assumption, expectations and biasness were not made explicit and remained non-intrusive.

3.9 Robustness Test of Reliability of the Model

Several reliability tests on the regression model adopted by the study were conducted; multicollinearity test, heteroscedasticity test and auto correlation test. This further enhanced the reliability of the inferences made from the model results.

According to Gujarati and Porter (1999), multicollinearity is said to exist in the model if any of the two explanatory variables are determined to be perfectly correlated. The duo add that multicollinearity can be measured using detection tolerance and Variance Inflation Factor (VIF) tests. The duo also argue that multicollinearity can be determined as existent in the model if the detection tolerance is less than 0.1 and the Variance Inflation Factor (VIF) values surpass 10 therefore concluding that the model is unreliable.

On the other hand, Gujarati (2003) states that when the error term of one independent variable is influenced by the error term of another independent variable then a serial correlation is existence. Serial correlation implies that the OLS estimators are usually smaller in value compared to the real estimators while the coefficient of determination are larger than the real values if both are calculated in presence of autocorrelation Torres-Reyna (2007). Durbin Watson test was applied in testing for autocorrelation. A Durbin Watson value of between 1.5 and 2.5 depicts no autocorrelation hence reliability of the model.

In line with the argument by Gujarati and Porter (1999), the linear regression model works on the assumption that the error-term variance should be constant. However, a situation where the error-term differs with change in the explanatory variables, the t-statistic value may be smaller than the

real value hence a wrong conclusion may be arrived at in relation to the hypothesis tested. Heteroscedasticity test is therefore used to assess the existence of such variation in the residual terms. To determine the level of heteroscedasticity, the study applied the Lagrange Multiplier (LM) Test. LM test discrimination zone was set as; if the test statistic is greater than the tabulated value, then heteroscedasticity is non-existent hence the model is reliable.

3.10 Operationalization of Variables

The study' variables were measured as indicated below;

Table 3.2: Operationalization of variables

Variable	Category	Measure	Reference
Adopted MAI Techniques	Independent	Type of MAI, Frequency and Degree of application of a MAI (Likert: High, Medium, Low)	Massoud and Mohd (2015)
Challenges of adoption of MAIs	Independent	Type and degree of challenge	Ax & Bjørnenak, (2007)
Determinant factors of adoption of MAIs	Independent	Aspects driving diffusion of MAIs and Frequency of their application (Likert scale: 1=Very often, 5=Not often)	Ax & Bjørnenak, (2007) and Irvine and Elisa (2004)
Benefit of adoption of MAIs	Independent	Type of benefit accrued from MAIs and Degree of benefit (Likert: High, Medium and Low)	Christian and Trond (2005)
Extent of adoption of MAIs	Dependent	Degree of adoption of a MAI (Likert: High, Medium, Low)	Phillip (2012) and Massoud and Mohd (2015)

Source: Researcher (2017)

CHAPTER FOUR

RESEARCH FINDINGS AND ANALYSIS

4.1 Introduction

The general objective of the research was to examine the adoption of management accounting innovations in the Kenyan Manufacturing Industry. This chapter presents the findings of the study and analysis on the same. The findings were presented using frequency tables, pie charts and graphs and the data summarized in percentages, frequencies, mean, standard deviations and correlation values. The study issued a total of 36 respondents with questionnaires and 31 were submitted back; this indicated an estimated response rate of 86%. The research however utilized data from 29 questionnaires since two out of the returned questionnaires (31) were not duly completed hence not used for analysis. The study also managed to conduct interviews with three CFOs from three separate organizations. The three were coded as CFO1, CFO2 and CFO3.

4.2 Background Information

The study sought to obtain demographic information on the respondents; high ranking accounting officers, and the companies. The findings are presented in the subsequent sub-sections.

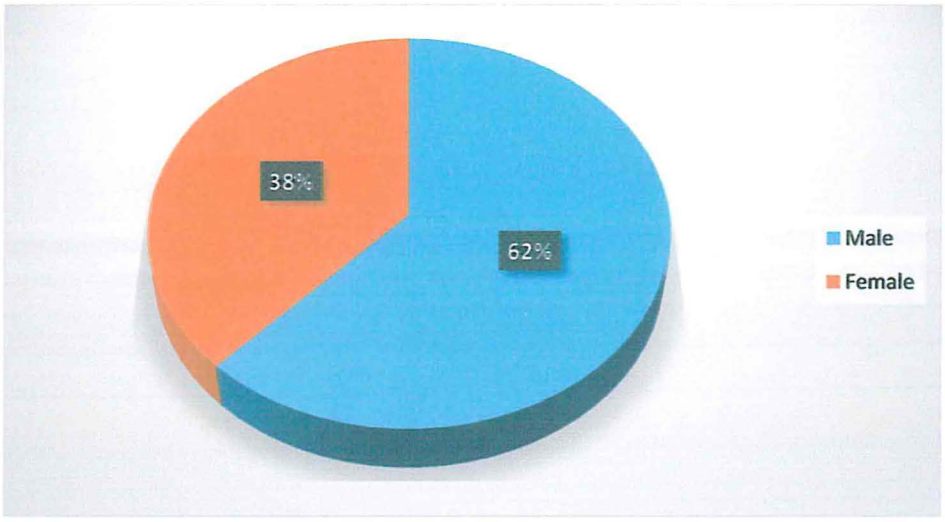
4.2.1 Demographic Information of Respondents

The demographic information collected by the researcher entailed gender and age of respondents, education level, professional qualification, position held within the organization and the number of continuous years of service to the organization.

4.2.1.1 Gender of Respondents

Figure 4.1 summarizes findings on the gender distribution of the respondents. The responses indicate that 62% of the respondents, signifying 1 8 respondents, were male whereas only 3 8%, signifying 11 respondents, were female. Similarly, out of the four interviewed CFOs, only one was female while the rest were male. This implies that most of the manufacturing organizations in the country have employed more males that females in their accounting division.

Figure 4.1: Gender of respondents

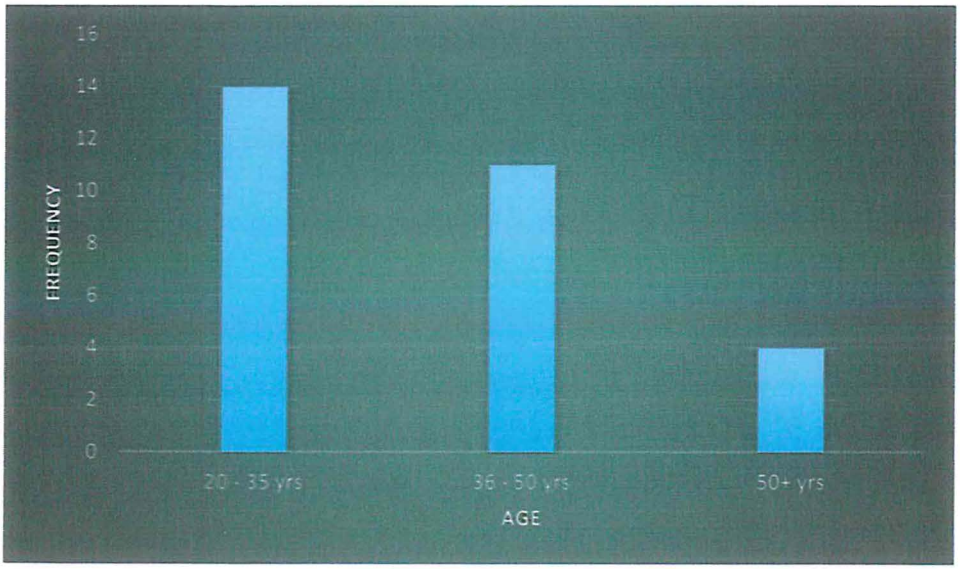


Source: Researcher (2017)

4.2.1.2 Age of the Respondents

Figure 4.2 summarizes the distribution of age of the respondents. The results indicate that most (14) of the respondents are in the age bracket of 20-35, representing 48.3%; 11 respondents, representing 37.9% are in the age of 36-50, while only 4 of the respondents representing 13.8% are 50 years and more in age. This implies that more than one-half of the respondents (51.7%, 15) of the respondents are over 35 years of age.

Fig 4.2: Age of the Respondents

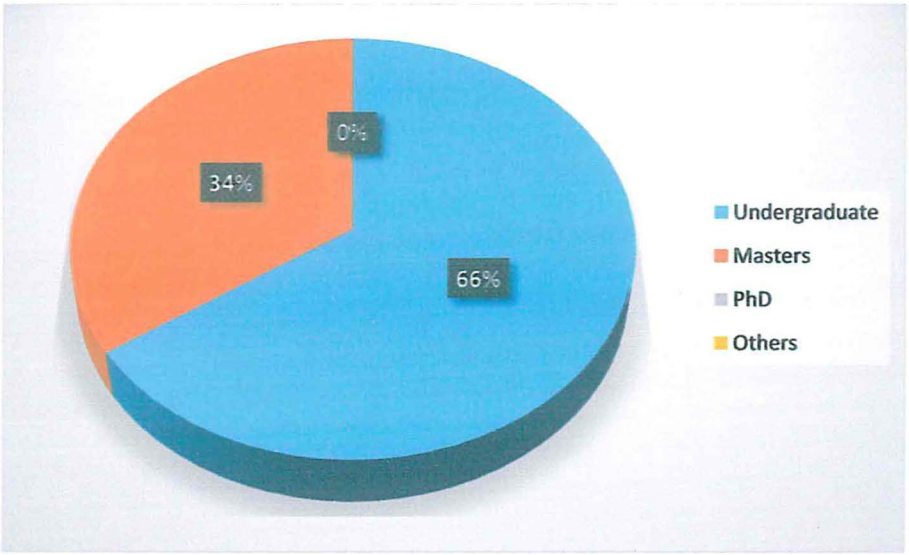


Source: Researcher (2017)

4.2.1.3 Level of Education

Figure 4.3 represents the level of education attained by the respondents. The findings, depict that out of the 29 respondents, 19 (66%) had attained at least an undergraduate degree while only 10 (34%) had attained a masters degree. However, none of the respondents had a PhD or a lower qualification to an undergraduate degree. These findings signify that the organizations employ qualified staff in their finance departments. The results further improve the reliability of the responses obtained.

