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MEASURES FOR MITIGATING THE CRITICAL BARRIERS TO TOTAL QUALITY MANAGEMENT IMPLEMENTATION IN THE NIGERIAN CONSTRUCTION INDUSTRY

Saidu M. Mohammed[1] and Sadiq H. Aminu

Department of Quantity Surveying, Faculty of Environmental Design, Ahmadu Bello University, Zaria, Kaduna State, Nigeria

ABSTRACT

Purpose: This study assessed the measures for mitigating lack of top management commitment as a critical barrier to implementation of Total Quality Management (TQM) in Nigerian construction industry.

Design/methodology/approach: The study adopted a quantitative research approach. Simple random sampling was used. Primary data was collected using structured questionnaires that were self-administered. Descriptive statistics was used to analyse the data collected; analysis of variance (one-way ANOVA) was used to check the significant difference between the responses of different groups of the population.

Findings: The study revealed that all the measures assessed were very important in mitigating the barrier as indicated by their mean scores. However, the measures that ranked first, second and third were: Top management should have long term vision and mission towards quality improvement (having mean score of 4.71); Top management should have Strong leadership characteristics such as integrity, courage, humour and wisdom (with the mean score of 4.62); They should consider continuous improvement, teamwork and customer satisfaction as their prime objectives (with a mean score of 4.59), respectively. A p-value of 0.36 was also obtained which is greater than 0.05 benchmark thereby indicating that there is no significant difference as to how the different types of construction contractors perceive the level of importance of the measures.

Research limitations/Implications: Construction companies should give much considerations to the factors measured in order to get their top management committed. to gain the full benefits of TQM, once successfully implemented.

Practical implications: To list critical factors affecting implementation of TQM, as done by many researchers, has become monotonous and vague. The study took the most important factor and dissected the constituent points under it and ranked them from most important to the least. This is important for the construction companies because implementation of TQM can only be achieved in a step-by-step format/procedure.

Originality/value: This is one of the few studies that assessed the measures for mitigating the critical barriers of total quality management implementation in the Nigerian Construction Industry.

Keywords: Building Barriers; Measures; Mitigating; Top Management Commitment; Total Quality Management.

[1] Email: smminin@yahoo.com

1. INTRODUCTION

Total Quality Management (TQM) is an integrative firm-wide management philosophy that continuously improves the quality of the processes, products, and services by meeting or exceeding customer expectations to enhance customer satisfaction and organisational performance (Riaz *et al*., 2023 citing Sadikoglu & Olcay, 2014). The concept of TQM is such that all and sundry are involved in the drive to achieving organisational performance, by providing customer satisfaction and more. TQM has also been defined by Alweteed (2018) as, a holistic and ethical approach of organisations to continuously develop their products/services or processes involving all stakeholders to satisfy their customers and to improve performance and sustainability. In order to benefit from the concept of TQM, it must form part of the culture ("corporate culture") of contracting organisations, and must also be such that the improvement of the product of the organisation is non-ending (i.e. always-increasing).

The construction industry in Nigeria is bedevilled by a lot of problems. Some of which include quacks or unqualified labour force, high rate of accidents on site, inferior works that often lead to reworks or rectification, time and cost overruns, problems with subcontractors and suppliers, competition for jobs, site management, lack of considerations for the customers and other stakeholders, etc. (Agwu & Olele, 2014; Buys & van Rooyen, 2014; Inuwa, Githae & Stephen, 2014; Jimoh, 2012; Omonori & Lawal, 2014). With these problems and more, even amongst the developed construction industries, TQM implementation gained governments attention. Such developed construction industries include: the United States of America and the United Kingdom (Ikediashi & Owoefiak, 2021; Wanderi, Mberia & Odour, 2015). Also, several, construction industry reports, including the Yeldham and Gyles' of 1992 in Australia; Associated General Contractors of America Report of 1993; Latham Report of 1994 and Egan Report of 1998 in the UK; and were published to help construction companies to implement TQM and tackle controversial issues facing the industry (Harrington, Voehl & Wiggin, 2012; Wanderi *et al*., 2015). The adoption of TQM by construction companies will result in higher customer satisfaction, better quality product, reduce cost, save time, higher market share, stakeholder's satisfaction, and more (Kim, 2016; Malik, Banerjee & Ahmad, 2018; Rajan & Paul, 2017).

