# Identification of Critical Success Factors for TQM Implementation in Large and Medium Scale Industries

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***Abstract-*** Quality management approach is an important tool which holds the key to competitiveness in the global market irrespective of the size of the company. It is an integrated management approach that aim to improve continuously the performance of products, processes, and services to achieve and surpass customer's expectations. To accomplish this objective, some key factors i.e. critical success factors (CSFs) that contribute to the success of Quality Management efforts are identified for the growth of Large and Medium Scale Organization. Through a Comprehensive review of literature it is observed that the survey at various manufacturing and service industries is carried out and it is found that the integration of CSF's and Total Quality Management is useful for the quality improvement. The purpose of this study is to identify CSFs for the benefit of Large and Medium Scale Industries. The various CSFs identified for industries are Top management support, Training and Education, leadership, Employee Involvement, Organizational Culture, continuous Improvement, working Environment, Technical adequacy, customer focus and Quality assurance.

***Index Terms-*** Quality management, Critical success factors.

## I. Introduction

Due to the adverse effects of globalization many large Industries have started to cave due to pressure from competitors. Industry continues to seek the means of improving management of resources. The most successful Industries are those that are able to meet the customer expectations and go to extraordinary lengths to outdoor the competition. To achieve this state of competitiveness it is essential to develop the Quality Management for any business organization. Quality management has achieved greater advantage for competitiveness in manufacturing and service industries. Some Industrial sectors like casting industry which is established before few decades has not yet given the attention by quality management researchers. From the literature it is proved that the areas such as Knowledge Management (Ebrahimi et al.),Health care (Dilbar et al.,2005),Process Management (Terkman,2010),e-learning(Xaymoungkhoun,2012),online distance learning in higher education (Cheawjindakarn et al., 2012) have been covered to certain extent. A robust Quality Management System means improved product and service quality, organizational advantage, and most importantly, greater profits.Hence, Quality management practice is important to carry out for various sectors. Above studies have discussed its importance. For this purpose the present study is carried out to determine the CSFs that influence the quality and productivity management approaches given by other researchers.

## II.NEED OF CSFS

The concept of identifying and applying CSFs to business problems is not a new field of work. It dates back to the original concept of success factors put forth in management literature by D. Ronald Daniel in the 1960 who is regarded as the creator of the concept (Caralli et al.; 2004). CSFs are powerful because they make explicit those things that a manager intuitively, repeatedly, and even perhaps accidently knows and does to stay competitive. However, when made explicit, a CSF can tap the intuition of a good manager and make it available to guide & direct the organization toward accomplishing its mission. Many authors have defined & described CSFs in their research papers. Saraph et al.(1989) defined the CSFs as "the critical areas of managerial planning and action that must be practiced in order to achieve the effectiveness". Rockart (1979) defined the CSFs as "the areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization" According to Caralli et al.(2004); the Critical Success Factor method is a means for identifying important elements of success.. Ahire et al. (1996), mentioned in his work that "CSFs of TQM are latent variables, which means they cannot be measured directly".

Industries concerns with the functioning of business success. Caralli et al, 2004, has developed the strategic direction of an organization. Some theories were made to analyze them through Hence it is found that the concept of CSFs is given a special attention for the research work. The problems which were found in quality area in general manufacturing industries have been checked and tried to correct by using CSFs. During the past years, CSFs have been used successfully to improve the effectiveness of quality management in different Industries. However, the changing technological environment and business practices demand that the CSFs be determined intermittently.

## III.METHODOLOGY

The extensive literature is collected from international journals, official websites, proceedings of international conferences etc. Published literature was reviewed to identify the previous research efforts and directions related to CSFs affecting quality management aspects. Critical factors of TQM were first operational zed by Saraph et al. (1989) after which a number of similar studies were conducted by other authors. The research highlighted critical success factors for various types of Industries, by maintaining the objective for the business success. The study related to the view of Quality gurus, quality tools and quality awards is also done. The theory was completely analyzed.

**Table 1** below summarizes few important papers in the area of interest. Literature on quality management is analyzed, classified & summarized. The literature review addressed the field of quality management, various approaches used to study the quality management initiatives.

---------- **Table 1** ----------

## IV.TYPE OF STUDIES PERFORMED

----------**Table 2** ----------

Three types are categorized, based on the past literature, the past studies reviewed, which descriptive, conceptual and exploratory types are. As shown in T**able 2**, it was observed that exclusively descriptive studies are very less, whereas conceptual studies were of moderate number, while the exploratory cross sectional studies were of highest number. **Fig. 1** helps visualizing the scenario.

