



### Keywords

Total Quality Management Practices,  
Individual Readiness for Change,  
Petroleum Exploration and Production Authority,  
Yemen

Received: September 26, 2017

Accepted: November 16, 2017

Published: December 7, 2017

# The Relationship Between Total Quality Management Practices and Individual Readiness for Change at Petroleum Exploration and Production Authority in Yemen

Qais Ahmed Al-Maamari<sup>1, \*</sup>, Mohammed Abdulrab<sup>2</sup>,  
Bassam Ali Al-Jamrh<sup>3</sup>, Abdo Hasan Al-Harasi<sup>4</sup>

<sup>1</sup>Department of Management, Faculty of Business & Management, Limkokwing University of Creative Technology, Selangor, Malaysia

<sup>2</sup>Department of Human Resource Management, Faculty of Leadership & management, Universiti Sains Islam Malaysia, Nilai, Malaysia

<sup>3</sup>Department of Management & Marketing, Faculty of Economic and Management, Universiti Putra Malaysia, Selangor, Malaysia

<sup>4</sup>Department of Business Administration, Faculty of Business & Management, Asia Pacific University, Selangor, Malaysia

### Email address

[gaisalmaamari013@gmail.com](mailto:gaisalmaamari013@gmail.com) (Q. A. Al-Maamari), [abdulrabd@gmail.com](mailto:abdulrabd@gmail.com) (M. Abdulrab),  
[baaj60@gmail.com](mailto:baaj60@gmail.com) (B. A. Al-Jamrh), [abdohasan611@gmail.com](mailto:abdohasan611@gmail.com) (A.H. Al-Harasi)

\*Corresponding author

### Citation

Qais Ahmed Al-Maamari, Mohammed Abdulrab, Bassam A. Al-Jamrh, Abdo Hasan Al-Harasi. The Relationship Between Total Quality Management Practices and Individual Readiness for Change at Petroleum Exploration and Production Authority in Yemen. *International Journal of Business and Industrial Marketing*. Vol. 2, No. 6, 2017, pp. 48-55.

### Abstract

The focusing of the Total quality management practices is the most important for any organization to increasing level of individual readiness for change regarding TQM implementation, and improve efficiency as well as productivity, a result of that lead to improve performance in all. The total quality management in organizations in Yemen still a lack with issues in implementation of TQM. In this research is aimed to attempt to significant attention on the most important factors that foster the success of change initiative such as TQM implementation at Oil Units in Yemen. The study examines the association between total quality management practices (Human resource management, process management, customer focus & satisfaction, top management commitment, supplier partnership and learning & Training) with individual readiness for change for TQM implementation. This article is focusing on critical success factors who are always association with TQM in work. The collected data analysis showed that three of TQM practices, such as Customer Focus & Satisfaction (CFS), Supplier Partnership (SP) and Human resource management (HRM) are the most supportive TQM practices for increasing IRFC regarding implementation of TQM. Consequently, in this study makes a unique contribution by providing an advanced and deeper comprehension of the relationship between TQM practices and IRFC for TQM implementation at Petroleum Exploration and Production Authority in Yemen.

## 1. Introduction

In today's dynamic business environment, change swiftly influences business practices. This results in novel change ingenuities such as effective quality improvement programmes (sometimes referred to as Total Quality Management or TQM) being used as management strategies. These strategies are being developed to increase organisational effectiveness and competitiveness [1-3]. Both multinational and single-country organizations, need to continually adapt to the various challenges faced in the global economy. [4-6]. These organizations must strive to assimilate the changes made necessary by these challenges to remain viable. The volatile nature of doing business in this information era puts even the most successful organizations under immense pressure to cope with the developing difficulties in the global marketplace of the competitive [7, 8]. Nevertheless, a multitude studies have demonstrated that during the change implementation stage, a high rate of failure occurs [5, 9-11]. As of late, Individual readiness for change has considered the essential factor that lead to effective and successful organizational change implementation [12-17]. The low awareness levels of IRFC disrupts management of information systems [15], TQM strategy [18], and management of knowledge [19].

