QUALITY MANAGEMENT PRACTICES ADOPTED BY SUGAR MANUFACTURING COMPANIES IN WESTERN KENYA

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DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted for a degree in this or any other University for examination.

Signed _____   9/11/2012

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This project has been presented for examination with my approval as the University Supervisor

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DEDICATION

To my father Mr. Henry Ogada

Thank you for taking me to school the first day

To my mother Mrs.B.Ogada

Thank you for your love and prayers

To my children Marion, Jack and Henry

Thank you for your love and encouragement

To my mentor Paul Odola, MBS

Thank you for your intellectual and leadership guidance

ABSTRACT

Quality is widely recognized as one of the most important disciplines /strategies or competitive priority for an organizational development. In this era of global competition a company needs to apply quality methodologies in the form of strategic quality management; quality systems: quality assurance; quality control, etc.In other words, the organization has to implement the concept of quality management (QM).

This is because the QM principles support the business practices of cost reduction, enhanced productivity and improved quality of products /outputs-i.e., it helps to support and fulfill The concept of QM provides the approach to realize the manufacturing strategy leading to fulfillment of corporate strategy. The principles and contents of QM philosophy would increase a firm's commitment to quality and if they are applied correctly enhances the firm's competitive position, hence the concept of excellence in manufacturing.

The objective of the study was to establish the quality management practices used by Sugar manufacturing companies in western Kenya and to determine the challenges faced during implementation. The research methodology was based on a survey approach for establishing quality management practices and challenges of implementation by sugar manufacturing companies. Surveys are concerned with describing, recording, analyzing and interpreting conditions that either exist or existed. A semi-structured questionnaire was used to collect data. The questionnaire was divided into two sections which were answered by the top level and the middle level management.

The study found that the quality management practices that were practiced by the sugar factories were top management commitment, organization for quality, employee training/education, employee involvement, supplier quality management, customer focus, quality system improvement and statistical quality techniques.

The study revealed the importance sugar manufacturing companies attach to quality management improvements. The quality management practice that was largely practiced was top management commitment indicating that top management is actively involved in quality management and is providing clear and consistent leadership. ; The second most practiced quality system improvement was organisation for quality implying the companies' culture is conducive to quality strategy

implementation and improvement. The third most practiced quality management practice was statistical quality technique implying that quantitative methods and statistical tools are used to provide workers and managers with the tools needed to quantify variation, identify cause and find solutions to reduce or remove unwanted variation and monitor progress objectively. The fourth most practiced quality management practice was employee empowerment implying the employees are part of the organizations decision making process and have a sense of family. Employees take pride and ownership in their work which may lead to improvement in their job performance and eventually increase organizational quality.

The second objective of the study investigated the challenges of implementation of the quality management practices. The results indicate that there is good progress in quality management practices implementation though some challenges do exist.

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LIST OF ACRONYMS

BS	:	British Standards
CGMP	:	Current Good Manufacturing Practices
GLP	:	Good Laboratory Practices
GMP	:	Good Manufacturing Practices
GDP	:	Gross Domestic Product
ISO	:	International Organization for Standardization
JIT	:	Just In Time
MRP	:	Material Requirements Planning
QA	:	Quality Assurance
QCs	:	Quality Circles
QC	:	Quality Control
COC	:	Cost of Quality
QM	:	Quality Management
QMS	:	Quality Management Systems
R & D	:	Research and Development
SOPs	:	Standard Operating Procedures
SPC	:	Statistical Process Control
TQCS	:	Total Quality Customer Service
USA	:	United States of America
WTO	:	World Trade Organization
TQM	:	Total Quality Management
TCD	:	Tonnes Cane per day
COMESA	:	Common Market for East and Southern Africa
WFO	:	World Food Organization
KSB	:	Kenya Sugar Board

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Quality is widely recognized as one of the most important disciplines /strategies or competitive priority for an organizational development. In this era of global competition a company needs to apply quality methodologies in the form of strategic quality management; quality systems: quality assurance; quality control, etc.In other words, the organization has to implement the concept of quality management (QM). Broadly defined, quality refers to the ability of a product or service to consistently meet or exceed customer expectations (Stevenson, 2002). Crosby, et al (1997) has defined quality as the totality of features and characteristics of a product or service that bear on the ability to satisfy stated or implied needs. This definition suggests that quality must conform to requirements to satisfy the needs of users or anyone in contact with the product or service. It is these management initiated approaches that distinguish leading – edge companies from poor performers who may be pushed out of the competition (Adam and Ebert, 2001).

Quality Management principals support the business practices of cost reduction, enhanced productivity and improved quality of products /outputs-i e., it helps to support and fulfill The concept of QM provides the approach to realize the manufacturing strategy leading to fulfillment of corporate strategy. The principles and contents of QM philosophy would increase a firm's commitment to quality and if they are applied correctly enhances the firm's competitive position the concept of excellence in manufacturing. The majority of successful manufacturing companies have embraced quality management (QM) and realized its valuable contribution. Hence the importance of quality management as an effective pillar for achieving

manufacturing excellence status cannot be denied (Monica and Rambabu (2008).QM is universally accepted as one of the most understood change management programmes and is one of the strategies for confronting the global competitive challenge facing both manufacturing and service industries (Wali et. al. 2003)

Quality Management (QM) presents a strategic option and an integrated management philosophy for organizations, which allows them to reach their objectives effectively and efficiently, and to achieve sustainable competitive advantage (Goldberg and Cole, 2002). Even QM's promoters confess that organizations have not found it so easy to implement the quality management practices and to achieve the expected benefits (Kirk, 2000, pg.14). More critically, Brown (2000) concluded that there are still organizations where, despite this criticism, the quality management philosophy continues to be a central focus of the business and a mechanism for contributing to better performance.

1.1.1 The Concept of Quality Management (QM)

The emergence of quality as a top priority in many corporate entities is primarily due to the globalization of world trade and the competitive pressure brought about by the escalating demands of customers, who want better products and services (Thiagarajan et al., 2001). According to Feigenbaum (1999), the key is transforming quality from the past emphasis upon the reduction of things gone wrong for the customer, to emphasize upon the increase in things gone right for the customer, with the consequent improvement in sales and revenue growth Creating better planning, better external and internal focus, better design, strengthening weak processes and

protecting strong areas, which give organizations an edge over their competitors' is being achieved through quality management (QM).

Quality Management (QM) has been described as a new way of thinking about the management of organizations, a comprehensive way to improve total organizational performance and quality, an alternative to" management by control" and ultimately, as a paradigm shift (Spencer, 1994). Developing an organizational philosophy based on QM is a long- term journey and its survival over time is more likely if four major issues are built into the organization: the emotional commitment of Chief Executive Officers is linked to the use of QM philosophy; the management team has adequate understanding and knowledge about QM; there are appropriate systems to stimulate, guide and direct QM activities; and involvement and participation of employees (van der Wiele *et al.*,, 2001). A significant number of companies have adopted some form of QM in their business and have derived demonstrable benefits from the application of such approaches (Rahman and Shal, 2002). Despite the fact that the QM discipline has attracted many researchers until today, there continue to be references of research proposals for the future, As Dale (2002) noted, improvement is a process, which once started should never end and the same can be said of the research into QM as stated by (Christos,2010).

Quality management practices have been investigated extensively by various researchers (Kaynak, 2003).Although a plethora of practices have been described, similarities among practices can be discerned. The distinct generic practices proposed in quality management literature are: top management commitment and support, organization for quality, employee training, employee participation, supplier quality management, customer focus, continuous support, improvement of quality system, information and analysis and use of statistical techniques (Kaynak, 2003).

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Benson et al (1991) have proposed an organization theory to explain how quality is managed in organizations. They propose a system – structural model of quality management that relates organizational quality context, actual quality management, ideal quality management and quality performance. Lakhal et al (2005) have identified critical quality management practices linking them in a model and testing the relationship empirically. Numerous empirical studies have been conducted in the past ten years to gauge the development and majority of quality management practices particularly among manufacturing firms and correlation with overall organization performance has been documented in the work of Rahman and Sohal (2002).

1.1.2 Benefits of implementing Quality Management Practices

Previous studies have uncovered a plethora of benefits from quality management practices. Burzacca and Lunghi (2003), Casadessus et al. (2001).Yahya and Goh (2001) show that some of the common benefits are customer satisfaction, continuous improvement, greater motivation of employees, increase in quality awareness, improved management control, improved productivity, reduced costs, improved internal communication and worldwide recognition. Corbett et al. (2005) and Chow-chua et al. (2003) suggest that quality management practices leads to significant improvement in financial performance. Naveh and Marcus (2005) found that implementation of Quality Management (QM) lead to competitive advantage through improved on-time delivery and reduction in cost. Improved documentation, improved quality perception, disciplined work environment, and consistency across the organization are the main benefits discovered by Bhiyan and Alam (2005). Furthermore Han and Chen (2007) suggest that QM enhance quality, cost reduction, dependability and flexibility. All the above are stated by (Rosaline and James 2011).

1.1.3 Sugar Manufacturing Industry in Kenya

Agriculture in the Kenyan economy employs over 75% of the total labor force and contributes over 24% of the country's Gross Domestic Product (GDP) making it one of the dominant sectors in the economy. This contribution mainly comes from tea, coffee, horticulture and sugar .The sugar industry directly and indirectly supports six million Kenyans representing about 15% of the entire Kenyan population. The sugarcane industry also contributes significantly to the revenue of both the local authorities and the central government in the form of the value-added tax, sugar development levy and local authority levies (Ernest and Yong 2009)

There are seven sugar factories in Kenya with a total installed capacity of 24,280 tonnes cane per day (TCD), which is not sufficient to produce enough sugar for domestic consumption estimated at 752,000 tonnes. Thus consumption of sugar outstrips production as Kenya currently produces only 70 % of her annual domestic sugar requirement. The deficit in sugar production is met through imports. There exists potential for Kenya to become and retain self-sufficiency in sugar production and also produce surplus amounts for export. The envisaged expansion and setting up of new factories in the country will help reduce this deficit (Ernest and Young 2009).

The Kenyan sugar industry faces today its greatest challenge in the form of the high cost of production for its sugar. A comparison of the cost of producing one tonne of sugar in Kenya with the neighboring countries and with other COMESA countries is shown in the graph below.
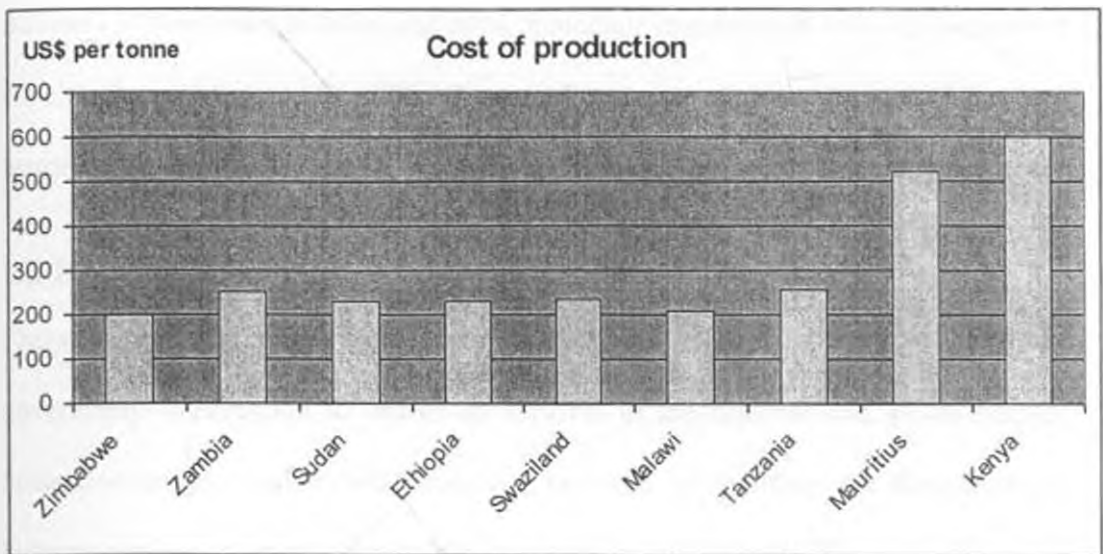
Figure 1.1 Cost of production
Source: Ernest and Young 2009

The high cost of production and relatively high retail prices make the local sugar market an attractive destination for lower cost producing countries. The Government has imposed protectionist measures through import tariffs and quotas to safeguard the interest of the local players. However, in March 2012, the quotas and tariffs will no longer apply as outlined in the COMESA safeguard rules of 2008. This will impact severely on the financial viability of the local sector. Given the importance of the sugar sector in terms of employment and contribution to the communities in the Sugar Belt, the removal of these protectionist measures in 2012 will result in painful adjustments and restructurings for the sector to survive.

