

## EVALUATION OF FACTORS INFLUENCING TOTAL QUALITY MANAGEMENT IMPLEMENTATION IN RWANDAN CONSTRUCTION COMPANIES: CASE OF FAIR CONSTRUCTION COMPANY

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### ABSTRACT

**T**he role of construction quality and continuous improvement is vital in the development of construction industry of growing nations. Construction quality and regular improvement is linked with the adoption of quality management systems in construction companies. It is therefore important that adequate measures are put in place to ensure quality in the sector. Total Quality Management (TQM) is considered as one of the most important approaches to achieve quality in construction Industry not only in Rwanda but the world over. This study sought to determine the factors influencing implementation of TQM in construction companies in Rwanda. Kigali province was used as a case for the study. The literature for this study was reviewed basing on the following factors; Top management commitment, Employees' training, organization culture and communication. The study adopted a descriptive research design. Stratified random sampling was used to determine the sample size. Primary data for the study was collected using structured questionnaires that were administered to the respondents. A Cronbach alpha coefficient was computed using SPSS and generated the value of 0.843. Comparing this value with the threshold of 0.7 ensured reliability of the questionnaire. Data collected will be analyzed through SPSS version 21. The study revealed that Top Management Commitment, Employee's Training, organizational culture and Communication are critical factors in implementation of TQM in Construction Companies in Rwanda. The study recommends that construction companies as well as other organizations who are implementing TQM take strategic measures in ensuring top management participation and commitment to quality initiatives.

**Key words: Top Management Commitment, Employee's Training, organizational culture and Communication**

## 1. Introduction

Globalization of market economies has urged corporations in all sectors to concentrate on maintaining a sustainable competitive edge which is directly related to the upkeep of quality both in terms of services as well productivity. This is only possible if an organization engages in operations or produces products that are able to effectively compete in the market (Kumar et al. 2014). The nature of the current market is characterized by ever stiffening competition and ever changing customer expectations and demand, an organization must come up with unique competitive strategies and produce goods and services that continuously meet and exceed these demand and expectations (Salaheldin, 2009). Along with quality, cost, delivery, and flexibility, customer focus is another competitive priority to adapt fitting operation strategies proactively in changing environments, Nair and Boulton (2008). In modern business success it is widely accepted that customer satisfaction is of primary focus, thus companies must always put the customer needs in first place. This has resulted in the exercise of value creation. Therefore, with the concept of value, customer value has become a source of sustainable competitiveness. Therefore, companies have adopted different platforms for value creation, such as; mass production, streamlined supplier networks, value in design, lean Construction/production, six sigma and, total quality management (TQM). One of the management approaches that can be used to achieve continuous quality improvement is Total Quality Management (TQM). It is the coordination of efforts directed at improving customer satisfaction, increasing employee participation, strengthening supplier partnerships, and facilitating an organizational atmosphere of continuous quality improvement (Pride, Hughes, and Kapoor 2009, 181). The American National Standards Institute (ANSI) and the American Society for Quality (ASQ) defines quality as “the totality of features and characteristics of a product or service that bears on its ability to satisfy given needs”. Different authors have defined quality in different ways. For instance Crosby defined it as “Conformance to requirement” Juran views quality as the satisfaction of customer needs i.e. “Fitness for use” of a product, and one of the most popular definitions of quality is meeting or exceeding customer expectations. (Evans & Dean, 2003). According to Arditi & Murat (1997) management commitment to quality and to continuous quality improvement is very important concept in construction industry as professionals are well aware of the importance of quality training.

Most companies are trying to satisfy their customer’s needs and expectations. This can only be achieved through, improvement in product quality, increased customer satisfaction, and continues improvement towards world class organizations. These challenges urged companies around the globe to change their old traditional quality systems, and implement new quality approaches to deliver high quality goods and services. Companies that can deliver quality are the ones that will be able to compete on the globalization era (Nkechi Eugenia, 2009).

Quality improvement has become a considerable force throughout the world. Although methods to improve and manage quality are numerous, it can be said that TQM has become one of the most successful practices in helping companies enhance competitiveness and prosperity through ensuring sustainable growth, Osayawe and McAndrew, (2005). In another dimension, although there is strong relationship between TQM and market orientation in the perspective of customer satisfaction, TQM is found to have a strong and positive impact on organizational performance, Mehmet and Lenny (2006).