Fig 4.3: Education Qualification

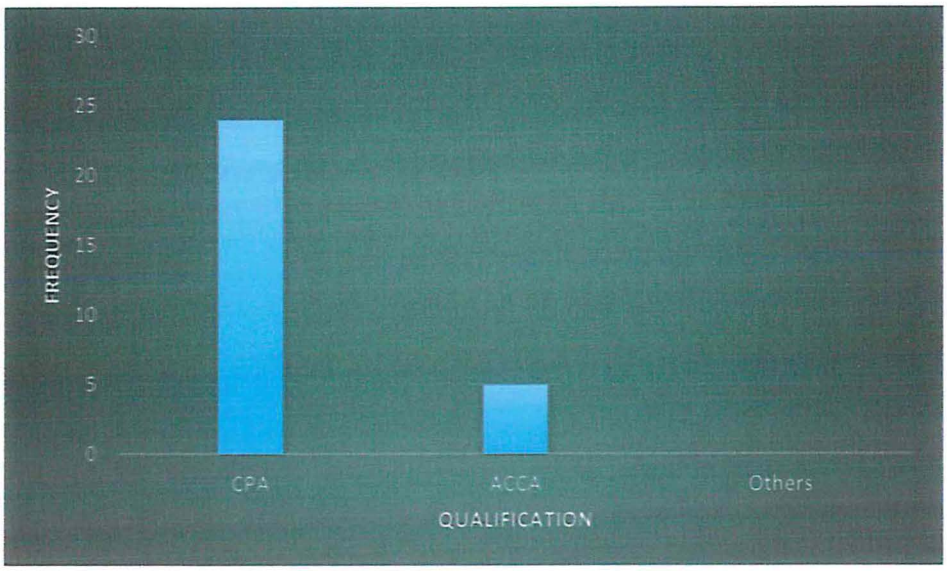


Source: Researcher (2017)

4.2.1.4 Professional Qualification

Figure 4.4 summarizes the findings on the professional qualification of the respondents. From the figure, most of the respondents (24, 82.8%) had a CPA professional qualification, 5 (17.2%) had an ACCA qualification while none of the respondents confirmed of having any other professional qualification. This indicates that all the respondents were professionally qualified accountants.

Fig 4.4: Professional Qualification



Source: Researcher (2017)

4.2.1.5 Employment Position and Length of Service

Table 4.1 reveals that, only 1(3.4%) of the respondents was a chief finance officer, 8(27.6%) of the respondents were finance managers, 7 (24.1%) of the respondents representing were assistant finance managers, 10(34.5%) of the respondents were accounts officers while 3(10.4%) of the respondents were assistant accountants. This depicts that more than half of the respondents (16, 55.1%) were decision makers hence believed to be conversant with their company's management accounting innovation strategies.

Table 4.1 also indicates that only 6.9% which represents 2 respondents had worked for their respective organizations for less than a year. Most of the respondents 12 (41.4%) had however worked for their organizations for between 6 and 10 years. In general, only less than one-quarter of the respondents 6 (20.7%) indicated that they had continuously served in their organizations for a period less than 3 years. With the interviewed CFOs, the findings revealed that 2.5 and 13 years were the least and most number of years respectively, that the CFOs had continuously worked within their respective companies. This further depicts that the responses obtained are

reliable since most of the respondents had continuously worked in their organizations for a significant period of time hence well informed of the various activities undertaken within management accounting.

Table 4.1: Employment Position and Length of Service

Aspect	Frequency	Percentage %
Position of Employment		
Chief Finance Officer	1	3.4
Finance Manager	8	27.6
Assistant Finance Manager	7	24.1
Accounts Officer	10	34.5
Accounts Assistant	3	10.4
Length of Service		
Less than 1yr	2	6.9
1 – 3 yrs	4	13.8
3 – 6 yrs	12	41.4
6 – 10 yrs	8	27.6
Above 10 yrs	3	10.3

Source: Researcher (2017)

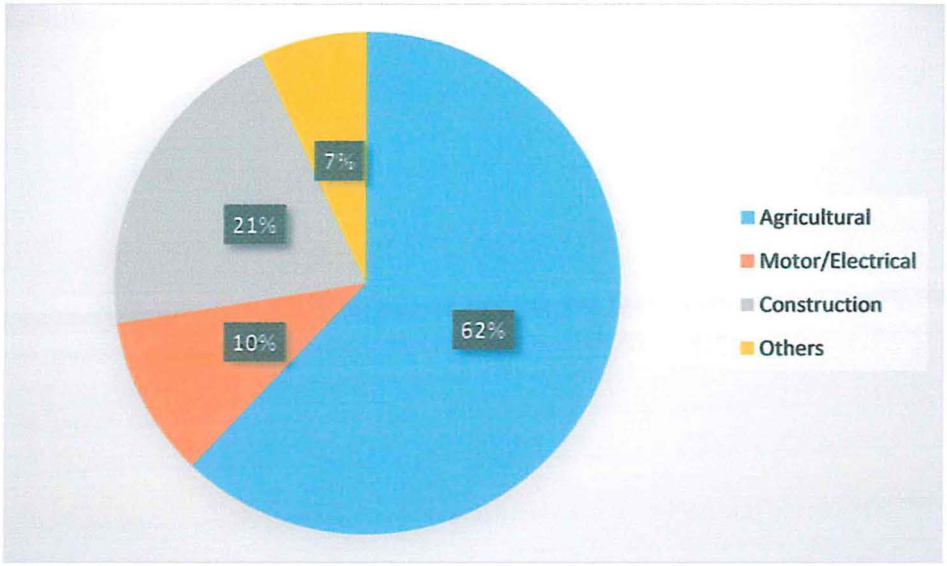
4.2.2 Company Information

The study sought out information on the companies that included type of the organisation, economic category, number of additional branches in the country, period of operation in the country, size of employee base, number of employees and qualified accountants and organisational performance. The results were summarised as below;

4.2.2.1 Organisation Category and Number of Branches

The results from the respondents were summarized in figures 4.5 to 4.6 below. Figure 4.5 revealed that most of the organisations (18, 62%) at the NSE were agricultural based while less than one third (6, 21%) were in the construction sector. Similarly, only 3 (10%) were from the motor and electrical sector and 2 (7%) from other allied manufacturers. This clearly is in synch with the country' economic structure that is depicted as mostly agricultural.

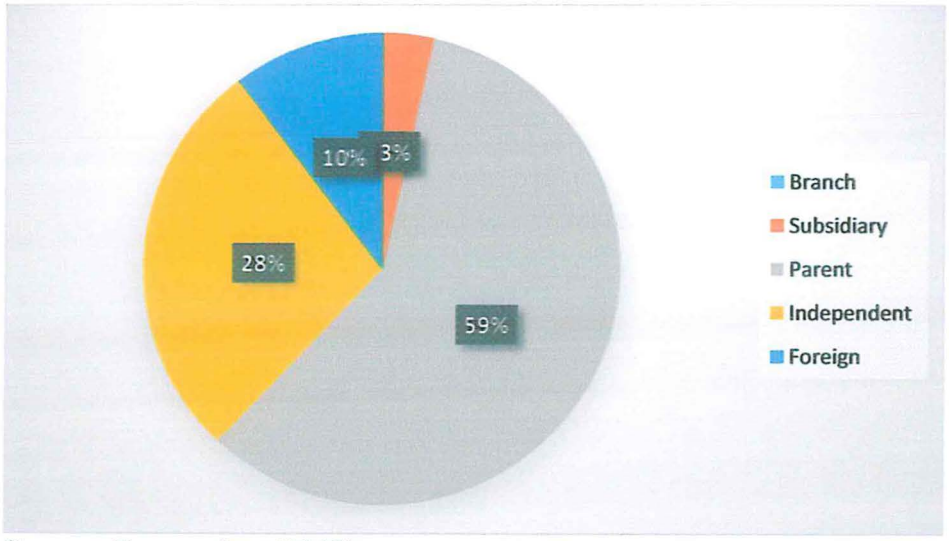
Fig 4.5: Economic Category



Source: Researcher (2017)

As indicated in Figure 4.6, most of the organizations were parent companies as depicted by 17 (59%) of the responses while none operated as a branch organization in the country. Besides, only 3% (1) of the organisations indicated that they were subsidiary organisations whereas 10% (3) were foreign based organisations operating in the country. On the other hand, 28% (8) of the organisations confirmed being independent organisations.

