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THE EFFECT OF QUALITY COST MANAGEMENT ON FIRMS PROFITABILITY

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ABSTRACT*: The paramount objective of a firm or organization is to earn and maximize profit in the long run. To achieve this, firms put in place diverse strategies, one of which is quality improvement. This value-added activity has some attendant cost implications, so also do the failures in a firm's product or service. These cost implications together make up the group of quality costs, and they put a strain on the profit making ability of a firm. The objectives of this study were to find out how quality costs can be managed and how their management affects the profitability of firms. The survey design was adopted to gather data from the hospitality industry in Bayelsa State. The correlation analysis (SPSS version 20) was used to analyze the data and from the results obtained it was concluded that there is a significant relationship between quality cost management and firm profitability. It was recommended that effective quality cost management systems be put in place by firms to enhance their profitability and that firms should channel more efforts towards prevention and appraisal activities, this will reduce the extent to which they spend on internal and external failures and lead to increased profitability*.

KEYWORDS: Effect. Quality, Cost, Management, Profitability

INTRODUCTION

In today's truly global market place, competition is very fierce and customer's expectations are constantly evolving. Therefore, it is essential for organizations to have a complete understanding of their customers' needs - both existing and future customers - and to meet them. There must be a process in place to help firms predict and even influence their future needs. Customers want the products that they purchase to be durable and functional until the customer decides to replace them. This requirement of quality mandates that manufacturers and distributors produce products that live up to the customer's expectation of durability. Not going this extra mile by the manufacturers to produce quality products is not without its additional costs/financial implications. Quality cost is a term that is widely used and widely misunderstood. Quality cost or the cost of quality is not the price of creating a quality product or service alone. It is also the cost of NOT creating a quality product or service.

Every time work is redone, the cost of quality increases. This is, however, not helpful to the profit maximization aim of a firm. A firm has several objectives but profit maximization is said to be paramount among them, (Damilola 2007, Raheman and Nasir, 2007). Conceptually, profit connotes the excess of revenue generated by a firm over its associated costs for an accounting period. It is in the hands of management to ensure that the quality needs of the customer are met, and the profit maximization need of the firm is also met, and that none is sacrificed for the other.

The pioneers and most influential figures of the quality management concept during the second half of the twentieth century, were; Deming (1986; 1993), Juram (1964), Feigenbaum (1956) and Crosby (1979), and others supported the idea that there is a wholesome connection between adopting quality management practices and financial performance. All levels of management recognize that quality is an absolute necessity to the survival and success in today's business environment. To minimize losses and maximize profits within the process of a business system, most times management fails to develop capabilities for monitoring and controlling the costs related to value-added activities. Quality Costs, in whichever form they surface - Prevention costs (PC), Appraisal costs (AC), Internal Failure Costs (IFC), or External Failure Costs (EFC), takes a negative toll on the profit of a firm. These quality costs may not possibly be eliminated, but could be managed in such a way that satisfactory profits are made and reported by the firm. Hence this study is designed to investigate the effect of quality cost management on selected firms' profitability in Bayelsa State.

REVIEW OF RELATED LITERATURE

CONCEPT OF QUALITY

Quality in business, engineering and manufacturing has a pragmatic interpretation as the inferiority or superiority of something. It is also defined as fitness for purpose. Quality is a perceptual, conditional and somewhat subjective attribute and may be understood differently by different people. Consumers may focus on the specific quality of a product or service, or how it compares to competitors in the market place. Producers might measure the conformance quality, or degree to which the product or service was produced correctly. Support personnel may measure quality in the degree that a product is reliable, maintainable or sustainable. Simply put a quality item (an item that has quality) has the ability to perform satisfactorily in service and is suitable for its intended purpose.

(American Society for Quality, 2003).One view of quality is that it is defined entirely by the customer or end user, and is based upon that person's evaluation of his or her own entire customer experience. The customer experience is the aggregate of all the interactions that customers have with the company's products and services. For example, any time one buys a product, one form an impression based on how it was sold, how it was delivered, how it was performed, how well it was supported. In a manufacturing or service environment there are two major categories of quality; Quality of design and Quality of conformance. A poorly designed product will not function properly regardless of how well it meets its specifications. Conversely, a product that does not conform to excellent design specifications will not properly perform its intended function. *(*Lari, (2010)*).*

Quality has been defined in a variety of ways by different scholars. The following are some of the definitions offered. "Quality is the totality of features and characteristics of a product or service that bear on its ability to satisfy given needs" – (American Society for Quality, 2003). Also, "Quality is the extent to which products, services, processes and relationships are free from defects, constraints and items which do not add value for customers". Lari, (2010). Furthermore, "Quality means that the organization's culture is defined by, and supports the constant attainment of customer satisfaction through an integrated system of tools, techniques and training" (Sashkin and Kiser, 1993).; and, "Quality in a product or service is not what the supplier puts in; it is what the customer gets out and is willing to pay for" (Drucker, 1978)

The several definitions above are unique in their own way but all point towards the ultimate goal which is customer satisfaction. In other words, it is safe to say that where there is no customer satisfaction, there is no quality.

