

AN OVERVIEW OF THE TOTAL QUALITY MANAGEMENT IN CONSTRUCTION MANAGEMENT

Fatemeh Nouban¹, Mohammad Abazid²

¹Assistant Professor, Civil Engineering Department, Near East University, Nicosia;

²Ph.D. Candidate, Civil Engineering Department, Near East University, Nicosia, TURKEY.

¹fatemeh.nouban@neu.edu.tr, ²f.nouban@mail.com, mohamad.rezq@gmail.com

ABSTRACT

Total quality management (TQM) is a management idea, broadly applied to the construction and the service sectors. It can enhance the quality in the areas in question. Some studies attempted to shine the light of this idea to construction management. Nevertheless, construction management is yet to accept the concept of TQM. Construction corporates have constantly been pushed back and forth between the implementation of the concept and following the traditional management methods. Since its early beginning, the construction industry has revoked change. Unfortunately, TQM principles are yet to be applied to the entity of construction sectors. There are many contractors, that have succeeded in implementing TQM in their corporates. Their number decreases at the practical approach of their suppliers and subcontractors. The aim of this paper is to pinpoint the latest studies made on the elements that affect the implementation of the principles of TQM in the ground field of construction management.

Keywords: Total Quality Management (TQM), construction, construction management, project, Implementation

INTRODUCTION

To be able to compete and stand out in the market, it is essential for construction companies to add more consistent quality and value to their customers. The time has come to rip off the worn-out adversarial approach to managing construction works. More attention is to pay to the relationships with the clients and encourage more teamwork at the job site and to produce a better quality work. Such aims need a continuous improvement process be applied within the company to achieve TQM. Lately, continuous improvement was also known as TQM (PHCC Educational Foundation, 1996). It is likely due to the common behavior of simply, and rapidly, alienating any newly introduced concepts to management that the construction management arrived late at the doorsteps of TQM. Another reason was also dismissing TQM as an unachievable fantasy (PHCC Educational Foundation, 1996).

TQM processes are essential for the top or senior management to improve the performance and competitiveness of the construction management. To catch up with the ongoing innovation and for the continuous market development to be a part of our corporate bodies, old practices should be forgotten. Since early times, construction management has always been unwilling to fully grasp the concept of change.

Plenty of researches were done on the implementation of TQM. Although it alters the entire system of management in a construction company TQM brings about the modern concept of discussion from our everyday lives to the bodies of our companies voicing out the workers' opinions instead of asking them to solely obey whatever instructions they are given (Quazi and Padibjo, 1997). TQM noticeably decreases the tendency of error in the completion of tasks (Motwani, 2001). Implementation of TQM requires the company to modify its entire body along with its management system. This improves the competitiveness of the

organization. It is more like a roadmap; it leads to the destination if understood correctly. The core of TQM urges companies to alter their very nature in order to become a learning organization.

The aim of this paper is to pinpoint the latest researches, focusing the factors that form the points of TQM implementation in the practical ground of organizations.

DEFINITION OF TQM

According to (Garvin, 1988), quality is a highly contradicting concept, easy to imagine but defining it is exceptionally hard. Quality has indeed proved to be a difficult concept to comprehend. As if that was not shocking enough, despite the numerous writings on quality management, there has been only so much attention paid to defining exactly what is meant by the term 'quality'. TQM is a people-focused management system that focused on the constant uprising in customer satisfaction at steadily dropping the real cost. TQM is looked at as a systems approach to quality that integrates interrelated functions and considers the interaction of different aspects of the organization. According to (Spanbauer, 1995), TQM is a management philosophy that empowers systems and procedures to meet the growing demands of customers. It was a harsh quest of continuous enhancement through documentation and the application of tools in a problem-solving environment that highlights the teamwork and the good implementation of leadership techniques

PRINCIPLES OF TQM

The principles of TQM can be summarized as follows:

1. A solid manifesto is set by the top management, clearly indicating the strategies to abide by, both in the near and far futures.
2. The correct use of the principles and the scientific methods of TQM.
3. Paying more attention to the key role that human resources play in both establishing the cornerstone of the organization and in the process of its development.
4. Developing an efficient quality control/assurance system, by the management board that also addresses other key aspects of project management such as; financial management, transportation, safety and an environmentally friendly method of execution.
5. Aspects of management powers, such as IT, time and priority arrangement is to hold up and ensure a healthy relationship with clients, workers, suppliers, and partners.
6. Regularly issuing a manifesto that clearly shows the goals and accomplishments of the organization in a certain period, allowing room to more transparency resulting in a prosperous management system, therefore, increasing the organization's overall profit.