The sugar factories must therefore implement both radical and incremental performance improvement changes to improve the operational efficiencies and reduce the cost of production to be competitive in the COMESA market. Some of the improvement measures include sound systems of performance measures, benchmarking with the best performing partners in the non-competitive measures,

Business process reengineering and most immediate maintenance and improvement of the already implemented ISO 9001 Quality Management System by most of the sugar factories.

1.2 Research Problem

There are several challenges facing the Kenyan Sugar Industry. which invite government intervention to enable its survival in the regional and global market. Protectionism has undoubtedly played a key role in shielding the Kenyan sugar industry against competition with the existence of import tariff. Presently, the major challenge facing the sector remains the ability to maintain competition against cheaper COMESA imports given its high cost of production. The main factors which has lead sugar factories in Kenya to trail their COMESA counterparts is their high cost of production, inferior operational efficiency, ineffective quality assurance, ineffective planning and maintenance of plant and equipment, uneconomical production capacity (economies of scale), supplier dominance in key equipment functionality and cost, limited use of modern and appropriate technology and poor planning and maintenance of raw material (Ernest and Young 2009). Technical due diligence findings suggest that short term improvements in the Kenyan sugar factory efficiencies and HR organisations may yield quick improvements in terms of lower cost of production in the window of time left before the safeguard period comes to an in 2012 (Ernest and Young (2009) .

The implementation of ISO 9001 QMS by most of the sugar factories between the years 2008 and 2009 provided a timely quality strategic weapon and an approach to improve the competitiveness, effectiveness, efficiency, cost reduction, reliability and quality of the production processes or service delivery systems. However, despite the

use of modern management practices (QM) in the last 2 to 3 years, the sugar manufacturing firms are still faced with the challenge of high cost of production.

Masau (2003) based on a case study of quality management practices at Colgate Palmolive Kenya, recommended the need for Kenyan manufactures to reassess the level of entrenchment of quality management practices in the organizations' activities. He notes that for an organization to achieve a competitive advantage, it has to have all the prerequisites of quality management working hand in hand. In another study on Continuous Improvement Climate Survey in Kenya, Mwihaki (2005) suggests further research on local manufacturing companies at different stages of implementing quality management strategies. In yet another study on management practices in Kenya Education Institutions, Nyaoga (2007) suggests crucial further research to determine how quality management can contribute to organization financial performance and customer satisfaction and to what extent can the benefits if any be quantified by the organization.

Stevenson (2002) asserts that quality management practices have been a way for companies to improve their competitiveness. However, there have been noted inconsistencies in blind pursuit of quality management practices. Overzealous advocates may focus attention on quality even if other priorities may be more important. Furthermore, quality management programmes may not be linked to the strategies of the organization in a meaningful way.

This leads to the following research questions:

i. What quality management practices do the sugar manufacturing companies in western Kenya employ?

ii.   What are the challenges of implementation of these quality management practices?

Hence the need to carry out a study to evaluate the Quality Management practices being employed in achieving these critical business performance measures to gain a competitive advantage in the COMESA and world market by the Sugar firms in western Kenya.

1.3 Research Objectives

i.   To establish the quality management practices used in the Sugar factories in western Kenya.

ii.   To determine the challenges faced in quality management implementation in the sugar factories in western Kenya.

1.4 Value of the study

The factories management will realise the implementation and knowledge gaps within the Quality Management practices in place which will enable them put up corrective and preventive action for improvement. The certification bodies can use the document to review their training methodology and assess their certification integrity and competence. The Government will find the information useful in assessing the preparedness of the sugar industry to COMESA market competition and make relevant decisions to save the six million citizens depending directly or indirectly on the sugar industry. Investors will use the information to make decisions regarding investments in the sugar factories which are currently being privatized. This will be a pointer to a possible attractive investment regime guaranteeing good returns. The academia and research institutions in the area of quality management specialists will gain an insight from this study on the various quality management practices applied

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by sugar companies as well as challenges encountered in the process of their implementation.

CHAPTER TWO: LITERATURE REVIEW

2.1 Defining Quality

Quality means different things to different people. This is the argument put forward by various students of quality. For instance, Lysonns and Gilligham (2003), point out that there are numerous definitions of quality. These writers further argue that these alternative definitions often overlap and may conflict. According to the American Society for Quality Control (1999), quality is a matter of relationship management. The society defines quality as the ongoing process of building and sustaining relationships by assessing, anticipating and fulfilling stated and implied needs. The society argues that even those quality definitions which are not expressly relational have an implicit relational character, hence the reason why people and organizations try to do the right thing right, on time; build and sustain relationships; seek zero defects and conformance to requirements; seek to structure features or characteristics of a product or service that bear on their ability to satisfy stated and implied needs. Winder et al (1996) concurs with the society. According to these scholars, the focus of continuous improvement is the building and sustaining of relationships. They further argue that it would be difficult to find a realistic definition of quality that did not have a fundamental express or implied focus of building and sustaining relationships. These researchers concretize their arguments by saying that quality is the customers' perception of the value of the suppliers' work output. They further argue that you cannot separate the process and the human factor. They believe that quality, when built into a product, generates emotions and feelings within those who have taken part in its creation. Juran (1974) and Crosby (1979) on their part define quality in a more summarized way arguing that quality is the conformance to requirements and fitness for use respectively.

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Perhaps the most celebrated definition of quality is that given by the American Society for Quality, which is shared by the ISO 8402 (1986). These two organizations define quality as the totality of features and characteristics of a product or service that bear on its ability to satisfy given needs. Literature shows that the single factor affecting a business competitive ability is the quality of its products and services, relative to those of competitors (Meredith, 1992). According to Meredith (1992), quality products or services leads to more customer satisfaction; enhances the reputation of the firm; protects the firm from competition; minimizes health and safety liabilities and risk; improves worker moral; reduces scrap and waste; smoothens work flow; improves control and reduces a variety of costs.

The understanding and consequent desire to attain benefits of superior quality has been the struggle of many firms since the onset of the industrial revolution. This effort was moved a step higher after the Second World War when many governments suffered massive defeats caused by weapon failures. Britain, which was faced by many accidental detonations in their weapons factories embarked on a search for solutions to this quality problem. This eventually led to the development of BS 5750 in 1979, which also changed to be the current ISO 9000 in 1987.

2.1.1 Quality Management

Quality management is a method for ensuring that all the activity necessary to design, develop and implement a product or service are effective and efficient with respect to the system and its performance (Deming, 1986). Quality management (QM), also called total quality management, evolved from many different management practices and improvement processes. QM is not specific to managing people, but is related to improving the quality of goods and services that are produced in order to satisfy customer demands. QM permeates the entire organization as it is being implemented.

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QM has its roots in the quality movement that has made Japan such a strong force in the world economy. The Japanese philosophy of quality initially emphasized product and performance and only later shifted concern to customer satisfaction (Sergesketter, 1993).

Yongless (2000) argued that rather than trying to inspect the quality of products and services after they have been completed, QM instills a philosophy of doing the job correctly the first time. It all sounds simple, but implementing the process requires an organizational culture and climate that are often alien and intimidating. Changes that must occur in the organization are so significant that it takes time and patience to complete the process. Just as the process does not occur overnight, the results may not be seen for a period of time. According to Bank, (1992), Quality Management (QM) refers to management methods used to enhance quality and productivity that can increase the profitability and competitiveness of the organization. QM is only one of many acronyms used to label management systems that focus on quality. Other acronyms that have been used to describe similar management philosophies and programs include CQI (Continuous quality improvement), SQC (statistical quality control), QFD (quality function deployment), QIDW (quality in daily work) and TQC (total quality control). QM provides a framework for implementing effective quality and productivity initiatives that can increase the profitability and competitiveness of the organizations (Deming, 1992).

2.2 Prerequisites for Management in QM

Deming (1992) in his attempt to explain quality, he created fourteen points for management to adapt: first, create constancy of purpose toward improvement of product and service, with the aim to become competitive, to stay in business, and to provide jobs; second, adopt a new philosophy. We are in a new economic age.

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Western management must awaken to the challenge, must learn their responsibilities, and must take on leadership for change; third, cease dependence on inspection to achieve quality. Eliminate the need for inspection on a mass basis by building quality into the product in the first place; four, end the practice of awarding business on the basis of the price tag. Instead, minimize total cost. Move toward a single supplier for any one item, based on a long-term relationship of loyalty and trust; five, improve constantly and forever the system of production and service, in order to improve quality and productivity, and thus constantly decrease costs; six, institute training on the job.

Seven, institute leadership. The aim of supervision should be to help people, machines, and gadgets to do a better job. Supervision of management is in need of overhaul, as is supervision of production workers; eight, drive out fear, so that everyone may work effectively for the company; nine, break down barriers between departments. People in research, design, sales, and production must work as a team, in order to foresee problems in production and in use that may be encountered with the product or service; ten, eliminate slogans, exhortations, and targets for the work force asking defects and new levels of productivity (Allen, 1997).

Exhortations only create adversarial relationships, since the bulk of the causes of low quality and low productivity belongs to the system and thus lies beyond the power of the work force. Eliminate work standards (quotas) on the factory floor, substituting leadership. Eliminate management by objective, by numbers, and by numeric goals, also substituting leadership; twelve, remove barriers that rob hourly workers of their right to pride of workmanship. The goals of supervisors must be changed from sheer numbers to quality; twelve remove barriers that rob people in management and in engineering of their right to pride of workmanship. This means, interalia, abolishment

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of the annual or merit rating and of management by objective; thirteen institute a vigorous program of education and self-improvement, fourteen; put everybody in the company to work to accomplish the transformation. The transformation is everybody's job; it is readily apparent that the process of implementing a quality management system in an organization is closely aligned with the thinking of Deming (Allen, 1997).

The importance of quality is emphasized with the awards that are presented to companies that achieve high standards of quality. The Malcolm Baldridge National Quality Award was one of the first given. The 1991 award application identified several categories that companies must address to receive the award. It must be noted that very few awards are presented. Companies are rated on leadership, information and analysis, strategic quality planning, human resources utilization, quality assurance of products and services, quality results, and customer satisfaction. It is very prestigious honor for a company to be recognized with this award. Other awards and certifications are also presented. However, they constantly change and new ones are added regularly, so they will not be discussed here. Quality management has become an important philosophy in businesses around the world, and this approach to building better products and services will continue. (Johnson, 1996)

2.3 Quality Management Critical Success Factors

Exploring the QM literature numerous studies were revealed. These studies examined the QM factors implementation, the results of adopting them and their relationships. QM factors, as they have been detected in recent studies are the following (Rahman and Siddiqui, 2006; Gotzamani et al., 2006; Karia and Asaari Ju et al., 2006; Drew and Healy, 2006; Hafeez et al.,2006; Singh and Smith, 2006; Singh et al., 2006 Hoang et al., 2006; Ahmed et al., 2005; Lagrosen and Lagrosen, 2005; Lewis et al., 2005;

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Miyagawa and Yoshida, 2005 Prajogo and Mc Dermott, 2005;Prajogo,2005; Seth and Tripathi, 2005; Sila and Ebrahimpour 2005; Tari, 2005); leadership strategic quality planning, employee management and involvement, supplier management, customer focus, process management, continuous improvement, information and analysis, knowledge and education. However, Quality management is not achieved only through adopting the above mentioned factors, but it is supported by quality management tools and techniques, such as flow chart, relations diagram, scatter diagram, control charts, Paretto analysis, quality function deployment, design of experiments and so on.