In a world of business characterised by all sorts of problems comprising present and future challenges, TQM has been adopted as one of the managerial and organisational methods to achieve long term profitability, sustainability and competitiveness (Ikediashi & Owoefiak, 2021 citing Bani & Loiy, 2012). Indigenous construction firms will have to compete with foreign firms and other multinational corporations in order to secure contracts and remain in business. Nigeria and other developing countries are now part of the global arena where biddings for projects are now based on documents and procedures laid down by the World Bank. The concept of TQM, from the definitions above, perfectly prepares construction companies for the challenges ahead, hence the importance of this study. As already found by Femi (2015), some of the benefits of TQM to the construction industry include, better chances in bidding process with prequalification, reduces waste of resources (e.g. material, labour and money), better chances of winning contract in domestic market, improves budget performance, reduce claims, improve schedule performance, etc. But in spite of these benefits, it has been found that its implementation in the industry is hindered by some barriers which include, lack of top management commitment, lack of top management support, lack of knowledgeable personnel, low bid mind-set, lack of effective communication, extra cost and time consuming, and difficulties in measurement (Femi, 2015; Haseeb & Mahr, 2015; Polat, Damci & Tatar, 2011). Various researches have assessed the barrier to TQM implementation in the construction industry and found out lack of top management commitment to be the most critical barrier/important factor to TQM implementation (Al-Sabek, 2015; Chukwuka, 2008; Femi, 2015; Wanderi et al., 2015; Oruma, Mironga & Muma, (2014); Polat et al., 2011; Tey & Ooi, 2014).

Abdulaziz (2012) conducted a research to determine the measures to overcome the effect of lack of top management commitment in construction industry. The study found out that: top management should have strong leadership characteristics, such as (integrity, courage and wisdom); they should develop long term vision and mission regarding quality improvement; etc. Similarly, in trying to overcome lack of top management commitment, Haseeb and Mahr (2015) recommend that top management should embrace quality improvement program; recognize their employees as vital

players in making decision; and they should provide means of acquiring technical expertise and good communication skills for their employees. With the above efforts by researchers, no effort seems to have been made in bringing all the measures by the various researchers together to assess their effects, with a view to mitigating lack of top management commitment successfully

1.1. Statement of Research Problem

The issue of quality has become of great importance especially with the ever-growing concerns and demands from various players in the market. This brings about transformation in many industries such as manufacturing, construction, agricultural and oil industries regarding attending to quality issues by adopting quality management approaches, Total Quality Management (TQM) being among. However, there are barriers preventing its full implementation in the construction industry (Femi, 2015). This is despite the fact that, in the study of McIntyre and Kirschenman (2000) cited in Hoonakker, Carayon and Loushine (2010), of 1500 construction firms, the study found that substantial economic benefits could be attained through the implementation of TQM. Earlier, Love et al. (2000) and Nesan and Holt (1998) both cited in Harrington et al. (2012) have concluded that without initiating and implementing TQM, the problems of construction industry will remain.

Other researches that have been conducted regarding TQM have focused on barriers and benefits of its implementation, effects on customer satisfaction, recommendations and determination of measures to mitigate lack of top management commitment and its tools and techniques application (Abdulaziz, 2012; Aliyu, 2016; Al- Sabek 2015; Femi, 2015; Hoonakker et al., 2010 citing Torbica & Stroh, 1999; Jhon, Joseph & Philip 2016). Despite the determination of the measures for mitigating lack of top management commitment, a study conducted by (Oludare & Olusey, 2016) revealed that top management of Nigerian construction firms are not committed towards implementation of quality management. This implies the barrier is still evident, thereby preventing the stakeholders from gaining the full benefits of implementing TQM in the construction industry. Hence, this study seeks to assess, and prioritise, the measures for mitigating lack of top management commitments with a view to ranking them from the most important ones to the least important).

1.2. Aim and Objectives of the Study

The aim of this study was to assess measures for mitigating lack of top management commitment as a critical barrier to implementing Total Quality Management (TQM) in Nigerian construction industry. In achieving the aim, the objectives of the study were:

i. Identify the measures for mitigating the barrier (lack of top management commitment) to TQM implementation in Nigerian construction industry.
ii. Assess the identified measures for mitigating the barrier (lack of top management commitment) to TQM implementation in Nigerian construction industry, with a view to ranking them in descending order.

1.3. Research Questions

Given the aim and objectives above, the following questions were set as guide:

i. What are the measures for mitigating lack of top management commitment in implementation of Total Quality Management in construction industry?

ii. Which are the most important among the measures for mitigating lack of top management commitment?

2. LITERATURE REVIEW

2.1. Construction Industry and Construction Firms

By function, the Construction Industry is simply that sector of the economy in charge of construction of buildings, roads, rails, waterways, tunnels, ports, etc. Its activities range from the construction of small units of structures to very large infrastructures. The activities within the industry include, but not limited to, the provision of goods/products and services. According to March (2015), "the construction industry serves a wide range of customers including national governments, local

governments, hospital trusts, commerce, industry, the retail sector, housing associations, individuals who either commission work or buy from the speculative sector, and users of the building who may not necessarily be the owners, such as visitors and employees." The importance of the construction industry stems from its strong linkages with other sectors of the economy (Osei, 2013 citing World Bank, 1984). Due to the industry's central importance to every nation's economy, maintaining it in order to continue booming is a must. Furthermore, the players in the industry must do all that is required, right and necessary to keep the industry going. This is supported in Osei (2013) where Turin (1969) argued that there is a positive relationship between construction output and economic growth.

