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An Empirical Investigation of Total Quality Management in Libya: A Proposed Guideline of Implementation

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ABSTRACT

Rapid socio-economic and technological changes have urged the implementation of new approaches to procure construction projects. Total Quality Management (TQM) is one of the approaches that contribute towards ensuring that projects are being delivered to the stakeholder requirements. This study identifies critical success factors (CSFs) that affect the implementation of TQM in the Libyan Construction Industry (LCI) and develops guidelines which help companies implement and maintain quality management systems. To achieve these aims, the research employed both quantitative and qualitative methods. Based on a thorough review of literature, a questionnaire was developed and distributed to 200 managers. Data from 130 completed questionnaires were then analysed using Principal Component Analysis (PCA), which reveals the internal structure of the data in a way that explains the dimensions of TQM implementation in LCI. 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. Supported by relevant literature and interviews with a number of managers, they provide the basis for developing the guideline for successful implementation of TQM in Libyan construction companies.

Keywords: Critical Success Factors (CSFs), Guidelines, Libyan Construction Industry (LCI), Principal Component Analysis (PCA), Total Quality Management (TQM)

BACKGROUND

Libya is an African country that spans over 1,759,540 square kilometers (679,182 sq.

miles), making it the 17th largest nation in the world by size. The construction industry is affected by the country's economic cycle.

However, oil discovery was a turning point for industries in Libya as the government was

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able to spend a substantial amount for the development of the construction industry.

The Ministry of Housing report 1986, maintained Libya from a shortage of skilled labour in the construction industry. The local contractors did not possess the technical, administrative and financial capabilities to undertake medium or large projects.

There are many foreign construction companies (such as Italian, Chinese, French and Korean) operating within the country on various projects ranging from large infrastructure projects to the local road projects. The Libyan government has launched one of the largest public infrastructure investment programs in the world - The Libyan Housing and Infrastructure Board (LHIB), has funds amounting to US\$ 50 billion for programs to improve housing, roads and bridges.

Libyan industries operates in four main regions which are influenced by social tribalism and nepotism, fluctuations in oil revenues and foreign workers. Political ideology has played a significant role in determining the current status of foreign labour coming from high unemployment countries such as Egypt, Korea, Pakistan were paid low wages and as a result, local citizens abandoned working in the construction industry and the industry became dominated by foreign labourers.

INTRODUCTION

In the current competitive business climate, one of the most important factors for companies to succeed and grow is management of quality for their products and this works for both national and international markets. Construction companies must provide high quality products consistently and must use added value to appeal to their customers, and clients.

The construction industry is the backbone of the economy of any country and it is also vital to a country's infrastructure. However, the construction industry in Libya faces problems of developing economy, such as high fragmentation, low productivity, and lack of standards,

poor quality and instability. Bhimaraya (2005) states that most countries are faced with similar problems in their construction industries even though the economy of each country is different (Lam *et al.*, 2008).

The requirements of the quality standards are often not fulfilled by construction clients. Kometa and Olomolaiye (1997) state that clients are still often displeased and many other problems continue to arise in the construction industry, even though efforts have been made and time and cost overruns have been improved.

Taking Libya as a case in point, this still means that the construction industry in this country is still not up to its fullest potential. Libyan construction industry (LCI) will face problems meeting the competitive challenges that arise in the modern fast changing market that we have now competitive edge; to peruse Construction companies in Libya should manage their resources most effectively and offer a timely response to the demands of the market.

BENEFITS OF IMPLEMENTATION OF TOTAL QUALITY MANAGEMENT (TQM)

The implementation of total quality management will result in:

- Improved employee involvement: (Dale, 1994) the TQM ensures everyone within the organisation should have a clear understanding of what is required and how their processes relate to the business as a whole. Through the practice of TQM, teamwork promotes employees to become motivated and encouraged to control, manage and improve the processes.
- Increase productivity: TQM changes the organisation culture and create a happy working environment due to an effective delegation; empowerment, total staff involvement, problems identified and solutions will become more efficient for working process.

