

CAPITAL UNIVERSITY OF SCIENCE AND  
TECHNOLOGY, ISLAMABAD



**The Impact of Participative Leadership  
on Project Success with Mediating Role  
of Coworker Knowledge Sharing and  
Moderating Role of Project Risk  
Management**

by

**Syeda Farwaa Haider**

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

in the

Faculty of Engineering

Department of Mechanical Engineering

2021

Copyright © 2021 by Syeda Farwaa Haider

All rights reserved. No part of this thesis may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, by any information storage and retrieval system without the prior written permission of the author.

*Dedicated to my support system...*

*“My Family”*



## CERTIFICATE OF APPROVAL

**The Impact of Participative Leadership on Project Success with  
Mediating Role of Coworker Knowledge Sharing and Moderating Role  
of Project Risk Management**

by

Syeda Farwaa Haider

(MEM183011)

### THESIS EXAMINING COMMITTEE

S. No.	Examiner	Name	Organization
(a)	External Examiner	Dr. Afshan Naseem	NUST, Islamabad
(b)	Internal Examiner	Dr. Syed Shujaa Safdar Ghardazi	CUST, Islamabad
(c)	Supervisor	Dr. Taiba Zahid	CUST, Islamabad

---

Dr. Taiba Zahid

Thesis Supervisor

April, 2021

---

Dr. Muhammad Mahabat Khan  
Head  
Dept. of Mechanical Engineering  
April, 2021

---

Dr. Imtiaz Ahmad Taj  
Dean  
Faculty of Engineering  
April, 2021

## *Author's Declaration*

I, **Syeda Farwaa Haider** hereby state that my MS thesis titled “**The Impact of Participative Leadership on Project Success with Mediating Role of Coworker Knowledge Sharing and Moderating Role of Project Risk Management**” is my own work and has not been submitted previously by me for taking any degree from Capital University of Science and Technology, Islamabad or anywhere else in the country/abroad.

At any time if my statement is found to be incorrect even after my graduation, the University has the right to withdraw my MS Degree.

**(Syeda Farwaa Haider)**

Registration No: MEM183011

## *Plagiarism Undertaking*

I solemnly declare that research work presented in this thesis titled “**The Impact of Participative Leadership on Project Success with Mediating Role of Coworker Knowledge Sharing and Moderating Role of Project Risk Management**” is solely my research work with no significant contribution from any other person. Small contribution/help wherever taken has been duly acknowledged and that complete thesis has been written by me.

I understand the zero tolerance policy of the HEC and Capital University of Science and Technology towards plagiarism. Therefore, I as an author of the above titled thesis declare that no portion of my thesis has been plagiarized and any material used as reference is properly referred/cited.

I undertake that if I am found guilty of any formal plagiarism in the above titled thesis even after award of MS Degree, the University reserves the right to withdraw/revoke my MS degree and that HEC and the University have the right to publish my name on the HEC/University website on which names of students are placed who submitted plagiarized work.

**(Syeda Farwaa Haider)**

Registration No: MEM183011

# *Acknowledgement*

*“In the name of The Omniscient, The Omnipotent, The Omnipresent and The Omnibenevolent for the blessing of choosing me for this endeavor.”*

First and foremost, to my creator, my life coach, the most gracious, the most beneficent, **ALLAH S.W.T.**, I owe it all to you, Thank you!

I would like to thank my supervisor **Dr. Taiba Zahid** for her utmost effort and precious time in the completion of my thesis. Under her guidance, I successfully overcame many difficulties throughout my thesis.

At this stage, I think of my loving parents whose selfless sacrificial life and their great efforts and never-ending prayers have enabled me to do my MS Thesis.

Thanks to my brothers and dearest sister **Syeda Rabbbab Zahra** for their continuous support, understanding, and good wishes whenever I needed it.

At last but not least, I am grateful to all my friends and other supportive teachers who helped me in every path of life.

**(Syeda Farwaa Haider)**

## *Abstract*

This study examines the project success as a determinant variable in software development sector of Pakistan in context of participative leadership. It also examines the mediating role of coworker knowledge sharing along with moderating variable of project risk management. For data collection purpose, altogether 350 questionnaires were distributed however, only 308 were used for analysis since these questionnaires were having the most suitable and comprehensive information required for carrying out the analysis of this study. These 308 respondents were key persons for data collection and for reporting purposes, who are employed in software/IT industry of Pakistan.

After data collection from 308 respondents, the data was then analyzed on SPSS and Amos for the measurement of model's fitness. The result of this study indicates that an increase in participative leadership would increase the project success where coworker knowledge sharing acts as mediator and project risk management is moderator. Moreover, this study tested the role of project risk management and its results express that project risk management significantly acts as moderator among coworker knowledge sharing and project success; such that if project risk management is high then the relationship among coworker knowledge sharing and project success is high. This study will facilitate employees who are working on software developmental projects to increase the chances of project success in an efficient manner.

**Keywords:**

*Participative Leadership, Coworker Knowledge Sharing, Project Risk Management, Project Success, Software/IT Industry, Project Management*



# Contents

<b>Author’s Declaration</b>	<b>iv</b>
<b>Plagiarism Undertaking</b>	<b>v</b>
<b>Acknowledgement</b>	<b>vi</b>
<b>Abstract</b>	<b>vii</b>
<b>List of Figures</b>	<b>x</b>
<b>List of Tables</b>	<b>xi</b>
<b>Abbreviations</b>	<b>xii</b>
<b>1 Introduction</b>	<b>1</b>
1.1 Background . . . . .	1
1.2 Problem Statement . . . . .	3
1.3 Research Questions . . . . .	3
1.4 Objective of the Study . . . . .	4
1.5 Significance of the Study . . . . .	4
1.6 Supporting Theory . . . . .	5
1.6.1 Participative Decision Making (PDM) Theory . . . . .	5
<b>2 Literature Review</b>	<b>8</b>
2.1 Participative Leadership . . . . .	8
2.2 Coworker Knowledge Sharing . . . . .	11
2.3 Project Risk Management . . . . .	17
2.4 Project Success . . . . .	18
2.5 Relationship between the Project Success and Participative Leadership . . . . .	19
2.6 Coworker Knowledge Sharing as a Mediator . . . . .	23
2.7 Project Risk Management as a Moderator . . . . .	27
2.8 Gap Analysis . . . . .	31
2.9 Research Model . . . . .	33
2.10 Research Hypotheses . . . . .	37

---

<b>3</b>	<b>Research Methodology</b>	<b>38</b>
3.1	Research Design . . . . .	38
3.1.1	Type of Study . . . . .	38
3.1.2	Study Setting . . . . .	39
3.1.3	Unit of Analysis . . . . .	39
3.1.4	Population and Sampling . . . . .	40
3.1.5	Sampling Technique and Data Collection Procedure . . . . .	41
3.2	Instrumentation . . . . .	41
3.2.1	Measure . . . . .	41
3.3	Statistical Tool . . . . .	42
3.3.1	Measurement Model . . . . .	43
3.4	Pilot Testing . . . . .	43
3.5	Techniques for Data Analysis . . . . .	43
<b>4</b>	<b>Results</b>	<b>45</b>
4.1	Results of Demographic Data . . . . .	45
4.1.1	Gender of Respondents . . . . .	45
4.1.2	Age of Respondents . . . . .	46
4.1.3	Experience of Respondents . . . . .	46
4.1.4	Qualification of Respondents . . . . .	47
4.1.5	Designation of Respondents . . . . .	48
4.2	CFA for all Latent Variable . . . . .	48
4.3	Reliability of a Scale . . . . .	51
4.4	Descriptive Statistics . . . . .	51
4.5	Correlation Analysis . . . . .	52
4.6	Regression Analysis . . . . .	52
4.7	Mediation Analysis . . . . .	54
4.8	Moderation Analysis . . . . .	55
4.9	Summary of Accepted/Rejected Hypothesis . . . . .	57
<b>5</b>	<b>Discussion, Recommendations and Conclusion</b>	<b>58</b>
5.1	Discussion . . . . .	58
5.2	Practical and Theoretical Implications . . . . .	59
5.3	Strengths of the Research Outcome . . . . .	61
5.4	Limitations of the Research . . . . .	63
5.5	Future Directions of the Research . . . . .	64
5.6	Recommendations . . . . .	64
5.7	Conclusion . . . . .	66
	<b>Bibliography</b>	<b>69</b>
	<b>Appendix A</b>	<b>96</b>