The Building firms, Contractors, Construction contractors, Construction firms, Construction companies, Construction organisations (all used interchangeably in this study) must construct to the required quality at the minimum, in order to continuously satisfy the clients/customers/end users profitably, and to continue in business. This is because of the fact that insolvency of construction companies is never healthy for the industry in particular and the nation in general. A contractor according to Salleh (2009) is a firm or individual generally in contract with an owner in order to execute certain project(s) according to specific conditions. However, driving home the ugly side of contract, Ashworth (2010) asserts that, defects in construction projects are a persistently worrying problem despite continually improving technology and education. The achievement of an acceptable standard in buildings is a combination of quality of design and quality of construction (Ashworth, 2010). Quality may be defined as conformance to requirements or specification; degree to which a set of inherent characteristics fulfils requirements; fitness for use/purpose, and applied to materials (size, type, colour, strength), applied to processes, and applied to management practices, and performed by all participants on a project (Mohammed & Rotimi, 2002; Shaikh & Darade, 2017; Sherratt & Farrell, 2015).

2.2. Aims and Objectives of TQM

The International Academy of the American Society for Quality has defined TQM cited in Harrington et al. (2012) as "the management approach of an organisation centred on quality, based on the participation of all of its members and aiming at long-term success through customer satisfaction and benefits to all members of the organisation and to society." TQM ensures continuous improvement in the organisation's people, systems, processes and environment in order to achieve ever-improved customer satisfaction, cost effectiveness, and defect-free work through a relentless pursuit of the "war on waste" (Bahri, Hamzah & Yusuf, 2012; Harrington et al., 2012). The basic purpose of TQM is to achieve customer satisfaction by way of continuous improvement of products as well as processes by the total involvement and dedication of each stakeholder of the project (Ahmed, 1993 cited in Erande & Pimplikar, 2016). TQM is a structured approach to ever-increasing improvement, which according to Riaz et al. (2023) has proven to minimise nonconformity, complexity, and non-linearity and achieve distinction.

TQM aims to establish quality enhancement as an organisational dominant priority and improve organisational effectiveness through eight principles, which include: 1) top management leadership, 2) customer management, 3) people management, 4) supplier management, 5) quality information management, 6) process management, 7) leading, and 8) continual improvement (Koh and Low, 2010 cited in Polat et al., 2011). If correctly applied, it will assist a construction company in improving its performance. In a study by Bardoel and Sohal (1999) cited in Harrington et al. (2012), on the benefits achieved adopting TQM in seven Australian construction organisations, the following were found: 1) better control of processes resulting in consistency from design through to delivery; 2) reduced construction cycle time; 3) a reduction in the quantity of goods damaged in transit and construction; 4) reduced delivery time to the site; 5) decreased fallout of chemicals; 6) increased measurement of performance; and improvement in customer perceptions of the company.

2.3. TQM and the Construction Industry

According to Mohamed, Ibrahim and Mohamed (2013) cited in Riaz et al. (2023), TQM implementation in the construction sector would bring about improvement in organisation's status, extensive market share achievement, and also achieve more client satisfaction. Several studies according to Eniola, Olurunleke, Akintimehin, Ojeka and Oyetunji (2019) cited in Riaz et al. (2023) suggested that TQM initiatives are a means of strategic and competitive edge that can increase

construction sector's productivity and efficiency. In response to the above, Oakland and Aldridge (1995) had earlier suggested, cited in Hoonakker et al. (2010) that "if ever an industry needed to take up the concept of TQM it was the construction industry." This is because everything about the construction industry is about quality. Materials (including conditions of manufacturing, transportation, storage and fixing) and labour must all be qualitative, that is, to specifications, in other words. According to Suganthi, Sornalakshmi, Srinivasan, Nivethitha and Priyavadhana (2017) TQM is one of the most important approaches to achieving quality in the construction industry.

Despite the fact that TQM started extensively and beneficially from the areas of manufacturing and industrial engineering (Shreyas, Ramesh, Sachidananda & Shashi, 2015), Alfred (1988) had long advanced the view, cited in Hoonakker et al., (2010), that construction very probably promises a greater payback for performance improvement than any other service industry because of its magnitude. This is further supported by the findings of Chase (1998) cited in Hoonakker et al. (2010) in part that, "in the construction industry, application of TQM to the jobsite has been proven to speed-up projects while increasing profitability."

Aside the magnitude, the construction industry is also unique in the following ways: 1) the mobility of staff; 2) diversity in the types, forms, and shapes of construction projects; 3) geographical dispersion; 4) the contractual relationships; 5) frequent prototyping of projects; and 6) the subtle forms of waste that often go unnoticed (Harrington et al., 2012).

