

Critical Success Factors of Implementing Total Quality Management in Libyan Organisations

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Abstract

Total Quality Management (TQM) is one of the approaches that contributes towards ensuring that projects are being delivered to the stakeholder requirements. The main purpose of this paper is to identify critical success factors (CSFs) that affect the implementation of TQM in Libyan Construction Industry (LCI). This research adopted both quantitative and qualitative research methods. The findings of this research is based upon 200 questionnaires distributed to quality and general managers working with forty-five construction contracting companies operating in the public and private sectors in Tripoli. The structured survey yielded 130 responses and the data collated was analysed using factor analysis. The results identify five reliable and valid TQM dimensions, namely organisation management, communication to improve quality, training and development, employee involvement and recognition, and culture.

Keywords

Total Quality Management (TQM); Libyan Construction Industry (LCI); Critical Success Factors (CSFs);

1. Introduction

Despite the current competitiveness of the business climate, every company's desires to survive, be successful, to expand and grow. This may be achieved through careful planning and good management quality for their products and services. This applies to both national and international markets. Quality management is a crucial element of successful management of construction project (Tang and Andrew, 2009). Construction companies would need to consistently provide high quality products and create added value to appeal to their customers and clients. Within the United Kingdom, the construction sectors accounts for 10% of gross domestic product (GDP), it employs over one and a half million people, therefore making it a very important sector for the economy (Corporatewatch.org.uk). However, in Libya the construction industry contributes 6.3% to GDP and employs around 3.2% of the total workforce. Therefore, the construction industry is the backbone of the economy for any country and it's vital to the national infrastructure. However, the construction industry in Libya faces problems of developing economy, such as low productivity, lack of standards and poor quality (Grifa, 2007). Metri (2004) indicates that most countries are faced with similar problems in their construction industries even though the economy of each country is different; the requirements of the quality standards are often not met. Kometa and Olomolaiye (1997) also state that clients are still often displeased and many other problems continue to arise in the construction industry, even though efforts have been made both time and cost overruns have been addressed. Taking Libya as a case in the point, this still means that the construction industry in this country is still not up to its fullest potential. Libyan Construction Industry (LCI) is facing problems meeting the competitive challenges that arise in the modern fast changing market.

2. TQM key Elements for Successful Implementation

The implementation of TQM programmes has been considered by a number of scholars in recent decades Curry and Kadasah (2002), McAdam and Jackson (2002), Curry and Magad (2003), Wiklund *et al.* (2000), Yang (2004), Juran (1988; 1994), Ramberg (1994), Hill and Wilkinson (1995), Ross (1999), Evan and Lindsay (2001), Powell (1995), Bennett and Kerr (1996), Hermel (1997), Harari (1993) and Eskildson (1994). These authors have studied the issues from different perspective and they explore different points of views among these results. The following factors and

related issues are considered as crucial and essential for achieving successful TQM implementation within any organisation, therefore the features prominent in them are the key elements that affect the TQM implementation programme within any organisation.

2.1 Management Commitment & Leadership

Tannenbaum et al. (1961) “*defined leadership as: the interpersonal influence, exercised in a situation, and directed, through the communication process, toward the attainment of a specified goal or goals*” (Baidoun, 2000) Leadership with the customer focus is the two major elements for the TQM where the customers provide the common focus or target for TQM (Saylor, 1996 and Aune, 1998). Leadership is the ability to inspire confidence and support amongst those needed to achieve organisational goals (Hackett and Spurgeon 1998, Sheety 1994). Anderson *et al.* (1994) described the concept of leadership as the ability of top management to establish practice and a long term vision for the organisation or firm driven by changing customer requirement.

