

# **TOTAL QUALITY MANAGEMENT PRACTICES AND PERFORMANCE OF MANUFACTURING FIRMS IN KENYA: CASE OF BAMBURI CEMENT LIMITED**

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## **ABSTRACT**

A firm's performance is a function of how well managers use quality management practices to improve the quality of products and services. In today's global environment, organizations are constantly looking for ways to expand and improve their businesses in terms of quality to enhance performance. Quality management practices have been used by manufacturing firms in Kenya to improve on performance. However, customers are still complaining that the quality of manufactured products has been compromised. Quality management practices contribute greatly to business improvement as a whole through making awareness in each and every part of an organization in order to remove errors and minimize waste. Manufacturing industries have thus resulted in making use of various total quality aspects to ensure profitability. The main objective of the study was to investigate the relationship between total quality management practices and performance of manufacturing industries in Kenya with a special reference to Bamburi Cement Limited. The specific objectives were to establish how product continual improvement, customer focus, employee empowerment and top management commitment influence performance of Bamburi Cement Limited in Kenya. The

## **INTRODUCTION**

The manufacturing sector, globally, is being pushed by unprecedented change arising from challenges associated with delivering quality products and services, leading to the adoption of ISO certification to enhance performance (Arauz & Suzuki, 2004; Klefsjo, Bergquist & Edgerman, 2006). These influences include pressure from the government to ensure that manufacturing firms are producing high quality products that meet the demands of consumers (Quazi et al., 2002). Barney (2007) posits that superior performance comes as a result of management strategies aimed at improving the quality of products and services. Performance measures that actually demonstrate the value of an

research was based on resource-based view theory and quality improvement theory. Empirical reviews will be done on the four total quality management practices and how they influence performance thereby indicating research gaps. This research study applied the descriptive research design. The target population composed of the 165 management staffs employed at Bamburi Cement in Kenya. A sample of 25% was selected from within each group in proportions using stratified random sampling technique. This generated a sample of 42 respondents. The study used a semi-structured questionnaire administered using a drop and pick later method. The questionnaire had both open and close-ended questions. Data collected was purely quantitative and was analyzed by descriptive analysis. The descriptive statistical tools such as Statistical Package for Social Sciences (SPSS Version 21.0) and MS Excel was used to extract frequencies, percentages, means and other central tendencies. Tables and figures will be used to summarize responses for further analysis and facilitate comparison. A multiple regression analysis was conducted to show the strength of the relationship between the variables.

**Key Words:** *total quality management practices, performance, manufacturing firms, Kenya, Bamburi Cement Limited*

organization's management systems can be difficult to develop, use, and interpret, and different researchers have different views about performance. Although quality itself does have consistent positive relationship with better performance, there is little commonality in how performance is measured and defined. Organizational performance is a recurrent theme in the theory of quality enhancement, and it is of significant interest to academics and practitioners (Venkatraman & Ramanujam, 1986; Feng et al., 2007). Factors such as employee satisfaction, firm performance, product quality, and efficiency and business results are linked to the firms' performance measures (Madu et al., 1999; Feng et al., 2007).

In this study, business performance measures are used to prove that quality management system (ISO certification) helps in stepping up efficiency in the company, leading to high performance. For the purpose of this study, performance measures were defined in terms of productivity, efficiency, firm performance and employee satisfaction, in that order. These performance measures have been used in previous studies by Yusuf and Saffu, 2005; Quizi and Padijo, 1998, Arumugam et al., 2008, and Zakuan et al., 2010. These quality measures have been used by previous studies as indicators of a company's performance and it was established that they have impact on performance (Prajogo & Brown, 2004, Arumugam et al., 2008 Arumugam et al., 2008, Zakuan et al., 2010). Superior performance in an organization is driven by its resource profile and possession and deployment of distinctive, non-substitutable resources that are difficult to imitate (Wernefelt, 1984).