- Improve quality in TQM implementation, work process and improvement are focused employees will place more emphasis on the elimination of the root causes rather than on the correction of problems.
Improve customer satisfaction: through open communication among employees, customers and suppliers, the true voice of the customer can be more readily understood since the quality operation also focuses more on the work process and improvement. The company will provide a better quality product /service to the market.
- Reduces cost poor quality: According to Anjard (1998) “effective implementation of TQM will lead to a significant reduction in the cost of poor quality such as scrap rework late deliveries warranty replacement”
- Improve communication: a better communication can be accomplished through the effective implementation of TQM principles in any organisation more open and frequent communication among people will be found and they will view and treat one another as customer and suppliers.

AIM OF THE PAPER

- To investigate and identify critical success factors (CSFs) affecting TQM implementation in the Libyan construction industry (LCI).
- Develop a guideline to implementation TQM in the Libyan Construction Sector.

CURRENT KNOWLEDGE OF TQM

Several researchers have examined TQM from different perspectives (Cassidy, 1996; Curry & Kadasah, 2002; McAdam & Jackson, 2002; Magad & Curry, 2003; Wiklund *et al.*, 2000; Yang, 2004; Dreyfus *et al.*, 2004).

The key ingredients which are crucial in successfully implementing TQM within any organisation comprises the following:

LEADERSHIP

Durbin (1995) describes leadership as the ability to inspire confidence and support amongst those needed to achieve organizational goals. Meanwhile Anderson *et al.* (1994) describes the concept of leadership as the ability of top management to establish practice and a long term vision for the organization or firm driven by changing customer requirement.

However, accordingly to Saylor (1996) the client(s) provide the impetus for setting targets for TQM, which is further developed in detailed through establishing quality policies, deploying appropriate resources to match the goals and roles of top management (Juran & Gryna, 1993). These sentiments were also echoed by the European Quality Award 1994 and Malcolm Baldrige Quality Award 1999.

Hence, the concept of leadership can be defined as: the ability of top management to lead the firm in a continuous manner, pursuing long term overall business success. This can be exemplified by top management participation, top management commitment to employees, education and training.

TEAMWORK

It is widely accepted working in a team or group is generally more effective than working individually.

TQM recognises that the team approach should not be limited to the internal organisation team, but it should be used to cover vendors and take external customers under their umbrella. TQM benefits from the successful experience of quality circles in Japan.

TRAINING AND EDUCATION

Training is an essential factor for any successful quality management program. Programs of training must target all persons in the organisation and 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 required to improve all processes in the construction industry (Burati, 1992; Chase, 1993; Oakland, 2000).

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.

Good communication and a good feedback system are very important in conveying ideas to the management and to incorporate the necessary change required (Sanders, 1993).

CUSTOMER FOCUS

Customer focus can be regarded as the degree to which a firm continuously satisfies customer needs and recognise the need to put the customer first in every decision are often said to be successful firm (Chase 1993). The key to any quality management is the ability to maintain a closer relationship with the customer.

In order to fully identify and develop the customers’ needs, it is important that the consultant firms (client professional advisors and appointed contractors) establishes a pattern of communication and involve the customer during all stages of development process. Hence, the customer’s focus and the customer (internal and or external) satisfaction forms one of the major elements of the TQM framework. According to Saylor (1996) its primary concern is to satisfy goals or targets of customers for both internal and external requirements.

For TQM to succeed, the senior management of a primary organisation aim must be committed for the clients’ quality by creating an appropriate culture with shared values and beliefs. The adopted culture should support the aim and quality to encourage the commitment of all organisation members to the end.

EMPLOYEES INVOLVEMENT AND PARTICIPATION

Successful implementation of a TQM environment requires a committed and skilled workforce to fully participate in the activities carried out to improve the quality.

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 *et al.*, 2004).

According to Sayeh *et al.* (2005) and Yang (2003) 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 customer relationships involving both internal and external customers.

Therefore TQM programs are strongly focused on the importance of the relationship between both internal and external customers and suppliers. This relationship is known as a quality chain which should not be broken at any stage (Oakland, 2000).

CULTURE

The culture within an organisation is defined by Jeffries *et al.* (1996) as an interaction that takes place between employees within an organisation along with the relationships engendered by this behaviour. In line with this, (Swain, 2005) states that the culture can be described as the beliefs which pervade the organisation regarding the procedures used to conduct the business, 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 employees are responsible for satisfying the organisation’s

Table 1. KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.728
Bartlett's Test of Sphericity	Approx. Chi-Square	15910.220
	df	1378.000
	Sig.	.000

customers. They will 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 It was concluded by (Sayeh *et al.*, 2005) that before thinking of implementing TQM within an organisation it is advisable for the organisation to understand the existing dominant culture.