DEFINITION OF QUALITY COST

Improving quality is considered by many to be the best way to enhance customer satisfaction, to reduce manufacturing costs and to increase productivity. Any serious attempt to improve quality must take into

account the costs associated with achieving quality. There is no single agreement on a single broad definition of quality costs. However, according to Dale and Plunkett (1995), it is now widely accepted that quality costs are the costs incurred in the design, implementation, operation and maintenance of a quality management system, the cost of resources committed to continuous improvement, the costs of system, product and service failures, and all other necessary costs and non-value added activities required to achieve a quality product or service.

Crosby (1979) sees quality as "conformance to requirements" and therefore defines the cost of quality as the sum of price of conformance and price of non-conformance. The price of conformance is the cost of making certain things that are done right the first time. And the price of non-conformance is them oney wasted when work fails to conform to customer requirements. No matter which quality costing approach is used, the main idea behind cost of quality analysis is the linking of improvement activities with associated costs and customer expectations, thus allowing targeted action for reducing quality costs and increasing quality improvement benefit (Schiffauerove and Thomson, 2004).

QUALITY COST COMPONENTS

According to Kaur (2009), Quality cost is the sum of costs incurred by the company in preventing poor quality, the cost incurred to ensure that the quality requirements are being met, and any other costs incurred as a result of poor quality products. Meigs, et al, (2003), Campanella, (1990), and Murthy, (1983) documented that quality costs are classified into four categories of costs.

(a) Prevention costs; which are the costs of all activities specifically designed to prevent poor quality in product and service eg. Employee training and supplier quality evaluations (ISO 9000).
(b) Appraisal costs which are incurred to ensure that products or services conform to quality standards eg. Inspection of raw materials, in-process inventories and finished goods, and maintenance program to ensure quality standard.
(c) Internal failure costs, which are the costs resulting from product or services not conforming to requirements or customer or user needs, which occur prior to delivery or shipment to the customer, eg. Rework, engineering change orders, scrap, retesting and re-inspection.
(d) External failure costs, which are the costs resulting from products or services not conforming to requirements or customer or user needs which occur after delivery or shipment of the product, and during or after furnishing of a service to the customer. Eg warranty cost, product liability costs and lost goodwill.

Measuring and reporting these costs in a meaningful way makes it possible to track performance over time and to measure the effectiveness of improvement activities, this is the crux of quality cost management.

AN OVERVIEW OF SERVICE QUALITY

Service quality, a consumer's judgment about the overall superiority of a product or service (Zeithaml, et al 2009), is widely acknowledged as one of the important determinants of brand loyalty. Service quality is an essential strategy for success and survival of any business organization, as it can influence customer purchase behaviour and organization performance (Zeithaml, et al, 1996). Despite a number of service quality studies, there has been little consensus not only in its conceptualization but also its measurement, dimensionality and consequences.A review on the service marketing literature indicates that there are mainly two types of service quality conceptualization: Nordic and American. The Nordic approach proposes that a customer's overall perception of service quality consists of functional and technical quality, with technical quality being what customers get after the service delivery process in buyer-seller interactions, and functional quality is the interaction between employees and customers during the service encounter (Lau, et al, 2005). The American approach proposes that service quality

consists of reliability, responsiveness, empathy, assurances and tangibles dimension, known as SERVQUAL (Zeithaml et al 1996).

This model based on expectancy- disconfirmation theory views that service quality is a gap between customer's perceptions and expectations of service performance. Although researchers tend to use the American approach over the Nordic approach, neither approach has been deemed universally superior. Service quality is a way to manage business processes in order to ensure total satisfaction to the customer on all levels (Internal and External). It is an approach the leads to an increase in competitiveness, effectiveness and flexibility of the entire company.

Table 1 General Elements of Product and Service Quality

Dimension	**Definition**
Availability	Product or service is easily available
Guarantee	the personnel is kind, polite and educated
Communication	clients receive information on all products and services and their charges
Expertise	The personnel has the necessary knowledge and skills to produce and sell products or provide service
Standard	Products and services are up to the standard
Behaviour	Kindness, good manners and care of the personnel towards clients
Flaw	Each quality that is not defined and affects the satisfaction of the client.
Duration	Performance service result or product lasts longer.
Engagement	The personnel shows understanding and gives individual attention to each client.
Humanity	Product or service are provided so an to preserve dignity and self-respect of the client.
Effects	Product or service produces the expected effect.
Reliability	Capability to sell products or provide services in a discreet and reliable manner.
Responsibility	Definite duration of product sale or providing of services.
Safety	Product or services are provided in the safest possible way without any kind of risk or danger.