# List of Figures

2.1	Research Model . . . . .	33
4.1	CFA for PL Variable . . . . .	49
4.2	CFA for CKS Variable . . . . .	49
4.3	CFA for PRM Variable . . . . .	49
4.4	CFA for PS Variable . . . . .	50
4.5	CFA for Complete Model . . . . .	50
4.6	Conceptual Unmediated Model . . . . .	53
4.7	Coefficient of Mediated Model . . . . .	55
4.8	Interactive special effects of CKS and PRM on PS . . . . .	56

# List of Tables

3.1	Instrumentation . . . . .	42
4.1	Gender Distribution . . . . .	46
4.2	Age Distribution . . . . .	46
4.3	Experience Distribution . . . . .	47
4.4	Qualification Distribution . . . . .	47
4.5	Designation Distribution . . . . .	48
4.6	Measurement model . . . . .	48
4.7	Scale Reliability . . . . .	51
4.8	Descriptive statistics . . . . .	51
4.9	Correlation Analysis . . . . .	52
4.10	Results of the regression analysis for PS . . . . .	53
4.11	Mediation Analysis . . . . .	54
4.12	Moderation Analysis . . . . .	56
4.13	Moderated Mediation Analysis . . . . .	57
4.14	Hypotheses Summarized Results . . . . .	57
5.1	Summary of Hypotheses Results . . . . .	67

# Abbreviations

<b>CKS</b>	Coworker Knowledge Sharing
<b>PDM</b>	Participative Decision Making
<b>PL</b>	Participative Leadership
<b>PMO</b>	Project Management Office
<b>PRM</b>	Project Risk Management
<b>PS</b>	Project Success

# Chapter 1

## Introduction

### 1.1 Background

New avenues have been generated for the researchers because of Participative Leadership (PL) as it has also increased their interest in finding the significance of participation and its management. In Participative Leadership, every employee is encouraged to participate at multiple level of project decisions. International Journals are now publishing various studies on Participative Leadership (PL) that shows the increased visibility and impact of PL in literature [1]. Literature has proved that the Participative Leadership (PL) increases the likelihood of Project Success [2].

Participative Leadership has a substantial part in Project Performance and Project Success. According to Arnold et al. [3], Participative Leadership (PL) is related to decision making and implementing information of subordinates. PL encourages the participation of subordinates in process of decision making so that finalization of decisions can be done by majority of the votes in organization. PL improves decision making, increases employee morale by empowering them, increases collaboration, decreases competition and encourages creative solution especially related to problem solving. Whereas, Project Success (PS) refers to meet the project constraints like schedule and cost [4]. Project Manager (PM) usually bound to take

good decisions and rational decision making is the need of the organization. As this leadership effects the organization's existence therefore, this research aims to explore the relationship between PL and PS.

Knowledge is a critical resource of organization which gives a justifiable viable advantage in a viable and active economy [5]. Relying on staffing and training systems are essential nevertheless inadequate for organizations to gain viable advantage that concentrate on picking out employees with explicit knowledge, skills, abilities, competencies or helping employees to acquire them [6]. Hinds et al. [7] argued that it must be in organizations' consideration that how the knowledge and expertise from experts should be transferred to the novices. Moreover, organizations should focus and stress on resources which are usually knowledge-based resources [8].

According to Kim and Yun [9], coworkers are the one who share task relevant ideas and details in order to make recommendations is called Coworker Knowledge Sharing (CKS). Huang et al. [10] argues that amid Participative Leadership (PL) and outcome, CKS is an instrument for organization learning processes. The most revolting advent in Information Technology, changing dynamics of business environment, and the driving advent of Participative Leadership (PL) is innovation because it guarantees each employee participation at numerous levels of project decisions, which helps in realizing the value of the participatory leader as a basic pillar of organizational performance and attaining sustainable competitive advantage [11].

In context of Participative Leadership (PL) and Project Risk Management (PRM), upper and lower-level risks have different impact on project performance [12]. A project manager is held accountable for project decision as PL has provide incentives for active participation among coworkers so that they can share their knowledge in order to produce innovative product and solves the uprising problems and emergent risks during the life cycle of the project or product. As rational decision making is possible through research and logical evaluation by selecting

the possible choices based on reasons and facts. PL plays a vital role in good decision making which not only help the project manager but also increases the chances of PS. It means good participatory leader not only identify the change in project life cycle but also give vision and guideline to project team for the execution of change. Previous studies indicates that real PRM is integrated in project management processes [13]. PRM's implementation is a critical activity that organization must accomplish to achieve viable advantage [14]. Hence, correct decision making is possible with effective PRM and PL which are engrained in projects and resources. Project Risk Management is the effective and efficient source of decision making and tool to deal with change in the best possible way in software projects [15].

## 1.2 Problem Statement

In the revelation of managing and organizing Participative Leadership (PL) has active the project management. The available wide-range research shows the researchers' high interest in this domain though a number of facets related with Participative Leadership (PL) are still unexplored. The research on mediating role of Coworker Knowledge Sharing (CKS) amid Participative Leadership (PL) and Project Success (PS) is a grey area including moderating role of Project Risk Management (PRM) amid Coworker Knowledge Sharing (CKS) and Project Success (PS) is completely untouched.

## 1.3 Research Questions

This research will answer the following questions:

### Research Question 1

Does Participative Leadership (PL) help in attaining Project Success (PS)?

### Research Question 2



Does CKS play a mediating role amid PL and PS?

### **Research Question 3**

Does PRM play a moderating role amid CKS and PS?

## **1.4 Objective of the Study**

Developing and testing the anticipated model is the broad objective of the current study in order to discover the relation amid PL, CKS, and PS. Moreover, Project Risk Management (PRM) is added as the moderator to examine the association of variables of the research model that is PL, CKS, and PS.

Following are the precise aims of the current study:

### **Research Objective 1**

To discover the causal influence of Participative Leadership (PL) on Project Success (PS).

### **Research Objective 2**

To inspect the mediating role of Coworker Knowledge Sharing (CKS) between Participative Leadership (PL) and Project Success (PS).

### **Research Objective 3**

To investigate the moderation impact of Project Risk Management (PRM) with CKS and PS.

## **1.5 Significance of the Study**

The significance of study is about the evidences that Coworker Knowledge Sharing (CKS) and Project Risk Management (PRM) have significant impact on Project Success (PS) with Participative Leadership (PL) for Software/IT Industry. The results of this study will help in effective and efficient decision making in software projects.

