KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,

KUMASI, GHANA

A Study into the Effect of Total Quality Management Practices on Customer Satisfaction by a Consortium - A Case Study of ABP Consult

By

Pela Arku

(BSc. Quantity Surveying and Construction Economics)

A Thesis submitted to the Department of Building Technology, College of Art and Built Environment in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

NOVEMBER, 2016

DECLARATION

I hereby declare that this submission is my own work towards the MSc Procurement Management and that, to the best of my knowledge, it contains no material previously published by another person, nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

PELA ARKU (PG3583815)

(Student)

……

(Signature)

……

(Date)

Certified by:

Prof. Edward Badu**(Supervisor)**

……

(Signature)

……

(Date)

Certified by:

Dr. Theophilus Adjei - Kumi**(Head of Department)**

……

(Signature)

……

(Date)

ABSTRACT

The study investigated the relationship between total quality management (TQM) and customer service in the construction industry. The study sought to identify ways of incorporating of TQM in consortium practices, identify ways of incorporating customer service considerations in the Ghanaian construction sector, then find out the relationship between TQM and customer satisfaction in the Ghanaian construction sector and the challenges involved in the incorporation of TQM and customer service in consortium. The study was adopted as a quantitative approach using ABP Consult as the case study. The study selected 52 out of the 107 workers for the purposes of data gathering. Data gathered were analysed using mean, frequency, percentages and regression. The analysis of data in the study revealed that the consortium has incorporated TQM into their operations but have not adopted any specific TQM method. This means these organizations incorporate the aspects of International Standard Organization (ISO) model, the University of Manchester Institute of Science and Technology (UMIST) Model and the Malcolm Baldrige National Quality Award (MBNQA) Model since some respondents‟ identified these models to reign some aspects of their operations. The incorporation has improved the efficiency of employees as well as assisted in aligning company‟s goals with individual goals. A regression and a correlation analysis confirmed a positive relationship between TQM and customer satisfaction. It was further found that consortium face challenges in incorporating TQM construction work, incorporating customer service in construction work and finally in incorporating TQM in customer service offering of consortia. Some of the specific challenges faced included lack of management co-operation, lack of employee buy-in and shorter timeframe within which to implement the TQM propositions. The study, in the light of the findings made, recommended the sustenance of an eclectic application of TQM among consortia. Also, consulting need firms to have indicators or indices for measuring their TQM performance in order to assess if its incorporation has been successful or not and the specific application of TQM principles need to be monitored on a constant basis.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACKNOWLEDGEMENT

All thanks go to the Almighty God for strength and grace to go through the course and the completion of this thesis.

I remain grateful to my supervisor, Prof. Edward Badu for his prompt response to my write-ups and criticisms which made this thesis a good one.

I wish to thank the staff of ABP Consult, for providing me with all the necessary information to complete this work.

My profound gratitude also goes to my families who have served as a backbone to me and encouraging me with sound words to keeping me strong for the successful completion of this dissertation. And to all my lovely friends, I say God bless you.

LIST OF ABBREVIATIONS/ACRONYMS

MNCs	-	Multinational Corporation
MBNQA	-	Malcolm Baldrige National Quality Award
NGO	-	Non-Governmental Organization
TQM	-	Total Quality Management
SME	-	Small and Medium Enterprise
SERVQUAL	-	Service Quality
SERVPERF	-	Service Preference
CRM	-	Customer Relationship Management

DEDICATION

This work is dedicated to my lovely wife and family and all my friends

CHAPTER ONE

GENERAL INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Incorporating Total Quality Management (TQM) in today‟s business environment has become indispensable and in a sense, a sine qua non due to the ever increasing and ever changing tastes, preferences and expectations of customers who rightly see service quality as a right owed them by businesses whose products or services they patronize (Ogbari & Borishade, 2015).Kärnä, *et al*. (2009) confirmed that competition in the construction industry has made the pursuit of customer satisfaction critically important to the survival of any the company engaged in that sector.

In a study carried out in Finland, Kärnä, *et al*. (2009) assessed customer satisfaction in the Finnish construction industry using main themes that measures contractor‟s performance in contract execution. The five areas of measurement in the study were cooperation, quality assurance/handover, personnel, environment/safety at work, site supervision and subcontracting. The study concluded that while customers were typically satisfied with the contractor‟s abilities to co-operate and the skills of contractor‟s workers/supervisors, they were dissatisfied with issues relating to quality assurance and handover procedures and material. Importantly, the study found that the levels of dissatisfaction among customers‟ filters into later phases of the construction project which seriously threaten the viability of the project undertaken. As such, investigating customer satisfaction in the construction industry is germane, especially in the Ghanaian context where there is extant literature that empirically links the two concepts.

In order to expand any service organization there is a need to understand the levels of customer satisfaction. This can only be achieved through quality service delivery where

customers including potential ones are retained and attracted respectively (Obeng Omari, 2015).All service industries are required to provide quality customer satisfaction to meet their customers‟ expectations. However, industries such as building and construction with multi- activities require high attention on the customers so as to meet their quality demands (Karna, 2009). Karna (2004), citing Anderson and Sullivan (1993) and Jones and Sasser (1995), argued that companies that want to consciously improve their service quality regards customer satisfaction as very critical in this undertaking. Customer service and customer satisfaction has therefore become one of the fastest and easiest means to carve a competitive in the marketplace. Customer satisfaction is usually regarded as a measurement tool or a goal in the development of construction quality. Customer satisfaction improves customer loyalty and retention and ultimately, profitability and competitiveness. Invariably, the concept becomes an effective means to securing long term financial performance and customer loyalty among construction companies as well as generating superior long-term financial performance. In addition, improved customer service leads to the strengthening of the relationship between a customer and its customer which creates a deep sense of collaboration that culminate in profits.

Raja, *et al*. (2011) posits that Total Quality Management (TQM) as a collection of principles, techniques, processes, and best practices that have been proven effective from many years. They continue that there is a growing recognition in the manufacturing sector that isolated improvements in particular aspects of business are no longer adequate and that a holistic strategy is needed to bring competitive advantage in the market place and this can only be achieved by adaptation of total quality management which is not just concerned with services and process development and customer delivery but also with the relationship with suppliers, customers, commercial and managerial processes and the contribution of all employees no matter where ever they work in the organization.” Total

Quality Management is a vital management tool that cannot be left out where customer satisfaction, organizational growth and development are the key element for survival.

1.2 PROBLEM STATEMENT

The ability of a firm to create value for its customers is a prerequisite condition for achieving sustainable profitability which makes customer satisfaction, the most important issue affecting organizational survival. Karna (2009) noted that construction is a specific type of project industry that has its own unique features concerning production. However, due to its complex nature, construction has had challenges producing quality in a customer-oriented manner. In the construction industry, however, customer orientation has generally lagged behind, leading some of its customers to get unsatisfied. This is merely due to the fact that the industry has lagged behind in implementing a service-oriented culture.

A lot of business firms operate in a state of ignorant bliss because they have no clue what their customers really think, believing that they would hear about it if their customers were anything less than 100% satisfied. Business firms become surprised when the customer base erodes and their existence is threatened. Byrnes (2005) states that customer service is not only measured by the customer experience but it is also based on what the customer recalls about the experience and how that perception drives his or her future behaviour. It is undeniable that customer service is directly linked to the profit, cost savings and increasing market share. Improved customer quality helps to rationalize cost because construction firms have less customer service failures to correct, fewer complaints and customer dissatisfaction to handle.

A recent visit by the researcher, who is a customer to one of the construction consultancy firm made him to realize the dissatisfaction expressed by some customers about the attitude

of some of the staff in the firm. This can result in the dissatisfaction of customers and hence a problematic environment for the staff of the firm. The researcher believes that the conception of value for customers is an indispensable condition for accomplishing sustainable profitability. He therefore decided to find out whether the kind of customer service provided by a consortium, has any effect on customer satisfaction and whether there are any challenges that obstruct quality customer delivery.

1.3 AIM

The aim of the study was to assess the effect of total quality management on customer satisfaction by a consortium.

1.4 OBJECTIVES

In achieving the above stated aim, the following objectives were advanced:

- To identify ways of incorporating TQM in consortium practices;
- To identify ways of incorporating customer service considerations in the Ghanaian construction sector;
- To find out the relationship between TQM and customer satisfaction in the Ghanaian construction sector; and
- Identify the challenges involved in the incorporation of TQM and customer service in consortium.

1.5 RESEARCH QUESTIONS

The study answered the following research questions:

- How is TQM incorporated in the Ghanaian construction sector?
- How is customer service considerations incorporated in the Ghanaian construction sector?

- What are the challenges involved in incorporating TQM and customer service in consortium?

1.6 RESEARCH HYPOTHESIS

The study will test the following hypothesis:

H_O: There is a significant relationship between TQM and customer satisfaction in the Ghanaian construction sector

H_A: There is no significant relationship between TQM and customer satisfaction in consortium.

1.7 JUSTIFICATION OF STUDY

Policy makers, educational institutions, consultancy firms and other researchers will gain a lot from this research work which will help them to make effective informed decisions when it comes to customer satisfaction. The recommendation after this research work will serve as a source of information regarding customer satisfaction as well as the strategies to improve customer satisfaction to the consortium and other construction consultancy firms.

1.8 RESEARCH METHODOLOGY

Various techniques will be used to get the right information. Self-administered open and close ended questionnaires will be used as the instrument for collecting data Observation will be used as another technique to clarify data collected through questionnaires. With the use of frequency tables and percentages, the data collected will be analyzed and discussion of results will be made in relation to the research questions.

1.9 SCOPE OF THE STUDY

The study will consist of staff of the consortium. Due to change in customer taste preferences in recent times, the study will cover employees as well as customers of the firm. The employees are always in contact with the customers and the difficulties they face in delivering their service.

1.10 ORGANIZATION OF THE STUDY

The study will be grouped into five chapters. Chapter one will introduce the study by discussing the background of the study, the statement of problem, objectives of the study, research questions, the scope of the study, significance of study, a brief summary of the method used, limitation and organization of the study.

Chapter two include discussion of literature related to the study. Chapter three is description of the methods used in collecting the data, the research design, the population and the sample size. Chapter four is a presentation on analysis of the data collected and the interpretation of the results from the analysis. Chapter five is the concluding chapter. This chapter is a discussion of the results/findings, conclusions and recommendations

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

Quality is critical to success in today‟s competitive business environment. Oakland (1989) put this more forcefully when he argued that after the Industrial Revolution in the 19th century, the world is currently in the midst of a quality revolution. Several manufacturing and lately, service industries are now focusing on achieving quality in their manufacturing or service delivery process to create the right competitive advantage that

ensures their company becomes profitability and remain significant in global commerce. Naturally, this leads to a hunt for some philosophy or principles whose application will help companies offer quality products or service at reduced prices. The pursuit of these objectives has given prominence to the concept of Total Quality Management (TQM) which has largely been touted as an effective means of achieving consistent quality and enabling consumers/customers get value for money as far as their purchase of products or service is concerned. This section of the study therefore reviews several theoretical and empirical literature on the subject of TQM, starting with an understanding of the concept and dovetailing this to how it applies to the particular case of construction.

2.2 CONCEPT OF TQM

The 1980‟s saw an era of intense competition for the America auto industry. The Japanese were flooding America with fuel efficient cars at a cheaper rate. A response was urgently needed. The American found an apt response in the concept of TQM. Prajogo (2005) is therefore of the view that the philosophy and practice of TQM was introduced in the United States of America (USA) in the 1980‟s primarily in response to severe competitive challenge from Japanese companies. Raja, *et al*. (2011) is however convinced that the concept has its practical roots in the 1920‟s but was theoretically refined in the 1980s. This observation led Raja *et al.* to term TQM as one of the durable and popular and durable management concepts.

The introduction of TQM initially targeted the manufacturing industries, hence giving very little consideration to the other sectors, particularly the services sector. According to Khamalah and Lingaraj (2007) this was a result of the dominance of engineering and operation researchers in the operationalization of the concept. Understanding the roots of

TQM therefore entails the understanding of its manufacturing roots and its subsequent branch out into other sectors of business. In fact, the literature on TQM in the manufacturing sector is quite encompassing and encyclopedic while literature on the sectors of its application is relatively extant (Talib, 2012)

Raja, *et al*. (2011) noted that the roots of TQM can be traced to the teachings of Drucker, Deming, Juran, Crosby, Ishikawa, Feigenbaum whose academic contributions were coagulated to into the concept of TQM. These are accordingly regarded the fathers of TQM, in addition to countless other people that have studied, refined and practiced the process for both academic exercise and practical organizational management.

In terms of definition, Raja, *et al*. (2011) regards it as a collection of processes, techniques, principles and best practices that over proven to be effective in helping an organization decrease cost, increase performance and satisfy its customers better. Similarly, Sadikoglu and Olcay (2014) have regarded the concept as firm-wide management philosophy that seeks to continuously improve the quality of service, products or processes through a focus on customers‟ needs and expectations with the overall intent of enhancing firm performance and customer satisfaction. This goes to show that customers need and expectations are the major drivers of customer satisfaction and this is done with the broader view of ensuring these customers are satisfied while the company‟s overall performance is also improved. Perhaps the definition that captures the concept is all its shades is the one offered by the International Standard Organization ISO 8402. The organization defines TQM as a “management approach of an organization, centered on quality, based on the participation of all its members and aiming at long-term success through customer

satisfaction, and benefits to all members of the organization and to society" (cited by Ljungstrom and Klefsjo, 2002).

Raja, *et al*. (2011) and Sadikoglu and Olcay‟s (2014) definition of TQM is a collection of firm-wide management principle that entails a thorough application of processes and best practices to decrease cost, increase performance and satisfy its customers emanate from the fact that today‟s businesses environment hardly benefits from isolated improvements in particular aspects of a firms‟ operations. A holistic strategy is regarded more effective in giving the firm a competitive advantage which is better developed through the application of TQM. Essentially, TQM works because it does not only cover services targeted at customers but a firms‟ holistic relationship with other stakeholders, including, suppliers, all employees (from the factory floor worker to the chief executive officer), the community as well as commercial and managerial processes that are needed to churn out the company‟s products or services.

Historically, TQM took off when Deming (1986) created his 14 points that is supposed to help firms improve productivity and growth. His propositions become known as Deming‟s point for management (See Table 2.1 below). These 14 points become the bedrock for TQM. Crosby (1984) later contributed the concepts zero defects, system of prevention, do it right at the first time and the measurement of quality (cited in Ogbari &Borishade, 2015). Juran (1986) contributed to the growth of TQM by arguing that its practice should involve the establishment of quality policy, council as well as provide the resources for achieving quality goals and include time frame within which quality goals should be achieved(cited in Ogbari &Borishade, 2015).