TQM is a critical determinant in the success of manufacturing organizations. In most highly industrialized countries of the world, The United States, Japan, and the European Union, the implementation of total quality management has become a common practice and a preferred approach for improving quality (Krasachol, Willey, & Tannock, 1998). In more recently industrialized countries, such as Libya, many

concepts of TQM have only recently emerged in a regularized, coherent form (Hokoma, Khan, & Hussain, 2010). Since 1970 Japanese industries possessed competitiveness advantages and quickly entered into western markets due to the realization of CWQC. The development of TQM can be traced to several people including Deming, Juran, and Crosby (Yang, 2009). The concept of total quality management as a holistic approach to managing a project that includes continuous improvement, customer's satisfaction, and top management support, defect-free product at first attempt, and elimination of reworks, cost effectiveness training and re-training of staff. Total quality management consists of all activities that managers perform to improve their quality and policy such as quality planning, quality control, quality assurance and quality improvement. It is a process of getting rid of poor quality from production rather than getting rid of poor quality products (Harris & McCaffer, 2002).

The total quality management concepts which have been developed to improve quality and the control of quality in manufacturing and process engineering are broadly applicable, Arditi & Murat (1997). This includes construction where the concepts are being slowly adopted, as these concepts are recognized by the construction industry. The dynamic global business market, however, is distinguished by the rapid growth in the construction industry sector; globalization consequences and various world trade agreements have created a revolution in the business environment. To a great extent, the growth of a country and its development status is generally determined by the quality of its construction companies and their capability (Rizwan et. al 2008). In today's world, quality is considered a global phenomenon for organizations seeking customer satisfaction and high output quality worldwide to gain competitive advantage, continuity, and stability which will enable those companies to compete locally and globally within the rapid changes of environmental variables. Due to the appearance of the global market and globalization, client demands have increased for high quality products and services which are reflected by increasing competition to the highest level, and the need for high quality has become a strategic element to gain competitive advantage. In developing a total quality culture in construction, one important step is to develop a construction team of a main contractor, subcontractors and suppliers who would commit to the quality process and develop a true quality attitude (Kasongo & Moono, 2010). Therefore, firms have adopted various managerial approaches to cope with any current or future challenges and some organizations have adopted TQM as one of the managerial and organizational methods to achieve long term profitability, sustainability and competitiveness, Bani Ismail, Loiy (2012).

The process of Quality management can be viewed from Quality Inspection, to Quality Control, to Quality Assurance then to the current Total Quality Management (Dahlgard J., Kristensen K. & Kai. Gopal K., 1992). Globally, a number of organizations have adopted quality initiatives. Toyota company for instance developed the philosophies of 'customer first' and 'quality first'. They set up quality assurance systems across various divisions and departments (Omware, 2013). They introduced statistical quality control (SQC) in 1949 followed by Total Quality Management (TQM) initiatives based on the unchanging principles of 'customer first' and 'total participation'. Through their quality initiatives, they won the Deming Application Prize in 1965 and the Japan Quality Medal Award in 1970 (union of Japanese Scientists and Engineers, 2006).

TQM implementation in the construction industry gained government attention in different countries such as the United Kingdom and the USA. The Latham report, (1994), Egan report (1998) and the Associated General Contractors of America report (1993) were published to help construction companies to implement TQM and tackle controversial issues facing the industry. The previously mentioned government reports emphasized the attitudes of quality in a company as demonstrated by partnering, team building and employee empowerment. However, although this has been a good start, there are still barriers to the

successful implementation of TQM in the construction industry. Construction companies are adopting TQM to improve their performance but they still lag behind other industries with the implementation of TQM, and one of the main reasons behind that is their inability to determine customer requirements accurately and transform this knowledge into a complete facility, Anslinger and Jenk (2004).

Rwanda has registered high achievements in all sectors of the economy since 1994. The construction industry as a distinct sector, which makes a significant contribution to Rwanda's GDP, serves as a central delivery mechanism in the generation and quality of all economic and social development activities in Rwanda. In recognition of this role the Government has committed to pursue policies that encourage and facilitate the growth of the sector. Report by Rwanda Bureau of standard 2011 shows that most organizations in Rwanda, especially the ones in service industry have in the recent past adopted quality programs. Most public companies have for instance adopted the ISO standards e.g. Bralirwa and Intersec security among others (RDB 2012).