The under developing countries are unprivileged from the opportunity to study impact of PL and PS in milieu of software project based organizations in Participative Leadership (PL). Leaders are always engaged in the project. Thus, leader's behavior and psyche vary from region to region. This study will help in investigating the moderating effects of Project Risk Management (PRM) on PL and PS along with mediating role of Coworker Knowledge Sharing (CKS).

The recent studies have suggested that there is an interdependent, combined, integrated relation between the four variables precisely Participative Leadership (PL), Coworker Knowledge Sharing (CKS), Project Risk Management (PRM) and Project Success (PS) but no literature has been found in the form of mediating and moderating variables. This study indicates that Participative Leadership (PL) is the key factor of Project Success (PS). Effective and efficient PL will be held when Coworker Knowledge Sharing (CKS) mediates amid PL and PS. The probabilities and possibilities of Project Success (PS) will increase when Project Risk Management (PRM) act as a moderating variable amid CKS and PS.

## **1.6 Supporting Theory**

Numerous theoretical perspectives are being given by around the globe of different researchers to reinforce them phenomenon of PL and PS through PRM like transaction cost economics, resource dependency theory, and contingency theory but Participative Decision Making (PDM) Theory covers foremost features of all variables i.e., PL, CKS, PRM and PS.

### **1.6.1 Participative Decision Making (PDM) Theory**

A vital direction of participation was decision and was suggested by Locke and Schweiger in 1979. Unfortunately, this direction of PDM was measured in particular mode by the researchers. Different studies have been carried out which suggest individual aspects on process of decision making. It includes: identification of

issues, selecting alternatives for issues, selecting best alternative by analyzing the issues so that the set objectives can be accomplished [16].

In PL and PDM, the democratic leadership word is used for PL in which every group member is allowed to take participative role in the process of decision making. According to Probst [17], Participative Decision Making (PDM) allows subordinates and employees in organizational decision making. PL, one of the type of leadership; is about simplification of conversation in order to involve people to share opinion, so that accessible knowledge is produced for good decisions. Power sharing procedure in workplace is spread among individuals which are mostly hierarchically unequal. According to Locke and Schweiger [18], power sharing procedure is based on frequent involvement of employees which results into codetermination of work condition, problem solving and decision making. The Participative Decision Making (PDM) is based on its main objective which is to increase to motivational effects of participation [19]. The presence of PL is necessary because under their supervision, employees perform in a well manner and feel optimistic under PL [20]. For sharing ideas and viewpoint, every subordinate has the opportunity to increase the team effectiveness and efficiency as a participatory approach creates such kind of environment [21].

In context of CKS and PDM, organizational decision making is possible by encourage employees to share knowledge and participate. Projects are always in the need of good decision making. Coworker Knowledge Sharing (CKS) allows the coworkers to share knowledge, information and task relevant ideas. According to Wang and Noe [22], KS is one of the fundamental sources of sharing of knowledge and ideas which is necessary for innovation and competitive advantage for organization in the global arena. Therefore, Participative Decision Making (PDM) is the way in which organizations can make decisions. However, workers have special bond and belonging to firms or institutions [23]. The Participative Decision Making (PDM) has the aim to increase the involvement of employees for motivation [19].

In context of PRM and PDM, Lima [24] claims that everyday activities and decision making is itself a risk. Project is fundamentally risky; so, Project Manager (PM) requires to succeed that uncertainties to keep the projects in control and the elementary risk management have four steps which are identifying the risks, analyzing the risk, planning the risk and respond the risk. The most suitable way for identifying the risk is to make a team and make a list of every possible event that can go wrong. For accurate risk analysis, estimation of probability and impact of the event is critical, and probability of the risk scale consist of low, medium, and high level of the risk whereas the risk impact is more considerable scale in sense of forecasting and costing of a project. Hence, participatory decision making is frequently related to the management style which invites for a complete participation form the behalf of subordinates and supervisors in decisions which can affect their task so as to compress the risk likelihood. Likewise, Sacket and Straus [25], further defines Participative Decision Making (PDM) as a procedure which permits subordinates to exercise some effect over their task and the circumstances beneath which they perform.

In context of PS and PDM, Scott-Ladd et al. [26] argues that subordinates in PDM shares essential information among employees and their respective managers to produce new ideas and alternatives for plan the progression and to access results to accomplish an organizational objective. Whereas, Project Success is related to achieving project objectives by means of triple constraints i.e., Cost, Time and Quality.

# Chapter 2

## Literature Review

### 2.1 Participative Leadership

*“Top management and Leadership are necessary.*

*Upcoming journey’s end may be a milestone.*

*Work is about to give chance to participate*

*Measurement is important to produce good outcomes.*

*Training is essential for people*

*Rewards are based on outcomes*

*Those who work some other place can work at this point*

*The upcoming is a risk to be mitigated.*

*Selected should be an ideal” [27]*

According to Rezvani and Khosravi [28], style of leadership and Project Manager’s proficiencies are included often in the criteria of Project Success. It is the job of the leader of the project to allocate right task to the right person by using the leadership style as the team members have miscellaneous knowledge and skills to resolve the problem by recommending alternative solutions. Literature suggests that leaders take the corrective actions because of the communication gap that lead towards team work deterioration [29].

Arnold et al. [3] defines the Participative Leadership (PL) as the leadership which induces participant’s information and intelligence, decreasing tiered blockade by

engaging each member of the organization in decision making. To comprehend the word participation, one should understand the origin of the term participation. The term participation is adopted to discuss a case in which workers have some reasonable part in the commerce which hire them. Based on this a categorization scheme is generated that differentiate between various forms of participation along with the sources and objectives behind those different forms. After that participation as a whole is differentiated from negotiating between labor and management. In negotiation, discrete and contrasting interests are accepted. According to Kaler [30], there is an effort to generate a comprehensive mutual interest in participation. Jansen et al, [31], however argues that this method has been newly related to manager exploratory innovation, that in what way Participative Leadership (PL) would deliver employee exploratory innovation. Subsequently, innovation is the desired output of learning from organization [32].

Effective communication with all the team members must be take into consideration as the leader encourages and inspire each worker because this will increase the probability of ideas and judgements which is essential for accomplishment and fulfillment of goals [33]. According to Aga et al. [34], the attribute of the virtuous leader is to understand how well to implement each expertise of every team member and produce successful project.

One more achievement of the project leader is that he gives best directions to the team members and as an outcome, each member is engrossed to trail organizational goals. The major concern of the project leader is the group performance; therefore, it is his duty to make certain every information related to the project is understood by each team member. Motivating the team is also one of the main concerns of the project leader so that he/she can keep an eye on the confidence and trust phenomenon for Project Success (PS) [35]. Another essential element is diversity amid team members during the composition and completing the project successfully. The diversity at this point particularly addresses the member's experience and expertise not related to socio numeric values, race, gender, and age. It is essential because diversified members can guarantee project's successful accomplishment by completion of tasks [36]. Bashir et al. [37], suggested that emotional

intelligent is necessary in order to obtain stress free environment and peaceful coexistence in the work place.

According to Latham et al. [38], increase of knowledge is based on learning from each other when workers participate in decision making by attaining new skills and expanding their progress in joint manner. Joint unit members usually participate together in decision making, as this exercise endorses joint Coworker Knowledge Sharing (CKS) and appreciated by participative leaders.