RESEARCH METHODOLOGY

A structured questionnaire was developed from the literature review. The results from the study centred around conducting structured questionnaires.

The questionnaire surveys were to target a population of ISO 9000 certified companies in Libya, therefore, a total of 200 hard copies of the questionnaire were distributed to 45 randomly selected construction contracting companies in Tripoli (Libya). 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 the data collected through one to one interviews. A total of 130 questionnaires were fully completed giving a response rate of 65%, approximately 36% of those returned were from private sector whereas, approximately 63% were government organisations.

RELIABILITY TEST

The first step of analysing was to gather data and then a reliability test was conducted for the entire questionnaires. Cronbach's Alpha (Pallant, 2007) was used as the coefficient of reliability for testing and assessing the internal consistency of the construct of entire questionnaire. The calculated value of Cronbach Alpha was found 0.970. According to (Pallant 2001), Cronbach's Alpha coefficient of 0.070 or above is considered adequate for testing the reliability of the entire questionnaire, giving proof that the questionnaires for the present survey can be considered as reliable for the used sample

Table 1 shows that the value of Cronbach's Alpha derived for the constructs ranged between 0.840 and 0.988. This indicated the instrument developed for measuring TQM implementation using critical success factors (CSFs) was considered to be reliable.

The Cronbach Alpha for six constructs ranged between 0.886 to 0.97, indicated a high reliability of the instrument. Where the overall Cronbach Alpha 0.97 confirms these instruments is highly reliable (Das *et al.*, 2008).

RESRARCH ANALYSIS AND FINDINGS

In this study, the Factor Analysis (FA) were performed on all variables (53) variables using principle component extraction (Tabachnick & Fidell, 1999). The main objective for this technique was to extract the maximum variance from the data set within each factor. However, each statement on the questionnaires was coded as VAR1, VAR2, and VAR3.

RESULT OF FACTOR ANALYSIS FACTOR EXTRACTION

The result of the output obtained in this analysis could be presented as followed:

The 53 items (variables) in the survey were made on a four point likert scale where (1) implied Strongly Disagree and (4) Indicated the respondent Strongly Agree with the statements. The 53 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 conducted using PASW package version 17.0 to detect the factor structure in the variable. Inspection of the correlation matrix revealed the presence coefficient of 0.3 and above the Kaiser Meyer Oklin (KMO). The measure of sampling adequacy value was 0.728.

The Bartlett's test of sphericity (approx. chi. square) as shown in Table 1 reached statistical significance, supporting the factorability of the correlation matrix.

According to 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). This indicates the value in our case 0.728 that indicate good.

According to Norusis (1994) the value of Kaiser-Meyer-Olkin (KMO) below 0.5 indicates an unacceptable value and a high KMO measures allows more meaningful analysis to be obtained, this can be confirmed by Bartlett's Test of Sphericity and a Chi-Square test were both significant ($p < 0.0005$). This indicating that PCA can be meaningfully applied (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 Eigenvalue for each component must be more than one. This method can be referred also as Kaiser criterion; however, this derived five principle component which explain 65% of variation in the variable.

Factor analysis with principal component extraction, using a promax rotation, was performed on the 53 management practice items to determine the number of factors. Besides using the scree plot as a guide to decide on the number of factors to be extracted, the Kaiser criterion (Eigen value greater than 1) was used, explaining 66%, 5.7%, 5.3%, 3.3%, and 2.8% of the variance respectively.

Table 3 shows the Eigen values and percentage of total variance explained of TQM elements.

It is self evident that the first few factors explain relatively large amount of variance (especially factor 1 where the factor 1 equal 65.924 SPSS extract all factors with Eigen value greater than 1 and the percentage of variance explained in the column which labeled Extraction sums of squared loading.

The total variance explained the variance by the initial solution, extracted component and rotated component. Table 3 shows the first section the initial eignvalue, the total column gives the eignvalue or the amount of variance in original variable accounted for by the each components, and the % variance column gives the ratio expressed as percentage of the variance the last column cumulative % this column gives the percentage of variance.