Most of those writing on the subject of QM argue that improving quality will reduce manufacturing costs, increase productivity and customer satisfaction (Dale and Wan, 2002). According to Zairi et al., (1994) there is a positive association between the introduction of QM and tangible benefits. QM has a direct impact on financial results, provided its implementation is well directed and planned and provided there is strong commitment in sustaining continuous improvements which focus on benefits for the end customer. So, the ultimate objective of a quality management system is to assist the organization in its quest for financial health (van der Wiele *et al.*, 1997). Zhang et al., (2002) stated that QM is a way of managing business that results in improving its overall performance and effectiveness and in this way world- class recognition is achieved.

Jitpaiboon and Rao (2007) used the meta- analysis approach to examine issues regarding the QM measurement reliability and the relationships between QM practices and organizational performance. They showed that all QM practices are positively related to internal and external performance. More specifically, top management support had the highest impact on both performances. The QM practices,

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which had medium sized impact on internal performances, were strategic quality planning, supplier quality, benchmarking, employee training and customer focus, while employee involvement had a higher impact. The QM practices which had medium sized impact on external performance were benchmarking, customer focus, while the QM practices which had a higher impact on external performance were strategic quality planning, supplier quality, employee involvement and training. These results prove the quality management not only helps companies to improve their internal environment and effectiveness but also their external status.

Siddiqui and Rahman (2007) showed that customer orientation and support of top management constitute the key factors in achieving benefits like cost cutting on maintenance of applications, increased management control, improved quality of products and services, greater customer satisfaction, enhanced productivity, slashed time consumption on Production, optimization of human resources use and flexibility in reaching out to customers. The findings above are cited in (Christos, 2010)

2.4 Quality Management Practices

Yang (2006) found that QM practices including quality management, process management, employee empowerment and teamwork, customer satisfaction management, quality goal setting and measurement supplier's cooperation and quality tools training have positive effects on customer satisfaction and that the adoption of QM principles is an effective means by which companies can gain competitive advantage. The implementation of the QM practices also helped companies to improve their image, employee's satisfaction and quality awareness.

Sila and Emprahimpour (2005) explored the relationships among QM factors such as leadership, strategic planning, customer focus, information and analysis, human

resource management, process management, supplier management and the results from adopting such practices such as human resource results, customer results, organizational effectiveness and financial and market results. They identified leadership and information and analysis as the two factors that act as the foundations on achieving favorable business results. The effective implementation of practices related to these factors is likely to result in improved performance. Leadership had both direct and indirect effects results. However, information and analysis had only an indirect effect on business results that was mediated through human resource management and process management. Thus, other than leadership, process management was the only factor that had a direct effect on business results. The above findings are cited in (Christos, 2010)

According to Benson et al (1991), quality management is becoming a top priority in many U.S firms. Since quality management is an organization wide function, organization theory should be used to describe, explain and improve it. Organization theory has contributed significantly to the practice of quality management, and in turn, improved quality performance and company performance. Benson et al (1991) proposes a model of quality management comprising a system- structural view of quality management. This system — structural view explicitly considers the organization's external context and its impact on the organization With quality problems being driven by external factors such as customer demands, competitive pressures and government regulation, the system- structural view is particularly helpful in explicating a theory of quality management.

The basic element of quality management is an appropriate infrastructure or quality system encompassing the organizational structure, procedures, process and resources; systematic action necessary to ensure adequate confidence that a product or service

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will satisfy given requirements for quality. The totality of this action is termed as quality assurance, which also serves as a management tool. In contractual situations, quality assurance also serves to generate confidence in the supplier. The concepts of quality assurance, Good manufacturing Practices (GMP) and Quality Control (QC) are interrelated aspects of quality management. An organization will benefit from establishing an effective quality management system (Department of Trade and Industry, British Government, 2007). The cornerstone of a quality organization is the concept of the customer and the supplier working together for their mutual benefit. For this to become effective, the customer- supplier interfaces must extend into and outside of, the organization, beyond the immediate customers and suppliers (DTI, 2007).

2.4.1 Leadership and Top Management Commitment

The literature of QM as stated by Graeme (2010) emphasizes the critical role of leadership in the implementation process of QM. QM requires increased effort from everyone in the company to satisfy the customer continuously (McAdam et al., 2002). Without clear and consistent quality leadership, quality cannot hope to succeed (Everett, 2002).This requires that quality leadership be made a strategic objective (Feigenbaum 1991). This means that the leader provides the suitable environment to provide the most comfort to the group members to improve performance and productivity (Leiter et al., 2002)

Staying focused is a key requirement for strategy execution. Raffoni (2003) characterizes focus as meaning a realistic attitude, simplicity and charity. Is the strategic plan realistic given our current resources and workloads? And, most importantly, what will we give up or stop doing to make way for the new strategy? How will we separate from the past? The strategy needs to be as simple as possible to

translate its contents throughout the organization. Rather than spreading the total strategy, there comes appoint where it is more important to ensure most employees are clear about their role in achieving the critical 80 per cent than communicating the remaining 20 per cent to everyone. Having identified the "vital few", it is preferable to focus on drilling deeper into the concepts, repeating the same message and introducing new dimensions from customers and from internal and external benchmarking.

Effective leadership involves motivating people by being accessible and visible and asking inclusive questions rather than providing solutions. Leaders in winning organizations have ways of removing slow movers or non-performers (Hubbard *et al.*, 2007) and they select people with the right attitude and values to fit with the culture and strategic intent, rather than just focusing on people with the best technical skills. During execution of strategy, leaders challenge people with defined objectives and jointly agreed targets, knowing that people normally meet or exceed targets if they are included in setting them in the first place, rather than having them imposed from above. They then give them every chance to perform to their objectives by investing in training and support systems. Creating stretch targets might be a way of getting action but these must be aligned to the needs of the customer and market place. Mistakes are accepted if they are admitted early but not repeated.

Execution of strategy often goes astray because executives fail to lead and hold employees – or themselves – accountable for results. Leadership does not mean just having leaders at the top – rather it is about creating leaders throughout the organization (Hubbard *et al.*, 2007), particularly at the front line where people and core processes create value for customers. Effective leadership means being able to speak the language of strategy as well as the language of operations. Leaders are able

to develop, receive and interpret strategic plans and cascade them in a clear and understandable way for all employees. They know when and how to manage upwards to negotiate resources and provide candid feedback. Successful leaders are usually developed from within because they know how to get things done through the culture (Varon, 2002). They are already aware of the pockets of resistance and non-performing units of the organization. Leaders invest in their people and recognize that the right people, not technologies, provide the only enduring source of creativity, improvement and change. The above findings are cited in (Graeme, 2010).

2.4.2 Organization for Quality

In the face of changing competitive conditions, many firms are pursuing quality management practices to regain their competitive edge (Victor et al, 2000). These firms are discovering that effective implementation is not guaranteed. Many attempts fail to achieve desired gains in quality and efficiency. (Griffin, 1988).Victor et al (2000) proposes that through poor leadership, inappropriate training, lack of resources, confusion of program goals and cultural resistance that cause quality management practices failure, none is more fundamental than the cause that underline the difficulty of implementation having as its basis the integration of doing and thinking (Best, 1990). Quality management significantly alters the way jobs are designed requiring new behaviors, roles and responsibilities for all organizational members (Koike, 1988).

Quality Management (QM) practitioners claim that if a company's culture is not conducive to total quality, the culture must be changed before a quality programme can be implemented. There appears to be a multitude of reasons why companies fail in their effort to implement a quality management system. However two common problems appear to be a lack of strategic planning and a lack of appropriate culture

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supportive of QM programmes (Sebastianelli and Tamimi, 2003). Another area where Deming's ideas and ethics converge is the organizational code of ethics. An effective code delineates honesty with customers, which is imperative to identifying customer expectations. The code also delineates responsibility for quality, reliability, and safety. Further, the code describes the freedom of employees to verify quality and identify non-conformance. Moreover, the code has to emphasize honesty in such areas as producing true reports on product defects and non-conformance (Stimson, 2005). Into the twenty-first century, quality is becoming a cultural value of the organization (Sciarelli, 2002). One important twenty-first century issue is customer concern over privacy of personal information in company databases. Deming emphasized a customer orientation, which implies that honesty and integrity must underlie the operation of company databases. The code of ethics should reinforce these principles (Iles and Healy, 2004).

2.4.3 Process Management

All organizational activities can be considered as processes. Therefore, if the aim of QM initiative is to achieve overall quality performance, then process management appears to be an essential requirement. Process management is the concern of quality of conformance. One important matter in process management is to ensure that process capability can meet production requirements (Zhang et al., 2000). There are differing opinions regarding the purpose of process management:

- To remove barriers between functional groups and bond the organization together (Jones, 1994; Llewellyn and Armistead, 2000);

- To control and improve the processes of the organizations (Melan,1989; Pritchard and Armistead. 1999; Biazzo and Bernadi, 2003; Sandhu and Gunasekaran, 2004);

- To improve the quality of products and services (Melan.1989; Mc Adam and McCormack, 2001; Sandhu and Gunasekaran, 2004);

- to identify opportunities for outsourcing and the use of technology to support business (Lindsay et al, 2003; Lock Lee, 2005);

- to improve the quality of collective learning within the organization and between the organization and its environment (Bawden and Zuber- Skettitt. 2002);

Increasing stability and reliability as it applies to systems of routines is an intended outcome of process management practices(Harry and Schroeder,2000),and it emerges both as processes are repeated in best practices and as process management activities are used to coordinate linkages between organization –spanning routines. Efforts toward tighter horizontal coordination create interdependencies and interactions (Siggelkow, 2002).Increasing congruency among organizational routines creates system -wide benefits of continued incremental change. The behavioral consistency and reliability in the concerted efforts inherent in process management activities echo a strong culture focused on incremental innovation for existing customers (Srensen, 2002) .The above findings are cited in (Klara, 2009)

2.4.4 Performance measurement

Quality management (QM) is a holistic approach that seeks to integrate all organizational functions to focus on meeting customer needs and organizational

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objectives through the improvement of quality, productivity and competitiveness (Pfau, 1989). QM philosophy emphasizes the role of internal and external customers and suppliers, and the involvement of employees in pursuit of continuous improvement (Oakland *et al*, 2002; Kanji, 2002; Claver 2003; Karia and Asaari, 2006; Chang, 2006). Despite some criticism, QM has gained widespread acceptance in both the academic and business communities (Claver et al, 2003; Chang, 2006). Extensive research focuses especially on the role of performance measurement in the context of QM. Given that the implementation of QM brings with it a significant organizational change, it is argued that a review and update of the organization's performance measurement system is necessary when QM implementation takes place (Aoieong *et al*, 2002: Chiu and Lin, 2004).

Financial indicators are normally used to control and optimize the organizational processes. Nonetheless, one can observe these indicators and not able to explain, for example a lower turnover. The business processes could be strategically planned and controlled only through indicators that are able to establish a direct cause and effect relationship between the process variables (wicht, 2001). In the current flood of information within an organization, it is very difficult to design strategic operational processes transparently without the relevant key performance indicators (KPIs). These KPIs in fact can serve an "early warning system" to the companies in constantly changing technological economic and social conditions (Wicht 2001).