----------**Fig 1**----------

Exploratory type of study helps to create preliminary Hypothesis. From above studies, it is observed that the effort

taken by past researchers helps to solve the problems related to Quality Management for various types of Industrial Sectors.

## V. STUDY OF CRITICAL SUCCESS FACTORS FOR TQM

Saraph et.al (1989) has identified the CSFs for quality management in a business unit (Manufacturing Firms).In addition to this, Desai et al. has given special attention for the successful implementation of Six sigma. Top management's support (Umble et al., 2003,Chetcuti,Talib et al. 2010,Rohani et al.2010) and scheduling, while tactical factors were customer expectation management, monitoring and feedback (Zadry & Yusof, 2006). However, Joseph et al., (1999) have stressed the need to emphasize on organizational commitment. The relatively recent studies, such as those by Dubey et al.(2012), Umble et al., (2003) have mentioned the importance of data accuracy vis-à-vis different quality management initiatives. Furthermore, the authors Umble et al. (2003) have also indicated necessity of extensive training.

## VI. LITERATURE ANALYSIS FOR TQM IMPLEMENTATION

TQM approach is difficult while implementing in the industrial sectors. This vibrant situation demands the industrial units which are constantly made attentive of the tested as well as original approaches, which are used to deal with the quality management concerns with respect to TQM. Previous researchers have reiterated the important role of top management, (relations between employees and management), leadership quality assurance and customer satisfaction in TQM implementation.

---------- **Table 3** ----------.

## VII. TQM PRACTICES FOR VARIOUS INDUSTRIAL SECTORS

TQM produces and deliver services, which are completes customers needs under top management leadership. Pioneers of the total quality management disciplines such as Juran, Crosby, Deming, Ishikawa and Feigenbaum defined the concept of quality and total quality management in different ways. Total quality management is the culture of an organization committed to customer satisfaction through continuous improvement. This culture varies both from one country to another and between different industries, but has certain essential principles which can be implemented to secure greater market share, increased profits, and reduced costs (Kanji & Wallace, 2000) cited in Dilber et al.(2005).TQM concept integrates all the philosophies of Quality Management, but it is not well executed. Previous study helps us to know about experiences of TQM implementation approaches. In view of this, the literature was further reviewed by following content analysis procedure. This was carried out by the researchers in relation to TQM implementation. The results indicated that vast literature was regarding the identification of critical success factors following literature Review method as indicated in table 2. Furthermore, studies were also carried out focusing on the delineation empirical data based model for quality improvement. Thus, it may be stated that the most appropriate measure for identification of CSFs for TQM implementation were identified through critical literature review process. Therefore, the CSFs should be periodically identified to verify their validity in the prevailing context. The literature review has reiterated importance of the many previously identified CSFs and indicated few new CSFs to be important in view of TQM implementation.

## VIII. CONCLUSIONS

TQM focuses on the continuous improvement of Organization. It is a disciplinary approach which integrates all fundamental management techniques, involving all the employees at all hierarchical levels.TQM concept concerns with the production of quality goods and excellent customer service, henceforth the success to entire management. As quality is an endless journey, KAIZEN must be implemented at every stage from top to bottom. For this Quality Pioneers have provided various assumptions for Continuous Improvement. The above study has identified some critical success factors for manufacturing Industries. Notable amongst them are Top management support, Training and Education, leadership, Employee Involvement, Organizational Culture, continuous Improvement, working Environment, Technical adequacy, customer focus and Quality assurance. Implementation of TQM has accepted at various areas of industry and appears to be essential to incorporate the above mentioned CSFs in order to improve efficiency of management that can be sustained.