2.2 Teamwork

Teamwork is very important for achieve organisational goals; teams are a major part of any TQM effort (Rao *et al.* 1996). It is widely accepted working in a team or group is generally more effective than working individually (Zairi, et al. 2005, Stough *et al.* 2000). However, To become successful in business, teamwork is also a key element of TQM. With the use of teams, the business will receive quicker and better solutions to problems. Teams also provide more permanent improvements in processes and operations. In teams, people feel more comfortable bringing up problems that may occur, and can get help from other workers to find a solution and put into place

2.3 Training and Education

Ahire et al. (1996) consider that empowerment and involvement is not effective unless all employees received formal, systematic training in quality management. Ishikawa (1972), believes that training and education is vital in determining the success of total quality management. Training is an essential factor for any successful quality management programme (Burati and Oswald 1992, Chase 1993, Oakland 2000, Porter and Parker 1993 and Motwani *et al.* 1994). Chief executives and quality experts have successfully implemented these in their organisations. Programmes of training must target all persons in the organisation as the quality under the total quality management is the responsibility of everyone in the organisation. The employees from the top management to the labour-force must understand the philosophies of TQM. Teamwork is very important to improve all the processes in which the approach for TQM is required (Al-Sinan 2004, Millar 1999, Wiley 1997, Zhang et al. 2000 and Rao et al. 1996).

2.4 Communication

According to Chase (1993), good communication will result in reducing ones fear as this will allow TQM to be more approachable. Deming (1986), advises to “drive out fear” for management to change.

Kanji *et al.* (1993), indicated that the communication is a part of the cement that hold together the bricks of the total quality process. Good communication and a good feedback system are very important in conveying ideas to the management and to incorporate the necessary change required (Sanders, 1994). According to Larkin and Larkin (1994) the best way to communicate

1. Direct Communication between employees and supervisors.
2. Face-to-face communication.

2.5 Customer Focus

Customer focus can be defined as the degree to which a firm continuously satisfies customer needs and as can be expected a successful firm will recognise the need to put the customer first in every decision made. The key to the quality management is maintaining a closer relationship with the customer in order to fully determine the customer need, so the customer should be closely involved in the product design and development with valuable input to every stage (Saylor 1996; Powel 1995). The customer allows an organisation to exist, for every organisation, profit or non profitable, partnerships, departments, functions, groups, or teams therefore the customer’s focus is one of the major elements of the framework of TQM and all elements focus on the total customer satisfaction both external and internal.

2.6 Employees Involvement and Participation

Successful implementation of a TQM environment or culture requires a committed and skilled workforce to fully participate in the activities carried out to improve the quality (Low and Jasmine2002). All the employees at all levels within the organisation should be encouraged to take responsibility and communicate effectively toward improving the quality at all production stages. Managers and supervisors must consider the employees as being intelligent and having effective ideas (Prakash and Smith 2004, Sayeh *et al.* 2005, Yang 2004, Juran 1993, Ross 1999, Ramirez and Loney 1993, Evans and Lindsay 2001, Crosby 1979, Zairi 1999, Flynn *et al.* 1995, Tan 1997, European Quality Award, Canadian Quality award and Lawler *et al.* 1992). All employees within the organisation are considered as internal customers and should be well satisfied if the organisation desires to achieve a full satisfaction for its external customers. This situation indicates to a chain of suppliers and customers relationships involving both internal and external customers.

2.7 Culture

Culture within organisation is defined by Jeffries *et al.* (1996), Lewis (1996; 1997), Hofstede (2001), as all the interaction that takes place between employees within an organisation along with the relationships engendered by this behaviour. In line with this, Schein (2004) states that the culture can be described as the beliefs which pervade the organisation regarding the procedures used to conduct the business and how the employees should behave and the way they prefer to be treated. Within the TQM culture a co-operative and open culture has to be created by the organisation management in which all the employees have to be made to feel that all of them are responsible for satisfying the organisation's customers. They are going to feel and consider this only if they are involved in the development of the vision, plans and strategies of the organisation. It is crucial for the organisation to achieve a successful implementation of TQM to encourage the employees to participate in all these activities. However they are unlikely to behave in an acceptable responsible way in the case where they see the management behaving irresponsibly and saying something or acting in opposition of it (Oakland, 2000).