Source: Avelini Holjevac, I Upravljanje, Kvalitetom U Turizmu; Hotelsk of industry; (quality management in tourism and hotel industry), faculty of tourism and Hospitality management, Opatija 2002 pp. 12-13.

QUALITY COST MANAGEMENT

Recent surveys have revealed that approximately two-thirds of the market value of a company is not accounted for by the official value statement (Kristensen and Westlund, 2004). This means that most of the intangible assets in a company are not visible. Considering the characteristics of today's business environment, this issue becomes of high importance. Thus a good strategy is to quantify value added activities within the business system of the company for revealing this valuable information.

Measuring and reporting quality costs in a meaningful way makes it possible to track performance over time and to measure the effectiveness of improvement activities. One experimental study (Viger and Anandarajan, 1999) has shown that managers who have access to quality cost data make different decisions than managers who do not have quality cost data available.

Quality cost management is one of the broader business efforts to control costs. Quality cost management is the process through which firms collect, measure and monitor quality costs. Quality cost

management helps firms establish priorities for corrective action. Without such guidance, it is likely that firms will misallocate their resources, thereby getting less than optimal return on investment. Effective cost of quality management programs consist of taking the following steps (Campanella, 1990 p. 34).

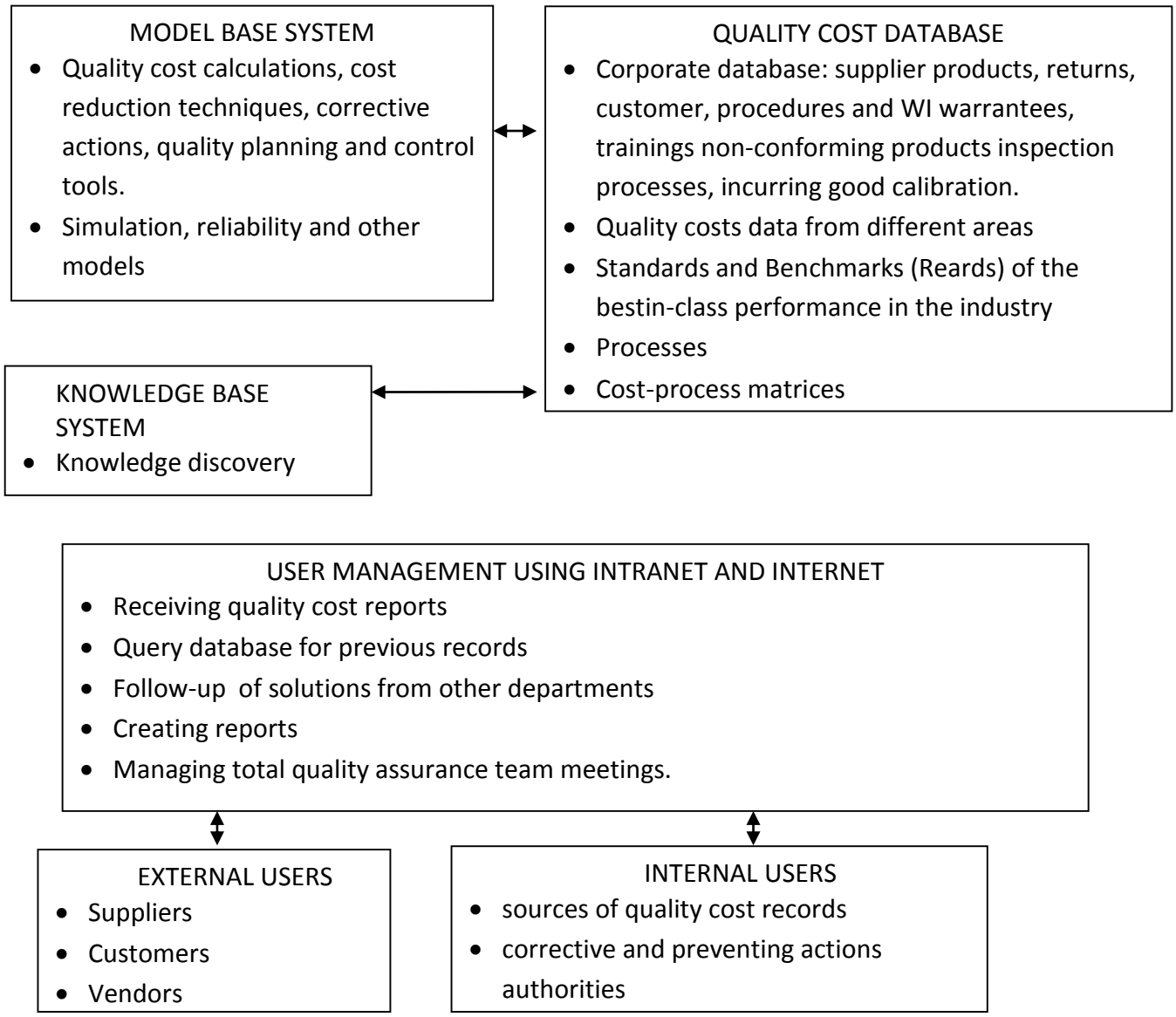
- Establish a quality cost measurement system.
- Develop a suitable long-range trend analysis
- Establish annual improvement goals for total quality cost.
- Develop short range trend analysis with individual targets which when combined, meet the annual improvement goal.
- Monitor progress towards the goals and take action when progress falls short of targets.