Total quality management theory has become more familiar since the 1980s where the firming industry offers services of varying qualities. When an entity is structured with a culture of offering quality goods or services to its customers which satisfy their desired standards, then such an entity is observing Total Quality. The practice demands quality in all dimensions of the company's undertakings with things done as desired from the onset and any wastage and spoilages being kept to the very minimum during routine business (Stock and Mulki, 2009). For almost all organizations, rapid developments in the business environment such as globalization have made them to adopt a spirit of completion and innovation to be able to meet the equally changing customer needs and expectations. To compete effectively, it has become essential for businesses to constantly improve on the quality of their products and services by marketing, product differentiation and cost reduction, Chang & Huang, (2005).

Increased globalization and liberalization with tough business conditions have brought challenges and opportunities for the manufacturing sector and made them to promote quality in their products and services. With the increasing competition, business survival pressure and the dynamic, changing customer-oriented environment, operational performance has been identified as one of the important issues and generated a substantial amount of interest among managers and researchers. Quality performance has been considered as one of efficient approaches for business organization to improve their competitive advantage (Makori, 2011).

As Fotopoulos and Psomas (2010) states, the emergence of quality plays a vital role and have become a top priority for many companies worldwide to achieve their objectives and gain a competitive edge. In the United States of America for instance, operational performance of the Manufacturing industry, has become an imperative in providing customer satisfaction because delivering quality service directly affects the customer satisfaction, loyalty and financial profitability of service businesses. In a product industry, notably Manufacturing, experience of the customer plays a crucial role in rating and assessment of operational performance of these industries. An ideal quality operational performance in the industry may relate to the manufacturing sector with newer technology, newer and effective services, and higher customer ratios, affordability, efficiency and effectiveness of service delivery (Terrein, 2012).

Quality is an important consideration for executive thinking. There is an increasing awareness by senior executives, of the fact that quality is an important strategic issue, which should be implemented at all levels of the organization (Crosby, 1979; Oakland, 2000). Quality management system is defined as a set of coordinated activities to direct and control an organization to continually improve the effectiveness and efficiency of its performance". Per Oakland (2003), an organization should make strategic decision to adopt a quality management system based on the organization's strategy, objectives, structure, size, products and services offered. This is also true in the Manufacturing sector. In general, Total Quality Management (TQM) is a management philosophy which is used by organizations who strive to improve their efficiency and competitiveness in the business marketplace. TQM quality factors include top management commitment and involvement, employee empowerment and culture. These factors are known by some writers as the soft aspects of management, while the hard aspects include factors such as improvement tools, techniques and systems (Wilkinson, 1992; Oakland, 1993, 2000). Various quality factors are identified by various scholars based on their experiences in working as consultants, managers or researchers (Thiagarajan et al., 2001). The core ideas of total quality management (TQM) were introduced in the mid-1980s by, most notably, W. Edwards Deming, Joseph Juran and Kaoru Ishikawa (Hackman and Wageman, 1995). Whilst it is acknowledged that TQM is not a clear-cut concept (Hackman and Wageman, 1995), TQM is generally understood as an integrated organization strategy for improving product and service quality (Waldman, 1994). Since the mid-eighties TQM has been (over) sold as a near-universal remedy for a range of organizational problems, including improved organizational performance.

## **STATEMENT OF THE PROBLEM**

The Kenya government in its Vision 2030 blue print has identified development and performance of manufacturing firms for up-scaling. But even with the majority of manufacturing firms adopting ISO, their performance remains uncertain (Kyalo, 2013). In spite of the increasing numbers of benefits accruing from raising quality standards, the question whether quality management practices actually improve business performance still remains unclear ((Magutu, 2010). A number of studies, most of which have been carried out in developed and developing countries, have tried to link quality management practices (ISO certification) and performance of firms, but findings contradict this view (Vasileios &

