

## Framework for Exploring the Relationship between the Moderating Effects of Organizational Culture on TQM Implementation and Organizational Performances

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**Abstract:** In this paper, a framework for exploring the relationship between the moderating effects of organizational culture on TQM implementation and organizational performances was proposed and investigated using Alrahila Oil Services Company, Libya, as a case company. The study, which provides a whole new approach to the investigation of the relationship of variables, used qualitative and quantitative survey methods and the PLS program for its evaluation. The study showed a great potential for ensuring the survival and growth of Alrahila Oil Services Company, Libya, as well as other oil serving companies in Libya. The results of the study provided a substantial knowledge and scientific addition to this field as it established the moderating effects of organizational culture on the different TQM critical elements, as well as on the overall company's performances. Training/educational development and continuous improvement (Hypothesis 3 and 5) as TQM parameters showed insignificant and negative influences on the relationship between different TQM critical elements and the overall company's performance.

**Keywords:** framework, organizational performances, PLS program.

**INTRODUCTION**

Today's organizations are faced with continuous changes on economic, technological, and infrastructural matters, and are challenged by their rapid developments, particularly in relation to information technology, globalization, international trade, and global management.

These are due to the introduction of modern management methods and new strategic concepts such as focusing on the customer need and total quality initiatives, which has led to an ever-increasing competition among organizations [1].

Total Quality Management (TQM), which is a universally accepted practical management technique for improving competitiveness among firms, the quality of their products, services, and processes by focusing on customers' needs, expectations and requirements to enhance satisfaction and in turn, improve firm's overall performance, has become a priority and a must for manufacturing and service organizations like oil servicing companies.

The demand for quality services as asserted by Githagui & Ngugi [2], is one of the most crucial areas that organizations need to pay attention to survive. Quality in a service organization is a measure of the extent a delivered service meets the customer's expectations. Delivering quality service means conforming to customer's expectations on a consistent basis. Service quality is considered a critical determinant of competitiveness that can help an

organization to differentiate itself from other organizations and gain a competitive advantage. Superior service quality is a key to improved profitability and has been found to result in increased customer satisfaction, improved sales, and profitability [3].

To achieve satisfaction and gain the desired results from TQM implementation, it is essential to identify and explore its constraints. Knowing these constraints and obstacles may enable organizations to successfully apply and use quality initiative to reach their objectives. This means a transition from a Bureaucratic style and traditional approach to embracing effective strategies and adopting a culture of TQM which is critical for all organizations and countries to survive (whether developed or developing). It is possible to measure performance and the effectiveness of a specific quality improvement initiative by means of comprehensive indicators. These indicators should provide a holistic assessment of the strength, continuity, and sustainability of TQM in relation to the identified constraints [4].

National and organizational culture/structure, which has been found to constraint TQM implementation [5], can be described as how people set personal and professional goals, perform tasks and administer resources to achieve them, how people consciously and subconsciously think, make decisions, and the way they perceive, feel, and act. Research has shown that organizational culture can exert considerable influence in organizations, particularly, in areas such as organizational competitive advantage which can increase organizational productivity [6], and recently, organizational performance and commitment. It is important, therefore, to explore the relationship between the extent of TQM implementation on organizations, the organization performance, and the moderating influence of organizational culture.

In this study, an investigation of TQM implementation in Alrahila Oil Services Company, Libya, as well as the moderating effect of organizational culture on the relationship between TQM implementation and the company's performance were investigated. The need for TQM implementation in the oil and gas company in Libya has proven to be driven by the competition between the currently existing local and international companies in the Libyan oil and gas sector [7]. Hence, this study intends to develop a framework for the investigation of the status of TQM implementation, and measure the moderating effect of organizational culture on the relationship between TQM implementation and company's performance. This is believed to make TQM initiatives more efficient and active in the petroleum distribution aspect of the Libyan petroleum industry.