3. Critical Success Factors (CSFs) of TQM Implementation

Saraph *et al.* (1989) defined the critical success factors for TQM as “critical areas of managerial planning and action that must be practiced to achieve effective quality management in business unit”.

There are many empirical studies which examine the CSFs of TQM implementation using a different set of factors such as Porter and Parker (1993), Ahire *et al.* (1996), Tamimi and Gershon (1995), Ramirez and Loney (1993), Black and Porter (1996), Zairi (1996), Badri *et al.* (1995) and Dayton (2003). However, those authors have attempted to investigate the critical success factors in the TQM in different set of factors as depicted in table 1.

Table1: Shows Comparative Analysis of Various TQM Frameworks.

TQM frameworks	Critical Success Factors														
	Top management	Strategic	Process	Design	Education and Training	Supplier	Customer satisfaction	Employee empowerment	Business	Information and Analysis	Benchmarkin	Resources	Society & environment	Statistical process control	Culture
Juran (1974)	■	■	■	■	■	■	■	■	■						
Crosby (1979)	■	■	■	■	■	■	■	■	■					■	
Feigenbaum (1983)	■	■	■		■			■							
Garvin (1988)	■		■	■		■	■	■							
Saraph et al (1989)		■	■	■	■	■	■		■		■				
Lu and Sohal (1993)	■	■	■	■	■				■		■	■		■	
Oakland (1993)		■	■	■		■	■	■		■	■			■	
Flynn et al. (1994)	■		■	■	■	■	■			■					
Babbar & Aspelin (1994)	■				■		■	■							
Powel (1995)	■	■	■	■	■	■	■		■	■	■		■	■	
Ahire et al. (1996)	■	■	■	■	■	■	■	■		■	■			■	
Black and Porter (1996)		■	■	■	■	■	■	■	■		■				■

Low and Wei (1996)			■			■	■			■	■			
Tamimi (1998)	■	■			■	■	■	■				■		
Ang et al. (2000)		■	■	■		■	■	■	■		■			
Zhang et al. (2000)	■		■	■	■	■	■	■		■				
Nwabueze (2001)		■	■	■	■	■	■	■	■		■			
Thiagarajan et al (2001)		■		■		■		■	■					
Motwani (2001)	■				■	■	■		■		■			
Deming prize (2004)			■	■	■	■		■			■			
MBNQA (2004)		■	■	■	■	■	■	■	■	■	■			
EQA(2004)		■	■	■		■	■	■	■	■	■		■	■

The analysis of twenty two of the most prominent TQM guiding framework in construction has reveal that most of frameworks have three CSFs in common: such as top management commitment, training and education, customer satisfaction, and the other frameworks revealed that have four CSFs such as process management, supplier quality management, employee empowerment and involvement and information and analysis. In addition, Black and Porter (1996), framework quality culture factor doesn't exist in any other framework even though there are evidences in the literature review that culture factor are very important for success the quality initiative (Black and Porters 1996 and Kumar and Jhe 2010). Merti (2004), indicates culture very important factors to success TQM and more powerful than anything else in the organisation. However, researchers such as Ambroz (2004), Butch and Rivers (2001), Chan and Tse (2003), Jenner *et al.* (1998), Laszlo (1998), Lewis (1996), Perry (1997), Roney (1997), Sinclair and Collins (1994), Waldman and Gopalakrishnan (1996) and Youssef and Zairi (1995) all have emphasised the importance of organisational culture for the implementation of TQM in their studies (Merti, 2004).