Odysseas,2015; Anyango et al.,2012; Chow-Chua, Goh & Wan, 2003). Majority of studies concluded that there is a positive and significant relationship between ISO certification and firm performance (Lee et al., 2001; Quazi & Jacobs, 2004; Psomas, Kafetzopoulos & Pantouvakis, 2012). The Manufacturing sector is fast adopting TQM to make it effective in meeting public demands and operational inefficiency (Maxwell, 2011). Some concerns have been raised about validity of quality management practices to generate real economic gains and or improve performance of firms. Several empirical studies have been conducted since the 1980's to explore the variance between quality management practices and performance. Ugboro, (2011) investigated the application of TQM and found out that even though quality management has been addressed within a firm, Total Quality Management and its underlying assumptions could also be applicable to strategy management. However, the study shows application of TQM in a telecommunication set up, results of which may not be applicable in the Manufacturing sector. A survey was carried out by Moghimi and Anvari (2014) to evaluate the relationship between TQM and financial performance of 40 Iranian cement companies, a descriptive survey was carried out on the effects of TQM on financial performance of cement firms. The findings of the study revealed a positive relationship between TQM and financial performance of cement manufacturing firms in Iran. In Kenya, there have been efforts to improve quality in manufacturing firms; this is aimed at achieving quality goods and services to meet the ever-growing needs of customers. Ogada (2012) studied the importance sugar manufacturing companies attach to quality management improvements. The quality management principle that was largely practiced was top management commitment indicating that they are crucial in providing clear and consistent leadership. Rono (2013) found that the challenges to effective implementation of lean manufacturing can be managed well and through training of the lean manufacturing concept, its implementation in the organization will be successful. These studies were however did not address issues of total quality management practices in relation to performance of all cement manufacturing firms in Kenya. This study therefore sought to fill this gap by establishing the relationship between total quality management practices and performance of manufacturing industry in Kenya with regards to Bamburi Cement Limited.

## **GENERAL OBJECTIVE**

The main objective of the study was to find out the effect of total quality management practices on the performance of manufacturing industries in Kenya.

## **SPECIFIC OBJECTIVES**

1. To establish how continual improvement influences performance of Bamburi Cement Limited.
2. To investigate the relationship between customer focus and performance of Bamburi cement Limited.
3. To find out the extent to which employee empowerment affects performance of Bamburi Cement Limited.
4. To establish the effect of top management commitment to quality on performance of Bamburi Cement Limited.

## **THEORETICAL REVIEW**

### **Resource-Based View**

Theory Resource-Based View Theory postulates that internal organizational resources that are valuable, rare, inimitable and without a substitute are a source of sustainable competitive advantage (Penrose, 1959), and therefore enhance performance. The Resource-Based View Theory suggests that performance is driven by the resource profile of the firm, whereas the source of superior performance is embedded in the possession and deployment of distinctive resources that are difficult to imitate (Wernerfelt, 1984).

Resource-Based View Theory posits that firms achieve sustainable competitive advantage if they possess certain key resources and if they effectively deploy these resources in their chosen markets (Barney, 2007). O'cass et al. (2004) argue that a company's specific characteristics are capable of producing core resources that are difficult to imitate and which determine the performance variation among competitors. The Resource-Based View Theory further says that the fundamental sources and drivers of a firm's competitive advantage and superior performance are mainly associated with the attributes of their resources and capabilities, which are rare, valuable, difficult to imitate and not substitutable. The Resource-Based View (RBV) Theory postulates that a firm's performance depends on its specific resources and capabilities (Fotopoulos, Kafetzopoulos & Psomas, 2009).

According to Barney (2001), a firm develops competitive advantage by not only acquiring but also developing, combining, and effectively deploying its physical, human, and organizational resources in ways that add unique value and are difficult for competitors to imitate. The Resource-Based View Theory postulates that competitive advantage comes from the internal resources that are possessed by an organization (Wernerfelt, 1984).

The Resource-Based View Theory is an economic tool used to determine the strategic resources available to a firm and that the fundamental principle behind the theory is that the basis for competitive advantage of a firm lies primarily in the application of a bundle of valuable resources at the firm's disposal (Wernerfelt, 1984; Orlando, 2000). The assumption of RBV models is that a corporation is a bundle of resources. A firm's resources include all tangible and intangible assets that enable the firm to conceive of, develop and implement strategies that improve its efficiency and effectiveness (Daft, 1983; Johnson et al. 2004). Tangible resources are physical substances that an organization possesses, such as facilities, raw materials and equipment. Intangible resources include corporate brand name, organizational values, networks and processes that are not included in normal managerial-accounting information. Unlike tangible resources, intangible resources, like product quality, are more likely to generate superior performance (Rouse & Daellenbach, 2009; Kenneth et al., 2011). The Resource-Based View Theory is largely based on behavioral and sociological paradigm and considers organizational factors and their fit with the environment as the major determinants of success.

