



ISSN Print: 2394-7500
ISSN Online: 2394-5869
Impact Factor: 5.2
IJAR 2016; 2(5): 327-330
www.allresearchjournal.com
Received: 28-03-2016
Accepted: 29-04-2016

Abdulfatah Said Elmghadmi
Singidunum University
Belgrad, Serbia

The role of total quality management in the factories of calcareous stone in Libya

Abdulfatah Said Elmghadmi

Abstract

Total quality management (TQM) is gaining importance in industrialized countries all over the world. This study is conducted to analyze the role played by TQM practices on operational performance in calcareous factories in Libya. This Study is based on Survey Questionnaire filled from factory managers of calcareous factories in Libya. The questionnaires were self-administered and consist of questions related to TQM practices in factories. We have distributed 200 questionnaires, but can only be able to receive 170 from the respondents. To test the hypothesis we conducted descriptive statistics, correlation analysis and multiple regression analysis. The overall result shows the TQM practices are contributing towards operational performance. Regression result shows positive relationship between leadership, customer satisfaction, strategic management, management of people and information and analysis, while negative relationship was found with process management.

Keywords: Libyan stone industry, Calcareous factories, Total Quality Management

Introduction

To survive in the global market with a lot of competition, Libyan managers realized since long that there is a need to produce quality goods and services. In developed countries TQM activities are practiced largely like Japan and US, Thus, TQM is now a new concept which is now introduced in Libyan having the objective of improving the quality of product and services and it also improves productivity among employees. Now many Libyan manufacturers have started implementing TQM and producing quality goods to strengthen their competitive position (Bahri, *et al.*, 2012; Saad, *et al.*, 2014) [4, 23].

Total quality management (TQM) is gaining importance in industrialized countries all over the world, Munir and Elhuni, 2014. [16] Whether under a TQM banner, most organizations in Europe, the USA, Japan and Australia tried working in some way on improving the key components of TQM namely, managing people, leadership, customers orientated, and strategic planning. This study is conducted to analyze the role played by TQM practices on operational performance in calcareous factories in Libya.

The answer of above question will contribute by giving the deep understanding of each element of TQM. This would also help organization managers with the allocation of organization resources in such a manner that it would improve company's performance.

Literature Review

The research on TQM was limited at its early stages. Research in TQM have to identify the constructing instruments through which TQM elements can be measured, like, Para-González, (2016); [20] Carmona *et al.*, (2015) [7]. Baird, *et al.*, (2011) [5] have done research to analyzing the relation between TQM practices and companies performance. Most recently Jackson *et al.* (2016) [12] started empirical examination of both the relationships among techniques of TQM and the effects on the firm's performance. All these studies produced mixed evidence. The cause of this failure for obtaining the consistent results due to three differences in research design issues. First, in some studies like Morrow (2011) [15], TQM is operationalized as a single construct, while others; Arumugam (2014) [3] operationalized TQM as a multidimensional construct. Secondly they measure firm's performance differently.

Correspondence
Abdulfatah Said Elmghadmi
Singidunum University
Belgrad, Serbia

Some measures performance only at operating levels as Dora. *et al.* (2013) [9], on the other hand O’Neill (2016) [18] only analyze the financial performance.

To categorizing the TQM elements, quality award criteria is used mostly, Therefore, this study is guided by what is swiftly becomes the universal award structure. There is a wide range of studies conducted on TQM & quality award system, which leads towards the debate of effective use of TQM practices and also the effectiveness of such award system. Easton (1993) [10] conducted the study empirically and presented assessment of the MBNQA on the bases of his expertise with the Baldrige Award, involving 22 companies. Easton (1993) [10] concluded: “TQM in the US is far from mature. So it is necessary to continue TQM approaches for development, expansions. If not, The TQM will not be realized so for that firm’s will left struggles against Competitors decline without revitalization start Al-Khaled, (2014) [11].

Elements of TQM

There was always a debate that how TQM process and its elements can be categorized, it was the need of time to identify TQM elements in such a manner that it can facilitate analysis. Since that MBNAQ method were chosen to follow the framework.

Leadership

Leadership is major elements of TQM through which we examine the senior management leadership skills the ways through they involve their self in setting directions which will be helpful in improving performance of organizations (Khan, 2015) [13]. The major elements of leadership includes encourage to change, environment management and utilization of ideas for the purpose to improve performance.