4. TQM Critical Success Factors in Arabic Countries

Many studies of TQM have been carried out in Arabic countries such as Saudi Arabia, Dubai, Bahrain, Kuwait, Palestine, and UAE and so on, to study the TQM implementation and these studies have measured the CSFs for TQM implementation in the Arabic countries some of them are: Baidoun (2003) conducted an empirical study of CSFs for TQM in Palestinian organisations. The main aim of the study was to classify the CSFs for effective TQM implementation and to understand how they are implemented by Palestinian organisations (Yossef, 2006). The result of the study showed that there were nineteen quality factors were perceived as being critical for the successful implementation of TQM. These factors were identified and organised into three levels of criticality. Nine of them were recognised in the early stages of the implementation process. These nine critical factors are:

1. Senior executives assume active responsibility for the evaluation and improvement of the management system, and for leading the quality drive.
2. Elements of quality management structure should be in place to manage the organisation's quality journey.
3. Visibility of senior executive commitment to quality and customer satisfaction.
4. A formally documented quality management system should be in place.
5. Problem solving and continuous improvement processes based on facts and systematic analysis.
6. Clear, consistent communication of mission statement and objectives defining quality values, expectations and focus.
7. Comprehensive policy development and effective deployment of goals.
8. Comprehensive identification of customers and customer needs, and Alignment of processes to satisfy these needs.
9. The entire workforce understands and is committed to the vision, values, and quality goals of the organisation.

AI-Nofal (2004) carried out an empirical study of CSFs of TQM implementation in Kuwait. The study revealed that nineteen critical factors which are seen as being both vital and necessary for the success of TQM implementation. These factors were identified and organised into three levels of criticality, there were nine of them found to be critical. These factors are

- a. Top management commitment.
- b. Visible involvement of top management in quality.
- c. Customer satisfaction.
- d. Clear mission statement.

- e. Quality planning.
- f. Decision making at lower levels.
- g. Effective communication between employees and management.
- h. Organizing for quality.
- i. Employees commitment and enthusiasm.

Al-Omair (2002), conducted research to find out how TQM is understood, received, and deployed in Saudi Arabia. The organisations which participated in his study identified twenty one factors as being critical for TQM implementation. These were classified into three levels of criticality, and seven factors were identified as being critical:

1. Senior executives' responsibility.
2. Executives' vision and customer satisfaction.
3. Customer needs will define and feedback to processes.
4. Clear mission statement, objectives, values, expectations, policy Deployment.
5. Workforce commitment, training.
6. Continuous improvement.
7. Fact-based processes.

Other researchers carried out in Qatar and United Arab Emirates (UAE) are also included in Table 2.

Table 2: TQM critical success factors in Arabic countries

TQM Frameworks	Critical success factors													
	Top management	Strategic quality	Process quality management	Design quality management	Training & Education	Supplier quality	Customer satisfaction	Employee empowerment and involvement	Business results (BR)	Information and Analysis (I&A)	Benchmarking (BEN)	Resources (R)	Impact on society and environment	Statistical process control
Baidoun (Palestine)	X		X	X	X	X		X		X	X	X		
Al- Nofal (Kuwait)		X	X	X	X	X	X	X	X	X				
AL-Omair (Saudi Arabia)	X		X	X		X	X	X					X	
Al- Anazi (Saudi Arabia)	X		X	X	X	X	X			X				
Bubshait (Saudi Arabia)	X				X		X	X				X		
Badri (UAE)	X				X		X	X						
Al-Khalifa (Qatar)		X	X	X		X	X	X		X	X			X

After a thorough review of the perspective, partitioned and empirical literature on quality management and from the extensive literature search, six factors have been identified as a crucial and essential for achieving successful TQM being critical successful TQM in LCI, namely:

1. Top management commitment and leadership (MCL).
2. Communication (COM)
3. Training and education (T&E)
4. Teamwork and problem solving (T&PS)
5. Employees empowerment (EE)
6. Work environment and culture (WE&Cul)

For each of the five factors, a number of items (53 items) were formulated to measure the level of implementation for each factor in the LCI