2.4. Implementation of TQM

Since implementation of TQM is associated with benefits to both the organisation and its clients, it is regarded a double sided competitiveness tool. It is important to note that any organisation can implement TQM irrespective of the size or operations. However, the success of the implementation process depends on how well the organisation understands the process and the strategies adopted. One guiding principle in implementation of TQM is that the process must be organisation wide; everyone and every function in the organisation must be involved in the process with the management taking a leading role (Schuurman, 1997).

Implementing TQM in the construction sector presents various advantages such as: enhanced budget efficiency; documented cost savings; improves business efficiency and effectiveness; produce desired outcomes for customers delight and satisfaction; reduced cycle times; better workers' job contentment and productive work forces; diminished rework; exquisite schedule and budget performance; better procurement; greater participation in the bidding process; and provides long term competitiveness (Burati et al., 1991 cited in Ahmed & Salman, 2006; Chauhan, 2014 cited in Riaz et al., 2023; Kakkad & Ahuja, 2014). Despite the above, construction generally has lagged behind other industries in implementing TQM (Ahmed & Salman, 2006). The main reason was the initial perception that TQM was for manufacturing and service industries only (Arditi & Gunaydin, 1997 cited in Ahmed & Salman). The other major reason inhibiting TQM implementation in the construction industry has been the notion that TQM was costly and required a long period of time for implementation (Ahmed & Salman).

Implementation of TQM is an elaborate process that takes time and resources. It is a process that must be initiated and managed by the top management. Management must participate in the implementation process and fully committed to it if TQM is to succeed (Arditi & Gunaydin,1997). The top management must make available all critical resources required as well as the organisational structure and culture for quality, defining organisational quality values and goals, and providing necessary infrastructure for operating quality management systems (Polat et al., 2011). The process must focus on finding out, meeting and exceeding customer needs and expectations through total involvement of everyone in the organisation and through continuous improvement. This process requires exceptional skills and team work that calls for continuous training and development of employees (Oluwatoyin & Oluseun, 2009). Malcolm Bridge National Quality Award (MBNQA) as discussed by Wali and Boujelbene (2011) developed six practice criteria that can be used to measure TQM. These are leadership, strategy and planning, customer focus, information and analysis, people management, and process management.

2.5. Obstacles of TQM

It is important to note that there are factors that may inhibit successful implementation of TQM. Arshida and Agil (2012) refer to them as barriers of TQM implementation. These factors include; lack of top management commitment which is associated with lack of critical resources and poor leadership leading to poor employee empowerment and motivation, poor or weak organisational vision and plan statement that dilutes employee's efforts in quality programs. Another important factor is government influence that is associated with bureaucracy and slow systems. Lack of favourable quality policy or low government support of quality programs makes it a challenge to adopt and implement quality initiatives.

For the effective implementation of TQM, the following factors which Gurav, Demgunde, Patil and Katare (2022) presented as Critical Success Factors for TQM implementation in Construction must not serve as obstacles, namely: Top Management Commitment; Leadership Support; Management Review and Feedback; Continuous Improvement; Attitude To Change; Quality Culture; Teamwork; Communication and Coordination; Education and Training; Employee Empowerment; and Customer Satisfaction.

A survey conducted by Al-Sabek (2015) showed that management commitment is the most important factor in implementing TQM in a construction company. Also, it showed that Project cost was the most affected outcome from the implementation of TQM. Management commitment is very important for implementing TQM in any company. If the management loses interest in quality, then everyone in the organisation would do same. The success of TQM will depend mostly on the top of the pyramid. This study investigated the measures for mitigating lack of top management commitment only.

In a study by Wanderi et al. (2015), the following conclusions were drawn, amongst others: 1) that top management commitment is a critical factor, and has a positive influence in the implementation of TQM. This means that with increased top management commitment, the implementation of TQM is likely to be more successful; 2) that an employee training is a critical factor in implementation of TQM, and has positive influence on implementation of TQM. This means that employee training can be used to enhance implementation process of TQM.

From the findings of most of the studies on TQM, it can be concluded that Top management commitment is the most critical factor in the implementation of TQM in construction industry. However, several works have also revealed its lack of implementation for the full benefits of TQM. Haseeb and Mahr (2015) found that top management is not fully committed and for success of any quality program implementation they have to be committed fully beyond public announcements. As such, they recommend that Top management should embrace quality improvement programs no matter how far reaching the program may appear in terms of the monetary implications therein. Secondly, they recommended that other factors, other than competition should be considered, that drive managers into implementing quality initiative.