During the 1950's Juran, Feigenbaum and Masser proposed the traditional cost of quality (COQ) model. According to this model both internal and external failure costs seem to decrease exponentially when a company's prevention and appraisal costs are increased. Lari (2010) proposed a quality cost decision support system (QCDSS) where the organizations follow a system approach in which all the functions or activities are understood in terms of how they affect other elements and activities and elements with which they interact. There are activities or sub-processes that can increase the quality costs of the processes and affect the financial performance goals of the organization. In the classification of quality costs into four groups of prevention, appraisal, internal and external failure, the control and reduction of the latter three is very crucial and both internal and external failure costs seem to decrease exponentially when prevention and appraisal costs are increased.

Cost of quality is a large portion of the organizations costs and can be controlled by creating a balance between the four groups of costs. By identifying the costs related to each process and the way these costs are controlled, the total improvement in cost structure and overall performance will be possible. Building a knowledge base that can store the cases of quality cost increase and suggest solutions for improvement can control future variations and create a decreasing slope in the quality cost trend in the organization. Error- proofing the system can prevent cost increase.

The structure of the system includes four components that work together to calculate the value of a cost function by collecting the data from different operational processes, comparing it with the previous data for each individual process and the total cost calculated by the cost function (see figure 1). Based on the changes in the cost value, the system suggests corrective actions using a knowledge-based system. The model also monitors the corrective actions and the progress made toward the improvement of the system. The cost function aims at indicating the interrelationship between the cost of process activities and the cost of quality. The system can work toward targeted performance values.

Figure 1**. The components of the QCDSS**



(source:http://www.cqwebcom/chapters-HTML/chapter2html/chapter2.html).RETRIEVED 13/10/2013

AN OVERVIEW OF PROFITABILITY

Business is conducted primarily to earn profits. The amount of profit earned measures the efficiency of a business. The greater the volume of profit, the higher is the efficiency of the concern. The profit of a business may be measured and analyzed by studying the profitability of investments attained by the business.

Profitability is the ability to earn profits from all the activities of an enterprise. It indicates how well the management of an enterprise generates earnings by using the resources at its disposal. According to Hermenson, et al, (1997) "profitability is the relationship of income to some balance sheet measure which indicates the relative ability to earn income on assets employed".

Profit refers to the total income earned by the enterprise during the specified period of time while profitability refers to the operating efficiency of the enterprise. As Weston and Brigham (1972) rightly notes; "to the financial management, profit is the test of efficiency and a measure of control, to the owners, a measure of the worth of their investment; to the creditors a margin of safety; to the government a measure of taxable capacity and a basis of legislative action; and to the country, profit is an index of economic progress, national income generated and the rise in standard of living". While profitability is an outcome of profit, profitability may be analyzed using ratios such as;

- Gross profit ratio
- Net operating profit ratio
- Return on net capital Employed ratio
- Return on owners equity ratio

Profitability analysis however, is only a quantitative analysis. It discards the importance of managerial skills that accurately predicts and plans for profitability, manual efficiency and efforts that contributes a lot in achievement of projected level of profits, external factors like market conditions, demand of products, business cycle and the like. It does not depict those terms, which cannot be expressed in monetary terms.

QUALITY COST MANAGEMENT AND PROFITABILITY

In the past, expenditures on quality have not been explicitly linked to profits because costs and savings were the only variables on which information was available. More recently, evidence about the consequences of service quality stemming from other sources has been found. The relationship between quality and profits took time to verify, part of the delay was due to the unfounded expectation that the connection was simple and direct. The link between service quality costs and profits is neither straightforward nor simple (Greasing 1994; Zahorik and Rust 1992), and no single researcher or company has defined the relationship fully. Instead different scholars have studied different aspects of the connection.