PROS OF TQM

The pros of TQM is as follows:

1. Attaining customer satisfaction
2. Rising the overall spirit of the organization.
3. Rapid and constant enhancement
4. Enhancing the corporate's internal affairs
5. Enriching the team spirit

6. Dictate targets and standards for workers
7. Setting a clear vision for the employees

THE FACTORS THAT DELAY THE IMPLEMENTATION OF TQM

The factors that delay the implementation of TQM are as follows:

Commitment and Involvement of the Management

The degree of support that the top management holds prior to the implementation of a TQM is of high importance. In the US, the majority of construction corporates vitalized the leading role that their top management play in the implementation of TQM.

The crucial role that top management plays in the enhancement of programs is as follows:

TQM is a managing method in which the top management of construction companies assures that all the members that form the firm's body from construction field managers down to labor workers fulfill their duties to attain standards, which include deadlines, budget, maximizing quality, limiting collateral damage and meeting the expectations of their clients both internally and externally.

According to numerous studies, the empty slot that should be filled with the top management in the implementation of the TQM is a speedbump that ruptures the process.

Customer Focus

TQM's main target is to constantly bring about services and products of a satisfying quality. To reach this target a solid knowledge of the customer's requirement is in order, then applying this knowledge to assure an efficient productive outcome.

Primary customer focus was considered to come second in importance to the implementation of TQM, in the US and Japan. Many authors consider customer focus as a peer to the involvement of top management in the process of implementing TQM. Customer satisfaction played the leading and dominant role of TQM implementation in numerous studies.

Participative Management

Participative management is essential to enhancing several aspects of the company's employees, such as communication and problem-solving skills. Furthermore, it noticeably improves the quality of products, evidently raising the satisfaction level of clients. This, in turn, plays a huge role in bettering the organization, if applied in a correct manner; it maximizes the profits of TQM. In TQM, each member of the organization actively participates in improving organizational process and products.

To improve the organization process, a well-organized work breakdown structure (WBS) and organizational breakdown structure (OBS) is required. In the literature, some WBS templates such as those submitted by (Sadeghi and Babolian, 2016), (Nouban, 2016), (Nouban and Sadeghi, 2016), (Muyiwa and Sadeghi, 2007) and (Nouban et al., 2017) can be found that may be used in the planning phase and controlling of the projects.

Participative management style is a key criterion to the beneficiaries in the TQM implementation. Participative management's importance is denoted by the perception of relationship-oriented practices. The disintegration between the TQM and the human resource approaches has been considered as a limp that slows down the process of attaining fully structured TQM.

Carrying TQM's Administrative Nature to Practical Applications

A percentage of 34% had been achieved, in the US in translating the effort of implementing the concept of TQM into actual satisfying results. Therefore, it was concluded that the efficient implementation of TQM into the field operations is of high importance, as without it the process will come crashing down. Since the profit to loss chart is primarily governed by the site constructions, that is exactly where enhancement effort should be directed. It is almost a tradition that workers are to be employed on site. However, many authors emphasized the importance of empowering the workers and involving them in the process of TQM (Richbell and Rasiatou, 1999), more hands-on experience from workers on the process of applying TQM, initiated training programs for both executives and workers and intensified training on problem-solving (Marler, 1998).

Too Much Paperwork

As high as 77% of the companies in the US, rejected the implementation of TQM principles, due to the considerably large amount of paperwork that associates it. Stating that construction work already comes with a handful of paperwork, such as, large contract documents including the calculation notes, drawings, technical specifications, fabrication procedures, records of the plans and the applied amendments, engineering instructions, steel work performing schedules, altering orders, requisition records, order, safety database and transportation of material, site, and labor. A crowd of authors, back this statement up (Harari, 1993a and 1993b) focused on the uprising sense of slowness caused by the piled up the paperwork to track the assistance of TQM methods. Lilrank et al. (2001) state that unnecessary and additional paperwork is crippling to the operation.