According to Lorinkova and Perry [39], various leadership literature till date focuses on investigating the relationship amid transformational leadership and related results or empowering leadership and related results. Similarly, past studies on PL and innovation based on organization focused on one of the essential means to involve employee in improving organizational innovation is participative management procedure [40]. Both formal and informal approaches are used in participative management which helps in improving organizational innovation performance like formal system creation for gathering capable innovations recommended by workers [41]. To enable innovation organizations usually embrace R&D Department or project team. In addition, Kanter [42], suggested that to guarantee success, organizations might proficiently explore their environments for innovative approach. The researches based on innovation which is employee driven for discovering democratic negotiations as discussion to exchange ideas based on knowledge creation in order to contribute tour knowledge, to challenge tour own elementary supposition and in spite of several insolences [43].

All the styles are tempting to various characteristics of their concern. The reason that demands some reason is their first concern. Providing upright reason and PM is responsible for why the employees should be involved and the right way to provide them those reasons is to make them understand what encourages leader to make sure each workers participation. Demand to their sense of responsibility is the second concern and that their sense of responsibility will indulge them to an active participation with the project. The sense of purpose is the third concern; what is the actual reason to do their duty is to bring the task in order to find out the actual meaning of the work then relate the project. The fourth concern

is achievement; what the project is intended for deliver and relate it to what the project stakeholders are trying to achieve from the task, some sponsors have high desire to understand that they are attaining something hence, relate the project to their need for achievement. And at last, the project completion or project handover concern enables Project Manager to say that the project has been completed, and the client, sponsor or boss's declaration that they are satisfied with the Project Manager's work.

An upright Participative Leadership (PL) is around decision making by Project Management Office (PMO) for the satisfaction of stakeholder. PL is related to asking questions for good quality decisions. Klakegg et al, [44] stresses that it is the duty of the senior management to handle projects suitably by means of authority and with upright decision making for the resolution of supervise the project. General competence of the project depends on proper PL. One can have fair decision making through appropriate PL regarding project with the team's participation. Precisely, PL is related to employees' participation. Likewise, Dane and Pratt [45] also had emphasized about upright decision making. Satisfaction of the stakeholder is one of the dimensions of PL; this leadership style normally effected by participation approach and project's culture as well [46].

## 2.2 Coworker Knowledge Sharing

The utmost valued resource of company is knowledge [47]. According to Kodratoff [48] defined knowledge as "information with meaning that exists within the individual" that "occurs either as an outcome of experience, or is produced through thinking or reasoning; otherwise, it remains mere data or information". Roth [49] has suggested that either knowledge is explicit or tacit. Risku et al. [50] has emphasized that formal, codifiable and systematic knowledge is explicit knowledge which consequently altered into concrete forms as in manuals, books [51]. Tacit knowledge in divergence is hard to interpret and describable to foreigners which frequently may solely able to learn with the help of exercise and direct involvement [52].



According to Srivastava et al. [53], exchange of task related ideas, information and suggestion amid coworkers is called Coworker Knowledge Sharing (CKS). Both explicit and tacit knowledge mechanisms are related to PL effectiveness and the attainment of results on firm level. Huang et al. [10] also argued that CKS is an instrument for organizational learning processes amid PL and results. Wang and Noe [22] also emphasized that CKS is micro level development which occurs amid individuals. At the level of employee, the role of knowledge mechanism in combination PL in organizations which enlighten the large number of contacts at multiple levels is most untouched for measuring the leadership effectiveness. Wang and Noe [22] suggested to focus supplementary task with the help of multi-level analysis to properly investigate knowledge sharing dynamics. Kamaşak and Bulutlar [54] signals that exploratory innovation is generated from the process of knowledge sharing with others which comprising the mean in which knowledge and information is circulated among employees [55]. Hence, PL is more similar to inspire worker exploratory conduct over the in between knowledge mechanisms of CKS. The two learning flow guidelines are reflected through these mechanisms for adapting learning by individuals in this regard feed forward is knowledge sharing and feedback is about absorptive capacity for studying innovation [56].

For past 20 years, most of the literature on knowledge management has opted the knowledge's definition by [57]. According to Nonaka [57], knowledge is classified into two core categories: explicit and tacit. Numerous literatures have compared and contrasted the traits of explicit and tactic knowledge [58]. The explicit knowledge can be articulated, codified, well documented thoroughly and is universal in nature [59]. Whereas, tacit knowledge has a subconscious nature that is hard to be identified, codified and well documented [60]. The explicit and tacit knowledge should be made known to as the knowledge spectrum and not to observed as two distinct categories [61]. In aligned with this, Crane and Bontis [62] have argued that various literatures have made an effort to demonstrate the transformation between explicit and tacit knowledge with knowledge continuum. Alongside a continuum, explicit and tacit knowledge both coincide and interchange for more knowledge creation [63]. The interactive knowledge viewpoint has been used by

Nonaka and Takeuchi [64] to understand knowledge sharing that contains four transfer methods amid explicit and tacit knowledge. Collaborative procedure is the first transfer method which transfers tacit knowledge to tacit knowledge that is mentorship. Externalization procedure would be the second method of it that leads to exchange of tacit knowledge to explicit knowledge that is metaphor. Combination procedure is the third method that sends explicit knowledge to explicit knowledge i.e., external knowledge unites into internal knowledge system. The internalization procedure would be the fourth and the final procedure in which explicit knowledge is shared back to the tacit knowledge i.e., individual knowledge assets [64]. To explain knowledge sharing, Senge [65] has adopted the learning viewpoint that describes a learning process which allows others obtain the aptitude to perform effective actions.

Due to the latent advantages which can be understood from knowledge sharing, a large number of organizations have devoted significant time in order to spent money into KM inventiveness that includes KMS development that will help in utilizing art of technology in order to assist data knowledge which is gathered, stored and distributed. Though KM processes are largely distinct as the events within the domain of KM that are involved in identification, apprehension, distribution and applying knowledge. However, in previous studies, various names were opted, Al-Aama [66] tried to categorize these processes of KM into four categories: the creation is the first one which indicates to processes required for identification and creation of knowledge. The second would be the process of capturing knowledge process that is based on tasks which are related to store and organize knowledge. Actions involved to transfer, distribute, utilize or apply knowledge would be the third category known as distribution. And in the last, process of sharing includes the exchange and review of organizational knowledge. Amid all the processes of KM, Knowledge Sharing (KS) would be assumed as the most essential KM process [67].

Jyoti et al. [68] in a research in India approve that the most essential factor in KM is KS. Various studies more stresses that the most challenging process to manage or control is KS [69]. Various authors agrees that the critical process in

KM is the KS, this research purposes to concentrate on the dimension of KS and its sub-processes. The two fundamental sub-processes of KS are knowledge donating and knowledge collecting. Recently, various studies kept the viewpoint that knowledge donating is the encouragement and skill of workers to share their experience, intellectual capitals, job skills, and ideas to other workers [70]. Knowledge collecting in divergence indicates to the workers' skills via consulting, inviting and inquiring others to be ready to share knowledge [71]. The cycle of KS aims to envisage organizations' KS and to evaluate the actions of management of KS. The two components are involved in communication process of KS: owners' knowledge externalization; and gainers' knowledge internalization; are further argued by both [72] and [73]. Paulin and Suneson [74] argued sharing of knowledge and transfer of knowledge are both terms which often used synonymously. The mostly used term is knowledge transfer to explain the flow of knowledge direction amid organizations and larger entities [75]. The interchanging of knowledge amid two people is knowledge sharing i.e., the one who transfers knowledge and the other who adapts that knowledge. Werner and Dickson [76] has emphasized on human capital and individual's interaction. CKS is about coworker's information and expertise which is interchangeable knowledge with workers [77]. According to Chakravarthy et al. [78], within organizations knowledge sharing was considered to be automatic which is recently recognized extensively as a complicated and multifaceted process. Sharing knowledge amid individuals contribute to both individual and Organizational learning [75]. KS permits organizations to create work environment [79]. KS is about learning of individuals and organizations [80].