| INDUSTRY SECTOR & COUNTRY | RESEARCH ISSUES | APPROACH | METHODOLOGY | OBJECTIVE & OUTCOME OF RESEARCH | CSFs | AUTHORS |
|---|---|---|---|---|---|---|
| **Manufacturing Industries** | | | | | | |
| anufacturing Firms Jnited States) | uality anagement | Performance Measurement | Exploratory Cross Sectional | **bjective** –To develop a strument to measure uality management actices in companies. | 1The role of Top Management leadership and Quality Policy<br>2.Role of Quality Department<br>3.Training 4.Product/service design<br>5.Supplier Quality Management 6.Process Management<br>7.Quality data and Reporting 8.Employee Relations | araph et.al(1989 |
| anufacturing Firms SA | o examine the fects of integrate uality anagement rategies on firms oduct quality. | xploratory ross sectional | Survey Analysis | **Objective** –1.To identify constructs of QM strategies and develop scale for measuring this constructs. empirically validate the ales Conduct a preliminary vestigation of lationship among QM rategies. | 1.Top Management Commitment<br>2.Customer Focus<br>3.Supplier Quality Management4.Design Quality Management5.Benchmarking<br>6.SPC usage<br>7.Internal Quality Information usage<br>8.Employee Empowerment<br>9.Employee Involvement | Ahire et.al(1996) |
| anufacturing | udy in context o gile anufacturing | onceptual | iterature review | **Objective –** o develop an integrated gile manufacturing stem with the help of uitable strategies and chniques. | 1) Strategies 2) Technology 3) People 4) System | Gunasekaran (1999) |
| anufacturing dia | evelopment of QM implement | xploratory oss sectional | Survey Analysis | **Objective –** o identify the operating stem elements & critica ctors of TQM in usiness units in India an ence develop an strument for TQM. | 1)Organizational commitment 2)Human resource management 3) Supplier integration 4) Quality policy 5) Product design 6) Role of quality department 7)Quality information system 8) Technology utilization Operating procedures 10) Training | seph et. al. (199 |
| **Service Sectors** | | | | | | |
| Service Industry Health Care) Turkey. | o measure the imensions of QM | xploratory oss ectional. | actor nalysis | **Objective-**To determine the critical factors Objective- To measure the effect of CSFs on business performance in small & medium sized hospitals in Turkey. | 1. Role of top management 2.Process management 3. Data reporting 4. Employee relations | Dilber et. al. (2005) |
| Service Industrie India | se of Pareto nalysis for orting CSF. | onceptual | Pareto Analysis o literature | 1. To apply a Pareto analysis quality tool and sorting of the CSFs in descending order according to the frequencies of their occurrences. 2.To investigate and propose a compiled and final list of CSFs of TQM which could benefit the researchers of service industries | 1. Top-management commitment 2. Customer focus and satisfaction 3. Training and education 4. Continuous improvement and Innovation 5. Quality information and performance measurement 6. Supplier management Employee involvement | Talib et.al (2010) |
| **Miscellaneous** | | | | | | |
| Various I Industries | Customer Relationship Management | Conceptual | Case study | **Objective** –1.To identify the critical success factors for the customer relationship management. 2.To increase the understanding of CRM 3.To identify the critical failure factors affecting the implementation of CRM | 1. Poor consultant effectiveness. 2.Poor quality of BPR 3.Poor project management effectiveness 4.ERP Software misfit 5.High turnover rate of project team members 6.Over-reliance on heavy customization 7.Poor IT Infrastructure 8.Poor knowledge transfer 9.Unclear Concept of the Nature and Use of the ERP system from the Users perspective 10. Unrealistic expectations from top management concerning the ERP systems | Mehta (2013) |

| Type of Study | References |
|---|---|
| **Descriptive** | Sila and Ebrahimpour (2003), Jewels et.al (2005) Sternad and Bobek (2006), Salaheldin (2009), CEMS Doctoral Seminar (2010),Saad (2013) |
| **Conceptual** | Boynton and Zmud (1986), Gunasekaran (1999), Jarrar et.al(2000), Nah et. Al.(2001),Umble et.al (2003) Talib et.al(2010), Mehta (2013) |
| **Exploratory Cross Sectional** | Saraph et.al(1989), Ahire et.al(1996), Holland & Light (1999),Joseph et. al. (1999), Yusof and Aspinwali 1999), Nah et. al. (2001),Umble et.al (2002), Dilbar et al.(2005), Chetcuti(2008), Rohani et.al(2010), vangelista et al. (2010), Nee(2011),Bouronson et al.(2012),Chong(2012), Dubey (2012), Gherbal et al. 2012) Vinayan et.al (2012) |

***Table 2: Types of studies conducted***

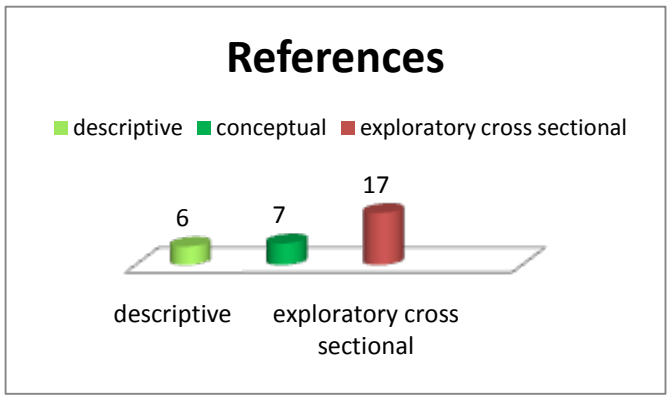


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***Fig. 1: Nature of Studies carried out***