The significance of this study stems from the importance of the subject under research. Since total quality is among the most important modern trends of management, it is important for organizations that are seeking to achieve a high degree of performance to meet the global competition. Libya and its companies which have been described as a late adopter of TQM techniques [8, 9], are seeking to find a successful mechanism to adopt TQM principles to improve their competitiveness and performance. On the other hand, there is an academic importance for this study, and that is what the researcher has confronted from the review of studies based on TQM and its relationship. There is a need for a framework for the understanding and exploring of the relationship between the moderating effects of organizational culture on TQM implementation-performance relationship, which until now, have attracted little or no research attention. Hence, one can conclude that there are significant deficiencies in this academic field, and therefore, the need for new studies to add scientific values to the

present knowledge on TQM implementation and organizational performances.

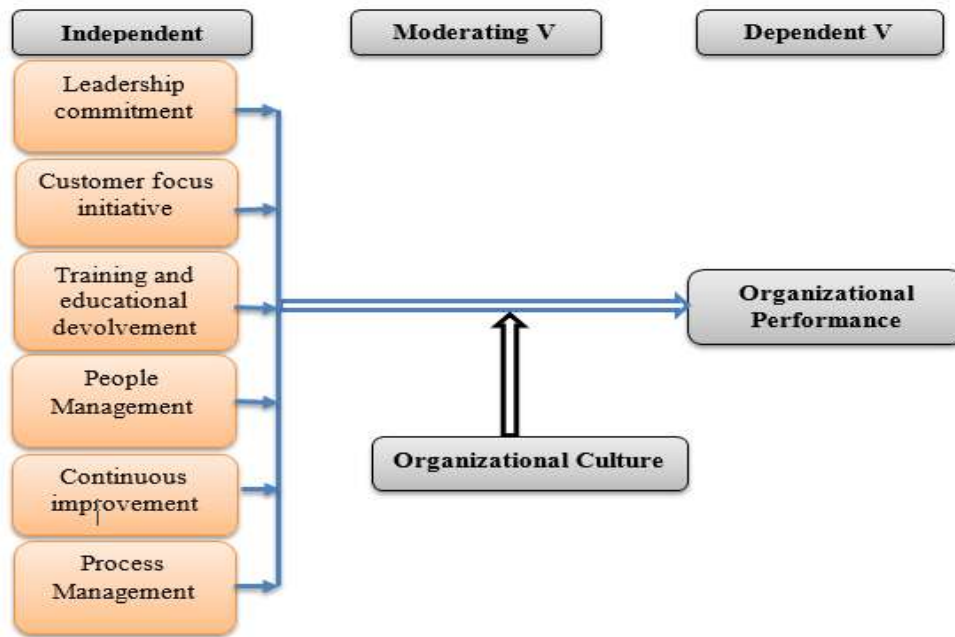
### **Framework and Hypotheses Development for Organizational Culture as a moderating factor on TQM implementation and organizational performances**

Although the fields of organizational culture, TQM, and organizational performances have different origins, however, they all agree on the fact that, to achieve excellent quality and improved performances, organizations need to change the culture of their work environment for continuous quality improvements [10]. As per Zeitz *et al.*, [11], TQM and organizational cultural practices are closely linked and should be considered together. Powell [8], in his contribution to the importance of the culture of TQM implementation and organizational performances, argued that, for total quality management practices to succeed, they must be implemented within a suitable cultural environment.

Based on these guiding literature, the researcher proposed the following hypotheses for the study using the TQM principles and core practices (leadership commitment, customer focus, training and educational devolvement, people management, continuous improvement, and process management) originally proposed by Elhuni & Ahmad [7].

- **H1.** *Organizational culture significantly moderates the relationship between leadership commitment and the company's performance.*
- **H2.** *Organizational culture significantly moderates the relationship between the customer focus and the company's performance.*
- **H3.** *Organizational culture significantly moderates the relationship between training and education development and the company's performance.*
- **H4.** *Organizational culture significantly moderates the relationship between people management and the company's performance.*
- **H5.** *Organizational culture significantly moderates the relationship between continuous improvement and the company's performance.*
- **H6.** *Organizational culture significantly moderates the relationship between process management and the company's performance.*

The relationship of the variables in the study was depicted in the research framework shown in Figure-1 with organizational culture acting as a moderating variable to the different TQM principles/core practices and the organizational performance. A moderator variable, which can either be qualitative or quantitative in nature, is generally defined as a variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable [12].