Abdulaziz (2012) determined some key measures which the top management has to adopt in order to have full commitment toward successful implementation of TQM and for all employees to also be responsible in achieving these indicators (measures) and they include: First, leaders of the companies should have strong leadership characteristics such as integrity, courage, humour and wisdom. Top management also has to develop long term vision and mission towards quality improvement. They need to know what the strategic priorities exactly are, and the business strategy they are working on. Leaders of the organisation have to show and give recognition and motivation to every employee they lead. Work environment is also an important factor leaders have to consider. The leaders have to consider the availability of resources and time for improvement. Top management has to show support clearly to the implementation of TQM. It is managers' duty to give all employees full support and encouragement. The leaders should reward financially, any employee that shows an outstanding performance in their TQM implementation role. Managers and supervisors should see their subordinates as responsible human beings, as well as hardworking people. He further stated that with the above measures top management will be committed sufficiently beyond public announcements

3. METHODOLOGY

This study adopted a quantitative approach, which served as source of primary data, in order to discover the objective reality out there from the companies investigated, on the study area (Krathwohl, 1998) for which the researchers are independent of (Creswell, 1994), and remained objectively separated (MacDonald & Headlam, n.d.). This study assessed various factors under top management commitment, which were got from literature, and which given the composition of the management of different construction companies could vary from one to the other. The quantitative approach which has the tendency of covering and studying a larger population is the better approach to studying such, as it accorded the researchers a wider coverage of the maximum possible number of companies that participated in the study.

An extensive and intensive review of extant literature was also undertaken. The reviews brought out all the aspect of the study from which questionnaire was carefully designed. Simple random sampling was used to select the construction companies which were used as sample for the study. "Simple random sampling is a procedure that gives each of the total sampling units of the population (noted by the letter 'N') an equal and known nonzero probability of being selected" (Nachmias & Nachmias, 1996). A total of 130 questionnaires were self-administered/physically distributed to construction firms undertaking projects in Kaduna, Kano, Lagos, and Port Harcourt. The choice of these states was based on physical and careful assessment of construction works going on in them.

One questionnaire was given to each firm which was filled by a top level manager of between 10 to 15 years of experience and above. Early part of the questions ensured that the companies have handled projects in several other parts of Nigeria. Also, stratified random sampling technique was applied in order to get an unbiased sample. This is because populations of construction companies in the chosen research areas reflect imbalance on a characteristic of the sample (Creswell, 2012) with the assertion from past researchers that 80% of indigenous construction companies that registered with the Federal Registration Board of Nigeria have their addresses in Lagos, Abuja and Port Harcourt (Fagbenle, Aderemi & David, 2004; & Olaleye, 2008 both cited in Ogundipe et al., 2018).

A total number of 10,417 active Contractors, as at the first quarter of 2022, was got from the Federal Inland Revenue Service (FIRS), which gave a Sample size of 99, Using the Published Tables for determining sample size (Israel, 1992). Researchers use several strategies in determining sample size, which include: "using a census for small populations; imitating a sample size of similar studies; using published tables; and applying formulas to calculate a sample size" (Israel, 1992). The sample size was increased by 30% to account for nonresponse and uncooperative subjects (Israel, 1992). Descriptive statistics (such as, percentages, frequencies, mean and standard deviation) and analysis of variance one-way ANOVA were used to analyse the data collected.

4. PRESENTATION AND DISCUSSION OF RESULTS

4.1. Demographic information of respondents

Most of the respondents were from top management of the companies with 10 – 15 years of experience and above, who were moderately familiar with TQM. Most of the companies are involved in both civil and building engineering works.

4.2. Measures for mitigating the lack of top management commitment

Respondents were requested to express their opinion on how important the following measures can be used to mitigate lack of top management commitment. Using the key (Where: 1 - Low importance; 2 – Slightly important; 3 – Neutral; 4 – Moderately important; 5 – Very important). The statements and the respondents' opinions are as shown in Table 1 below.

According to Table 1 above, 45 of the respondents indicated that the measure, top management of the companies, should have long term vision and mission towards quality improvement, is very important, while 18 of them indicated that it is moderately important; 39 of the respondents indicated that the measure, Leaders of the companies should have strong leadership characteristics such as integrity, courage, humour and wisdom is very important, while 24 of them indicted that it is

moderately important; 39 of the respondents indicated that the measure, top management should consider continuous improvement, teamwork and customer satisfaction as their prime objectives is very important, 22 indicated that it is moderately important, while 2 of the respondents indicated that it is neutral; 38 among the respondent indicated that the measure, top management should show recognition to their employees as a result of outstanding performance is very important, 22 indicated that it is moderately important, 1 indicated that it is neutral while 1 indicated that it is slightly important; 29 among the respondents indicated that the measure, top management should provide technical expertise, communication skills and customer relation is very important, 31 indicated that it is moderately important, while 3 indicated that it is neutral; 25 among the respondent indicated that the measure top management need to know what their strategic priorities exactly are as well as the strategy they are working on is very important, 31 indicated that it is moderately important, 7 indicated that it is neutral; 31 among the respondents indicated that the measure, top management have to consider availability of resources and time for improvement is very important, 16 indicated that it is moderately important, 14 indicated that it is neutral, while 2 indicated that it is slightly important; 13 indicated that the measure, top management should see their subordinates as responsible human beings as well as hard working people is very important, 38 indicated that it is moderately important, 12 indicated that it is neutral; 12 among the respondents indicated that the measure, top management have to show recognition to every employee they lead is very important, 36 indicated that it is moderately important, 11 indicated that it is neutral, 2 indicated that it is slightly important, while 2 indicated that it is of low importance; 17 among the respondents indicated that the measure, top management should provide empowerment to their employees is very important, 26 indicated that it is moderately important, 13 indicated that it is neutral, 6 indicated that it is slightly important, while 1 indicated that it is of low importance.