Fig4.6: Type of Organization



Source: Researcher (2017)

4.2.2.2 Organisational Capabilities

Information on the capabilities of the organizations; number of additional branches, duration of operation in the country and the total number of staff and qualified employees, was summarized as indicated in table 4.2 below. From the results, most of the respondents (10, 53.8%) indicated that their organizations had additional branches of between1 to 3, 3 (17.6%) revealed that their organizations had no any additional branch while no organization had more than 10 additional branches within the country. All the respondents 29 (100.0%) of the organizations confirmed that their respective companies had been in operation in the country for more than 20 years. More than half 15(51.7%) of the sampled organizations indicated that they had between 400 to 500 employees while only 3 (10.3%) had less than 250 employees. On the other hand, less than one-third 8(27.6%) of the organizations revealed that they had not more than 10 qualified accountants. These results reveal that most of the organizations are well established hence form good cases of study.

Table 4.2: Organisational Capabilities

Aspect	Frequency	Percentage %
Additional Branches		
None	3	17.6%
1 – 3 branches	10	58.8%
4 – 7 branches	3	17.6%
8 – 10 branches	1	5.9%
>10 branches	-	0.0%
Duration of Operation in the Country		
<5yrs	-	0.0%
6 – 10yrs	-	0.0%
11 – 15yrs	-	0.0%
16 - 20yrs	-	0.0%
>20yrs	29	100.0%
Number of Staff		
<100	-	0.0%
101 – 250	3	10.3%
251 – 400	5	17.2%
400 – 500	15	51.7%
>500	6	20.7%

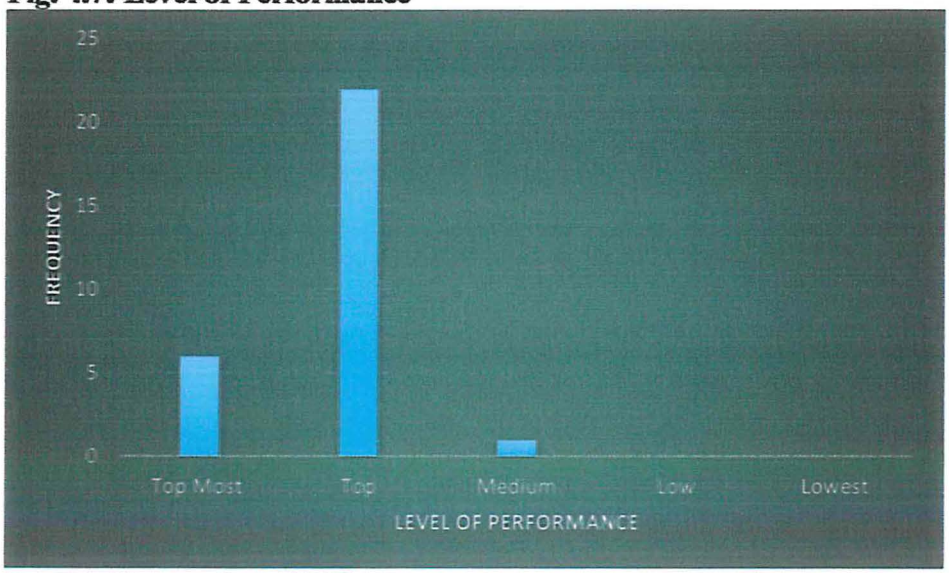
Number of Qualified Accountants		
1 – 5	1	3.4%
6 - 10	7	24.1%
11 – 15	13	44.8%
16 – 20	7	24.1%
>20	1	3.4%

Source: Researcher (2017)

4.2.2.3 Level of Organisational Performance

The responses on the level of performance of the various organizations was summarized in fig. 4.7 below using the scale top most, top, medium, low and lowest. From the results indicated in Figure 4.7, 22 (75.9%) of the respondents rated their organizations as among the top organization in the industry while none rated their organizations as either being low or lowest performer in their respective industries. This indicates that most of the respondents strongly believe in the performance of the companies they work for.

Fig. 4.7: Level of Performance



Source: Researcher (2017)

4.3 Techniques of MAIs

The study sought to determine the number of management accounting techniques implemented by the individual organizations and the frequency of their application within these organisation.

4.3.1 Number of implemented MAIs

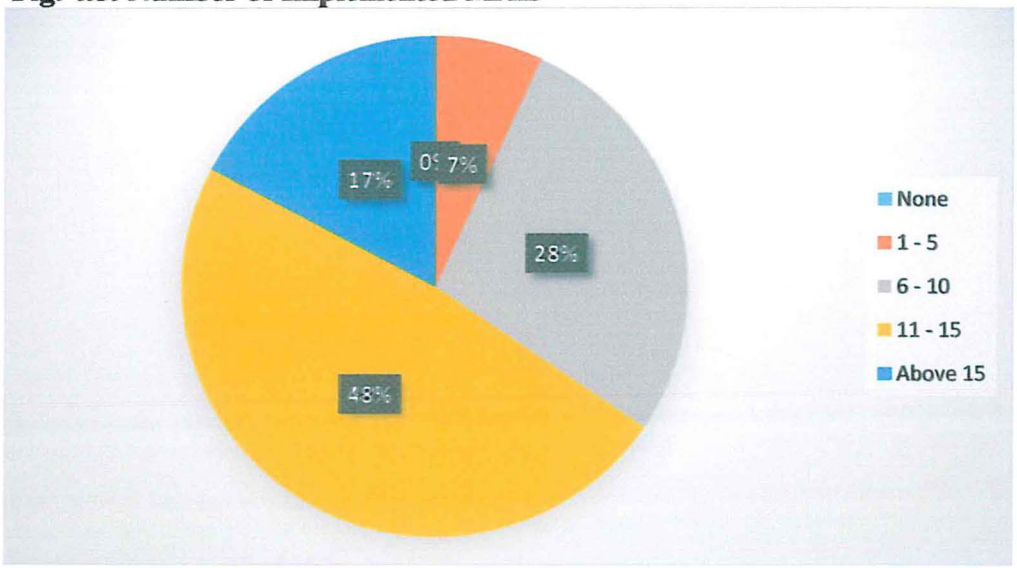
The respondents were to indicate the number of management accounting innovations implemented in the various organizations. The results were summarized in figure 4.8 below. From the findings, more than half 19(65%) of the organizations have implemented more than 10 Management Accounting Innovations whereas slightly above one-third (10, 35%) of the respondents indicated that their organizations have implemented between 1 and 10 MAIs.

From the findings of the interviews, none the CFOs indicated that their organizations had less than 10 implemented MAIs. The response from CFO1 was;

> "…we have implemented ABC, Budgeting, Benchmarking, Industrial and Competition Analysis, Financial and Non-Financial Measures among others. Generally, we are speaking of approximately 14 MAIs implemented by our organization."

Similarly, CFO2 asserted that their organization had successfully implemented not less than 10 MAIs.

Fig. 4.8: Number of Implemented MAIs



Source: Researcher (2017)

4.3.2 Frequency of Application of MAIs

The study sought to determine how often specified management accounting innovations are undertaken within the organizations being studied. The results were captured in a likert scale

where 1 = Very often while 5 = Not at all and summarized in table 4.3. The standard deviation was used to depict the variance in responses received.

The results indicated that budgeting for planning is the most often (ranked 1, mean 1.01) used MAI technique in the manufacturing sector in the country, followed by budgeting for controlling (ranked 2, mean 1.30) then budgeting for daily operations (ranked 3, mean 1.32). The responses were consistent as depicted by the low standard deviations of 0.33, 0.58 and 0.31 for the three MAIs respectively. Similarly, the least frequently undertaken innovations within the manufacturing organizations are risk evaluation using profitability analysis and computer simulation methods (ranked 25, mean 3.99), product life cycle analysis (ranked 26, mean 4.12) and Value Chain Analysis (ranked 27, mean 4.27).

The findings however reveal that the respondents were not sure of how frequently Activity-based budgeting (mean 2.48), Performance evaluations related to employees (mean 2.74), Non-financial measures-employee (mean 2.88), Shareholder Value Analysis (mean 2.97), Long-range Forecasting (mean 2.99), Supplier Evaluation (mean 3.33) and Non-financial measures-operation (mean 3.34) were being undertaken in the manufacturing firms. The results further indicate that the recently developed MAIs; such as VCA, risk evaluation using profitability analysis and computer simulation methods and supplier evaluation and non-financial measures are less often used compared to the traditional techniques such as budgeting for planning, controlling costs and daily operations.