Table 2.1: Deming's 14 Points on Management

1	Create constancy of purpose	8	Drive out fear
2	Adopt the new philosophy	9	Eliminate boundaries
3	Cease inspection, require evidence	10	Eliminate the use of slogans
4	Improve the quality of supplies	11	Eliminate numerical standards
5	Continuously improve production	12	Let people be proud of their work
6	Train and educate all employees	13	Encourage self-improvement
7	Supervisors must help people	14	Commit to ever-improving quality

Source: Temtime and Solomon (2002)

Ishikawa (1985) built on the ideas of Juran and Deming and by so doing, influenced Japanese manufacturers‟ understanding of TQM. He was influential in the introduction of concepts such as the continuous training and quality circle and the introduction of quality tools such as quality chain and fish bone diagram and quality chain (Ogbari & Borishade, 2015). The embracing of the TQM concepts in the EU, USA, Japan and other developed nations led to the concept becoming a buzz word in management circles and practice (Agwu, 2014).

The popularity of TQM is however justified on not just focusing on lower and middle level employers but also on top management leadership commitment to employee empowerment, customer satisfaction and focus (Ugboro and Obeng, 2000). Ogbari and Borishade (2015) confirmed that the practice of TQM should involve the tuning of the organization culture to such an extent that is supports (and in fact defined by) the continuous attainment of customer satisfaction by the employment of integrated system of

training, techniques and tools (See Figure 2.1). The need for continuous improvement has evolved into other schools of thought within the bigger TQM framework. Kartha (2004) and Goldman (2005) noted that TQM encompasses other initiatives such as Six Sigma, Lean Sigma, the Malcolm Baldrige National Quality Award (MBNQA) and the ISO 9000. They however argued that, notwithstanding the different perspectives, the need to improve productivity, enhance customer satisfaction and increase quality is an underlying theme in all the various frameworks.

In addition to the benefit of customer delight and improved productivity, Juran noted that there are other benefits in implementing TQM. These include higher revenue, lowered costs and empowered employees (cited by Ogbari and Borishade, 2015). Ogbari and Borishade further noted that reduction of cost is very central in the adoption of TQM and this can be done through reduced error, reduced rework and the reduction of non-value added work. Once cost of reduced and revenue streams are increased, the firm is on its way to improved performance and significant growth. Nagaprasad and Yogesha (2009) also noted that the implementation of TQM reduces waste and error, increases sales, reduces cost and leads to greater customer satisfaction. Overall, this leads to increased profit for the organization. These have been summarized in Figure 2.1 below.

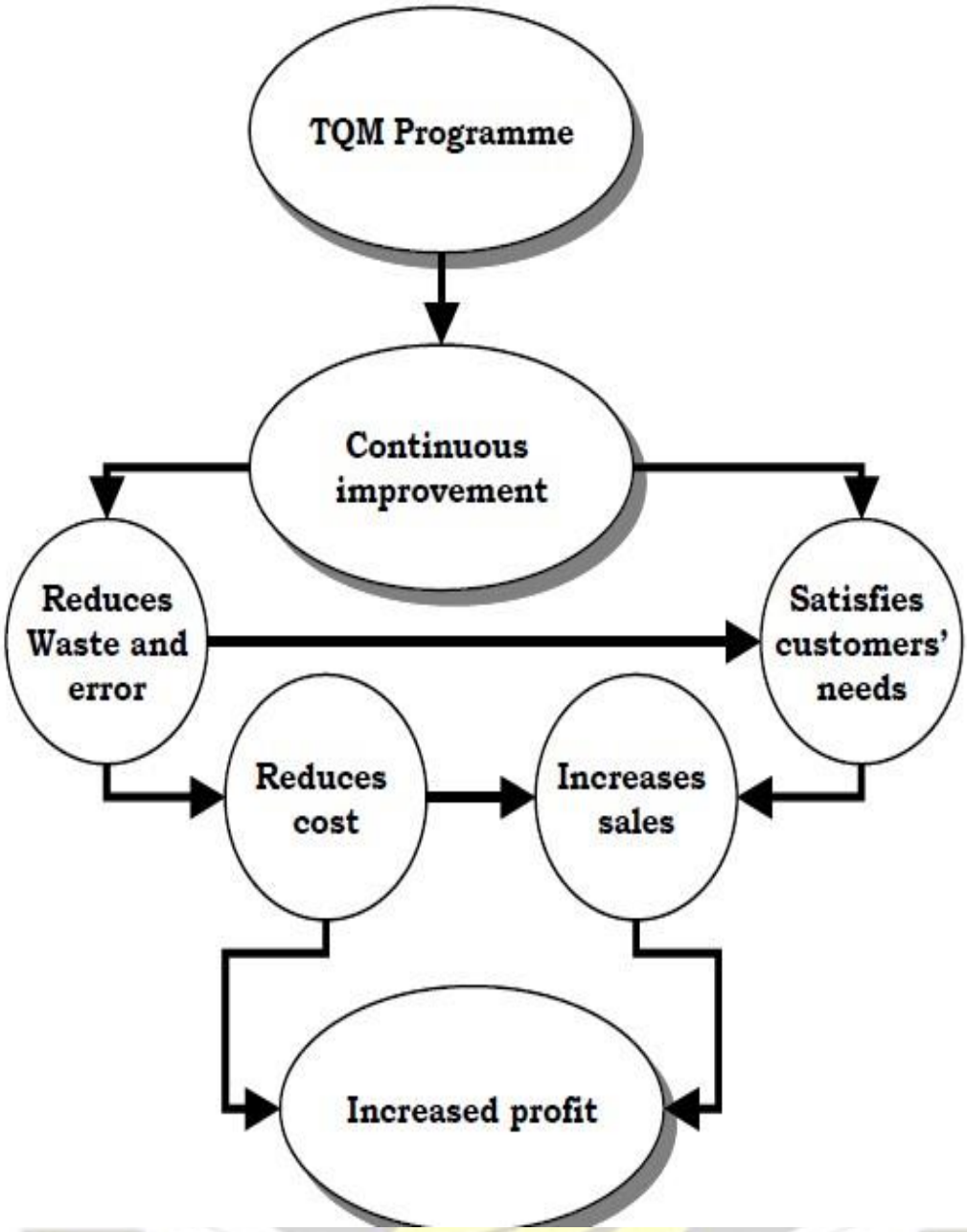


Figure 2.1: How TQM Works

Source: Nagaprasad and Yogesha (2009)

2.3 CONCEPT OF A CONSORTIUM

Currently, consortia have sprung up at both the local and international level. These entities undertake projects springing from construction to manufacturing and provision of services infrastructures to governments and corporate entities. According to Milton (1979), consortium (or consortia) is not an entity by itself but a contractual relationship between

the consortium members. As such, the consortium might take a form that is quite distinct and separate from the individual entity that makes it up.

Consortium is defined as “an agreement, Combination, or group (as of companies) formed to undertake an enterprise beyond the resources of any one member”. Consortium is a form of partnership or collaborative work between two or more organization in undertaking a project or an assignment (Merriam Webster Learners Dictionary, 2016). Consortium could be made up of local or international firms. Milton (1979) has accordingly defined international consortium as an association of two or more business entities of different nationalities temporarily joined together for the performance of a limited task oran ad hoc or ongoing, informal or formal, sometimes 'shell', association of two or more business/governmental/financial entities to profitably pursue, generally on a competitive basis, one or more common commercial activities…

Though the above definitions give a general idea on the concept of consortium, they fall short in definition how the “association" or the “partnership” is formed. Community Matters, a research based non-governmental organization (NGO) sought to fill this gap by itemizing the three main forms or models of consortia. He named these as the lead partner consortium, the supply chain consortium and consortia where a new legal body is established to manage a contract. These have been explained by Community Matters as follows:

- **Lead partner consortium** – This is where organizations come together and name one member as the lead organization, with the others working through this lead institution. However, the consortium can form a joint steering committee made up of all the other members to guide the relationship and especially the execution of

the task for which the consortium is formed. In this case, the consortium, similar to an informal entity, would not have any separate legal status. Rather, members that make up the consortium will have a "consortium agreement" which outlines each member"s legal obligations and right legally. Though the lead consortium manages the contract, each member is assigned roles based on their capacity and area of specialization. The lead consultant also applies for and manages the fund for the other members and distributes these to other members through a sub-contracting arrangement for particular outputs or services delivered. This type of arrangement however requires high degree of trust among the members making up the consortium and risk "institutional baggage" tag. On the positive side, this kind of arrangement is easy to make since it makes use of existing contract management systems and personnel and could be particularly easy to attract funds due to the perceived reputation of the leading organization.

- **Supply chain consortium**–The supply chain consortium is quite similar to the lead-partner consortium in the sense that it entails the coming together of a group of firms with one selected to lead the relationship. However, here, the leadpartner only manages the supply chain and does not deliver actual service. Again, the reputation of the lead-partner may lead to this operation being regarded less risky by sponsors. Also, it frees the lead organization time to focus on quantity and quality of output and further take charge of recording and reporting mechanisms. This arrangement can lead to difficulty in establishing the clear identity for the consortium as well as have issues with trust and integration. In addition, it might take considerable time to develop, which might affect timelines in contract execution.

- **Establishing a new legal body to manage the contractual relationship** In this third arrangement, organizations register the consortium as an independent legal entity and which is formally constituted and registered with the appropriate regulatory bodies. In this case, the independent body will have representation from all the partners who are expected to play specific role in this new entity. This is in fact tantamount to the formation of a new company. Needless to say, this arrangement allows the members to have full control and ownership of the consortium which also makes it easy to brand. This arrangement also carries less institutional baggage and allows the passage of risks to the new entity. The new entity might however be perceived by funders as too risky and might entail considerable cost in setting it up.

Milton (1979) noted that consortia are formed to achieve a number of ends, principal among which is to help the consortium members share the risks on a particular project. Being part of the consortium also help members combine or share technical expertise on very large projects that might exceed their individual capacities to execute. For instance, constructing a petro-chemical or atomic power plant may need expertise beyond the technical capability of any one company. In such situations, companies come together to create a competitive advantage over and above that of their individual expertise.

In addition to technical expertise, the need to collaborate financially also leads companies to form consortium. Individual companies may lack the financial power to executive multimillion dollar projects such as desalinization and power generation which require huge capital outlay. Being part of the consortium in this case help them pull together financial resources to execute such projects which they couldn‟t have done hitherto (Milton, 1979).

Consortia are also formed to achieve political ends. Some countries favour local suppliers or contractors to bid for certain contracts. This has been made part of the government policy, meaning that a foreign company that wants to have break into those sectors have to join the local contractors in a consortium. Being part of the consortium therefore give the foreign members a competitive advantage in any evaluation. Companies also join consortium for tax reasons. This is especially true in countries that practice the value-added tax system where companies get a tax advantage through the formation of a consortium (Milton, 1979).

2.3.1 TQM among Consortium

The philosophy and principles of TQM have received widespread application since it become popular in the 1980s. Every organization, be it a consortium, SME, multinational corporation (MNCs), institutions of higher learning or government agencies would love to reduce error, increases sales, reduce cost, reduce rework and reduce non-value added work and improve customer satisfaction (Ogbari & Borishade, 2015; Nagaprasad & Yogesha, 2009). Interestingly, these are the very excesses or waste TQM is designed to address.

The need to incorporate the TQM benefits into the workings of various corporate arrangements have led to several studies on the applicability of TQM principles to institutions of higher learning, SMEs, large corporations and MNCs. In fact, several empirical studies have even been carried on the application of TQM to government institutions or agencies. Unfortunately, there is almost a dearth of literature on the application of TQM principles consortia, partly as a result of the usually temporal arrangements of these kinds of institutions.

Meanwhile consortia are formed to achieve very critical objectives, amongst which is to share project risks, combine or share technical expertise on very large projects, create a competitive advantage over and above that of their individual expertise, pull together financial resources, help foreign companies break into local corporate environment and gain tax advantages (Milton, 1979) which should make the incorporate of TQM principles a very critical consideration. It must however be pointed out that the scant literature on the application of TQM to consortia both present a limitation and an advantage to the present study. These advantages, coupled with the four business challenges (ie, customers, competition, technology and legislation) are the main factors that encourage SMEs and indeed all other business entities to adopt TQM. It is therefore expected that the adoption of TQM will help businesses overcome these four potent challenges that threaten their very existence.

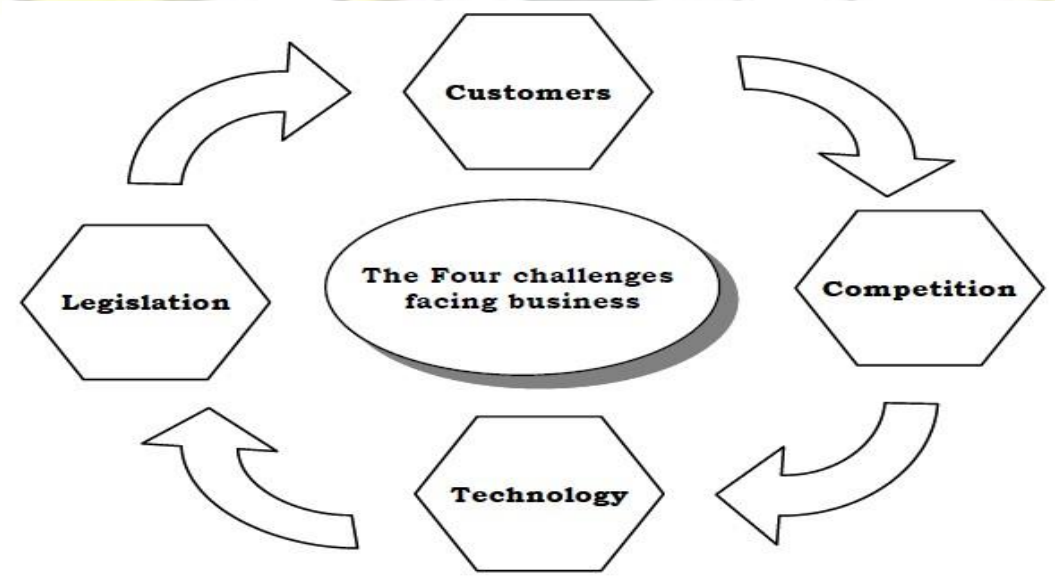


Figure 2.2: The Four Challenges that lead Businesses to Adopt TQM

Source: Nagaprasad and Yogesha (2009)

Meanwhile, as noted by Milton (1979), consortia formation is carried out in three main models (See Section 2.3 on the CONCEPT OF A CONSORTIUM). In the third model,

consortia are formed as legal entities which is formally constituted and registered with the appropriate regulatory bodies with representation from all the partners who are expected to play specific role in this new entity. This type of consortium will invariably have the character of a small and medium-scale enterprise (SMEs), meaning that the benefit that accrue to the incorporation of TQM philosophy or principles in SMEs (for which there has been several empirical studies) will equally apply to this model. it is based on this that Lewis, Pun and Lalla (2005) noted that TQM "as a philosophy is of particular importance to SME"s operating in a developing region, since it can foster continual improvement through a systematic, integrated, consistency" (cited in Nonxuba,
2010). Similarly, a study conducted by Dale and Prapopoulos (1995), SMEs require TQM to remain competitive. Other studies report that the benefits of TQM enjoyed by large companies can similarly be enjoyed by SMEs (O'Neil & Duker, 1986).