**Fig-1: Framework for exploring the relationship between the moderating effects of organizational culture on TQM implementation and organizational performances.**

**MATERIALS AND METHODS**

This study examined TQM implementation in Alrahila Oil Services Company, Libya, where the moderating effect of organizational culture on the relationship between TQM implementation and the company’s performance was studied using a qualitative and quantitative survey method for data collection and the PLS software program for the data analysis.

While performing this kind of research, considering the research background and the nature of the research problem to be solved, a suitable methodology and a valid and reliable sample size (study population) must be ensured to institute an appropriate paradigm and framework to situate the investigation. The research methodology in this case, however, bothered on the selection of the investigative approach/method that best suits the research hypotheses by identifying the instruments and tools necessary for gathering the research data, and for undertaking the data analysis. The respondents, in this case, were selected purposely to match the demographic criteria and research focus. Details of the process and the results were discussed in the following section.

**RESULTS AND DISCUSSIONS**

In this section, the results of the survey and the data analysis for the moderating effects of organizational culture on TQM implementation and organizational performances are discussed in detail.

**Data collection and the sample size**

During the data collection for this study, a small to medium-sized population size was targeted within the Alrahila Oil Services Company, Libya, which the study described as a valid and reliable sample size and relevant to the topic of the study. The overall process of the data collection is detailed below.

In the characterization of a research population, normally, a data size is selected to represent a whole, and this selection can either be random or through a focused group [13]. The representative data is vital for this kind of research and ensures the final research findings are easily generalized [14]. In this paper, there is a need to gather information from the relevant employers and employees of the targeted company in an appropriate ratio to understand and examine the moderating effect of organizational culture on the TQM implementation and the company’s performance. Such a focused sampling can be referred to as a non-probability sampling as it involves the selection of specific parts of the research population which is used for the collection of relevant data for the research. It is important to state here that this kind of non-probability sampling method allows for the exclusion of unwanted research data. Table-1 provided a detailed information of the research population and the data sample size.

Generally, data sample sizes can vary widely based on the type and nature of research, as well as the researcher(s) involved and their available time and resources [13]. The number of employees to be sampled in this study was decided based on the guideline

originally presented by Saunders, Lewis, & Thornhill [15] who argued that, for a homogeneous population (like the one in this study), there should be a minimum non-probability sample size of 4-12.

**Table-1: The research population and the data size**

Company Name	Number of Employees	Demography	Percent
Alrahila Oil Services Company	1205	1098 Male 107 Female	24.44%

The general perceptions held by the employees of Alrahila Oil Services Company, Libya, towards the moderating effects of their organizational culture on the applied TQM technique and the overall company's performance were sorted using survey questionnaires. A total of 360 survey questionnaires were delivered and distributed to the staff of the company. In the end, 295 completed questionnaires out of the 360 distributed were received. From the received questionnaires, 43 responses were removed (excluded) due to incompleteness or provision of unreasonable responses, while 252 responses were processed and analyzed.

To analyze the collected data, the PLS software program was for the first time used. The PLS program can present the interrelationship between independent, dependent, and moderating variables. Since most of the multivariate statistical analysis methods, particularly the confirmatory factor analysis (CFA) and structural equation modeling (SEM) used in the graphical interface of the PLS software program

requires the distributional characteristics of the data to be normal, the normality of the data was tested before the actual analysis was performed.

**Response Rate**

As earlier stated, 360 survey questionnaires were distributed to the staff of Alrahila Oil Services Company, Libya, but 295 questionnaires were returned. Out of the 295 responses, 43 were excluded for inappropriateness. This exclusion was in line with the suggestion of Meyers, Gamst & Guarino [16] who suggested that for a research case study, questionnaires with missing data of up to 5% of the total case should be excluded. The response rate of the overall survey questionnaires in this study can be considered adequate as most of the questions were answered even with no prior contact or personal connection with the employees. Furthermore, a review of the previous literature suggests that a response rate of at least 50% can be considered adequate for analysis and for research reporting [17]. The summary of the response rate of the study was presented in Table-2.

