IMPACT OF TQM ON PROJECT PERFORMANCE WITH MEDIATING ROLE OF ORGANIZATION CULTURE

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ABSTRACT: ***Purpose of Study:*** *Present study aims to investigate the impact of TQM on project performance directly and indirectly with moderation of organizational culture.*
Design/Methodology: *In order to investigate the model of study data was collected from software development houses (IT sector) in Pakistan. 136 responses were collected and analyzed with (PLS-SEM) to test the hypotheses studied.*
Results/Findings: *Results support the positive impact of TQM on project based performance of software development houses and organizational culture significantly moderates the relationship between TQM and effectiveness with project based performance.*

Keywords: organizational Culture, total quality management, Project Performance, PLS-SEM

1. INTRODUCTION

1.1 Background of Study

Organizational culture is a medium between organization's management and its behavior. Different corporations have different cultures and mostly the performance and success of their projects heavily depend on their respective cultures and cultures of the organization that are related to them [1]. A culture that promotes effective communication and unhindered cooperation among teams and team members in an organization consequently results into a knowledge centered environment where employees benefit from cooperate learning due to quality mangement [2-4]. TQM is one of the strategic tools that become very handy in global market of current era. Without constant process of quality management, an organization loses its capability to work smoothly and effectively resulting into failure of projects [5]. This relationship is tested in the current study so it can be validated that organizational cultural, TQM and project performance are linked together in a significant way.

IT sector of Pakistan is a rapidly growing industry and play a good role in economy of the country. It has notably grown in last 4 years by exporting its products and services of worth 3.3 billion dollars in 2016 and 2017, which increased to 5 billion dollars and further growth is expected in coming years [6]. The selected industry and its different categories has not only expanded economically and subsidizing in Pakistan's economy in form of exports but it is also contribution in generating countless jobs in different categories. According to a Pakistan IT industry survey conducted in 2018, the industry will recruit about 18000 employees in coming year [7]. The industry is selected not only for its economic importance and contribution but it is also suitable for the study because majority of IT companies these days are project based. The working format of these IT companies is split of objectives into numerous programs and projects that are designed to deliver services and products in market and to add value. Successful management of these projects is crucial for the success of an IT company.

For successful projects, project managers of these organizations should be capable of operating in several organizations and department with diverse corporate cultures including their respective organizations, different departments and client companies [8]. Project managers are supposed to be capable of reading these diverse organizational cultures so they can strategize, plan and respond in a way that is accepted and effective at the same time

Quality has a major role management practice in organization and due to the fault in this major practice; organization fails to achieve the desired results of various projects of the company. Many projects in a company fail by exceeding the deadline and budgeted costs when they cannot realize the link between quality and progress of the projects. Financial and reputational growth of IT organizations in Pakistan heavily depends on numerous continuous successful projects required by clients or other stakeholders [9, 10]. Managers need to understand that how they can accomplish timely and budgeted projects by understanding the relevant knowledge and quality management and then disseminating the same in their team. Since very few researchers have identified total quality management as major determinant of project performance, therefore the current study attempts to explore the influence that TQM makes on success of projects directly.

2. LITERATURE REVIEW

2.1 KPIs model of Project performance

Two models that are well known to measure project performance are Integrated Performance Index [11] and Key Performance Indicators or KPIs given by UK construction industry which is common among many industries to measure process and project performance which is crucial for organizational performance. The key performance indicators include budgeted cost, deadline and schedule client satisfaction [12], financial success, consistency with strategy, technical excellence and impact on company's reputation.

The Standish Group prepared CHAOS report in 2004 (Brandon, 2006) which indicated that main elements that cause the failure of IT project are absence of end-use involvement; deficient executive support; failed project management; unclear business justification, ambiguity in knowledge transfer and poor corporate culture.

2.2 Total quality management (TQM)

TQM is broadly acknowledged as a methods for accomplishing brilliance by numerous organizations around the globe. In any case, in the reports of effective usage of TQM, there are various consequences for various elements of organizational results. For model, Hendricks and Singhal [13] called attention to that the appropriation of TQM results in improved finance related execution; Deshpande [14] found

the TQM brings higher consumer loyalty; Fotopoulos and Psomas [15] found that TQM guarantees higher satisfaction. Besides, it is contended that lone certain components of TQM contribute to improved execution, while other TQM parts don't. In any case, analysts for example, Ghannadpour, Rezahoseini and Bodaghi [16] counter-contended that it takes the aggregate routine with regards to all or various TQM segments to bring about performance improvement.

