

**CAPITAL UNIVERSITY OF SCIENCE AND  
TECHNOLOGY, ISLAMABAD**



**Impact of Total Quality Management on  
Organizational Performance with the Mediating  
Role of Organizational Culture and Moderating  
Role of Project Complexity**

by

**Rabiya Saleem**

A thesis submitted in partial fulfillment for the  
degree of Master of Science

in the

**Faculty of Management & Social Sciences  
Department of Management Sciences**

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*I am very Thankful to AL-Mighty ALLAH they give me power, strength to achieve my desired goals, I want to dedicate this work first of all to ALLAH because all my goal is achieved just because of ALLAH after that I will dedicate to my loving caring parents and siblings they give me courage and support in every phase of my life. I always remember my loving close friends who motivate me every time. I always appreciate what they done for me. My respectable teachers who guide me in every phase of work specially dedicate to my teachers. I am very thankful to you all for core of my heart.*



## CERTIFICATE OF APPROVAL

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## *Abstract*

The current research study literature on developing the model of project management practices in the project-based organizations but does not lay out the understanding how project-based organizations reply to the challenges that are stood by the atmosphere by integrating it into their organizational goals and mission and that contour the project employees current behavior towards the implementation of total quality and project management practices. This research study explores those emphasizing aspects that can be determined to come up within refining project performance. The data was collected through a survey method from the respondents working in various departments of IT and telecom firms cross Pakistan (n=300). The research study inspected the impact of total quality management and project management practices on organization performance in projects. The findings proposed that there is a positive relationship between total quality management and organization performance. The mediating role of organizational culture is also significantly positive between the relationship of total quality management and organizational performance. The moderating role of Project complexity, though, has shown an insignificant negative impact on the relationship between organizational culture and organizational performance. The research study significantly contributes to the area of study precisely in the field of project management. The research implications, limitations, and future directions are discussed.

**Keywords: Total Quality Management, Organizational Performance, Organizational Culture, Project Complexity**



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# Abbreviations

<b>DV</b>	Dependent Variable
<b>H</b>	Hypothesis
<b>IV</b>	Independent Variable
<b>OC</b>	Organizational Culture
<b>OP</b>	Organizational Performance
<b>PC</b>	Project Complexity
<b>TQM</b>	Total Quality Management

# Chapter 1

## Introduction

### 1.1 Background of the Study

In the last few decades, the vibrant changes in the organizations are taking place at the planning stage in the middle of rapidly-changing globalization for achieving customer satisfaction and improving organization performance. Organizations are putting more focus on enhancing project management practices around the world. The project-based organizations of Pakistan are focusing more on total quality management practices to compete with other global organizations (Talib, 2013; Joshi & Rahman, 2015). The same type of project management practices cannot implement in all project based-organizations that are effectual somewhere else. The organizations should have the ability to understand the dynamic environment changes and then take corrective action to manage the problems with the help of project management practices that's as important for organization success. Many researchers have pointed out that TQM practices are not sufficient enough to improve organization performance as an entire (Zhang & Bartol, 2010). Therefore in the last few years, past research shows that the organization focuses more on the project quality of its existence in the competition environment.

Then, nowadays quality is more focused by project-based organizations for their survival in the a competitive environment so, they adopt total quality management practices to improve project quality standards to manage their organization

operations, mixed results found by the TQM implementation. Many researchers highlight the importance of TQM that cannot be deprived of because it is a more significant tool for managing excellence in the project quality. The relationship between TQM and organizational performance is positively related to each other and the enhancement of project quality dependent upon the use of TQM and project management practices. Project quality is one of the most important tools in achieving competitiveness. Many organizations are choosing project management practices to accomplish their strategic objectives (Kerzner, 2017).

Therefore, through customer feedback organizations recognize to improve their quality services to deliver the best product and service to the customer to maintain their position in the market. Project management is also increasingly accepted by organizations as a managing practice to enhance their project quality principles. Therefore, to maintain a culture in the organization than needs to build long term quality services to improve the overall strategy of the organizations (Talib, Rahman, & Qureshi, 2012). In the 1980s the experts adapted the main philosophies of TQM and project management to contribute the combined method for the development of products and services to become the best competitor in the market. Hence, TQM is getting consideration in the manufacturing of small and medium organizations day by day (Imran et al., 2018). Project management effectiveness provides the researchers and experts of the field to promote an approach that can professionally manage the projects. Many researchers stated that the importance of TQM features cannot be passed over by the organization because TQM is the most significant tool for succeeding in purity and excellence in the project. Although, small and medium organizations they are slow in adopting practices of TQM and project management as compared to other large organizations due to poor performance management (Pearson, 2015).

Hence, according to the above explanation in developing countries, several project-based organizations enlarged their effectiveness through TQM practices. Therefore, project management practices newly introduced in Pakistan to manage huge projects. In Pakistan, small and medium organizations management doesn't have project management specific expertise and project handling skills just because of



poor strategic planning (Imran et al., 2018). Organizations such as Ford, Xerox, and Harley-Davidson are those organizations that maintain and recover their reputation by implementing TQM and project management practice effectively after a fall down in the market. Therefore, there are so many different concepts and method which can be used to maintain a good quality level in projects and it also helps to improve continuous improvement in the project-based organization performance (Bendoly, Zu, & Goas, 2016). So many organizations implementing project management practices and making progress and showing betterment in their performance. However, those organizations giving importance to the tools of TQM are surviving in the market with a stable position just because they implementing TQM and project management practices effectively.

Then TQM depends upon various quality tools and techniques used to deliver the best project with all standards and the organization staff shares all the procedures and observations inside the organization to start achieving the organizational strategic objective by adopting project management practices to optimize their time, cost and quality standards (Gharakhani, Rahmati, Farrokhi, & Farahmandian, 2013). Although the management team of the organization has a good understanding of the TQM and project management than they guide TQM importance to the employees so they can actively participate and give their best to achieve the organization's objective the study approves that performance of project management enhanced if quality services are improved, (Singh, Power, & Chuong, 2011). Many researchers clarified in the literature that we can implement TQM successfully in the organizations if we motivate our employees the job satisfaction is also involved in quality performance because of the connection of quality service, organization performance, and customer satisfaction so, in this way employees, play an important role by improving quality services and project performance to deliver better quality projects to get more projects from customers because they build trust in them (Gimenez-Espin, Jimenez-Jimenez, & Martinez-Costa, 2013). Although organization culture (Prajogo & McDermott, 2005) provides a favorable environment due to clear goals and stability in this way project management

and quality practices applied successfully in the project-based organizations because of this organization culture can make changes in performance and quality services they have a good impact on decision making, communication and on the working relationship so the main functions of project management are to improve effective communication and solve the conflict between team members but before this need to know the culture of employees (Baird, Hu, & Reeve, 2011). Even though many project-based organizations in Pakistan implementing both TQM and project management practices to make continuous improvement in their organizations. However organizational culture declared to be more effective for TQM and project management practices because the organization has a positive significant direct and indirect effect on performance (Jabnoun & Sedrani, 2005).

Researchers declared that there is a mutual relationship between TQM and organizational performance (Mehmood et al., 2014). We needed a suitable culture that is more effective for TQM implementation if we motivate employees to achieve quality and focus on satisfying customers, researchers declared that there is a mutual relationship between TQM and organizational culture (Hietschold, Reinhardt, & Gurtner, 2014). Therefore many researchers stated that project managers having a focus on four components they can implement TQM and project management strategy successfully in their organization i.e. employee involvement, customer satisfaction, and managerial leadership TQM is a management philosophy that gives authority of responsibility to every member of the organization to focus on continuous process improvement within the organization and effectively promote overall performance to obtain reliable results; which put a positive impact on project quality and project performance (Calvo-Mora, Picón, Ruiz, & Cauzo, 2014). Many project-based organizations implement project management and TQM methods to get the benefit and to compete with global competition so they replaced the old traditional approach with the new TQM approach because those organizations implement TQM successfully they achieve long-term success growth and survival in the market just because of this approach many organizations in the last few decades focusing more on quality in the competition environment (Heizer & Render, 2013).

Therefore, Project managers find difficulty in practicing TQM because of the challenging environment of organizational culture (Kaluarachchi, 2010). Hence project culture changes important factor which put a positive impact on TQM and project management practices (Rad, 2006). There are certain viewpoints of researchers (Haffar et al., 2013) regarding project management and TQM practices if project management principles implemented successfully in the organizations then we can also effectively implement TQM practices in our organizations so by improving the quality standards in their organizations this thing put a positive impact on the large and small organization of Pakistan (Pascucci et al., 2016 & Cadden et al., 2013). Hence many kinds of literature highlight the positive impact of project quality monitoring practices on organization performance (Saizarbitoria, Landín, & Fa, 2006; Akhtar, Zameer, & Saeed, 2014; Wang, Chou, & Jiang, 2005).

Although project managers who have the best skills and knowledge they take corrective action on the right time and as a leader they trust in employees give them authority to take responsibility for uncertain problems and come up with the right solution then this thing raises the success of the organization and also put a positive impact on project performance (Leavengood, Anderson, & Daim, 2014; Dahlgaard-Park, 2012) whereas continuous change play a role in the development of the organization; so this change is important for successful implementation; of TQM and project management practices (Haffar, Al-Karaghoul, Djebarni, & Gbadamosi, 2019). Project quality management practices help organizations to develop a sustainable environment in the market ((Yang, Huang, & Wu, 2011), Jackson et al., 2016; Yang et al., 2010; Siva, 2016) so, project management objectives can be achieved by using the tool of TQM efficiently. TQM is said to be a deliberate improvement method used to improve project quality as well as organizations must mainly emphasis on specific change willingness to accept change at present developing processes and products according to the project management process (Psomas & Antony, 2015; Kaynak, 2003; Haffar et al., 2019).

In the coming times, Leadership importance is growing because leadership is the factor of the project success which giving increasing benefits to global projects so TQM declared as the process of managing and refining the efficiency, efficacy,

competitiveness, and flexibility of an organization project quality management practices help organizations to develop a sustainable environment in the market (Jackson et al., 2016; Yang et al., 2010; Siva, 2016). Therefore culture is the most significant variable in the accomplishment and failure of project management and TQM practices (Prasad, Sundarraaj, Tata, & Altay, 2018). Organizational culture is the furthestmost essential element in the success of TQM. Project management practices managed many organizations so they perform effectively and well-organized in the delivery of their products and services (Peng, Lin, & Huang, 2014). The growth and credit of project management are continuing to develop as resources become infrequent and less in developed countries (Al-Swidi & Mahmood, 2012).

## 1.2 Gap Analysis

The impact and concept of total quality management and project management in an organization has been focused on large enterprise organizations but less focus on small enterprise organizations but so far the concept of total quality management and project management not frequently applied in Pakistan project-based organizations due to many challenges so needed to fill this gap (Weldemariam, 2013). The research study suggests that the organization culture as a significant mediator between total quality management and organization performance in the project-based organization. Therefore the study reviews the moderating effect of project complexity on organizational performance and organizational culture. According to the literature insufficient theoretical viewpoint exist so far it clarifies the associations among these concepts in project-based organizations specifically so in this context, the study did attempt to explore these thematic areas and their inter-relationship rigorously in project-based organizations. These variables make the research study distinct in the project management area and their consequence on the main variables however needs to be explored.

In the project management perspective total quality management is relatively a new variable and new variables so far have studied in the framework of old-style

organizations. Therefore the scope of work on these variables in the project-based organization framework as a distinctive competence of project employees is comparatively limited. Therefore we need more understanding about the relationship between TQM and customer satisfaction according to the viewpoint of both theoretical and practical perspectives and also find out the reason for the gap facing in project failure that's why this study focuses on this gap to become one of the fewer studies in the specific area.

Therefore research study also identifies possible mediators and moderators while addressing this gap. These variables have not been studied in the Pakistan framework and infilling circumstantial gap results will be very helpful for us so research study proposed that organization culture as a mediator along with other variables total quality management would be an important part of the area of project management. Though project complexity as a moderator is one of the unique areas which are still required to be more focused in the framework of project management for the reason that competitive advantage on which most of the project-based organizations prosper in the modern period is showing fears towards project performance issues. The variables overall together require to be studied in the Pakistan context. The research study will significantly contribute towards current literature as well as in the direction of study will be focused on project-based organizations of Pakistan. The moderating role of project complexity between total quality management and organizational culture needs to explore in the project management domain and also in the circumstantial background of Pakistan.

### **1.3 Problem Statement**

In Pakistan, we see that most of the projects not considered to be environment friendly in this way we face many issues regarding the supportable environment which is increasing day by day; and such projects seriously, influence the environment because many organizations not using effective project tool to improve their organization maturity level and organization performance. Due to the growing demand for project management practices in the world, there is a standard shift

in which organizations are more focused on project quality which should be merge in the policies of the project-based organizations. Therefore, the current study addresses the project issues that customers first demand the project should be environment friendly so the project-based organization should adopt project management practices to meet the demands of the customer as per their requirements.

The research study focuses on total quality management's impact on organizational performance with the mediating role of organizational culture. The mediating role of organizational culture inspiring behavior of employees is yet to be discovered in the area of project management. The moderating role of project complexity between total quality management and culture in the domain of project management and also in the circumstantial setting of Pakistan needs to be focused more by adopting methodology and framework of project management.

## 1.4 Research Justifications

Previously less research has been done on the importance of project quality in the light of project management practices. Therefore using these variables altogether highlights the importance of project management and project quality and how quality impacts organizational performance. All project-based organizations want to improve their quality services then they must improve their project management practices then it is essential to provide the customized product of better quality, now it's time to replace the traditional management approach to managing projects so to meet the stakeholder requirement then need to understand and applied the concept of TQM in the organization. The organization project culture focusing on those activities that consequently end up adding value to the product and services, which in this case is customer requirements related to project quality than the effective use of TQM will increase the overall performance of an organization which includes a total quality management approach for meeting customer needs and expectations that involves all project managers and employees to improve continuously product and services according to the project management quality processes. The performance of the organization and the complexity of the project

get improved if we improve the project management and quality management practices (Zheng, Wu, & Xie, 2017).

## 1.5 Scope of the Study

The scope of the study to investigate the impact of total quality management on organization performance in the light of project management and also highlight the organizational culture and project complexity relationship with the independent and dependent variables. The data collected from professionals, IT, and telecom project-based organizations were across Pakistan. The respondents are both males and females and there will no limit of age, qualification we collected data on an individual basis. Data is collected through a survey method and a convenience sampling technique is used to check the relationship of variables.