Past studies recognize that the knowledge sharing advantages amid coworkers and colleagues. Kim and Yun [9] discovered in their research that sharing knowledge amid the task performance and coworkers are positively related. Wang and Noe [22] led a wide-ranging assessment of the subject and distinguished that the most of the reviews were quantitative, calling for additional qualitative study as "qualitative studies offer exhaustive investigation of the organizational background wherein

knowledge sharing occurs” (p. 126). Following are the four main zones which effect KS among employees [75]. Nature of knowledge about first one; as it refers to either it is a tacit knowledge or explicit knowledge along with that the worth in cooperation. Secondly the important thing to consider is motivation which can be internal or external. Power and reciprocity are included in external influences whereas relationship amid recipient and sharing reward are included in internal influences. Opportunities to share is the third main zone of it. Goal-directed learning channels like: sharing knowledge in an official or organized atmosphere which includes technology and training. Channels of interpersonal learning like occasions interrelate, e.g., face to face meeting. Fourth and last is the organizational culture that replicates the morals, standards, and practices of the organization. Similarly, this forms expectation related to essential knowledge for concerning KS [64]. KS usually reliant on culture element about work atmosphere [75]. Training and mentoring are gained through networks based on socialization, events, networking, informal and formal meetings [81].

Moreover, workers every so often share their knowledge unknowingly while informal interactions, without any particular intent to do so [77]. KS promotion is hard for organizations as the workers may not obliged to do it [77].

The five major obstacles to sharing knowledge: trust, insufficient interpersonal relations, structure of organization and absence of motivators [82]. Moreover, individual’s attitude and proficiencies can hinder transfer of knowledge. Intrinsically, various workers might be unfamiliar of transferring and sharing of knowledge [83]. Other people not concerned about in interchanging as a worker desire to work alone, aversion to learn as of other people, afraid of losing ownership of knowledge, reputation or power, or assume additional load and a dearth of acknowledgement [84].

The studies investigating till date about the antecedents of sharing knowledge usually tails the social capital viewpoint that recognizes three antecedent sub-categories which are cognitive, relational and structural. Mutual trust amid the knowledge recipient and knowledge sharer [85]. The structural approach suggests

that sharing knowledge can be affected by aspects like stages of structural variety working of teams [86].

Last is about the cognitive approach in which for individuals KS is the reciprocity of norm, subjective norm and performance objectives [87]. Despite the fact this research can participate in making us understand of why and when sharing knowledge arises at a network- or firm stage captivating lens to analyze the background of KS for the reason that sharing knowledge has moral significance [88]. However, KS relates positively with team performance is also demonstrated by [89]. The participative leader of every team might give an open negotiation context to motivate CKS within each team. According to Liao and Wu [90], to solve a problem, knowledge is an essential resource that suggests novel solutions, make main proficiencies, and learn new practices. Knowledge is “entrenched not just in repositories or documents but in organizational customs, development, practices, and norms” [91]. However, Kim et al. [9] emphasized on the influence of Coworker Knowledge Sharing on individuals’ inventive endeavors at the workplace. The individuals share knowledge with each other as it is a useful resource, and when interchanged frequently and on daily basis turn out to be a property of organization. Knowledge should be interchanged positively to make it valuable as it is powerful and essential. According to Zhou and Hoever [92], coworkers’ support is successfully related with creativity of workers. The workers who experienced high dissatisfaction from job exhibited additional creativity when employee had the support and help of coworkers [93]. Coworkers are beneficial job resource who is sharing knowledge contribution assist pivotal workers to boost their job performance and assist worker in work associated tasks and challenges [94].

According to Halbesleben and Wheeler [95], one-third of the lives of the workers are devoted at workplaces, and in few cases of employees devote most of their time with their coworkers instead of their families, mostly pivotal workers’ wellbeing can be improved by the help of supportive coworkers that assist them by decreasing their load of work. Support of coworker aid workers imaginative particularly in tasks and situations are challenged to employees. The most serious kind of coworker support is Coworker Knowledge Sharing (CKS) which may help creation and execution

of novel ideas. Staffs are anticipated to interchange knowledge like a norm as pivotal staffs and their coworkers' effort in comparable organizational settings. In contrast, to sustain expert control [9]. This threat of information/knowledge from coworkers induces distrust feelings amid them [96]. Novel ideas or solutions are more likely offered by the employees in such kind of circumstances with low fear of being ashamed or disappointed in the event if the suggestions are ultimately futile.

## 2.3 Project Risk Management

Elimination of risk is not possible but controlling of project risk is possible because risks of the project as the projects are inherently risky in nature and there includes four fundamental stages in PRM that is identification of risk, planning risk management, risk analysis and possible action. For identifying risk, the best way is to make an experts group and note down every detail that can favorably go wrong. In risk analysis, the most critical part is the estimation of impact and likelihood of the risk and scale of risk likelihood is based on low, medium, and high-measure of risk whereas the impact of the risk can be measured in term of budgeting and project scheduling deviation. But simple impact specifically is to think about the smallest impact level is one at first needs some kind of corrective action; a larger impact may require to turn over a new plan about how PM will bring that portion of the project or a brand-new strategy would be required to PM for delivery of the complete project or it could be worse like no expanse of planning or strategies would make it possible to accomplish the objectives [97]. If risk encounters, a few objectives of the project can be compromised. Managing the greatest level of risk without highly expert skills is of course a risk that if the project fails it can damage or compromises the reputation of the organization. Also, if those are the actual risks, PM requires to bring in experts to assist PM in handling them [98].

The risk management plan is the third stage of risk management. It is more related to PM handling the risk and making of risk management plan from a few working

strategies. These six strategies comprise risk elimination, likelihood curtailment, decrease in risk impact, risk transferring, contingency planning and accepting risk. Final stage of risk management is to put risk management plan into action as the PM would have the registered all risks of the project and plans on a risk register that if anything is minute important in project action plan that PM would have register of risk for it which turn out to be a part of the audit trial and hence, it is a management instrument which permits PM to keep track on project performance and to keep an eye on every risk of the project and obviously, whenever PM takes an action, he keeps a record of that action on risk log and monitors its impact on the project. If the action does not reduce the risk satisfactorily then analyze to come up for another plan and take additional actions [99]. Risk register is the primary instrument for PRM and it is endorsed that every PM must build their own risk register for the project [100]. Moreover, MacCrimmon and Wehrung, [101] argued that managing the risk register critically is not sufficient, PM should act on plans and assign every risk to the named individuals (risk owners) and make them in charge of a particular risk and keep an eye to make sure that changes are made if PM do all the needful, risk management would become part of routine; and when PM do PRM well and efficiently as a part of daily routine of project management then risks of the projects would be stayed in control of PM instead of let the risk control the project.