In a study done by Hansson (2002), it was concluded that SMEs are advantaged in the adoption of TQM principles (compared to large firms) due to the direct access they usually have with their customer and their intimate knowledge of the requirements of their customers. SMEs are also advantaged because their managers usually have total power over decision making which is usually quick and flexible. Also, SMEs have flexible structure, are innovative, have strong organizational culture and lack hierarchical positions Hansson (2002) also advised SMEs intending to implement TQM to get a tailored approach hat suit their context and their changing processes while leveraging on their innate qualities such as having less resistance to change and less expenditure to implement and maintain TQM (Nonxuba, 2010; Hansson, 2002).

Goh (2000) conducted a study that assessed the implementation of TQM among SMEs in the United Kingdom. The study sought to specifically assess whether SMEs understand

the definitions or implications of TQM, whether they can be encouraged to implement TQM though mentoring and training and whether it is possible to benchmark management styles enroute the implementation of TQM using the biological classification system. The survey results concluded that SMEs do not understand the definition of TQM or its implications. Despite this, the study noted that through mentoring and training, SMEs dad implemented TQM before can be encouraged to start its implementation but the same cannot be said for companies that have not implemented the concept before. A TQM Framework applied to the respondent SMEs showed that they „cherry picked' facets of TQM they want to apply leading implementation programs to fail in each case. Goh thus concluded from his study that the implementation of TQM among UK SMEs is not widespread. The "cherry picking" of TQM principles in implementation was confirmed in other studies. For instance, it"s been found that some elements of TQM are more compatible with SME"s while some are not (Kelce & Lee 2004).

2.4 SERVICE QUALITY

According to Vavra (1997), quality entails the consistency of delivering products and services that fully meet customer needs and expectations. Quality is also defined by Stonebraker and Leong (1994) as "Product or service quality which identifies customer requirements, which designs the product/service to those requirements and which establishes a production or service delivery system to produce in conformance with specifications". It can therefore be deduced from these definitions that quality is central to service offerings and customer satisfaction efforts of both service and manufacturing companies.

Service quality can serve as a differentiation tool, i.e., acting to distinguish one service or product from another in a competitive market environment. The process demands that service companies seek to understand factors of customer value, customer‟s true profitability, expectation of product and service attributes (Khalifa & Liu, 2003). Definitions of customer value revolve around evaluation of service encounter and perceived satisfaction resulting from the use of the facility offering (Khalifa & Liu, 2003). This links service quality intricately to company profitability, costs, customer satisfaction and repeat purchase (Khalifa and Liu, 2003). Also, Yoo and Park (2007) argue that a firm's ability to create and sustain competitive advantage depends upon its high level of service quality.

Service quality is generally regarded as a result of an evaluation process where customers compare the services they receive to what they expected to receive – a concept known as "disconfirmation theory of service quality" (Cronin & Taylor, 1992). In his contribution, Newman (2001) asserts that service companies have both corporate and ethical responsibility, to offer services which match with expectations of their customers. Other researchers also pointed out that, service quality perceptions are not solely the outcomes of service, but they also involve the evaluation of service delivery processes by customers.

Many studies have identified different methods and tools for measuring service quality. These include basically asking customers direct questions through managing a proactive relationship between service and quality. The methods used in measuring service quality include SERVQUAL (Parasuraman *et al*. 1985), Critical Incident Technique, SERVPERF (Cronin & Taylor, 1992), and Quality Function Deployment, (Zultner, 1992). However, this study will focus on the SERVQUAL model.

The SERVQUAL method involves the development of an understanding of the perceived service needs of target customers. These measured customer perceptions are then compared with the best standards required to determine a resulting "gap" or "disconfirmation" (Parasuraman *et al*. 1985) to drive performance improvement plans. If gap scores in some aspects of service are positive, implying service perception exceeds expectations, managers may have to review whether the particular feature of the service is being "over-supplied", and whether there is a potential to redeploy such resources to features which are underperforming.

The original SERVQUAL scale consists of 22 pairs of statements designed to measure customers‟ expectations and perceptions of service performance. Using a 7 point Likert type scale, ranging from, "Strongly Disagree" (value 1) and "Strongly Agree" (value 7) where the gap score which is calculated by perception minus expectation can be achieved. Finally, after many qualitative studies, a set of five dimensions were identified, and have been consistently ranked by customers as the most important to the service quality, irrespective of the service industry (Parasuraman *et al*, 1985).

Table 2.2: The SERVQUAL conceptualization defines the five generic dimensions as:

1.	Tangibles:	Physical facilities, equipment, and appearance of personnel.
2.	Reliability:	Ability to perform the promised service dependably and accurately.
3.	Responsiveness:	Willingness to help customers and prompt service.
4.	Assurance:	Knowledge and courtesy of employees and their ability to Inspire confidence and trust.
5.	Empathy:	Caring, individualized attention the firm provides its customers.

Source: Parasuraman *et al*. (1985).

According to Lee, (2005), the SERVQUAL instrument has a cross-industry usefulness, i.e., to evaluate service quality in industrial, commercial and not-for-profit settings.

It‟s also been observed that Parasuraman, *et al*. (1991) pinpointed five gaps which form the basis for customer to experience poor service quality. The following five gaps were identified;

- The gap between customer expectation and management perception:

  management inability to correctly identify exactly what customers‟ requirements are. Mainly due to the lack of marketing research, bureaucracy and inability to interpret customers‟ expectations rightly.
- The gap between the perception of management and the specification of service quality. Management sometimes identify customer want correctly but could not set the right performance standard. This is as a result of vague service design, lack of procedural planning, and lack of commitment from management.
- The gap between specifying the right service quality and delivery the right service. These occur when the customer service staffs are not properly trained or reluctant to meet the service criteria set by the organization. The gap arises as a result of otiose in-house marketing, unable to match demand and supply, deficiencies in the policies of the human resource department regarding staffing, defining roles, wrong assessment and compensation system and failure to train and educate customers properly.
- The gap between the delivery of service and communicating externally. The expectation of customer is inspired by declaration and statement made by the

company agents and advertisement. The gap rises when these awaited hopes are unfulfilled at the time of the provision of service. These discrepancies occur when the external communicated campaign was too bellicose, unable to manage the expectation of customers and perform according to customer‟s requirement.

- The gap between the anticipated service and actual service experience. This occurs when customer get the wrong impression about the quality of service.

Berman (2005) attested to the popularity of using the SERVQUAL model to measure customer satisfaction and Cronin and Taylor (1992) acknowledged the SERVQUAL as "the most comprehensive and frequently cited tool for measuring and managing service quality". Zultner (1992) observed that the majority of the service quality items from the SERVQUAL are directly related to the human interaction between the customer service representative and customers, thus lending support to the proposition that customer satisfaction is highly dependent upon the employee‟s performance when providing customer service (Cronin & Taylor, 1992).

The SERVQUAL method has been criticized. For instance, Newman (2001) noted that the model has many operational and theoretical shortcomings. They contended that some important features of service quality such as pleasure, technological and human factors could not be measured based on arithmetic differences between perceptions and expectations. Along this line, while Parasuraman *et al*. (1985) employed the gap scores as a standard for evaluation of performed services, others (Khalifa & Liu, 2003) have advocated the use of performance-based index only. As a result, two competing measurement paradigms are used in services research:

- The disconfirmation paradigm (i.e., SERVQUAL) - which is based on gap scores

- The performance-only paradigm (i.e., SERVPERF), which measures only the performance aspects of the service.

Sivadas and Baker-Prewitt (2006) has also observed that despite the criticisms of the SERVQUAL model, it remains the most widely applied measure of service quality.

2.4.1 Customer Satisfaction

The subject of customer satisfaction has received considerable interest in the marketing literature, with some scholars terming it one of the most popular research areas in the field of marketing (Naeem & Muhammed, 2010; Yoon, 2010). Accordingly, the subject has attracted considerable attention from the top management in both manufacturing and service companies in what has generally become known as Customer Relationship Management (CRM). According to Johanson and Fredrik (2002), customer satisfaction is a state of mind that a customer has about a company when their expectations have been met or exceeded over the lifetime of the product or service. Kotler (2009) defined satisfaction as a person feeling of pleasure or disappointment resulting from comparing a product perceived performance or outcome in relation to his or her expectation. It has also been argued that satisfaction is the consumers‟ response to an evaluation of the perceived discrepancy between prior expectation and the actual performance of the product as perceived after its consumption. This suggests that if services provided is better than what is expected, the customers would be satisfied; however, if services provided by a given firm are worse than the customers‟ expectation, they become dissatisfied.

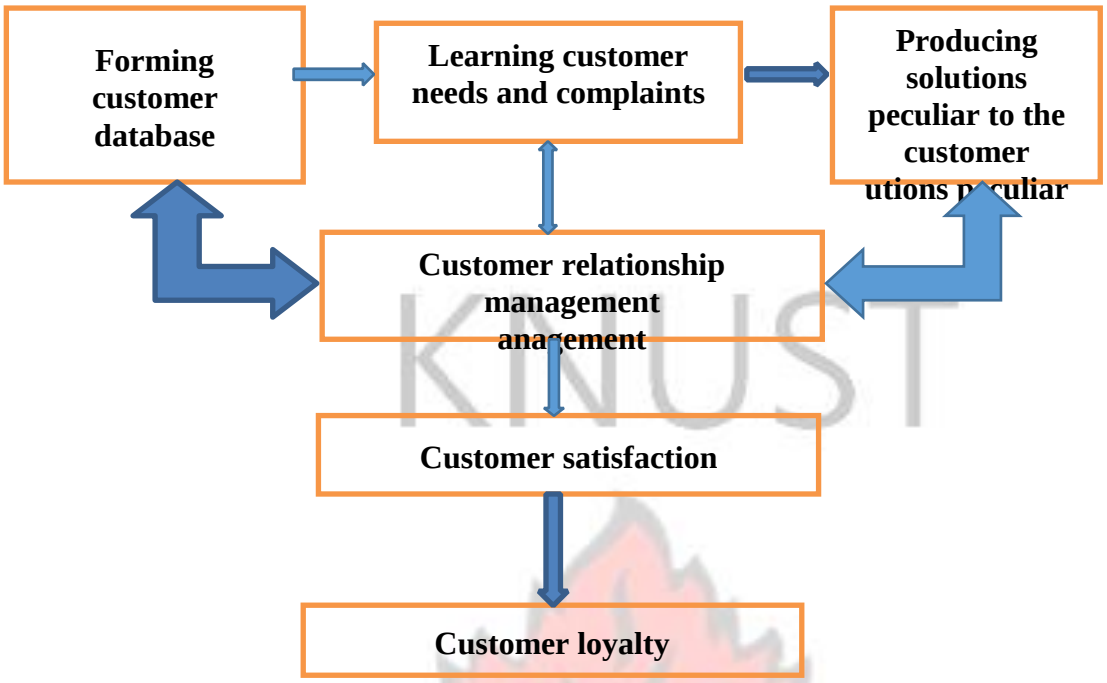
Mohamed (2000) explained consumer satisfaction as an evaluation indicating that the consumption experience of customers was at least as good as it was supposed to be.

Satisfaction is not just a response to but an emotional response to the experiences provided by, associated with particular products or services purchased, retail outlets, or even molar patterns of behavior such as buyer behavior, as well as the overall marketplace (Anderson *et al*, 2004).

Bansal, *et al*. (2004) stressed that consumer satisfaction is the summary of the psychological state of consumers which results when the emotion surrounding disconfirmed expectations is coupled with the consumer's prior feelings about the consumption experience. The accomplishment of customer satisfaction leads to organization‟s loyalty and product repurchase (Mohamed, 2000). Generally, customers range from being moderately satisfied to moderately dissatisfied, implying that most customers are essentially indecisive in their loyalty to a particular business.

According to Peppers (1999; cited in Agbor, 2011), the whole idea of CRM hinges on the need to establish a learning relationship with each customer as a result of which the organisation may learn the expectations and needs of its customers more easily and meet these expectations just in time, also acquiring an advantage of competition. Koçoğlu and Kirmaci (2012) later used the concept of the learning organization in the production of customer specific solutions to produce a flowchart that typifies the relationship between CRM and customer satisfaction as follows:

Figure 2.3: Flowchart depicting Customer Relationship Management, Customer Satisfaction and Customer Loyalty



Source: Koçoğlu and Kirmaci (2012)

Figure 2.3 above shows that CRM is very critical to ensuring customer satisfaction, with the ultimate aim to achieve customer loyalty. However, the final goal of customer loyalty can be achieved through adherence to three major processes: 1) forming customer database, 2) learning what the customer need from their complaints and 3) producing tailor-made solutions to these needs. Along these lines, Wilson *et al* (2008) argued that profit maximisation – which is usually the motive for establishing a business can be achieved through increased sales with lesser costs but one of the key factor that ensures this is customer satisfaction, because satisfaction leads to customer loyalty, recommendation and repeat purchase.

Empirical studies suggest that firms that satisfies its customer"s increases their loyalty, enjoys prince elasticity, lowered transaction cost, enhances its reputation and higher employee efficiency (Swanson and Kelly, 2010). Further studies also suggest that it is more expensive to attract new customers than to maintain existing ones, which explains

why companies make continuous efforts to improve satisfaction of their customers. According to Reichheld and Sasser (2006) satisfied customers are likely to continue their relationship with an organization which results in repeat and more purchases, acquisition of new customers through a positive word-of-mouth and better financial performance. Owing to its importance and to enact an effective measurement customer satisfaction, it is vital that the processes underlying the formation of satisfaction or dissatisfaction by customers are properly understood (Kotler & Kelly, 2006).

2.4.2 Effect of Customer Quality Service on Customer Satisfaction

The relationship between quality service and customer satisfaction is acknowledged in several literatures (see Kärnä, 2004; Naeem & Muhammed, 2010; Yoon, 2010; Koçoğlu & Kirmaci, 2012). This general position on the effect on quality service on customer satisfaction is derived from the fact that customer satisfaction leads to customer retention and loyalty, with a cascading effect on profit and competitiveness of the firm. Eventually customer loyalty increases the need to increase product which in turn reinforces customer loyalty and its associated benefits. This makes customer satisfaction in the construction industry and especially in the operations of consortium a very critical one. Managers of construction companies are understandably concerned customer satisfaction due to competition for contracts. This has eventually led to quality demands from the customers who then advert the company through word-of-mouth leading the construction company to increase its market share, profit and growth. Such word-of-mouth reputation have been adjudged the most effective advertising forum since it usually come from people whose views are already trusted by their friends or family members (Kärnä, 2004).