Table 4.3: Frequency of Application

MAIs	Mean	Standard Deviation	Rank
Budgeting for planning	1.01	0.33	1
Budgeting for controlling costs	1.30	0.58	2
Budgeting for daily operations	1.32	0.31	3
Financial measures	1.51	0.39	4
Product break-even analysis	1.53	0.54	5
Product profitability analysis	1.73	0.44	6
Product Costing	1.86	0.46	7
Capital investment evaluation using payback period/ROR methods	1.86	0.47	8
Industry analysis	1.88	0.33	9
Competitiveness and Competition analysis	2.00	0.65	10
Analysis of competitor' strength and weakness	2.04	0.79	11

Customer profitability analysis	2.07	0.41	12
Formal Strategic Planning	2.17	0.54	13
Activity- based costing (ABC)	2.22	0.64	14
Benchmarks	2.36	0.32	15
Activity-based budgeting	2.48	0.43	16
Performance evaluations related to employees	2.74	0.44	17
Non-financial measures (employee)	2.88	0.38	18
Shareholder Value Analysis	2.97	0.64	19
Long-range Forecasting	2.99	0.58	20
Supplier Evaluation	3.33	0.66	21
Non-financial measures (operation)	3.34	0.71	22
Non-financial measures (customer)	3.66	0.47	23
Performance evaluations linked to operation and innovation	3.87	0.55	24
Risk evaluation using profitability analysis and computer simulation methods.	3.99	0.49	25
Product life cycle analysis	4.12	0.50	26
Value Chain Analysis (VCA)	4.27	0.29	27

Source: Researcher (2017)

4.4 Extent of Adoption of MAIs

The study sought to identify the extent of application of the implemented MAIs within the various organizations using the scale; High, Low and Medium. The results were as indicated in table 4.4 below.

From the findings summarized in table 4.4, the results indicate that most of the traditional budgeting techniques have been greatly adopted within the manufacturing firms. For instance, budgeting for planning, budgeting for controlling costs and budgeting for daily operations all have 100% adoption rate and are ranked 1. However, Activity Based Budgeting is ranked 10 with an adoption rate of 34%. Other highly adopted MAIs include financial measures (ranked 1, 100% adopted), product break-even analysis (ranked 3, 76% adopted) and product profitability analysis (ranked 4, 72% adopted). From the results, the averagely adopted innovations revealed an adoption percentage of between 45% and 69%. Product costing with a ranking of 4 had an adoption percentage of 69% while formal strategic planning had an adoption percentage of 45% and ranked 8th. Similarly, the least adopted innovation was the Value Chain Analysis (ranked 17, 7% adopted). The results generally reveal that the adoption rate for the recently developed Management accounting innovations is comparatively lower compared to the other innovation techniques.

Table 4.4: Extent of Application

MAIs	N	Adoption Rate	Rank
High Adoption			
Budgeting for planning	29	100%	1
Budgeting for controlling costs	29	100%	1
Budgeting for daily operations	29	100%	1
Financial measures	29	100%	1
Product break-even analysis	22	76%	2
Product profitability analysis	21	72%	3
Medium Adoption			
Product Costing	20	69%	4
Capital investment evaluation using payback period/ROR methods	20	69%	4
Industry analysis	16	55%	5
Competitiveness and Competition analysis	15	52%	6
Analysis of competitor' strength and weakness	15	52%	6
Customer profitability analysis	14	48%	7
Formal Strategic Planning	13	45%	8
Low Adoption			
Activity- based costing (ABC)	11	38%	9
Benchmarks	10	34%	10
Activity-based budgeting	10	34%	10
Performance evaluations related to employees	9	31%	11
Non-financial measures (employee)	9	31%	11
Shareholder Value Analysis	9	31%	11
Long-range Forecasting	8	28%	12
Supplier Evaluation	8	28%	12
Non-financial measures (operation)	7	24%	13
Non-financial measures (customer)	7	24%	13
Performance evaluations linked to operation and innovation	6	21%	14
Risk evaluation using profitability analysis and computer simulation methods.	5	17%	15
Product life cycle analysis	3	10%	16
Value Chain Analysis (VCA)	2	7%	17

Source: Researcher (2017)

4.4.1 Adoption of Management Accounting Innovations

The researcher sought respondents' opinion on various aspects of adoption of MAIs. They were requested to indicate their opinion in a likert scale where 1= Strongly agree and 5= Strongly disagree]. The results of the responses were as presented in table 4.5.

From the findings in table 4.5, it was evident that the rate of adoption of a MAIs is greatly influenced by the perceived benefits of the innovation (mean 1.27, sd 0.34). The results also revealed that availability of information on the MAIs (mean 1.82, sd 0.53) and the demand of the adopters (mean 2.32, sd 0.49) mildly influence the extent of adoption of the innovation within the organization. The respondents were however not sure whether the extent of contact between the innovator and adopter (mean 2.88, sd 0.69) and the relationship between subsidiary organizations or between a subsidiary and parent organization (mean 2.88, sd 0.35) determine the rate of adoption of MAIs as they however disagree on the government regulation acting as facilitators of adoption of MAIs (mean 4.01, sd 0.62).

Table 4.5: Adoption of MAIs

Statement	Mean	Standard Deviation
The rate of adoption of a Management Accounting Innovation is greatly influenced by the perceived benefits of the innovation.	1.27	0.34
The extent of contact between the innovator and adopter determine the rate of adoption of Management Accounting Innovations within the industry	2.88	0.69
Government regulation have been used to facilitate (directly and indirectly) the adoption of some Management Accounting Innovations.	4.01	0.62
The rate of adoption of a Management Accounting Innovation is strongly linked to the demand of the adopters.	2.36	0.49
Successful adoption of Management Accounting Innovation demands availability of professional education on the innovation.	2.57	0.65
Availability of information on the Management Accounting Innovation influences the extent of adoption of the innovation within the organization.	1.82	0.53
All successful adoptions have been made compatible to the organization's environment.	2.18	0.47

Relationship between subsidiary organizations or between a subsidiary and parent organization determine the extent of adoption of a Management Accounting Innovation.	2.88	0.35

Source: Researcher (2017)

4.5 Determinants of Adoption of MAIs

The research collected information from the respondents on factors driving the diffusion of Management Accounting Innovations in relation to an organization' structure, culture, benefits and challenges of adoption of management accounting innovations within the manufacturing industry.

4.5.1 Factors Influencing Adoption of MAIs

The study sought to determine the factors that influence adoption of MAIs. The responses were to be provided on the scale of 1= Very Often, 2= Often, 3= Rarely, 4= Very Rarely, 5= Not at all. Table 4.6 summarises the results. From the results summarised in the table, it was evident that factors that most influence the choice of the MAI to be diffused by the manufacturing firms include type of information to be captured (mean 1.06, rank 1), foreseen benefits of the innovations (mean 1.11, rank 2), nature of the business (mean 1.22, rank 3), availability of resources (mean 1.28, rank 4) and initial cost to be incurred (mean 1.43, rank 4). The responses also revealed that type of data available for management accounting (mean 3.98, rank 28), national culture (mean 3.99, rank 29) and availability of books and articles on the innovation (mean 4.01, rank 30) very rarely affected the decision on the choice of MAIs.

Responding to this matter, CFO3 stated that;

> "...in my opinion, the major factor that we consider as an organization is the expected benefit from an innovation that we intend to implement"

CFO1 and CFO2 however asserted that the organisational needs and internal organisational capacities act as the main drivers in the adoption of Management Accounting Innovations.

Table 4.6: Determinants of Diffusion of MAIs

Aspect	Mean	Standard deviation	Rank
Type of information to be captured	1.06	0.54	1

Foreseen benefits of the innovations	1.11	0.29	2
Nature of the business	1.22	0.38	3
Availability of resources	1.28	0.33	4
Initial Cost implication	1.43	0.38	5
Employee competence	1.94	0.46	6
Size of the organization	2.02	0.54	7
Market Competition	2.04	0.66	8
Ease of implementation	2.13	0.43	9
Future projected cost implications	2.17	0.55	10
Flexibility of the innovation	2.20	0.44	11
Operational complexity	2.48	0.36	12
Management support	2.49	0.70	13
Level of influence from the parent company	2.76	0.39	14
Interaction level between inventors and adopters	2.95	0.73	15
Reliability of the innovation	2.99	0.61	16
Effectiveness of the innovation	3.08	0.47	17
Organisational competitiveness	3.24	0.57	18
Previous benefits of Management Accounting Innovations	3.33	0.50	19
Organization' strategic plan	3.35	0.49	20
Organizational communication structure	3.51	0.65	21
Organisational structure	3.62	0.59	22
Laws and regulations	3.79	0.59	23
Organisational culture	3.83	0.61	24
Availability of support technology	3.87	0.69	25
Availability of technical support	3.94	0.71	26
Willingness of staff to adopt	3.97	0.73	27
Type of data available for management accounting	3.98	0.57	28
National culture	3.99	0.28	29
Availability of books and articles on the innovation	4.01	0.63	30

Source: Resercher (2017)

4.5.2 Challenges of Diffusion of MAIs

The results on the challenges encountered by manufacturing firms while undertaking diffusion of Management Accounting Innovations were summarized in Table 4.7 below. The results reveal that the organizations experience several challenges in diffusing and adopting management accounting innovations (mean 1.44, sd 0.67) including costly to adopt innovations (mean 1.21, sd

0.33). The respondents however indicated uncertainty on whether the available technological capability in their organizations are not sufficient enough to support the new accounting innovations (mean 2.64, sd 0.59) and if a lack of enough resources to implement the innovations (mean 3.24, sd 0.71) pose a challenge to the industry. The results also revealed that incompetence of employee (mean 3.97, sd 0.69), insufficient resource materials such as books and journals that facilitate the diffusion of accounting innovations (mean 3.81, sd 0.72) and unwillingness of staff to adopt to the new MAIs (mean 4.21, sd 0.66) are not accredited as challenges in the industry.