Strategy models with this internal orientation have a strong 'inside-out' approach that considers internal process variables (such as quality improvement, product development, and flexibility and cost efficiency) as the most potent success factors.

Barney (2007) suggests that to transform a short run competitive advantage into a sustained competitive advantage requires that these resources be heterogeneous in nature and not perfectly mobile. This in effect results to valuable resources that are neither perfectly imitable nor sustainable without great effort (Hockman & Grenville, 2004). Barney (2007) pointed out that if these conditions hold, the firm's bundle of resources can assist the firm sustain above average returns. This theory is relevant to this study because quality management practices are a resource for creating quality image, which an organization uses to improve the firm's performance. The quality management practices must be valuable, rare, inimitable and not substitutable for manufacturing firms to achieve competitive advantage and thus realize performance.

According to Klassen & Whybark (1999), the theoretical implications for environmental management are multifaceted. Of primary importance is the fact that environmental and economic performances are related to one or more strategic resources yielding multiple competitive advantages. The environmental policies can be associated with superior performance if the prerequisite strategic organizational resources have been developed as a part of the management initiatives. For example, a firm may put continuous improvement in place to achieve international certification for quality in terms of a standard like the ISO 9000.

This strategic resource can be transferred and applied to the implementation of preventive environmental technologies (Hart, 1995), providing a theoretical basis for integrated approaches, such as total quality environmental management (Willig, 1994). In the RBV, a distinction has emerged between resources and capabilities (Makadok, 2001). A resource is an observable (but not necessarily tangible) asset that can be valued and traded as a brand or a patent. A capability, on the other hand, is not observable and is hence intangible and hard to value (Karthi et al., 2012).

Two key features distinguish a capability from a resource: one, a capability is firm-specific since it is imbedded in the organization and its processes; and, two, the primary purpose of a capability is to enhance the productivity of the other resources that the firm possesses (Makadok, 2001). Since organizational resources reflect a great deal of the features of capabilities, this study also focused on the performance implications of some internal attributes of the firms (Barney, 2001), in this case organizational capabilities, continuous improvement and customer focus.

In disparity, the critical argument of the Resource-Based View Theory is that rare, inimitable, non-substitutable resources create a firm's heterogeneity, and that successful firms are those that obtain and preserve valuable and peculiar resources that result to a company's good performance arising from the sustainable competitive advantage that arises thereof (DiMaggio & Powell, 1991).

Organizational preparedness determines what kind of quality management systems to pursue, since the resources that an organization has will influence what the firm does or does not do. The strategies so undertaken will then influence the performance of the firm and help the firm gain a competitive advantage in the market place, resulting to enhanced performance. Therefore, this theory supports variables of continuous improvement, customer focus, and the commitment of the top management

### **Quality Improvement Theory**

Quality Improvement Theory postulates that a feature of quality management doctrine is that it places responsibility for manufacturing organizations squarely at the door of top management (Deming, 1986). The theory states that the management is responsible for the systems, and that it is the system that generates 80 percent of the problems in firms (Hill, 1995). Deming (1986) noted that no quality management system could succeed without top management commitment; it is the management that invests in the processes, creates corporate culture and also selects suppliers and develops long-term relationships.

Deming's Quality Improvement Theory provides business with a plan to eliminate poor quality control issues through effective managerial techniques. It's a fact that management's behavior shapes the corporate attitude and defines what is important for the success and survival of the firm. Hubert (2000) has detailed the theoretical approach of Deming (1986) in respect to the quality management system, and it envisages the creation of an organizational system that fosters cooperation and learning to facilitate the implementation of process management practices. This, in turn, leads to the continual improvement of the processes, products, and services and helps to instill employee satisfaction. These are critical to promoting customer focus, and, ultimately, helping in the survival of any organization.