## 1.6 Research Questions

### Research Question 1

How does the relationship exist between total quality management and organization performance?

### Research Question 2

How does organizational culture mediate the relationship between total quality management and organizational performance?

### Research Question 3

Does project complexity play the role of moderator on the relationship between organizational performance and organizational culture?

## 1.7 Research Objectives

The present research study's main objective is to develop and examine the reliability of the TQM. This situation will reveal the relation of the variables i.e.

TQM, organizational culture plus organizational performance in an organization. It would also bring full light on project complexity as a moderator. The certain specific research study objectives are:

### **Research Objective 1**

To investigate the impact of total quality management on organizational performance?

### **Research Objective 2**

To find out the mediating relationship of organizational culture between total quality management and organizational performance?

### **Research Objective 3**

To find out the moderating relationship of project complexity between organizational culture and organizational performance?

## **1.8 Significance of the Study**

This research is not only adding to the theoretical viewpoint regarding project management it's also showing the concerns of organizations and helping towards the concept of total quality management ([Visitacion, 2010](#)). Today's world project-based organizations worried about project quality issues because for better organizational performance the first phase is to modify the a culture that generates worth in employees. Its organization's duty to communicate all policies to project employees so they can manage; projects efficiently to get continuous improvement in the organization ([Prajogo, Power, & Sohal, 2004](#)).

TQM compacts with mutually collective and individual performances through continuous improvement they develop through customer satisfaction ([Claver, Gascó, Llopis, & González, 2001](#)). A research study stated that total quality management positively give impacts innovating project performance in terms of relation to product/services and process ([Prajogo & Sohal, 2003](#)). Organizational culture frequently overlooked when project management practices are implemented, so the



culture is also one of the aspects when we talk about quantifying the organizational maturity level. So in this research study, the mediating role of organizational culture will be inspected.

All the above activities come under the umbrella of project management. This research study supports to enhance in the literature that the continuous development of project management in Pakistan through the study of a large field of project management and TQM practices. So this present study opens new concepts for researchers to observe new ways of investing resources and time in promoting better activities in projects. It also helps the development sector of Pakistan to know the importance of project management and total quality management concepts to endorse the TQM concept in and outside the organization with the consent of employees. The present study is valid to experts because the results may reveal patterns in the implementation of TQM practices, which might provide vital information, through using those information project managers can resolve implementation challenges, and perhaps they also improve the quality of projects.

## 1.9 Supporting Theory

Many different researchers have presented their theoretical perspectives to support the study of total quality management, organization performance, organization culture, and project complexity but contingency theory can cover overall all the variables of the present study. Contingency theory for assessment of project-based organizational capabilities an enhanced understanding of the perspective of project management and TQM (talib2013; Arasli, 2012; Psomas & Jaca, 2016). The contingency theory is presented by (Edward Fiedler,1964) and explained further.

### 1.9.1 Contingency Theory

The contingency theory proposes that project-based organization effectiveness comes from the appropriate features of the project management practices (Donaldson, 2001). In contingency theory, we linked the positivity of project-based organization structure with the implementation of a project management system (Ferreira & Otley, 2010). The contingency theory plays a role in organizational design by identifying which structure fits with which environments.

The current study research model is based on contingency theory that has to develop an exploratory model for the sustainability of project-based organization performance (Pryshlakivsky & Searcy, 2015). The project management practice observed as a vibrant and continuing procedure particularly in fast going industry atmospheres (Kabak et al., 2014; Daft et al., 2010; Garkaz, 2015). This experimental research study pursues out to create an involvement to contribute towards TQM by expending a viewpoint of contingency theory which practically applied to a present-day issue and challenges (De Clercq, et al., 2014; Simpson et al., 2012). The implementation of TQM successfully doesn't depend on the specific department it relies on the all functional area of the organization (Mehra & Ranganathan, 2008). Therefore to compete in the national and international market the developing countries start knowing the importance of TQM and also implementing the project quality strategic factor to compete in the market (Valmohammadi & Roshanzamir, 2015).

The main gap is organization need to focus more on quality issues and when uncertain situation occur the leader should give responsibility to project manager so they can take corrective action on the right time trust and culture is the important factor of any project success (Ridder et al., 2015). The project-based organization facing challenges because leaders do not give a wide range of ways to managers so they can come up with the solution of any uncertain problem at the right time (Arunachalam & Palanichamy, 2017). The project-based organizations functioning in various environments with high or low, project uncertainties, complexity, or unpredictability must require various structures to control with necessities of

the organization environment, which creates conflict with the general approach of quality standards (Betts, 2011).

In today's world the concept of project management gaining importance. So the project-based organization making standards having the excesses in the organic and mechanistic structures (Rauniar et al., 2018). Mechanistic structure, in which ongoing activities are managed, with a clear meaning of policy or procedures, whereas organic structure, in which coordination moves toward the description of the end goals, by assigning employees with necessary required skills without much concern with the process of employee hiring (Sui Pheng & Babatunde, 2015). Clear definition of policy and procedures then this organization's performance will be higher and they face less inherent uncertainty in a project-based organization (Pasian et al., 2012). Many researchers point out the limited research on the complexity of projects, so the strong moderating factor was based on; the uncertainty of the environment; they probably influence the operationalize fit-performance relationship (Sadikoglu & Olcay, 2014; Ahmad, 2012). Many studies mainly focus on, product development (Anderson & Sun, 2017). The main thesis aims to overlook the questions that how TQM put an effect on project-based organization performance with different types of projects and through this research, we explore variables derived from contingency theory.

# Chapter 2

## Literature Review

### 2.1 Total Quality Management

TQM is well-defined in the form of operational work combining the managerial and technical activities also utilizing the best systems and information of companies to put best efforts practically just to make assure customer quality satisfaction based on project management practices so the main focus of total quality management on the better enhancement, progress, and prevention of product and service quality. Many several project-based organizations declared and understand clearly that TQM ideology is the best approach for staying or remaining stable in the competitive environment ([Temtime & Solomon, 2002](#)).

The project-based organization is fully responsible for making quality standards and rules/policies to maintain the goal and objective of the project due to this approach organization successfully implementing a constant organization improvement process ([Juran, 1986](#); [Tanninen, Puumalainen, & Sandström, 2010](#)). The center focus of the project-based organization is to achieve an extensive mix between organizational worker and their judgments to increase better improvement and advancement in project quality to accomplish customer satisfaction ([Talib, 2013](#)). Although we observe many times in literature that it is a significant relationship between project-based organization competitiveness and customer satisfaction.

## 2.2 Organizational Performance

Washburn and Glick (2013) defined that one of the main components to accomplish viable project-based organization administration methods is the valuation of performance. The project-based organization performance is the one which can be straightforwardly associated with its ability to achieve their strategic and economic objectives (Li, Ragu-Nathan, Ragu-Nathan, & Rao, 2006). However, organization performance is the reflection towards an organization's ability to succeeding the high productivity combined with customer satisfaction to achieve goals is considered a priority for the organization (Tubigi & Al shawl, 2015). The organizational performance involves the recurrent activities to create organizational goals, monitor improvement toward the goals, and make changes to accomplish those goals more efficiently and effectively (Belassi & Tukel, 1996).

## 2.3 Organizational Culture

An organizational culture characterized a lot of qualities, principle, and standards which help the organization to shape the personal conduct standard of workers (Kotter, 2008). Karimi and Abdulkadir (2012) organizational culture defined as the set of ethics, principles, and behavioral standards that guide how organization employee work will be done effectively. Therefore organization culture is a collective mind of programming that differentiates one organization member from others.

Although organizational culture plays an important role in achieving the organizational goals and objectives so the organization should motivate their employee through reward which put a positive impact on employee performance and organizational performance (Alswidi & Mahmood, 2012; Helfrich et al., 2007; Gimenez-Espin et al., 2013). Hofstede proposed the model of culture with its dimensions and the model says that every organization culture is different from other organizations because every organization has different values and beliefs regarding work

goals so Hofstede culture dimension framework is very useful in providing information regarding different organizational culture and how to manage such differences regarding culture.

## 2.4 Project Complexity

Complexity word is hard to characterize because it has various implications (Modrak & Bednar, 2014). Floricel, Michela, and Piperca (2016) suggests a definition of that its complex consists of interconnected parts and can be operated in terms of diversity and interdependency. Baccarini (1999) the definition can be applied to the relevant project management processes such as technology, environment information, organization, system, and decision making. Even though the complexity nature science theme is generally appropriate to huge frameworks, software engineering, or science, it is getting logically relevant to business and formation techniques (Sargut & McGrath, 2011).

The term complexity is broadly utilized in our everyday language. We categorize tasks, advancements, or affiliation to differentiate the complexity of the project. Indeed, even in a research study, complexity nature is well-characterized very in an alternate manner, dependent upon its application surrounded by various fields of analysis (Johnson, 2007).

## 2.5 Total Quality Management and Organizational Performance

The measurement of organization performance considered to be important in deciding the solution about uncertain challenges. There are two performance measurement tool costs and quality which directly affected the total quality management practices. (Brun, 2011; Sadikoglu & Olcay, 2014) these researchers mutually agreed that there are various features of TQM such as training of employees, customer management, and process management these features directly put an

impact on employee and organization performance. One of the famous researchers Gharakhani stated that TQM put a positive effect on; organization and business performance (Gharakhani et al., 2013). Therefore due to the high demand for the best quality products and services, project-based organizations start realizing the importance of TQM and project management practices to develop the high-level quality of products and services with the best characteristics (Sadikoglu & Olcay, 2014; Ahmad, 2012).

The total quality management strategy was to put a focus on customer demands in which they directly aim to provide their customer best high-level quality products and services under the practices of project management tools and techniques (Hanisch & Wald, 2014). Project management and TQM practices clarified their effectiveness through high-level customer satisfaction specifically in a project-based organization so from a project manager's point of view the importance of TQM is very well explained (Weintraub & McKee, 2019). The organization focuses on the planning in which they emphasized employee management, leadership style, and more concern regarding customer satisfaction for this organization evaluating both external and internal customer feedback for produces the best quality product and services (Zeithaml, 2010).

The study clarified that TQM put a positive impact on customer satisfaction and this thing influence the employees to work more effectively in the organizations so through this study we explained and declared that there is a strong relationship between project manager commitment and customer satisfaction. Although TQM and project management practices are straightforwardly improving or upgrading the organization's performance, improving the performance of staff and raising the level of customer loyalty (Lakhal, Pasin, & Limam, 2006; Talha, 2004). TQM put a positive impact on organization performance whereas in most of the circumstances TQM and project management practices cannot achieve their goals just because of lack of skills and expertise (Schoper et al., 2018).

The relationship between organizational performance and total quality management widely inspected but still, certain outcomes need to be described under the

process of project management so the past study determines the positive relationship between total quality management and organization performance. [Rahman and Bullock \(2015\)](#) analysis of 261 Australian organizations that TQM soft elements i.e shared vision to focus on customer demands, effective use of project teams these elements of TQM have positively linked with organization performance so the hard elements of TQM like continuous improvement in the organization by using the latest technology this put; a significant positive impact on organization performance. Many organizations universally approved that TQM and project management practices as an effective impact on organizational performance ([Sadikoglu & Olcay, 2014](#)).

Therefore research findings indicated that commonly positive outcomes in some of the research related to TQM and project management practices; but on the other hand the impact of TQM practices on quality/operational performance is very much recognized and empirically long-term established ([Agwu, Ailemen, Okpara, & Achugamonu, 2014](#); [Lee-Kelley & Kin Leong, 2003](#)). Because of the demand and occurrence of TQM there is rising attention to some organizational difficulties, for example, planned quality management, manager's leadership style, and project team management ([Agwu et al., 2014](#)); [Pannirselvam & Ferguson, 2010](#)). Many project-based organizations following ISO 9000 standards for quality operations which put a positive impact on TQM practices because the continuous improvement in the project's put a positive effect on performance ([Zhang & Bartol, 2010](#)). TQM regains numerous features of performance which is very beneficial for organizations i.e business performance and consumer loyalty ([Parzinger & Nath, 2000](#); [Ikpefan, Folashade, Agwu, & Odunaike, 2014](#); [Martinez-Lorente, Dewhurst, & Dale, 2014](#)). In the UK organizations, many ISO 9000 quality standards and models of TQM and project management processes were implemented in the organizations that moving organizations towards purity and excellence ([Soltani & Wilkinson, 2010](#)). TQM is an effort to put an impact and exceed the customer wants at any least price by doing the reliable work and development, in which all the parties take an interest and they similarly devoted and concerned about the continuous improvement in the organizations ([Klefsjö, Wiklund, & Edgeman,](#)



2001).

Therefore, the most successful organization implementing positively TQM practices in their organizations to continually; promote the importance of project management and TQM practices to get effective outcomes (Baird et al., 2011). Quality management is a well-organized procedure for affirming that systematized activities occur in the manner in which they are aware of every systematic process. Organizational discipline is the only feature that is concerned with maintaining a strategic distance from challenges that occurring by emerging the controls and approaches that make prevention possible (Prajogo & McDermott, 2005). The contributing factors having a solid impact in an organization like worker empowering, system control and improvement, customer satisfaction, organization responsibility, and communication these factors moving towards TQM practices and its put enhancements on organization performance (Ketikidis et al., 2006).

Chiocchio, Grenier, and O' (2012) these two experts propose that usage of TQM practices will upgrade and improve the organization overall performance. Previously, numerous researchers saw that TQM practice and organization performance create a positive and significant relationship (Chiocchio et al., 2012). The organization staff taking an interest to adapt and learn new things in regards to TQM. According to this interest and support the developments in the organizations which get changes in project quality effectively (Ketikidis et al., 2006). TQM will improve and upgrade the performance until every one of the employees grip it and regularly they do changes in organization work activities. Ketikidis et al. (2006) if the organization workers take interest in TQM practices this thing develops customer loyalty so the explanation behind a successful organization is that it put their customers first in the decisions they make this importance towards customer can take project toward success (Hill,S. furthermore & A. Wilkinson, 2015). The customer needs to firmly involve in each phase of the organization to decrease unwanted things and expel quality issues (Kaluzny, McLaughlin, & K. Simpson, 2014). (Isaiah O.Ugboro & Kofi Obeng, 2010) recommended that TQM practices and approaches utilized for planning activities towards the objectives and goals of customer reliability.