Table 1: Responses and ranking of Measures

	MEASURES FOR MITIGATING LACK OF TOP MANAGEMENT COMMITMENT	level of importance					MEAN	SD	RANK
		1	2	3	4	5			
A	Top management should have long term vision and mission towards quality improvement	0	0	0	18	45	4.71	0.46	***1st***
B	Top management of the company should have strong leadership characteristics such as integrity, courage, humour and wisdom	0	0	0	24	39	4.62	0.49	***2nd***
C	They should consider continuous improvement, teamwork and customer satisfaction as their prime objectives	0	0	2	22	39	4.59	0.56	***3rd***
D	They should show recognition as a result of outstanding performance	0	1	1	23	38	4.56	0.62	***4th***
E	They should provide technical expertise, communication skills and customer relation	0	0	3	31	29	4.41	0.59	***5th***
F	They need to know what their strategic priorities exactly are as well as the strategy they are working on	0	0	0	31	25	4.29	0.66	***6th***
G	They have to consider availability of resources and time for improvement	0	2	14	16	31	4.21	0.90	***7th***
H	They should see their subordinates as responsible human beings as well as hard working people	0	0	12	38	13	4.02	0.63	***8th***
I	They have to show recognition to every employee they lead	2	2	11	36	12	3.86	0.88	***9th***
J	They should provide empowerment to the employees	1	6	13	26	17	3.83	0.99	***10th***

Source: Researcher's results (2023)

4.3. Comparison between the different types of construction contractors' perception on the level of importance of the measures

Table 2 above, entails the relationship between rankings by the different types of construction contractors indicating the level of importance of the measures ranked as whether there is a significant difference between perceptions of the different types of construction contractors. The result of the analysis using the analysis of variance (one-way ANOVA) shown in the above table shows a p-value of 0.36 which is greater than 0.05 benchmark, thereby indicating that there is no significant difference

between the perception of the different types of construction contractors on the measures for mitigating lack of top management commitment in implementation of TQM in Nigerian construction industry. Based on the result obtained from the analysis it can be concluded that there is no significant difference as to how the different construction contractors perceived the level of importance of these measures.

Table 2: Relationship between the different types of construction contractor's perception on the ranking of Measures

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.238012	2	0.119006	1.047802	0.364537	3.354131
Within Groups	3.066572	27	0.113577			
Total	3.304584	29				

Source: Research results (2023)

The findings of this study are very important. Management commitment to quality and to continuous quality improvement is very important in each phase of the building process (Arditi & Gunaydin, 1997). TQM has to be implemented in a step-by-step order. This is buttressed by Harrington et al. (2012) in their submission on the challenges of implementing TQM in any organisation. They argued that there is no definitive procedure for implementing TQM, but by steps-by-step, which has proven to be effective. They further submit that the first step in attempting to implement TQM is to determine where to begin. In line with the above, this study has ranked the factors under the Top Management Commitment from the most important to the least important. Lack of Top Management Commitment according to most studies on TQM Implementation is the most important of the critical factors.

5. CONCLUSIONS AND RECOMMENDATIONS

The study shows that all the measures assessed are very important in mitigating the lack of top management commitment in implementation of TQM as their various mean scores indicate. However, the measures that rank first, second and third are; Top management should have long term vision and mission towards quality improvement; Top management of the company should have strong leadership characteristics such as integrity, courage, humour and wisdom; they should consider continuous improvement, teamwork and customer satisfaction as their prime objectives respectively. Also, the study also indicates that there is no significant difference as to how the different types of construction contractors (respondents of this research) perceived the importance of the assessed measures.

The study recommends that top management should prioritize the assessed measures in order to mitigate the barrier; lack of top management commitment towards successful implementation of TQM. Secondly, the level of familiarity of TQM Concept seemed to have been moderate in the construction industry. However, continuous increase in the familiarity level will be of great importance. Lastly, further Studies should be carried out to mitigate other barriers to TQM implementation other than lack of top management commitment in Nigerian construction industry.

REFERENCES

Abdulaziz, E. A. (2012). Total Quality Management Implementation: A Study to Critical Success Factors and Continuous Improvement to UAE organisations. (Unpublished Master's thesis). Faculty of Business, British University, Dubai.

Agwu, M. O., & Olele, H. E. (2014). Fatalities in the Nigerian Construction Industry: A Case of Poor Safety Culture. British Journal of Economics, Management and Trade, 4(3), 432-452.