Management of People

In this category the major issue is that how efficiently the practices of human resources merged with organization directions. We can simply categories the excellence by a simple test: people voice. Basically the study questionnaire is based on different question like communication, safety,

training, and satisfaction. The answer of these questions will become the bottom line for human resources management because of its direct relation with TQM (Burli, *et al.*, 2012) [6].

Customer Satisfaction

This element of TQM shows that how efficiently management and company determine the emerging requirements and expectation of the customers (Khojeh, *et al.*, 2013) [14]

Strategic Management

This element deals with organization strategic planning with attention of organization towards requirements of performance This elements deal with business strategy to attract customers and get competitive advantage (Gassmann, *et al.*, 2016) [11].

Information & Analysis

This element of TQM deals with sue of data and scope management for the purpose to maintain customer focus to improve performance. The previous studies suggest that organizations which are consistently collect and analyze information and data will become more successful than those organizations who do not. The literature also suggests that it also improve organization performance (Aminga, 2015) [2].

Process Management

In this element organization basically deals with the procedure that how organization design and produce product/service. It’s also deals with the improvement of delivery requirements (Pentland, 2012) [21].

Research Methodology

Theoretical Framework

Based on literature review TQM has effect on organizational performance and there are different elements of TQM. On this basis we have developed following theoretical framework.

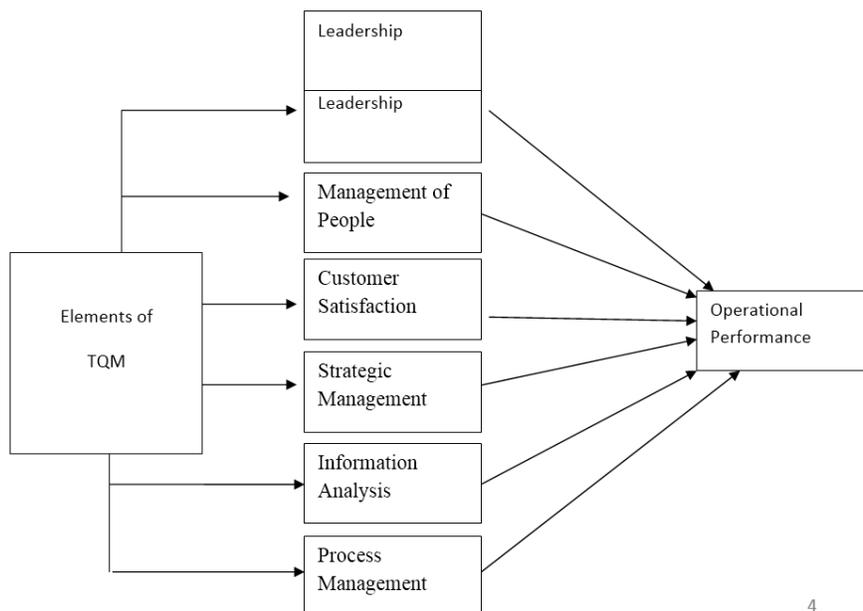


Fig 1: Theoretical Framework

Base on literature review we developed main hypothesis and model, which are as follows:

Regression Model

$$\text{Operational Performance} = \alpha_0 + \beta_1\text{LD} + \beta_2\text{MOP} + \beta_3\text{CS} + \beta_4\text{SM} + \beta_5\text{IA} + \beta_6\text{PM} + \epsilon$$

LD= leadership

MOP = Management of People

CS = Customer Satisfaction

SM = Strategic Management

IA = Information Analysis

PM = Process Management

ϵ = Error term

Data Collection and Sample

This Study is based on Survey Questionnaire filled from factory managers of calcareous factories in Libya. The questionnaires were self-administered and consist of questions related to TQM practices in factories. We have distributed 200 questionnaires, but can only be able to receive 170 from the respondents. This number represents 60% of factory managers in Calcareous factories in Libya. We also collected the demographics of the respondents which are presented in table below. The table 1 shows that mostly managers are working in calcareous factories are bachelor's degree holders with a representation of 63% of overall sample. Table 2 shows the working experience of factory managers. The value shows that mostly factory managers are having experience of more than 20 years in the factories representing 53% of the sample population of the study. The result shows that mostly managers in factories are senior while only 22% represent experience of up to 10 years. Data was analyzed using SPSS 20 version.