**Table-2: Summary of the Response Rate of the Questionnaires**

Description	Frequency/Rate
Number of distributed questionnaires	360
Returned questionnaires	295
Returned and excluded questionnaires	43
Returned and usable questionnaires	252
Usable response rate	<b>70%</b>

**Descriptive analysis**

The statistical description of the collected data presented above was presented in Table-3. The total number of respondents after the analysis of the response rate was 252, with mean values of 4.2282 and 2.2321 as

the highest and lowest mean respectively, among the independent variables. The lowest and highest standard deviation values among the independent variables were 0.51716 and 0.92359, respectively.

**Table-3: Descriptive analysis**

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Leadership Commitment	252	1.00	5.00	3.9464	.69152
Customer Focus	252	1.00	5.00	4.2282	.51716
Training & Education Development	252	1.00	5.00	3.6270	.75331
People Management	252	1.00	5.00	3.1865	.86484
Continuous Improvement	252	1.00	5.00	4.1131	.54673
Process Management	252	1.00	5.00	4.0456	.58270
Company Performance	252	1.00	5.00	3.7262	.92359
Organizational Culture	252	1.00	5.00	2.2321	.89636

**Testing the normality of the error items**

In employing the PLS software that uses structural equation modeling (PLS-SEM) method, the outer model within the measurement model should be gauged before testing the hypotheses of the study. Two stages were observed to determine the goodness of fit of the model; these are the construction of a validity

(including composite reliability factor loading, and Cronbach's alpha), as well as the average variances extracted (including the convergent validity and the discriminant validity). These are parts of the criteria presented by Fornell & Larcker [18]. The results of the construct and discriminant validities are presented in Tables 4 and 5.

**Table-4: Convergent Validity of the Measurements**

Construct	Items	loading	Cronbach Alpha	rho_A	CR <sup>a</sup>	AVE <sup>b</sup>
Customer focus (CF)	CF3	<b>0.709</b>	0.807	0.822	0.860	0.506
	CF4	<b>0.719</b>				
	CF5	<b>0.724</b>				
	CF6	<b>0.719</b>				
	CF8	<b>0.759</b>				
Continuous improvement (CI)	CI1	<b>0.709</b>	0.790	0.797	0.855	0.541
	CI2	<b>0.787</b>				
	CI3	<b>0.784</b>				
	CI4	<b>0.726</b>				
	CI5	<b>0.735</b>				
Company performance (CP)	CP1	<b>0.761</b>	0.848	0.850	0.885	0.824
	CP2	<b>0.774</b>				
	CP3	<b>0.705</b>				
	CP4	<b>0.742</b>				
	CP5	<b>0.735</b>				
	CP7	<b>0.727</b>				
Leadership commitment (LC)	LC1	<b>0.820</b>	0.812	0.831	0.864	0.519
	LC2	<b>0.797</b>				
	LC3	<b>0.763</b>				
	LC4	<b>0.710</b>				
	LC5	<b>0.711</b>				
	LC6	<b>0.714</b>				
Organizational culture (OC)	OC1	<b>0.725</b>	0.826	0.827	0.873	0.536
	OC2	<b>0.714</b>				
	OC3	<b>0.751</b>				
	OC4	<b>0.772</b>				
	OC5	<b>0.776</b>				
	OC6	<b>0.743</b>				
People management (PM)	PM1	<b>0.811</b>	0.702	0.708	0.809	0.519
	PM2	<b>0.805</b>				
	PM3	<b>0.767</b>				
	PM4	<b>0.707</b>				
Process management (PRM)	PRM2	<b>0.775</b>	0.720	0.696	0.810	0.517
	PRM3	<b>0.778</b>				
	PRM4	<b>0.795</b>				
	PRM6	<b>0.724</b>				
Training & education development (TE)	TE1	<b>0.730</b>	0.760	0.768	0.839	0.512
	TE2	<b>0.821</b>				
	TE3	<b>0.745</b>				
	TE4	<b>0.775</b>				
	TE6	<b>0.792</b>				

\*<sup>a</sup> CR =  $(\sum \text{factor loading})^2 / \{(\sum \text{factor loading})^2 + \sum (\text{variance of error})\}$