Among different elements, critical success factors as top management commitment, Human resource management, learning and training, customer focus & satisfaction, process management and supplier partnership were perceived to be the most vital elements that could either cultivate or diminish individual readiness for change in regards to TQM implementation. [20-30]. There is an absence of empirical reviews researching the impact of a few practices as gathering on individual readiness for change.

Haffar, Al-Karaghoul [31] Suggest that future studies address the dearth of change management research, and the relationships between TQM and individual readiness for change. The majority of past research only examined the effect of TQM practices on IRFC in developed countries. Nevertheless, studies that test the impact of TQM practices on IRFC in Arab developing countries, remain rare. Additionally, even fewer studies investigate TQMps as a whole, and links to Individual readiness for change. To increase knowledge of authors, this study is the first of studies that carried out using of analysis in oil companies in Yemen. The Yemeni Oil sector contributes the gross local product greatly that relies heavily on oil and gas as its main resource for revenue [32-34]. Recently, little research has been done in the area of quality in Yemen. This is mainly because quality management initiatives in Yemen are still in their infancy stage [35, 36]. Very few organizations in Yemen have tried to raise TQM awareness to move toward implementing quality management. One of these organizations is the Ministry of Oil & Mineral in Yemen. Addition of that, few authors in past empirical studies showed mostly their studies considered conceptual with

respect of the hindrances that fail the organizational change implementation in Oil region. According to these limited studies, the total quality management was seem to practice by the most of Oil sector as well as ignoring of their employees' readiness for change and also considers that lead to increase it, instance of TQM practices. the finding of this study is expected to add to the body of knowledge with respect of the link of TQM practice and Individual readiness for change regarding TQM implementation in developing countries specially on Yemen, the continuously change is featured in the dynamics of the business Environment. Addition of that, synthesizing from both the literature review and pilot study with a few of staff at Yemeni Oil companies. This article is developed conceptual framework get along with the problems in Yemen. This paper is aimed to investigate TQM practices and IRFC links. According on the study overview, it is formulated one objective that is described as namely:

RO1. To investigate the link between total quality management practices and individual readiness for change.

Therefore, this paper shows next hypotheses and aims to test the one hypothetical statement in this study to be either supported or not supported.

H1. There is total quality management has significantly a positive association with Individual readiness for change.

## 2. Research Method

The collecting data was used by questionnaire from respondents in Oil companies in Yemen. The instrument is divided into five sections with a total of 67 questions. All set of questionnaires are attached with an official letter stating the study objective, anonymity of identity as well as confidentiality of data. Besides that, all sections of the questionnaire have their instructions. The first section focuses on employee characteristics consisting (6) items including: company name, gender, age, education level, position, and length of employment at the current company. The second section designs to gather the information about critical success factors as an independent variable. CSFs consists of (37) items measuring that is divided into six factors namely, human resource management (7) items, top management commitment (7) items, process management (5) items, customer focus & satisfaction (6) items, supplier partnership (6) items, training & learning (6) items while the measuring of individual readiness for change is designed in the third section of the questionnaire as a dependent variable. in the final, the last section of the questionnaire is comprises of (24) items measuring that is divided into four dimensions such as personally beneficial (5) items, management support (6) items, self-efficacy (6) items and appropriateness (7) items. All the questions regarding CSFs and employees' readiness for total quality management implementation is measured using a five-point Likert Scale. These scales is used based on [37] who stated that five-point scales are sufficient to avoid responses converging on the middle response. The five-point Likert Scale in this study ranged

from (1) “strongly disagree” to (5) “strongly agree”. In a related vein, according to the proposed model in this paper (see Figure 1), a distinction should be made between the components of total quality management. This can be guided by the component factors (Human resource Management, Process Management, Customer focus and satisfaction, Top management Commitment, Training and learning, and supplier partnership) identified in this paper, based on the study of Holt et al. (2007). This would provide a comprehensive understanding of the link between TQM practices and IRFC regarding TQM implementation. To the best knowledge of the authors, this is the first time such an integrative theoretical framework has been tested theoretically and empirically. In order to mitigate the complications of a single framework as well as distinguish the direct hypotheses, Figure 1 below is introduced. The research framework (Figure 1) shows the relationship that