## 2.4 Project Success

According to Marten et al. [102], Project Success (PS) is possible through team performance which is important. The most critical component for PS is team members as they have various traits and skills, thus, combining the individuals for the same purpose is a major task. While composing team, effective communication plays a key role to avoid conflicts and for ensuring the PS [103]. Defining roles and responsibility is also essential for PS in order to recognize skills in contexts of team members [104]. With the help of balance participation composition of group can be successfully possible. Balanced participation means that each member

must join discussion forums or sessions with the intention of get them involved completely in their task [105]. The essential source of PS is an iron triangle [106]. According to Mir and Pinnington, [107], value of the project increases when project management performances and PS linking together. Project Management is essential for PS because when best fit attention cannot be specified to the profits and investments that might elevate the chances of failure [108]. The chances of the PS get decreases by needless changes in design and scope of the project [109]. These kinds of projects are related to infrastructure and design of experiments so in order to guarantee the quality of the project. Due to this reason, to achieve the PS satisfaction of stakeholders becomes a priority [110]. PRM plays an essential role while monitoring and controlling of projects in order to ensure the PS. Along with that, Team influence is also an accountable source of PS [28]. There are important factors for understanding scope creep by keeping in stakeholder expectations [111]. In every single sector of life, PS takes substantial anticipate for cost, time, scope and quality. Management of these aspect of project is essential for successful delivery of projects. Organizational benefits and stakeholder benefits are under successful delivery of the projects. The PS criteria are normally discussed by various researchers in terms of implication, consequence, competency, effectiveness, and sustainability. PS has two aspects. According to Lowe et al. [112], primary aspects include cost, time, quality, and customer acceptance, whereas secondary aspects are new chances, strategic alignment and interruption. Nevertheless, PS dimensions varies from project to project [113].

## 2.5 Relationship between the Project Success and Participative Leadership

The participation term can be used in replacement of engagement, involvement, sharing, contribution and leaderships. According to Kim and Schachter [114] point of view, PL and organizational performance has a robust relationship. Miao et al. [115] discovered that direct effect of participative people employed in the workplaces via supervisor. Researchers have increasingly heeded to PL over the



past two decades [10]. Lam et al. [116] have investigated that PL share job with coworkers so that effective decision making can be held. Nyström [117] has explained the aim of this leadership behavior as to engage workers so that they solve the problem and take effective decisions, which usually requires attention of workers for facilitation of workers and personalized support. Hence, the leadership behavior eventually affects performance of the workers related to decision making process [118]. PL is about commitment with organization and quality of work life [119]. Most of the time PL is related to performance of the task [120]. With the help of direct experience and behavioral observations of others, workers learn from and involve their selves in task for participative leaders. Involvement of workers indicates the degree to workers proactively involve with their task, take initiative and for their individual growth undertake charge. Lu et al. [121] argued that workers who are strongly involved in task kept positive attitudes towards task; concerning it as rewarding; and display robustness, enthusiasm and task absorption. Engagement in work is defined by Kahn [122] as flexible determination attained over the physical venture, cognitive and expressive vigor in roles of task. Nixon, Harrington, and Parker [123] argued that performance and capabilities of the leader is a perilous fortitude of PS. However, the research study of Bortoluzzi et al. [124] has foreground the significance of PL to work performance of workers. According to Kirkman and Rosen [125], the participative leaders divide power, assigning duty and independence to workers and in a result, encouraging them [126]. Somech [119] has discovered that participative leaders take in staffs in solving problem and making decision. To boost the management teams' performance, empowering and PL has been used extensively [127]. The purpose of PL is to bring motivation among employees and coworkers in order to increase the chances of PS. McShane and Von Glinow [128] has that their suggested that it is a condition of psychology in which people feel that their desires are satisfied at organization. Participative leaders most expectedly increase the satisfaction of employees with their responsibilities by motivating them. The study conducted by Lee et al. [129] discovered that leadership empowering at both individual as well as team level effects performance, organizational citizenship behavior and creativity.

When essential responsibilities are performed by the workers which leads to organization's success, their interest in job starts increasing and experiences more satisfaction by achieving their duties. Regarding to social learning Bandura [130], the workers who are highly involved in responsibilities in organization are encouraged by role modeling. The staffs perceive and copy their leaders. Workers normally do good at organization as they are affianced by participative leaders. The PL is based on involving staff in making decision process, and consuming time rising successful interpersonal contracts with the staffs [131]. A participative leader permits the workers to perform creatively by delivering motivating message to them. By involving in various responsibilities, the workers can develop innovative ideas. The employees with short duration contract are more comforted and engaged by the PL with competency, and increases the organizational commitment [132]. Various desires of the workers should be considered while investigating the influences of PL, suggested by [133]. Wagner III and Gooding [134] discovered in their research that the situational aspects have the moderating influence on participative management process. For instance, according to Tews et al. [135], to boost up the enjoyment of workers, fun activities at work can play their role. The seriousness of project processes in accordance with project leader's role and responsibilities has been highlighted by Nixon et al. [123], as it forms clarity, expectations in communication and reliable methods of worker that transformed into PS. The essential ingredient of leadership behavior is emotions' management as it is necessary for empowerment of worker, development and revolution [136]. Related to this matter, Kempster and Parry [137] discourse different styles of leadership in accordance to examine its impact on PS. According to Chen and Lin [138], there are various modes and methods to achieve the objectives of the project like leadership, governance and trust in projects. The mechanism based on motivation and exchange is essential to recognize amid PL and performance [139].

In context of Participative Leadership and Project Success, the Project Manager and Team Leader should have the authority, resources and ability for suitable decisions [2]. In addition, Huang et al. [10] discovered the influence of PL on work

performance. Fatima et al. [140] argues that creativity of the employee increases with time through PL. Furthermore, Hofmann and Jones [141] discovered that in forecasting the collective personality, leadership plays critical role with the help of Big Five personality that is associated with project performance. Participatory leaders holds the traits like command of intelligence which is present in all company, organization and community. To substitute cooperative knowledge and wisdom, the sources of the participatory leadership are conversation and dialogue for more innovative solutions [142]. The other characteristics involved in participatory leadership are principles of self-organization, non-linear solutions, ownership and participation [143]. According to Magzan [142], the major approaches of participatory leadership are rational planning and progress control which is commendation to customary methods of working and founded on skills of good communication. Inclusion is the foundation of change and development, teamwork and boosting the cooperative prospective of the assembly which is conceivable with the help of host part of the leaders. In order to get formation of durable way out, fresh leader play the helper's part hence, the participatory leadership should have the knowledge and nerve to inquire the precise question for significant negotiation by team [144].

Project Success is a multidimensional construct in terms of efficiency [145]. For Participative Leadership, individual project and group of projects can be governed which is necessary for project-based organization [146]. Multi-dimensionality and idiosyncrasy factors are considered as success factors and those factors without structure, grouping and context are considered as project risks [147]. While Hanisch and Wald [148] emphasis that if the nature of relationship between quality and transparency is properly understood then the chances of Project Success increases. In this regard role of Participative Leadership is commendable.

Effective and efficient achievement of project management will eventually lead towards PS [4]. According to Badewi [149] chances of probability of Project Success can be enhanced by combing both project management and benefits management. According to Mazur et al. [150], Project incorporates initiating, maintaining the relationships between respective both stakeholders (internal and external). The

pivotal theme of PL is project objectives are aligned with organization strategy which benefits the organization [151]. Controlled project performances can be held when projects take into consider PL [152]. From the previous studies, it has been witnessed that Participative Leadership is the pre-requisite of Project Success [153]. Participative Leadership is indispensable in every project in order to gain Project Success [154]. Therefore, Lenssen et al. [155] has suggested that tenacity of PL is more about project controls which ultimately provide assistances to achieve project goals means Project Success.