The top organization must have full confidence in it and they should show responsibility in implementing TQM practices without solid top organization management quality can't be implemented effectively (Brown, Hitchcock, & Willard, 2014). Communication plays a main role in the relationship of employees and bosses in the organization in which they invest a wide time and energy for consistently speaking with one another (Ma. Gloria V., & Talavera, 2014). The TQM approach towards implementation is somewhat unique about products. The refinement of services the most important difference was that it depends more on customer evaluation (Juneja et al, 2011; Lenk, Mohapatra, & Suar, 2010). The TQM practices measurements in managements perceived by benchmarking, top management authority, center around client satisfaction, advertising management, social commitment, worker satisfaction, and culture improvement (Saravanan & Rao, 2006). There are some research studies which shows that it is sure positive connection among organization performance and TQM (Miyagawa & Yoshida 2010; Bou & Beltran 2015; Gunday et al., 2011) but numerous research determined that negative and insignificant relationship happens among organizational performance and TQM (Demirbag, Tatoglu, Tekinkus, & Zaim, 2006); (Nair 201; Corredor & Goni,2011; Kaynak 2013).

*H<sub>1</sub>: Total quality management will positively significantly affect organizational performance.*

## 2.6 Total Quality Management and Organizational Culture

Organizational culture is strongly connected with organization performance because when we provide a friendly environment to employees three things get develop trust, motivation, and creative mind these things not just only put a positive effect on employees it also put an impact on the organization's performance (Nahm, Vonderembse, & Koufteros, 2004). Schein (2010) culture is a tradition of important beliefs that empower the organization to depict and comprehend the

reliability of the organization (Bryan,2014). Culture is an external variable that originates from outside of the organization (Pettigrew, 1979).

Although organizational culture can be well-characterized as it is based on morals, beliefs, and rules that help and guide how the project-based organization work should be possible. Schein hierarchy clarifies the chain of command in which highlights the assumptions and values to measure the organizational culture they take up values to measure culture because of organization culture dependent on Schein's hierarchy. Organizational culture's role is to transform information and changes in the project-based organization (Ajmal & Koskinen, 2018). Barney expressed that culture as a powerful effect on the organization it is the most significant component for project success and also put a positive effect on the creativity and development of the project.

Even though the importance of culture for TQM has been broadly recommended in the literature review this connection expands a few questions that required attention in future studies. Hence identify certain elements that support organizations to implement TQM and project management practices and could exist in an organization culture i.e authorization, teamwork, communication, employee involvement, standards, and customer satisfaction (Gharakhani et al., 2013) so then these factors of culture examined by few researchers to declared that culture is utmost appropriate for the usage of a TQM and project management practices (Prajogo & McDermott, 2005). Those organizations having proper culture set with rules, policies, and standards these organizations have a favorable environment in implementing TQM practices successfully (Irani, Beskese, & Love, 2004; E. W. Anderson, Fornell, & Lehmann, 1994).

Curry and Kkolou (2004); Lakhali et al. (2006) organization culture is the main factor behind successfully implementing TQM practices in the organizations because culture modifies the changes in the project-based organizations and transform the things in a better condition these changes can be done with senior management support to set culture values in the organization (Schein, 2010; Prajogo & McDermott, 2005; Sadikoglu & Zehir, 2010)(Buch & Rivers, 2010; Goldstein, Naor, Linderman, & Schroeder, 2018; Brief, Karimi & Abdulkadir, 2012) so besides the

set of cultures has an intimate emphasis and supports TQM and project management practices for successful implementation in the organizations (Prajogo et al., 2004; Al-Swidi & Mahmood, 2012; Carson & Carson, 1993).

In the initial 1990's period, there was the first main article that focuses on and highlights the affiliation between quality management and organizational culture. Organizational culture (Wu et al., 2011) puts an impact on the organization functions such as on individuals' decisions and performance along these functions expressed that culture is the primary key towards organizational success. In the literature, various models of organizational culture have been used effectively (Sabella et al., 2014) including:

- Model of (Hofstede et al., 2010, Hofstede, 1980, 2001).
- The individual, customer direction, social or association issues and difficulties (Maull et al., 2001).
- The organizational culture outlines (O'Reilly et al., 1991).
- Challenging values system (Rohrbaugh and Quinn, 1983).

(Hofstede, 1980-2001) clarified culture in four perspectives (power distance, uncertainty/avoidance, masculinity/feminist, and individualism/collectivism). In future work, he included two more measurements fifth one that is, long-lasting/short-lasting direction, and a sixth one measurement that is restraint/indulgence (Hofstede et al., and 2010). Hofstede's effort was utilized in numerous quality management research studies (Flynn & Saladin, 2006; Kull & Wacker, 2010).

Today organizational culture is the topic of substantial interest in the literary work which replaces quality management (Sousa- Poza et al., 2010; Lukasova et al., 2014). The social impacts on quality management and the mutual alliance between organizational culture and TQM this idea have been talked about at the beginning stage of the 1990s (Westbrook, 2013; Hildebrandt et al., 2010). Other than this organizational culture content influences the quality performance and its functionality (Lukasova et al., 2014) so not only there is any affiliation between

quality management and organizational culture, but few researchers linked quality management to organizational culture e.g. Kanji and Yui state that quality management is the way of life devoted to customer satisfaction through constant advancement (Kanji, Malek, & Tambi, 1999).

Nowadays, TQM not considered as a simple method for implementation it is said to be complex for cultural change from the outdated management yet these days organization focusing on gaining ground to making progress in total quality management (Lukasova et al., 2014). TQM implementation isn't a casual task for the clarification that it needs an altogether change in the way of life of the organization culture, consistently changing of responsibility of the organization, and stable contribution completely in the quality improvement process (Lakhal et al., 2006). A lot of organizations (Maull et al., 2010) have understood the situation of distinguishing organizational culture to implement TQM subsequently, they could expose segments of the organizational culture for supporting or progressing out cultural improvement. The TQM implementation idea needs a helpful setup and strong culture for continuous improvement (Puhakka, 2012). The awareness of quality is begun by preparing and training employees regarding quality importance through effective training; we maintaining advanced changes in the organization frameworks. The quality culture must be then empowered by suitable management frameworks (Irani et al., 2004).

*H<sub>2</sub>: Total quality management will positively significantly affect organizational culture.*

## 2.7 Organizational Culture and Organizational Performance

The most recent literature indicated that human resource management in the organization has come to be continuously significant for organization performance and organization vision objective to be achieved so needed hard-working workers because employees are the valuable asset of every organization (Piercy, Low, &

Cravens, 2004); Daniels et al., 2014). According to a few past researchers that developing countries following the organization's theories to improve their performance but several organizations facing challenges because they have cultural issues not implementing powerful culture (Farashahi, Hafsi, & Molz, 2005).

Many researchers inspect the phenomena of organizational culture in most developing countries to check how they maintain culture standards in their project-based organizations (Denison, 2000). So the first primary reason for this research is to find out whether organization models for performance and organization culture are right in the framework of Pakistan as an emerging nation. Even though, various researchers had explored the affiliation between organizational culture and organizational performance (Ogbonna & Harris, 2000; Kotter, 2008; Marcoulides & Heck, 1993; Rousseau, 1991). Many researchers declared that less study agreed on organization culture as a suitable factor for organizational performance (Magee, 2003).

So the second drive of this research is to characterize the affiliation between modules of organizational performance and organizational culture so the relevance study deliberately aware of fill these gaps. For the current exploratory investigation, Denison's hypothesis is identified with organizational culture is working which differences and relies on four social attributes; deliberate, inclusion, and constancy as key reasons for influential performance. Kandula (2006) key toward success and good performance is having a strong culture. A critical positive and strong organizational culture can make a standard of separate performance and achieve brilliantly while a negative and powerless organization culture may demoralize workers to disappoint and wind up with no achievement so organizational culture has a direct role in organizational performance (Murphy, 1995).

Magee (2003) without seeing the impact of organizational practices and organizational culture, for example, we cannot say performance as biased for the clarification that the two are a sign of change and one will impact the other one. (Yilmaz & Ergun, 2008) said that following the basics of Denison's model are the essential standards and beliefs that imply the deepest phases of organizational culture. The important doubts convey the evidence from which first doubt increasingly social

modules, for example, measures, visible pieces of stuff, images, and management second doubt performance and activity (Denison, 2000). In Denison's model differentiation of organization established on progressively more, principles and their undisputable practices are made. Such guidelines are considered commonly more sensible than beliefs and more trustworthy than antiques (Yilmaz & Ergun, 2008; Denison, 2000). The organizational culture model of Denison's relies upon four social characters consistency, association, critical adaptability that have stayed uncovered in the literature to affect organization performance (Denison & Neale, 1996; Denison, 2000). The four characters of organization culture in Denison's model are as per the following; First Involvement: operative organizations support their staff; organization shapes their groups, and at all stages improves human aptitude (Lawler, 1996; Becker, 1964; Likert, 1961).

Ranking senior manager and organization employees who are committed to their work and workers feel that they are the part of the organization. Individuals feel at every stage that they should have in any event with a specific commitment to decisions that will influence their exertion and that their effort is straightforwardly connected to the goals of the organization (Katz & Martin, 1997). Second Consistency: organizations likewise evaluation to be used since they have a "strong culture" that is exceptionally dependable, efficient, and all-around combined (Saf-fold, 2018; Davenport, 2013). Performance is deeply established in a lot of fundamental guidelines, and innovators and supporters are skilled at achieving in any event, when there are shifted to conclusions (Black & Porter, 1996). This sort of consistency is an innovative reason for performance and internal mix that outcome from a common methodology and a high purpose of traditionalism (Senge, 2010). Third Flexibility: Inconsistently, organizations that are all around combined are as often as possible the hardest ones to change (Kanter, 2013). Internal modification and external change can frequently be at risk. Flexible organizations are dictated by their customers, takings chances and secure from their flaws, and have the capability at delivering change (Senge, 2010; Nadler, 1998).

Since they are constantly transforming an organization with the objective that they are refining the organization's shared abilities to convey an incentive for

their customers (Hair et al., 2014). Fourth Task/Mission: Organizations have a solid sensation of giving direction to organization objectives and goals and certain strategies that how the organization will show up later on (Ohmae, 2012; Hamel & Prahalad, 2014; Mintzberg, 2012,2014). These days organizations effort to achieve fast development, persistence improvement, and achievement for the future (Salas et al., 2014). These issues have delivered the organization to commit a great deal of money and time over the improvements to accomplish high performance. Positively, at this period that has been retitled the phase of transforming, accomplishing performance through direct conservative methodologies of the organization isn't possible, and organization is required to utilize the distinctive basic leadership strategies (Taslimi, 2015). In this way, to attain high organization performance, it is fundamental to characterize the impacts which changing the organizational performance (Irefin & Mechanic, 2014; Denision & Mishra, 1995). Here are a few clarifications of organizational culture is anticipated by numerous experts over the ages, however as a worry of truth, there are no generally recognized definitions (Ogbari & Borishade, 2015).

*H<sub>3</sub>: Organizational culture will positively significantly affect organizational performance*

## **2.8 Organizational Culture Mediates the Relationship between Total Quality Management and Organizational Performance**

Organizational culture is the set of the combined standards, opinions, and assessment of organizational members (Needle, 2014). Organizational culture plays a role in the organization by explaining and clarifying appropriate performance for



several positions in project-based organizations (Ravasi & Schultz, 2016). Therefore organizational culture consists of constancy, contribution, mission, and adaptability (Dension & Neale, 1996; Denison, 2000). The (Akintayo, 2010) clarification of organizational obligation contains a development to which the organization worker feels dedicated to their organization objectives whereas organization responsibility has been well- characterized as a similar advance of acknowledgment with the inclusion in the organization (Chamanifard, Nobarieidishe, & Nikpour, 2014).

Organizational responsibility contains continuum duty, passionate responsibility, and standardizing duty (Hersovite & Meyer, 2010). Organizational performance assessed as one of the simple thoughts in the organization and a better part of management's duties is formed by the specified belief. This amplification is associated with contributions just as produces and assigns that performance has near to implication with effort and its results (Nikpour, Chamanifard, & Chamanifard, 2014). Organizational performance is depending upon the number of achievements accomplished by all organizations staff so these trainings are associated with organization goals which base on the inside period (Lee, Khong, Ghista, & Rad, 2006).

The thought of organization performance is combined with the existence and accomplishment of organization goals (Shafiq, Lasrado, & Hafeez, 2019). Organizational performance contains skill, capability, success, greatness, and novelty (Tangen, 2014). Arumugam, Ooi, and Fong (2008) confirmed that complete measurements of organizational culture are rightfully connected with the enhancements of organization employees towards organizational accountability. (Bonaparte, 2018) conveyed that organizational obligation impacts organizational performance. Many past researchers declared that organizational culture; put an impact on organization commitment because the outcomes of organizational culture are the responsibility of organization members to observe the level of organizational culture impact on organization performance (Zainol, Daud, Shamsu, Abubakar, & Halim, 2018).

Ahmad (2012) indicated that employee performance affects organizational performance. Kotter (2008) marked that organizational culture has the fitness to increase organizational performance so positive attention to organizational culture increases employee tasks (Lauture, Amewokunu, Lewis, & Lawson-Body, 2012). Shahzad, Luqman, Khan, and Shabbir (2012) guaranteed that organizational culture has a deep impact on organizational performance. Gharakhani et al. (2013) initiate that organization culture has a straight and important outcome of organization commitment so organization commitment put an impact on organization performance (Kassicieh & Yourstone, 1998). Ahmed and Shafiq (2014) determined that organizational culture by the entirety of its measurements influences unique perspectives of organizational performance so indicated that organizational performance is improved by worker commitment (Irefin & Mechanic, 2014).

Nahm et al. (2004) reanalyzed that organizational culture's put an effect on organizational performance and also on time-based manufacturing. Culture is a convention of significant beliefs and individuals from the network which share or concur and empower the organization to depict and comprehend the credibility and plan the idea of the organization (Morgeson, DeRue, & Karam, 2010; Peteraf, 1993). Culture is an outer variable that originates from outside of the organization (Nganga & Nyongesa, 2012). The organizational culture can be well-characterized as it is the arrangement of morals, conviction, and norms that help and guide how the organization work should be possible (Martinez-Lorente et al., 2014). Organizational culture is dependent on Schein's hierarchy so Schein clarifies the hierarchy of aircraft features the assumptions, takes up qualities to quantify organizational culture (Schein, 2010).