Customer satisfaction and other "soft" performance criteria are under-researched in the construction industry. In fact, Kärnä (2004) noted that these "soft" skills are at an early evolutionary stage in the construction industry. This notwithstanding, the use and significance of customer satisfaction in evaluating constructional quality has been acknowledged by some researchers and have been emphasized by many authors interested in construction research (Maloney 2002, Yasamis *et al*, 2002). A typical study along these lines was conducted by Soetanto, et al. (2001) and Al-Momani (2000).

Soetanto *et al*. (2001), for instance examined customers" and architects" perceptions of contractor performance and concluded customers and architects are less satisfied with overall contract performance. Relatively however, the architects were far less satisfied with the overall contractor performance, leading to the lack of recommendation for those contractors. Similarly, Al-Momani (2000) concluded in his study that many public projects do not achieve the expected results leading to gross dissatisfaction of those who awarded the contract. It is therefore evident from the above studies that there is indeed a relationship between quality service and customer satisfaction, with the evidence pointing to the effect that the better the service or product quality, the more satisfied the customer is and vice versa. Customer satisfaction has a boomerang effect on the construction company in the form of referrals through its word-of-mouth reputation which eventually leads the company to be more profitable.

Generally, determining quality in construction is complex and this is usually done through two approaches – customer satisfaction and conformance to requirements. While the former defines the customers" definition of quality, the latte defines the contractors" definition of quality (Yasamis *et al*, 2002). Winch *et al*. (1998) also confirmed that the exiting literature on construction quality concentrates on defining quality from the producers" perspective rather than those of the customer. In spite of Winch *et al*., (1998)

and Yasamis, *et al*. (2002) postulation, it‟s been observed by Barrett (2000) that defining quality in construction is much more than just the contractor and the customers‟ definition of it. Along these lines, Kärnä (2004) argued that “quality in construction can be thought of as the satisfaction of a whole range of performance criteria held by an interacting host of stakeholders and mediated by a range of mechanisms”.

Torbica and Stroh (2001) noted that quality improvement lead to a higher product and service quality, which also lead to improved customer satisfaction. It is on this note that he concluded that customer satisfaction is invaluable in evaluating quality in construction projects and also assessing a company‟s quality improvement programme success. In their empirical study, Torbica and Stroh (2001) noted that incorporating quality improvement, especially TQM leads to homebuyers‟ satisfaction, meaning that quality offering indeed impacts customer satisfaction. Unfortunately, a study by Al-Momani (2000) found that contractors hardly pay very attention to the owners‟ satisfaction, which contributes further to poor project performance. It is therefore from the findings of various empirical studies that quality service offering and customer satisfaction are inseparable, especially when it comes to the construction sector.

2.5 FACTORS THAT CONTRIBUTE TO QUALITY CUSTOMER SERVICE LOYALTY

In a review of literature, Subedi, *et al*. (2009) listed six factors that contribute to the implementation of TQM in organizations. These factors were identified as workers training, workers‟ empowerment, inter-functional link, internal factors, customer orientation and external results. These factors were explained as follows:

- **Workers' Training**: Training is an indispensable requirement in the implementation of TQM. In fact, Deming's framework, which set the tone for TQM

in the corporate set-up, demands that workers be trained before TQM commences. The critical role of training is further practical expression is some institutions that are well noted for their successful application of TQM. For instance, Toyota in manufacturing and Wipro in computer software/hardware are noted for their commitments to continuous training of staff.

- **Workers' Empowerment**: In empowerment, workers are given authority to make decisions based on employees‟ knowledge and experiences. This factor is also represented one of the requirements in Deming's framework. Quick decisions are especially required from workers who are in direct contact with product or customers in order to avoid time lapse between errors and when corrective actions are taken. Holweg and Pil (2004) further observed that empowerment should involve encouraging workers to make decisions as a team.
- **Inter-functional Link**: TQM considers the process an organization takes to churn out its products or services and demands that all its functions needed to do this cooperate seamlessly towards the agreed goal. Subedi *et al*. (2009) observes that could be achieved through the deployment of computers and communication systems or cross functional team across the functions.
- **Internal Results:** Achieving internal results entails improvement in the effectiveness and efficiency in manufacturing or service offering. This can be done through maintaining fewer inventories, rework and less scrap in the manufacturing process. It also involves lowered production cost and reduced setup. In service industry, improving internal results calls for the reduction of waste and idling and ensuring the optimal use of time by all employees. This factor was aptly employed by Toyota, who through the use of TQM was able to optimize its available resources and small resource base to upset big America auto companies.

- **Customer Orientation:** Customer orientation is an important requirement in firms that implement TQM. Achieving customer orientation entails the attainment of its two aspects, i.e., to be able to analysis the market in which the company operates and understand the competition and use of technology in that industry in what has become known as "competitor scan" in most studies. The second entails honing the company"s ability to understand customers' demand or need and incorporate these into its decision-making process in a construct that has become known as "customer link" In most studies.
- **External Results**: Finally, Subedi *et al*. (2009) noted that should aim at improving the organizations' bottom line which is better typified in how the implementation improves financial performance and/or customer satisfaction. Financial performance is aptly illustrated by the organizations growth and profitability, leading external construct to be judged from the perspective of three main constructs, i.e., growth, profitability and customer satisfaction.

CHAPTER THREE

METHODOLOGY

3.1 INTRODUCTION

This chapter covers the methodology of the study, as well as the overview of the consortium used for the purpose of data gathering. The methodology outlines the research design, population and sampling technique employed in the study. It also covers the sample size and the data collection methods used in the study

3.2 RESEARCH DESIGN

The study adopts the quantitative survey as its research design. According to Leedy and Ormrod (2015), the quantitative survey entails posing series of questions to willing

participants, summarizing their responses with percentages, frequencies or more complicated statistical indexes and then drawing inferences about a particular population from the responses of the sample. Considering these are the very objectives the present study seeks to do, this research design is considered appropriate in the present study. In other words, the quantitative survey relative to the other research designs will help this study achieve its objectives better.

3.3 STUDY POPULATION

A research population is generally a large collection of individuals or objects that is the main focus of a scientific query (Opoku, 2005). The population thus represents the total number of a targeted in a particular study form which a representative sample is to be selected. The research population for this study comprise workers on ABP Consult. The company employs a total of 107 staff that comprises thirty-six (36) Professional Engineers, three (3) Geodetic Engineers, two (2) Architect, two (2) Environmentalist, four (4) Quantity Surveyors, twenty-four (24) Technician Engineers and twenty-seven (27) CAD Operators. The rest consist of an Administrative supporting staff of Accountants, Secretaries and other clerical staff. This available human resource provides expertise in a relatively broad range of consultancy services for planning, design and management of many types of engineering projects.

3.3.1 Sample Size

In order to make the sample in the study representative enough, it has to be sampled from the population with a mathematical model. In the present study, Yamane‟s (1973) model was used to determine the sample that will be representative of the population of 107 workers in ABP Consults. The formula for calculating the optimal sample size is based on

the work done by Yamane (1973). This formula is widely used for its simplicity and given as follows: {n = N/1+N (e) 2} where; n = desired sample size,

N = total number in the population and

e = margin of error (10%).

The optimal sample size (n) is therefore calculated from the equation as follows;

{n = N/1+N (e) 2} n = (107) /

(1+(107) * (0.1)2) n = (107)/

(1+1.07) n = 107/2.07

n = 51.69. This is approximated to 52 respondents.

Thus, according to Yamane"s (1973) calculation, a sample of 52 is representative of the population of 107 ABP employees. Accordingly, the study used the mathematical model to arrive at the optimal sample size in the present study.

As indicated, ABP Consult has a total staff strength of 107 that comprises thirty-six (36) Professional Engineers, three (3) Geodetic Engineers, two (2) Architect, two (2) Environmentalist, four (4) Quantity Surveyors, twenty-four (24) Technician Engineers and twenty-seven (27) CAD Operators. The firm also employs nine support staff. After, clustering the professionals, the numbers selected per each group were selected randomly in order to make the findings generalizable. The following were the detail of the number sampled from each professional group as captured; 52 questionnaires were administered randomly which include 17 Engineers, 1 Geodetic Engineer, 1 Architect, 1 Environmentalist, 2 Quantity Surveyors, 12 Technician Engineers, 13 CAD Operators and 9 Support Staff.

3.3.2 Sampling Technique

Stangor (2007) describes sampling as a process of selection people to participate in a research project, in order to use these people to make inferences about a larger group of individuals. Generally, a sampling process presupposes the existence of a population from which the sample has to be drawn. The sample in the present study is selected from the population of 107 employees of ABP Consult.

This study adopted the cluster and simple random sampling methods in the selection of respondents. These probabilities sampling category enables a researcher select representative sample in a study such that the findings from the sample could be generalised for the population. The cluster sampling method was occasioned by the fact ABP Consult employs wide range of professionals whose views have to be sought in order to achieve the objectives of the study. This means the respondents‟ have to be clustered in order not to skew the selection of the sample to favor a particular group of professionals. This means the 52 sample selected in the study was distributed among the various professionals that work in the institution.

After the respondents‟ have been clustered, the specific respondents‟ from each cluster will be selected randomly. That is say, every professional in the cluster has an equal chance of partaking in the study but his/her selection will be based on a lottery method which might or might not make them participate in the study.

3.4 SOURCES OF DATA

For the purpose of this research, both primary and secondary data will be used, because it is relevant to both know what empirical findings others have done on the subject matter of

inquiry and building on those findings, using primary data. The secondary data contributed towards the formation of background information, and analysis. The secondary data was gathered from various empirical and theoretical works undertaken by other researchers in earlier studies. The bulk of the secondary data, used both in the analysis and classified under the review of literature were gleaned from journal and articles gleaned from online sites – including jstor, sciencedirect, ebsco, emerald among others.

Primary data was collected with the use of a questionnaire. Opoku, (2005) has observed that the survey method of data collection involves the development and administration of a questionnaire; which might be self or interviewer administered. Carefully crafted but wide-ranging questions aimed at eliciting right responses were constructed to constitute the primary data. The questionnaire collected information that is carefully crafted to achieve the objectives of this study. In addition to the respondents‟ bio-data, the study gathered data on each objective of the study. The objectives on which the study gathered data are as follows:

- Identify ways of incorporating TQM in consortium practices;
- Identify ways of incorporating customer service considerations in the Ghanaian construction sector;
- Find out the relationship between TQM and customer satisfaction in the Ghanaian construction sector; and
- Identify the challenges involved in the incorporation of TQM and customer service in consortium

This means the research instrument will have five sections, with four sections gathering data on each objective and one section gathering pertaining to the objective of the study.

As indicated earlier, the data will be gathered with a structured questionnaire that has been annexed to this study as Appendix One.

3.5 OVERVIEW OF STUDY INSTITUTION

ABP Consult is one of Ghana's most prestigious and experienced civil works, engineering and construction firms. With over 40 years of experience in Ghana, the company is the main reference for large construction projects in Ghana and West Africa. ABP Consult Limited was incorporated in Ghana as a Limited Liability Company 1992 having previously operated as a Partnership from 1969 to 1992 under Asafo-Boakye and Partners. Currently, the company is one of the leading private consulting firms in Ghana which provides efficient and high quality engineering consultancy services to private, public and international institutions, thereby contributing to the development of the nation and the sub-region.

ABP provided geotechnical investigation, topographical surveys, design of infrastructural facilities, preparation and evaluation of pre-qualification documents for selecting contractors, preparation of tender documents, construction supervision and contract management. Some of their projects are as follows:

- Extension of University Central Library, University of Science and Technology;
- Kumasi Central Market Re-development;
- Bank of Ghana Office Building Annex / Agricultural Development Bank Building (Cedi House);
- Reconstruction/Construction Facilities in Tertiary Education Institute in Ghana;
- Kotoka International Airport Re-Development;
- New University Central Library, Univ. of Cape Coast; and
- Neoplan Assembly Plant-Kumasi and Neoplan Bus Services Center-Accra.

CHAPTER FOUR

ANALYSIS AND PRESENTATION OF DATA

4.1 INTRODUCTION

This chapter covers the analysis of data in the study. The data gathering instrument was administered to various professionals in the study company. This included Professional Engineers, Geodetic Engineers, Architect, Environmentalist, Quantity Surveyor, Technician Engineers, CAD Operators and Support Staff from the study institution. Out of the 52 questionnaire administered, the researcher was able to recover 50 upon which the analysis of the study is based. The section is sectioned into six parts. Part one covers the analysis of the demographic or respondent"s socio-economic background. The other five parts covers the four objectives of the study. Each objective was captioned under a chapter to make the study flow in a logical flow upon which the conclusions and recommendation of the study follows.

4.2 DEMOGRAPHIC INFORMATION

This section covers the socio-economic background of respondents. Thus, educational backgrounds were covered in this section. Additionally, the study covered the length of time respondents have worked in the consultancy firm, their department in which respondents work in. With respect to their gender, the study observed that 78% of the respondents were male while 22% were female. This confirms the general observation that the construction sector is dominated by males. This notwithstanding, the views in the study can be said to reflect the views of both males and females, albeit, the views are tilted towards males.

Figure 4.3 indicates that majority of the respondents were educated. It was found that majority (47%) were first degree holders while 24%, being the second majority, were second or master"s degree holders. Seventeen percent of the respondent indicated that they have professional certificates while 12% had diploma. The details are captured in the bar graph below.

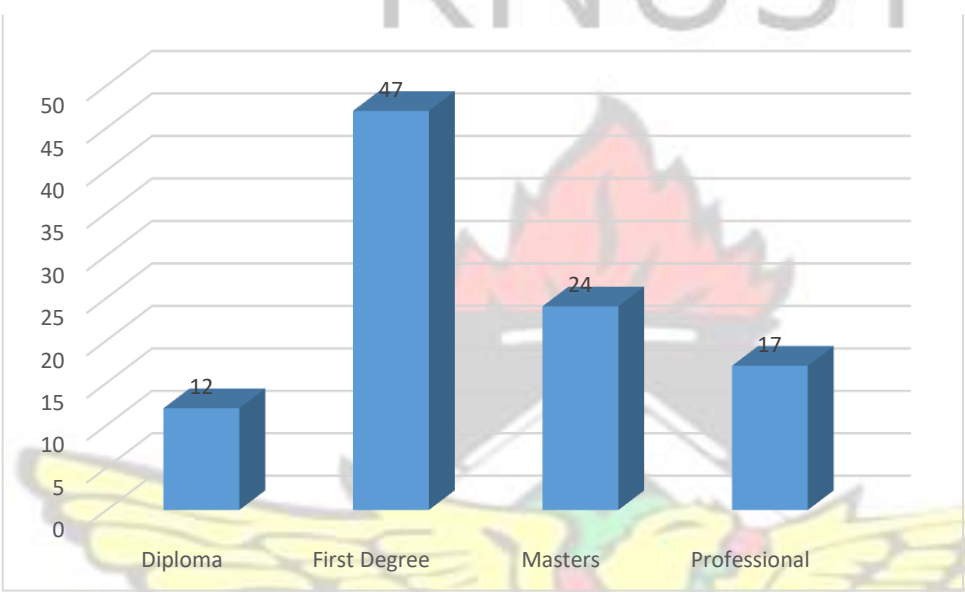


Figure 4.1: Educational Qualification

Source: Fieldwork, 2016

Majority (i.e., 41%) have worked in the consultancy firm between four and six years while 30% have worked in the firm between seven and ten years. While 11% have worked in the firm below 3 years, 18% have been there for eleven years and above. It is therefore obvious that majority of the respondents have worked long enough in the consulting firm to understand the issues in the present study and make important contribution towards achieving the objectives of the study. The details are captured in

Figure 4.1 these respondents were selected from all departments in the consulting firm. This included engineering, architecture, surveying and administration or support department.