FACTOR ROTATION

The scree plot revealed a clear break after the five component so that further investigation can be retained (Catell, 1978). 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.* (1995) 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.

Table 2. Eigen values and % of total variance explained of TQM elements

Total Variance Explained						
Component	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

Promax rotation used to 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 utilized.

Table 2 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%.

In addition, by using the factor analysis, 45 items (variables) measuring the implementation of TQM in the LCI were subjected by the PCA.

The eigenvalue and the scree plot were used to indicate and to determine the number of factors to be extracted. However, to make sure the FA, BTS and Kaiser- Meyer- Olkin (KMO) test of appropriates were put in place. The result of BTS was 15910.220 and the level of significant was $p=0.000$ this indicated that the data were appropriate for the purpose of FA.

The result of sampling adequacy was 0.728 this reflected as a substantial sampling. The 53 variables were loaded on five factors which are suggested by using the criteria of an eigenvalue greater than one and the extract

factors were 65.924 of the total variance. A promax rotation was also performed however the 53 items loaded into the five factors as they are the original design. The factor loading were higher than 0.5 on its own factors. Therefore the factor loading higher than 0.35 statistically significant at the level of 0.05.

PROPOSED GUIDELINES OF TQM IMPLEMENTATION

The purpose of the guidelines is designed to assist and encourage construction organisation for effective implementation of TQM in the context of Libyan

Therefore the guidelines is built around the five major constructs regarding to the research findings indicates Organization Commitment, Communication, Employees involvements and recognition, Work environment and Culture and Training and development. Table 3 shows the implementation stages.

For implementation of TQM in the Libyan construction organisation there is a guideline which must follow: organization commitment.

Organisation commitment is the main dynamic that forces TQM into the Libyan organization, there has been many literatures which have stated this such as Ahire *et al.* (1996), Crosby

Table 3. Constructs of the TQM implementation guideline

Constructs	Implementation
1. Organisation Commitment	I. Establish quality council II. Establish plan for implementation III. Provide strategic direction for TQM implementation IV. Create corporate TQM vision V. Formulate TQM objectives and strategies VI. Forming TQM steering committees.
2. Communication	I. Use face to face communication by conducting meeting with all employees II. Reinforce face to face communication of the mission III. Encourage open discussion IV. Conduct questions / answers session with employees
3. Employees Involvement and Recognition	I. Gathering all employees to attend face to face meeting to announce the need for QMS II. Gathering all employees to attend face to face meeting to communicate the vision/ mission and quality goal of the organisation III. provide training for all employees in interaction skill IV. keep employees informed and get their feedback
4. Training and Development	I. Provide training for all employees in problem identification and solving skills and other technical skills II. inform and train quality improve team III. Review of motivation system.
5. Work environment and Organisational Culture.	I. Create continuous improvement culture II. Use tools and techniques for continues improvement III. Build continues improvement(CI)

(1989), Black and Poreter (1996), Deming (1986), Garvin (1983), Motwani (2001), and Zairi (1999). To enforce TQM top management should set out targets and aims of their vision, set guideline, quality goals and create a mission statement. This should all be written as part of the organizations quality policy. Top management must ensure all levels of the organization are aware of the policy so it can be implemented correctly.

The response from the questionnaires shows top management has the biggest responsibility of all for implementing TQM. Not only are they responsible for the organizations policy on quality management, yet they must also be dedicated on improving the performance of TQM through all levels of the organization. The mission statement must convey TQM or any other quality management systems and the effect of its use of the organizations own

resources, they must also review all quality systems used.

Commitment from top management should be noticeable. Managers should show dedication by actively participating with other workers whilst a TQM environment is enforced. The most important thing they should do is to encourage shop floor staff to also be dedicated to TQM; this will also empower the workers. Managers must show active leadership. To show active leadership there are two components which each leader must have, which is initiative and creativity.

Each resource needed for long-term or short term commitment to quality must be thoroughly planned to assist in the continuous improvement to quality. In any organization as a quality culture changes the demands and resources needed also change, the organization must be prepared

For this and deal with it in a reasonable manner (Dale, 1995).