## **2. Statement of the problem**

For many years, Total Quality Management Implementation has been a topic of debate. The construction industry is being viewed as one with poor quality emphasis compared to other sectors like the manufacturing and service sectors (Kubal, Wong & Fung, 2009). Many criticisms have been directed to the construction industry for generally shoddy workmanship. It is not only the final product that is subject to criticisms but among others include the processes, the peoples, the materials are under tremendous pressure for better quality in construction.

The issue of quality has become of great importance especially with the ever growing concerns and demands from various players in the market. These demands arise due to the increased number of reported quality issues like the frequent collapse of structures leads to injuries and deaths. In Rwanda for instance, a number of buildings have been reported to have collapsed due to quality issues, a building collapsed in Nyagatare District Eastern Province in 2013, killing six people and injuring 30 others. Report by RHA 2013, indicates that most of the buildings collapse due to poor supervision, poor construction procedures and poor inspection. A multistorey block at the University Of Rwanda College Of Science and Technology, formerly the Kigali Institute of Science and Technology (KIST), is out of bounds after it developed cracks in what appears to be a structural failure, (*New times May 25, 2014*). To respond to these failures, most organizations have resorted to adopt and implement operations management strategies that have been seen to work elsewhere in as much as quality management is concerned. However, this has not been successful (Salaheldin, 2008). Following the challenges to the construction industry raised above, the Rwanda Housing Authorities recommended to construction companies to adopt and implement TQM.

In addition, due to the importance of the construction industry in the Rwandan economy and the highly competitive environment in the construction sector in Rwanda, firms are required to adopt the TQM approach to compete locally and globally by improving their quality system to facilitate and increase their market share and client retention. Thus, the construction sector has to be developed in different areas starting by adopting a formal quality approach, having a clear understanding of the TQM approach and key business processes, employee training and observation, and performance measurements. The adoption of the TQM approach in the Rwandan market should enhance the project and task quality, increase productivity and profitability, employee and client satisfaction, and augment company reputation by being able to compete globally with high quality standards.

A number of studies that have been done on TQM have identified two focus areas: the factors within TQM and the critical factors for implementation of TQM (Yusof & Aspinwall, 1999). While many studies have looked at these factors, it is important to note that most of these studies have been done in manufacturing and service industry. According to MINFRA, 2009 the number of construction companies in Rwanda has increased. This may lead to competition for the available construction work. Such competition may compromise the quality of services provided. This study aimed at evaluating the factors that influence implementation of TQM in Fair Construction Company and provided recommendation to ensure proper application of TQM tools and techniques.

### **3. Research objectives**

#### **3.1 General Objective**

The main aim of this study was to evaluate the factors that influence implementation of Total Quality Management in Fair Construction Company

#### **3.2 Specific Objectives**

- i. To establish how Top Management Commitment influence implementation of TQM in Construction Companies in Rwanda
- ii. To investigate the extent to which Employee's Training influence implementation of TQM in Construction Companies in Rwanda

#### **4. Research Questions**

- i. How does Top Management commitment influence implementation of Total Quality Management in Construction Companies in Rwanda?
- ii. To what extent does employees Training influence Implementation of Total Quality Management in Construction Companies in Rwanda?

#### **5. Research Design**

This study adopted descriptive research design. A descriptive study is a study concerned with describing the characteristics of a particular individual, or of a group (Kothari, 2004). The study sought to establish the factors that influence Implementation of TQM. It will adopt a case study survey. A case study involves careful and complete observation and analysis of a unit in its relationship to any other unit in the group (Kothari, 2004). A survey design is associated with a guided and quick collection, analysis and interpretation of observation (Mugenda and Mugenda, 1999).

#### **6. Target population**

The target population of this study comprised of employees of Fair Construction Company as well as selected residents of Kigali province. The study only included resident who had used Fair Construction Company for house construction or any other structure.

#### **7. Sample size and sampling procedure**

A sample size of 86 respondents was determined from a total population of 110 individuals using the formula by Yamane (1967). Stratified random sampling technique was used to select the employees while purposive sampling technique was used to select the end users. Stratified random sampling technique ensure that different groups of a population are adequately represented in the sample. Stratified sampling divides

the population into homogeneous groups such that the elements within each group are more alike than the elements in the population as a whole (Nachimas and Nachimas 2008). Purposive sampling technique will be used in selecting the end user whose houses or other structures were constructed by Fair Construction Company.

$$n = \frac{N}{1 + N (e)^2}$$

Where n = the desired sample size

e= probability of error (i.e., the desired precision, e.g., 0.05 for 95% confidence level)

N=the estimate of the population size.

$$n = \frac{110}{1 + 110 (0.05)^2} = 86$$

## 8. Data collection

### 8.1 Data collection instrument

Primary data was collected regarding factors affecting implementation of TQM. The respondents for this study were selected employees from various functional areas in the company. Data was collected using structured questionnaires which were self-administered. Questionnaires were preferred because of the simplicity in their administration and low cost associated.