Rust, Subramanian and Wells (1992) documented the financial impact of complaint recovery systems. Nelson et al (1992) found a positive relationship between patient satisfaction and hospital profitability, that discrete dimensions (billings, discharge processes) explained 17 to 27 percent of the variation in financial measures such as hospital earnings, net revenues and return on assets. Furthermore,et al (1993) demonstrated the relationship between customer satisfaction and customer retention in a retail bank setting. Also, Fornell (1993) documented the aggregate financial implications of customer satisfaction in a Swedish study, finding a significant relationship between customer satisfaction and increased loyalty of customers, reduced price elasticities, lower transaction costs in providing the service to the customers.; and Rust, et al (1995) provided a framework for examining the impact of service quality improvements on profits, and used a simulation to demonstrate the impact on profits, and showed that behavioural impact stemming from service quality leads to improved profitability and other financial outcomes. In the foregoing sections of this chapter, attention has been focused on what other authors and scholars have had to say concerning quality cost management and firm profitability. Not much has been published on the link between quality cost management and firm profitability, but some studies however have shown a strong link between quality improvement efforts and a firm's ability to make profits. Therefore it is safe to conclude that quality cost management has a role (whether great or small) to play in the profitability of firms.

RESEARCH DESIGN AND METHODOLOGY

For the purpose of this study, the survey design is adopted. The choice is informed by the ease of access to sufficient information which this method provides and its credibility. The population of this study therefore is all the hotels and fast food/confectioneries which constitute the hospitality industry in Bayelsa state. This study, being a survey of the hospitality industry in Bayelsa State adopted the YARO

YAME formula to determine the sample size. The sampling procedure employed is the stratified random sampling. This is because the population consists of two strata which are hotels and fast foods. The YARO YAME formula is then employed to determine the sample size after which the table of random numbers is used to select the number of subjects from each stratum.

For the purpose of objectivity, relevant information regarding the major ideas examined in this study was obtained through primary source with the questionnaire. The questionnaire adopts close-ended questions which are straight forward and understandable. The data was presented in tables. The items of interest are the various components of quality cost management categorized under Prevention costs, Appraisal costs, internal failure costs, External failure costs and the various profitability indices. The dependent variable is correlated against the independent variables to determine if there exists a relationship (positive or negative) between them and to ascertain the significance of such relationship. A computerized regression analysis is used to measure the impact of the independent variables on the dependent variable. The Statistical Package for Social Science (SPSS) version 20.0 was used.

RESULTS AND DISCUSSION OF FINDINGS

Table 2 Questionnaire distribution and Retrieval.

Below is presented, the responses obtained from the field.

Respondent groups	Number Administered	Number Retrieved
Hotels	56	42
Fast foods	8	8
Total	64	50

Source: Field data, 2013.

Table .3 Description of business ownership

Variables	Frequency	Percentage (%)
Privately owned	41	82
Family business	1	2
State owned	Nil	0
Partnership	8	16
Total	50	100

Source: Field data, 2013

From table 4.3, 82% of the respondents firms are privately owned, 2% are family businesses, none is state owned and 16% are partnerships.

Table 4. The extent to which managing quality costs involves prevention costs

Variables	VGE	GE	ME	SE	NA	Total
Quality planning	44(88%)	5(10%)	1(2%)	Nil	Nil	50(100%)
Statistical process control	Nil	Nil	Nil	Nil	Nil	Nil
Investment in quality related information system	36(72%)	12(24%)	2(4%)	Nil	Nil	50(100%)
Quality training and workforce development	17(34%)	31(62%)	2(4%)	Nil	Nil	50(100%)
Product design verification	Nil	Nil	Nil	Nil	Nil	Nil
System development and management	22(44%)	28(56%)	Nil	Nil	Nil	50(100%)
Total	119(60%)	76(35%)	5(2%)	Nil	Nil	20(100%)

Source: Field data, 2013

Table 4. shows that 88% of the respondents incur prevention costs on quality planning to a very great extent, 10% to a great extent, 2% to a moderate extent, while small extent and not at all had no responses. It also shows that none of the firms incur any costs on statistical process control. The table also reveals

that 72% of the respondents incur costs on quality related information systems to a very great extent, 24% to a great extent, 4% to a moderate extent and zero response from small extent and not at all. It also reveals that 34% of the respondents incur costs on quality training and workforce development to a very great extent, 62% to a great extent, 4% to a moderate extent and zero response from small extent and not at all. Form the information shown in the table, none of the forms incur any costs on product design verification. It also shows that 44% of the respondents invest in systems development and management to a very great extent, 56% to a great extent, and no response from the other categories. Conclusively, with regards to the extent to which quality cost involves prevention costs, 60% responded a very great extent, 35% to a great extent, 2% to a moderate extent and none responded to the other categories.