Top managers should establish a quality council, this council should envision TQM and plan carefully the path needed for successful implantation of TQM. Certain techniques must also be used for all workers to agree with the implantation of TQM and so all workers are prepared to support it at all times.

Other key skills top managers need is to have excellent knowledge and eagerness for enhancing quality, they must have a superb ability and motivation to work with all the workers and to serve as the employees consultant, friend; not just their boss.

Managers must make sure all the quality teams are empowered and know all their responsibilities so they can reach the goals and targets the company have made.

TQM policy should contain the corporate values. The policy should set targets for the company and workers based on the performance of the company, performance indicators are needed to do this.

The policy should set out targets, goals and objectives through all levels of the organization because it is essential. The policy should also set out what appropriate resources and training are needed. Preparing of the mission statement should be guided by senior management but should involve all the employees.

All channels of communication available should be investigated as this will help create a mission statement which suits all employees at all levels of the organization.

Employees Involvement and Recognition

Employee involvement and commitment has been identified as a critical quality factor, this is because it can affect the time it takes for the implementation of TQM to be successful.

Many researchers have identified this such as Creech (1994), Zairi (1999), Blackburn *et al.* (1993), Kanji (1990), Oakland (1993, 2000), Rao *et al.* (1996), Ahire *et al.* (1996), Black and Porter (1996), Blackburn and Rosen (1993),

Clemmer (1990), Creech (1994), Evans and Lindsay (2001), Kanji (1995), Oakland (2000), Sun (2000), and Thiagarajan and Zairi (1997).

Many authors have written what the affect of managers supporting employees in achieving the quality goals are. Middle management and shop floor employees must actively participate in keeping the company organized, as they are key internal stakeholders. Employees must be well motivated so they can work through the challenges that TQM implementation brings, they must be provided with suitable training as well as incentives which will help motivate the workers further by rewarding them suitably when they work very hard. Motivation and empowerment is a crucial thing employees must have, it supports the quality scheme and helps TQM implementation happen faster and smoother.

The responses gathered showed employee participation is best done by using the following methods:

- Top managers must arrange training for all of the management at all levels; they should be trained in communication, effective meeting and leadership skills. Employees working at operational levels should be trained in problem identification and solving, quality improvement and other technical skills.
- Strengthen employee buy-in to TQM: The only way to reinforce and support commitment to TQM in Libya; is by ensuring there is constant face-to face talks between middle management and employees.
- Initiating efficient communication systems between the different levels of the organization.
- Persuade workers to contribute and help achieve the companies' vision, values and targets and let the quality policy be known to all workers.
- Disseminate information throughout the company: By ensuring all workers are aware of the potential benefits TQM can bring they are more likely to be more motivated and help implement TQM. This

will be best accomplished by arranging assemblies or gatherings where employees are lead by top managers and notified of any changes or new targets. This will show top manager dedication because the top managers will have to provide appropriate resources and tools to the employees.

Communicating the policy and associated strategy: All forms of communication play an important role in generating awareness and helping mobilise creative energies; these are key for achieving the goals of TQM. In the Libyan construction sector, the top-down, bottom-up communication model must be used Top-down communication lets employees know the visions and strategies top management have set out, and bottom up communication allows employees to portray their views about the implementation process to top management. An open communication system removes any barriers between the employees and top management.

The advantages of employees being more active and committed are that the whole company recognizes the values, visions and quality goals. Empowerment will not only be a requirement but the employees will be more confident and can communicate much better to each other or the managers. All the training employees will receive will make them more aware of the TQM concepts (Dale, 1995).

The most recent method of guiding organizations towards a more focused, complex economical and competitive future is empowering employees. TQM implementation will fail if there is no empowerment of employees. For a company to be successful the employees should be empowered, given more authority, power and independence. A rewards and recognition system should be created in the company to credit and acknowledge employees hard work, this will help motivate the workers.

Training and Development

Awareness training is one of the first things given to employees. Awareness training helps employees learn how to adjust to a TQM

culture and what to do differently for quality improvement to occur. Other key skills should be taught such as problem identification and problem solving skills.

Teamwork and decision making can be encouraged by training employees how to communicate effectively to others; this will also help employees get stronger at their work faster and at a more stable rate. Training should not just be provided to the workers; middle managers will need to be trained on basic tools and quality principles, they must also learn how to teach other employees and help sub-ordinates work in an appropriate manner. Training will help all workers and managers become more educated on how to adapt to the new culture, it will make the change less hasty and it will be more thriving.