Ahmed, S. M., & Salman, A. (2006). Adoption and Implementation of Total Quality Management (TQM) in Florida Construction Industry. Proceedings of the 42nd ASC Annual Conference. Colorado State University, Fort Collins, April 20 – 22.

Aliyu, M. S. (2016). Modelling Total Quality Management Dimensions for SME Performance. Journal of Education and Social Sciences, 3(February), 165-169.

Al-Sabek, F. M. (2015). Critical Factors Affecting the Implementation of Total Quality Management in Construction Industry in U. A. E. Global Journal of Human-Social Science: H Interdisciplinary, 15(5), 23-28.

Alweteed, N. (2018). The Impact of Total Quality Management on the Organisation Performance. European Journal of Business and Management, 10(34), 69-71

Arditi, D., & Gunaydin, H. M. (1997). Total Quality Management in the Construction Process. International Journal of Project Management, 15(4), 235-243.

Arshida, M. M., & Agil, S. O. (2012). Critical Success Factors for Total Quality Management Implementation within the Libyan Iron and Steel Company. Tun Abdul Razak University, Graduate School of Business.

Ashworth, A. (2010). Cost Studies of Buildings (5th ed.). Great Britain: Pearson Education Limited.

Bahri, S., Hamzah, D., & Yusuf, M. R. (2012). Implementation of Total Quality Management and Its Effect on Organisational Performance of Manufacturing Industries through Organisational Culture in South Sulawesi, Indonesia. IOSR Journal of Business and Management 5(1) 10-24.

Buys, F., & van Rooyen, R. (2014). The Strategic Management of Construction Companies during recessionary cycles. Acta Structilia 21(2), 1-12.

Chukwuka, I. C. (2008). Organisational Approach to Total Quality Management in Nigeria: a Study of United Bank for Africa plc. Department of Management Faculty of Business Administration University of Nigeria Enugu campus.

Creswell, J. W. (2012). Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research (4th ed.). Boston: Pearson Education, Inc.

Creswell, J. W. (1994). Research Design: Qualitative and Quantitative approaches. Thousand Oaks, CA: Sage Publications.

Erande, S. S., & Pimplikar, S. S. (2016). Total Quality Management in Indian Construction Industry. International Research Journal of Engineering and Technology (IRJET), 3(6), 685-691.

Femi, O. T. (2015) Barriers and Benefits of Total Quality Management in the Nigerian Construction Industry: A review. International Journal of Engineering Works, 2(1), 7-13.

Gurav, K., Demgunde, T., Patil, P., & Katare, A. (2022). Total Quality Management in Construction Industry. International Research Journal of Modernization in Engineering Technology and Science, 4(1), 1464-1473.

Harrington, H. J., Voehl, F., & Wiggin, H. (2012). Applying TQM to the Construction Industry. The TQM Journal, 24(4), 352-362.

Haseeb, S., & Mahr, M. (2015). Barriers to Total quality Management Implementation. http:// www.slide share.net Haseeb543.

Hoonakker, P., Carayon, P., & Loushine, T. (2010). Barriers and Benefits of Quality Management in the Construction Industry: An Empirical Study. Total Quality Management, 21(9), 953-969.

Ikediashi, D. I., & Owoefiak, W. O. (2021). Critical Success Factors Associated with Total Quality Management (TQM) Implementation for Construction Projects in Nigeria. Journal of Contemporary Research in the Built Environment, 5(1&2), 72-87.

Inuwa, I. I., Githae, W., & Stephen, D. (2014). Application of Project Planning Techniques in Construction Procurement: The Case of Nigerian Indigenous Contractors. International Journal of Economic Development Research and Investment, 5(1), 31-47.

Israel, G. D. (1992). Determining Sample Size. Florida Cooperative Extension Service, University of Florida, Fact Sheet PEOD-6.

Jhon, E., & Philip, D. (2016). The Application Total Quality Management Approaches and tools in Enhancing Goal Attainment in the Nigerian Brewery Manufacturing Industry European Journal of Business, Economics and Accountancy, 4(8), 46-73.

Jimoh, R. A. (2012). Improving Site Management Practices in the Nigerian Construction Industry: The Builders' Perspective. Ethiopian Journal of Environmental Studies and Management, 5(4), 366-372.

Kakkad, S., & Ahuja, P. (2014). Implementation of Total Quality Management in a Construction Firm. International Journal of Science, Engineering and Technology Research (IJSETR), 3(10), 2653-2658.

Kim, G. S. (2016). Effect of Total Quality Management on Customer Satisfaction. International Journal of Engineering Sciences & Research Technology, 5(6), 507-514.

Krathwohl, D. R. (1998). Methods of Educational & Social Science Research: An Integrated Approach (2nd ed.). White Plains, NY: Addison Wesley Longman, Inc.

MacDonald, S., & Headlam, N. (n.d.). Research Methods Handbook: Introductory Guide to Research Methods for Social Research. Manchester: Centre for Local Economic Strategies.