Table 4.7: Challenges of Diffusion of MAIs

Statement	Mean	Standard Deviation
The organization experiences several challenges in diffusing and adopting management accounting innovations.	1.44	0.67
The organization has limited resources to facilitate the diffusion and adoption of management accounting innovations.	3.24	0.71
Most of the accounting innovations are costly to adopt.	1.21	0.33
The organization's employees are mostly not competent enough to manage the new innovations.	3.97	0.69
The current available technological capability in the organization is not sufficient enough to support the new accounting innovations.	2.64	0.59
The organization has had to deal with insufficient resource materials such as books and journals that facilitate the diffusion of accounting innovations.	3.81	0.72
According to the organization, most of the inventors of the management accounting innovations do not provide for good interactions with the adopters.	3.22	0.49
Most of the organization's staff are usually unwilling to adopt to the new management accounting innovations	4.21	0.66
The stipulated laws and regulations in the industry mostly make it difficult for the organization to adopt the new accounting innovations.	2.71	0.54

Source: Researcher (2017)

4.5.3 Benefits of Diffusion of MAIs

The study sought to determine the the level of benefits recorded by the various organisations and the degree to which the respondents agreed with the various statements relating to benefits accrued from the implementation of MAIs.

4.5.3.1 Level of Benefits of MAIs

The findings on the level of benefits recorded from adoption of MAIs was summarized in table 4.8 below. The results were collected on the scale of 1=Low, 2=Medium and 3=High.

Table 4.8: Level of Benefits of MAIs

MAIs	Mean	Standard Deviation	Rank
Financial measures	2.77	0.64	1
Budgeting for planning	2.73	0.53	2
Budgeting for controlling costs	2.73	0.47	3
Product break-even analysis	2.61	0.55	4
Budgeting for daily operations	2.57	0.69	5
Product profitability analysis	2.55	0.72	6
Product Costing	2.48	0.36	7
Capital investment evaluation using payback period/ROR methods	2.33	0.77	8
Industry analysis	2.31	0.68	9
Formal Strategic Planning	2.21	0.58	10
Competitiveness and Competition analysis	2.03	0.61	11
Analysis of competitor' strength and weakness	1.74	0.66	12
Customer profitability analysis	1.69	0.47	13
Activity- based costing (ABC)	1.44	0.74	14
Benchmarks	1.43	0.83	15
Activity-based budgeting	1.34	0.84	16
Performance evaluations related to employees	1.27	0.61	17
Non-financial measures (employee)	1.22	0.57	18
Shareholder Value Analysis	1.22	0.68	19
Long-range Forecasting	1.17	0.44	20
Supplier Evaluation	1.15	0.38	21

Non-financial measures (operation)	1.09	0.21	22
Non-financial measures (customer)	1.07	0.49	23
Value Chain Analysis (VCA)	1.05	0.77	24
Performance evaluations linked to operation and innovation	1.01	0.81	25
Risk evaluation using profitability analysis and computer simulation methods.	1.00	0.65	26
Product life cycle analysis	1.00	0.53	27

Source: Researcher (2017)

4.5.3.2 Benefits Accrued from MAIs

The respondents were to give feedback on their extent of agreement with statements relating to benefits accrued from implementation of MAIs. The results were to be given in a likert scale of 1=Strongly Agree, 2=Agree, 3=Not sure, 4=Disagree, 5=Strongly Disagree. The findings were summarized in table 4.9.

The results indicated that the extent of adoption of Management Accounting Innovations determine the amount of benefits derived from the innovations (mean 2.02, sd 0.57), Management Accounting Innovations improve an organization's accountability; internal & external (mean 2.41, sd 0.39), adoption of Management Accounting Innovations result to improved organisational operation efficiency including quality information & business response (mean 1.32, sd 0.65), manufacturing organizations that have absorbed Management Accounting Innovations respond better within the sector' business environment (mean 2.00, sd 0.29) and Management Accounting Innovations enhance timeliness in reporting (mean 2.17, sd 0.44). The respondents however indicated uncertainty on whether the benefits obtained from previous Management Accounting Innovations determine the extent of absorption of future innovations and if traditional accounting methods do not offer adequate support with the current business environment. However, the findings indicate that adoption of Management Accounting Innovations does not necessarily improve the competitiveness (mean 3.67, sd 0.72) or profitability (mean 3.61, sd 0.53) of the organizations.

Contrary to the results obtained through the questionnaires, all the three CFOs indicated that the adoption of MAIs have positively impacted the performance hence profitability of their firms and the overall competitiveness of the organizations. For instance CFO1 stated that;

"Long-range forecasting and Activity-Based Costing (ABC) have enhanced our market competitiveness through providing reliable and accurate product information."

Similarly, CFO3 responded that;

"...ABC has facilitated better cost information for all of our product hence allowing us to accurately price our products while reflecting our true production costs, and as a result, we have improved our market competitiveness."

Table 4.9: Benefits Accrued from MAIs

Aspect	Mean	Standard Deviation
The extent of adoption of Management Accounting Innovations determine the amount of benefits derived from the innovations.	2.02	0.57
Adoption of Management Accounting Innovations improves competitiveness of the organization.	3.67	0.72
The organization' profitability can be partly attributed to adoption of Management Accounting Innovations.	3.61	0.53
Management Accounting Innovations have improved the organization's accountability; internal & external.	2.41	0.39
Benefits obtained from previous Management Accounting Innovations determine the extent of absorption of future innovations.	3.11	0.73
Adoption of Management Accounting Innovations result to improved organisational operation efficiency including quality information & business response.	1.32	0.65
Traditional accounting methods do not offer adequate support with the current business environment.	2.99	0.51
Manufacturing organizations that have absorbed Management Accounting Innovations respond better within the sector' business environment.	2.00	0.29
Benefits accrued by the organization are directly linked to the channels deployed in diffusing the Management Accounting Innovations.	3.62	0.53
The various techniques of Management Accounting Innovations absorbed by the company have different benefits attached to them.	1.11	0.24
Management Accounting Innovations enhance timeliness in reporting.	2.17	0.44

Source: Researcher (2017)

4.6 Inferential Analysis

The research carried out an inferential analysis that sought to describe nature of relationship between the study's explanatory variables and the dependent variables. The researcher however also determined the validity of the research model applied. Tests including the Goodness of Fit, Multicollinearity and Heteroscedasticity were carried out on the research model.

4.6.1 Correlation Analysis

Correlation analysis was conducted to establish the effects of techniques of MAI adopted, challenges of adoption of MAIs, determinant factors in the adoption of MAIs and benefits of adoption of MAIs on the extent of adoption of MAIs. The results were summarized in table 4.10.

From the results in table 4.10, the value of R= 0.548 and p= 0.372 imply that techniques of MAIs have an averagely strong positive relationship with the extent of adoption of the MAIs. This further implies that an improvement in the techniques used results to an average improvement in the extent to which innovations are adopted. Challenges encountered in the adoption of MAIs had a value of R=-0.482 and p= 0.285 indicating that the challenges have a weak negative relationship with the extent of adoption of the MAIs; the more the challenges, the lower the adoption rate. Determinant factors in the adoption of MAIs had a value of R= 0.041 and p=0.387 implying a very weak positive relationship between the determinant factors and the extent of adoption of MAIs. This implies that an improvement undertaken on the determinant factors to a very small extent improves the extent of adoption of MAIs. Similarly, the value of R=0.616 and p=0.240 signifies a strong positive relationship between extent of adoption of diffused MAIs within the manufacturing firms and benefits of adoption. This indicates that the greater the benefits derived from MAIs, the greater the extent of adoption of MAIs within an organisation.

Table 4.10: Correlation Analysis

		Techniques	Challenges	Determinants	Benefits	Extent of Adoption
Techniques	Pearson Correlation	1				
	Sig. (1-tailed)					
Challenges	Pearson Correlation	0.038	1			
	Sig. (1-tailed)	0.397				
Determinants	Pearson Correlation	0.128	0.232	1		
	Sig. (1-tailed)	0.188	0.053			
Benefits	Pearson Correlation	0.094	0.225	0.021	1	
	Sig. (1-tailed)	0.284	0.084	0.084		
Extent of Adoption	Pearson Correlation	0.548	-0.482	0.041	0.616	1
	Sig. (1-tailed)	0.372	0.285	0.387	0.240	

Source: Researcher (2017)

4.8.2 Regression Analysis

A multivariate regression analysis was carried out to determine the vitality of each of the independent variables with respect to diffusion of management accounting innovations. The regression model applied was as given below:

$Y = C_0 + C_1X_1 + C_2X_2 + C_3X_3 + C_4X_4 + £$

Where; Y - Extent of adoption of MAIs,

C_0 - Constant

C_1, C_2, C_3, C_4 - Regression coefficients

X_1- Techniques of diffusion of MAIs

X_2- Challenges of diffusion of MAIs

X_3- Determinant factors in the diffusion of MAIs

X_4- Benefits of diffusion of MAIs

£- Error term

The ANOVA findings (P- value of 0.001) in table 4.11 reveals that there is correlation between the predictors variables (techniques of MAIs, challenges of adoption, determinant factors and benefits of adoption) and response variable (Extent of adoption of MAIs).