Deming (1986) believed in a systematic approach to problem-solving and promoted the widely known Plan Do Check Act cycle. The Plan Do Check Act (PDCA) cycle of continuous improvement is a universal quality improvement concept whose aim is to constantly improve performance, thereby reducing the difference between customer requirements and the performance of the manufacturing firms (Goetsch & Davis, 2006). The theoretical essence of the Quality Improvement Theory focused on quality concerns in the creation of an organizational system that fosters cooperation and learning for facilitating the implementation of process management practices, which, in turn, leads to performance (Anderson et al., 1994). Oakland (2004) stressed that the responsibilities of top management should take the lead in changing processes and systems. Leadership plays a crucial role in ensuring the success of quality management because it is the top management's responsibility to create and communicate the vision to move the firm toward performance improvement.

Top management is responsible for most quality problems; Kamanda (2010) asserts that it should give employees clear directions on what is considered acceptable work, and provide the methods to achieve it. These methods include an appropriate working environment and climate for work that is free of fault finding, blame or fear and instead provide clarity of



issues, communicate effectively and provide appropriate environment for work to enhance performance (Lamport et al., 2010).

The top management should be committed to applying the principles and practices of System of Profound Knowledge (SOPK), where a business can simultaneously reduce costs through reducing waste, rework, staff attrition and litigation while increasing quality, customer loyalty, worker satisfaction and, ultimately, profitability (Deming, 1986). Deming's Quality Improvement Theory is relevant to study in that it supports the variable of system automation enhance quality of products and services through continuous improvement, employee training and which organizations can use to realize performance. This theory applicable to the study because total quality management is a comprehensive and structured approach to organizational management that seeks to improve the quality of products and services through ongoing refinements in response to continuous feedback.

## **EMPIRICAL REVIEW**

### **Continuous Improvement and Organizational Performance**

Continuous improvement (CI) is a method for improving every facet of a company's operations and increasing competitiveness by developing a company's resources (Anne, 2007). The improvement can involve many goals producing products with zero defects or achieving 100 percent customer satisfaction but continuous improvement has the same basic principles irrespective of the set goals (Murphy and Elana, 2006). These principles include: involvement of the company at all levels, find savings by improving existing processes, not by investing more money, gathering data on company operations and quantify that data, which becomes the baseline against which improvements will be measured for continuous improvement (Morgan, 2006).

Continuous improvement most often involves creating a team that includes representatives from all areas of the company. The team first spends time learning about their company and other companies (benchmarking is common during this phase). The necessary quantitative data is created (McManus, 2009). The team then proposes solutions to management and begins to implement those solutions. When that is achieved, follow-up mechanisms must be put in place that seeks additional improvements as time goes by. The team might change members with the passage of time, but hopefully become an established and accepted part of the company even as its schedule changes. If the plans are executed as planned the team will achieve improved quality as a result of its initial efforts (Kinni and Theodore, 2005). This can attract more employees into this concept which in turn leads to the continued search for more improvements and thus continuous improvements (Joiner and Brian, 2007).

### **Customer Focus and Organizational Performance**

According to Deming (2006), customers see quality as the capacity to satisfy their needs and wants. This also agrees with the concept by Gilmore (2011) who considers quality to mean the degree to which a specific product satisfies the wants of a specific consumer. Historically, the philosophy of Total Quality Management (TQM) and customer can be traced back to the

period just after the 2nd world war. The key personality behind the philosophy was one American called Edward Deming. According to historical records, Americans did not take the concept seriously until the Japanese who adopted in 1950 to resurrect their post-war business and industry used it to dominate world markets by 1980. It's a philosophy that focuses relentlessly on the needs of the customer, both internal and external, realigns the organization from detection to prevention and aims to improve continuously through use of statistical monitoring.