5. Research methodology and Data collection

The data were collected through the developed survey questionnaires. Before the wider distribution of the questionnaire, the questionnaires were pilot – tested, where the pre test was conducted to test the workability. Nunnally (1978), suggested that the pretest must be carried on similar groups After several intensive questionnaire reviews and amendments with academics. The questionnaires were ready to be handed out. As the first language of the respondents was not English, it was decided to translate all the contents of the questionnaires to Arabic to make it easier for all respondents to understand clearly and accurately. The accurate translation took time as the technical aspect and language nuance had to be taken into account when translating. In the first step of the questionnaires survey, a formal letter was sent to all organisations managers involved, providing an overview about the research and encouraging the potential respondents from the organisation to complete the questionnaires on time. A total of 200 hard copies of the questionnaire were distributed to the forty five construction contracting companies in Tripoli (Libya) by researcher. Each questionnaire was accompanied with a covering letter from the researcher providing explanation about the idea and outcomes beyond from the survey. All the questionnaires were distributed and collected by the author. A total of 130 fully completed questionnaires were returned giving a response rate of 65 percent, about 36 percent of the questionnaires returned were from the private sector whereas about 64 percent were public sector.

5.1 Reliability Test

The value of Cronbach`s alpha derived for the constructs ranged between 0.835 to 0.941. In general reliability coefficient of 0.70 or more is considered good (Pallant, 2007). According to Nunnally (1978) the value 0.80 or more is significant and reliable; this indicated the instrument developed for measuring TQM implementation using critical successes factors (CSFs) was considered to be reliable. The Cronbach alpha for the whole ranged between 0.835 to 0.966 this indicated that has high reliability of the instrument. Where the overall value was 0.914 confirms these instruments is highly reliable (Das *et al.* 2008).

5.2 Results of Factor Analysis

The result of the output obtained in this analysis could be presented a followed: The 53 items (variables) in the survey were made as a four - point likert scale where (1) included Strongly Disagree and (4) Indicated the respondent Strongly Agree with the statements. The fifty three item of the questionnaires were inter correlated and subjected to an exploratory factor analysis (EFA) based on the principal component analysis (PCA) with Promax rotation was conducted using *PASW* (Predictive *Package* for the Social Sciences) version 17.0 to detect the factor structure in the variable Inspection of the correlation matrix reveals the presence coefficient of 0.3 and above the Kaiser Meyer Oklin (KMO).That measure of sampling adequacy was 0.728. The Bartlett`s test of sphericity (approx.chi.square) as shown in the Appendix 13 reached statistical significance, ($p<0.0005$) supporting the factorability of the correlation matrix (Field, 2005, Kinnear and Gray, 2006). Kaiser, (1974) “recommended accepting value greater than 0.5 as barely acceptable, value between 0.5 and 0.7 are mediocre, value between 0.7 and 0.8 are good, value between 0.8 and 0.9 are great and value above 0.9 are excellent”. Field (2005) indicates the value in our case 0.728 that indicate good. Number of scholars such as Norusis (1994), Gaur *et al.* (2004) and Kaiser (1974), pointed that the value of Kaiser-Meyer-Olkin (KMO) below 0.5 indicated this value unacceptable and the high KMO measures allows more meaningful analysis to be obtained, (Kim and Mueller 1978, Klin 1994;1998, Cattell1979) this can be confirmed by Bartlett's Test of Sphericity which tested and Chi-Square test was significant ($p<0.0005$) this indicating that Principle Component Analysis PCA can be meaningful applied. According to Torbica (1997), “*PCA used to produce a structure matrix of variables after rotation where the number of component determined was based on the criterion that the Eigen value for each component must be more than one.* Soetanto (2002) mentioned this method can be referred also as Kaiser Criterion however this derived five principle components which explain 65 percent of variation in the variable.