Table 4.11: ANOVA Table

	Sum of Squares	df	Mean Square	F	Sig.
Regression	.652	3	.313	1.242	0.001
Residual	5.183	36	.271		
Total	5.835	39			

a. Predictors: Constant, Techniques of MAIs, Challenges of adoption, Determinant factors, Benefits of adoption

Dependent Variable: Extent of adoption of MAIs

Source: Researcher (2017)

From table 4.12, the established regression equation of the study is;

$$Y = 0.472 + 0.221X_1 - 0.168X_2 + 0.051X_3 + 0.195X_4 + £$$

The Constant = 0.472, reveals that if techniques of MAI, challenges of adoption, determinant factors, benefits of adoption were all rated as zero, extent of adoption of MAIs would be 0.260. Similarly, X_1= 0.221, shows that one unit change in techniques of MAIs with a zero rating of challenges of adoption, determinant factors and benefits of adoption results in 0.221 units increase in the extent of adoption of MAIs. On the other hand, X_2 = -0.168, reveals that one unit change in challenges of adoption with a zero rating of techniques of MAI, determinant factors and benefits of adoption results in -0.168 units decrease in the extent of adoption of MAIs. X_3 = 0.051, indicates that one unit change in determinant factors with a zero rating of techniques of MAI, challenges of adoption and benefits of adoption results in 0.051 units increase in the extent of adoption of MAIs while X_4 = 0.195, indicates that one unit change in benefits of adoption with a zero rating of techniques of MAI, challenges of adoption and determinant factors results in 0.195 units increase in the extent of adoption of MAIs.

Table 4.12: Table of Coefficients

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		C	Std. Error	Beta		
(Constant)		.472	.501		0.475	.111
Techniques of MAI	X_1	.221	.048	.354	2.669	.001
Challenges of adoption	X_2	-.168	.045	.441	0.478	.000
Determinant factors	X_3	.051	.023	.213	2.217	.001
Benefits of adoption	X_4	.195	.022	.093	3.062	.000
Dependent Variable: Extent of adoption of MAIs						

Source: Researcher (2017)

4.6.3 Multicollinearity Test

A Multicollinearity analysis was carried out to measure the existence of association between the explanatory variables. When the detection tolerance value is less than 0.1 then the multicollinearity is said to exist. Gujarati also argues that a VIF values that exceeds 10 also reveals multicollinearity. The results were presented in table 4.13. The results in table 4.13, indicate that there was no multicollinearity among the variables measured in the study. This is depicted by VIF values that are less than 10 (4.654, 3.243, 1.889, 1.435 < 10) and detection tolerance values greater than 0.1 (0.469, 0.671, 0.531, 0.647 > 0.1).

Table 4.13: Multicollinearity Test

Variable	Detection Tolerance	Variance Inflation Factor (VIF)
Techniques of MAI	0.469	4.654
Challenges of adoption of MAIs	0.671	3.243
Determinant factors in the adoption of MAIs	0.513	1.889
Benefits of adoption of MAIs	0.647	1.435

Source: Researcher (2017)

4.6.4 Heteroscedasticity Test

The linear regression model is anchored on the assumption that variance in the error-term values is constant. The study utilized the Lagrange Multiplier (LM) Test to assess the level of heteroscedasticity in the model. LM test discrimination zone is such that if the test statistic is

greater than the tabulated value, then this depicts the absence of the heteroscedasticity. The results for the heteroscedasticity test are indicated in table 4.14. From the findings in table 4.14, 19.13 is less than 43.27. The study therefore concludes that there is no heteroscedasticity in the model adopted by the research study.

Table 4.14: Heteroscedasticity Test

Test Statistic $X^{2(m)}$	TR^2
43.27	19.13
m. no. of independent variables, T. observations	

5% significance level

4.6.5 Goodness of Fit Statistics

The study sought to determine the strength of relationship between the dependent (Successful diffusion of MAIs) and the independent variables. The study also used the Durbin Watson (DW) test to assess whether the residuals of the study model were not auto correlated; Gujarati (2003) argues that the independence of the residuals is a basic hypothesis of regression analysis. The DW test prescribes a value between 1.5 and 2.0 as depicting independence.

The findings in table 4.15 depict that the coefficient of determination (R = .466) which refers to the proportionate change in the dependent variable that is explained by the changes in the independent variables: techniques of MAI, challenges of adoption, determinant factors and benefits of adoption explain up to 46.6% of extent of adoption of MAIs while the un-researched aspects explain up to 53.4% of the variations in successful diffusion of MAIs. The P- value of 0.001 (Less than 0.05) signifies that the model of adoption of MAIs is significant at 95 percent confidence level. Table 4.13 also reveals a Durbin Watson value of 2.011. From the results, the study accepts the null hypothesis and concludes that there is no serial autocorrelation problem in the study model adopted.

Table 4.15: Regression Model Goodness of Fit

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.701(a)	.491	.466	.345	.460	1.372	3	36	.001	2.011

a. Predictors: Constant, Techniques of MAI, Challenges of adoption, Determinant factors, Benefits of adoption

Dependent Variable: Extent of adoption of MAIs.

Source: Researcher (2017)

4.7 Summary of Chapter

The study' general objective was to examine the adoption of management accounting innovations in the Kenyan Manufacturing Industry. The study obtained data on four variables namely techniques of MAI, challenges of adoption, determinant factors and benefits of adoption. The data was collected and analyzed from 12 manufacturing companies. The findings revealed that techniques of MAIs have a mild positive association with the extent of adoption of the MAIs while benefits of adoption of MAIs have a strong positive relationship to the extent of adoption of MAIs. On the other hand, challenges of adoption of MAIs have a weak negative relationship with the extent of adopted MAIs while determinants of diffusion have a weak positive association with the extent of adoption of MAIs. Generally, the measured variables explain up to 46.6% of extent of adoption of MAIs in the manufacturing firms in Kenya.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The section generally summarizes the findings and discussions derived from the data analyzed in the previous chapter. This chapter is therefore presents research purpose and methodology, summary of findings, conclusions, recommendations, limitations of the study, suggestions for further studies and summary.

5.2 Research Purpose and Methodology

The study sought to assess the adoption of management accounting innovations in the Kenyan manufacturing industry. Four variables were of interest in the research; techniques of MAI, extent of adoption of MAIs, challenges in the process of adopting MAIs, determinant factors in the adoption of MAIs and benefits of adoption of MAIs. The study used a descriptive research design in analysis the results from the 12 sample manufacturing firms out of the existing 25. Correlational and regression analyses methods were also applied in establishing the relationship between the variables. The reliability of the study model was carried out using multicollinearity, heteroscedasticity and auto correlation tests.

5.3 Summary of Findings

The findings indicate that most of the organisations have implemented the use of Management Accounting Innovations with more than half of the organizations having implemented more than 10 of the innovations. The results further indicate that most of the traditional budgeting techniques have been greatly adopted within the manufacturing firms. For instance, budgeting for planning, budgeting for controlling costs and budgeting for daily operations all have 100% adoption rate. Financial measures also revealed 100% adoption. Other highly adopted measures include product break-even and product profitability analyses. Angelakis *et al.* (2010) in their study on adoption and benefits of management accounting practices had a similar conclusion that budgeting practices in Greece are extensively utilized for financial position's planning, coordination of business activities and performance evaluation while Burnett, *et al.* (2005) also concluded that financial measures are the most implemented practices under performance evaluation.

However, the rate of adoption of the most recently developed Management Accounting Innovations such as Shareholder Value Analysis, Long-range Forecasting, Supplier Evaluation, Performance evaluations linked to operation and innovation, Risk evaluation using profitability analysis and computer simulation methods, Product life cycle analysis and Value Chain Analysis (VCA) is comparatively lower compared to the other innovation techniques. The study indicated that the rate of adoption of MAIs is greatly influenced by the perceived benefits of the innovation, a conclusion arrived at by Angelakis, G. *et al.* (2010) in their study on adoption and benefits of management accounting practices and mildly influenced by the availability of information on the MAIs and the demand of the adopters. On the other hand, the results showed that government regulation do not facilitate the adoption of some Management Accounting Innovations. DiMaggio & Powell (1991) contrary submitted that a powerful force like government can be great influencers to adoption of MAIs. It was also revealed that the extent of adoption of an innovation directly influences the frequency of its application.

The study also revealed that factors that mostly drive the choice of MAIs include the type of information to be captured, foreseen benefits of the innovations, nature of the business, availability of resources, initial cost implication, employee competence, size of the organization, market competition, ease of implementation, future projected cost implications, flexibility of the innovation, operational complexity and management support. This argument is also raised by Chenhall, 2003; Ciambotti, 2001 and Lapsley and Wright, 2004). On the other hand, laws and regulations, organisational culture, availability of support technology, availability of technical support, willingness of staff to adopt, type of data available for management accounting, national culture and availability of books and articles on the innovation. Abrahamson (1996) however had a contrary opinion, suggesting that an innovation should be preceded by a number of publications.