It is generally agreed that quality has become a powerful strategic weapon in meeting customer satisfaction both locally and internationally. Improved quality is pivotal to customer demands and increases productivity of the organization with the increased return. Many authors agree that quality of product and service is the key to competitiveness in the open market. Kondo (2009) notes that improving quality in creative ways reduces costs and raises productivity on their part stress that since global trade in service sector is growing, it is essential that a viable customer base is developed and maintained by implementing proper quality practices which implicates on the operational performance.

According to Garvin (2007) quality is not only a strategic weapon for competing in the current marketplace, but it also a means of pleasing consumers, not just protecting them from annoyances. Therefore, a company's specific advantage is to identify and then compete on one or more of the dimensions of quality. According to Noori (2004), who stresses in his book that competitiveness cannot be achieved but through quality, the needs for quality are fourfold: cost, competitive advantage, reputation and staying alive. Numerous empirical studies confirm that firms that have adopted a quality-oriented strategy have achieved improved productivity, greater customer satisfaction, increased employee morale, improved management labor relations and higher overall operational performance.

### **Employee Empowerment and Organizational Performance**

Mohanty and Lakhe (2002) argues that the people who know the most about what is right and wrong with processes are those who do it. If trained well and given the responsibility to inspect quality of their work it will eliminate inspection. Chandler and Mc Evoy (2002) pointed out that employees are the prime source of human resources, their education, skills and experience need to be assessed and matched with the job requirements for maximum performance. Employee involvement was conceived to mean a feeling of psychological ownership among organizational members Koopman (2006). Unlike total quality management ideology, the traditional employee involvement is narrow minded; it is job centered rather than process-centered. The total quality management approach involves achieving broad employee interest, participation and contribution in the process of quality management.

Training helps in preparing employees towards managing the total quality management ideology in the process of production. Training equips people with the necessary skills and techniques of quality improvement. It is argued to be a powerful building block of business in the achievement of its aims and objectives Zhang,(2000). Through training, employees are

able to identify improvement opportunities as it is directed at providing necessary skills and knowledge for all employees to be able to contribute to ongoing quality improvement process of production. Training and development programmes should not be seen as a onetime event but a lifelong process Dale et al, (2000).

### **Top Management Commitment and Organizational Performance**

Top management commitment is very important for the successful implementation of TQM in organizations. Pheny and Teo (2003) observed that top management must communicate TQM to the entire organisation to create awareness, interest, desire and action. They should provide the quality vision and create a cultural change within the organisation. They should organize for trainings, empower others by allowing them to grow, delegate authority and recognize them for quality achievements. Top management must allocate resources and partner with suppliers for sharing of information in terms of new innovations and technology in the market for quality materials.

Top management commitment and leadership requires effective change in organizational culture and this can only be made possible with the deep involvement of top management to the organization's strategy of continuous improvement, open communication and cooperation throughout the organization. Total quality management implementation improves the organizational performance by influencing other total quality management dimensions. According to Garvin (2004) most problems associated with quality are attributed to management. This indicated that successful quality management is highly dependent on the level of top management commitment. It requires that top management commitment to quality must convey the philosophy that quality will receive a higher priority over cost and that on long run will achieve operational performance as well as reduced operational cost. A number of studies have been done on the concepts of quality improvement practices and organization performance. For example, Miller and Hartwick (2002) found that training and top management commitment play very important roles in TQM implementations in public listed manufacturing companies.

Without clear and consistent quality leadership, quality cannot hope to succeed Everett (2012). This requires that quality leadership to be made a strategic objective and this means that the leader provides the suitable environment to provide the most comfort to the group members to improve performance and productivity Rao et al., (2006). Top management commitment has been identified as one of the major determinants of successful TQM implementation.

## **RESEARCH METHODOLOGY**

### **Research Design**

The research study applied the descriptive research design in the process of determining the findings in relation to the relationship between total quality management practices and performance of Bamburi Cement Limited. According to Cooper and Schindler (2006), a descriptive study is concerned with finding out the what, where and how of a phenomenon.