There are various approaches to quantify the fruitful usage of TQM. For model, Jimoh et al., [17] proposed five key parts for TQM, in particular, product, process, association, authority and commitment. Jabnoun and Sedrani [18] recognized four variables to gauge TQM in a UAE assembling firms: customer focus and continuous improvement, management commitment to quality, training and empowerment, and benchmarking. Moreover, Deming, in his previous days, moved toward quality management in the field of assembling from an analyst's point of view. As of late, in any case, he has widened and intensified his methodology through 14 standards of quality management.

They incorporate solid management duty to quality; process plan and controlpurchasing arrangement accentuating quality over costs; expulsion of all boundaries to worker cooperation and collaboration; viable correspondence; taking out numerical objectives and standards; just as broad preparing and quality instruction [19].Additionally, Saraph et al. [20] recognized eight basic regions of quality management in a specialty unit. They are: the job of divisional top management and quality approach; the job of the quality office; preparing; item/administration plan; provider quality management; process management/working strategies; quality information and revealing; and worker relations.

Correspondingly, Jong, Sim and Lew [8] recommended seven components to assess the usage of TQM, to be specific: quality information and announcing; the job of management; representative relations; provider quality management; preparing; quality arrangement; and procedure management. Consequently, in light of the above investigations, this exploration concentrate utilized a modified model, containing administration capacity, human asset management, process management, collaboration of firms' management and constant quality improvement and data. through factual apparatuses; adjustment of quality issues.

2.3 Organizational culture

Culture' is a calculated word that has been examined for a great many years by anthropologists, sociologists, history specialists and thinkers. As indicated by Mobley et al. (2005), culture is a lot of qualities, convictions, regular getting, thinking and standards for conduct that are shared by all individuals from a general public. For instance, Deal and Kennedy [21] characterized corporate culture by qualities, saints, rituals also, customs, and the correspondence systems.

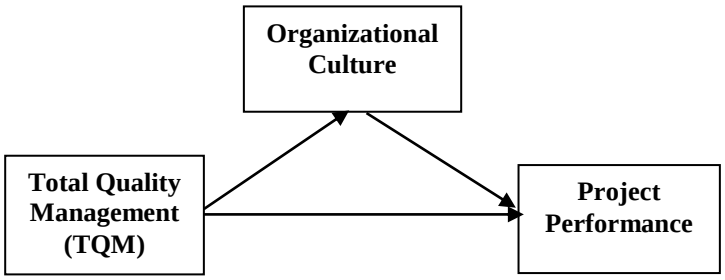

Figure 1: Theoretical Model

2.4 Development of Hypotheses

The current study presents a conceptual framework/model on the bases of proposed relationship among Total quality management (TQM) project performance that are derived from the theoretical background and detailed review of the three variables. In the presented model, Based on the conceptual model, following hypothesis will be tested in the study:

In contemplating the ability development model (CMM), which is a piece of Six Sigma and TQM activities in associations, Kuo and Kuo [10] found that CMM levels are related with procedure execution techniques and higher CMM levels identify with higher programming quality and undertaking execution. Improved performance is wanted by each project director and firm. In their examination, Rezahoseini et al. [22] surveyed past writing, revealed the similitudes of two quality-related activities: total quality management (TQM) and its effect on firm execution, and task quality (PQAs) and their sway on performance. Additionally, Shafiq, Lasrado and Hafeez [2] investigated the impact of a TQM program on the degree of center in task management, and discovered that a TQM program improved performance through setting a more prominent accentuation on fulfilling the client's requirements. In analyzing the connection among TQM and PP, Shieh and Wu [23] found that TQM significantly impacts performance. Hence, we hypothesize that:

H_1: Total quality management positively influences project performance.

2.4.1 Moderating Role of Organizational Culture

The relationship between corporate culture and project performance Regarding the effect of organizational culture in multi-agency development projects, As to impact of organizational culture in multi-office advancement projects, Sweis et al. [24] contended that OC is continually being delivered inside projects, some of the time tending towards combination, sometimes towards discontinuity. Rezahoseini et al [22] discovered that the consolidated impacts of OC and TQM

significantly affected the project performance (PP). Moreover, Fotopoulos and Psomas [15] proposed that senior administration ought to give satisfactory assets and backing to make a situation or culture that sustains and encourages the project supervisor's job in project usage. Adas [23] proposed five factors to calculate PP in a development firm: hierarchical demeanor towards change, level of various project handling capacity, quality of culture, level of laborers' cooperation in basic leadership, and level of arranging by the development firm. Additionaly, Ankrah and Langford [25] discovered that various targets and OC may bring about clashes between project members and thus cause poor PP. Such a finding suggests an OC moderates between TQM and PP:

H_2: Organizational culture moderates between Total quality management and project performance.