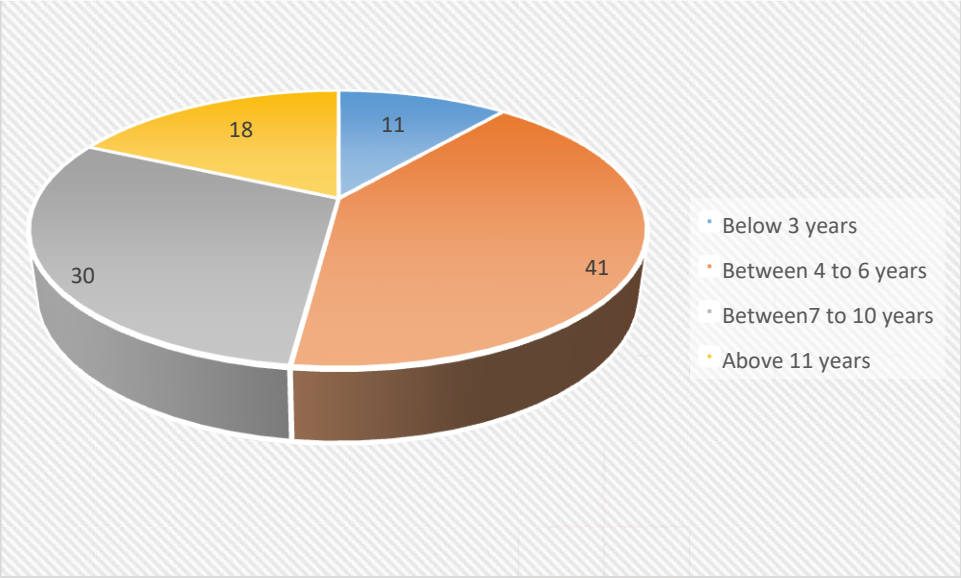


Figure 4.2: Length of Time Respondents have worked with Consultancy Firms

Source: Fieldwork, 2016

4.3 INCORPORATION OF TQM IN THE CONSTRUCTION SECTOR

This section made inquiry concerning the incorporation of TQM into the construction sector and the actual practice of TQM in this industry. All the rest, except 10% answered in the affirmative, meaning that the construction sector indeed practice TQM. The 10% who did not answer in the affirmative did not know whether TQM is practiced in the sector or not.

Since there are several TQM models in practice, the study sought to find out the specific model commonly used by consortia. From the responses given by respondents, it became obvious that there is no specific model prevalent in the industry. A total of 64% of the respondents indicated that they don‟t use any specific model while 21% answered in favour of the ISO model. Among the 15% remaining, 7% chose the UMIST Model while 5% chose the European Foundation for Quality Management (EFQM) model. The remaining 3% chose the MBNQA Model. None of the respondents chose the Xerox Model,

meaning that it is not practiced among consortia. The details are captured in the bar graph below.

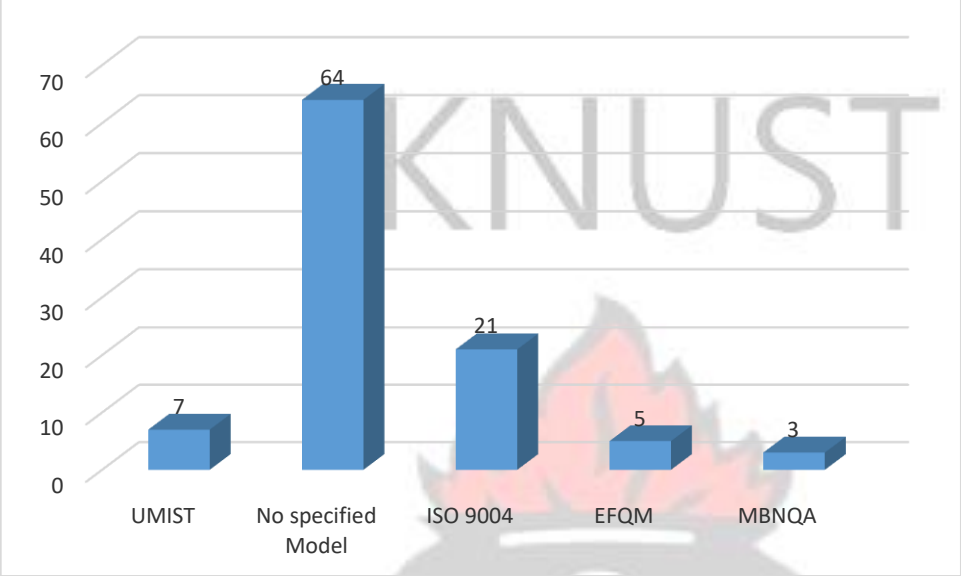


Figure 4.3: TQM Model Prevalent Among Consortia

Source: Fieldwork, 2016

With its practice established, the next inquiry sought to find out to what extent this was done. As captured in Figure 4.3, majority indicated that this is practiced to an extent. These made up a whopping 53% of the respondents while those who said it is practices to an extent made up 21% of the respondents. Only 17% said TQM is practiced to a large extent while 9% said it is practiced to a very large extent. Thus TQM is practiced; it is obvious that it is not done to a very large extent. Again, the details are summarized in Figure 4.4 below.

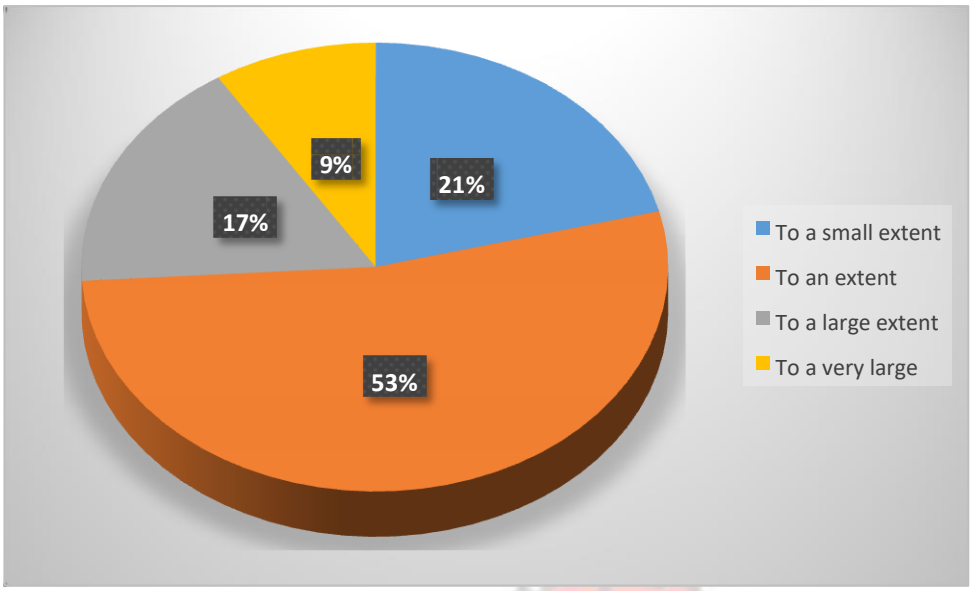


Figure 4.4: Extent of the Practice of TQM

Source: Fieldwork, 2016

Next, the study sought to understand whether the incorporation of TQM has helped improve the work efficiency of employees in consortium firms. Similar to the responses on whether TQM was incorporated or not, 90% answered in the affirmative that TQM has indeed improved the efficiency of employees while the rest (i.e., 10%) answered in the negative. Similarly, respondents indicated that the practice of TQM has assisted in aligning company‟s goals with individual goals. While 82% were convinced that these goals have been aligned, 18% said they were not. Generally, however, it is evident that TQM has improved the efficiency of consortia as well as helped aligned individual with organizational goals. The details are captured under Figure 4.5.

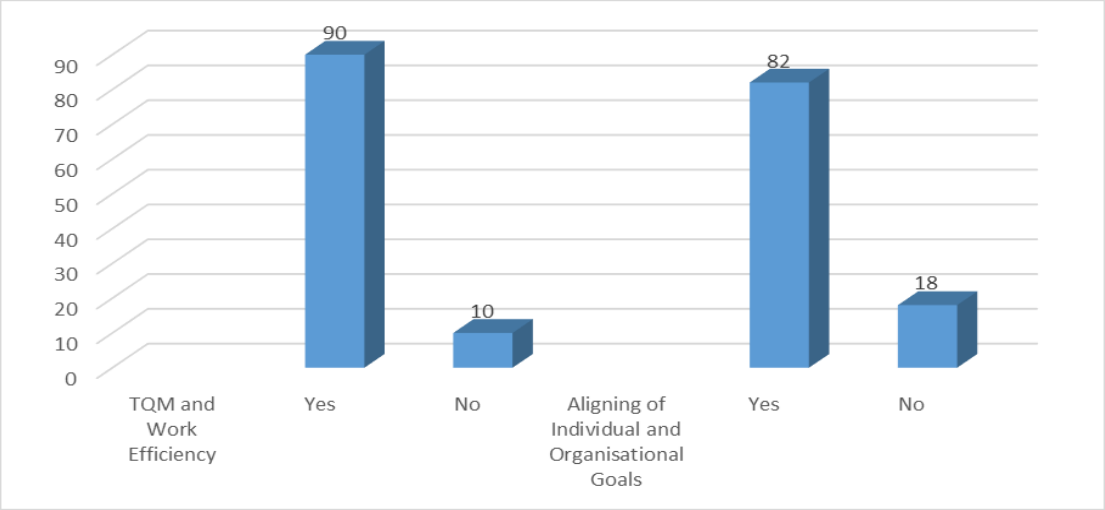


Figure 4.5: Effect of TQM on Efficiency and Alignment of Goals

Source: Fieldwork, 2016

Finally, respondents were given series of TQM variables and asked to indicate whether they have been incorporated in the construction industry or not. Their responses are summarized in Table 4.1. It was obvious from the table that continuous personnel training, environmental/personnel safety at work, site supervision, subcontracting, handover procedures and customer satisfaction have been incorporated in consortium work. In addition, zero defect, reduced error, reduced rework and reduced non-value addition work and quality assurance have also been incorporated. However, co-operation has not been incorporated in the work of the consortia. Again the details, including the percentage score under each variable and the mean score is captured in Table 4.1.

Table 4.1: Incorporation of TQM Variables in the Construction Industry

Variable	Mean	Rank
Continuous personnel training	4.12	6th
Environment/safety at work	4.20	4th

Site supervision	4.18	5th
Subcontracting	3.96	11th
Handover procedures	4.08	8th
Customer satisfaction	3.97	10th
Zero defect	3.99	9th
Reduced error	4.32	1st
Reduced rework	4.30	2nd
Reduction of non-value added work	4.27	3rd
Co-operation,	2.49	12th
Quality assurance	4.10	7th

Source: Fieldwork, 2016

4.4 INCORPORATION OF CUSTOMER SERVICE IN CONSORTIUM

In addition to the incorporated of TQM, the study also sought to unearth if customer service has also been incorporated in the work of consortia. This is especially important considering that the variable had a mean score of 3.97, with a cumulative 49% agreeing that the variable had been incorporated in Table 4.1 above. This section therefore explored in details this incorporation and how it feeds into the application of TQM in the work of consortia. The section therefore clarified the responses above by asking to what extent consortia incorporate TQM in their work. Majority (i.e., 83%) indicated that customer service has been incorporated to a small extent while 10% said this has been done to an extent. Only a meagre 7% indicated that customer service has been incorporated to a large extent with none of the respondents indicated this have been done to a very large extent. It

is therefore obvious that customer service has not been incorporated as much as customer service has been. The details are captured in Figure

4.6.

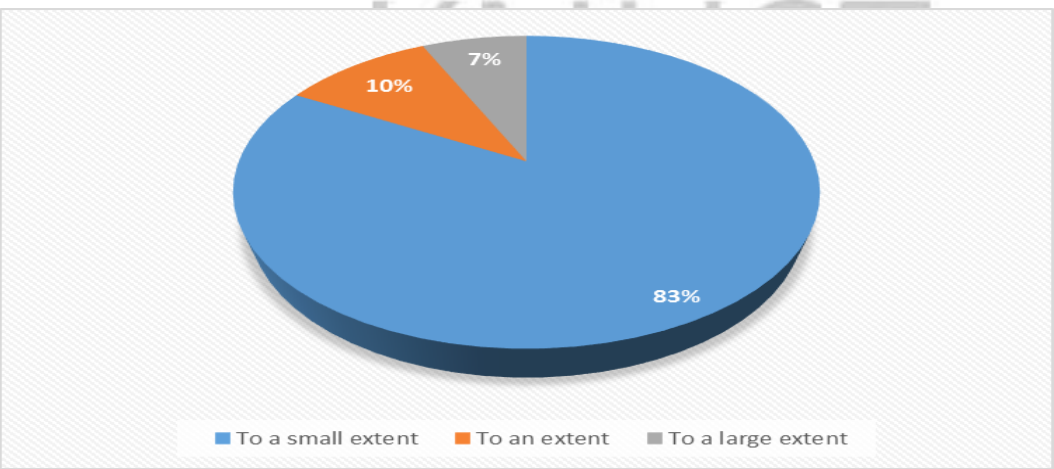


Figure 4.6: Extent of Customer Service Incorporation in Consortium Work

Source: Fieldwork, 2016

It was obvious that competition played a great role in ensuring that customer service is incorporated into the work of the consortium under study as depicted in Figure 4.11, 49% were convinced that competition played a large role in the adoption of customer service in consortium work while 26% indicated that it influenced the adoption to a very great extent. Fifteen percent (15%) indicated that it influenced the decision to an extent while 10% said it only influenced it to a small extent. It can therefore be concluded that competition was a major factor in the adoption of customer service in the work of the consortium under study. Details of the influence of customer service in the incorporation of customer service is summarized in Figure 4.7.