### 8.2 Pilot testing of the instrument

A preliminary test was done on the data collection tools and procedures to identify likely problems. This test was conducted at Clear industry in Nyamata, whereby twenty questionnaires were administered to the employees in the respective departments. The filled questionnaires were later checked for consistency.

### 8.3 Reliability of instrument

Reliability is the extent to which results of a study are consistent over time and there is an accurate representation of the total population under study (Golafshani, 2003). Reliability analysis aims at finding out the extent to which a measurement procedure will produce the same result if the process is repeated over and over again under the same conditions (Toke et al., 2012). Cronbach alpha coefficient was computed using SPSS to generate the value indicated in table 3.1 below. The Cronbach alpha coefficient value was compared with the threshold of 0.7 to ensure there is reliability. Cronbach's coefficient value above 0.6 shows that the measurement procedure is reliable (Toke et al., 2012).

Table 1: Reliability Statistics

Cronbach's Alpha	N
0.843	39

## 8.4 Data collection procedures

Primary data was collected using structured questionnaires. The questionnaire were self- administered by the researcher to all levels of staff. The researcher then picked the questionnaires after the respondents have filled them. According to Nachmias and Nachmias (2008), Questionnaires are simpler in administration, scoring of items and analysis.

## 9. RESEARCH FINDINGS AND DISCUSSION

### 9.1 Demographic Information

Demographic information of the respondents was based on gender, position held by the respondents and the department where they work.

Table 2: Demographic characteristics

	N	%
<b>Gender</b>		
Male	57	71
Female	23	29
Total	80	100
<b>Functional Areas</b>		
Finance & Administration	4	5
Marketing	10	13
Project Management	48	60
Quality Assurance	12	15
Training & Welfare	6	7
Total	80	100
<b>Position Held</b>		
Management	20	25
Non-Management	60	75
Total	80	100

From table 2 above male participants constituted 71% while female were the minority 29%. The percentages of respondents from finance and administration, projects managements, Quality assurance and training and welfare were 5%, 13%, 60%, 15% and 7% respectively. Respondents from the management were 25% while those from non-management position were 75%.

## 9.2 Effect of Top Management Commitment on implementation of TQM

Table 3: Analysis of Top Management Commitment

Statements	Rating				
	1	2	3	4	5
<b>Top Management Commitment</b>					
Top management of your organization is committed to quality in the organization			2 (0.03%)	50 (63%)	28 (35%)
Top management of your organization provides a leadership role in quality management initiatives.	5 (6%)			75 (94%)	
Critical resources required in implementing quality initiatives are made always made available.	10 (13%)			50 (63%)	20 (24%)
Employee's ideas on ways to improve quality in the organization are welcomed by the top management.	40 (50%)			40 (50%)	
Top management of your organization participates in all quality management programs in the organization.	5 (6%)	10 (13%)		45 (56%)	20 (24%)
Top management of your organization takes part at all stages and levels in the quality management programs	2 (2%)			50 (63%)	28 (35%)
Your organization has an organizational quality mission and Policies				75 (94%)	5 (6%)
Your organization has a formal quality management structure	10 (13%)			50 (63%)	20 (24%)
Your organization practices a proper quality planning	10 (13%)			70 (87%)	

From the table 3 above 63% of the respondents agreed with the statement that the top management was committed to quality while 35% strongly agreed 0.03% however were not sure. 94% of the respondents agreed that top management provided a leadership role in quality management initiatives while 6% disagreed. While 63% agreed that critical resources required in implementing quality initiatives were always made available, 24% strongly agreed and 13% were not sure. As regarding welcoming employee's ideas on ways to improve quality in the organization 50% of the respondents agreed while 50% disagreed. On whether top management of the organization participated in all quality management programs in the organization, 56% agreed, 24% strongly agreed, 6% disagreed while 10% were not sure. As to whether Top management of the organization takes part at all stages and levels in the quality management programs 63% agreed, 35% while 2% disagreed. As to whether the organization has an organizational quality mission and Policies, 75% agreed while 5% strongly agreed. Regarding formal quality management structure 24% strongly agreed that the organization had formal quality management structure, 63% agreed while 13% disagreed. Regarding practicing proper quality planning 87% agreed that their organization practices a proper quality planning while 13% disagreed.