Table 1: Educational Demographics of Factory Mangers

Education	Number	Percent
Masters level	24	15%
Bachelor level	107	63 %
Secondary Level	39	23%
Total	170	100%

Table 2: Experience Demographics of Factory Mangers

Years of Experience	Number	Percent
Less than 5 Years	21	11.8%
6-10 Years	20	11%
11-20 Years	39	23%
Above 20 Years	90	53%
Total	170	100%

Correlation Analysis

The degree to which two or more variables are linked with each other is measured using correlation coefficient; Cohen, 2011 [8]. It determines the level of change in one variable in relation to the change in another variable. Negative and positive signs show the direction of the correlation and its range is between -1 and +1 (Ostergaard, 2011). A value of '0' shows that no relation exists between the two variable and closer the value of the coefficient between two variables to 1 or -1 higher is the strength of the relationship. Negative sign shows inverse relation and positive sign on the other hand shows a direct relationship between any two variables (Valmohammadi, 2011) [24]. Correlation summary is presented in table 3. The result indicates that there exist positive relationships between variables. The significance level is 5% for all variables, so results are highly significant as well.

Table 3: Correlation Analysis

	Leadership	Management of People	Strategic Management	Information and Analysis	Process Management	Operational Performance
Leadership	1					
Management of People	.616**	1				
Strategic Management	.700**	.696**	1			
Information and Analysis	.258**	.089	.232**	1		
Process management	.616**	.444**	.616**	.328**	1	
Operational Performance	.695**	.560**	.682**	.156*	.693**	1

Regression Analysis

Regression analysis predicts the change that occurs in the dependent variable because of the independent variable or variables (Woodside, 2013) [25]. The three different types of multiple regression analysis based on how the variables are entered for analysis are standard, stepwise and hierarchical multiple regression (Nathans, 2012) [17]. In the standard analysis all the variables are entered together and for this study standard multiple regression analysis was run to check which independent variables have a significant impact on the dependent variable (Ray-Mukherjee, 2014) [22]. The results of regression analysis are presented in table 4. The overall goodness of fit is 63% represented via R-square, which shows the overall model is fit. The leadership is positively related to operational performance with a significance level of 1% at first level difference. The management of people, customer satisfaction and strategic management are also positively related to operational performance with a significance level of 5%. The result of information and analysis is insignificant and showing a

negative relationship. The only significant negative variable is process management which is negatively related to operational performance in calcareous factories.

Table 4. Regression Analysis

Model	B	Std. Error	Beta	T	P
(Constant)	.391	.231		1.7	.092
Leadership	.267	.059	.306	4.6	.000
Management of People	.010	.038	.018	.26	.089
Customer Satisfaction	.169	.052	.241	3.2	.001
Strategic management	.066	.032	.103	2.0	.043
Information and Analysis	-.375	.061	-.374	-6.1	.238
Process Management	-.221	.39	-.017	-0.55	.583
a. Dependent Variable: Operational Performance					
b. Adjusted R-Square: 63%					

Conclusion and Recommendations

In developed countries TQM activities are practiced largely like Japan and US. Thus, TQM is now a new concept which is now introduced in Libyan having the objective of improving the quality of product and services and beside

this also improves productivity among employees. Now many Libyan manufacturers have started implementing TQM and producing quality goods to strengthen their competitive position consumers (Chandra, 1993). This study addresses this question and found that TQM practices are contributing towards operational performance. We found positive association between TQM elements namely, leadership, customer satisfaction, Management of People, Strategic Management, while negative relationship was found with process management. This study deals with survey filled by managers, so we cannot infer that TQM practices are actually practicing in calcareous factories in Libya. A comprehensive study can be conducted based on factory workers working in Calcareous factories to come up with new results and policy implications for managers to implement TQM.