Organizational culture's role in transforming information in a project-based organization so Barney expressed that culture as an incredible impact on the organization's performance, and it is the most significant component which affects project achievement (Ajmal & Koskinen, 2018). Streets & Boundary portray that culture makes new thoughts, abilities, and support because Lin & Liu expressed that culture as emphatically effects on creativity and advancement. Here are few unique thoughts, approaches, apparatuses, and strategies that may be utilized to

continue the best quality level and help in consistent improvement in the organizations (Bendoly, 2016; Goas, et al., 2016; Zu, et al., 2008). Many researchers remind the point of attention towards the novelty of organization performance (Prajogo & McDermott, 2005; Prajogo et al., 2004; Martinez-Lorente et al., 2014).

Consequently, the performance of project managers in critical edge boosts the organization to raise himself with customer needs, to minimize the measures that don't deliver an incentive just as diminishing costs and time in the growth of original products (Kim, Park, & Miao, 2017). (Prajogo & Sohal, 2003) the organization carries on to apply TQM practices as an organization model in the upcoming future, particularly the organization's goal is to achieve a high level of innovation so extra reviews coordinated to various conclusions, speaking to that not all management practices of value are legally associated with performance (Ravichandran & Rai, 2000; Akhtar et al., 2014). TQM practices have been recognized by project managers as a change in the quality management technique presuming a significant role in the development of organization practices (Khan, 2000).

Sadikoglu and Zehir (2010) decided in their inspection that the affiliation among TQM and innovation is mediated with the performance of organization workers, positive practices of supervisors, worker satisfaction motivating them to be innovators with connection friendly to the client so these factors raising the powerful benefit for the organization moreover, the organization need for change and achieving high phases of fitness and performance to enable them to proceed, to contend and to exceed expectations, and to adjust in traditionalism with the surrounding environmentally friendly factors (Shafiq et al., 2019). TQM is additionally well-characterized as the practical approach to guarantee the development of the training that stayed preplanned; and is the best technique to stop challenges and from side to side motivating great performance and through the best utilization of the control strategies (Swais et al., 2011).

A critical review by past researchers recommends that usage of TQM recovers organization quality performance (Sabella et al., 2014) so it has been considered and projected in a few different traditions and begins that the organization model value

that the project managers with accurate practices, which best figure performance contrasts through the world (Baird et al., 2011; Singh et al., 2011; Prajogo et al., 2004). Various inspections have been lead to investigate the imaginable piece of organizational culture in the linking between organizational performance and TQM so TQM positively affects organizational performance (Sadikoglu & Olcay, 2014). The organization needed to maintain effective communication to put a positive impact on organizational culture and performance (Al-Swidi & Mahmood, 2012). Various organizations have understood the importance of organizational culture such as previous TQM usage may reveal normal elements of the imposing culture or supporting social change (Polat et al., 2011) so certain associated techniques with culture may increase social change and organizational rules, techniques, and procedures must emphasize on quality.

Every team member Al-Swidi and Mahmood (2012) in the organization needs to have a strong clear understanding and importance of quality in attaining their organization objectives and on an individual basis, every project team member needs to be aware of the wants and needs of the project client (Bakotic & Rogosic, 2015). The usage of client-based procedures of performance is significant so there is a requirement to improve strong communication with the usage of client-based procedures. There is a requirement to improve strong communication in highlighting the customer standards and beliefs that must be maintained by top management. The organization culture is all about a sequence of behavior and attitude which implemented by organization employees, and this series put an effect on its operations and its comfort (Belias & Koustelios, 2014). Although job satisfaction also associated with organization culture and this main reason the performance of the organization gets affected. In this research study, organization culture plays the role of mediator which clarifies both project management performance and project quality. Therefore if the employee is satisfied with their work and feels comfortable in the workplace this thing put a good impact on the organization culture and project quality and this impact divide positivity in all department of the organization. Although this is accepted that organizational culture influences the innovation process in the organization (Ling, 2003).

Many construction organizations face complex projects but they have trained staff to handle those projects that's why they don't hire new members because they take time to learn about project management and its processes. Therefore organizational culture supposed to have a positive influence on organizational performance (Wong, Cheung, & Wu, 2011). Since in this sort of culture, the staff is encouraged to connect with people and with full devotion achieve their tasks which give them a high level of happiness and satisfaction. The importance of time in completing projects depends on organization culture because every firm has its own culture, (Lewis, 2015). Although the researchers stated that organizational culture can make changes in project management related activities, organization performance-related issues, or in quality matters because of organizational culture as an influence on decision making, quality communication, and on the employed relationship (Naoum, 2015).

Therefore the three factors of organizational culture outcome positioning, innovation, and teamwork show a positive impact on project management practices, total quality management implementation, and organization performance (Baird et al., 2011). Hence three cultural aspects, consequence alignment, collaboration, and novelty show a significant positive affiliation with the project quality service and inclusive performance of the organization (Baird et al., 2011). Therefore one of the major effective functions of project management is communication which resolving the conflict of project participants and also helps out to understand the employee's culture.

***H<sub>4</sub>: Organizational culture will mediate the relationship between total quality management and organization performance***

## 2.9 Project Complexity Moderates the Relationship between Total Quality Management and Organizational Performance

When we used the term complexity is the measure of difficulty executing a complex production process combines all complex individual parts use three ways to solve risk challenges in the project resolve, reduce and identify because the understanding of unpredictability is a key the success factor for project management development (Luo et al., 2017). (Eric-Mcconnell, 2011) the associated plan gives a typical understanding of the TQM philosophy, methodology, and performance steps. You can utilize as extra rules for arranging your project activities that depend on the procedure so the point when we face complexity in projects how TQM utilizes a stage for improving the activities what steps will be used by the project manager. We should pursue (Plan- Do-Check-Action) in which we initially decide the issue of complexity after that we objectify the methodologies as indicated by the arrangement in the way of executing the plan we consistently check and in last we do the activity and guarantee that issue of the task is tackle and improvement in progress.

Therefore project manager secures a lot of devices and methods for arranging, watching, and settling possible issues. The strategy of TQM is a merger with project management the broad thoughts can be done in the basic developments, which are recorded under these and applied when we face complexity in our projects and how effectively we execute TQM practices:

- Firstly define the project problem and difficulties
- Create different tactical thinking
- Should know about the client demands
- Decide the requirements regarding quality

- Plan for contingency and risk response strategy
- Avoid and try to reduce waste
- Make and develop a constant improvement in strategy
- Decrease dissimilarities
- Maintain balance in the methodology
- Apply development procedure

(Hair et al., 2011) changed techniques for sorting out and understanding the project in conditions of high organizational complexity nature and high impossibility because hypothesis in regards to projects recognizes for considering project complexity. In current years, there has been increasingly more emphasis on the significance of persuasive experience in moving work (Din & Cheema, 2013). The idea of task complexity is frequently misunderstood (Dao et al., 2017) motivates precise research about a few complex areas. The possible group of work conveys theoretical formations and basic perspectives for the associated work in the specific foundation of project management. Task unpredictability is estimated as a crucial perspective in reviewing project frameworks. It conveys a shared language to associate troubles in the project. The idea (Hartono, Wijaya, & Arini, 2019) additionally proposes discriminating genuine methods of thinking about activities and arranging about likely ways to deal with troubles guarantee that an appropriate organization style ought to be chosen with a conclusion while in transit to work in a complex environment (Kim et al., 2017).

The complexity of the project is reflected across the board in certain positive activities when it is obvious to present important troubles to settle on viable decisions. Instead of this way of thinking project complexity nature agrees from existed experience that it is the unpredictability of certain activities (Cicmil et al., 2009; Geraldi et al., 2011). In this exploration study, we follow the definition expressed that describes project complexity nature with the level of difficulties to be met by project stakeholders while assuming effort and obligation of tasks (Hartono

et al., 2019). (Dao et al.,2017) extremely high complex project an extraordinary test for project managers because of the effort of understanding troubles nearby the affiliations among reasons and impacts the pure work brought together task segments and the presence of task weakness.

The task working definition contains both complex and troubling ideas with a feeling toward existed understanding. Likewise, this analysis decides to emphasize the review on two key highlights of project complexity i.e organization unpredictability and complexity, as coordinated by researchers, guarantee that changed basic leadership approaches may appropriate for managing changed features of uncertainty (Oehmen et al. 2015; Maylor et al. 2013; Maylor & Turner, 2016; Williams, 1999). The entire certainties and awareness of organizational culture must investigate the conduct of an organization which supports to achieve and lead (Rahman, and Qureshi, 2012). Fang (2012) utilized the word organization culture the first run through the hypothetical review for his exploration study in the paper of Managerial Science Quarterly.

The organization needs to perceive the principles and appraisals for organization workers (Jimoh, Oyewobi, Isa, & Waziri, 2019; Nguyen & Watanabe, 2017; Salas et al., 2014). It must be needed that organization culture ought to be settled in a manner to improve the style of organization worker's performance and constant advancement in the quality standards (Ebrahimi, Wei, & Rad, 2015). Organizational performance refers to the level of satisfaction of the undertaking in the work environment that builds employee job performance (Shehu et al., 2014). Haffar et al. (2019) expressed that organization performance is the skill to accomplish its goal capably and skillfully utilizing resources. (Cameron & Quinn, 2013) prescribed that organization's prosperity shows an exceptional profit on value and this comes to be likely because of the establishing of good organization employee performance framework.

TQM base on a persistent improvement process with a featuring on individuals and their collaboration and awareness of continuous change. In this manner, TQM is a joined work for achieving aggressive advantage by endlessly improving each part of the organization's achievements (Valmohammadi & Roshanzamir, 2015). Haffar et



al. (2019) saw that the nature of human resources assumes an important job in the implementation of TQM. The research study on project complexity is becoming more familiar researchers trying to emphasis on this matter using different stages, ranging from simple grouping by types in relations of their belongings, by using complex systems theory to gain and improve a well understanding in terms of their behaviors (Geraldi & Adlbrecht, 2007).

Therefore the complexity in projects can be identified with certain factors deficiency of leadership style of project managers. Although communication is the main factor in a complex project which also put an effect on project quality, project management processes, and organization performance. Many past researchers declare that if we want to handle our projects according to standards of project management then the project manager of the organization needs to maintain communication to improve the organization's performance. Hence complexity regarded as a key characteristic of project management (Hanisch & Wald, 2014).

The project complexity act as a moderator between total quality management and organization performance and the complexity of the project has some features i.e. uncertainties, project scope, task diversity, and technology these features have been researched to explain the dissimilarities in the project-based organization performance (Bolman & Deal, 2008). The complex projects can be removed on time if the project manager understands the circumstance of project failure or poor project performances due to projects complex nature this can only be overwhelmed if workers hired have one or at least both skills i.e. political or social (Zuo et al., 2018). Therefore, the project leaders can also take advantage of their social and economic skills to enhance social networks, and also from their skills they can handle complex projects.

*H<sub>5</sub>: Project Complexity moderates the relationship between total quality management and organizational performance; such as if project complexity is high then the association between total quality management and organizational performance would be strengthened.*

## 2.10 Research Model

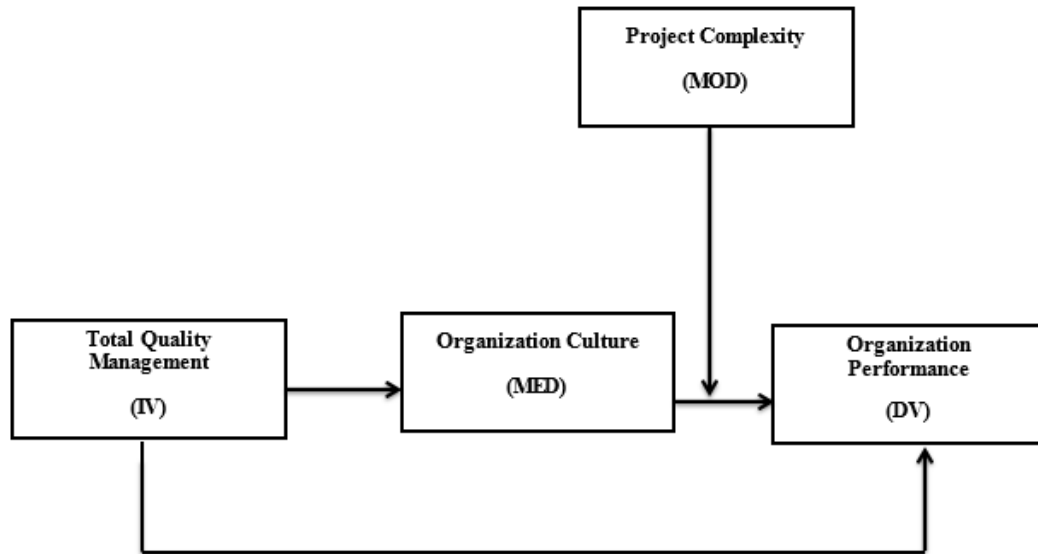


FIGURE 2.1: Research Model of Total Quality Management Impact on Organization Performance: Moderation of Project Complexity and Mediation of Organization Culture

## 2.11 Research Hypotheses

**H<sub>1</sub>:** *Total quality management will positively significantly affect organizational performance.*

**H<sub>2</sub>:** *Total quality management will positively significantly affect organizational culture.*

**H<sub>3</sub>:** *Organizational culture will positively significantly affect organizational performance.*

**H<sub>4</sub>:** *Organizational culture will mediate the relationship between total quality management and organization performance.*

**H<sub>5</sub>:** *Project Complexity moderates the association between total quality management and organizational performance; such as if project complexity is high then the association between total quality management and organizational performance would be strengthened.*

# Chapter 3

## Research Methodology

Chapter 3 emphasizes on all the procedures and methods which is used to get the most reliable outcomes for the research. This chapter includes the particular details of population sampling, design of sample techniques, then we also put the focus on characteristics of the sample and we used certain instruments with their reliabilities for checking the hypothesis accepted or rejected.

### 3.1 Research Study Design

The present research study's main objective is to highlight the effect of total quality management on the performance of the organization therefore correlation study has been conducted. This research study is based on hypothesis testing and is deductive. Therefore multiple factors put an effect on result and organization performance so we use correlational study. This study is based on quantitative field research. Therefore the data has been collected from team members who are working in teams in a group of projects in the IT and Telecom sectors. Through the survey being the unit of analysis in Pakistan. Nature where the research study is cross-sectional where the collected data will be examined in one time and one-time lag has been used to decrease common method bias.

## 3.2 Research Population and Sampling

### 3.2.1 Population and Sampling

The research study's main focus is on the employees working in IT and Telecom manufacturing of Pakistan. Therefore, the data sample was carefully chosen from the several firms presently operating in Islamabad and Rawalpindi. Although, the reason to choose the IT and Telecom industry is that several projects are running in diverse fields such as virtual furniture showroom, 3D online gaming, online gaming lounge, etc. IT and telecom sector make stronger the Pakistan economy, through inspiring and dragging foreign stakeholders and this industry play a role in supporting the universal greeting of Pakistan as a developing country.