\*<sup>b</sup> AVE =  $\sum (\text{factor loading})^2 / \{\sum (\text{factor loading})^2 + \sum (\text{variance of error})\}$

**Table-5: The Discriminant Validity Matrix**

Construct	CP	CI	CF	LC	OC	PM	PRM	TE
Company Performance	<b>0.724</b>							
Continuous Improvement	0.409	<b>0.736</b>						
Customer Focus	0.434	0.391	<b>0.712</b>					
Leadership Commitment	0.382	0.433	0.526	<b>0.720</b>				
Organizational Culture	0.555	0.363	0.326	0.394	<b>0.732</b>			
People Management	0.563	0.37	0.383	0.372	0.421	<b>0.720</b>		
Process Management	0.540	0.279	0.319	0.264	0.327	0.29	<b>0.719</b>	
Training & Education Development	0.484	0.498	0.487	0.493	0.374	0.511	0.261	<b>0.715</b>

**Examining the Direct Relationships of the Hypotheses**

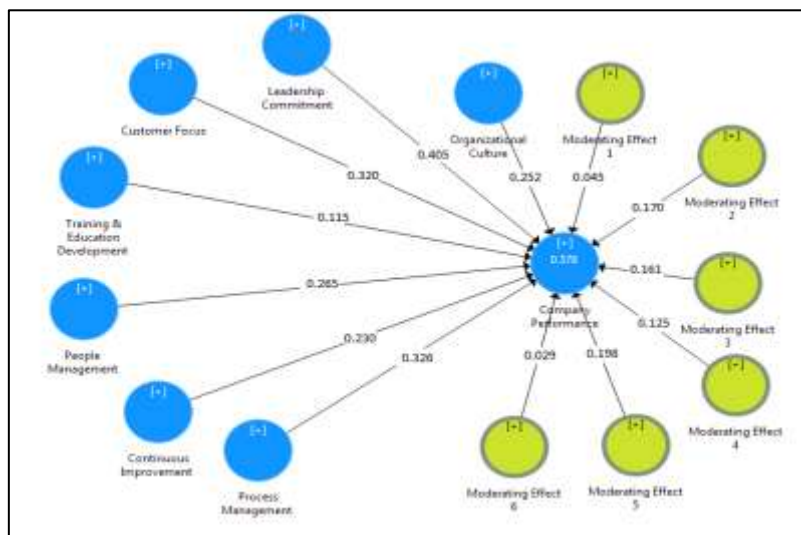
To examine the relationship of the proposed hypotheses presented in section 2, the results of the above investigations were employed. Specifically, Table 6 was employed for the formulation of the relationship and the moderating effects of

organizational culture on the different TQM elements and on the company’s performance. Figures 2 and 3 represent the direct moderating effects of organizational culture on the different TQM elements and on the organizational performance. In the next section, the relationship between the hypotheses was discussed in detail.

**Table-6: The Results of the Inner Structural Model for Moderating Role Ambiguity**

Hypothesis	path Coefficient	standard Error	T-value	P-value	Decision
Leadership commitment * organizational culture-> Company Performance(H7)	0.161	0.097	3.625	0.000	Supported
Customer focus * Organizational Culture -> Company Performance(H8)	0.170	0.053	3.203	0.001	Supported
Training & education development * organizational culture -> Company Performance(H9)	0.029	0.302	0.096	0.462	Not Supported
People management * organizational culture -> Company Performance(H10)	0.125	0.061	2.064	0.020	Supported
Continuous Improvement * Organizational Culture --> Company Performance(H11)	0.045	0.071	0.630	0.264	Not Supported
Process management * organizational culture -> Company Performance(H12)	0.198	0.095	2.075	0.019	Supported

\*: p<0.1; \*\*: p<0.05; \*\*\*: p<0.01.