Thus, literature suggests that PL and Project Success (PS) gives a significant insight that Project Manager is not different from line manager in term of Participative Leadership behavior [10]. Project Managers leadership style can affect the PS [2]. While Zulch [156] highlights that there is a significant correlation among Team Members' success and PS. It remains an important factor to know the leadership style of Project Manager because it is difficult without effective leadership in order to produce higher chances of Project Success [157].

Based on the above arguments, it is hypothesized that:

**H1: *There is a positive relationship between Participative Leadership (PL) and Project Success (PS)***

## 2.6 Coworker Knowledge Sharing as a Mediator

CKS is about sharing of task relevant ideas and knowledge with teams and this mechanism facilitates among association between PL and PS. According to Srivastava et al. [53], CKS is used for empowering leadership and enhanced the performance. However, KS behaviors play a vital role in innovation [39]. PL encourages participation of employees and their communication [158]. Individuals have the capacity to absorb the knowledge, however KS is very helpful in assisting individual in absorbing knowledge for innovation [159]. According to Liao et al. [160], KS is resulted in absorptive capacity as new learning abilities and subsequently acquire by the employee. Establishment of mutual trust, system of effective KS culture in terms of communication and organizational norms [161]. CKS provides

innovative products and new technologies in order to provide good services and reliable products in the market which demonstrates the employee's innovation. KS which is fundamental source of innovation and give business market for enhancing competitive advantage [22]. Therefore, Chang et al., [162] suggested that Participative Leadership provide opportunity for innovation through CKS which positively effects employees.

In Participative Leadership and CKS, KS is essential means for activity based on knowledge through which subordinates put their serves to innovation [163]. Exploitation and capitalization of knowledge base resources in organizations is possible through KS between subordinates and teams. Firm innovation and reduction in cost is possible through knowledge sharing [164]. High quality work is possible through PL which encourages the motivation level among team members by providing open discussion forum [119]. motivational and exchanged based which intermediate as psychological links among PL and performance [10]. According to Newman et al. [139], PL positively affect the performance. However, PL is usually connected to team work and their respective outcomes in the form of team innovativeness, conflicts and performances [165]. Empowering leadership is positively related to KS [166]. Moreover, AlShamsi and Ajmal [167] found that organization leadership style is a factor that most influences knowledge sharing. The authors focused their study on technology institutes in the United Arab Emirates, finding that organization culture, strategy, performance, organizational structure and employee engagement all are related to KS in a positive manner which is a main factor of leadership. This suggests the Participative Leadership, which has been demonstrated to improve most of these factors, plays a key role in knowledge sharing [168]. For employee's participation, the participative leader usually builds conducive environment for CKS.

In Coworker Knowledge Sharing and Project Success, knowledge is the valuable resource of an organization and it will significantly contribute in individual and organizational success in terms of Project Success in this regard participation of teams has a significant importance for enhancing team performance. Along with

that group work participation cannot be ignored which is necessary for innovation [119]. Overall performance can be improved through PL. According to Chang et al. [168], PL is important for unit level of participation and usually positively related to each other. Moreover, Kim and Yun [9] has suggested that leader's behavior and characteristics play an important role in shaping the Coworker Knowledge Sharing on task performance by emphasizing that there should be low effects of self-efficacy and abusive supervision on Coworker Knowledge Sharing and task performance. Good CKS is about facilitation in work behavior and innovative capabilities of worker [169]. Work place is the valuable source of learning and employees spent most of the time on work places in this regard coworkers provides valuable support [170]. According to Ipe [75], KS is about "acts of making knowledge available to others within the organization". KS and knowledge transfer are important construct which are usually influenced by social and environmental context [171]. KS is the function of motivation, attitude and willingness [172]. As value is the function of scope and capability therefore knowledge transfer depends upon the knowledge transferors and transferees capabilities and motivation [173]. According to LePine and Van Dyne et al. [174], voice is about "behavior that proactively challenges the status quo and making constructive suggestions". Moreover, voice and KS is usually about risk taking activities and appreciated by researchers [175]. However, Tangirala and Ramanujam [176] put an emphasis on non-conformance which is the assertive form of voice which may lead to disruptiveness of alternative.

While KS is beneficial for everyone in enhancing cooperation among employees, interpersonal skills and pro-social in nature [177]. KS is about innovative potential in individual and creativity in employees [178]. KS is the process of internalization of knowledge which is cyclical in nature and transfer it to externalization [179]. KS among coworkers is important because it is the source of task specific information, innovativeness, job information with problem solving capabilities. Innovativeness comes in products when coworkers share information with subordinates. Novel ideas based on good quality knowledge [180]. CKS usually results in supportive work environment so that coworkers perform actively which is usually provide them freedom of thought. CKS is helpful in creating positive climate among

coworkers and respective employees which eliminates the fear of failure among employees. However, Shenhar and Dvir [147] suggest that the constant change required in project plans necessitates developed knowledge sharing capabilities. The authors explain that initial project plans must evolve during the life of the project. The beginning of a project, for example, is characterized by uncertainty and risk. However, the accomplishment of more tasks reduces the uncertainty experienced at this initial stage. Shenhar and Dvir [147] suggest that managers and project managers must adapt their style to the changing environment. Time and effort are required for acquisition of knowledge [83]. According to Gagné [181], acquisition of knowledge is always valuable resource and instrument of power, status, and reward. So KS has significant importance in social sense as well as in ethical sense, KS is usually consider as donation referred as ethical act in generous and particular at work place [80]. Issac, Herreman and Kline [182], emphasis that withholding of knowledge is the act of maximization of one's self interest which usually creates hurdles in functioning because it hurts team members and survival of organization become a danger so mobilization of knowledge and resources is necessary. In addition, leadership is a determinant to willingness of employees to KS [183]. While Alsharo et al. [184], employees usually feel hesitation in KS because they are suffering from fear of losing control and power. Thus, leader should promote KS and create supportive environment [185].

Hence, the literature has suggested that CKS as a mediator variable among PL and Project Success (PS). PL allow the employees and subordinates to participate in process of decision making. It is important to know that participative leaders are mentor for creating supportive environment. CKS can increase employees innovative work behavior and KS among coworkers which is source of task and job specific information for increasing the problem-solving capabilities. Coworker Knowledge Sharing is perilous for PS because of risks in innovative activities. In implementation of ideas and support of coworkers play a vital role in social approval of idea. Trust factor is the important attribute of coworker [186]. CKS is the basic pillar of management function in terms of planning, forecasting and

monitoring of software projects [187]. Therefore, it can be claimed that good PL results in enhanced CKS which is necessary for PS and indicates that CKS mediates between PL and PS.

Grounded on the above point of views, it is hypothesized that:

**H2: *Coworker Knowledge Sharing positively mediates between Participative Leadership (PL) and Project Success (PS).***

## 2.7 Project Risk Management as a Moderator

PRM has significant importance in project management in this regard leadership style plays a unique role in identification of risk. PRM processes, techniques and insights are necessary to know in order to deal with project risks which is event has the ability to impact the project in optimistic or harmful way to project targets [188]. Project risk usually have the capability to deviate from objectives [189]. Project Managers who want constant success must modify their style with the changing circumstances [147]. Risk has the ability to happen at any time through the life cycle of the project it means from initiation phase to closing phase. Therefore, constant change mechanism and M&C is needed to take right decision for this reason KS capabilities play a vital role. KS is influenced by organizational leadership and organizations have mechanism of KM which is improved through PRM which helps in develop risk response strategies for moderating KS [167]. Therefore, PL has significant role in CKS [162]. As PL is about engagement of employees and they provide solution of the problems. Therefore, PRM is necessary to enhance value of organization and PS [190]. According to Datta and Mukerjee [191], the immediate step of PRM is early identification of all risk to make risk management plan. So, CKS and risk reduction strategy go hand in hand. Accurate risk analysis is the requirement of PS [192].