Table 5. The extent to which managing quality costs involves appraisal costs

Variables	VGE	GE	ME	SE	NAA	TOTAL
Inspection and testing of goods	31(62%)	19(38%)	nil	nil	Nil	50(100%)
Product quality audits	26(52%)	24(48%)	nil	nil	Nil	50(100%)
Field training	32(64%)	17(34%)	1(2%)	nil	Nil	50(100%)
Checking labour	23(46%)	27(54%)	nil	nil	Nil	50(100%)
Product control monitoring	21(42%)	29(58%)	nil	nil	Nil	50(100%)
Maintenance of test equipment	16(32%)	32(64%)	2(4%)	nil	Nil	50(100%)
Total	149(50%)	148(49%)	3(1%)	Nil	Nil	300(100%)

Source: field data, 2013.

The table above shows that 62% of the respondents carry out inspection and testing of goods to a very great extent, 38% of them to a great extent and no responses in the other categories. It further shows that 52% of respondents carry out product quality audits to a very great extent and 48% to a great extent, the other categories show no responses. Also it shoes that 64% of the respondents incur costs on field training to a very great extent, 34% to a great extent and 2% to a moderate extent. The other categories show no responses. It further reveals that 46% of the respondents check labour to a very great extent, 54% to a great extent and no responses from the other categories. It also shows that 42% of the respondents carry out product control monitoring to a very great extent and 58% to a great extent. Furthermore it shows that 32% of the respondents invest in maintenance of test equipment to a very great extent, 64% to a great extent, 4% to a moderate extent and no responses from the other categories. With regards to the extent to which quality cost management involves appraisal costs, 50% chose very great extent , 49% chose great extent 2% chose moderate extent while small extent and not at all showed no responses.

Table 6 The extent to which costs of non-conformance result in internal failure costs

Variables	VGE	GE	ME	SE	NAA	TOTAL
Scrap	Nil	nil	nil	nil	Nil	Nil
Downgrading	Nil	nil	nil	nil	Nil	Nil
Re-work	Nil	nil	nil	nil	Nil	Nil
Retesting and Re-inspection	Nil	nil	nil	nil	Nil	Nil
Material procurement cost	18(36%)	31(62%)	1(2%)	nil	Nil	50(100%)
Material review	12(24%)	37(74%)	1(2%)	nil	Nil	50(100%)
Total	30(30%)	68(68%)	2(2%)	nil	Nil	100(100%)

Source ; Field data 2013

The above table 6 shows that 36% of the respondents internal failure costs result from material procurement cost to a very great extent 62% to a great extent, 2% to a moderate extent and the other categories had no responses. It also shows that 24% of the respondent's internal failure costs are as a result of material review to a very great extent 74% to a great extent, 2% to a moderate extent and no responses under the small extent and not at all categories.

With respect to the extent to which costs of non-conformance results in certain internal failures costs, 30% responded to a great extent , 68% of the respondents chose great extent, 2% responded to moderate extent and no responses from the small extent and not at all categories.

Table 7 **The extent to which costs of non-conformance results in external failure costs**

Variables	VGE	GE	ME	SE	NAA	TOTAL
Complaints in warranty	Nil	nil	Nil	nil	nil	Nil
Complaints out of warranty	Nil	nil	Nil	nil	nil	Nil
Product service	Nil	nil	Nil	nil	nil	Nil
Product liability	17(34%)	32(64%)	1(2%)	nil	nil	50(100%)
Product recall	20(40%)	27(54%)	3(6%)	nil	Nil	50(100%)
Loss of reputation	20(40%)	27(54%)	3(6%)	nil	nil	50(100%)
Total	57(38%)	86(57%)	7(5%)	nil	nil	150(100%)

Source: Field data 2013

The table reveals that 34% of the respondent's external failure costs result from product liability to a very great extent, 64% to a great extent, 2% to a moderate extent and no response from the other categories. It also showed that 40% of the respondent's external failure costs are as a result of product recall to a very great extent, 54% to a great extent and 6% to a moderate extent. Furthermore it shows that 40% of the respondent's external failure costs are as a result of lost reputation to a very great extent 54% to a great extent and 6% to a moderate extent.

Altogether 38% of the respondents ticked very great extent with regard to external failure costs, 57% responded to great extent, 5% responded to moderate extent and small extent and not at all had no responses.