References

1. Al-Khaled A. Establishing a Logical Nexus between the Application of Total Quality Management (TQM) and Organisational Performance, 2014. Available at SSRN 2396677.
2. Aminga J. Quality Management in Environment, Workplace Culture and Management, 2015.
3. Arumugam V, Antony J, Linderman K. A multilevel framework of Six Sigma: A systematic review of the literature, possible extensions, and future research. *The Quality Management Journal*. 2014; 21(4):36.
4. Bahri S, Hamzah D, Yusuf RM. Implementation of Total Quality Management and Its Effect on Organizational Performance of Manufacturing Industries through Organizational Culture in South Sulawesi, Indonesia. *Studies* 2012; 18:19.
5. Baird K, Jia Hu K, Reeve R. The relationships between organizational culture, total quality management practices and operational performance. *International Journal of Operations & Production Management*. 2011; 31(7):789-814.
6. Burli S, Bagodi V, Kotturshettar B. TQM dimensions and their interrelationships in ISO certified engineering institutes of India. *Benchmarking. An International Journal*. 2012; 19(2):177-192.
7. Carmona-Márquez F, Leal-Millán AG, Vázquez-Sánchez A, Leal-Rodríguez AL, Eldridge S. TQM and business success. Do all the TQM drivers have the same relevance? An empirical study in Spanish firms. *International Journal of Quality and Reliability Management*. 2015.
8. Cohen MR, Kohn A. Measuring and interpreting neuronal correlations. *Nature neuroscience*. 2011; 14(7):811-819.
9. Dora M, Kumar M, Van Goubergen D, Molnar A, Gellynck X. Operational performance and critical success factors of lean manufacturing in European food processing SMEs. *Trends in Food Science & Technology*. 2013; 31(2):156-164.
10. Easton GS. The state of US total quality management: a Baldrige examiners perspective. *California Management Review* 1993; 35(3):32-54.
11. Gassmann O, Frankenberger K, Csik M. Innovation Strategy: From new Products to Business Model Innovation. In *Business Innovation: Das St. Galler Modell*. Springer Fachmedien Wiesbaden 2016, 81-104.
12. Jackson SA, Gopalakrishna-Remani V, Mishra R, Napier R. Examining the impact of design for environment and the mediating effect of quality management innovation on firm performance. *International Journal of Production Economics*. 2016; 173:142-152.
13. Khan AA. Investigating the contribution of leadership "transformational and transactional" to innovation in technology sector in Ireland (Doctoral dissertation, Dublin Business School), 2015.
14. Khojeh E, Mohseni S, Samadi B. Enhancing Customer Satisfaction among SMEs through Web Technology. *Research Notes in Information Science*. 2013; 11:13.
15. Morrow P C, McElroy J C, Scheibe K P. Work unit incivility, job satisfaction, and total quality management among transportation employees. *Transportation research part E: logistics and transportation review*. 2011; 47(6):1210-1220.
16. Munir Ahmad M, Elhuni R. Critical quality factors for successful TQM implementation in Libyan oil and gas sector. *Benchmarking. An International Journal*. 2014; 21(5):713-733.
17. Nathans LL, Oswald FL, Nimon K. Interpreting multiple linear regression: A guidebook of variable importance. *Practical Assessment, Research & Evaluation* 2012; 17(9):1-19.
18. O'Neill P, Sohal A, Teng CW. Quality management approaches and their impact on firms' financial performance—An Australian study. *International Journal of Production Economics*. 2016; 171:381-393.
19. Ostergaard CR, Timmermans B, Kristinsson K. Does a different view create something new? The effect of employee diversity on innovation. *Research Policy* 2011; 40(3):500-509.
20. Para-González L, Jiménez-Jiménez D, Martínez-Lorente ÁNR. Do total quality management and the European Foundation for Quality Management model encourage a quality-oriented human resource management system?. *International Journal of Productivity and Quality Management*. 2016; 17(3):308-327.
21. Pentland, B, Singh H, Yakura E. Routinizing change: Does business process management technology have unintended firm-level consequences?, 2012.
22. Ray-Mukherjee J, Nimon K, Mukherjee S, Morris DW, Slotow R, Hamer M. Using commonality analysis in multiple regressions: a tool to decompose regression effects in the face of multicollinearity. *Methods in Ecology and Evolution* 2014; 5(4):320-328.
23. Saad A, Su DZ, Marsh P, Wu ZM. Total Quality Environmental Management toward sustainability: Need and Implementation in Libyan food Industry. In *Key Engineering Materials* 2014; 572:84-89.
24. Valmohammadi C. The impact of TQM implementation on the organizational performance of Iranian manufacturing SMEs. *The TQM Journal*. 2011; 23(5):496-509.
25. Woodside AG. Moving beyond multiple regression analysis to algorithms: Calling for adoption of a paradigm shift from symmetric to asymmetric thinking in data analysis and crafting theory. *Journal of Business Research*. 2013; 66(4):463-472.