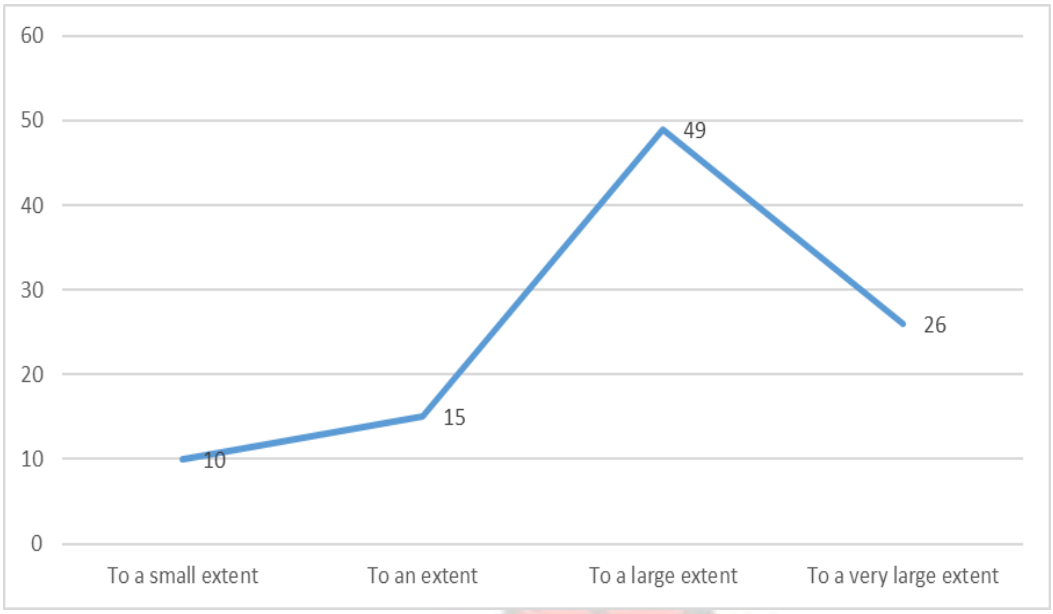


Figure 4.7: Extent to which Competition led to the Incorporation of Customer Service in Consortium Work

Source: Fieldwork, 2016

The reasons for adopting customer service in the construction industry were many and varied. The top reasons for the adoption included to improve customer loyalty (with a mean score of 4.12), enhance company reputation (with mean score of 4.06) and attain higher employee efficiency (with mean score of 4.08). The reasons that did not strongly influence the adoption of customer service included to enjoy price elasticity (with mean score of 3.23) and to lower transaction cost (with mean score of 2.28). Details of the above responses, including the percentage score under each variable are captured in Table 4.2.

Table 4.2: Reasons for Customer Service Incorporation

Variable	Mean	Rank
Improve customer loyalty	4.12	1st

Enjoys price elasticity	3.23	4th
Lowered transaction cost	2.28	5th
Enhanced reputation	4.06	3rd
Attains higher employee efficiency	4.08	2nd

Source: Fieldwork, 2016

Table 4.3 below captures the forms customer service take in the construction companies. In other words, it shows what exactly consortia do that are classified as customer service to them. As such, respondents‟ were asked to tick series of variables that reflect their practice of customers‟ service or not. Majority of the respondents (i.e., 44 overall, representing 88%) indicated that their customer service incorporation takes the form of producing tailor-made solutions to customer needs while 32 respondents, representing 64% said their own involves leaning what the customer needs are from their complaints. Fifteen and eleven respondents, representing 30% and 22% respectively said their own practice of customer service involves forming customer database and provide outlets for client complaints, such as providing letter boxes for such complaints to be dropped in. It was therefore obvious the basic activities such as providing forums for customers to vent their complaints and compiling database of their complaints are not done by the consortia. This naturally presents a big handicap in the customer service practice of the firms‟ understudy.

Table 4.3: Forms that Customer Service Incorporation Takes

Variable	Frequency	Percentage
Forming customer database	15	30

Learning what the customer needs from their complaints	32	64
Producing tailor-made solutions to customer needs	44	88
Providing outlets for customer complaints such as suggestion boxes	11	22

Source: Fieldwork, 2016

4.5 RELATIONSHIP BETWEEN TQM AND CUSTOMER SATISFACTION

The crust of the study is to assess the relationship between TQM and customer service in the construction study. This section therefore the crust of the study in the sense of achieving the objectives of the study. The section therefore started off by assessing if there is relationship between TQM and customer service. All the respondents, except 12% responded in the affirmative. However, 12% indicated that they do not see such a relationship between TQM and customers service. With the relationship now overwhelmingly established, there was the need to do further exploration into whether the relationship was positively or negatively oriented. Here all the respondents indicated that the relationship was a positive one, meaning that TQM impacts customer service positively and vice versa.

To specifically establish the extent of this relationship, respondents were asked to indicate the extent to which TQM influences customer service and vice versa. Majority indicated that TQM influences customer to an extent. Specifically, 47% of the respondents said the two concepts are related in the work of consortia to an extent while 23% it is related to a large extent. Twelve percent (12%) indicated that TQM and customer service is related to a small extent while 18% said it is related to a very large extent. Cumulatively, it was

observed that the relationship goes as far as an extent and not further. Details are captured in Figure 4.8 below.

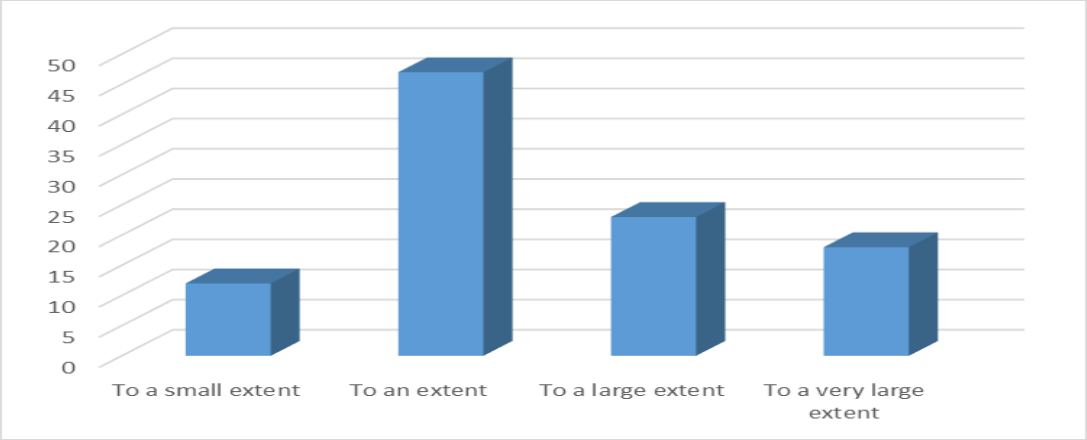


Figure 4.8: Extent of the Relationship between TQM and Customer Service

Source: Fieldwork, 2016

Table 4.4 evaluates the relationship between customer service and TQM by assessing some specific organizational improvements that result from the relationship. The study sought to firstly find out if the incorporation of TQM has improved customer satisfaction in consortium work. Here, the mean score was 4.12 meaning that TQM has improved customer satisfaction in consortium work. Also, the fact that the incorporation of TQM has improved service quality of consortia had a mean score of 4.2 which means majority of the respondents agreed that TQM and customer service had improved service quality in consortia.

The relationship between TQM and customer service and its cumulative effect on recruitment and selection practices of consortia had a mean score of 4.32 meaning majority

of the respondents agreed that the relationship between the variables was positive. In other words, recruitment and selection practices are impacted by TQM and customer service.

The relationship between TQM and customer service and its cumulative effect on the organizational structure of consortia had a mean score of 4.3. This means a greater percentage of the respondents see organizational structure of consortium as being positive affected by TQM and customer service.

The relationship between TQM and customer service and its cumulative effect on the consortium having repeat businesses had a mean score of 4.27. This means a greater number of the respondents see the possibility of having repeat businesses as being contingent on the firm‟s practice of TQM and customer service. In other words, the practice of TQM/customer service positively impacts future business operations of consortia.

The relationship between TQM and customer service and its cumulative effect on employee turnover had a mean score of 2.49. This means a greater number of the respondents see the relationship between TQM/customer service and employee retention as negative, i.e., employee retention is not positively impacted by TQM/customer service. This was the only variable with a negative relationship among the six variables itemized in this section. Again, the details are captured in Table 4.4.

Table 4.4: Finding out the Relationship between Customer Service and TQM

Variable	Mean	Rank
The incorporation of TQM has improved customer satisfaction in consortium work	4.12	5th

The incorporation of TQM has improved service quality of consortia	4.20	4th
The incorporation of TQM has improved the recruitment and selection practices of consortia	4.32	1st
The incorporation of TQM has positively affected the organizational structure of consortia	4.30	2nd
The incorporation of TQM and its subsequent effect on customer service has given us repeat businesses	4.27	3rd
The incorporation of TQM has reduced our employee turnover	2.49	6th

Source: Fieldwork, 2016

TEST OF THE HYPOTHESIS

4.6 INFLUENCE OF TQM ON CUSTOMER SERVICE IN THE CONSTRUCTION INDUSTRY

4.6.1 Regression Analysis

This section sought to identify the TQM variables that influence customer service in consortium works. The TQM variables considered were continuous personnel training, handover procedures, zero defect, reduced error, reduced rework, reduction of non-value added work and quality assurance. A Multiple Regression analysis was used to examine the influence of TQM variables on customer service. The Stepwise method was adopted in other to eliminate any variable which is not significant. The estimates of the ordinary least square multiple regression models are summarized in Table 4.5. It can be seen that there is a positive relationship between continuous professional training/development, zero defect, reduced error, reduced rework and quality assurance and customer service. Handover procedures and reduction of non-value added work was found to have a negative

relationship with customer service. Also it was revealed that all the independent variables were statistically significant since the significance level (0.05) was greater than 0.000 and 0.046 for all the independent variables.

Table 4.5: Estimates of the ordinary least squares multiple regression model

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.977	.326		12.201	.000
Continuous professional training/development	.316	.158	.144	2.008	.046
Zero defect	-.825	.122	-.753	-6.762	.000
Reduced error	.305	.066	.434	4.621	.000
Reduced rework	.141	.039	.302	3.615	.000
Quality assurance	.717	0.150	.455	4.780	.000

Source: Field work (2016)

The R squared, R^2 (multiple correlation coefficient of determination), measures the proportion of variation in the dependent variable (customer satisfaction). From Table 4.6, the adjusted R-squared obtained was 0.318 suggesting that about 31.8 percent of the variations in the dependent variable (customer satisfaction) can be attributed to independent variables. It must however be mentioned that the adjusted R squared was very low suggesting the other independent variables could aid in explaining the variations in the dependant variables.

Table 4.6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

	0.582	0.339	.318	0.866

Source: Field work (2016)

Also from Table 4.7, the overall regression model was found to be statistically significant at the 0.05 level since this level is greater than the p-value, 0.000 with an Fvalue of 16.791. The result clearly shows that TQM variables influences customer service.

Table 4.7: Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	62.946	5	12.589	16.791	.000
Residual	122.960	164	.750		
Total	185.906	169			

Source: Field work, (2016)

The estimated regression model is given as:

$$Y = 3.977 + 0.316x_1 - 0.825x_2 + 0.305x_3 + 0.141x_4 + 0.717x_5$$

Where y represent TQM, x_1 represent Continuous professional training/development, x_2 represent Zero defect, x_3 represent reduced error, x_4 Reduced rework and x_5 represent Quality assurance. In sum, the regression result suggests that TQM influences customer service.

4.6.2 Correlation Analysis

This section seeks to determine the relationship between TQM variables that influence customer service in consortium works. A correlational analysis was carried out to identify

the relationship between TQM variables that influence customer service in consortium works. From table 4.8, the correlation coefficient between the variables is

0.754 and P-value <0.000. Since the p-value is less that α=0.05, we reject the null hypothesis which states that there is no relationship between TQM and customer service and conclude that there is a strong positive linear relationship between TQM variables that influence customer service in consortium works. The result implies that a high TQM usage among consortia improve their customer service offering in the construction industry. Thus the ability of respondents to make important TQM applications is in their own best interests as it impacts customer service offering in the construction industry.

Table 4.8: Correlation between TQM and Customer Service

		TQM	Customer Service
TQM	Pearson Correlation	1	.754**
	Sig. (2-tailed)		.000
	N	170	170
Customer Service	Pearson Correlation	.754	1
	Sig. (2-tailed)	.000	
	N	170	170.0
**. Correlation is significant at the 0.05 level (2-tailed).			

Source: Fieldwork (2016)

4.7 CHALLENGES IN INCORPORATION TQM IN CONSORTIUM

This section sought to unearth the challenges involved in the incorporation of TQM in customer service among consortia. It started off by asking respondents if consortium faces challenges in the incorporation of TQM. All the respondents‟ indicated that, indeed, they face challenges in incorporating TQM construction work, incorporating customer service in construction work and finally in incorporating TQM in customer service offering of

consortia. Next, respondents were asked to indicate the extent of the challenges faced and then to indicate the specific challenges they face in this incorporation. With respect to the extent, majority

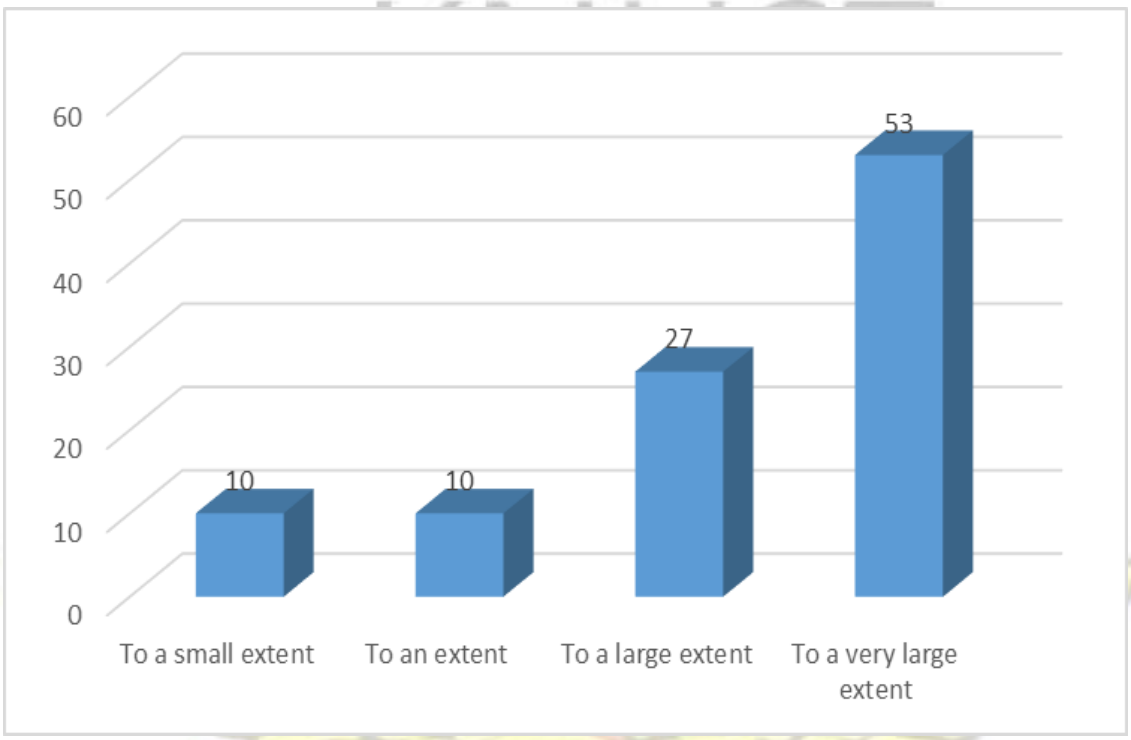


Figure 4.9: Extent of Challenges Faced in Incorporating TQM

Source: Fieldwork (2016)

Several of the challenges were mentioned but the specific ones were penciled down to lack of adequate co-operation from the leadership of the construction, inadequate education from supervisors or managers to ensure adequate buy-in from a broad spectrum of the workforce and shorter timeframe within which to implement the TQM propositions. Another challenge identified was the lack of complete overhaul of organizational processes to accommodate TQM implementation. Instead the new TQM propositions are implemented over old work ethics and structures making it fail from the very beginning.