**Fig-2: Path Model Results for the Moderating Effects of Organizational Culture**

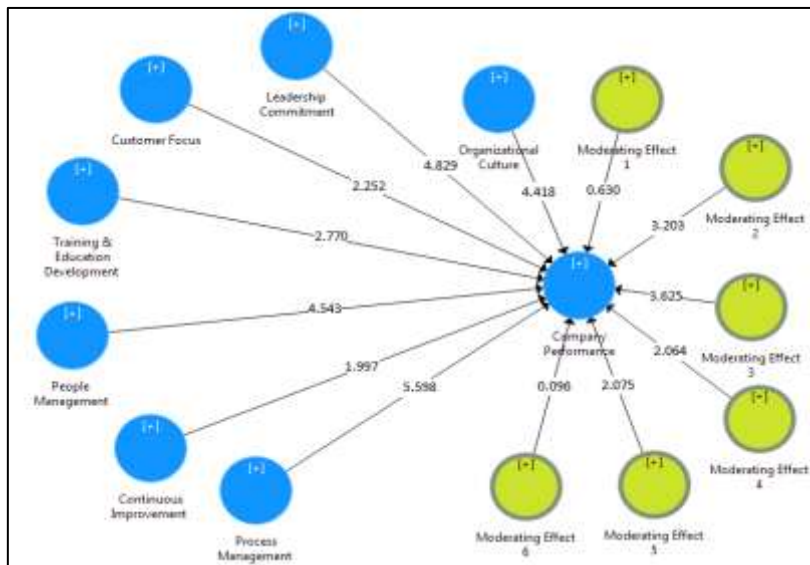


Fig-3: Model of Significance Results for the Moderating Effects of Organizational Culture

**Hypothesis 1: Moderating effect of organizational culture on the relationship between leadership commitment and the overall company’s performance.**

Based on Figures-2 and 3, the study concludes that organizational culture has a significant and positive influence on the relationship between leadership commitment and the overall performance of the company as demonstrated in the Path coefficient value (Beta value) and t-values ( $\beta = 0.161$ ,  $t = 3.625$ ,  $p < 0.1$ ). Based on these results, the postulated hypothesis (H1) was significant and supported.

This finding is consistent with the result of a work presented by Alharbi & Yusoff [19] who examined the moderating effects of organizational culture on the leadership styles and quality management practices in Saudi public hospitals. The finding was further supported by the result presented by Omidifar [20] who used job satisfaction instead of culture as a moderating factor to establish the relationship between leadership style and organizational performance. The findings presented by Yiing, Zaman, & Ahmad [21] which investigated the moderating effects of organizational culture on the relationships between leadership behavior and organizational commitment also agreed with the findings of this study. Thus, the hypothesis postulated in this research was verified, in the sense that organizational culture has a moderating effect on the leadership style and the overall company’s performance.

**Hypothesis 2: Moderating effect of organizational culture on the relationship between customer focus and the overall company’s performance.**

From Figures 2 and 3, it was concluded that organizational culture has a significant and positive influence on the relationship between customer focus initiative and the overall company’s performance as

shown in the Path coefficient value (Beta value) and t-values ( $\beta = 0.170$ ,  $t = 3.203$ ,  $p < 0.1$ ). Hence, the postulated hypothesis (H2) can be said to be supported. The finding is partly consistent with the only related work in this field where human resource instead of culture was used as a moderating factor [22]. The study explored the relationship between quality culture and organizational performance, with a mediating effect of competitive advantage and moderating effect of human resource. The result of the statistical analysis revealed a positive and significant association between quality culture and organizational performance. The mediating variable (competitive advantage) also showed a reliable connection but the moderating variable (human resource) showed no optimistic result. Thus, it could be reasonable to query the reason for the variation in the result, of which the reasons are not far from the following: first, it is believed that the inconsistency was due to the differences in the moderating variables used for the different studies (human resource and organizational culture); secondly, the result reported by Ullah *et al.*, [22] used a mediating variable (competitive advantage) which was not considered in this study, finally, the result may have been affected by the different methods and techniques used for the evaluations.