## **Target Population**

According to Ngechu (2004), a population is a well defined or set of people, services, elements, events, group of things or households that are being investigated. In this study, the target population was composed of the 150 management staffs employed at Bamburi Cement Limited. The structure in Bamburi Cement Limited has put staff in three categories; top management level, middle management level and lower level management.

## **Sampling Procedure and Sample Size**

The sampling plan describes how the sampling unit, sampling frame, sampling procedures and the sample size for the study. The sampling frame describes the list of all population units from which the sample will be selected (Cooper & Schindler, 2003). Stratified random sampling technique was used since population of interest is not homogeneous and could be subdivided into groups or strata to obtain a representative sample. From the above population of one hundred and ninety one, a sample of 25% was selected from within each group in proportions that each group bore to the study population. According to Kothari (2003) a sample of 25-30% is significant and representative of the entire population, hence the study's sample size was 42. This sample was appropriate because the population is not homogeneous and the units were not uniformly distributed.

## **Data Collection Instrument and procedure**

Primary data was collected using semi- structured questionnaires. According to Denzin and Lincoln (2000), an in depth questionnaire leads to generation of insightful facts, statistical information and permit a better understanding of organizational complexity. The questionnaire was properly designed to ensure that it provides valid and reliable data from the community based projects. A visit to the company was done to explain to the respondents the nature of the study and created rapport prior to the collecting of data. The questionnaire is considered appropriate because it on saves time and the targeted respondents are literate. The questionnaire was also ensure uniformity in the way questions are asked. Equally respondents feel free to answer sensitive questions as they are not required to disclose their identity (Mulusi, 1988 as cited by Mugambi, 2006).

## **Data Processing and Analysis**

Data to be collected was purely quantitative and it was be analyzed by descriptive analysis. The descriptive statistical tools such as Statistical Package for Social Sciences (SPSS Version 21.0) and MS Excel helped the researcher to describe the data and determine the extent used. The findings was presented using tables and charts. The Likert scales were used to analyze the mean score and standard deviation, this helped in investigating the relationship between total quality management practices and performance of Bamburi Cement Limited. Data analysis used frequencies, percentages, means and other central tendencies. The data was broken down into the different aspects of relationship between total quality management practices and performance of Bamburi Cement Limited. This offered a quantitative and qualitative description of the objectives of the study. A multiple regression was applied to

establish the relationship between total quality management practices and performance of manufacturing firms in Kenya. Organizational performance was taken as dependent variable where as a various total quality management practices will form the independent variable which includes continual improvement, customer focus, and employee empowerment and top management commitment. The regression model used in this study is:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

Where: Y= Organizational performance;  $\alpha$  = constant term; X<sub>1</sub>- Continual improvement ; X<sub>2</sub>- Customer focus; X<sub>3</sub>- Employee empowerment; X<sub>4</sub>- Top management commitment; B<sub>1</sub>,  $\beta_2$ ,  $\beta_3$ ,  $\beta_4$ = coefficients indicating various levels of importance (weight of each factor)

## **RESEARCH RESULTS**

The study revealed that most total management practices employed by Bamburi Limited were employee involvement, top management commitment, continuous improvement and customer focus. TQM practices are meant to foster performance Bamburi Limited. The study established that firms had the capacity to satisfy customer needs, embraced continuous improvement process to meet customers' needs and values both internal and external customers with a mean of more than 3.

81% of the firms had a committed top management to ISO QMS standards. The firms had documented QMS that is embraced by every employee at all levels of management, however, the actualization of the system needs to be in place to include and motivate stakeholders. It was further realized that the firm had developed and published a clear corporate mission, beliefs and objectives to guide in continuous improvement of service quality at a mean of 3.11. However clear strategies to achieve the objectives have not been well formulated and actualized to aid in implementation of TQM practices. The resources to facilitate the practices are not also sufficiently allocated and clear strategies to guide execution have not been developed which has hampered the perk performance of the manufacturing firms. 69% of the respondents indicated that continuous improvement significantly influenced operational performance of Bamburi Limited.