Designing and implementing an effective performance measurement system in the QM contest is however not a straightforward task and numerous authors tried to provide guidelines and recommendations for QM adopters. Kaplan and Norton (1993) stated that "an effective performance measurement system should provide timely, accurate feedback on the efficiency and effectiveness of operations". To be

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effective, a performance measurement system must be therefore based on the drivers of organizational success, which in the context of QM include, among others, customer satisfaction and social impact (Claver et al, 2003). The long-term goals of QM performance measurement should include continuous improvement of performance and maximization of customer satisfaction by adapting to change in customer requirements and the general business environment. Implementation of performance measurement in the context of QM depends on many factors; Leadership, quality planning, specialized training, supplier management, process management, and continuous improvement and learning (Claver et al, 2003). The above findings are cited in (V. Kumar, 2008)

Horngren *et al*, (2006) use financial measures and cost of quality (COQ) interchangeably. Furthermore, they argue that COQ and non- financial measures supplement each other. Therefore, the integrated utilization of financial and non-financial measures is advisable. Kapuge and Smith (2007) state that although non-financial measures are increasingly important in decision making and performance evaluation, copying non- financial measures that others use may not work. Instead, the companies should link the measures to the factors, such as corporate strategy, value   .ers, organizational objectives and competitive environment. The above findings are cited in (Ali, 2009).

2.4.6 Employees Training and Education

Ahire et al. (1996) believe that employees empowerment and involvement framework is not effective unless employees have received formal, systematic training in quality management.Ishikawa (1985) states that quality begins and ends with training. For McAdam et al., (2002) training and development are key components of all QM initiatives .Firms that establish work place education programmes report noticeable

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improvements in their workers abilities and the quality of their products (Cebeci and Beskese,2002)

It has become a widely held premise that people provide organizations with an important source of sustainable competitive advantage and that the effective management of human capital, not physical capital may be ultimate determinant of organizational performance (Alder, 1988; Reich, 1991). Given the team- based problem- solving nature of total quality management programs, firms adopting a quality strategy must facilitate employee interaction and information exchange (Youndt et al, 1996). The value of human capital may be especially apparent in modern, manufacturing organizations that have invested heavily in production innovations such as advanced manufacturing technology, statistical process control and computer numerically controlled machine tools. Such initiatives tend to depend heavily on employee skills and commitment as key components in the value creation process (Snell, 1992)

Powell (1995) has identified increased employee training as a critical QM factor and that increased employee training should include QM principles, team skills and problem solving. Employee training should be directed at establishing commitment human resource systems (Arthur, 1992). Commitment human resource systems shape desired employee behaviors' and attitudes by forgoing psychological links between organizational and employee goals. In other words, the focus is on developing committed employees who can be trusted to use their discretion to carry out job tasks in ways that are consistent with organizational goals (Organ, 1988).The findings above are cited in (Wan.2006)

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2.4.7 Employee Involvement

According to Evans and Lindsay (2008) employee involvement refers to any activity by which employees participate in work- related decision and improvement activities, with the objectives of tapping the creative energies of all the employees and improving their motivation. Oakland (1989) argues that everyone in the organization from top to bottom must be involved. People are the source of ideas and innovation, their expertise, knowledge and cooperation have to be harnessed to get these ideas implemented. According to Bass (1990) participative decision making is more likely to be accepted by those affected by it, and it is associated with the higher satisfaction and may also lead to higher quality decisions.

Wilkinson and Brown (2007) observed that placing responsibility for implementing in the hands of those whose future is threatened by quality management is likely to shape the manner and enthusiasm in which they perform their work. Employee participation in any quality improvement initiative is critical for its success. Several authors have identified employee empowerment, formation of quality circles and employee fulfillment as critical ingredients for successful employee participation in quality management practices.

2.4.8 Employee Empowerment

Empowerment means giving people authority to make decisions based on what they feel is right, have control over their work, take risks and learn from mistakes and promote change (Evans and Lindsay, 2008). One of the most frequently referenced definitions of employee empowerment is that offered by Conger and Kanungo (1988).

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They define empowerment as a process of enhancing feelings of self- efficacy among organizational members through the identification of conditions that foster powerlessness, and through their removal by both formal organizational practices and informal techniques of proving efficacy information. This definition implies strengthening the effort- to – performance expectancy or increasing employee feeling of self – efficacy. According to Conger and Kanungo (1998), the effect of empowerment is the initiation and persistence of behavior by empowered employees to accomplish task objectives. This definition is rooted in management theory of power and authority delegation that gives an employee the right to control and use organizational resources to bring about desired organizational outcomes.

Thomas and Velthouse (1990), however, argued that the concept of empowerment is much more complex and could not be fully explained in a one- dimensional construct such as self -efficacy. They therefore define empowerment as an intrinsic task motivation that manifests itself in four cognitions (meaningfulness, competence, impact and choice or self- determination), reflecting an individual's orientation to his or her work roles. By intrinsic task motivation, they mean, a positively valued experiences that an individual derives directly from a task that produces motivation and satisfaction.

Meaningfulness is the value of the task goal or purpose in relation to the individual's own ideals or standards, and competence is the degree to which a parson can perform task activities skillfully. Impact, on the other hand, is the degree to which behavior is seen as making a difference in terms of accomplishing the purpose of the task, while choice or self -determination is the casual responsibility for a person's actions. It reflects independence in the initiation and continuation of work behavior and processes (Connell, and Ryan, 1989).

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Employee empowerment literature identifies contextual and strategies that promote and support empowerment. For example, Burke (1986) suggests that a way to empower employees is to express confidence in them together with establishing realistic high performance expectations for them. Best (1990) adds the creation of opportunities for employees to participate in decision making, and giving employees autonomy from bureaucratic constraints as empowerment strategies. Comparatively, Bemis and Nanus (1985) suggest the setting of performance objectives for employees that are challenging and inspiring and also, Kantar (1979), Hackman and Oldham (1975) suggest performance -based reward systems and enriched jobs that provide autonomy and control, task identity, opportunities for career advancement and task meaningfulness as ways to empower employees. At the organizational level, however, Kioke (1988) suggest that empowerment could be achieved through employee selection and training programs designed to provide required technical skills together with a culture, which encourages self- determination and collaboration instead of competition.

Empowering the workforce involves giving employees a degree of control over the organization's operation. When empowered, employees feel they are an active part of the organization's decision – making process and they have an organizational sense of "family" Once empowered, employees begin to take pride and ownership in their work, which may lead to improvement in their job performance, which then may increase overall organizational quality. As employees become more involved in the organization, they become self- motivated and do not require as much direct praise or monitoring from managers. As a part of the empowerment process, employees are permitted more management participation (Shapiro 1995).

2.4.9 Quality Circles

Quality circles (QCs) are defined by Ishikawa (1985) as "small group of workers from the same work place who meet together on a regular voluntary basis to perform quality control activities and engage in self and mutual development". A Quality Circle (QC) is a team of up to 12 people who usually work together and who meet voluntary on a regular basis "to identify, investigate, analyze and solve their work-related problems" (The Department of Trade and Industry, UK, 1992; Millson and Kirk- Smith, 1996; and Davis *et al.* 2003). These people are trained to structure problem identification, evaluation, solution and presentation stages and to use associated techniques such as Ishikawa's seven tools-process flowcharting, histograms, check sheets, Pareto analysis, cause and effect diagrams and control charts (Stevenson, 2007).

According to Konidari and Abernot (2006), and Stevenson (2007), among the potential advantages of QCs include: increased self- confidence for both workers and staff, improved quality of product, Staff are better motivated in QCs departments, staff are more productive in QCs departments, customers are happier at QCs departments,, saved time on operational matters, saved money, increased staff satisfaction, increased empowerment, reduced the number of errors in the department, improved the work environment, increased the work accountability, improved organizational climate, improved the work integrity, improved the management style and improved staff awareness of organizational goals, meeting customer expectations and increased workers satisfaction.

An extensive review of the literature reveals that the successful implementation of QCs programs require commitment and support from top management, commitment and support from middle and first- line managers, circles members training,

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involvement and support of employees, circles leaders training, and organizational stability (Pennington and Hamersley, 1997; French, 1998; Goh, 2000; Davis *et al*, 2003; Stevenson, 2007). Although advantages of QC implementation are inspiring, possible negative repercussions may occur. Various writers (e.g., Millson, and Kirksmith, 1996; Goh, 2000, Canel and kadipasaoglu, 2002; Konidari and Abernot, 2006; Slack et al, 2006) have claimed that lack of support from top management, lack of involvement from employees, lack of members experience with QCs, poor training/education on QCs, lack of financial and morale extrinsic rewards, lack of co-operation from line supervisors, circle members disillusioned with QCs philosophy, delay in responding to QCs recommendations, circles leaders take long time to organize meeting and high labor turnover (transfers, promotions, retirements, etc) present obstacles to the successful implementation of QCs programs. The findings above are cited in Salaheldin (2009)

2.4.10 Supplier quality Management

A central theme of quality management is that technical and human aspects of a process must be managed in concert. Complementing the design of efficacious development processes, work design practices that foster participation of key stakeholders and empowerment of employees need to be established (Ravichandran & Rai, 2000). The attempt to use improved quality to gain a competitive advantage has led firms to develop quality- sensitive industrial contracts. The quality of delivered materials and parts and its control through sampling or quality control procedures are thus important issues to reckon with in the negotiation of industrial contacts (Ryniers et al, 1995).

Supply chain management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistic activities.

Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third part service providers, or customers. In essence, supply chain management integrates supply and demand management within and across companies (Council of Supply Chain Management Professionals, 2007). As organizations matured in their understanding of the meaning, costs and benefits of this approach, the sub-discipline of supply chain management began to emerge in the 1990s (Quinn, 2007).

The usual justification for supply chain management is that by unifying the chain wasteful activities can be wrung from the system. Sometimes this involves completely removing middle men, almost always it depends on the integration of communication and database systems to reduce inventories and remove knowledge lags in the chain. These factors are very important, but Deming taught a lesson that is no less important. He taught that a quality product is impossible without quality raw materials, and that the customer cannot be delighted if the producer does not know what the customer wants and needs, or cannot provide it quickly. Once this understanding of mandatory prerequisites is understood, it follows that the supply chain must be managed as a whole. Deming (1986) continually stressed the importance of both the "upstream" relationships with suppliers as well as the "downstream" ones with consumers.

To successfully implement supply chain management, Deming taught that companies must have intense, long-term, collaborative relationships with suppliers, they must have a profound mastery on internal business processes, they must listen to customers and all these arenas, and they must be attuned and responsive to stakeholder and environmental alterations (Anderson *et al.*, 2007) Deming's fourth principle condemned the practice of doing business with other organizations based on price alone, and insisted that companies must come to view suppliers as long-term key

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partners in the continuous improvement journey. In effectively demonstrating the necessity for this precept, Deming (1986) convinced many businesses to more actively manage the links in their supply chain.

2.4.11 Customer Focus

Deming's approach to quality diverged from other quality perspectives, like Juran (Juran and Godfrey, 1998) and ISO 9000 (Hoyle, 2005), which both subscribe to the approach that inherent characteristics define quality. Indeed, earlier versions of ISO 900 were criticized as a type of closed system that could not account for customer satisfaction. An example of the importance of this omission is the Firestone/Bridgestone tire debacle. Even though Firestone was ISO 9000 certified, defects in their tires caused a number of accidents and even deaths. Critics maintained that if the ISO 9000 process had a venue for customer satisfaction indicators, including customer complaints, the company might have been able to resolve the defect problems early on with minimal injury (Daniels, 2000). To its credit, the newer version of ISO 9000:2000 contains customer satisfaction mechanisms (Self *et al.*, 2002).

A primary means of understanding customer satisfaction is through customer feedback modes, like survey feedback, counts of customer complaints, and unsolicited customer responses. New means of measuring customer feedback are arising. For example, 360-degree feedback stresses not only traditional managerial and coworker feedback, but also feedback from customers (Rao and Rao, 2005). Each stakeholder has a unique perspective on evaluating performance. Into the twenty-first century, we predict that customer feedback will become increasingly important for measuring overall firm performance, but the going can be slow. For example, Mitra and Golder (2007) found customer perceptions lag by five to seven years actual changes in

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product quality. An offshoot of customer satisfaction is delighting the customer (Deming, 1986). For example, Rust and Oliver (2000) reported that a delighting experience for the customer does enhance the firm by raising customer expectations of the firm's quality.