exist among the variables examined in this study. The thick lines show the direct relationship between the independent variables TQM (Human resource Management, Process Management, Customer focus and satisfaction, Top management Commitment, Training and learning, and supplier partnership) and the dependent variable Individual readiness for change (change-self- efficacy, personal benefits, management support and appropriateness), that signify the hypothesised direct relationships. The method of quantitative is carried out to gather the data which is common as survey approach. Questionnaires are finalized as well as submit to Oil companies and 106 sample participants are collected for pilot test. Survey data are analysed through statistical method of analysis using SPSS. Methodological tool of Pearson correlation is used to analyse technically, the association between TQM practices and IRFC regarding TQM implementation.

### 3. Conceptual Framework



Figure 1. Conceptual Model.

### 4. Development of Instrument

Two commonly used instruments were translated from English to Arabic in order to be distributed in Yemen. As the respondents were Arab-speakers, back translation was used. This procedure is frequently used in cross-cultural surveys to determine the translation’s accuracy [38]. The validity and reliability of these scales will be tested for content and context validity in our study. Using multiple items were measured All constructs and assessed via scales of Likert that classified into multipoint as namely 1 refers to strongly disagree up to strongly agree that represents no 5. The Likert

scale and other types of interval-type scales are extensively used in organizational research since they lend themselves to more sophisticated data analysis [39]. This study undertook a pre-testing evaluation of the questionnaire involved four academicians and professionals as experts in this area. Addition of that, petroleum training centre in Yemen that there is committee as experts who have experience in petroleum field that revised the questionnaire. The pilot test conducted using a convenience sampling technique on 106 full-time employees. The following two constructs were measured. The two constructs measured were the following in Table 1.

*Table 1. Items that Used to Measure the Variables.*

Variable	Measure	Rating Scale	Source
Total Quality Management Practices (TQM)	Human Resource Management (HRM):		
	1) Our company empowers employees	5-point Likert scale: (1) Strongly disagree to (5) Strongly agree	Adapted from Lau, Zhao, and Xiao (2004)
	2) Our company has a transparent and effective appraisal system for recognizing and rewarding employees for their efforts		
	3) Our company stresses teamwork and team spirit		
	4) Our management motivates employees and fully develops their potential		
	5) Our company trains employees in quality concepts, taking care of their needs and developing their competencies		
	6) Our company provides a safe and healthy work environment		
	7) Our company provides special training for employees to serve our customers well		
	Top Management Commitment (TMC):		
	1) To participate and improvement in quality management	5-point Likert scale: (1) Strongly disagree to (5) Strongly agree	Adapted from Zhang, Waszink, and Wijngaard (2000)
	2) To learn all skills and concepts that relevant in quality.		
	3) To encourages employee and improve in all activities of quality management		
	4) To solve all problems that related with quality management by empowerment of employees.		
	5) To manage sufficient resource for training and learning of employees		
	6) To discuss in several issues in quality during meetings.		
	7) To concentrate on high level of product and service quality in instant of revenue.		
	Process Management (PM):		
	1) Our company identifies causes of scrap and rework.	5-point Likert scale: (1) Strongly disagree to (5) Strongly agree	Adopted from Jayaram, Ahire, and Dreyfus (2010)
	2) Our company takes immediately corrective actions when a quality problem is identified.		
	3) Our company improves systematically key processes to achieve better product quality and performance.		
	4) Our company controls manufacturing processes using defect prevention tools.		
	5) Our company regularly monitors improvement in quality of products and processes.		
	Customer Focus and Satisfaction (CFS):		
	1) Recognizing all present and next of requirements for external customers.	5-point Likert scale: (1) Strongly disagree to (5) Strongly agree	Adapted from Samson and Terziovski (1999)
	2) All requirements of clients are spread as well as understand between employees effectively.		
	3) The new product and service were designed by the needs of local customers.		
	4) Complaints of external customers were solved by process of effective.		
	5) The consideration of Customer complaints are leading to develop and improves existed process in company.		
	6) Scale of satisfaction of external customer are regularly as well as systematically.		
	Learning and Training (LT):		
	1) To encourage employees to take both education and training.	5-point Likert scale: (1) Strongly disagree to (5) Strongly agree	Adapted from Zhang, Waszink, and Wijngaard (2000)
	2) Education and training resources for employee are available.		
	3) The majority of employees are qualified for using tools of quality management.		
	4) Employees receive the awareness of quality education from company.		
	5) Providing specific training for developing employees' skills.		
	6) Receiving both education and training for employee represents valuable as well as long term resources.		
	Supplier Partnership (SP):		
	1) Our company strives to establish long-term relationships with suppliers.	5-point Likert scale: (1) Strongly disagree to (5) Strongly agree	Adapted from Samson and Terziovski (1999)
	2) Our company relies on a small number of high quality suppliers.		
	3) Our suppliers are actively involved in our product design/redesign process.		
	4) Our company has a thorough supplier rating system.		
	5) Our suppliers are involved in our quality training.		
	6) Our company provides technical assistance to our suppliers.		
Individual Readiness for change	Personally Beneficial (PB):		
	1) I am worried I will lose some of my status in the organization when this change is implemented.	5-point Likert scale: (1) Strongly disagree to (5) Strongly agree	(Holt et al., 2007)
	2) The good personal of relationships were disconnected by this change.		
	3) My future job in this change will be a lack.		
	4) No benefit for me when happened this change.		
	5) belief attain benefit in long future time, when happen this change	5-point Likert scale: (1) Strongly disagree to (5) Strongly agree	(Holt et al., 2007)
	Management Support (MS):		
	1) Encouraging all employees to accept this change.		
	2) focusing all supporting of		
	3) Emphasize the important of this change		
	4) This change was committed by top leader.		
	5) Waste more much time on this change when the top leaders don't want to happen this implementation		
	6) Sending a clear marks for conducting this change in organization.		