3. METHODOLOGY

The current study underpins the IT sector of Pakistan that deals with the services and products related to software development and are termed as software houses. This particular industry is selected due to its nature of functioning which is based on projects of development and supply of software programs and services according to the customers' requirement [7]. This makes the IT sector an ideal population to conduct the research where impact of organizational culture on performance of projects directly and also through mediation of knowledge creation process. The sample to conduct the study represents the software houses of Pakistan and the data including the websites, contacts is collected from the portal of Pakistan Software Houses Association (P@SHA). This type of sampling was adopted to achieve a result that can be highly generalized. Eventually, data of 520 software houses were extracted from the mentioned source. Every third member was selected from the accumulated list to collect data through designed questionnaire. The selection started from second member in order to avoid systematic sampling bias. The questionnaires were finally sent to 173 software houses and after filtration, 136 valid and usable responses were collected to run the analyses. The project performance was evaluated on individual projects but due to the unavailability of suitable sampling frame for every project undertaken by the selected software houses, the sampling is done taking the sampling frame of every organization in selected industry as done in many past studies [26].

The data gathered through the survey is analyzed by adopting the technique of multivariate analysis PLSmeans "partial least squares" structural equation modeling (PLS-SEM). PLS-SEM is accepted extensively as variance based, predictive and descriptive technique to structural equation modeling [27]. It is one of the most suitable methods when research objective aims to maximize the dependent variables through variance that can be explained by independent variables [28]. The current study adopts the PLS method for its further suitability due to the aim of predicting dependent variables and also due to the extensive intricacy in terms of complex relationships in hypotheses.

Items related to the dependent variable project performance taken from Popaitoon and Siengthai [29]. 5 items consist of determinants of project performance including operational specifications, technical specifications, deadline, budget, client needs and client satisfaction. The responses of all the items in the questionnaire is calculated through the five-point Likert scale that ranges from strongly agree to strongly disagree in order of 1 to 5 respectively.five major constructs were considered, namely leadership ability,human resource management, process management, cooperation firms' management,and continuous quality improvement and information. Based on Denison's [30] model, four major constructs were considered, namely involvement, consistency, mission and adaptability.

4. RESULTS

4.1 Validation of Measurement Model

In model assessment, the below model was undertaken to confirm the reliability and validity of the study.to asses the model Smart PLS 3.0 is used. The loading and cross loading of the questionnaire item was examined by the researcher to inspect any problem. As it is prerequisite of the measurement model. Before determining the convergent validity, the researcher examined loading and cross loadings of all items of the study variables to point out any problem which serve as a pre-requisite for measurement model. As argues by Hair et al. [27] CV is checked when all the items have factors loading higher than 0.5.

Table 2: Construct reliability, Cronbach's Alpha, Composite Reliability and AVE of all the Latent Variables

Construct	Items	Loadings	Cronbach's Alpha	Composite reliability	Average variance extracted
Project performance	PP1	0.931397	0.930569	0.945962	0.693472
	PP2	0.592712			
	PP3	0.931397			
	PP4	0.931397			
	PP5	0.539349			
	PT7	0.86057			
	PT9	0.833659			
	PT10	0.931397			
Total quality management	TQ1	0.871119	0.732245	0.811705	0.522908
	TQ2	0.637438			
	TQ3	0.71245			
	TQ4	0.647204			
	TQ7	0.90959			
	TQ9	0.970305			
	TQ11	0.966695			
	TQ13	0.981152			
	TQ15	0.826929			
	TQ17	0.981314			
	TQ19	0.949302			
Organization culture	OC1	0.933773	0.965669	0.968612	0.794647
	OC2	0.921063			
	OC3	0.902468			
	OC4	0.804122			
	OC5	0.905044			
	OC6	0.950942			
	OC7	0.888949			
	OC9	0.813754			

4.2 Correlation Matrix

Correlation matrix was directed to assure the external consistency of the model, based on the correlation between the latent variables the constructs were compared with square root of AVEs. As shown in Table 3 all the correlations between the constructs are lower than square root averages (AVEs).

Table 3: Correlation Matrix

	PP	TQ	OC
PP	1		
TQ	0.857325	1	
OC	-0.29761	-0.15805	1

4.3 Structural Model for Direct Relationships

After retrieving the measurement model, the structural model was assessed by using SmartPLS 3.0. To assess the structural model hypothesis testing with path coefficient and T-value, effect size and predictive relevance of the model were examined.