The research respondents are mostly connected from the project-based organization of Pakistan working in the middle management tiers of the organization and most of the population working in these links. Therefore self-administered questionnaires were straight circulated to them so, that is possible will fill them as stated by their real work backgrounds. Hence, respondents were requested to fill up the survey questions anonymously ensure the privacy of their data, and manage the least possible bias as well.

### 3.2.2 Sampling Technique

Many organizations don't share information with us due to privacy issues. Therefore, we use a convenience sampling technique for collecting our research data. This convenience sampling technique is non-probability and non-random sampling in which easy accessibility to target large populations, it's affordable and readily available (Etikan, Musa, & Alkassim, 2016). Hence, 300 questionnaires are distributed some distributed through Google form online whereas, some distributed physically in Pakistan. Although, a questionnaire distributed among foreign respondents through joining the Facebook page and over their upload questionnaire and request respondent to fill that questionnaire and get 70 questionnaires back-filled by foreign respondents.

### 3.2.3 Sample Size

The 300 questionnaires were distributed in several offices crosswise cities and all 300 filled questionnaires are received from respondents and on those 300 responses we did further result in analysis. The main reason for selecting of 300 sample size is when you collect data on a large sample size you get accurate mean values so this the reason 300 sample size is chosen. The sample size formula we use for calculation.

Required sample size (n) = (Z-score) \* Standard Deviation (1 SD) / Margin of error Z-score was in use at 90% (1.645) and standard deviation was taken at 0.5, however, margin of error was in use at confidence interval +/- 5%.

## 3.3 Sample Characteristics

To know the more understanding regarding respondents the author asked them several questions to respondents regarding demographics. Every research studies require different demographics so according to the topic we conducted research. Therefore in this research age, gender, qualification, experience, and income were used as demographics. Two types of a questionnaire distributed among project leaders and employees so, the employees fill the questionnaire for leaders whereas leaders fill the questionnaire for employees.

The demographics might put an impact on the study and also on variables relation. The details of sample characteristics describe below:

### 3.3.1 Gender

Gender is one of the demographics and it is the most important demographics because in gender we face always some sort of discrimination so what the author tried that both types of gender get the chance on equality basis. The data is collected purely on equality basis and individually we collect data and the number of people such as females and males both participate efficiently and especially

female gender give their responses with full confidence and according to the data we collected the female percentage is high as compared to the male gender.

TABLE 3.1: Frequency of Gender

<b>Gender</b>	<b>Frequency</b>	<b>Rate Percent %</b>
<b>Male</b>	131	43.7
<b>Female</b>	169	56.3
<b>Total</b>	300	100

Table 3.1 shows that 43.7% of males as respondents fill the survey questions and 56.3% of female respondents fill the survey questions.

### 3.3.2 Age

Age is one of the most important demographics in which respondents fill the age section according to their ages and this is the most convenience purpose both for respondents and as well as for researchers. Age section gives an overview that respondents who fill the survey questions are basically of which age group then according to that we analyze data individually according to the respondent which involved in the research. The research respondents fitted in the following age group.

TABLE 3.2: Frequency of Age

<b>Age</b>	<b>Frequency</b>	<b>Percent</b>
<b>18-25</b>	173	57.7
<b>26-33</b>	88	29.3
<b>34-41</b>	26	8.7
<b>42-49</b>	9	3
<b>50 or Above</b>	4	1.3
<b>Total</b>	300	100.0

In Table 3.2 we focus on the respondent's age group because according to the age group we make a set and after that, we do analysis of each age group of respondents views regarding survey the age group is shown in the above table is 18-25 age group series in which shows the 57.7% of respondents, where 26-33 age group series in which shows the 29.3% of respondents as well as 34-41 age group series having 8.7% respondents and 42-49 age group series having 3% respondents and in the last we have 50 or above 50 age group series 1.3% respondents.

### 3.3.3 Qualification

Qualification is one of the most important parts of survey questions because qualification shows that when respondent fill the questions and they fill the qualification section according to their education than at the end when we do data analysis we come to know that how many qualified and educated people fill our questionnaire and according to that this thing helps us to know that how much-qualified respondents participate in our survey.

TABLE 3.3: Frequency of Qualification

Qualification	Frequency	Percent
Matric	9	3
Inter	6	2
Bachelors	148	49.3
Masters	104	34.7
M.Phil.	20	6.7
PhD	13	4.3
<b>Total</b>	<b>300</b>	<b>100</b>

The above table of a qualification shows that 3% of respondents having matric qualifications, 2% of respondents having Inter qualification as well as 49.3 respondents having bachelor's qualification and 34.7% respondents having Master qualifications or 6.7% respondents having M.Phil. Qualifications and 4.3% of respondents having Ph.D. qualifications.

### 3.3.4 Experience

Experience is the main part of demographics it depends that how much-experienced individuals fill the survey because it helps us in analysis to get to know that how much experienced and experienced people fill our survey questions.

TABLE 3.4: Frequency of Experience

Experience	Frequency	Percent
<b>0-5</b>	214	71.3
<b>6-10</b>	41	13.6
<b>11-15</b>	22	7.4
<b>16-20</b>	7	2.3
<b>20-25</b>	10	3.4
<b>25 or Above</b>	6	2
<b>Total</b>	300	100

In the above Table 3.4 71.3% of respondents having experience 0-5,13.6% respondents having 6-10 experience as well as 7.4 respondents having 11-15 experience and 2.3% respondents having 15-20 experience and 3.4% respondents having 20-25 experience and at the last 2% respondents having 25 or above experience.



### 3.3.5 Income

Income is also further added in a demographic section of the survey questions which remained used to support understand well about the entities that were participating in the research survey questions. The following answers on this base are seen.

TABLE 3.5: Frequency of Income

Income	Frequency	Percent
<b>25K-50K</b>	219	73
<b>50K-75K</b>	39	13
<b>75K-100K</b>	17	5.6
<b>100K-200K</b>	25	8.3
<b>Total</b>	300	100

In the overhead table 3.5 shows that 73% respondents have income between 25K-50K and 13% respondents having income between 50K-75K as well as 5.6% respondents having income between 75K-100K where as 8.3% respondents having income between 100K-200K and above.

## 3.4 Data Collection

The main primary reason for collecting data was to distribute a questionnaire in a structured form. The data was collected from those people who work in a project-based organization and they had knowledge about project requirements and project environments and they also know about the other further requirements we needed in the project success phase. Before distributing the questionnaire we make sure the person should know about the project and they also affiliated with or working with the project-based organization. The self-administrated paper and

pencil survey was directed where organization managers and employees fill the questionnaire by hand on the spot. 400 questionnaires circulated among people and 350 were valid and remaining responses were are invalid so discarded due to the improper filing of information. As the questionnaire is distributed in Pakistan as well as distributed between foreign students and professionals so the English language was used in a questionnaire so can every person can understand it. The full security was given to respondents regarding information that was filled by the respondents. In an online survey we not used over there the self-administrated method.

## **3.5 Instrumentation**

### **3.5.1 Measures**

The survey questions contained two sections and consist of two kinds of the questionnaire. The first section of the questionnaire consists of gender, age, qualification, income, and experience. The second section of the questionnaire consists of variables questions and variables are total quality management, organizational performance, organizational culture, and project complexity. The first section of questionnaire filled by manager and employees and they ask questions about how total quality management practices play important role in project performance as well as in organization performance and how culture put impact on organization and performance and how senior manager as a leader tackle the complexity of project these questions are asked by the leaders and the employees in the second section of questionnaire. The other kind of questionnaire as to be filled by the leader and they filled the questionnaire by asking the questions that how as a leader they maintain and adapt which culture dimensions so that their employees perform well in the project. The items of the questionnaire adopt from various sources. The questionnaire is developed on 5 Likert Scale and respondents had to answer according to that scale and the scale ranges according to 5 Likert Scale “1=stronglydisagree, 2=disagree, 3=neutral, 4=agree and 5=stronglyagree”.

These “5 Likert Scale” is approved by using or running a reliability test on these scales.

### **3.5.1.1 Total Quality Management**

The TQM independent variable scale contained 18 items, used by (Sebastianelli & Tamimi, 2003). These items information base on organization performance, customer satisfaction, organization culture, and employee training.

This type of information is in-sightful or instinctive if they predict events, is active and will be able to take action on total quality management related activities. The respondents showed their greatness of agreeableness by filling the respective choices from 1 to 5. Where the 1 scale shows the strongly disagreed and 5 scale shows the strongly agreed. data collection methods”, and ”Ultimately to update the ever-evolving performance measures, structures and processes that apprise such measures, need to be examined regularly”.

### **3.5.1.2 Organizational Performance**

The organizational performance consists of 5 items used by (Lee-Kelley & Kin Leong, 2003). The items of organizational performance consist of information that what changes they adopt to maintain and improve their organization performance. The respondents showed their greatness of agreeableness by filling the respective choices from 1 to 5. Where the 1 scale shows the strongly disagreed and 5 scale shows the strongly agreed. data collection methods”, and ”Ultimately to update the ever-evolving performance measures, structures and processes that apprise such measures, need to be examined regularly”.

### **3.5.1.3 Organizational Culture**

The organizational culture consists of 17 items used by (Dension & Neale, 1996; Denison, 2000). The organizational culture variable items consist of culture rules, policies especially the environment in which organizations providing their employees how much they rank their organization according to their culture in which

they are working scales we set in our questionnaire according to that scales every respondent rank their organization culture. The respondents showed their greatness of agreeableness by filling the respective choices from 1 to 5. Where the 1 scale shows the strongly disagreed and 5 scale shows the strongly agreed. data collection methods”, and “Ultimately to update the ever-evolving performance measures, structures and processes that apprise such measures, need to be examined regularly”.

### 3.5.1.4 Project Complexity

Project complexity measured by using the 15 items which are used by (Xia and Lee, 2005). The sample items consist of project complexity consist that what is the main reason of complex projects and how the organization tackling their complexity what tools and techniques they are using to handle complex projects and how the organization employees rank their organization according to the scales that how much the organization motive their employees when the complex projects come across. The respondents showed their greatness of agreeableness by filling the respective choices from 1 to 5. Where the 1 scale shows the strongly disagreed and 5 scale shows the strongly agreed. data collection methods”, and “Ultimately to update the ever-evolving performance measures, structures and processes that apprise such measures, need to be examined regularly”.

TABLE 3.6: Instruments.

No	Variable	Source	Items
1	Total Quality Management (IV)	(Sebastianelli & Tamimi, 2003)	18
2	Organizational Performance (DV)	(Lee-Kelley & Kin Leong, 2003)	5
3	Organizational Culture (Med)	(Dension & Neale, 1996; Denison, 2000)	17
4	Project Complexity (Mod)	(Xia & Lee, 2005)	15

### 3.6 Statistical Tool

We studied the affiliation between a dependent variable and an independent variable whereas the TQM is the independent variable and organizational performance, as the dependent variable for testing this relationship between these variables we perform a test by using linear regression analysis. While using the test of regression analysis we see how different factors put an impact on the dependent variable. The regression analysis test shows how variables relationship and result put an impact on the literature and the hypothesis whether the hypothesis accepted or rejected. After regression analysis, we used the [Preacher and Hayes \(2013\)](#) method for mediation and moderation analysis as there are many models proposed by Preacher and Hayes in our research for mediation analysis we use model 4 and for moderation we use model 1 for analysis. The process of mediation and moderation analysis has to be done distinctly. Though, both include three phases. In the first phase, we put the dependent variable in the outcome column i.e. organizational performance. Independent variable i.e. total quality management is put in IV column. After that control variable column permits the researcher to put altogether demographics. For measuring, testing and for analysis, we used the measurement model IBM AMOS has been used. Through fit statistics, the models were examined which contain various indices CFI, GFI, RMSEA, and AGFI. The RMSEA test model goodness, by the population covariance matrix.

The values of threshold RMSEA differ according to various authors. According to ([MacCallum, Browne, & Sugawara, 1996](#)), a value equivalent to 0.10 or less is acceptable or accurate. While, according to ([Schumacker & Lomax, 2012](#)) value less than 0.05 is considered and measured as the best model fit. The CFI acceptable range is 0-1 where values that are near to 1 signifies good model fit and values which is less or below 0.90, is considered poor model fit whereas, value above or high than 0.90 is acceptable.

The acceptable range of GFI also lies among 0 to 1 where a value below or less than 0.80 is considered a poor model fit and value above or high than 0.80 is acceptable. Likewise, the acceptable range of AGFI is 0-1. Values must be almost

near or close to 1 for a good model fit. Just like the value of AGFI below or less than 0.80 is considered a poor model fit and above or high then 0.80 is acceptable.

### **3.7 Pilot Testing**

The assurance of research viability the scholars conducted a study which is called a pilot study. [Abbas \(2011\)](#) confirms the main importance of pilot study and pilot testing as "authentication of the feasibility of the unique research, from time to time prove the practical existence and research application and to discover the nature of the data we collected and then compared that data to the research objectives"(p.119). The first section A consists of 5 items and section B consist of 55 items all items are comprised of a "5 Likert Scale ". As well as these scales measured four variables such as total quality management, organizational performance, organizational culture, and project complexity.

To avoid certain risks which can be time risk or resource risk to avoid wastage of this thing pilot testing considered being the most operational and practical approach. We distributed almost 30 questionnaires just to test the pilot testing. This thing helps us to confirm that the study outcome is a similar planned hypothesis or not.

The result we get in the form of output and the result confirmed that the 5 Likert Scale we used in our study is reliable and there is no important issue in the variables.

### **3.8 Reliability Analysis Used for Scales**

The reliability analysis method we used for the testing item or scale and when we test the item and scales several times we get the output every time reliable again and again. The meaning of reliability scale is that scale as an ability to give reliable outcomes again and again when it is tested a lot of times. Reliability is tested through Cronbach alpha in this study, and which also shows the reliability of a

single theory or construct and internal variable reliability as well as the relationship between variables. The Cronbach alpha range starts from 0 to 1. If the value is smaller than its mean less reliability and if the value is bigger than its mean high reliability. The Cronbach alpha value in this study is below 0.7 it means having less reliability and if the value is above 0.7 then it's mean high reliability.