5.3 Factor Rotation

The scree plot exposed a clear break after the five components. Scree test, was used to determine that five components be retained for further investigation. promax rotation was used to aid interpretation of the five components. Factor loadings of the 53 items of the scale produced five factors were loading. Hair *et al.* (1998, 2010) suggested that variables with loadings greater than 0.3 were considered significant, loadings greater than 0.4, more important, and loadings 0.5 or greater were very significant. In this study, these components showing a number of strong loadings. promax rotation used to demonsratable quality as evidence, where the this type of rotation raise the component loading to higher power to achieve the simple structure and to obtain more interpretable component, the

promax oblique rotation with power (kappa) value 4 was utilised Oblique rotation was utilised since it (Lagron 2007, Hair *et al.* 1998, Catell 1979 and Gorsuch 1993). Table 6-10 shows the number of principle component retained based on the Kaiser's criterion, five component were retained so the five factor solution explained a total of 83.215% of the variance, with component I giving 65.924 %, component 2 giving 5.770%, component 3 giving 5.315%, component 4. Giving 3.316%, and component 5 giving 2.890%, as depicted in Table 3.

Table 3 Eigen value, percentage of total variance of TQM explained

Component	Total Variance Explained					
	Initial Eigen values			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	34.940	65.924	65.924	34.940	65.924	65.924
2	3.058	5.770	71.694	3.058	5.770	71.694
3	2.817	5.315	77.009	2.817	5.315	77.009
4	1.758	3.316	80.325	1.758	3.316	80.325
5	1.532	2.890	83.215	1.532	2.890	83.215
6	.965	1.821	85.036			
7	.893	1.686	86.722			
8	.849	1.601	88.323			

Note- components 9-53 are not show

5.4 Factor Correlation Matrix

As we can see in the Table 6-10, the factors correlation between the five factors, there are interrelations between the five factors which are presented and there is positive and statistically significant between the total quality management elements. In addition the first factor management commitment has high correlated with the second factor Employee involvement and recognition (0.911) and the other CSFs of TQM.

Table 4: Components Correlation Matrix

<i>components correlation matrix</i>					
Component Correlation Matrix					
Component	1	2	3	4	5
1	1.000	.911	.676	.624	.433
2		1.000	.750	.690	.580
3			1.000	.696	.417
4				1.000	.392
5					1.000

Extraction Method Principal Component Analysis.
Rotation Method Promax with Kaiser Normalisation.

5.5 Rotated Component Structure Matrix

The rotate component matrix help the author to determine what the component represent where the first component is most highly correlated with MCL (shows table 5 where the MCLQ3, MCLQ13, MCLQ12 and so on where there components are better representative. However it is less with the other four components. The second components are most highly correlated with EEQ1, EEQ5, T&PS4 and son on. The third component is most highly correlated with WE&CULQ5, WE&CULQ4, and WE&CULQ2 and so on. The forth component is most highly correlated with COMQ3, COMQ2, and COMQ4 and so on. The last component fifth is most components highly correlated with T&PSQ9, COMQ5, and T&PSQ6 and so on. In order to determine the number of factor needed to represent the data, the 53 Variables measuring the TQM CSFs where the indicates those there five factors out of forty four critical success variables were extracted with an eigen value greater than 1 for each, and explaining 65 percent of total variance. Based on the item loading on each factors and the interpretation from the factor analysis Factor 1 has the loading of variables 1, 2, 3, 4, 5, 13, (0.975, 0.974, 0.947) can be classified as organisation management. Factor 2 has the loading of variables 14,15 16 and so on (0.939, 0.926, 0.927 and so) cab be classified as employees involvement and recognition. Factor 3 has the loading variables 28, 29, 30, (0.967, 0.964, and so) can be classified as work environment and culture. Factor 4 can be classified as communication to improve quality and Factor 5 can be classified as training and education. The finding shows that there are five construct factors with forty four CSFs

affected for successful implementation TQM in the LCI in this case there are many methods done to identify these construct (Black 1993, Ahire *et al.* 1996 and Zhang 2001). The result was five construct with frothy four elements:

1. Organisation commitment.
2. Employee involvement and recognition.
3. Work environment and organisational Culture.
4. Communication to improve quality.
5. Training and development