Interestingly, the emphasis upon measurement proposed by Taylor (1911) and supported by Deming (1986) has led to a basic problem. Marketers have become so effective at measuring customer satisfaction and then relating it to sales, market share, and ultimately profitability that a company can very accurately gauge how much business a customer generates. Whereas on the surface this would seem to be desirable, many businesses have focused only upon the customers generating high levels of profitability and are losing touch with other important customer criteria (Reis *et al.*, 2003). Thus, into the twenty-first century, we must ensure that we do not only focus upon gauging profitable customers but also upon customer indicators, such as embrace of technology and innovative usage, that may have significant impact in the future. The findings above are cited in (Stephen et al, 2009)

2.4.12 Quality System Improvement

Manufacturing systems typically contain processing and assembly stages whose output quality is significantly affected by the output quality of preceding stages in the system (Zanlek et al, 2002). The use of statistical quality control and related quality-improvement methods has become widespread in recent years as a result of increased emphasis on improving quality and product competitiveness. An important premise underlying these methods is that reducing process and product variability leads to improved products and reduced quality costs. Reducing variability is also known to favorably affect operating metrics such as productivity, cycle time and capacity.

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Interestingly, the emphasis upon measurement proposed by Taylor (1911) and supported by Deming (1986) has led to a basic problem. Marketers have become so effective at measuring customer satisfaction and then relating it to sales, market share, and ultimately profitability that a company can very accurately gauge how much business a customer generates. Whereas on the surface this would seem to be desirable, many businesses have focused only upon the customers generating high levels of profitability and are losing touch with other important customer criteria (Reis *et al.*, 2003). Thus, into the twenty-first century, we must ensure that we do not only focus upon gauging profitable customers but also upon customer indicators, such as embrace of technology and innovative usage, that may have significant impact in the future. The findings above are cited in (Stephen et al, 2009)

2.4.12 Quality System Improvement

Manufacturing systems typically contain processing and assembly stages whose output quality is significantly affected by the output quality of preceding stages in the system (Zanlek et al, 2002). The use of statistical quality control and related quality-improvement methods has become widespread in recent years as a result of increased emphasis on improving quality and product competitiveness. An important premise underlying these methods is that reducing process and product variability leads to improved products and reduced quality costs. Reducing variability is also known to favorably affect operating metrics such as productivity, cycle time and capacity.

Tagaras and Lee (1996) recognize that the output quality of some stages in multistage manufacturing systems is significantly affected by the output quality of proceeding stages. Most of the literature on quality and quality improvements however is restricted to single stage models or assumes the absence of quality linkages across stages. A notable exception is Hawkins (1993), who proposes a procedure for monitoring process quality in manufacturing systems where the measures of output quality are correlated across stages. Zanktak et al, (2002) proposes and validates a procedure for measuring the impact of each stage's performance on the output quality of subsequent stages, including the quality of the final product. The procedure builds on the precedence ordering of the stages in the system and uses the information provided by correlations between the product measurements across stages.

2.4.13 Statistical Quality Techniques

Statistical process control, or SPC, is a fundamental approach to quality control and improvement that is based on objective data and analysis. The origin of SPC dates back to the 1920s and 1930s at the Western Electric Company and Bell Telephone laboratories. Walter Shewhart (1891- 1967) recognized that variation in a production process could be understood and controlled through the use of statistical methods. He pioneered the use of statistical methods as a tool to manage and control production. Over the next several decades, these tools were taught to engineers and production personnel throughout American industry. The need for higher- quality production to support the defense industry during World War II gave a boost to the use of SPC (Chaudhry and Higbie, 1990).

One of Shewhart's disciples, Deming (1900-1993), was a strong advocate of SPC and trained many engineers in the concept during the war years. However, he was never able to convince upper management in the U.S of SPC's benefits and importance.

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When Deming was invited to train Japanese engineers in statistical methods after the war, he realized that quality improvement efforts could never be sustained without top management support. It was not difficult for him to gain the attention of every level of work- from maintenance to CEO, since Japan was rebuilding from complete devastation. The Japanese were eager to learn and apply new tools that would help them rebuild their economy. And the rest, as they say, is history. Statistical methods combined with strong programs in human resources and focus on continuous quality improvement to better respond to customer needs, enabled Japanese companies to emerge as powerful global competitors within only a few decades (Chaudhry and Higbie, 1990).

When Deming's contributions to Japan became recognized in America around 1980, the modern quality movement began. Many major corporations began to experiment with quality improvement techniques, such as statistical process control. Ford Motor Company and other U.S automobile manufactures began to require their suppliers to show statistical evidence of the quality of their products as part of their Q 101 Quality System Standard. Ford insisted that statistical process control be used as an integral part of suppliers' processes to assure quality and provide accurate information of continuous quality and productivity improvement (Chaudhry and Higbie, 1990).

Quantitative methods and statistical tools provide workers and managers with the tools needed to quantify variation, identify causes, and find solutions to reduce or remove unwanted variation, and monitor progress objectively. Statistical process control can help to achieve these goals when it is part of a total problem – solving effort. Simply going through the motions and providing data because the boss or customer wants it will not help to improve operations or better satisfy customers. Team work and participation play an important organizational role (James, 2006).

2.5 Challenges of Implementing QM Practices

QM practitioners claim that if a company's culture is not conductive to total quality, the culture must be changed before a total quality programme can be implemented. There appears to be a multitude of reasons why companies fail in their effort to implement a quality management system. However two common problems appear to be a lack of strategic planning and a lack of appropriate culture supportive of QM programmes (Sebastianelli and Tamimi, 2003). The study of Liu (1998) and Rahim and Whelan (1994) showed lack of top management and lack of training as the main barriers for QM implementation. The barriers to implementing QM will show up in all sectors- both manufacturing and service. Therefore, it is important for all organizations to understand and avoid these barriers both before and during QM implementation (Tamimi and Sabastianelli, 1998).Slegan and Fazel (2000) have listed 16 obstacles which companies have reported when implementing QM.

The actual route to achieving the all pervasiveness of quality throughout organizations has however been many and varied. The centrality of integration across the whole organization as a core element of QM continues to be stressed (Manglesdorf, 1999). Further, beyond the boundaries of any organization, other writers emphasize the importance of developing integration of quality management across the whole supply chain (Levy *et al*, 1995; Kuei *et al*, 2001; Casadesus and de Castro 2005). The importance of linking strategy and approaches to quality management has been another important theme in the quality literature (Chapman et al, 1997; Lenard and Mc Adam, 2002; Kelemen, 2003; Foster, 2007). Various barriers to successful quality initiative implementation are also identified in the literature, like lack of commitment of upper level management (Soltani et al, 2005), ineffective leadership and lack of employee involvement (Warwood and Roberts, 2004), together with

inadequate human resources development, inadequate resources for QM, lack of key elements like leadership, planning for quality and customer focus (Sebastianeli and Tamimi, 2003).

The need for an appropriate culture continues to be an underlying principle in the quality literature (Gallear and Ghobadian. 2004).Despite the best efforts to senior Executives, major change initiatives often fail. Those failures have at least one common root. Executives and employees see change differently. For senior managers, change means opportunity both for the business and for themselves. But for many employees, change is seen as disruptive and intrusive (Strebel, 1996).

Raju et al (2005) contents including GMP and QM, is critical for the success of any quality programme. When the concept of GMP becomes clear. the top management discerns how much of it is already practiced in the company and where that top management awareness and commitment to quality management practices to focus for further exercises, how much of it is manager driven and how much of it dependent on specialized tools. In their study of quality management practices, Raju and Taguchi (2005) found that the commonly experienced problems when implementing any quality improvement practice including GMP include organizational resistance to change, organizational culture bent on maintaining the status quo, lack of customer awareness on GMP, lack of adequate resource to implement and maintain a quality assurance system, and lack of support and commitment from senior management. The congruence of purpose in the implementation of any quality improvement programme should transcend the entire organization and even beyond. The top management has major shares of action and responsibilities to initiate and sustain improvement activities in the company. The span of quality management initiatives is not confined merely to activities within company. It spreads beyond to outside agencies like

suppliers, distributors and customers. There should be an element of commonality in the company's approach and customer's viewpoint. Although the WFO good manufacturing practices guidelines are in public domain, many manufacturing companies have had extreme difficulties in implementation. The findings above are cited in (K.Subrahmanya, 2009)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Research Design

This research project is a survey study approach for establishing quality management practices and challenges of implementation by sugar manufacturing companies. According to Kothari (2005), surveys are conducted in case of descriptive research studies, which may either be a census or sample surveys. Surveys are concerned with describing, recording and interpreting conditions that either exist or existed. The researcher does not manipulate the variable or arrange for events to happen thus surveys are usually appropriate in case of social and behavioral sciences.

3.2 Population

The population of this study comprised five sugar factories in western Kenya who have undergone ISO 9001 QMS certification as at 30th September 2011.There is a total of 5 factories (appendix III). Since the population is small, the census method was used

3.3 Data Collection

Semi-structured questionnaires were used to enable the researcher obtain primary quantitative data from responses in order to provide a complete picture of the quality management practices and challenges of implementation by selected sugar manufacturing companies in western Kenya. The questionnaire was divided into two parts. Part one captures general information about the respondents' organization, respondents' current job position and length of service in that function among other information. Part two captures information in relation to quality management practices and challenges faced in their implementation. The questionnaire was administered to the respondents through the Quality Management Representative

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(QMR) of the factories and collected later hence; drop- and –pick later method was used. Four respondents were selected from amongst employees of each sugar company: Two respondents from top-level management and two respondents from middle level management. The four were seen by the researcher to have the relevant primary information required for the research.

3.4 Data Analysis

The data collected was edited for accuracy, uniformity, consistency and completeness and then arranged to enable coding and tabulation before final analysis. Once collected, the data was collated, organized, summarized and described. Descriptive statistics was used to summarize the data to enable meaningful description of the scores using a few statistics. Summary measures of central tendency (mean) and dispersion (standard deviation) were calculated, tables and graphs created to illustrate the findings. Inferential statistics were used to enable inference about the population based on the results obtained from the samples. A T- test was employed to investigate significance difference between various levels of management on quality management practices . The use of descriptive and inferential statistics helped to answer the research questions, which sought to identify quality management practices that sugar manufacturing companies in western Kenya employ and the challenges they face in their implementation.

CHAPTER FOUR: RESULTS AND DISCUSSIONS

4.0 Introduction

This chapter presents the data analysis results and discusses the interpretation of the findings of the study. The study targeted 20 respondents comprising two respondents from top-level management and two respondents from middle level management from each of the five organizations. The study however was not able to get 100% response rate as only 19 respondents responded leading to a response rate of 95%. This is in line with the findings of Coopers & Schindler (2000) who said that a questionnaire response rate of at least 75% is adequate for a study to continue.

4.1 Demographic characteristics of the respondents

The study investigated the demographic characteristics of the respondents such as gender, years of experience and job title.

4.1.1 Gender of the respondents

The study explored the gender of the respondents and presented the results in figure 4.1 below.
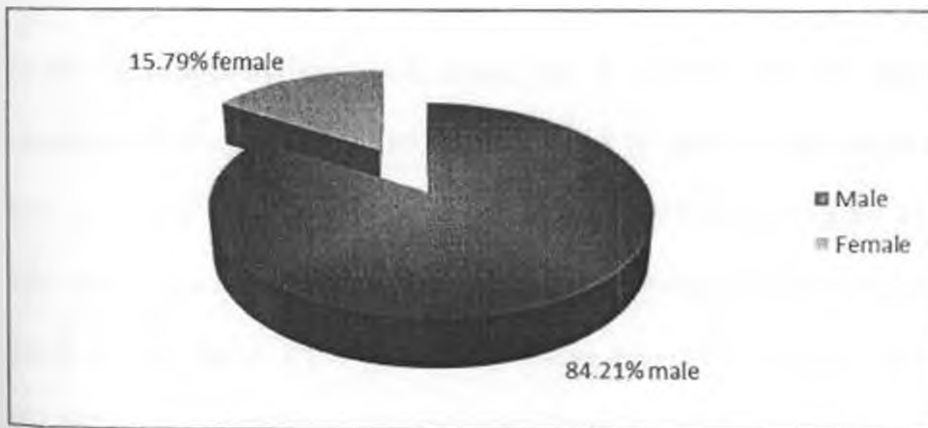
Figure 4.1: Gender distribution of the respondents

From the findings in figure 4.1, the results show that most of the respondents were male. 16 (84.21%) respondents were male and 3 (15.79%) respondents were female.