Field Employees Regard TQM as Irrelevant

Employees that play a role in the decision-making process, have a sense of belonging and show more interest in the overall development of the organization making sure to achieve improvement and apply rules made by the management (Thamizhmanii and Hasan, 2010). TQM's fruitfulness and the genuine interest of the entity of the corporate's body go hand-in-hand (Daily and Bishop, 2003). More efficiency and satisfaction levels are achieved when TQM is applied by the entity of the organization's employees (Marler, 1998). Managers applying the principles of TQM are required to earn the full commitment of their employees, enhance their problem-solving skills and encourage teamwork. A principle stated by the EFQM (European Foundation for Quality Management) urges employees to take place in the development process. Workers form the quality process and teams set the rules to achieving them (Thamizhmanii and Hasan, 2010).

A handful of construction companies in the US disregarded TQM claiming that it is unworthy of the effort that accompanies attempting to implement it. The constant focus in the destination rather than the journey, lead to the broad acceptance of such attitude amongst workers. In addition to that, failure to keep employees posted on the improvement efforts and parting them from the process generated a rising rejection of the concept itself (Richbell and Rasiatou, 1999). Other aggravating factors include the absence of applying the knowledge acquired, hence a poor development of skills. The hardship of creating training grounds to practice acquired knowledge encouragement of workers urges them to be more skilled and effective communication and project coordination. The construction project managers and the human resources require a patterned transition to a team attitude.

Transient Nature of Workforce

A slightly lower percentage of companies (74%), found that the impermanent nature of their employees made the implementation of TQM harder on construction sites. A transient

workforce is the main characteristic of construction work. As each project differs in location from the one before it, hence, leaving workers with the dilemma of either working far from their homes or finding a different project close to where they reside (advises that corporates put as much effort on their employees as they put on their clients' satisfaction Crosby, 1990).

Difficulty in Measuring Results

In the United States, the majority of companies pointed out that the trouble of documenting the records from their sites was another obstacle in implementing TQM on site. The absence of vital records and measurements forms a speedbump on the road to achieve this goal and the majority of TQM authors have similar opinions.

Low Bid Subcontracting

Unfortunately, the impact of low bid subcontracting on the implication of TQM on construction sites is also, of a negative nature. Low bid strategies won over the vast majority of construction projects, giving their highly competitive nature, subcontracts in particular. Although the contract is usually awarded when certain requirements are met. Deming calls for the termination of the habit of prioritizing the financial side of the contract too mentioned this dilemma when calling out to regard the journey and not the destination of TQM. Several authors backed up this argument. It is also considered business short-termism. As Lahndt (1999) pointed out, the competition in the construction has created a market that aims to quick yet poor quality results, those of a 'commercial' nature.

Lack of Interest in TQM by Subcontractors and Suppliers

Those companies, in the US, that applied the principles of TQM addressed the issue of subcontractors and suppliers not being interested in the implementation of TQM. No formal records were found on the means of implementing TQM showing the randomness in applying its principles. By doing so, we endanger the process of implementing TQM to fail. Hence, it is advised that to solve quality problems a means of communication must be created between subcontractors and suppliers, with the emphasis on the importance of teamwork. Authors add that some sort of shared goal should be present between different parties to achieve the task in the best way there is. This will set all parties to a common ground, making communication significantly easier and faster. Making them more responsive to the general contractor's needs, hence, improving the quality of the result.

A partnership should be created with subcontractors. Meaning, no piece of information should be kept from them, smoothening the road to achieve the task. An internal partnership is advised by the CIOB (1995), after looking into outcomes of the industrial market in Japan, it is indicated that each party should add something to the table.

CONCLUSION

It is a given fact that for the cases that TQM is to be applied to manufacture or construction companies, the above-mentioned problems ought to be addressed first and cleared out of the way to ensure a successful implementation of TQM. Labor workers should be included in the application of the principles of TQM. They should also be given proper training in problem-solving. Internal affairs of companies should be cared for with the same amount of effort they put into their clients' satisfaction. Motivation is essential in order for the workforce of companies to grow. The journey to the TQM should be regarded to more than the destination. Mutual goals are to be set by them to bring all parties to a contract to work together. Nonetheless, including the senior and top management in the process of implementing the TQM is necessary action, as they play the role of the commanding officers in it hence they have to fully commit to it.

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