TABLE 3.7: Reliability scale of Cronbach's Alpha

Variables	Cronbach's Alpha	Items
<b>Total Quality Management</b>	0.748	18
<b>Organizational Performance</b>	0.773	5
<b>Organizational Culture</b>	0.889	17
<b>Project Complexity</b>	0.891	15

### 3.9 Data Analysis Methods

The SPSS 23 and SPSS AMOS 20 are used for testing that data which is collected by us and further we examined by using SPSS software for the examination of collected data. Below are the following steps which we follow for testing our results which is the part of our complete process:

- In the first step, we collect the data according to the sample size which is 300 and after distributing the questionnaire we collect the respondent responses.
- In the second step, we coded the demographics items and variable items of the questionnaire
- In the third step, we list the characteristics of sample data by using the frequency analysis and explained the frequency of each data in the form of tables.

- 
- In the fourth step we perform the descriptive statistics analysis for briefly display the summary of the data sample and done certain measures in a particular study we perform quantitative data analysis.
  - In the fifth step, we use the reliability test to check the data reliability so we used, Cronbach alpha for reliability testing.
  - In the sixth step for checking or testing the measurement of the model, we used the CFA (Confirmatory factor analysis) through using the IBM SPSS AMOS 20.
  - In the seventh step to check the relationship between variables, we use correlation analysis.
  - In eight steps we used the linear regression analysis, to check the affiliation among dependent variable and independent variable whereas in our study TQM is the independent variable and organization performance act as the dependent variable in our study.
  - In the ninth step, we use the Preacher and Hayes process moderation analysis and mediation analysis in our study we use model 1 for moderation analysis and for mediation analysis we use model 4.
  - In the tenth step we check the hypothesis acceptance and rejection so in this case, we use correlation analysis and Preacher and Hayes process



# Chapter 4

## Results

Chapter 4 consists of results that having complete detailed measurement and statistics of the following: Mean and Standard deviation, correlation analysis, regression analysis with moderation and mediation analysis by using Preacher and Hayes process for both mediation and moderation analysis separately. The results of the analysis and statistics describe that the hypothesis of our present study is accepted or rejected. The software we use for analysis in our results if IBM SPSS 23 and SPSS stand for a numerical package for social sciences. Whereas, for confirmatory factor analysis for all latent variables that is a comprised manual of SPSS we use IBM AMOS 20 for further analysis of the model.

### 4.1 Descriptive Statistics Analysis

The descriptive testing shows the significant facts of information of the four variables we use in our research study i.e. Total quality management, Organizational performance, Organizational culture, and Project complexity. Whereas, the descriptive statistics is the concise information of the whole complete data. In descriptive statistics, we include the entire respondent's total number, each variable minimum and maximum value, and each variable mean and standard deviation.

The responses average is defined by standard deviation value and mean value that proves the change of responses from their mean.

TABLE 4.1: Descriptive Analysis with a Mean and Standard Deviation

	N	Minimum Value	Maximum Value	Mean	Standard Deviation
<b>Total Quality Management</b>	300	1.67	4.78	3.3994	0.39907
<b>Organizational Performance</b>	300	1.20	5.00	3.4647	0.66621
<b>Organizational Culture</b>	300	1.53	5.00	3.5431	0.56362
<b>Project Complexity</b>	300	1.00	5.00	3.4831	0.58223

Table 4.1 having information regarding all four variables in separate columns. Suppose, in the first column we having information about variables and in the next five columns, we have detailed data in contradiction of all each variable.

In table 4.1 shows the sample size of 300 for all four variables. Although, every variable is rated according to the “5 Likert Scale”, in which 1 scale signifies “strongly-disagree” and 5 scales signifies “strongly-agree”, in this way we rated the variable scale. The mean and standard deviation describe the main point of responses. Essentially this is the opinion of respondents about each specific variable. The TQM mean value is, 3.39 and its standard deviation, value are 0.39.

The organizational performance mean value is, 3.46 while the standard deviation, value is 0.66. The organizational culture means the value is, 3.54 and its standard deviation, value is 0.56. Now the last variable i.e. Project Complexity, its mean and standard deviation values are 3.4831 and 0.58 correspondingly.

## 4.2 Control Variables

We utilized age, gender, qualification, experience and income as control variables and what further impact these control variables put on the dependent variable that is organizational performance. One-way ANOVA, the test was executed to

show the significance. To check the difference we used One-way Anova, test. In the below table 4.2 shows all the control variables gender, age, qualification, experience, and income and their effect on a dependent variable by showing ( $p > 0.05$ ) and how much significant effect they put on our model.

Table 4.2 shows that gender remains significant for organization performance ( $p=0.494$ ). Similarly age is also significant with the values like ( $p=0.257$ ) for organization performance. Therefore experience has significant impact on the dependent variable organization performance with the values ( $p=0.031$ ). Whereas qualification has value ( $p=0.114$ ) which put significant impact on variable. Income has value ( $p=0.240$ ) which also put significant impact on organization performance. In this research study all variable are significant except moderator which shows demographic play a dynamic role in getting the answer.

TABLE 4.2: Control Variables

Variables	Organizational Performance	
	F Value	Sig.
<b>Gender</b>	0.469	0.494
<b>Age</b>	1.335	0.257
<b>Experience</b>	1.981	0.031
<b>Qualification</b>	1.793	0.114
<b>Income</b>	0.134	0.240

### 4.3 Correlation Analysis

Correlation analysis authenticates the relationship between different variables. The main purpose of correlation analysis, in our study, is to examine the affiliation between TQM as an independent variable, and organizational performance (OP), as a dependent variable the organizational culture (OC) as mediating variable and moderating variable project complexity. This study will describe the relationship strength and weaknesses. On the value of correlation, the results depend. There is no affiliation among the variables if the value is 0. While, if some value away from

0 proves a negative or positive relation. Whereas, for understanding the nature of the relationship we analyzed positive and negative signs. A positive sign specifies relation which is directly connected with one variable which increases another variable. Whereas, the negative sign shows a relation which indirectly increases one variable and would cause a decrease in the other variable. Therefore, with correlation analysis we test the demographics result so that we able to check the significance level through which we test the model variable. So, in the below table 4.3 we display the results of correlation and demographics to check the result significance. Whereas, after testing the demographics through correlation analysis we come up with results which mention in table 4.3.

TABLE 4.3: Correlation and Demographics Analysis

S.No	Variables	1	2	3	4	5	6	7	8	9
1	Gender	1								
2	Age	0.006	1							
3	Qualification	0.101	0.241**	1						
4	Experience	0.031	0.573**	0.072	1					
5	Income	1.96**	0.367**	0.175**	0.290**	1				
6	TQM	1.95**	0.345**	0.122**	0.311**	0.296**	1			
7	OP	0.451**	0.234**	0.332**	0.211**	0.231**	0.121**	1		
8	OC	0.543**	0.599**	0.346**	0.532**	0.456**	0.435**	0.100**	1	
9	PC	0.528**	0.396**	0.537**	0.267**	0.397**	0.520**	0.501**	0.537**	1

Correlation at the 0.01 level is Significant (2-tailed). N=300, \*p < 0.05; \*\*p < 0.01.

In table 4.3 the values of correlation display the significant and positive relationship among variables. The value analysis one by one, so we can that total quality management and Analyzing the values one by one, we can see that Total quality management (TQM), and Organizational Performance (OP), has a value of  $r = 0.451^{**}$ , at  $p < 0.01$ . Organizational culture (OC) also has positive link with Total

quality management (TQM) with  $r = 0.543^{**}$  at  $p < 0.01$ . Similarly, there is a positive relation, between Total quality management and Project complexity as  $r = 0.528^{**}$  and  $p < 0.01$ . OC and OP, whereas OC is organization culture and OP is organization performance which is also positively and strongly associated as  $r = 0.396$  at  $p < 0.01$ . The value of  $r$  for Project complexity and Organizational Performance is  $0.537$  which shows they are positively associated. Lastly, the connection between Project complexity and Organizational culture is also positive and significant as  $r = 0.599$  at  $p < 0.01$ .

#### 4.4 Regression Analysis

The correlation analysis shows the existence of affiliation between four variables but it doesn't show the link of the relations. Whereas, we have gone through the analysis which is called a correlation analysis which shows the presence of relations between the four variables. However, this is not suitable for research purposes, so here we needed regression analysis. The regression analysis shows how much one variable is authenticated to another variable. Regression analysis validates the need for variables on each other. The Preacher and Hayes, 2013 method for regression analysis is used for mediation and moderation analysis. Model 14 is used to check the mediating and moderating effect of organizational culture and project complexity on other variables. Furthest as our model is mediated moderation model so for that reason Preacher and Hayes model 14 was utilized.

We do regression analysis to check the overall model is significant or not, so total quality management and organization performance beta co-efficient value is  $0.446$ ,  $R^2 = 0.190$  with the  $p$ -value =  $0.000$ . This analysis show total quality management and organization performance has significant relationship so it means direct relationship between total quality management and organization performance. Therefore confidently said that the hypothesis 1 is accepted. Therefore H2 hypothesis gets tested that total quality management is positively connected with organizational culture. Therefore according to the results of regression analysis exposed that there is significant and positive affiliation occurs between total

quality management and organization culture. The beta coefficient value is 0.546,  $R^2 = 0.290$  with the p-value = 0.000. The value of  $R^2$  shows how close data is fitted to the regression line whereas  $\beta$  value indicates the degree of change that 1 unit change in total quality management leads to 0.546 unit change in organization performance. Although, the p-value of 0.000 shows that the affiliation between variables is highly significant. So hypothesis 2 accepted.

Therefore H3 hypothesis result analysis declared that organization culture positively connected with organization performance. Therefore according to the results of regression analysis exposed that there is significant and positive affiliation occurs between organizational culture and organizational performance. The beta co-efficient value is 0.600,  $R^2 = 0.358$  with the p-value = 0.000. The value of  $R^2$  shows how close data is fitted to the regression line whereas  $\beta$  value indicates the degree of change that 1 unit change in total quality management leads to 0.600 unit change in organization performance. Although, the p-value of 0.000 shows that the affiliation between variables is highly significant. Hereafter, Hypothesis 3 is positively accepted.

## 4.5 Mediation and Moderation

Mediation and moderation analyses were completed by using Preacher & Hayes, 2013 process macros. Therefore mediation analysis was done to examine organization culture as mediator between total quality management and organization performance. Further, moderation analysis was done to examine project complexity as moderator between organization culture and organization performance. Similarly, as our model is mediated moderation model so for that reason Preacher and Hayes model 14 was utilized.

TABLE 4.4: Mediation Regression Analysis

Predictor Organization Culture	$\beta$	SE	T	P	95%LLCI	95%ULCI
<b>Bootstrap Result for Indirect Effect</b>	0.790	.223	3.500	.0005	0.279	0.578

*Note.* Un-standardized regression coefficient stated. Bootstrap sample size 5000. LL =lower limit; CI = confidence interval; UL = upper limit.  $N=300$ , \* $P < .05$ ; \*\* $P < .01$

Hypothesis 4 states that organization culture will mediate the relation between total quality management and organization performance. Results in the table 4.4 providing strong explanation. Table 4.5 results showed that indirect effect of total quality management on organization performance has the lower level confidence interval and upper level confidence interval of 0.279 and 0.578 respectively. So both the ULCI and LLCI have same positive sign and there was no zero present between them. Therefore, we determine from here that mediator occurs. Therefore, Hypothesis fourth supported strongly that organization culture mediates the relationship between total quality management and organization performance.

TABLE 4.5: Moderation Regression Analysis

Predictor	Project Complexity	$\beta$	SE	T	P	95%LLCI	95%ULCI
<b>Interaction Terms</b>		-0.620	0.626	-0.990	0.33	-0.1853	0.0612

*Note.* Un-standardized regression coefficient stated. Bootstrap sample size 5000. LL =lower limit; CI = confidence interval; UL = upper limit. N=300, \*  $P < .05$ ; \*\*  $P < .01$

Hypothesis 5 states that project complexity does not moderate the relationship among total quality management and organization performance. Results in the table 4.5 providing strong explanation for hypothesis. The interaction term of “total quality management and project complexity” moderates on the relationship of organization performance have the lower level and upper level confidence interval of -0.1853 and 0.0612 respectively, so both sign are different this show it is insignificant zero present between them. However, interaction term showed negative and insignificant regression coefficient (B=-0.620,  $P < 0.5$ ) such that if project complexity is high then the association between total quality management and organization performance would be strengthened the relationship, so hypothesis fifth is not accepted.

## 4.6 Summary Hypothesis Accepted/Rejected

TABLE 4.6: Summary of hypothesis results

Hypothesis	Testimonials	Results
$H_1$	There is a positive and significant affiliation among TQM and OP	<b>Accepted</b>
$H_2$	There is a positive and significant affiliation among TQM and OC	<b>Accepted</b>
$H_3$	There is a positive and significant affiliation among OC and OP	<b>Accepted</b>
$H_4$	There is mediating role of OC between TQM and OP	<b>Accepted</b>
$H_5$	There is moderating impact of PC on the affiliation between TQM and OP	<b>Rejected</b>



# Chapter 5

## Discussion and Conclusion

### 5.1 Discussion

In our research study mainly focus on the relationship between total quality management and project management. Therefore this to find out the impact of total quality management on organization performance with the continuous improvement of project management practices in Pakistan. Therefore, according to the project management processes, we enhance the relationship of variables with each other whereas total quality management as an independent variable put an impact on dependent variable organization performance whereas organization culture as a mediator put an impact on total quality management and organization performance and project complexity as a moderator put a negative effect on total quality management on organization performance. Although, different IT project-based organizations selected like XVision, MTBC, and software house were selected for a population study. The data were analyzed using correlation and regression analysis using model 14 of Preacher and Hayes for mediation and moderation analysis through SPSS software. This research study is directly related to the project management perspective that how much this study variable effective for continuous improvement of project management in Pakistan.