Table 8 **The extent to which quality cost management enhances profitability**

Variables	VGE	GE	ME	SE	NAA	TOTAL
Turnover volume	45(90%)	4(8%)	Nil	1(2%)	Nil	50(100%)
Reported profits	29(58%)	20(40%)	Nil	Nil	1(2%)	50(100%)
Customer attraction	34(68%)	15(30%)	Nil	Nil	1(2%)	50(100%)
Lower costs of sales	21(42%)	29(58%)	Nil	Nil	Nil	50(100%)
Business expansion	34(68%)	13(26%)	3(6%)	Nil	Nil	50(100%)
Customer satisfaction	23(46%)	25(50%)	1(2%)	Nil	1(2%)	50(100%)
Brand loyalty	31(62%)	18(36%)	Nil	Nil	1(2%)	50(100%)
Increased goodwill	25(50%)	24(48%)	Nil	Nil	1(2%)	50(100%)
Total	242(60%)	148(37%)	4(1%)	nil	5(2%)	400(100%)

Source: Field data ,2013

From the above table 90% of the respondents indicate that quality cost management enhances their turnover volume to a very great extent, 8% to a great extent, no response to the moderate extent, 2% ticked small extent and not at all had no responses. It also shows that 58% of the respondents indicate that their quality cost management activities enhances their reported profits to a very great extent, 40% chose great extent, no response from moderate extent and small extent, while 2% chose not at all. Furthermore it reveals that 68% of the respondents say that quality cost management enhances their customer attraction to a very great extent, 30% to a great extent, there was zero response to moderate and small extents, while 2% chose not at all. Also the table reveals that 42% of the respondents indicate that quality cost management lowers their cost of sales to a very great extent, 58% to a great extent and no response from the other categories. Again 68% of the respondents say that quality cost management leads to business expansion to a very great extent, 26% indicated great extent, 6% indicated moderate extent. Also 46% of the respondents say that their quality cost management activities enhance customer satisfaction to a very great extent, 50% to a great extent, 2% chose moderate extent, and small extent had no response while 2% indicated not at all. The table also reveals that 62% of the respondents indicates that quality cost management activities enhance brand loyalty to a very great extent, 36% to a great extent, moderate and small extent had no responses and 2% indicated not at all. Furthermore, it revealed that 50% of the respondents indicate that quality cost management activities lead to increased goodwill to a very great extent. 48% indicated great extent; there were no responses from moderate and small extent while 2% indicated not at all.

Conclusively, with regards to the extent to which quality cost management activities enhance performance/profitability, 60% of the respondents indicated very great extent, 37% indicated great extent, 1% indicated moderate extent, and there was no response from small extent and 2% indicated not at all.

Below is presented the results of the statistical analysis using the statistical package for social sciences (SPSS version 20.0)

Table 9 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.945[a]	.893	.786	5.880

a. Predictors: (Constant), MGQ

Table 9 above provides the adjusted least square of the model. The result of 0.786 indicates that quality cost management explains 78% of the behavior of profitability in a firm.

Table 10 ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	288.095	1	288.095	8.333	.212[b]
	Residual	34.571	1	34.571		
	Total	322.667	2			

a. Dependent Variable: QCM

b. Predictors: (Constant), MGQ

Table 10 above gives the f. statistics of 8.333 which is greater than 0.05 critical values. This result indicates that the variables in the model are fit to explain the relationship between quality cost control management and firm profitability.

Table 11 Descriptive Statistics

	Mean	Std. Deviation	N
QCMP	11.60	3.523	50
PC	5.74	1.337	50
AC	9.08	1.275	50
IFC	3.44	.837	50
EFC	5.00	1.212	50

The table in 11 provides the descriptive statistics of the variables in the study, QCMP has a mean of 11.6 and a standard deviation of 3.523, meaning that with quality cost management, profitability will vary by 3% either positively or negatively with 1% improvement of deficiency in quality cost management.
With the other variables such as PC, AC, IFC and EFC, their mean values are 5.7, 9.0, 3.4 and 5.0 respectively; their standard deviations are at 1 approximately. This shows that these variables are almost constant with a little deviation occasioned by quality cost management.

Table 12 Correlations

		QCMP	PC	AC	IFC	EFC
Pearson Correlation	QCMP	1.000	.350	.171	-.050	.229
	PC	.350	1.000	.024	-.115	.113
	AC	.171	.024	1.000	.138	.277
	IFC	-.050	-.115	.138	1.000	.060
	EFC	.229	.113	.277	.060	1.000
Sig. (1-tailed)	QCMP	.	.006	.118	.366	.055
	PC	.006	.	.433	.214	.217
	AC	.118	.433	.	.169	.026
	IFC	.366	.214	.169	.	.339
	EFC	.055	.217	.026	.339	.
N	QCMP	50	50	50	50	50
	PC	50	50	50	50	50
	AC	50	50	50	50	50
	IFC	50	50	50	50	50
	EFC	50	50	50	50	50

In table 12 above the Pearson correlation shows that QCMP is positively correlated with PC at 0.006, again AC is positively correlated to QCMP at 0.118, all at 5% significant value. Also that EFC has no correlation with QCMP at 5%, but is correlated at 10% significant value. While IFC is significantly correlated with QCMP at both 5% and 10% significant values. The overall result shows that quality cost management has a significant correlation with all the variables that measure a company's profitability. Therefore, the null hypothesis is rejected and the alternative is accepted, which states that quality cost management affects a firm's performance and profitability significantly.