Variable	Measure	Rating Scale	Source
	Self-Efficacy (SE):		
	1) No except happen any problem in my job when this change is implemented.		
	2) I think some of required tasks come after this change cannot perform them well.	5-point Likert scale:	
	3) I feel I able the work during and after the change well	(1) Strongly disagree	(Holt et al., 2007)
	4) My skills are necessary in making success for this change.	to	
	5) I have able to understand all of required tasks when happen implementing of change.	(5) Strongly agree	
	6) According to the pervious experiences I can to do all needed of tasks after conducting this change successfully as well as confidently.		
	Appropriateness (AP):		
	1) I belief that this change will halpfull for organization.		
	2) having simple aim for conducting this change.	5-point Likert scale:	
	3) According to the logical causes that organization makes to be conduct this change.	(1) Strongly disagree	(Holt et al., 2007)
	4) Because of this change will improve efficiency for all activities in organization	to	
	5) This change will be lead to easier my job.	(5) Strongly agree	
	6) Spending of time on another doing is better than waste time on this change.		
	7) Doing this change based on organization's priorities.		

## 5. Reliability Test for Pilot Test

The language of actual questionnaires was established in English. Because the official language in Yemen is Arabic, the most of respondents may not understand all of command of the English language. To getting a good contacting (back-translated problems), the writing of questionnaires was both English and Arabic. The researcher performed to review all of sections in the questionnaires, especially, wording as well as content. The evaluating of responses was on per question. In general. The questionnaires in the pilot study were understandable for participants

Under the pilot study, the reliability of the measurement instruments was tested using the Cronbach's alpha of internal reliability (Cronbach's alpha) of each questionnaire were

conducted using Statistical Package of Social Sciences (SPSS), version 22. The results for the reliability of the instruments in the pilot study illustrated in Table 2 show that the Cronbach's alpha ranges from 0.626-0.906, i.e., from moderate to excellent. The generally accepted value for the lower limit for Cronbach's alpha is 0.7 but it may reduce to 0.6 in research of exploratory [40]. study done by [39], reliabilities lower than 0.6 are considered to be weak, those in the range of 0.7 – 0.79 are said to be acceptable, and those above 0.8 are said to be good. According to [41], Cronbach's alpha coefficient values of more than 0.7 are considered good but values of more than 0.5 are acceptable. Since the Cronbach's alpha coefficient values fell within the accepted range, the instruments are reliable.