## 9.4 Employees Training

Table 1: Employee's training

<b>Trained</b>	<b>n</b>	<b>Percentage</b>
Yes	65	81
No	15	19
<b>Total</b>	<b>80</b>	<b>100</b>

From the table 4 above respondents who had training on quality management were 65% while 15% were not trained.

## 9.5 Organizational Culture

Table 2: Responses on organizational culture

<b>Group Culture</b>	<b>Rating</b>				
	1	2	3	4	5
Your organization has a flexible organizational culture.		20%		30%	50%
There is cohesion among employees in your organizations				80%	20%
Employees are empowered in your organization		50%		40%	10%
Employees are encouraged to participate in decision making in your organization		60%		40%	
<b>Developmental Culture</b>					
There is in place an organizational culture that is flexible to internal changes in your organization.		40%		40%	20%
Your organization has an organizational culture that accommodates external changes.		50%		50%	

50% of the respondent strongly agreed that their organization had a flexible organizational culture, 30 agreed while 20 disagreed. Regarding cohesion among employees in the organizations 80% of the respondents agreed while 20% strongly agreed with the statement. As whether employees are empowered in the organization 50% disagreed, 40% agreed while 10% strongly agreed. 60% of the respondents disagreed that employees were encouraged to participate in decision making in the organization while 40% agreed with the statement. As regarding the presence of an organizational culture that is flexible to internal changes in your organization 40% of the respondents disagreed, 40 % agreed while 20 % strongly agreed. Regarding the presence of organizational culture that accommodates external changes 50% disagreed while 50% agreed with the statement.

## 9.6 Communication

Table 3: Responses on Communication

Statements	Rating				
	1	2	3	4	5
<b>Internal Communication</b>					
There are well developed internal Communication system in your organization		20%		67%	13%
There is free flow of quality management information between departments in yours organization		34%		60%	6%
There is free flow of quality management information from management to employees in your organization				80%	20%
There is free flow of quality management information from employees to management in your organization				56%	44%
There is free flow of quality management information between employees in your organization		67%		13%	10%
There if a well-developed feedback mechanism in your Organization				78%	22%
<b>External Communication</b>					
Your organization has well developed external communication system.		20%		58%	22%
Your organization gets timely information about customer quality needs		7%		50%	43%
Your organization gets customer complaints in time.		57%		23%	20%
Your organization gives timely response to customer quality Complaints		68%		28%	4%

67% of the respondents agreed that there are well developed internal Communication system in the organization, 13% strongly agreed while 20 % disagreed. 60% of the respondents agreed that there is free flow of quality management information between departments while organization, 6% strongly agreed while 34 disagreed. Regarding presence of free flow of quality management information from management to employees in the organization 80% agreed while 20% strongly agreed. 56% of the respondents agreed that there is free flow of quality management information from employees to management in the organization while 44% strongly agreed. As to whether there is free flow of quality management information between employees in the organization 67% disagreed, 13% agreed while 10% strongly agreed. Regarding the presence of a well-developed feedback mechanism in the Organization 78% agreed while 22% strongly agreed. As to whether there is a well-developed external communication system 20% disagreed, 58 % agreed while 22% strongly agreed. 50% respondents agreed that the organization gets timely information about customer quality needs, 43% strongly agreed while 7% disagreed. 57% respondents disagreed that the organization gets customer complaints in time, 23% agreed while 20% strongly agreed. Regarding giving timely response to customer quality 68% Of the respondents disagreed, 28% agreed while 4% strongly agreed that the organization gives timely response to customer quality complaints.