| Attributes | References |
|---|---|
| **Literature Review to identify critical factors** | oseph et al., (1999), Sila and Ebrahimpour (2003), Jewels et.a 2005) Sternad and Bobek (2006), Salaheldin (2009), Saa 2013) |
| **Data based model for quality improvement** | Ahire et.al.( 1996), Rohani et al.(2010), |
| **Carried out survey to identify critical factors** | araph et.al(1989), Ahire et.al(1996), Holland & Light 1999),Joseph et. al. (1999), Yusof and Aspinwali (1999), Nah . al. (2001),Umble et.al (2002), Dilbar et al.(2005), hetcuti(2008), Rohani et.al(2010), Evangelista et al. (2010), ee(2011),Bouronson et al.(2012),Chong(2012), Dubey 2012), Gherbal et al.(2012) Vinayan et.al (2012) |
| **Performance measurement** | Holland and Light (1999), Dilbar et.al.(2005),Rohani et.al.(2010),Cheng and Choy(2007) |
| **Case Study** | Umble et al. (2002), Trkman (2010) ,Mehta (2013) |
| **Organizational performance** | Joseph et. al. (1999), Nah et.al (2001) Umble et.al.(2002), Umble et.al.(2003), Cheng and Choy(2005), Jewels et.al.(2005), Chetcuti (2008), Rohani et.al.(2010), Trkman (2010), Nee (2011), Gherbal et.al(2012), Vinayan et.al.(2012), Saad (2013) |

***Table 3: Content Analysis of the relevant literature***

| CSF | References |
|---|---|
| **1.Top management support** | Saraph et. al. (1989),Ahire et. al.(1996),Holland and Light (1999),Yusof and Aspinwali (1999), Jarrar et. al.(2000),Nah et. al.(2001), Umble et.al.(2002), Sila and Ebrahimpour (2003),Umble et. Al.(2003),Dilbar et. al.(2005), Jewels et.al.(2005) Sternad and Bobek(2006), Chetcuti (2008), utri and Yusof (2008),Salaheldin (2009), CEMS doctoral Seminar (2010),Evangelista et.al.(2010)Rohani et.al.(2010),Talib et.al.(2010).Nee 2011), Gherbal et.al.(2012) |
| **2. Training and Education** | Salaheldin(2009),CEMS Doctoral Seminar (2010)**,** Evangelista et.al.(2010),Talib et.al(2010), Rohar .al.(2010),Nee (2011),Gherbal, et.a(2012),Saad(2013) |
| **3. Leadership** | Saraph et.al(1989), Ahire et.al(1996),Yusof and Aspinwali (1999), Salaheldin(2009), Dilber e .(2005)Evangelista et.al.(2010) |
| **4. Employee Involvement** | Saraph et. al. (1989), Cheng and Choy(2005),Dilbar et.al.(2005) ,Salaheldin(2009),Rohani et.al.(2010),Talib et.al.(2010) |
| **5. Organization Culture** | Joseph et. al. (1999), Nah et.al (2001) Umble et.al.(2002), Umble et.al.(2003), Cheng and Choy(2005), Jewels et.al.(2005), Chetcuti (2008) |
| **6. Continuous Improvement** | Sila and Ebrahimpour (2003),Cheng and Choy(2005),Talib et.al.(2010), Trkman (2010), |
| **7. Working Environment** | Ching and Choy (2005), Salaheldin (2009), Evangelista (2010), Nee (2011), Dilber et.al.(2012),Mehta (2013) |
| **8. Technical adequacy** | Gunasekaran(1999), Holland and Light (1999),Joseph at.al(1999), Jarrat et. al.(2000),Nah at.al(2001), Yang et.al.(2005),Sternad and Bobek (2006), Putri and Yusof (2008) |
| **9. Customer focus** | Yusof and Aspinwali (1999), Putri and Yusof (2008), Salaheldin (2009),Talib et.al.(2010), Gherbal, et.a 2012) |
| **10.Quality Assurance** | Saraph at.al (1989), Joseph et. al. (1999), Yusof and Aspinwali (1999), Sila and Ebrahimpour (2003 hing and Choy (2005), Yang et.al.(2005), Salaheldin (2009), CEMS Doctoral Seminar (2010)**,** Tali .al.(2010), Mehta (2013) |

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