Therefore, H1 hypothesis is accepted because there is a positive and significant affiliation among total quality management on organization performance so, in the

Pakistani context, if as project leader of organization face project quality issues and that time we take corrective action as a project leader or we give authority to our project team lead to take action behalf of project leader so this thing boost our organization or project performance and this action put a positive impact on project quality and organization performance. Whereas, H2 hypothesis is accepted there is a positive and significant affiliation among total quality management and organization culture so, if I relate this hypothesis in Pakistani context it's clear that organizational culture is the main factor of any success if you providing good friendly environment or workplace where employees feel comfortable motivated then they put there all efforts to give their best output so, when you face issues regarding project quality and that time if you give authority to project manager to take action on the right time you trust on the middle management then this thing put a positive impact on total quality management and organization culture. Therefore, H3 hypothesis is accepted that there is the positive impact of organization culture on organization performance because in Pakistan background if we focus on our organization culture we providing an atmosphere where employees feel relax without any stress they coming up with new ideas then this thing give benefit to the organizations and the project performance will defiantly go high the more your employees satisfy the more they give their input to give the best output in form of profit which organization gets so, that's why organization culture put a positive impact on organization performance. Whereas, the H4 hypothesis is accepted organization culture mediates between total quality management and organization performance. In Pakistan, if private and government project-based organization try to emphasize on a culture that every employee have some needs and want and as an organization leader we have to fulfill that needs then this thing motivate employees to accomplish their goals to whom they are committed so if an organization maintains culture then culture positively mediates between total quality management and organization performance. Since H5 hypothesis is rejected that project complexity put a negative impact on total quality management and organization performance because in Pakistani organization we sometimes avoid the complex uncertain issues of the project when its occur we do

not try to solve that issues with corrective measures then this thing put a negative impact on TQM and organization performance. Therefore many complex projects get late in schedule due to the many technical issues which put a negative impact on organization and project performance because it is the responsibility of the project management e to confirm the project schedule. Hence, organization success in projects also depends upon by the PMO and if project team members fail to encounter these standards' then again it put a negative impact on project management, project quality, and organization performance. The complete discussion of the entire hypothesis is as follows:

### **5.1.1 Hypothesis $H_1$ (Accepted): TQM as an (IV) positively significantly, associates with (DV) Organizational Performance**

Hypothesis 1 anticipated that independent variable TQM positively significantly associates with the dependent variable, OP, ( $\beta= 0.446$  and  $p=0.000$ ) this result confirmed that independent variable TQM, is positively significantly linked with the dependent variable OP. The value of  $\beta=0.446$  which shows that for one unit change in IV total quality management there will be 44% increases in the DV organizational performance. Therefore this hypothesis strongly accepted

Many kinds of literature supported this hypothesis because many researchers declare that TQM practices and implementation have a positive effect on OP. The [Prajogo et al. \(2004\)](#), indicated that total quality management and organization performance having positive relationships and it put a positive effect if TQM practices implemented effectively this thing enhance the organization's and employees' performance. [Sadikoglu and Zehir \(2010\)](#); [Brun \(2011\)](#) both researchers agree that if we put focus on customer management, give training regarding TQM practices and also do emphasis on process management that how we manage processes these things put a positive effect on employee performance and ultimately this thing put a positive significant impact on organization performance. Pakistan is one of the main countries which utilize the TQM practices and implementing effectively by

organizations this thing put a positive impact directly on organization performance because they using different methods to implement TQM practices, (Raja, Bodla, & Malik, 2011).

The many researchers stated in the literature (Greenslade & Jimmieson, 2007), described that the theory of Borman and Motowidlo's and their Performance theory, that propose the performances including the area of job performance, and it's having two types of performance job task performance, and background performance. The task performance, basically directly linked to that organizational practical core whereas, the contextual performance in which two behaviors sustain the organization's social background.

In Pakistan, framework quality is the most important thing which the organization nowadays focusing on because to accomplish the planning or meet the significant challenges of the market the organization needs to know the importance of TQM practices that's why TQM now today's world becoming important day by day. TQM in the service sector of the organization becoming an important part (Talib et al., 2012). The TQM having certain factors which are important to follow to achieve organizations goals and the factor is organization top management obligation, strategic scheduling, focus on customer demands and emphasis on the market, Analysis regarding information, emphasis on human resource and do also focus on process management.

TQM practices are a significant factor in achieving goals and improving the organization's performance and to reduce certain processes, services, and production just to improve efficiency and develop reliability in quality. The many past researchers declare that if TQM implements in an effective way this thing enhances the performance of the organization in different aspects.

Therefore, this hypothesis is concluded that TQM as an independent variable is positively significantly linked with the dependent variable (OP) organization performance, so this hypothesis is accepted.

### **5.1.2 Hypothesis $H_2$ (Accepted): TQM as independent variable positively significantly associates with mediating variable, (OC) Organizational Culture**

Hypothesis 2 anticipated that independent variable TQM as an independent variable, positively significantly associates through mediating variable (OC) organizational culture, ( $\beta = 0.546$  and  $p = 0.000$ ) it is confirmed that independent variable, TQM is positively significantly linked with mediating variable, organizational culture. The value of  $\beta = 0.546$ , which shows that for one unit change in IV total quality management there will be 54% increases in the MV organizational culture. Therefore this hypothesis is strongly accepted.

Organization culture considered being the most important factor which plays a significant role in achievement or failure, of TQM practices implementation (Kujala & Lillrank, 2004 & Metri, 2005). The organization culture support to TQM can provide a more conducive environment that covers the method of success in implementing TQM cited in (Baird et al., 2011). The organizational culture as a mediator put a positive impact on the TQM implementation because culture change or culture awareness can lead the TQM implementation successfully and it moves the quality toward excellence (Jabnoun & Sedrani, 2005). TQM practices as an independent variable are significantly positively influenced by the organization culture and each aspect of organizational culture is linked to TQM in different ways. The independent variable TQM needs an organizational culture where all individuals separately concerned with quality because in Pakistan now organizations as private or public taking more interest in quality implementation because quality considered being the most important factor in project success and for customer satisfaction, we have to maintain the best quality to produce quality products.

We mention in the below model that according to our study and hypothesis what

are the main factors which connect independent variable TQM and mediator organization culture. Therefore this hypothesis concluded that TQM as an independent variable is positively significantly associated with mediating variable organizational culture so this hypothesis is accepted.

Organizational Culture	Total Quality Management
Significant values	Emphasis on customers' demands
Support and Upgrade culture values	Emphasis on satisfying the needs of employees
Self-control values	Improving TQM process
Unrestricted style values	Managerial and methodological requirements of competitiveness

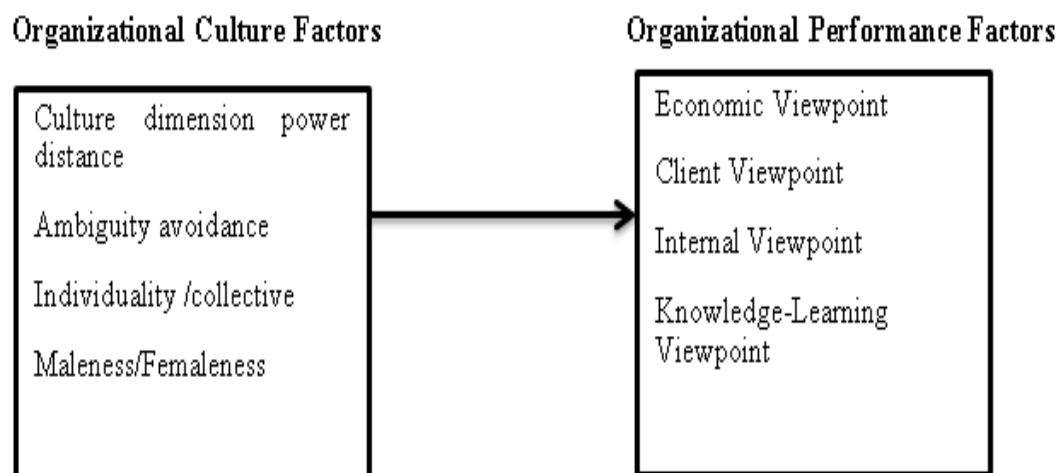
### 5.1.3 Hypothesis $H_3$ (Accepted): Organizational Culture mediating variable positively significantly associates with dependent variable Organizational Performance

Hypothesis 3 anticipated that organizational culture as a mediating variable positively significantly associates with organization performance as the dependent variable, ( $\beta = 0.600$  and  $p = 0.000$ ) it is confirmed that mediating variable organizational culture is positively significantly linked with organizational performance as the dependent variable. The value of  $\beta = 0.600$  which shows that for one unit change in MV organizational culture there will be 60% increases in the DV organizational performance. Therefore this hypothesis is strongly accepted.

The organization culture as a mediator significantly and positively connected to organizational performance, cited in (Hulya, 2009; Zheng et al., 2010). The strong culture put a positive impact on an organization employee's performance. Hence,

Organization culture is the set of traditional norms and values, which put an impact on employee and organization performance cited in (Schein, 2010).

The organization culture based on four factors which put impact on employee behavior; firstly we should have knowledge about organization culture, licenses employees to comprehend the history of culture, secondly organization raises the commitment towards organization values and idea, thirdly the organization culture control the behavior mechanism to direct the behaviors (Lunenburg, Bulach, & Potter, 2012). Therefore linking organization culture with organization performance we put an overview of certain factors which shown in below research model of OC and OP:



Therefore this hypothesis concluded that organizational culture positively associated with organization performance so this hypothesis is accepted.

#### **5.1.4 Hypothesis $H_4$ (Accepted): Organizational Culture mediating variable positively significantly associates between (IV) TQM and (DV), Organizational Performance**

Hypothesis 4 undertakes that organizational culture mediates the affiliation between the independent variable, TQM and dependent variable OP. The analysis of the result shows a positive and significant relationship between the mediating variable (MV) between IV and DV.

The indirect effect of TQM as an independent variable with dependent variable organizational performance through organizational culture has a lower limit of 0.279 and upper limit 0.578. Here is no zero among these two LLCI and ULCI values the bootstrapped having a 95% confidence interval. Results accept that mediating variable organizational culture plays a significant and positive role between (IV) TQM and (DV), organizational performance. Therefore this hypothesis is accepted.

Many organizations of Pakistan trying to adopt practices of TQM, to recover organization performance, in financial or non-financial form. Many studies declare significant and positive affiliation among TQM and OP, whereas organization culture plays a vital role between IV and DV. Organization culture is the only variable that explains the importance and success rate, of quality controlling cited in (Asif et al., 2009). The other several studies prove that organization culture as a significant impact on total quality management and organization performance cited in (Ebrahimi et al., 2015). (Prajogo & McDermott, 2011) inspect the affiliation between, OC and performance, and they find that the development of a strong culture is the analyst of performance and indicator connected to the product quality, process, and novelty. Many kinds of literature declare that organizational culture is the mixture of different definitions which include a mixture of different ideas, beliefs, and values, and these practices shared and apparent to organizational members in day to day work, cited in (Barbera & Schneider, 2014). Many researchers lead to change organization culture through implementation of TQM and TQM practices and implementation is very affected for organization culture cited in (McDermott 2005; Zu et al., 2010; Prajogo & Baird et al., 2011). Culture is considered to be the most supportive culture type in implementing successfully TQM cited in Baird et al., (2011).

Every organization having a different culture with different rules and policy which make it different from other organizations cited in (Reddy and Tripathi, 2008). Therefore, one of the main researchers (Ojo, 2010) stated in his study that (OC) organizational culture plays a significant role in organization performance, and correlate a positive relationship with other variables but, one of the other researchers



declare every culture dimension differ organization to organization cited in (Poku & Zakari, Ansah, 2013). Effective and strong culture put a positive impact on private and public organizations (Acar & Zafer, 2014). Organization culture has the potential to improve organization performance, employee satisfaction related to the job and other sense of solving certain problems cited in (Kotter, 2008).

Therefore concluded that organizational culture positively mediates among TQM and organization performance, and this hypothesis is accepted.

**5.1.5 Hypothesis  $H_5$  (Rejected): Project Complexity play a role of moderator which create an affiliation between TQM, and (OP) organizational performance; such as if project complexity is high then the association between TQM and (OP) organizational performance would be strengthened**

Hypothesis 5 projected that project complexity acts as a moderator among IV TQM and DV (OP) organizational performance, such that it strengthens the relationship between IV and DV. Though, the analysis of the results shows that project complexity as moderator does not act as moderate between the IV TQM and DV (OP) organizational performance, as the value of unstandardized regression analysis ( $\beta = 0.620$ ,  $t = 0.99$  and  $p = 0.33$ ).  $\beta$  represents a coefficient which shows that for every one-unit change in project complexity, it will bring a -62% change in the affiliation between (IV)TQM and (DV) OP. Therefore, the hypothesis project complexity acts as a moderator among (IV) TQM and (DV) (OP) organizational performance such that it strengthens the relationship between (IV) and (DV), so that why this hypothesis is rejected.

The main cause of quality failure or organization certain activities due to cost overrun or due to delays these things create complexity in the project (Turner & Zolin, 2012). The scholars lack both theoretical and empirical knowledge that how complexity put an impact on success, quality and performance cited in (Floricel

et al., 2016). Complexity is the main characteristic of projects (Hanisch & Wald, 2014; Burke & Morley, 2016). In temporary organizations, the goals and methods the uncertainty create complexity in projects (Wald & Pauget, 2013). The multiple and leading effects of operational complexity on project team performance cited (Wald & Hanisch, 2014).

The complexity effect on performance not empirically so much explored cited in (Morely & Burke, 2016). The project complexity as a weak and negative influence on efficiency and weakly positive influence on effect (Sicotte & Bourgault, 2008).

Many researchers declare that complexity occur due to the cost overrun, time and delay in delivery of activities and these things put impact on project quality and organization performance because somewhere complexity having certain factors which affecting the projects therefore, we do analysis we conclude that in construction projects we face poor time, cost and quality issues cited in (Berrio, 2003). The main project complexity factors are mention below:

- Intrinsic complexity
- Ambiguity
- Numerous technology
- Inflexibility of sequence
- Overlay of stages and concurrency
- Organizational intrinsic complexity

In an organization, project complexity is related to the people involved in the project and the affiliation between the project parties. The organization features depend upon the following factors which they face during the complexity of projects these are the factors which are the main cause of complexity.

- The poor relation between project-parties
- Due to the large number of project-shareholders

- Complications with customers
- Project-roles poorly defined
- Communication poor
- Decision-making poor

Removing complexity, at the early stage of the project then it will be easy to manage and organize the project. Therefore, this hypothesis shows that if complexity decrease then it strengthens the relationship and if complexity get high then it will weaken the relationship, according to this hypothesis project complexity moderates, the affiliation among (IV) TQM and (DV) organizational (OP) performance and this hypothesis concluded that project complexity does not act as moderator between IV and DV, so this hypothesis is rejected.

Therefore, project management practices capabilities turn into success (Othman, 2013; Dias et al., 2014) whereas, complexities generate problems to manage the projects cited in (Ejaz et al., 2013). Project complexities increasing due to time because project management implementation in a vibrant environment getting challenging because of every stakeholder as its point of view and due to uncertain challenges these things create complexities in projects (Shah et al., 2011). Therefore the project managers who have strong competencies and grip to control the complexities of the project then only make success in project performance (Bosch Rekveldt et al., 2011).