Table 5: Structure Matrix

FACTORS	Structure Matrix				
	Component				
	F1	F2	F3	F4	F5
MCLQ3	.975				
MCLQ13	.974				
MCLQ12	.947				
MCLQ1	.946				
MCLQ7	.946				
MCLQ11	.942				
MCLQ8	.941				
MCLQ9	.939				
MCLQ5	.930				
MCLQ4	.925				
MCLQ10	.922				
MCLQ2	.904				
MCLQ6	.885				
EEQ1		.939			
EEQ5		.926			
T&PSQ4		.921			
EEQ2		.920			
EEQ4		.919			
T&PSQ3		.917			
EEQ3		.909			
EEQ6		.890			
T&PSQ2		.889			
T&EQ2		.888			
EEQ8		.886			
T&PSQ10		.886			
T&PSQ1		.660			
EEQ7		.851			
WE&CULQ5			.967		
WE&CULQ4			.964		
WE&CULQ2			.958		
WE&CULQ3			.955		
WE&CULQ8			.935		
WE&CULQ9			.931		
WE&CULQ7			.913		
WE&CULQ1			.879		
COMQ1			.860		
COMQ3				.948	
COMQ2				.936	
COMQ7				.906	
COMQ4				.884	
T&PSQ9					.847
T&PSQ7					.819
T&PSQ6					.799
T&EQ6					.721
Extraction Method Principal Component Analysis. Rotation Method promax with Kaiser Normalization.					

6. Conclusion

This paper shows the results of the study on the CSFs of TQM implementation in Libyan organisation. Both validity analysis and reliability of the survey have been conducted and it has been concluded that the survey is fairly reliable and valid. To implement TQM should be learn an invaluable lesson from the experience of industries who have already implemented TQM. If companies that are currently implementing TQM, or planning on implementing TQM become more sensitive to the barriers their chance of success will be improved. To improve the state of the industries that are currently implementing TQM the industries should understand and learn that benchmarking is a tool that is used to identify their strengths and weaknesses in comparison to the best in their class. However, In developing countries such as Libya, a management philosophy is used to help increase the acceptance of TQM. This acceptance of the TQM philosophy will help improve the organisational effectiveness and competitiveness. Hence this research presents the result of the study on the critical success factors of total quality management in Libyan construction industry. A total of six critical factors with fifty four variables are considered in the questionnaires. FA was carried out on the collected and analysis data to identified five critical factors with forty four variables of total quality management implementation. Reliability and validity on this study also conducted where the reliability factors in the research was valid under the internal consistency by using reliability coefficient (α) of this research range 0.835 to 0.966 this indication that factors has high reliable (0.914) on the other case, construct and content validity also conducted in this research where the tested through the review of all questionnaires and by using the tools factor analysis for construct validity. The research findings from all the analysis identify five reliable and valid TQM constructs; five are implementation constructs and one outcome construct. The five constructs which are organisation commitment, communication to improve quality, Training and Development, employee's involvement and recognition and work environment and organisational culture. The correlation analysis showed that there is interrelation between the five factors which is significant correlation between all factors. The finding from the questionnaires survey and interview reveals that the successful for implementation of TQM in LCI can be affected by those factors, where the results indicated that the communication to improve quality and training and development the most critical factors of successful the implementation of TQM in LCI. From the interviews the researcher found that there was a clear lack of implementation of the critical success factors CSFs of TQM demonstrated through features such as, lack of knowledge of QM and lack of management commitment.

In the author's view the Libyan organisation are still in the early stage where most of the, Libyan companies was introduced ISO9000 only just prestige because some of local companies have been certified ISO 9000. There are weaknesses in communication and information system in the LCI. The present system in the LCI is based on paper and verbal formats this result low quality and low flow of information. Libya is not yet ready to accept and adopt TQM because the lacks of infrastructure, which top management, are not keen to adopt due to lack of educational skills. For this reasons the implementing of the quality management in Libyan construction industry is difficult and it is likely to take long time to understanding the exactly meaning of quality management systems and their implementation. Some managers mentioned company and government policy which does not allow employee delegation. In this case the employees could not take a decision without management approval; from leaders or supervisors.

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