The results reveal that the organizations experience several challenges in diffusing and adopting management accounting innovations. These challenges include the cost involved in the adoption process, incompatibility of some of the western world innovations to the Kenyan industry; an argument supported by Chenhall and Langfield-Smith (1998) and organisational technological capability. The findings however revealed that incompetence of employee, insufficient resource

5.4 Conclusion

The study made the following conclusions;

i. The objective of the study was to assess the adoption of Management Accounting Innovations within the manufacturing firms listed at the NSE while assessing four main variables; techniques of MAIs, challenges of adoption of MAIs, determinant factors in the adoption of MAIs and benefits of adoption of MAIs. The study concludes that techniques of MAIs and benefits of adoption of MAIs greatly influence the extent of adoption of MAIs while challenges of adoption of MAIs mildly influence this dependent variable therefore the manufacturing organisations will implement a Management Accounting Innovation depending on the expected benefits and challenges from the innovation and the techniques adopted. Similarly, determinant factors in the adoption of MAIs has a weak influence on the extent of adoption of MAIs hence organisations least consider this variable in the process of adoption of MAIs.

ii. The researcher also concluded that most of the Kenyan Manufacturing firms do not frequently apply the use of the newly developed Management Accounting Innovations as majority still use the traditional management accounting techniques such as budgeting for planning budgeting for controlling costs and budgeting for daily operations. Besides the benefit rates for the most recently adopted Management Accounting Innovations are relatively low.

iii. The study therefore further concludes that the most of the manufacturing firms apply the use of the traditional management accounting techniques since they are more beneficial to them due to the uncertain business environment and the unstable economy they operate in. The organisations also do not have adequate information and knowledge on the new-developed innovations hence their reluctance in implementing them.

iv. The study concluded that there is an existing connection between frequency of application of MAIs and level of benefits of MAIs such that the higher the frequency of the application of an innovation, the higher the ranking of the innovation in relation to accrued benefits to the organisations.

v. The research concluded that the main factors driving the diffusion of MAIs include type of information to be captured, foreseen benefits of the innovations, nature of the business,

availability of resources, initial cost implication, employee competence, size of the organization, market competition, ease of implementation, future projected cost implications, flexibility of the innovation, operational complexity and management support. On the other hand, the major challenges include the cost involved in the adoption process, incompatibility of some of the western world innovations to the Kenyan industry and low organisational technological capability.

5.5 Recommendations

Based on the findings, the study recommends the following;

i. Sufficient materials; articles and books, on any new innovation should be made available to adopters in order to enhance their understanding on the innovations hence improve the rate of adoption of the innovations.

ii. The inventors should also ensure an efficient and effective interaction with the adopters, while offering professional education, as this will also enhance the adoption of the innovations.

iii. The innovations should also be easy to implement, meet the market demand of the possible adopters and affordable both in the initial and future projected costs.

iv. The study also recommends that management of the organisations should give support to the entire process of adoption of MAIs in order to ensure its success. This can be achieved through adequate allocation of resources towards the process of adopting the MAIs.

v. The organisations should also ensure staff is well trained hence competence before implementing the use of any new MAI in their organisations.

vi. The findings of this study be used by the various level decision makers in facilitating them understand and implement strategies in relation to adoption of MAIs so as to improve their performance since the manufacturing industry is registering a rapid growth hence increased competition among product providers.

vii. The findings of the study be used to provide relevant information that enhance the industry' performance therefore improving the social and economic aspects of the Kenyan populous since the manufacturing industry, being a vital sector in the country, it is coupled with social and economic benefits including providing sustainable livelihood for thousands and source of revenue to the country.

viii. Policy wise, the study recommends that policyholders can obtain relevant information from the findings that facilitate the development of regulations, guidelines and policies in the running and managing adoption of MAIs in the manufacturing industry.

ix. The study also recommends that researchers can refer to its findings for further research on other aspects of Management Accounting.

5.6 Limitations of the Study

i. Adoption of Management Accounting Innovations is an issue that is of interest to all sectors in the Kenyan economy. However, this study limited itself to only the manufacturing firms listed at the Nairobi Securities Exchange. This was as a result of various challenges including time, finances and other resources.

ii. A number of variables have been named as being good influencers of the extent of adoption of Management Accounting Innovations within manufacturing organizations. This study however limited itself to four variables including techniques of MAI, challenges of adoption, determinant factors and benefits of adoption.

iii. The study subject of assessing adoption of Management Accounting Innovations still stands as a pretty eminent area of reseacrh, becasuse little is still known as a result of few studies that have been conducted on the same. As a result, scholarly articles in relating to this area of study in the country scarcely exist. The researcher therefore mostly depended on articles, journals and publications on adoption of MAIs within different industries from other countries and regions.

iv. The researcher also encountered a number of limitations while conducting the study and most particularly during the process of data collection. The respondents had to be pushed so as to provide the sought after data. The researcher did this through direct and constant follow-up calls and indirect follow-up through some of the human resources managers.

5.7 Suggestions for Further Studies

This study explored the adoption of Management Accounting Innovations within manufacturing firms listed in the Nairobi Securities Exchange. The study therefore suggests that;

i. Additional studies can be conducted on other sectors of the country's economy such as the banking sector, government institutions or the private sector.

ii. Both cumulative and individual effect of variables such as business environment, size of the organisation, staff competence, among others, on the diffusion of MAIs can also be measured.

5.8 Summary

This chapter addressed the summary of findings, conclusions, recommendations for further studies, implications and limitations of the Study. From the findings, the explanatory variables; techniques of MAIs, challenges of adoption of MAIs, determinant factors of adoption of MAIs and benefits of adoption MAIs revealed variations in the nature of relationship with the dependent variable: extent of adoption of MAIs with challenges of adoption of MAIs having a negative relationship with the dependent variable. The independent variables explain up to 46.6% of extent of adoption of MAIs hence the research recommends that further studies measuring other variables can be undertaken so as to cement the knowledge on the process of adoption of MAIs within the sector.

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APPENDICES

APPENDIX 1: QUESTIONNAIRE TO EMPLOYEES IN FINANCE DEPARTMENT

Questionnaire Number: _____

Interview Date: _____

INSTRUCTIONS

1. Please do not write your name on the questionnaire.
2. The information you give will be treated with confidentiality
3. Kindly provide answers to the questions as honestly and precisely as possible.
4. Indicate your choice by a tick (√)

Kindly answer the following:

SECTION A: INFORMATION ON HIGHEST ACCOUNTING OFFICERS

This section covers questions on general information pertaining the respondents, relevant to the study;

1. Gender of respondent

   Male [ ] Female [ ]

2. Age of respondent

   20 – 35 years [ ] 36 – 50 years [ ] 50+ years [ ]

3. Level of Education

   Undergraduate degree [ ] Masters degree [ ] PhD [ ] Other .....

4. Which professional qualification do you have?

   CPA [ ] ACCA [ ] Other (Specify)

5. Which position do you hold in your organization?

   Chief Finance Officer [ ] Finance Manager [ ] Assistant Finance Manager [ ]

   Accounts Officer [ ] Other (Specify) .....

6. Number of years of continuous service

   < 1yr [ ] 1 – 3yrs [ ] 3 – 6yrs [ ] 6 – 10yrs [ ] >10yrs [ ]

SECTION B: COMPANY INFORMATION

This sections seeks information on the company that relate to the research topic.

7. In which economic category is your company?

   Agricultural [ ] Motor/Electronic [ ] Construction [ ] Other (Specify) .....

8. What category is your organization?

   Branch [ ] Subsidiary [ ] Parent [ ] Independent [ ] Foreign [ ]

9. If a parent company, how many additional branches does your organization have in the Country?

   None [ ] 1-3 [ ] 4-7 [ ] 8-10 [ ] Above 10 [ ]

10. For how long has your organization been operating in the country?

    <5yrs [ ] 6 – 10yrs [ ] 11 – 15yrs [ ] 16 - 20yrs [ ] >20yrs [ ]

11. How many staff in total has the organization employed?

    Below 100 [ ] 101 – 250 [ ] 251 – 400 [ ] 400 - 500 [ ] Above 500 [ ]

12. How many qualified accountants does your organisation have?

    1 - 5 [ ] 6 - 10 [ ] 11 - 15 [ ] 16 - 20 [ ] Above 20 [ ]

13. How do you rate the level of performance of your organization in relation to its industry?

    Top most [ ] Top [ ] Medium [ ] Low[ ] Lowest [ ]

SECTION C: TECHNIQUES OF DIFFUSION OF MAIs

The questions in this section cover the various Management Accounting Innovation techniques used by your organisation

14. How many Management Accounting Innovations has your organization implemented?

    None [ ] 1 - 5 [ ] 6 - 10 [ ] 11 - 15 [ ] Above 15 [ ]

15. Below are some of the specific activities undertaken under Management Accounting Innovation techniques. Please indicate how often each one of them is undertaken in your organisation, as given in the scale below (1 = Very Often; 2 = Often; 3= Not Sure; 4 = Less Often; 5 = Not at all).

Specific Activities	**1**	**2**	**3**	**4**	**5**

1. Budgeting for planning					
2. Activity- based budgeting					
3. Budgeting for controlling costs					
4. Budgeting for daily operations					
5. Budgeting for long-term (strategic) plans					
6. Separation of variable cost, incremental costs & fixed costs					
7. Activity- based costing (ABC)					
8. Industry analysis					
9. Competitiveness and Competition analysis					
10. Benchmarks					
11. Financial measures					
12. Non-financial measures (employee)					
13. Non-financial measures (operation)					
14. Non-financial measures (customer)					
15. Performance evaluations linked to operation and innovation					
16. Performance evaluations related to employees					
17. Product break-even analysis					
18. Product profitability analysis					
19. Customer profitability analysis					
20. Capital investment evaluation using payback period/ROR methods					
21. Risk evaluation using profitability analysis and computer simulation methods.					
22. Product life cycle analysis					

23. Strategic Planning					
24. Product Costing					
25. Long-range Forecasting					
26. Supplier Evaluation					
27. Shareholder Value Analysis					
28. Value Chain Analysis (VCA)					
29. Analysis of competitor' strength and weakness					
30. Others (specify)					

SECTION D: EXTENT OF ADOPTION OF MAIs

This section addresses questions on extent of adoption and factors driving the diffusion of Management Accounting Innovations in your organisation.