In summary, based on the reliability analysis conducted, the Cronbach's alpha for the instruments used are as in Table 2.

**Table 2.** Reliability of Variables for Pilot Study.

Variables		Cronbach's Alpha
Total quality management practices	Human resource management	0,934
	Top Management Commitment	0,882
	Process Management	0,924
	Customer Focus & Satisfaction	0,906
	Training and Learning	0,920
	Supplier Partnership	0,868
	Personally Beneficial	0,732
Individual Readiness for Change	Management Support	0,799
	Self-Efficacy	0,802
	Appropriateness	0,790

## 6. Demographic Analysis

The demographic profile of the respondents is shown in table 3. Firstly, All the respondents from Petroleum Exploration and Production Authority (PEPA), 74 (70.6%) were male and 32 (29.4%) female. 13.9% were less than 30 years old, 51.7% between 30 and 39 years, 30.8% between 40 and 49, 3.6% were 50 years and above. In background of education terms, 1.9% no had certificate, 7.2% had high

school certificate, 11.9% had a diploma, 45.3% had a bachelor degree (the majority of participants), and the remaining 33.6% had completed postgraduate studies. 41 (38.6%) were staff, 32 (30%) were Head of Department, 20 (19%) were department manager, 4 (4.2%) were general manager and 9 (8.1%) were others. In working experience terms, 2.2% were below 2 years, 4.7% were between 2 and 4 years, 9.4% were between 4 and 6, 14.2% were between 6 and 8 years and 69.4% were above 8 (the majority of participants).

**Table 3.** Summary of demographic profile of respondents.

No	Demographic Item	Categories	Frequency	Percentage
1	Gender	1. Male	74	70.6
		2. Female	32	29.4
2	Age	1. less than 30 years	15	13.9
		2. 30 - 39 years	54	51.7
		3. 40 - 49 years	32	30.8
		4. Above 50	5	3.6
3	Education background	1. High school	8	7.2
		2. Diploma	13	11.9
		3. Bachelor	48	45.3
		4. Master	33	31.7
		5. PhD/DBA	2	1.9
		6. Others	2	1.9
4	Positions	1. Staff	41	38.6
		2. Head of Department	32	30.0
		3. Department manager	20	19.0
		4. General Manager	4	4.2
		5. Others	9	8.1
5	Working experience	1. below 2 year	2	2.2
		2. 2 - 4 years	5	4.7
		3. 4 - 6 years	10	9.4
		4. 6 - 8 years	15	14.2
		5. Above 8	74	69.4

## 7. Analysis of Correlation and Findings Summary

In this part appears the results based on the correlation. In this drawn table 4 presents the correlation analysis between total quality management practices and individual readiness for change for the pilot test study.

**Table 4.** Pearson Correlations.

	TQMps	IRFC Di
TQMps	1	0.832**
IRFC Di	0.832**	1

According to this Table 4, it can be deduced that there is a positively associated between total quality management practices and individual readiness for change. The hypothesis findings indicates in below table 5

**Table 5.** Results Summary.

NO	Hypothesis of this study	The findings
H1	The total quality management practices have a positively correlation with individual readiness for change.	Supported

## 8. Conclusion

In this study, Findings contribute to the current literature of knowledge by developing as well as validating a novel conceptual framework for explaining the association between TQM practices and IRFC regarding TQM implementation. The research investigated and validated direct relationship of TQM practices as composite variable on IRFC regarding TQM implementation. Using of data collecting was via a survey questionnaire. The resultant 106 usable responses were

analysed with Pearson correlation. The proposed framework of this study is built from past literature review as well as compatible with problem at Yemeni Petroleum Exploration and Production Authority. The analysis of the collected data revealed that the total quality management practices have a positive correlated relationship with individual readiness for change regarding TQM implementation at Petroleum Exploration and Production Authority in Yemen.

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