### 9.7 Response of the end users

Table 4: Response of the end users

	<b>Statement</b>	<b>SD</b>	<b>D</b>	<b>NS</b>	<b>A</b>	<b>SA</b>
1	The management of Fair Construction Company is committed to quality services				14(%)	86(%)
2	Fair Construction Company strives to meet and exceed customer needs and expectations				78(%)	22(%)
3	Fair Construction Company maintains close link with customers	20(%)			65(%)	15(%)
4	Fair Construction Company continuously monitor their processes identify faults ensures such faults do not occur in the future	56(%)	26(%)	18(%)		
5	Fair Construction Company always communicate to the customers in time during delivery of materials and in case there is any eventuality				86(%)	14(%)
6	Materials used for construction match with the amount of money the customer paid			2(%)	25(%)	73(%)
7	The constructors finish the construction within the agreed period			6(%)	59(%)	35(%)
8	Fair Construction Company utilize the construction materials without wastage				73(%)	27(%)
9	Fair Construction Company employees are well trained	36(%)			59(%)	5(%)
10	Fair Construction Company employees safety is observed	20(%)			75(%)	5(%)
11	Houses constructed by Fair construction Company has a long life span				14(%)	86(%)
12	I am satisfied with the quality of work done by Fair Construction Company				78(%)	22(%)
13	Fair Construction Company responds to questions or concern of the customer				59(%)	41(%)
14	Fair Construction Company service representative adhere to professional standards of conduct				67(%)	33(%)
15	Fair Construction Company is client centered				20(%)	80(%)

*SD=strongly Disagree*

*D=Disagree*

*NS=Not sure*

*A=Agree*

*SA= Strongly Agree*

According to the Table 7, 14% of the respondents agreed that management of Fair Construction Company is committed to quality services while 86 % strongly agreed. 78% agreed that Fair Construction Company strives to meet and exceed customer needs and expectations while 22 % strongly agreed. On maintains close link with customers 20 % disagreed that Fair Construction Company maintains close link with customers 65% agreed while 15% strongly agreed. Similarly, 56% of the respondents were not sure whether Fair Construction Company continuously monitor their processes identify faults ensures such faults do not occur in the future, 26 % agreed while 18% strongly agreed.

Majority of the respondents 86% agreed that Fair Construction Company always communicate to the customers in time during delivery of materials and in case there is any eventuality while 14% strongly agreed. 73% of the respondents strongly agreed that materials used for construction match with the amount of money the customer paid 25% agreed while 2% were not sure.

On finish the construction within the agreed period, 59% agreed, 35% strongly agreed while 6 % were not sure. 73% of the respondent agreed that the company utilize the construction materials without wastage while 23% strongly agreed. 59% of the respondent agreed that employees are well trained 5% strongly agreed while 36% disagreed. 75% of the respondent agreed that employees safety is observed 5% strongly agreed while 20%. On longevity of the houses constructed by Fair construction Company, 86% of the respondents strongly agreed that the house has a long life span while 14% just agreed. 78% of the respondents asserted that they were satisfied with the quality of work done by Fair Construction Company while 22% strongly agreed. 59% agreed that Fair Construction Company responds to questions or concern of the customer while 41% strongly agree. Regarding adherence to professional standards of conduct 67% agreed that Fair Construction Company service representative adhere to professional standards of conduct while 33% strongly agreed. 80% of the respondents agreed that Fair Construction

## **10. Conclusions And Recommendations**

### **10.1 Conclusions**

The aim of this study was to determine the factors influencing implementation of TQM and their influence in implementation of TQM. The study was based on four objectives:

The first objective was to establish how Top Management Commitment influences implementation of TQM in Construction Companies in Rwanda. The study concluded that top management commitment is a critical factor in implementation of TQM. It was further concluded that top management commitment has a positive influence on implementation of TQM. This means that with increased top management commitment, the implementation of TQM is likely to be more successful.

The second objective of the study was to investigate the extent to which Employee's Training influence implementation of TQM in Construction Companies in Rwanda. The study concluded that an employee training is a critical factor in implementation of TQM. The study further concluded that employee training has positive influence on implementation of TQM. This means that employee training can be used to enhance implementation process of TQM.

## **10.2 Recommendations**

From the study, it was evident that top management commitment is a critical factor in implementation of TQM. This study therefore recommends that construction companies as well as other organizations who are implementing TQM take strategic measures in ensuring top management participation and commitment to quality initiatives. This study further recommends that top managements commit themselves in providing leadership and key resources needed in quality management.

In addition organizations train their employees on quality management initiatives. It is also recommended that these trainings are conducted frequently and at all levels in the organization. Organizations should also develop group, hierarchical, developmental and rational culture so as to enhance total quality management.

The study also recommends that quality managers and management develop appropriate, effective and flexible communication systems that allow free flow of quality information at all levels in the organization. Further studies may be done to explore the relationship between these factors and organizational performance and customer satisfaction and other variables.

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