4.1.2 Years of experience of the respondents

The study examined the years of experience of the respondents and presented the findings in figure 4.2 below.
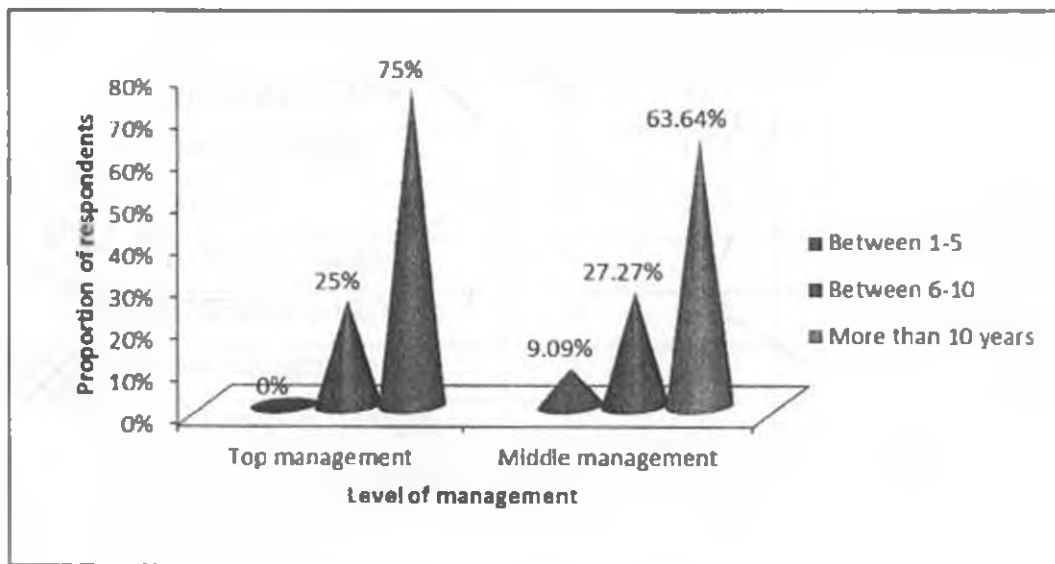
Figure 4.2: Years of experience of respondents

From the results in figure 4.2, among the 8 respondents who were in the top management level, 2 (25%) had between 6 and 10 years of experience and 6 (75%) had more than 10 years of experience. On the other hand among the 11 respondents who were in the middle management level, 1 (9.09%) respondent had between 1 and 5 years of experience, 3 (27.27%) had between 6 and 10 years of experience and 7 (63.64%) had over 10 years of experience. From the findings, majority of respondents had over 10 years of experience meaning that most respondents had served in the management for a long period of time and therefore had experience and knowledge of

the quality management practices adopted and challenges faced by the firms they were serving in.

4.2.3 Job title of the respondents

The study also explored the job title of the respondents and presented the findings in table 4.1 below.

Table 4.1: Job title of respondents

Job title	Top management		Middle management	
	f	%	f	%
Head of manufacturing/Factory	3	37.5	0	0
Sales &Marketing Manager	1	12.5	0	0
Production Manager	1	12.5	2	18.18
Assistant Production Manager	0	0	1	9.09
Engineering Manager (M/E/Inst.)	1	12.5	1	9.09
Nuclear estate manager	0	0	1	9.09
Harvesting &Transport Manager	0	0	4	36.36
Training & development manager	0	0	1	9.09
Quality Assurance officer	0	0	1	9.09
Quality management representative	2	25	0	0
Total	**8**	**100**	**11**	**100**

Source: Research Data 2012

From the findings in table 4.1 above, among the 8 top level managers, 3 (37.5%) were heads of manufacturing /factory, 1 (12.5%) was sales and marketing manager, 1 (12.5%) respondent was a production manager and 2 (25%) respondents were quality management representatives. On the other hand among the 11 respondents who were middle level managers, 4 (36.36%) respondents were cane harvesting and transport managers, 2 (18.18%) respondents were production managers, 1 (9.09%) respondent was a assistant production manager, 1 (9.09%) was an engineering manager, 1 (9.09%) was a nuclear estate manager, 1 (9.09%) respondent was training and

development manager and 1 (9.09%) was a quality assurance officer. From the results of the respondents' job title it can be confirmed that the respondents came from different departments in their organizations implying that their views were from different perspectives and therefore reliable.

4.3 The quality management practices used in the Sugar factories

The first objective of the study was to examine the quality management practices adopted by the Sugar factories. The quality management practices that were explored were top management commitment, organization   for   quality,   employee training/education, employee involvement, supplier quality management, customer focus, quality system improvement and statistical quality techniques. The study examined whether these quality management practices were used in the organisations using 5 point Likert scale questionnaire presented to the respondents. The respondents were to state to what extent you strongly agree, agree, neutral, disagree and strongly disagree to the statements made. The response were given different scores as follows, strongly agree had a score of 5, agree had a score of 4, neutral had a score of 3, disagree had a score of 2 and strongly disagree had a score of 1. For each of the questions explored in the quality management practices, the scores of the responses were summed up and divided by the total number of respondents to give a mean score of the response; a standard deviation of the responses were computed to give a standard error of the response. A mean score greater than 3.5 meant that the aspect was practiced while a mean score less than 2.5 meant that the aspect was not practiced; on the other hand a mean score between 2.5 and 3.5 meant that the respondents were neutral on whether or not the aspect was practiced. The p – values of the t – test, testing the significance of the difference of the views of the middle and top managers in all the practices were all greater than 0.05. This means that at 5%

level of significance the views of the top and middle managers was not statistically

different and should therefore not be analysed differently. It is therefore, statistically

sufficient to analyse the general sample. The standard errors for the mean scores were

all less than 2 meaning that the mean scores explained a large portion of the data;

hence, the results were reliable.

4.3.1 Top management commitment

Top management commitment as a quality management practice was examined using

five elements as presented in table 4.2 below.

Table 4.2: Top management commitment

Elements of top management commitment	Mean score	Standard error	P-value
1. Management is actively involved in quality improvement	4.789	0.418	0.138
2. Top management pursues long-term objectives.	4.708	0.485	0.179
3. Management quality objectives are disseminated to all employees	4.684	0.582	0.151
4. Management provides the necessary resources to carry out activities efficiently	4.578	0.692	0.095
5. Management encourages employees to consider customers' needs and expectations.	4.515	0.252	0.155

Source: Research Data 2012

From the findings in table 4.2, all elements of top management commitment had mean

scores greater than 3.5 indicating that top management is committed and supports

quality management improvement. The element of top management commitment that

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was largely practiced was management being actively involved in quality improvement(mean score of 4.789).Followed by top management pursuing long term objective (mean score of 4.708), dissemination of management quality objectives to all employees (mean score of 4 684), management providing necessary resources to carry out activities efficiently(mean score of 4.578 and lastly management encouraging employees to consider customers' needs and expectations mean score of 4.515.

4.3.2 Organization for quality

In relation to organization for quality, five elements were observed as presented in table 4.3 below.

Table 4.3: Organization for quality

Elements of organization for quality	Mean score	Standard error	P- value
1. The organization has a process management method.	4.578	0.692	0.286
2. Interdepartmental groups are common.	4.157	0.764	0.241
3. Processes are continuously improved	4.263	0.805	0.264
4. The organization uses quality circles	3.789	1.134	0.088
5. There is little bureaucracy (formal hierarchy, procedures and detailed rules) in the organization.	3.526	1.02	0.268

Source: Research Data 2012

From the findings in table 4.3, all the elements had mean scores greater than 3.5 indicating that quality is a cultural value in the sugar firms. The standard errors were also less than 2, implying that the data was able to explain a significant proportion of the data. The element of organization for quality that was largely practiced was organization having process management methods (mean score of 4.578), followed by interdepartmental groups being common (mean score of 4.157), processes being continuously improved (mean score of 4.263), organisation using quality circles had (mean score of 3.789) and lastly little bureaucracy in the organization (mean score of 3.526).

4.3.3 Employee training/education

The study explored how employee training and education was practiced by the organizations and presented the findings in table 4.4 below.

Table 4.4: Employee training/education

Employee training/education	Mean score	Standard error	P-value
1. Employees can take training leave	4.157	0.367	0.198
2. The company provides continuous training for its managerial personnel.	4.105	0.809	0.164
3. The company provides continuous training for its non- managerial personnel	3.789	1.017	0.119
4. The company measures employee satisfaction with training received	3.736	.9334	0.158
5. There are frequent good manufacturing Practices (GMP) training sessions for operating staff.	3.631	1.06	0.128
6. Training needs are always evaluated	3.578	1.118	0.244

Source: Research Data 2012

From the results in table 4.5 all the elements of employee training and education had mean scores greater than 3.5 indicating that they agree with the efforts in place to provide training to the employees. However trainings to management staff were more significant compared to non- managerial personnel. The element that was largely practiced was employees taking training leave (mean score of 4.157),followed by continuous training for its managerial personnel (mean score of 4.105), training for its non- managerial personnel (mean score of 3.789),company measuring employee satisfaction with training received (mean score of 3.736), organization having frequent good manufacturing Practices (GMP) training sessions for operating staff (mean score of 3.631) and lastly evaluation of training needs had a mean score of 3.578.

4.3.4 Employee involvement

The study explored Employee involvement and presented the findings in table 4.5 below.

Table 4.5 Employee involvement

Employee involvement elements	Mean score	Standard error	P- value
1. Employees are encouraged to be totally involved in issues of quality management practices.	4.473	.512	0.079
2. Management lets employees participate in achieving organizational objectives.	4.368	.597	0.209
3. Supervisors respect the work related opinion of their subordinates.	4.21	.63	0.187
4. Employees cooperate with their colleagues to work in teams.	4.21	.917	0.198
5. Employees are responsible for the tasks they perform, and inspect their own work.	3.894	.994	0.065
6. There are frequent work related meetings with colleagues.	3.89	1.486	0.186

Source: Research Data 2012

From the finding in table 4.5, all the elements of employee involvement had mean scores greater than 3.5 indicating that employees participate in quality management work related decision making and improvement activities. The element that was largely practiced was employees being involved in quality management practices (mean score of 4.473), followed by management allowing employees to participate in achieving organizational objectives (mean score of 4.368), supervisors respecting the work related opinion of their subordinates (mean score of 4.21),employees

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cooperating with their colleagues to work in teams (mean score of 4.21), employees

being responsible for the tasks they perform, and inspect their own work (mean score

of 3.894) and lastly employees having frequent work related meetings with colleagues

had a mean score of 3.89

4.3.5 Supplier quality management

The study explored how aspects of supplier quality management were practiced by the

sugar firms and presented the findings in table 4.6 below.

Table 4.6 Supplier quality management

Supplier quality management	Mean score	Standard error	P- value
1. The company works in close collaboration with suppliers to improve processes.	4.157	1.213	0.217
2. The company purchases raw materials only from qualified suppliers.	4.105	1.048	0.105
3. The company is partnering with its suppliers.	3.842	.898	0.13
4. The company supplies technical assistance to suppliers.	3.578	1.07	0.073
5. The company has few suppliers.	3.052	1.47	0.209

Source: Research Data 2012

From the findings in table 4.6, all the elements of supplier quality management had

mean scores greater than 3.5 except the element of the company has few suppliers

which had a mean score of 3.052.This indicates that the companies have mutual

beneficial supplier relationship but the high number of suppliers could affect

monitoring of supplier services and performance. The element that was largely

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practiced was working closely with suppliers to improve processes (mean score of 4.157), the companies purchasing raw materials only from qualified suppliers (mean score of 4.105), companies partnering with its suppliers (mean score of 3.842), company supplying technical assistance to suppliers had a mean score of 3.578 and lastly company having few suppliers had a mean score of 3.052.