78% of the respondents indicated that employee empowerment significantly influenced operational performance of Bamburi Limited. The human resource policies in place did not however significantly influence employee involvement nor give authority in decision making, reward, motivation and general employee welfare at a low mean of 2. The firms encouraged career development, objective employee appraisal and gave feedback to encourage employees set their own goals, judge own performance and take full responsibility at a high mean of 3.

## **REGRESSION ANALYSIS**

The researcher conducted multiple regression analysis to establish the influence of total quality management practices on the performance of Bamburi Limited. The findings are indicated in subsequent sections;

**Table 1: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.955	0.941	0.838	0.495

The table above indicates the model summary. From the findings, R was 0.955, R square was 0.941 and adjusted R squared was 0.838. An R square of 0.955 implies that 95.5% of changes in performance of commercial banks in Kenya is explained by the independent variables of the study. There are however other factors that influence performance of Bamburi Limited, Kenya that are not included in the model which account for 4.5%. An R of 0.955 on the other hand signifies strong positive correlation between the variables of the study.

**Table 2: ANOVA**

Model	SS	df	MS	F	Significance
Regression	548.06	6	428.4	626.014	0.0862
Residual	351.21	361	0.950		
Total	899.27	367			

From the ANOVA table above, the value of F calculated is 626.014 while F critical is 479.575. Since the value of F calculated is greater than F critical, the overall regression model was significant and therefore a reliable indicator of the study findings. In terms of p values, the study indicated 0.000 which is less than 0.05 and therefore statistically significant.

**Table 3: Regression Coefficients**

Model	Unstandardized coefficients		Standardized Coefficients	t	Sig
	B	Std Error	Beta		
Constant	8.11	0.574		8.012	0.000
Employee involvement	0.621	0.022	0.811	14.15	0.00
Top management commitment	0.476	0.033	0.120	11.04	0.000
Continuous improvement	0.526	0.029	0.127	1.15	0.000
Customer focus	0.660	0.031	0.384	4.42	0.000

The resultant regression equation becomes;

$$Y = 8.11 + 0.621X_1 + 0.476X_2 + 0.526X_3 + 0.660X_4$$

Where: Y is the performance of Bamburi Limited, Kenya;  $\beta_0$ ,  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$  and  $\beta_4$  are the regression coefficients and  $X_1$ ,  $X_2$ ,  $X_3$  and  $X_4$  represent employee involvement, top management commitment, continuous improvement and customer focus respectively.

This implies that when all the variables of the study are held constant, performance Bamburi Limited in Kenya will be at the intercept which is 8.11. A unit improvement in employee

involvement while all other factors held constant results in 0.621 increase in performance of Bamburi Limited, a unit increase in top management commitment with other factors *ceteris paribus* leads to 0.476 increase in performance of the firm. Similarly a unit increase in continuous improvement while other factor *ceteris paribus*, translates to a 0.526 increase in performance of Bamburi Limited while a unit increase in customer focus with other factors held constant leads to a 0.660 improvement in performance of Bamburi Limited, Kenya.

## **CONCLUSIONS**

The study concludes that Bamburi Limited embrace good customer service to attract and retain more customers. There is a positive and significant relationship between customer focus, top management commitment, continuous improvement and employee involvement and operational performance Bamburi Limited. The top management commitment also influences positively on performance but there is need for strategy development and stakeholder involvement to foster performance. The firm has developed continuous improvement clear vision and mission but sufficient resources and strategies to actualize it have not be put in place. The human resource policies are also not friendly to motivate employees and involve them in decision making and appraisal process.

## **RECOMMENDATIONS**

The study recommended that for Bamburi and manufacturing institutions to perform optimally there is need for improved strategy formulation and implementation geared towards TQM practices. Stakeholder involvement needs also to be enhanced to ensure the employees, customers and other parties in the management and running of firms to assist in improving quality service delivery in the industry. The HR policies need to be anchored on employee welfare, participation and customer service to motivate the staff towards positive and high output. The study recommends that TQM practices should be embraced by all the Manufacturing industry players to ensure adhered to shareholder requirements and customer needs. For operational performance to improve, there is need for all TQM practices to be intertwined towards improving performance of the employees and as a result organization.

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