DISCUSSION OF FINDINGS

From this study, it is revealed that the various components of quality costs can be managed by implementing an effective quality management system (QCMS) which measures and reports quality costs to managers. This corroborates with the view of Campanella, (1990 p.34). According to him, Effective cost of quality management programs consist of taking the following steps;

- Establishing a quality cost measurement system.

- Developing a suitable long-range trend analysis
- Establishing annual improvement goals for total quality cost.
- Developing short range trend analysis with individual targets which when combined, meet the annual improvement goal.
- Monitoring progress towards the goals and take action when progress falls short of targets.

From the analysis of data and the test of hypothesis it is also revealed that all the variables that measure a company's profitability are significantly related to quality cost management. This is in line with the view put forward by Lari (2010) that; there are activities or sub-processes that can increase the quality costs of the processes and affect the financial performance goals of the organization. Lari (2010) also mentioned that cost of quality is a large portion of the organizations costs and can be controlled by creating a balance between the four groups of costs; and by identifying the costs related to each process and the way these costs are controlled, the total improvement in cost structure and overall performance will be possible. Building a knowledge base that can store the cases of quality cost increase and suggest solutions for improvement can control future variations and create a decreasing slope in the quality cost trend in the organization thus increasing the firm's profitability.

CONCLUSIONS AND RECOMMENDATIONS

In the course of this study, the following were discovered;

1. That the following are the steps to be taken in the quality cost management process;
    a. Establishing a quality cost measurement system.
    b. Developing a suitable long-range trend analysis
    c. Establishing annual improvement goals for total quality cost.
    d. Developing short range trend analysis with individual targets which when combined, meet the annual improvement goal.
    e. Monitoring progress towards the goals and take action when progress falls short of targets.
2. That there is a significant relationship between quality cost management and firm profitability.

Based on the analysis of data and test of hypothesis, it was discovered that the profitability of a firm can be affected by the firm's quality cost management practices. This is because profitability is a test of the efficiency of the managers of a firm, and it is the job of managers to create a balance between the four groups of quality costs through a reliable quality cost management system.

From the findings of this study, the researchers were able to put forth the following recommendations;

a. All levels of management should recognize that quality is an absolute necessity to survive and succeed in today's business environment and they should put in place a well designed quality cost management system to effectively manage their costs of quality.
b. Firms should channel more efforts towards prevention and appraisal activities, this will reduce the extent to which they spend on internal and external failures, and thereby creating a balance between the four types of quality costs.
c. Firms should set interim quality standards, and thus should have interim quality reports on a quarterly basis to measure their progress towards better quality.

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QUESTIONNAIRE ON THE EFFECT OF QUALITY COST MANAGEMENT ON FIRM PROFITABILITY

Instruction: Please tick (√) the option that best represents your opinion.

1. What category do you belong to? Hotel services Fast food/Restaurant
2. Which of the following best describes you? State owned Privately owned Family business Partnership
3. How long have you been in business? 1-2 years 2-3years 3-4 years 5 years and above

4. Please indicate the extent to which managing Quality cost in your firm involves.

A. Prevention costs	Very great extent	Great extent	Moderate extent	Small extent	Not at all
Quality planning					
Statistical process control					
Investment in quality related information systems					
Quality training and workforce development					
Product design verification					
Systems development and management					

B. Appraisal costs					
Inspection and testing of goods					
Product quality audits					
Field training					
Checking labour					
Product control monitoring					
Maintenance of test equipment					

5. What is the extent to which Costs of Non-conformance in your firm result in?

A. Internal failure costs	Very great extent	Great extent	Moderate extent	Small extent	Not at all
Scrap					
Down-grading					
Re-work					
Re-testing and re-inspection					
Material procurement cost					
Material review					
B. External failure costs					
Complaints in warranty					
Complaints out of warranty					
Product service					
Product liability					
Product recall					
Loss of reputation					

6. Please indicate the extent to which Quality Cost Management activities/efforts in your firm enhances the following.

	Very great extent	Great extent	Moderate extent	Small extent	Not at all
Turnover volume					
Reported profits					
Customer attraction					
Lower cost of sales					
Business expansion					
Customer satisfaction					
Brand loyalty					
Increased Goodwill					

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