16. Below are some of the deployabled Management Accounting Innovations techniques. Please indicate using the scale provided, the extent of their application within your organisation [H=High, M=Medium, L=Low].

Management Accounting Innovations	Extent of application		
	H	M	L
1. Budgeting for planning			
2. Activity- based budgeting			
3. Budgeting for controlling costs			
4. Budgeting for daily operations			
5. Budgeting for long-term (strategic) plans			
6. Separation of variable cost, incremental costs & fixed			

costs			
7. Activity- based costing (ABC)			
8. Industry analysis			
9. Competitiveness and Competition analysis			
10. Benchmarks			
11. Financial measures			
12. Non-financial measures (employee)			
13. Non-financial measures (operation)			
14. Non-financial measures (customer)			
15. Performance evaluations linked to operation and innovation			
16. Performance evaluations related to employees			
17. Product break-even analysis			
18. Product profitability analysis			
19. Customer profitability analysis			
20. Capital investment evaluation using payback period/ROR methods			
21. Risk evaluation using profitability analysis and computer simulation methods.			
22. Product life cycle analysis			
23. Strategic Planning			
24. Product Costing			
25. Long-range Forecasting			

26. Supplier Evaluation				
27. Shareholder Value Analysis				
28. Value Chain Analysis (VCA)				
29. Analysis of competitor' strength and weakness				

17. Stated in the table below are statements relating to adoption of Management Accounting Innovations. Please indicate your opinion on the following dimension [1=Strongly Agree, 2=Agree, 3=Not sure, 4=Disagree, 5=Strongly Disagree].

Statement	**1**	**2**	**3**	**4**	**5**
a) The rate of adoption of a Management Accounting Innovation is greatly influenced by the perceived benefits of the innovation.					
b) The extent of contact between the innovator and adopter determine the rate of adoption of Management Accounting Innovations within the industry					
c) Government regulation have been used to facilitate (directly and indirectly) the adoption of some Management Accounting Innovations.					
d) The rate of adoption of a Management Accounting Innovation is strongly linked to the demand of the adopters.					
e) Successful adoption of Management Accounting Innovation demands availability of professional education on the innovation.					
f) Availability of information on the Management Accounting Innovation influences the extent of adoption of the innovation within the organization.					
g) All successful adoptions have been made compatible to the organization's environment.					

h) Relationship between subsidiary organizations or between a subsidiary and parent organization determine the extent of adoption of a Management Accounting Innovation.					

SECTION E: CHALLENGES OF DIFFUSION

This section presents questions on challenges faced by your organisation in diffussing Management Accounting Innovations.

18. Below statements relate to challenges encountered while undertaking diffusion of Management Accounting Innovations. Please indicate your opinion on the following dimension [1=Strongly Agree, 2=Agree, 3=Not sure, 4=Disagree, 5=Strongly Disagree].

Statement	**1**	**2**	**3**	**4**	**5**
i) The organization experiences several challenges in diffusing and adopting management accounting innovations.					
j) The organization has limited resources to facilitate the diffusion and adoption of management accounting innovations.					
k) Most of the accounting innovations are costly to adopt.					
l) The organization's employees are mostly not competent enough to manage the new innovations.					
m) The current available technological capability in the organization is not sufficient enough to support the new accounting innovations.					
n) The organization has had to deal with insufficient resource materials such as books and journals that facilitate the diffusion of accounting innovations.					
o) According to the organization, most of the inventors of the management accounting innovations do not provide for good interactions with the adopters.					

p) Most of the organization's staff are usually unwilling to adopt to the new management accounting innovations					
q) The stipulated laws and regulations in the industry mostly make it difficult for the organization to adopt the new accounting innovations.					

SECTION F: DETERMINANTS OF DIFFUSION OF MAIs

This section addresses questions on determinants of diffusion of Management Accounting Innovations in your organisation

19. Below aspects relate to factors driving the diffusion of Management Accounting Innovations in relation to an organization' structure and culture. Please indicate how often they are used to influence the choice of Management Accounting Innovations, using the provided scale. [1= Very Often, 2= Often, 3= Rarely, 4= Very Rarely, 5= Not at all].

Aspect	**1**	**2**	**3**	**4**	**5**
1. Employee competence					
2. Organizational communication structure					
3. Nature of the business					
4. Type of information to be captured					
5. Type of data available for management accounting					
6. Effectiveness of the innovation					
7. Reliability of the innovation					
8. Availability of support technology					
9. Availability of technical support					
10. Availability of books and articles on the innovation					
11. Interaction level between inventors and adopters					
12. Initial Cost implication					
13. Future projected cost implications					
14. Size of the organization					

15. Previous benefits of Management Accounting Innovations						
16. Foreseen benefits of the innovations						
17. Ease of implementation						
18. Willingness of staff to adopt						
19. Market Competition						
20. Organisational competitiveness						
21. Organisational culture						
22. Organisational structure						
23. Availability of resources						
24. Management support						
25. Flexibility of the innovation						
26. Operational complexity						
27. Organization' strategic plan						
28. Laws and regulations						
29. National culture						
30. Level of influence from the parent company						

SECTION G: IMPACT OF DIFFUSSION

This section presents questions on benefits derived by your organisation from diffussed Management Accounting Innovations.

20. To what extent has the organisation benefitted from the absorption of Management Accounting Innovations?

    Very great [ ] Great [ ] Mild [ ] Not Great [ ] Not at all [ ]

21. Listed below are Management Accounting Innovations. Please indicate the extent of benefits recorded by your organisation using a tick (√) in the scale provided. [1=Low, 2=Medium, 3=High].

Management Accounting Innovations	Benefits

	1	2	3
1. Budgeting for planning			
2. Activity- based budgeting			
3. Budgeting for controlling costs			
4. Budgeting for daily operations			
5. Budgeting for long-term (strategic) plans			
6. Separation of variable cost, incremental costs & fixed costs			
7. Activity- based costing (ABC)			
8. Industry analysis			
9. Competitiveness and Competition analysis			
10. Benchmarks			
11. Financial measures			
12. Non-financial measures (employee)			
13. Non-financial measures (operation)			
14. Non-financial measures (customer)			
15. Performance evaluations linked to operation and innovation			
16. Performance evaluations related to employees			
17. Product break-even analysis			
18. Product profitability analysis			
19. Customer profitability analysis			
20. Capital investment evaluation using payback period/ROR methods			

21. Risk evaluation using profitability analysis and computer simulation methods.			
22. Product life cycle analysis			
23. Strategic Planning			
24. Product Costing			
25. Long-range Forecasting			
26. Supplier Evaluation			
27. Shareholder Value Analysis			
28. Value Chain Analysis (VCA)			
29. Analysis of competitor' strength and weakness			

21. Below statements relate to benefits accrued by manufacturing organizations from diffusing Management Accounting Innovations. Please indicate your opinion on the following dimension. [1=Strongly Agree, 2=Agree, 3=Not sure, 4=Disagree, 5=Strongly Disagree].

Aspect	**1**	**2**	**3**	**4**	**5**
a) The extent of adoption of Management Accounting Innovations determine the amount of benefits derived from the innovations.					
b) Adoption of Management Accounting Innovations improves competitiveness of the organization.					
c) The organization' profitability can be partly attributed to adoption of Management Accounting Innovations.					
d) Management Accounting Innovations have improved the organization's accountability; internal & external.					
e) Benefits obtained from previous Management Accounting Innovations determine the extent of absorption of future innovations.					

f) Adoption of Management Accounting Innovations result to improved organisational operation efficiency including quality information & business response.					
g) Traditional accounting methods do not offer adequate support with the current business environment.					
h) Manufacturing organizations that have absorbed Management Accounting Innovations respond better within the sector' business environment.					
i) Benefits accrued by the organization are directly linked to the channels deployed in diffusing the Management Accounting Innovations.					
j) The various techniques of Management Accounting Innovations absorbed by the company have different benefits attached to them.					
k) Management Accounting Innovations enhance timeliness in reporting.					

22. What other benefits has your organization enjoy from as a result of adopting Management Accounting Innovations?

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THANK YOU

APPENDIX II: INTERVIEW GUIDE FOR CHIEF FINANCE OFFICERS

1. How many years have you continuously served the organization?
2. Which Management Accounting Innovations has the organization implemented?
3. To what extent has the organization absorbed these Management Accounting Innovations?
4. Which external and internal factors influence the extent of absorption of the diffused Management Accounting Innovations?
5. Is the organization looking at diffusing more Management Accounting Innovations in future? Please mention the targeted innovations.
6. How successful has the implementation process been?
7. Which factors does the organization consider as being the main drivers in diffusing the Management Accounting Innovations?
8. What are the channels/techniques used by the organization in diffusing agreed upon Management Accounting Innovations?
9. What aspects, according to the organization hamper a successful diffusion process?
10. Has the organization benefitted from the diffusion of these Management Accounting Innovations?
11. How have diffused Management Accounting Innovations impacted the general profitability and competitiveness of your organization?

THANK YOU.