4.3.6 Customer focus

The study explored how elements of customer focus were practiced in the sugar companies and presented the results in table 4.7 below.

Table 4.7 Customer focus

Customer focus	Mean score	Standard error	P-value
1. Corrective actions are always taken to address customer complaints.	4.526	.611	0.15
2. Company has a system to collect customers' complaints.	4.421	.606	0.121
3. Company carries out studies to evaluate customer satisfaction	4.105	.809	0.13
4. Company carries out market studies to determine its customers' needs and wants.	4.105	.936	0.068
5. All expectations of our external customers are met.	3.526	1.073	0.078 *
6. Client is integrated in the product development process.	3.368	1.3	0.103

Source: Research Data 2012

From the findings in table 4.7, all the elements of customer focus had mean scores greater than 3.5 except the element of client is integrated in the product development process which had a mean score of 3.368 indicating neutrality .However, the overall

mean score was 4.009 indicating the companies were customer focused . The element

that was largely practiced was implementing corrective actions always to address

customer complaints (mean score of 4.526),followed by company having a system to

collect customers' complaints(mean score of 4.421), company carrying out studies to

evaluate customer satisfaction (mean score of 4.105), company carrying out market

studies to determine its customers' needs and wants (mean score of 4.105), meeting

all expectations of external customers (mean score of 3.526) and lastly client being

integrated in the product development process had a mean score of 3.368.

4.3.7 Quality system improvement

The study examined the quality system improvement and presented the findings in
table 4.8 below.

Table 4.8 Quality system improvement

Quality system improvement elements	Mean score	Standard error	P- value
1. Company has a clear quality manual.	4.895	0.315	0.127
2. Company has a clear documentation procedure.	4.895	0.315	0.074
3. Company has a clear set of work instructions.	4.842	0.375	0.087
4. The company has clear standard operating procedures (SOPs) which are clearly understood by operating staff.	4.737	0.452	0.184
5. There are frequent self- inspection and quality audits excises in the company.	4.579	0.692	0.21
6. Quality system in our company is improved continuously.	4.526	0.697	0.162
7. Employees are encouraged to apply better methods when doing work after learning new skills.	4.316	0.478	0.23
8. There are frequent meetings with external customers.	3.947	1.129	0.164

Source: Research Data 2012

From the findings in table 4.8, all the elements of quality system improvement had mean scores greater than 3.5 indicating a quality system improvement mechanism is in place and being practiced. The largely practiced elements were the companies have a clear quality manual and the companies have a clear documentation procedure(mean score 4.895), followed by the companies have a clear set of work instructions(mean score 4.842), the companies have clear standard operating procedures (SOPs) which are clearly understood by operating staff(mean score 4.737), there are frequent self- inspection and quality audits excises in the companies(mean score4.579), Quality system in the companies is improved continuously(mean score 4.526), employees are encouraged to apply better methods when doing work after learning new skills(mean score 4.316) and lastly there are frequent meetings with external customers with mean score of 3.947.

4.3.8 Statistical quality techniques

The study explored the statistical quality technique adopted by the sugar firms and presented the findings in table 4.9 below.

Table 4.9 Statistical quality techniques

Element of statistical quality techniques	Mean score	Standard error	P- value
1. Acceptance sampling is applied to determine acceptance or rejection of all materials used for manufacturing.	4.368	0.761	0.11
2. Predetermined raw materials specifications and finished products specifications are used in manufacturer and products release.	4.263	0.991	0.066
3. Statistical techniques are effective at improving product quality.	4.053	0.97	0.273
4. Management encourages the use of statistical methods.	3.947	0.848	0.182
5. Cards and graphs are used to measure and control quality.	3.895	1.049	0.078
6. Control charts are used to determine if variations are abnormal or normal and to determine quality characteristics.	3.895	1.049	0.184
7. Statistical techniques are used intensively in the company.	3.526	1.264	0.204
8. Statistical techniques are used for product release.	3.474	1.349	0.069
9. Employees participate in training programs related to statistical techniques for quality.	3.368	1.212	0.08

Source: Research Data 2012

From the findings in table 4.9, all the elements of statistical quality techniques had mean scores greater than 3.5 expect the two elements where respondents were neutral with respect to Statistical techniques are used for product release with mean score 3.474 and employees participate in training programs related to statistical techniques for quality with mean score of 3.368. Overall the mean score was 3.82 indicating

quality control and improvement based on objective data and analysis is being practiced by the firms. . The most practiced element was the use of acceptance sampling to determine acceptance or rejection of all materials used for manufacturing (mean score of 4.368), followed by having predetermined raw materials specifications and finished products specifications used in manufacturer and products release (mean score of 4.263), having effective statistical techniques for improving product quality (mean score of 4.053), management encouraging the use of statistical methods (mean score of 3.947), the use of cards and graphs to measure and control quality (mean score of 3.895), use of control charts to determine if variations are abnormal or normal and to determine quality characteristic with (mean score of 3.895), use of statistical techniques intensively in the companies (mean score of 3.526), use of statistical techniques for product release (mean score of 3.474) and lastly employees participating in training programs related to statistical techniques for quality with a mean score of 3.368.

4.3.9 Ranking of the quality management practices adopted by firms

The study did an overall rating of the quality management practices i.e. top management commitment, organization for quality, employee training/education. employee involvement, supplier quality management, customer focus, quality system improvement and statistical quality techniques. Table 4.10 shows the results of the rankings.

Table 4.10: **Quality management** practices

Quality management practices	Mean score	Standard error
Top management commitment	4.684	0.57
Quality system improvement	4.592	0.615
Employee involvement	4.175	0.924
Organization for quality	4.063	0.954
Customer focus	4.009	1
Employee training/education	3.833	1.012
Statistical quality techniques	3.82	0.675
Supplier quality management	3.747	1.203

Source: Research Data 2012

The quality management practice that was largely practiced was top management commitment. It had a mean score of 4 684: the second most practiced was quality system improvement with a mean score of 4.592. The third was employee involvement with a mean score of 4.175. The fourth was organization for quality with a mean score of 4.063. Customer focus had a mean score of 4.099, employee

training/education had a mean score of 3.833.Statistical quality techniques had a mean score of 3.82 and lastly supplier quality management with a mean score of 3.747.

4.4 Challenges of implementation of these quality management practices

The second objective of the study investigated the challenges of implementation of these quality management practices. For each of the questions explored in the challenges, the scores of the responses were summed up and divided by the total number of respondents to give a mean score of the response; a standard deviation of the responses were computed to give a standard error of the response. A mean score greater than 3.5 meant that the aspect was a challenge while a mean score less than 2.5 meant that the aspect was not a challenge; on the other hand a mean score between 2.5 and 3.5 meant that the respondents were neutral on whether or not the aspect was a challenge. The p – values of the t – test, testing the significance of the difference of the views of the middle and top managers in all the elements were greater than 0.05. This means that at 5% level of significance the views of the top and middle managers was not statistically different and should therefore not be analysed differently. I.e. it is statistically sufficient to analyse the general sample. The standard errors for the mean scores were all less than 2 meaning that the mean scores explained a large portion of the data; hence, the results were reliable.Table 4.11 below shows the results of the findings.

Table 4.11: Challenges of implementation of these quality management practices

Challenges of implementing QM practices	Mean score		T - test		General sample	
	Senior manager	middle level manager	T – value	P - value	Mean score	Standard error
We have no forum to address the challenges we face in implementation of quality management practices.	1.2	2.111	1.901	0.074	1.631	1.11
There is no congruency of purpose between management and non- management employees	1.8	2.22	1.2252	0.227	2	.745
Implementing quality management practices is not the responsibility of all employees of the organization.	1.3	1.888	1.282	0.217	1.578	1.017
There are no adequate resources to implement quality management practices.	2.1	2.222	0.27	0.79	2.157	.958
There are no rewards for implementing quality management across the entire organization.	2.9	3	1.196	0.847	2.947	1.078
There is no synergy between continuous improvement approaches in my department and other departments in the organization.	2.1	2.444	0.853	0.405	2.263	.871
Not everyone in the organization understands quality management practices and supportive of continuous improvement initiatives.	2.4	2.666	0.558	0.584	2.526	1.02
There are higher costs of compliance to quality management practices.	3.1	3.888	1.782	0.093	3.473	1.02
There is difficulty in getting competent suppliers.	2.6	3.222	1.398	0.18	2.894	.994
There is no organization-wide focus towards continuous improvement.	1 8	2.111	0.958	0.351	1.947	.705
There is no clear monitoring and evaluation criteria for improvements made.	2.1	2.222	0.27	0.79	2.15	958
There is no clear direction on how to use information gained to improve product design and customer service.	2.3	2.444	0.288	0.777	2.36	1.06

Source: Research Data 2012

From the results in table 4.11, the study established that lack of forum to address the challenges faced in implementation of quality management practices was not a challenge. The respondents largely disagreed that there was lack of forum for addressing the challenges faced in implementation of quality management practices. This was so because the mean of the response of the senior managers was 1.2 while that of the middle level managers was 2.111. The joint mean for both the senior and middle level managers was 1.631. Comparing the views of the senior and low level managers using the t – test revealed that there was no significant difference between the response of the senior and low level managers. This could be due to the fact that both the senior and middle level managers were all talking about the same organisation. The t value for the comparison was 1.631, $P > 0.05$; this meant that at 5% level of significance, the views of the senior managers and the middle level managers were not statistically different.

The study also examined if lack of congruency of purpose between management and non- management employees was a challenge. The mean of the response of the senior managers and the middle level managers were both lower than 2.5 meaning that on average lack of congruency of purpose between management and non- management employees was not a challenge. The mean of the response of the senior managers was 1.8 and that of the middle level managers was 2.22. Comparing the significance of the difference in response between the top level and low level managers revealed no significance difference between the responses of the respondents with a t – value of 1.2252, $P < 0.05$.

The study explored if implementing quality management practices not being a responsibility of all employees of the organization was a challenge. The mean score of the response of the top level managers was 1.3 and that of the low level managers was

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1.888. All the mean scores were smaller than 2.5 meaning that the respondents were of the view that not implementing quality management practices not being a responsibility of all employees of the organization was not a challenge in the organizations.

The study examined if lack of adequate resources to implement quality management practices was a challenge. The mean score of the response of the senior managers was 2.1 while that of the low level managers was 2.222. Since the mean scores were all less than 2.5 it could be interpreted to mean that the respondents disagreed that adequate resources to implement quality management was a challenge. In other words this indicated that the respondents disagreed that lack of adequate resources to implement quality management practices was a challenge.

The study explored whether there are no rewards for implementing quality management across the entire organization. The respondents were equally divided on whether or not there was such reward in the organization. The mean of the response of the senior managers was 2.9 while the mean of the middle level managers was 3. Since the mean scores were values between 2.5 and 3.5, it means the challenge posed by lack of reward for implementation of quality management posed a challenge to an average extent. A comparison of the responses of the between the senior managers and the middle level managers revealed that there was no significance in the difference in responses between them. The t value was 1.196, $P > 0.05$. Since the P value was greater than 0.05 it could be interpreted to mean that the senior managers and low level managers were in agreement in their responses.

The study examined if lack of synergy between continuous improvement approaches in my department and other departments in the organization was a challenge. The mean response of the senior managers was 2.1 and that of the middle level managers

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was 2.444. Since the mean scores were all less than 2.5 it could be interpreted to mean that lack of synergy between the departments was actually not a challenge. The joint sample of the senior and middle level managers had a mean score of 2.526, meaning that jointly the respondents had it that lack of synergy between continuous improvement approaches in my department and other departments in the organization was a challenge to an average extent The t test comparing the similarity of the top level and middle managers revealed that there was no significant difference in the views of the top and middle level managers.

The study explored whether not everyone in the organization not being able to understand quality management practices and supportive of continuous improvement initiatives was actually a challenge. The mean of the response of the senior managers was 2.4, this meant that the senior managers did not agree this was a challenge. On the other hand the mean of the response of middle level managers was 2.666, meaning that according to the middle level managers this actually posed a challenge to an average extent. The joint sample of all the managers had a mean response of 2.526. This implied that the respondents had it that the organization not being able to understand quality management practices and supportive of continuous improvement initiatives was actually a challenge to an average extent.