Although, if we talk about developing countries like Pakistan they facing low-level expertise and competencies in the project management domain (Rehman, 2007; Ali, 2010). The other reason for project failure in the quality side due to improper planning this thing creating hurdles and that's why projects getting delay not completed in time (Mubin et al., 2011). Therefore, for example, quoted over here due to rejection of Hypothesis 5 the New Islamabad International Airport Project facing a lot of issues, complexities regarding the project management domain (Ejaz et al., 2013). In Pakistan, the construction industry is the only one facing several issues regarding project management they don't have approaches techniques to handle project performance (Nawaz et al., 2013).

If we overview our project-based organization in the public sector they facing a lot of problems in projects they can improve their issues by engaging and hiring a competent project manager and project director cited in (Pasha et al., 2012). The overhead literature endorses that the project complexities and project management competence have more impact on project success and in tenure on project and organization performance. Through this study, we boost the issue that how project competencies and project complexities put an impact on project and organization performance.

Therefore, complexity affects project management activities (Baccarini, 1996). When complexity gets in projects is one of the reasons for project failure (Williams, 2002). So, it is recognized that project complexity put a negative impact on project quality and also on project performance. Globally it is accepted that project management plays an important role in the execution of projects (Shah et al., 2011). Therefore, we needed highly trained team members to handle IT and engineering projects (Othman, 2013). The strong bond exists between project manager abilities and project success (Muller & Turner, 2007). Hence, to avoid complexities need to recommend appropriate project manager as per nature and background regarding the project (Bakhsheshi & Nejad, 2011). Therefore, it illustrates that the technical project complexities have the uppermost influence on project performance. Afterward, managerial complexities have the main influence on organizational performance. As well as the ecological complexities have minimum influence on performance.

## 5.2 Research Implications

### 5.2.1 Theoretical Implication

The current study has many contributions in the domain of project management regarding project quality. In the prior research, no exact and clear information was brought into being about the impact of total quality management on organization performance. Therefore in the present research from the project management

perspective confirmed that total quality management has a positive impact on organization performance. The mediating role of organizational culture between total quality management and organization performance the culture was also theorized that organizational culture is the main important factor in which the organization needs to pay attention. The findings of the research show that project managers show project leadership characteristics it leads organizations towards organization culture making it expert in both exploitative as well as exploration in cultural innovation. This research study supports the theoretical implications that all variables are interconnected and consistent and ropes each other.

It's inspected that project management has an auspicious effect on organizational culture and organizational performance. All these have a significant effect on organization performance for attaining the long-run organizational goalmouths. The research which is being conducted to date has further added to the present literature work theoretically. It has put light on new actualities or project management to recover Pakistan's emerging economy. In what way does Total Quality Management impact Organization Performance?

In what way does Organization culture mediate the relationship between Total quality management and Organization performance? In what way does Project Complexity as a moderator between Organization Culture and Organization Performance?

### **5.2.2 Practical Implication**

In the current study, several practical implications get emerged. The project team should maintain project quality according to them as per specifications and design is given by the project manager. Therefore this thing will enhance the organization and project performance. Hence use some innovative techniques to improve project performance and to satisfy the customer this improvement not only improve the project quality but also improve the organization's performance. Although, project managers working in a project-based organization should explore ideas with the project team to improve the project quality and performance

according to situations. When an organization gets unstable the project manager should encourage team members to come up with new ideas use organization resources and assets to make the project outcome successful. Therefore, project managers to have a strong understanding of a soft and hard element of TQM, which has more influence on incessant enhancement of project quality element and critical for project success in Pakistan. From a practical point of view, the project manager and top management of the organization should aware of the significance of total quality management, therefore organizations should evaluate the maturity level, of the project and this study also helps managers to improve their maturity level of the projects.

In the project development stage, the project manager should emphasize such activities which will enhance the thinking competences of the project team members. The TQM practices implementation might require some consequences in this way the project quality processes make the projects creative. The project-based organizations should adopt some instruments which enhance or boost employee knowledge about current products and resources as well as inspire employees to discover new ideas to achieve the best project quality and implement and achieve innovation to implement TQM practices, to develop the (OP) organization performance. TQM as an independent, variable enables an organization to be effective for organizational culture and improve the performances so; the project manager should encourage employees to make improvements in projects. Whereas we should use soft and hard project quality practices in day to day work to gain more attention in implementing total quality management practices in the project management perspective.

### **5.3 Limitation of Research**

There are no studies which are without limitation. The limitation always for further refinement. The present research study limitation was due to limited time and resources, so there are certain limits of this present research study. Therefore, there can be so many aspects which get combined while directing research on a

specific subject. Hence, the options are always limited but generally need to make research manageable.

There are a few limitations that researcher scholars keep in mind while conducting research. Therefore, due to time limitation only a single mediator and m moderator used in the research study. Although, future research scholars should improve the model by checking their mediator similar to culture and worldwide atmosphere. They can also check the other moderator characters with other variables to get a better result in future research. The data of the study collected at once so, the future researcher can take a gap or time lag in collecting data. The sample size is 300 which is although sufficient size but much a large sample size would additionally help to consolidate the study results. Though, bigger the sample sizes of any research study, the bigger the reliability and implications of the research study.

## 5.4 Future Research Direction

This current research study is the just preliminary point in the topic area. Therefore, there is many future direction or recommendation which future researcher can adopt or can go from here. Through integrating more applicable variables can help raise the already established grounds for the research study in this exact area. Although adding more mediator of organization culture can provide more certain and tempting results.

Similarly, adding more or change moderators in the research will further help in understanding the path and the impact of variables with each other. In future research, we should need to explore more the relation of project complexity which play a role of moderator in the present study because it may article and many researchers declare the positive relation of project complexity with TQM and Organization performance but due to our result analysis negative effect, the moderator put on IV and DV so needs more research on the moderator to explore

the actual findings. In future research follow motive designs in the project management perspective this may provide a complete picture of features leading up to the total quality management.

## **5.5 Conclusion**

The main objective of this research is to enhance the relationship that how total quality management put an impact on organization performance by using organization culture as mediator and project complexity as moderator. Therefore, to find the objectivity of the results we circulated 300 questionnaires and collected back all 300 questionnaires and further considered for result analysis. Meanwhile, according to the outcome of the research study H1, H2, H3, H4 are accepted whereas, H5 rejected.

Project quality checks during project or product life cycle phases or processes will maintain check and balance on a daily bases to deliver the product to the customer according to their demands and customer satisfaction important element of TQM. In Pakistan, organizations are adopting project management process quality management to achieve the required objectives and strategies to adopt total quality management practices, whereas hard elements of TQM are important similarly soft elements of TQM are essential for incessant improvement. Therefore, the research study provides an indication that suggests for existence, project-based organizations need to positively exploit their present business and discover into different facets by reconfiguring accessible resources. This research study has discovered how project leaders within projects implement quality standards.



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# Appendix

## Survey Questionnaire

### **Annexure 1: Questionnaire used for Data Collection**

**Dear respondent,**

My name is Rabiya Saleem student of MS Project Management. My topic for research is “Impact of Total Quality Management on Organizational Performance with the Mediating Role of Organizational Culture and Moderating Role of Project Complexity”. As MS research scholar at Capital University of Science & Technology (CUST), Islamabad, you can help me in by filling the attached questionnaire you will feel quite interesting or also help me in collecting data for my research thesis I will appreciate your participation. I assure you that data collected from you will be strictly kept confidential and will only be used for academic purposes. Please keep in mind the data will be collected a general basis not on an individual basis. Please read the instruction before filling the questionnaire. Thanks a lot for your help and support!

Sincerely,

Rabiya Saleem

MS (Project Management) Research Scholar

Faculty of Management and Social Sciences

Capital University of Science & Technology (CUST), Islamabad.

## Section 1

### Demographics

	1	2				
<b>Gender</b>	Male	Female				
	1	2	3	4	5	
<b>Age</b>	18-25	26-33	34-41	42-49	50-Above	
	1	2	3	4	5	6
<b>Qualification</b>	Matric	Inter	Bachelors	Masters	M.Phil	PhD
	1	2	3	4	5	6
<b>Experience</b>	0-5	6-10	11-15	16-20	21-25	26Above
	1	2	3	4		
<b>Income</b>	25K-50K	50K-75K	75K-100K	100K and Above		

## Section 2: Total Quality Management

Instructions: Each question has four alternatives (A, B, C, D). Answer the question on 5 points Likert Scale. 1 “Strongly disagree” to 5 “Strongly Agreed”

**1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree**

1	TQM is not a single approach for everyone and, ultimately, it is the customer that determines what is needed	1	2	3	4	5
2	TQM has no direct impact on organizational performance and profitability.	1	2	3	4	5
3	TQM follows similar patterns towards a complete management theory with many basics and important associations that are not influenced by national and cultural boundaries.	1	2	3	4	5

4	Employee attachment is significant to doing well TQM implementation.	1	2	3	4	5
5	Training and development of staff down to floor level is important to helpful TQM implementation	1	2	3	4	5
6	Senior management's motivational contribution is irrelevant to communicating the developing role of TQM integration strategies into business objectives.	1	2	3	4	5
7	Clear measures of TQM performance, such as benchmarking and quality standards, are considered irrelevant for measuring TQM performance in order to detect unexpected discrepancies.	1	2	3	4	5
8	The adoption of a conceptual model on TQM and organizational performance would help TQM managers, decision makers and professionals to better understand TQM practices.	1	2	3	4	5
9	TQM process performance and the associations between TQM and organizational accomplishment are measured in order to gain competitive organizational advantage	1	2	3	4	5
10	Strategic organizational business alignment has no relation to TQM performance principles.	1	2	3	4	5
11	It is essential to integrate quality undertakings with TQM business strategy which will indeed realize value-added business performance.	1	2	3	4	5
12	Strategic planning comprises the design of a strategic proposal that integrates quality as a principal constituent.	1	2	3	4	5
13	Continuously monitoring performance improvement measures is essential for carrying out the steps required for defined quality processes and principles	1	2	3	4	5

	in TQM philosophies.					
14	The assessment of the significant factors of using TQM for best practice excludes process-centered centered idea and reform in terms of which TQM practices are related to organizational performance	1	2	3	4	5
15	To confirm the quality and nonstop improvement, participation in the accreditation of a quality management system is a regular strategy, that is, the ISO 9000 certification, and as a quality management tool it could generate a complete TQM	1	2	3	4	5
16	TQM necessitates continuous data collection and analysis in order to make accurate predictions and informed decisions.	1	2	3	4	5
17	It is not a principle objective to identify the features of performance measures and approaches most suitable for TQM and related data collection methods.	1	2	3	4	5
18	Ultimately in order to update the ever evolving performance measures, structures and processes that appraise such measures, need to be examined regularly	1	2	3	4	5

### Section 3: Organizational Performance

Instructions: Each question has four alternatives (A, B, C, D). Answer the question on 5 points Likert Scale. 1 “Strongly disagree” to 5 “Strongly Agreed”.

**1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree**

1	Compared with key competitors, our company is more successful.	1	2	3	4	5
2	Compared with key competitors, our company has a greater market share.	1	2	3	4	5



3	Compared with key competitors, our company is growing faster.	1	2	3	4	5
4	Compared with key competitors, our company is more profitable.	1	2	3	4	5
5	Compared with key competitors, our company is more innovative.	1	2	3	4	5

#### Section 4: Organizational Culture

Instructions: Each question has four alternatives (A, B, C, D). Answer the question on 5 points Likert Scale. 1 “Strongly disagree” to 5 “Strongly Agreed”.

**1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree**

1	The Policies and the organization structure in our organization have been clearly defined.	1	2	3	4	5
2	In our organization people are rewarded in proportion to the excellence of their job performance.	1	2	3	4	5
3	In our organization time and punctuality is highly valued.	1	2	3	4	5
4	In our organization when you are on a difficult assignment you can usually count on getting assistance from your boss and colleagues.	1	2	3	4	5
5	Around here there is a feeling of pressure to continually improve our personal and group performance.	1	2	3	4	5
6	In our organization, people are proud of belonging to this organization.	1	2	3	4	5
7	People in our organization are giving more ideas,	1	2	3	4	5

	information, feedback on customers, products, services, etc.					
8	In our organization trusting and friendly relations are highly valued.	1	2	3	4	5
9	In our organization people voluntarily own up their mistakes	1	2	3	4	5
10	In our organization people take the initiatives and also preventive action on most matters.	1	2	3	4	5
11	In our organization people are always working together to solve problems with team spirit.	1	2	3	4	5
12	In our organization communication is used as an effective way of getting relevant feedback and critical information for corrective action.	1	2	3	4	5
13	In our organization leaders plan the tasks, distribute assignments and supervise the work on the organization.	1	2	3	4	5
14	In our organization supervisors are more concerned with maintaining good relations with their subordinates.	1	2	3	4	5
15	In our organization innovation or change is mainly initiated and implemented through highly result-oriented individuals.	1	2	3	4	5
16	In our organization as people know their boundary they respect the decisions once taken jointly by a senior and junior colleague on delegation.	1	2	3	4	5
17	In our organization a mistake by a subordinate is treated as an experience (by the boss) from which lessons are learnt to prevent failure and improve performance in the future.	1	2	3	4	5

### Section 5: Project Complexity

Instructions: Each question has four alternatives (A, B, C, D). Answer the question on 5 points Likert Scale. 1 “Strongly disagree” to 5 “Strongly Agreed”.

**1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree**

1	The project team was cross-functional	1	2	3	4	5
2	The project involved multiple external contractors and Vendors.	1	2	3	4	5
3	The project involved coordinating multiple user units.	1	2	3	4	5
4	The system involved real-time data processing	1	2	3	4	5
5	The project involved multiple software environments.	1	2	3	4	5
6	The project involved multiple technology platforms.	1	2	3	4	5
7	The project involved a lot of integration with other systems.	1	2	3	4	5
8	The end-users’ organizational structure changed rapidly.	1	2	3	4	5
9	The end-users’ business processes changed rapidly.	1	2	3	4	5
10	Implementing the project caused changes in the users’ business processes.	1	2	3	4	5
11	Implementing the project caused changes in the users’ organizational structure.	1	2	3	4	5
12	The end-users’ information needs changed rapidly.	1	2	3	4	5
13	IT architecture that the project depended on changed rapidly.	1	2	3	4	5
14	IT infrastructure that the project depended on changed rapidly.	1	2	3	4	5
15	Software development tools that the project depended on changed rapidly.	1	2	3	4	5

**Thank you for your time and cooperation**