Finally, respondents‟ noted that some external socio-economic challenges also affect the implementation of TQM in consortia.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS 5.1 INTRODUCTION

This chapter covers the discussion of findings in the study, conclusions drawn and recommendations made. The recommendations include both recommendation for further studies and policy recommendations for implementation towards incorporating TQM into customer service in the work of consortiums.

5.2 SUMMARY OF FINDINGS

5.2.1 Incorporation of TQM in Consortium

The 90% who indicated that TQM has been incorporated in the work of consortium confirmed the observations of several authors (eg Ogbari & Borishade, 2015; Karna, 2009; Anderson & Sullivan, 1993; Jones & Sasser, 1995; Raja *et al,* 2011). In fact, Raja *et al* confirmed the growing recognition that the incorporation of TQM is needed in the construction as a holistic strategy to create needed competitive advantage Nagaprasad and Yogesha (2009) noted that the four challenges, being customers, competition, technology and legislation is leading consortia and other business entities to adopt TQM in their line of work.

It was also obvious that the extent of the application of TQM was not quite high, unlike the application of the principles in the manufacturing sector. Along these lines, Khamalah and Lingaraj (2007) noted the manufacturing roots of TQM have led the concept to be greatly applied in this sector relative to other engineering and operational fields. Talib (2012) also corroborated that the literature on TQM in the manufacturing sector is quite encompassing and encyclopedic while literature on the sectors of its application is

relatively extant. This showed skewness in the application of TQM that need to be filled through the application of the concept to construction and the services sector.

It was obvious that consortia in Ghana have not adopted any specific TQM method. This means these organizations incorporate the aspects of ISO model, the UMIST Model and the MBNQA Model since some respondents‟ identified these models to rein some aspects of their operations.

As many as 90% of respondents indicated that TQM has improved the efficiency of employees. Similarly, the practice of TQM has assisted in aligning company‟s goals with individual goals. These benefits were prevalent in the definitions given to the concept, such as the one given by Raja *et al* (2011), Sadikoglu and Olcay (2014) and those of Ljungstrom and Klefsjo (2002). For instance, Raja *et al*. (2011), noted that the incorporation of TQM helps firms become effective through decreased cost, increased performance and better satisfaction of customers

It was shown in the study that continuous personnel training, environmental/personnel safety at work, site supervision, subcontracting, handover procedures and customer satisfaction have been incorporated in consortium work. In addition, zero defect, reduced error, reduced rework and reduced non-value addition work and quality assurances have also been incorporated. These variables were equally emphasized by Deming (1986), Crosby (1984), Ogbari & Borishade (2015) and Juran (1986) as factors that contribute to the growth of TQM. However, co-operation has not been incorporated in the work of the consortiums.

5.2.2 Incorporation of Customer Service in Consortium

It was obvious that customer service has been incorporated to a small extent in consortium work. This finding is confirmed in the studies by Kärnä, *et al*. argued that the pursuit of customer satisfaction is critically important to the survival of any of the company engaged in that sector. Wilson *et al*. (2008) also indicated that profit maximization, the prime motivation for establishing a business is best achieved through customer satisfaction, because satisfaction leads to customer loyalty, recommendation and repeat purchase.

Not surprising, competition played a key role in the incorporation of customer service into the work of the consortium under study. Swanson and Kelly (2010) noted along these lines that it is more expensive to attract new customers than to maintain existing ones, which explains why companies make continuous efforts to improve satisfaction of their customers. Also, Reichheld and Sasser (2006) noted that satisfied customers are likely to continue their relationship with an organization which results in repeat and more purchases, acquisition of new customers through a positive word-of-mouth and better financial performance, meaning the incorporation of customer service give the company a competitive advantage.

The reasons for adopting customer service in the construction industry were to improve customer loyalty, enhance company reputation and attain higher employee efficiency.
The findings were confirmed in studies conducted by Swanson and Kelly (2010). However, price elasticity and to lower transaction cost did not strongly influence the adoption of customer service. Incidentally, the latter observation contradicted the findings of Swanson and Kelly (2010) who noted that customer satisfaction leads to price elasticity and lowers transaction cost.

Customer service incorporation takes the form of producing tailor-made solutions to customer needs, forming customer database and providing outlets for client complaints, such as providing letter boxes for such complaints to be dropped in. It was obvious that basic activities such as providing forums for customers to vent their complaints and compiling database of their complaints are not done by the consortiums, which presents a big handicap in the customer service practice of the firms‟ understudy. It also means the consortia are not working with the model provided by Koçoğlu and Kirmaci (2012) and Wilson *et al* (2008) where 1) forming customer database, 2) learning what the customer need from their complaints and 3) producing tailor-made solutions to these needs were considered critical in building customer care into a company‟s operations.

5.2.3 Relationship between TQM and Customer Satisfaction

The relationship between TQM and customer satisfaction was affirmed positive, meaning that the application of TQM principles leads to greater customer satisfaction. A regression and a correlation analysis confirmed that indeed, TQM and customer satisfaction are correlated. The regression analysis confirmed that the incorporation of TQM principles, such as, continuous personnel training, handover procedures, zero defect, reduced error, reduced rework, reduction of non-value added work and quality assurance have a positive effect on customer satisfaction. However, handover procedures and reduction of non-value added work did not have the same effect. In fact, the overall regression model was found to be statistically significant at the 0.05 level since this level is greater than the p-value, 0.000 with an F-value of 16.791, showing clearly that TQM variables influences customer service. The correlation was conducted as a further test to assess the relationship between the two concepts. The correlation analysis rejected the null hypothesis which states that

there is no relationship between TQM and customer service and concluded that there is a strong positive linear relationship between TQM variables that influence customer service in consortium works.

It was also evident that the incorporation of TQM in customer satisfaction goes for an extent. Specifically, the incorporation of TQM has improved customer satisfaction in consortium work, recruitment and selection practices of consortia, organizational structure of consortia and having repeat businesses. However, the relationship between TQM and customer service and its cumulative effect on employee turnover was low.

5.2.4 Challenges in Incorporation TQM in Consortium

Consortium face challenges in incorporating TQM construction work, incorporating customer service in construction work and finally in incorporating TQM in customer service offering of consortiums. Some of the specific challenges faced included cooperation from the leadership of the construction, inadequate education from supervisors or managers to ensure adequate buy-in from a broad spectrum of the workforce and shorter timeframe within which to implement the TQM propositions. Another challenge identified was the lack of complete overhaul of organizational processes to accommodate TQM implementation.

5.3 CONCLUSIONS

The study concludes as follows:

- The consortium has incorporated TQM into their operations. This has been done to a considerable extent but not as high as its been done in the manufacturing industry.

- The consortium has however not adopted any specific TQM method. This means these organizations incorporate the aspects of ISO model, the UMIST Model and the MBNQA Model since some respondents‟ identified these models to reign some aspects of their operations.
- The incorporation has improved the efficiency of employees as well as assisted in aligning company‟s goals with individual goals.
- TQM principles such as continuous personnel training, environmental/personnel safety at work, site supervision, subcontracting, handover procedures and customer satisfaction have been incorporated in consortium work. In addition, zero defect, reduced error, reduced rework and reduced non-value addition work and quality assurances have also been incorporated.
- A regression and a correlation analysis confirmed a positive relationship between TQM and customer satisfaction.
- The incorporation of customer service was influenced primarily by competition. Other reasons included the need to improve customer loyalty, enhance company reputation and attain higher employee efficiency. However, customer satisfaction was not incorporated to enjoy price elasticity and to lower transaction cost.
- Basic customer service activities such as providing forums for customers to vent their complaints and compiling database of their complaints are not done by the consortium, which presents a big handicap in the customer service practice of the firms‟ understudy.
- Consortium face challenges in incorporating TQM construction work, incorporating customer service in construction work and finally in incorporating TQM in customer service offering of consortiums.

- Some of the specific challenges faced included lack of management co-operation, lack of employee buy-in and shorter timeframe within which to implement the TQM propositions.

5.4 RECOMMENDATIONS

5.4.1 Policy Recommendations

Based on the findings of the study, the following policy recommendations are made:

- The eclectic applications of TQM among consortia need to be sustained and improved. It was evident the consortia took the best practices in all the TQM models which need to be commended. However, this need to be couched in a proper perspective to give it both an academic and the practical tinge and not in the ad-hoc manner in which it is currently practiced.
- Consulting firms need to have indicators or indices for measuring their TQM performance in order to assess if the incorporation has been successful or not. This will help them assess, on a continual basis, the efficiency of the TQM system.
- The specific application of TQM principles need to be monitored on a constant basis. It was noted that continuous personnel training, environmental/personnel safety at work, site supervision, subcontracting, handover procedures and customer satisfaction have been incorporated in consortium work. As much as this is commendable, its application could be counterproductive if it is not measured on a consistent basis. Such measurements will help the consortia fine-tune the system to ensure it performs better. Consortia need to make special effort to incorporate customer service and customer satisfaction is their work. This might entail some shift in their business operation but it‟s worth considering, looking at the benefits involved here. The application of customer service in their work should start from the basis by considering forums where the

organization can gather information about customer dissatisfaction, compiling these complaints into a database and basing their customer service decisions on this database.

- The consortia should embark on training and development of their employee to facilitate the incorporation of TQM. This will ensure greater cor-operation from both the management staff and the other non-management staff in the roll-out of the program. This is especially critical when we consider that resistance from staff or the lukewarm attitude from the manager can easily hamper the smooth implementation of TQM.

5.4.2 Need for Further Study

For future researchers, this study will recommend a further study into the application of TQM in consortia work by looking at the step-by-step process through which this is done. This will help researchers spot red flag areas of challenges to help other consortia that want to adopt TQM in their own work.

Another study could look at staff attitude and the adoption of TQM. Since staffs are the implementing agencies when it comes to TQM, if their interest is not courted, TQM will naturally fail. Courting their interest demands studying their attitude and reshaping these attitudes that facilitate the implementation of the concept. A study into these attitudes should therefore be an important undertaking.

REFERENCES

Agbor, J.M., 2011. The Relationship between Customer Satisfaction and Service Quality: a study of three Service sectors in Umeå.

Agwu, E. M. (2014). An investigative analysis of factors influencing E-business adoption and maintenance of commercial websites in Nigeria; Basic Research Journal of Business Management and Accounts ISSN 2315-6899 Vol. 3(1) pp. 05-16. Available online at http//www.basicresearchjournals.org [15/05/2016]

Al-Momani, A.H. (2000). Examining service quality within construction processes. Technovation 20, pp. 643-651.

Anderson, E.W. and Sullivan, M.W., 1993. The antecedents and consequences of customer satisfaction for firms. Marketing science, 12(2), pp.125-143.

Anderson E. W., Fornell Claes, and Mazvancheryl Sanal K. (2004). Customer Satisfaction and Shareholder Value", Journal of Marketing; Vol. 68,172–185.

Bansal, H. S., McDougall Gordon H.G. and Dikolli and Sedatol Karen L., (2004). ERelating e-satisfaction to behavioral outcomes: an empirical study; Journal of Services Marketing; Volume 18 · Number 4· pp. 290-302.

Barrett, P. (2000). Systems and relationships for construction quality. International Journal of Quality & Reliability Management, Vol. 17, Nos. 4/5, pp. 377-392.

Berman, B., 2005. How to delight your customers. California Management Review, 48(1), pp.129-151.

Byrnes, H., 2005. Perspectives. The Modern Language Journal, 89(2), pp.248-282.

Cronin, J.J. and Taylor, S.A. (1992). "Measuring service quality: A Reexamination and Extension". Journal of Marketing, Vol. 56, pp. 55-68.

Crosby, F., 1984. Relative deprivation in organizational settings. Research in organizational behavior.

Dale, B. G. and Prapopoulos, M. (1995) The Introduction of a Quality Improvement Process in Small Companies: An Examination in Trafford Park, QW TS, September, pp. 80-88

Deming, W.E., 1986. Out of the crisis, Massachusetts Institute of Technology. Center for advanced engineering study, Cambridge, MA, 510.

Goh, P.L., (2000). The Implementation of Total Quality Management in Small and Medium Enterprises. A doctoral thesis Submitted to the for the Department of Mechanical Engineering, University of Sheffield Mappin Street, UK.

Goldman, H.H., (2005). The origins and development of quality initiative in American business. The Total Quality Management Magazine, Vol. 17 No. 3, pp. 217-25.

Hansson, J., (2002). Sustaining quality management in Small Organizations. A Thesis submitted in partial fulfilment of the requirements for the degree of Doctoral thesis in the department of Business Administration and social science. Luleå University of Technology, 971 87 Luleå, Sweden.

Holweg, M. and Pil, F.K., 2004. Linking product variety to order-fulfillment strategies. Interfaces, 34(5), pp.394-403.

Johanson, J. and Fredrik S., (2002). customer relationship management case studies of five Swedish company. Luleal University of Technology, Available online at www.epubl.lutb.se/1404-5508/2002/016/indexen. Html [15/05/2016].

Jones, S., 2005. Del Sasser. WE [1995]:«Why Satisfied Customers Defect», Harvard Business Review, Nov/Dec, 73, pp.88-99.

Juran, J.M., 1986. The quality trilogy. Quality progress, 19(8), pp.19-24.

Karna Radjasa, O., 2004. Deep-sea bacteria and their biotechnological potentials. Journal of Coastal Development, 7(3), pp.109-118.

Kärnä, S. (2009). Concepts and attributes of customer satisfaction in construction.