CONCLUSIONS AND RECOMMENDATIONS

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.

From the questionnaire, the literature review and the interview results some several conclusions related to the findings of the research and direct to the Libyan construction companies that are implement the TQM, are listed below:

- a) This study has identified the of CSFs of TQM implementation in the Libyan construction companies. The organizations were revealed to have a low level of implementation of the CSFs, this was due to: very low knowledge of QMS, methods and tools and lack of top management commitment and determination. This caused: a lack of vision, inadequate tactical competence and employee involvement and a lack of measurement.
- b) In Libyan organizations, it was showed that the quality initiatives and practices are still

in their early stages, most of the organizations interviewed were progressing with quality improvement programs without any precise quality vision or purpose. As a result from external pressure from international competitors ISO 9000 was launched, this was also used as a prestigious thing to have, this is because some of the other local companies have been certified with the ISO 9000.

- c) At the moment, it would be a very hard challenge to implement quality management in Libyan companies; this is due to the current management approach. With the existing management structure and culture the TQM philosophy cannot be successful. top management are reluctant to educate themselves in the quality management region; this means they cannot become role models to their employees in the quality journey.
- d) Libyan companies have started their quality journey by having the ISO 9000 certificate. The certification of ISO 9000: 2000 is a useful stepping stone for implementing the philosophy of TQM; however the ISO 9000 certification alone will not guarantee an automatic improvement in the performance of the organizations. Good performance is impossible to have with a poor organizational structure and feeble written policies.
- e) ISO 9000 brings many advantages to Libyan companies, for example the QMS can create good document systems, this is important because it will be very useful to companies and currently, as we discovered from the companies interviewed, and these are very poor. This new documentation method may play an extremely important role in measuring the TQM progress in the Libyan environment. The implementation of TQM is a huge culture and working adjustment for the organization as well as the employees. The employees will be used to more traditional approach. For change to be affective and successful Libyan

managers must change their attitudes, educate themselves and their employees and they must not rely on old policies as these were written twenty five years ago and are out-dated.

- f) TQM implementation can be used as a tactical weapon to cope with recent changes in Libyan construction and international construction. The Libyan companies should improve the workers skill and qualities of making materials, enhance training schemes are crucial for successful TQM implementation.
- g) The implementation of TQM takes a long time, construction companies that are willing to implement it should be patient and persistent, and they should also embrace the customer orientation philosophy.
- h) All construction firm leaders in Libya should know that there is a difference between ISO and TQM.
- i) In order to get the full potential of TQM it is necessary to train all people at all levels in order to create TQM awareness.
- j) More training and encouragement for change should be provided to all employees of this organization to create full understand TQM

SPECIFIC RECOMMENDATION FOR LIBYAN GOVERNMENT

Some specific recommendation is propose to the Libyan government as we know the government in Libya plays a controlling role in shaping the business environment of Libya.

The Libyan government should provide appropriate training courses to the Libyan national before imposing percentage quotas on their employment in CI.

the Libyan government should prevent any delay of payment to its contractor companies The Libyan government should play an important role in building a quality environment by emphasizing the importance of quality for whole country.

LIMITATION OF THE STUDY

There are some shortcomings that will restrict the scope of this research are mentioned as follows

The research in this study suffers from number of limitation every effort has been made to overcome these limitations the first limitation which is the most important was a general shortage of data, and information regarding to the quality management in the Libyan construction industry.

The limitation was related to the cultural and social elements of the context of the study, whereby Libyan people are very sensitive about providing information about their work such as income company turnover, and so forth so friendships and social and tribal relationships were significant in influencing access to data.

Other point that should be mentioned is that the majority of roads and streets and building are not named or numbered in the Tripoli and as a result the research could not make contact easily with the personnel of the construction companies

We chose quality managers and general managers because they are involved in the implementation of total quality management.

In addition, this research concentrates only on one of the Arab countries namely Libya which is a part of the Arab countries. The findings of this study and the proposed guideline could be implemented to some Arab and Islamic countries that have similar cultural background such as Egypt, Tunisia, and Algeria where the dominant workforces are local people.

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