**Hypothesis 3: Moderating effect of organizational culture on the relationship between training/education development and the overall company’s performance.**

From Figures 2 and 3, it can be said that organizational culture has no significant effect on the relationship between training/education development and the overall company’s performance as shown in the Path coefficient value (Beta value) and t-values ( $\beta = 0.029$ ,  $t = 0.096$ ,  $p > 0.1$ ). Thus, the postulated hypothesis (H3) was rejected as it was not supported. This finding is not consistent with the related works in this field

where organization culture was used as a moderating factor. Lee & Korea [23] examined the black box by which high-performance work systems (HPWSs) affect employee's attitude. The study attempted to show the mediating effect of human resource (HR) competency that emphasized on training/educational development, evaluation, performance-based rewards, and participation in the HPWSs-job attitude link, and the moderating effect of organization culture. The findings confirmed that organizational culture plays a significant moderating role in HPWSs, employees' attitudes, and HR. Simosi [24] also examined the combined effects of self-efficacy which can be achieved through training/educational development and organizational culture on employees' transfer of acquired knowledge and skills. The study found that self-efficacy acts as a significant moderator in organizational culture-training transfer relationship, while high self-efficacy was found to strengthen both achievement culture-training transfer and humanistic culture-training transfer relationships which can help in improving the performance of the company. The reasons for the inconsistency in the result are attributed to the following:

- The differences in the moderating variable used for the different studies.
- The results reported by Lee & Korea [23] and Simosi [24] used a mediating variable that was not considered in this study.
- The results were obtained using different methods and techniques and may have affected the result.
- The respondents engaged in this research are believed not to have been officially trained on quality-related matters or encouraged to develop themselves educationally. However, this is not unexpected as most of the studied respondents rated organizational culture as a non-significant contributor or a moderating factor to training/educational development and the overall company's performance.

#### **Hypothesis 4: Moderating effect of organizational culture on the relationship between people management and the overall company's performance.**

Based on Figures-2 and 3, the study concludes that organizational culture has a significant and positive influence on the relationship between people management and the overall company's performance as shown in the Path coefficient value (Beta value) and t-values ( $\beta = 0.125$ ,  $t = 2.064$ ,  $p < 0.1$ ). The postulated hypothesis (H4) is therefore accepted and supported. This finding is consistent with a previous work presented by Nikpour [25] who investigated the mediating role of employee's organizational commitment to the relationship between organizational culture and organizational performance. Nikpour [25] suggested that organizational culture not only has a direct positive impact on organizational performance but also indirectly affects organizational performance

using employee's organizational commitment; though the indirect impact is more than the direct impact. The findings are also supported by the reports of Kotter & Heskett [26] and Ng'ang'a & Nyongesa [27] who concluded that specific culture traits may be useful predictors of organizational performance and employee management. The postulated hypothesis on the moderating effect of organizational culture on people management and the overall company's performance is hereby verified. The result suggests why most of the studied employees rated organizational culture as a moderating factor and a significant contributor to people management and the overall company's performance.

#### **Hypothesis 5: Moderating effect of organizational culture on the relationship between continuous improvement and the overall company's performance.**

Considering Figures-2 and 3, the study concludes that organizational culture has no significant effect on the relationship between continuous improvement and the overall company's performance as shown in the Path coefficient value (Beta value) and t-values ( $\beta = 0.045$ ,  $t = 0.630$ ,  $p > 0.1$ ). The postulated hypothesis (H5) was not supported by the study findings and thus, was rejected. This finding was not consistent with any related work in this field where the organizational culture was used as a moderating factor. In the work presented by Irani, Beskese, & Love [28], the need for an appropriate culture to support the scopes of TQM (customer focus, systems approach, teamwork, involved management, and continuous improvement) was examined. The results of the study showed support and substantial improvement in business performances and competitiveness of the company in the context of corporate organizational culture and TQM. The study also highlighted significant and positive relationships between culture, quality, and business performance/competitiveness. The reason for the non-significant result obtained in this study is not far from the reasons earlier provided in the preceding sections. One will want to ask the reason for the inconsistency (insignificant or not supported status) in the result. Just as in the case above, the researcher has presented some possible reasons for the inconsistency (insignificant or not supported status) in the result;

- First, it is believed that the inconsistency was due to the differences in the moderating variable used for the different studies.
- Secondly, the result reported by Irani, Beskese, & Love [28], were obtained using different methods and techniques which may have affected the final result and finally.
- It is believed that the respondents engaged in this research have not been officially trained on quality related matters especially on continuous improvement. Hence, it is not surprising a majority of the study respondents rated organizational



culture as a non-significant contributor or a moderating factor to continuous improvement and the overall company's performance.