Kärnä, S., Junnonen, J.M., Kankainen, J., (n.d.). Customer Satisfaction in Construction. Available online at https://www.yumpu.com/en/document/view/51008775/ customer-satisfaction-in-construction [25/04/2016]

Kärnä, S., Junnonen, J.M. and Kankainen, J., 2004, August. Customer satisfaction in construction. In Proceedings of the 12th Annual Conference on Lean Construction (pp. 476-488). Helsingøv.

Kartha, C. P., (2004). A comparison of ISO 9000: 2000 quality system standards, QS9000, ISO/TS 16949 and Baldrige criteria. Total Quality Management Magazine, 16, 331-340.

Kelce, G.A. (2004) and Lee, C.Y., "*TQM in small manufacturers: an exploratory study in China*", *International Journal of Quality & Reliability Management*, Vol. 21 No. 2, pp. 175_197.

Khalifa, M., and Liu, V, (2003). “Determinants of satisfaction at different adoption stages of internet-based services. Journal of Association for Information Systems. Vol. 4, No. 5, pp. 206-232.

Khamalah, J.N. and Lingaraj, B.P., 2007. TQM in the service sector: a survey of small businesses. Total quality management, 18(9), pp.973-982.

Kocoglu, D. and Kirmaci, S., 2012. Customer Relationship Management and Customer Loyalty-A survey in the sector of banking. International Journal of Business and Social Science, 3(3), pp.282-291.

Kotler, P. (2009). Marketing Management, Pearson Education, Inc. Fifth edition

Kotler, P., and Keller, K., (2006). Identifying Market Segments and Targets, Marketing Management, 12th Edition, Pearson.

Lee, G.G. and Lin, H.F., 2005. Customer perceptions of e-service quality in online shopping. International Journal of Retail & Distribution Management, 33(2), pp.161-176.

Leedy, P.D. and Ormrod, J.E., 2015. The nature and tools of research. Practical research: Planning and design, pp.1-26.

Lewis, W.G., Pun, K.F. and Lalla, T.R.M., 2005. An AHP-based study of TQM benefits in ISO 9001 certified SMEs in Trinidad and Tobago. The TQM magazine, 17(6), pp.558-572.

Ljungström, M. and Klefsjö, B., 2002. Implementation obstacles for a workdevelopmentoriented TQM strategy. Total Quality Management, 13(5), pp.621-634.

Maloney, W.F. (2002). Construction product/service and customer satisfaction. Journal of Construction Engineering and Management. November/December, pp. 522529.

Merriam Webster Learners Dictionary (2016). Simple Definition of Consortium. Available online at http://www.merriam-webster.com/dictionary/consortium [10/05/2016]

Milton, J.R., (1979). International Consortia: Definition, Purpose and The Consortium Agreement. Fordham International Law Journal, 3 (2), pp 121-140.

Mohamed, Z. (2000). Managing customer satisfaction: a best practice perspective; The TQM Magazine; Vol. 12. No 6, pp. 389-394.

Naeem H., and Muhammad I.S., (2010). Employee Empowerment and Customer Satisfaction: Empirical evidence from the banking sector of Pakistan. African Journal of Business Management, Vol. 4, No.10, pp.2028-2031.

Nagaprasad, H. and Yogesha, B., 2009, December. Enrichment of customer satisfaction through total quality management techniques. In Proceedings of the International MultiConference of Engineers and Computer Scientists (Vol. 2).

Newman, K., (2001). Interrogating SERVQUAL: A critical assessment of service quality measurement in a high street retail bank. International Journal of Bank Marketing, 19 3), 126-139, No. 2.

Nonxuba, A.N., 2010. The application of total quality management within small and medium enterprises.

Nonxuba, A.N., (2011). The Application of Total Quality Management Within Small and Medium Enterprises. A master‟s dissertation submitted to the Faculty of Engineering, Cape Peninsula University of Technology

Oakland, J. S., (1989). Total Quality Management, Butterworth-Heinemann, Oxford.

Ogbari, M., and Borishade, T.T., (2015). Strategic Imperatives of Total Quality Management and Customer Satisfaction in Organizational Sustainability, International Journal of Academic Research in Business and Social Sciences, Vol. 5, No. 4, pp 1-22.

Obeng, I.O., (2015). Effect of Quality Service on Customer Satisfaction in Commercial Banks; Case study GCB Bank Ltd, Takoradi Main Branch. Thesis submitted to Ghana Telecom University College (GTUC)/Coventry University - UK

O'Neil, H. M. and Duker, J., (1986) Survival and Failure in Small Firms, Journal of Small Business Management, VoL 24, No. 1, pp. 30-37.

Opoku, K., 2005. Benefits sharing and participatory resource management. In *Workshop Proceedings* (Vol. 5, pp. 18-26).

Parasuraman, A., Berry, L.L. and Zeithaml, V.A., 1991. Refinement and reassessment of the SERVQUAL scale. *Journal of retailing*, *67*(4), p.420.

Parasuraman, A., Zeithaml, V.A., & Berry, L.L., (1985). "A conceptual model of service quality and its implications for future research." Journal of Marketing, Vol. 49, Fall.

Peppers, D. and Rogers, M., 1999. The one to one manager. Real-World Lessons in Customer Relationship Management. Currency Doubleday, New York, NY, USA, 1.

Prajogo, D.I., 2005. The comparative analysis of TQM practices and quality performance between manufacturing and service firms. International Journal of Service Industry Management, 16(3), pp.217-228.

Raja, M.W., Bodla, M.A., and Malik, S.A., (2011). Evaluating the Effect of Total Quality Management Practices on Business Performance: A Study of Manufacturing Firms of Pakistan. International Journal of Business and Social Science Vol. 2 No. 9, pp 110-117

Reichheld, F.F. and Sasser, W.E.J. (2006), "Zero defections: quality comes to services". Havard Business Review, Vol. 68 No 5, pp. 2-9.

Sadikoglu, E., and Olcay, H., (2014). The Effects of Total Quality Management Practices on Performance and the Reasons of and the Barriers to TQM Practices in Turkey. Hindawi Publishing Corporation, Istanbul, Turkey.

Sivadas, E., and Baker-Prewitt, J.L. (2006). An examination of the relationship between Service Quality and Customer Satisfaction, and Store Loyalty. International of Retail and Distribution Management, 28(2), 73-82

Soetanto, R., D.G. Proverbs and Holt, G.D., (2001). Achieving quality construction projects based on harmonious working relationships. Clients‟ and architects‟ perceptions of contractor performance. International Journal of Quality & Reliability Management, Vol. 18, No. 5, pp. 528-548.

Subedi, D., Tate, U., and Maheshwari, S., (2008). TQM in Small and Medium Scale Manufacturers: Development of Measurement Instruments. Dias Technology Review, 5 (2).

Subedi, D.B., Alexander, L., and Gündüz, C., 2009. What role for business in "postconflict" economic recovery? Perspectives from Nepal. Case Study Series, International Alert, London.

Stangor, C., 2007. External Validity. Research methods for the behavioural sciences, pp.238-253.

Stonebraker, P.W., Leong, G.K. (1994). "Operations Strategy: focusing competitive excellence". Allyn and Bacon.

Swanson, S.R., Kelley, S.W. (2010). "Attributions and Outcomes of the Service Recovery Process". Journal of Marketing Theory and Practice.

Talib, F. and Rahman, Z., 2012. Total quality management practices in manufacturing and service industries: a comparative study. International Journal of Advanced Operations Management, 4(3), pp.155-176.

Torbica Z.M. and R.C. Stroh (2001). Customer Satisfaction in Home Building. Journal of Construction Engineering and Management. Jan/Feb, pp. 82-86.

Vavra, T.G., 1997. Improving your measurement of customer satisfaction: A guide to creating, conducting, analyzing, and reporting customer satisfaction measurement programs. ASQ quality press.

Wilson A., Zeithaml V.A., Bitner M.J., Gremler D.D., (2008). Services Marketing, McGraw-Hill Education

Winch, G., A. Usmani and A. Edkins (1998). Towards total project quality: a gap analysis approach. Construction Management and Analysis, Vol. 16, pp.193-207.

Yamane, T., 1973. Statistics: An introduction analysis. Harper & Row.

Yasamis, F., D. Arditi and J. Mohammadi (2002). Assessing contractor quality performance. Construction Management and Economics 20, pp. 211-223.

Yoo, D.K. and Park, J.A. (2007). Perceived Service Quality; Analysing Relationships Among Employees, Customers, and Financial Performance. *International Journal of Quality and Reliability Management*, 24(9), pp. 908-926.

Yoon C., (2010). Antecedents of Customer Satisfaction with Online Banking in China: The effects of Experience. Computers in Human Behavior, Vol. 26, pp. 1296–1304.

Zultner, R., (1992). Quality Function Deployment for software satisfying customers. Available online at http://citeseer.ist.psu.edu/contextsummary/206764310 [04/03/2016].

APPENDIX

APPENDIX ONE - QUESTIONNAIRE

My name is Pela Arku, a Masters student in the Department of Building Technology, Kwame Nkrumah University of Science and Technology, Kumasi. This questionnaire is designed for a research study entitled "**A STUDY INTO THE EFFECT OF TOTAL QUALITY MANAGEMENT PRACTICES BY A CONSORTIUM ON CUSTOMER SATISFACTION. A STUDY OF ABP CONSULT"** In partial fulfilment for the award of the MSc degree, I am conducting an academic query on the above subject matter. This questionnaire is to solicit information towards this purpose and will appreciate if you will take some time off your busy schedule to respond to these questions. Any information provided will be used solely for academic work and will be treated with the utmost confidence. **Kindly respond to the questions by ticking (√) and writing the appropriate answers in the options and spaces provided for each item respectively.**

Thank you.

Questionnaire Number_____

A: Demographic information

1. Gender [ ] Male [ ] Female
2. Educational Background: [ ] No education [ ] Completed lower Primary

   [ ] Junior High Graduate [ ] Senior High Graduate [ ] Diploma/HND

   [ ] Bachelor‟s Degree [ ] Master‟s Degree [ ] Professional Certification
3. How long have you worked in the consultancy firm?

   [ ] Below 3 years [ ] B/n 4 to 6 years [ ] B/n 7 to 10 years [ ] Above 11 years
4. Kindly indicate which department you work in?…….

B. Incorporation of TQM into the Ghanaian Construction Sector

5. Is TQM incorporated in the Ghanaian construction sector?

   Yes [ ] No [ ] Do not know [ ]
6. To what extend is this done?

   To a small extent [ ] To an extent [ ] To a large extent [ ]

   To a very large extent [ ]
7. Does TQM help improve the work efficiency of employees in consortium firms?

   Yes [ ] No [ ] Do not know [ ]
8. Does TQM assist in alignment of company‟s goals as well as individual goals?

   Yes [ ] No [ ] Can‟t say [ ]
9. Indicate whether the following TQM variables have been incorporated in the construction industry. Use the following rankings: 1=strongly disagree; 2=disagree; 3=neutral; 4=agree and 5=strongly agree

Variable	**1**	**2**	**3**	**4**	**5**
Continuous personnel training					
Environment/safety at work					
Site supervision					

Subcontracting					
Handover procedures					
Customer satisfaction					
Zero defect					
Reduced error					
Reduced rework					
Reduction of non-value added work					
Co-operation,					
Quality assurance					

10. If your organization applies TQM, which model(s) do you apply MBNQA Model [ ] ISO 9004 [ ] EFQM Model [ ] UMIST Model [ ] Xerox Model [ ] No specified model [ ] Others, specify…….
11. Does your consortium apply statistical process control? Yes [ ] No [ ] Do not know [ ]
12. What other quality practice(s) does your consortium firm apply for? None [ ] Quality circles [ ] ISO 1400/EMS [ ] BS8800/SMS [ ] SA8000 [ ] HACCP [ ] GMP [ ] 5S [ ] Customer satisfaction survey [ ] Vendor partnership prog [ ] Others, specify…….

C: Incorporation of Customer Service Considerations in the Consortium

13. Do consortiums incorporate customer service into their work? Yes [ ] No [ ] Do not know [ ]
14. To what extend is this done? To a small extent [ ] To an extent [ ] To a large extent [ ] To a very large extent [ ]

15. Does the incorporation of customer service in consortium involve any of the following steps?

    [ ] forming customer database

    [ ] learning what the customer need from their complaints

    [ ] producing tailor-made solutions to these needs.

    [ ] Others, specify…….

16. Does consortium incorporate customer service for the following reasons? Use the rankings below: 1=strongly disagree; 2=disagree; 3=neutral; 4=agree and 5=strongly agree

Variable	**1**	**2**	**3**	**4**	**5**
Improve customer loyalty					
Enjoys price elasticity					
Lowered transaction cost					
Enhanced reputation					
Attains higher employee efficiency					
Others (specify)					

17. To what extent did competition facilitate the incorporate of customer service in TQM work? To a small extent [ ] To an extent [ ] To a large extent [ ] To a very large extent [ ]

D: Find out the Relationship between TQM and Customer Satisfaction in the

Construction Sector

18. Is there a relationship between TQM and customer satisfaction in consortium work? Yes [ ] No [ ] Do not know [ ]
19. Is this relationship positive or negative? Positive [ ] Negative [ ] Both [ ]
20. To what extent is TQM and customer service related in consortium work?
    To a small extent [ ] To an extent [ ] To a large extent [ ] To a very large extent [ ]

21. Use the rankings below to respond to the following questions that evaluate the relationship between TQM and customer satisfaction

    1=strongly disagree; 2=disagree; 3=neutral; 4=agree and 5=strongly agree

Variable	**1**	**2**	**3**	**4**	**5**
The incorporation of TQM has improved customer satisfaction in consortium work					
The incorporation of TQM has improved service quality of consortiums					
The incorporation of TQM has improved the recruitment and selection practices of consortiums					
The incorporation of TQM has positively affected the organizational structure of consortiums					
The incorporation of TQM and its subsequent effect on customer service has given us repeat businesses					
Others (specify)					

22. Indicate whether the following TQM factors affect customer service in consortium work. Use the rankings below:

1=strongly disagree; 2=disagree; 3=neutral; 4=agree and 5=strongly agree

Variable	**1**	**2**	**3**	**4**	**5**
Workers training					
Workers empowerment					
Inter-functional link					
Internal factors					
Customers orientation					
Customer orientation					
External results					

E: Challenges Involved in the Incorporation of TQM on Customer Service

23. Are there challenges in incorporating TQM into consortium work?

Yes [ ] No [ ] Do not know [ ]

24. What are those challenges?

……

……

……

25. Are there challenges in incorporating customer service into consortium work?

Yes [ ] No [ ] Do not know [ ]

26. What are those challenges?

……

……

……

27. Are there challenges in incorporating TQM into customer service in TQM work?

Yes [ ] No [ ] Do not know [ ]

28. What are those challenges?

……

……

……

Thank you!!