The study examined whether high costs of compliance to quality management practices was a challenge. It emerged that the mean score of the response of the senior managers was 3.1, this mean that the top level managers were neutral on whether this actually was a challenge. On the other hand the views of the middle level managers was 3.888, this meant that the middle level managers actually felt that high costs of compliance to quality management practices was a challenge.

The study examined whether difficulty in getting competent suppliers was a challenge. The response of the senior managers was 2.6 and that of the middle level managers was 3.222. This actually meant that on average the respondents had it that difficulty in getting competent suppliers was a challenge to an average extent.

The study examined whether lack of organization- wide focus towards continuous improvement was a challenge. The study found out that, lack of organizations wide focus towards continuous improvement was not a challenge. The mean score of the response of the middle level managers was 1.8 and the views of the senior managers and 2.111. Being that the mean response were all less than 2.5 it could be interpreted to mean that lack of organization- wide focus towards continuous improvement was not a challenge.

The study examined whether lack of clear monitoring and evaluation criteria for improvements was a challenge to the organizations. The response of the senior managers was 2.1 and those of the middle level managers were 2.222. This meant that the respondents disagreed that this were challenges facing the organizations.

Lastly the study explored whether lack of clear direction on how to use information gained to improve product design and customer service was a challenge to the organizations. The mean response of the senior managers was 2.3 and that of the middle level managers were 2.444, implying that on average the respondents disagreed to lack of clear direction on how to use information gained to improve product design and customer service being a challenge to the organizations.

CHAPTER FIVE: SUMMARY, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents summary of the findings, draws conclusion based on the two specific objectives of this study to establish the quality management practices used in the sugar factories in western Kenya and the challenges faced in the quality management implementation. It also includes the study recommendation for improvement and for further research.

5.1 Summary and Discussions

The first objective of the study was to examine the quality management practices used in the Sugar factories. The study found that the quality management practices that were practiced by the sugar factories were top management commitment, organization for quality, employee training/education, employee involvement, supplier quality management, customer focus, quality system improvement and statistical quality techniques. The quality management practice that was largely practiced was top management commitment with a mean score of 4.684; the second most practiced was quality system improvement with a mean score of 4.592. The third was employee involvement with a mean score of 4.175. The fourth was organization for quality with a mean score of 4.063. Customer focus had a mean score of 4.099, employee training/education had a mean score of 3.833.Statistical quality techniques had a mean score of 3.82 and lastly supplier quality management with a mean score of 3.747.

The second objective of the study investigated the challenges of implementation of the quality management practices. The results indicate that there institutions did not experience challenges. The study found that the sugar companies had overcome

known most challenges. For instance lack of forum to address the challenges faced in implementation of quality management practices had a mean score of 1.631, lack of congruency of purpose between management and non- management employees had a mean of 2, implementing quality management practices not being a responsibility of all employees of the organization had a mean of 1.578. Lack of adequate resources to implement quality management practices had a mean of 2.157. lack of rewards for implementing quality management across the entire organization had a mean of 2.947. lack of synergy between continuous improvement approaches in my department and other departments in the organization had a mean of 2.263, not everyone in the organization understanding quality management practices and supportive of continuous improvement initiatives had a mean of 2.526. Higher costs of compliance to quality management practices had a mean of 3.473. Difficulty in getting competent suppliers had a mean of 2.894. There being no organization- wide focus towards continuous improvement had a mean of 1.947. lack of clear monitoring and evaluation criteria for improvements had a mean of 2.15 and there being no clear direction on how to use information gained to improve product design and customer service had a mean of 2.36.

5.2 Conclusion

The study revealed the importance sugar manufacturing companies attach to quality management improvements. The quality management practice that was largely practiced was top management commitment indicating that top management is actively involved in quality management and is providing clear and consistent leadership. The second most practiced was quality system improvement indicating continuous improvement is a key objective in the organizations. The third was employee involvement implying the employees are part of the organizations decision

making process and have a sense of family. Employees take pride and ownership in their work which may lead to improvement in their job performance and eventually increase organizational quality. Forth was organisation for quality implying the companies' culture is conducive to quality strategy implementation and improvement. The fifth was customer focus an indication that customer satisfaction is being enhanced to raise customer expectations of the firms' products and service quality. Sixth was Employee training/education indicating employees receive formal and systematic training in quality management which results in improvement in workers abilities and the quality of their products and services. Seventh was statistical quality technique implying that quantitative methods and statistical tools are used to provide workers and managers with the tools needed to quantify variation, identify causes and find solutions to reduce or remove unwanted variation and monitor progress objectively .lastly supplier quality management an indication that the companies viewed suppliers as long term key partners in the continuous improvement process and not on price alone.

5.3 Recommendations

The study recommends the following issues where respondents were neutral to be addressed to enhance the quality management improvement in the firms. Reduce the bureaucracy involved in the businesses process in relation to formal hierarchy, procedures and detailed rules to enhance communication and service delivery. Reduce the number of suppliers to enable adequate monitoring of their products and service quality. Provide technical assistance to suppliers to enhance value addition and service quality. Integrate client in the product development process to enhance customer satisfaction and expectations. Strive to meet and exceed customer needs and expectations to enhance customer loyalty and satisfaction level. Enhance employees

participation in training programmes related to statistical techniques to ensure objective decision making and problem solving. Use statistical techniques for product release to eliminate customer complaints and enhance customer satisfaction and loyalty. Institute rewards for employees involved in implementing quality management in the organization to enhance their motivation and commitment.

5.4 limitation of study

This research project was a survey study approach for establishing quality management practices and the challenges of implementation by sugar manufacturing companies in western Kenya. Attempts to use the respective companies Quality Management Representatives failed as i was expected to meet the Managing Directors in person to allow the respondents fill the questionnaires .Travelling to the companies was rather expensive and tiring given the distance apart.

5.5 Suggestion for further study

The results show that the sugar companies have established and are using the key known quality management practices. The researcher recommends that a study be carried out to ascertain the benefits gained so far as a result of implementing these practices.

It is further recommended that the same study be conducted to include the views of the employees in the operational level (shop floor) of the organizations. This is because this study involved only the views of the respondents in the level of management.

Finally, another research can be carried out to determine what other strategic priorities besides quality management , the sugar manufacturing firms are implementing to ensure competitiveness in the COMESA and the world market especially with regard to cost of production.

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APPENDIX

APPENDIX 1: INTRODUCTORY LETTER
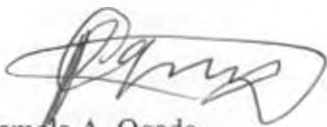
Dear Sir/Madam,

This questionnaire is designed to help carry out a survey of quality management practices in the selected Sugar companies in Kenya. This is for the purpose of analyzing the perception of employees of the company on the fundamental areas of quality management practices.

I wish to request that you respond to the questions sincerely .I wish to assure you that your responses will be held in confidence .It is only I, the researcher and the project supervisor who will have access to the information given. I will ensure that upon request, the summary of the results is made to you after the information collected is dully analysed.

Thank you very much not only for your valuable time but also co-operation .My appreciation goes to you and your organization in helping me in my research endeavors.

Yours sincerely,

Pamela A. Ogada

(Student)

Gerald Ondiek

Lecturer/Supervisor

Dept.of management Science

University of Nairobi

APPENDIX II: QUESTIONNAIRE

Part A: General Information

1. Employee name (optional)_____

2. Sex (tick appropriately) Male ( )   Female ( )

3. Name of the Company
    (optional)_____

4. Department_____

5. Job title_____

6. Number of years worked in the company_____years

Part B

The following statements relate to quality management practices by sugar manufacturing companies in western Kenya.

Mark appropriately with X in spaces provided in the table, which signify to what extent you strongly agree, neutral, disagree or strongly disagree with the statement made.

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	Top management commitment	5	4	3	2	1
1	Management is actively involved in quality improvement					
2	Management provides the necessary resources to carry out activities efficiently					
3	Management encourages employees to consider customers' needs and					

	expectations.					
4	Management quality objectives are disseminated to all employees					
5	Top management pursues long- term objectives.					
	Organization for quality					
6	The organization has a process management method.					
7	Interdepartmental groups are common.					
8	Processes are continuously improved					
9	The organization uses quality circles					
10	There is little bureaucracy (formal hierarchy, procedures and detailed rules) in the organization.					
	Employee training/education					
11	The company provides continuous training for its managerial personnel.					
12	The company provides continuous training for its non-managerial personnel					
13	Training needs are always evaluated					
14	Employees can take training leave					
15	The company measures employee satisfaction with training received					
16	There are frequent good manufacturing Practices (GMP) training sessions for operating staff.					

	Employee involvement					
17	Employees are encouraged to be totally involved in issues of quality management practices.					
18	Management lets employees participate in achieving organizational objectives.					
19	Employees are responsible for the tasks they perform, and inspect their own work.					
20	Supervisors respect the work related opinion of their subordinates.					
21	Employees cooperate with their colleagues to work in teams.					
22	There are frequent work related meetings with colleagues.					
	Supplier quality management					
23	The company purchases raw materials only from qualified suppliers.					
24	The company works in close collaboration with suppliers to improve processes.					
25	The company supplies technical assistance to suppliers.					
26	The company is partnering with its suppliers.					
27	The company has few suppliers.					
	Customer focus					
28	Client is integrated in the product development process.					

29	Company carries out studies to evaluate customer satisfaction					
30	Company carries out market studies to determine its customers' needs and wants.					
31	Company has a system to collect customers' complaints.					
32	Corrective actions are always taken to address customer complaints.					
33	All expectations of our external customers are met.					
	Quality system improvement					
34	There are frequent meetings with external customers.					
35	Company has a clear quality manual.					
36	Quality system in our company is improved continuously.					
37	Company has a clear documentation procedure.					
38	Company has a clear set of work instructions.					
39	The company has clear standard operating procedures (SOPs) which are clearly understood by operating staff.					
40	Employees are encouraged to apply better methods when doing work after learning new skills.					
41	There are frequent self-inspection and quality audits excises in the company.					
	Statistical quality techniques					
42	Cards and graphs are used to measure and control quality.					

43	Management encourages the use of statistical methods.					
44	Statistical techniques are used intensively in the company.					
45	Employees participate in training programs related to statistical techniques for quality.					
46	Statistical techniques are effective at improving product quality.					
47	Statistical techniques are used for product release.					
48	Acceptance sampling is applied to determine acceptance or rejection of all materials used for manufacturing.					
49	Control charts are used to determine if variations are abnormal or normal and to determine quality characteristics.					
50	Predetermined raw materials specifications and finished products specifications are used in manufacturer and products release.					
	Challenges of implementing QM practices					
51	We have no forum to address the challenges we face in implementation of quality management practices.					
52	There is no congruency of purpose between management					

	and non- management employees.					
53	Implementing quality management practices is not the responsibility of all employees of the organization.					
54	There are no adequate resources to implement quality management practices.					
55	There are no rewards for implementing quality management across the entire organization.					
56	There is no synergy between continuous improvement approaches in my department and other departments in the organization.					
57	Not everyone in the organization understands quality management practices and supportive of continuous improvement initiatives.					
58	There are higher costs of compliance to quality management practices.					
59	There is difficulty in getting competent suppliers.					
60	There is no organization- wide focus towards continuous					

	improvement.					
61	There is no clear monitoring and evaluation criteria for improvements made.					
62	There is no clear direction on how to use information gained to improve product design and customer service.					
63	Any other (Please specify)					

APPENDIX III: LIST OF SUGAR MANUFACTURING COMPANIES IN WESTERN KENYA (ISO 9001 QMS CERTIFIED) AS AT 30TH SEPTEMBER 2011

1. Mumias Sugar Company Limited

2. South Nyanza Sugar Company Limited

3. Nzoia Sugar Company Limited

4. Muhoroni Sugar Company Limited

5. Chemelil Sugar Company Limited