Malik, M. Z., Banerjee, R., & Ahmad, S. A. (2018). A Review Paper on Implementation of Total Quality Management (TQM) in Construction Industry. International Journal of Recent Scientific Research, 9(5[A]), 26515-26517.

March, C. (2015). Business Organisation for Construction. London: Routledge.

Mohammed, S. M., & Rotimi, J. O. B. (2002). A Review of Quality Control and Assurance in Building Construction. Proceedings of the Millennium Conference – Building in the 21st Century. Department of Building, Ahmadu Bello University, Zaria, September 26 – 28.

Nachmias, C. F., & Nachmias, D. (1996). Research Methods in the Social Sciences (5th ed.). Great Britain: Hodder Education and Hachette UK Company.

Ogundipe, K. E., Owolabi, J. D., Olanipekun, A. E., Olaniran, H. F., Akuete, E., & Fagbenle, A. O. (2018). Factors Affecting Effective Use of Safety Wears Among Site Operatives: Lessons from Indigenous Firms in South Western Nigeria. International Journal of Applied Engineering Research, 13(6), 4314-4325.

Oludare, S. O., & Oluseye, O. (2016). Quality management practices among construction firms in Lagos state Nigeria. PM World Journal, 4(5), 1-13.

Oluwatoyin, A., & Oluseun, A. (2009).Total Quality Management. A test of the Effect of TQM on Performance and Stakeholder Satisfaction.

Omonori, A., & Lawal, A. (2014). Understanding Customers' Satisfaction in Construction Industry in Nigeria. Journal of Economics and Sustainable Development, 5(25), 115-120.

Oruma, W. B., Mironga, J. M., & Muma, B. O. (2014). Top Management Commitment towards Implementation of Total Quality Management (TQM) in Construction Companies in Nakuru County-Kenya. International Journal of Economics, Finance and Management Sciences, 2(6), 332-338.

Osei, V. (2013). The Construction Industry and its Linkages to the Ghanaian Economy-Policies to Improve the Sector's Performance. International Journal of Development and Economic Sustainability, 1(1), 56-72.

Polat, G., Damci. A., & Tatar, Y. (2011). Barriers and benefits of Total Quality Management in the Construction Industry: Evidence of Turkish Contractor, 7th Research/Expert Conference with international participations "Quality 2011", Neum, B&H, June 01-04.

Rajan, T., & Paul, A. (2017). Implementation of Total Quality Management (TQM) in construction: A review. International Journal of Art and Research, 3(2), 4641-4644.

Raiz, H., Khan, K. I. A., Ullah, F., Tahir, M. B., Alqurashi, M., & Alsulami, B. T. (2023). Key Factors for Implementation of Total Quality Management in Construction Sector: A System Dynamics Approach. Ain Shams Engineering Journal, 14(2023), 1-18.

Salleh, R. (2009). Critical Success Factors of Project Management for Brunei Construction Projects: Improving Project Performance. (Unpublished Doctor of Philosophy Dissertation). Queensland University of Technology, Retrieved from http://www.eprints.qut.edu.ac.

Schuurman, H. (1997). Quality Management and Competitiveness: the diffusion of the ISO 9000 Standards in Latin America and Recommendations for Government Strategies. United Nations Division of production, productivity and management, Santiago, Chile 1997.

Shaikh, S. S., & Darade, M. M. (2017). Key Performance Indicator for Measuring and Improving Quality of Construction Projects. International Research Journal of Engineering and Technology (IRJET), 4(5), 2133-2139.

Sherratt, F., & Farrell, P. (2015). Introduction to Construction Management (1st ed.). London: Routledge.

Shreyas, G. C. H., Ramesh, N., Sachidananda, M. S., & Shashi, K. B. N. (2015). Total Quality Management in Construction. International Research Journal of Engineering and Technology (IRJET), 2(5), 1243-1247.

Suganthi, P., Sornalakshmi, R., Srinivasan, N. P., Nivethitha, M., & Priyavadhana, C. (2017). A Study on Factors Affecting Total Quality Management in Construction Projects. SSRG International Journal of Civil Engineering – (ICRTCETM-2017), Special Issue, 203-207.

Tey, L. S., & Ooi, T. L. (2014). Exploring the Barriers and the Level of TQM Implementation in Malaysian Construction Industry. Research Journal of Applied Sciences, Engineering and Technology, 7(16), 3419-3424.

Wali, S., & Boujelbene, V. (2011). Cultural Influences on TQM Implementation and Financial Performance in Tunisian Firms Satisfaction. Blekinge Institute of Technology, School of Management.

Wanderi, E. N., Mberia, H., & Odour, J. (2015). Evaluation of Factors Influencing Total Quality Management Implementation in Rwandan Construction Companies: Case of Fair Construction Company. European Journal of Business and Social Sciences, 4(3), 14-28.