**Hypothesis 6: Moderating effect of organizational culture on the relationship between process management and the overall company's performance.**

From Figures-2 and 3, it was concluded that organizational culture has a significant and positive influence on the relationship between process management and the overall company's performance as shown in the Path coefficient value (Beta value) and t-values ( $\beta = 0.198$ ,  $t = 2.075$ ,  $p < 0.1$ ). Thus, the postulated hypothesis (H6) was supported and accepted. This finding is partly consistent with a related work presented by Nuansate, Sanuri, & Mokhtar [29] who used organization culture as a moderating factor to examine the relationship between proactive market orientation (instead of process management used in this study) and business performance for large-sized hotels in Thailand. The study results showed a close relationship between market orientation and organizational performance. Akta & Kiyak [30] determined the relationship between organizational culture and organizational efficiency (performance), and the effect of stability or variability of the internal and external environment (process management). The result of the study showed that different organizational cultures are related to some organizational efficiency dimensions (performance), and play a significant role in the stability or variability of the internal and external organizational environment (process management). These findings have strengthened the verification of the postulated hypothesis on the moderating effects of organizational culture on process management and the overall company's performance. These findings supported the reason most of the studied employees rated organizational culture as a moderating factor and a significant contributor to process management and the overall company's performance.

**CONCLUSION**

This study investigated the moderating effects of organizational culture on TQM implementation and organizational performances using Alrahila Oil Services Company, Libya, as a case company. The study proposed a framework for exploring the relationship between the moderating effects of organizational culture on TQM implementation and organizational performances. The study, which has provided a new approach to the investigation of the relationship of variables in this research area using survey method and the PLS program, has shown a great potential to ensuring the survival and growth of the studied company (Alrahila Oil Services Company, Libya) and other oil-serving companies in Libya. Considering the fact that organizational culture is about how people set personal and professional goals, perform tasks and administer resources to achieve them, and that it can

influence how people consciously and subconsciously think, make decisions, the way they perceive, feel, and act, it is important, therefore, that the exploration of the moderating effect of organizational culture on TQM implementation and organizational performance will strengthen the survival and growth of the oil-serving companies in Libya.

**Implications of the Study**

The effectiveness of the proposed theoretical framework developed from literature in this study, which has been empirically examined using survey method and the PLS program, is believed to provide a significant contribution in terms of generating knowledge, and in the recognition of the moderating effects of organizational culture, thereby, providing management insights on the role and moderating effects of organizational culture. The other implications of the study can be found in the empirical evidence illustrated in the graphical user interface for variance-based structural equation modeling of the study.

The result indicated a moderating effect of organizational culture on the different TQM critical elements and the overall company's performances. Both the path coefficient value (Beta value) and the T-values met the acceptable criteria, indicating the significant and positive influence of the organizational culture in Alrahila Oil Services Company, Libya, on the relationship between the different TQM critical elements and the overall company's performance. Only training/ educational development and continuous improvement (Hypothesis 3 and 5) as TQM parameters showed non-significant and negative influences on the relationship between TQM implementation and the overall company's performance.

It is, therefore, understandable and practical to conclude that the application of the proposed framework for measuring the moderating effect of organizational culture on TQM implementation program and on the overall company's performances results in a substantial knowledge and scientific addition to this academic field, as it has further presented knowledge on the relationship between TQM implementation, organizational performances, and organizational culture in the Libyan context, and provided a means for the measurement of TQM implementation status in the oil and gas companies in Libya [7].

The significant and positive moderating effects of organizational culture on the TQM implementation elements and the organizational performances suggest that the case company (Alrahila Oil Services Company Libya) has a culture that reflects openness to change, to new ideas, innovations, new oil delivery processes and products. It can also help the company to understand the dynamism of the applied TQM program within the adopted organizational culture, which is very crucial for

pursuing the organizational strategic objectives. It will help the employees during decision-making processes, and in the understanding of the organizational events and objectives which can enhance their efficiency and effectiveness.

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