4.3.1 Direct Hypothesis Testing

In PLS, structure model gives internal analysis of the immediate relationship among the variables of the research study and their t-values with respect to as path coefficients. As contended by Henseler et al. (2009), the way coefficient is a similar like beta coefficient. Where beta estimations of the coefficient t-values are analyzed to settle on the significance. Following the standard guideline by Hair et al. [27], Bootstrapping technique was performed (with 500 testing emphasess for 209 cases/perceptions) to get beta estimations of the coefficient and t-values which more than 1.64 is viewed as significant, which is additionally utilized for deciding on the purposed hypothesis. The fundamental reason for this investigation is to concentrate on model assessment with examination of direct connections and also to test the hypohesized connections among the variables through basic model.

Table 4: Results of Hypothesis Testing (Direct Effects)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (|O/STERR|)	Findings
TQM -> PP	0.823113	0.821205	0.020067	0.020267	27.99036	Supported

4.3.2 Structural Model with Moderation

In the meantime, the R2 value is increased by introducing the moderating variable which is organizational climate between IV's and DV.

Table 5: Moderation Analysis

Path	O	M	SD	S.E	t	Result
TQM*OC → PP	1.39	1.02	1.11	1.11	1.65	Supported

5. DISCUSSION AND CONCLUSION

The results of the present examination bolster the discoveries of earlier investigations concerning the impact of OC on TQM [1]. Specifically, Yong and Pheng [31] broke down development firms in Singapore and found that the reception and execution of TQM are identified with an organization's culture. In view of 73 semi-organized meetings led with chiefs working in both open and private firms in Greece, Yunis, Jung and Chen; Hung [32, 33] discovered that specific sorts of organization culture (for example conservatism and reformism) appeared to generously influence the mindfulness and application of total quality ideas. additionally, subsequent to analyzing Japanese temporary workers that have been effective in embracing TQM practice locally, in an outside nation, Kim and Kang [4] found that the usage of TQM in the development business is obliged by national markets where the customers, subcontractors and site agents are not pervaded with a similar quality culture.

Besides, the investigation likewise infers that OC positively affects PP. Backing for this end can be found in numerous investigations [25]. Specifically, Ozorhon et al. (2008) called attention to that organizations supplement abilities, experience and assets with their accomplices to effectively finish a development venture through the development of partnerships. The exhibition of unions is resolved by the nature of between organization relations. In their investigation, they found that the similitudes in the authoritative culture of the accomplices have a noteworthy and direct sway on the nature of between organization relations [34].

The current writing has reliably demonstrated that organizational culture and Total quality management are basic parts in continuing the aggressiveness of IT organizations [35, 36]. Yunis, Jung and Chen [32] found that the basic achievement variables influencing quality Performance in Indian IT Projects were: project manager's fitness, management support, observing and criticism by task members. They additionally recognized components that unfavorably influenced the quality execution of ventures. These were conflict among project members, threatening financial condition, cruel atmosphere conditions, project supervisor's obliviousness furthermore, absence of learning, faulty project conceptualisation and forceful challenge during offering. Their findings confirm our results demonstrating that culture is a critical yet tacit element in laying the context of quality project performance, and that TQM is a critical yet unequivocal component in teaching and driving quality project execution.

5.1 Theoretical Implication and Further Direction

To ensure that the necessities of clients are satisfied, an institutionalized venture activity strategy must be set up to assistance undertaking teams convey quality items (for example to counteract jerry-builtwork, utilize quality materials, and so forth.). In any case, it is significant to leave roomfor alterations because of extraordinary client prerequisites, for example by acquiring client feedback during or after the deal through intelligent web correspondence or cell telephones. These must be accomplished if every useful unit inside a firm are adjusted towards one shared objective. As Chang [1] brought up, a firm should frame a fundamental some portion of a hierarchical data the executives framework technique, continuously coordinating clients and provider frameworks. Consequently, a total quality management idea must be embraced in organizations with the goal that the arrangement and mix of administration, human asset, process, cooperating firms, and nonstop improvement endeavors can be amplified to convey satisfactory products.

At long last, despite the fact that the exact results of this examination to a great extent bolster the current model two

limitations to be considered. To start with, since individual sources give the observational information, potential inclinations or inclinations may exist in light of various individual encounters or foundations. Also, the information were gathered in pakistan; the qualities of these organizations reviewed might be very not quite the same as those in different zones or nations. Consequently, the present outcomes ought not be accepted to speak to the general case. In any case, they may give a key reference to firms situated in different regions or nations whose conditions are like those in pakistan.

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