In Project Risk Management, it is important to understand the difference between priori risk and emergent risk [193]. As PRM effects the project performance



therefore it is important to understand the project performance, which measure the system of quality and consider risk management profiles [194]. According to Keil et al. [195], decision maker's role is very important in project management therefore it is important to consider the willingness of decision maker which is usually effected by uncertainty avoidance. While Shore [196] emphasis that process of decision making has worth significance and value in project management which have the strength to overturn the process. Performance is based on both project risk and project control [195]. Threats and opportunities are necessary for risk analysis [197]. According to Liu et al. [198], interpersonal conflicts and user requirements both are necessary to understand. Project participation is necessary for managing risk area [2]. Management of uncertainty is essential for managing the sources of residual risk [199].

In Project Risk Management and Participative Leadership, PL usually involves individuals in process of decision making for reducing hierarchical barriers and by extracting information. As team members have a diverse knowledge and have a skill to solve a problem with possible solutions, it is the duty of the project leader to assign right task to a right person by using is leadership style. According to studies, in corrective actions are taken by the leaders are usually due to communication gap which will leads towards deterioration of team work [29]. In traditional or moral regard PRM plays a significant role and risk profile should be suitable to identifying risks [200]. Now a days in software project, the general notion is estimation of risk by using formula i.e.;  $R = P * I$ . The next step is prioritized the risk in order to take the control measures like mitigation strategies and contingency plans. The risks are monitored throughout the life cycle of the project and detect before the threat materialized. Knowledge of risk is very important and it has four type such as Known-Known, Known-Unknowns, Unknown-Known and Unknown and unknowns. Interestingly, Known-Knowns are about the things, issues and problems of the project that we know. While Known-Unknowns are the things that we know but we do not know, these are such kind of risk which are looking forward for mitigation strategies as foreseeable threats. However, Unknown-Known are the risk about which knowledge of the risk others have but we

do not know about them and Unknown-Unknowns are total uncertain event that is completely unforeseeable threat. Risk management is not sufficient for improving the project in this perspective management of incomplete knowledge is important to consider [201].

Moreover, Participative Leadership provide incentives for good Project Risk Management for Project Success in terms of innovation [202]. The Participative Leadership play a vital role in managing teams [203]. In software development sector, novel product is the true essence of Project Success which is possible through Participate Leadership by team work, useful ideas of individuals and employee creativity [204]. Participative Leaders consult employees in making organizational decisions [119]. It is the duty of the project manager to maintain a risk register and report the high-level risk to project steering committee on monthly basis. Decision making itself a risk [139]. Coworker Knowledge Sharing is based on interpersonal skills of Participative Leadership to share their knowledge and information in decision making process. PL is about question asking for good quality decisions. It is the responsibility of the senior management to manage projects properly by using authority and with good decision making for the purpose of oversee the project [44]. Overall efficiency of the project relies on proper PL. Through proper PL one can have a good decision regarding project with the participation of project team. In short, PL is about participation of employee. Meanwhile, Higgins [205] had more emphasized about good decision making. One of dimension of PL is stakeholder satisfaction, this type usually impacted by participation approach and culture of the project [46]. In software projects, risk checklist, risk frame works are used with the help of risk response strategies by applying different tool and techniques which are used by organization for risk assessment, benefit in subsequent projects and business outcomes [206].

In Project Risk Management and Coworker Knowledge Sharing, shared decision making is possible through Coworker Knowledge Sharing for risk assessment and their resolution through Project Risk Management in Software development projects which is a quite difficult task because it involves many stakeholders [207].

In this regard, probability and impact matrix is used for risk assessment by measuring the low, medium and high probability risk for PS [208]. On day-to-day basis shared decision making is possible through effective Project Risk Management in possible risk areas team diversity, team perception and project technology with the help of Coworker Knowledge Sharing in order to increase the chances of PS especially in software development projects [209]. As CKS is more about sharing of ideas which are task relevant, information or knowledge and suggestions with employees therefore knowledge sharing area is best fit in software development especially in context of software teams who are constantly best invest in knowledge sharing efforts in order to made better communication [210]. Moreover, Ghobadi and Mathiassen [207] provides the basis to assess the knowledge sharing risks and share risk management strategies for mitigating risks in software development sector. At a project level, in software projects usually there are two kind of risks. One is generic risk and second is project specific risk. However, risk management is important in software projects which would help in avoidance of rework, avoid disasters by focusing and balancing the efforts through stimulation of win-win situation [15]. Knowledge sharing is the exchange of knowledge that occurs throughout the organization [74]. Organizations that excel in knowledge management create new opportunities for businesses through improved risk management [167]. An organizational focus on the accumulation and sharing of knowledge helps develop the ability to adjust strategies and respond appropriately to changing work conditions for risk reduction [167].

In Project Risk Management and Project Success, conceptually, risk are uncertain event that may arise unexpectedly during the project's phases in progress and may responsible for the hindrance of governance strategies which influence the Project Performance. There are six dimensions of risk factors for project performance [211]. While Nidumolu [212] discuss the relationship between standardization and uncertainty with the aim of enhancement in Project Performance. Project uncertainty directly affected performance of processes and projects [213]. Organizational factors and Project Risk Management both plays a vital role in order to increase chances of Project Success [214]. Risk administration plays an important role in

order to control project risks for Project Success [15]. Project Risk Management is about managing the risk and uncertainty sources in terms both opportunities and threats [215]. According to Hillson and Murray-Webster [216], risk processes are most of times affected by individual's attitude. Therefore, traditional criteria for PS in terms of time, cost and quality is achieved through proper PRM [217].

Thus, the literature has suggested that Project Risk Management (PRM) moderates the Coworker Knowledge Sharing (CKS) and Project Success (PS). It is important to mitigate the risk before it impacts the Project Performance [218]. Uncertainty and project risks can increase the value of the project because sponsors seek projects that have potential for large payoff [219]. In order to support the management function particularly in context of planning, forecasting, monitoring of complex project can be possible through Project Risk Management [220]. Therefore, it can be claimed that good PRM results in enhanced CKS which is successively lead to PS and indicates that Project Risk Management (PRM) moderates between CKS and PS.

Through above literature it is hypothesized that:

**H3: *Effective Project Risk Management is positively moderating between Coworker Knowledge Sharing (CKS) and Project Success (PS).***

## 2.8 Gap Analysis

Carmeli et al. [221] has suggested the impact of Participative Leadership (PL) on Project Success (PS) in an aim to improve the organizational performance and strategic decision making. According to Lima [24], decision making itself is a risk in everyday activity. Effective and efficient Project Risk Management (PRM) affects Project Success (PS) [222]. Work performance also increases through Participative Leadership (PL) [10].

The mediating role of Coworker Knowledge Sharing (CKS) is highlighted by Chang et al. [168], but in order to find unit performance only. This study used the gap to study the Participative Leadership (PL) with Coworker Knowledge Sharing (CKS).

The link amid Coworker Knowledge Sharing (CKS), Participative Leadership (PL) and Project Success as a mediation remained unclear which indicates the first gap of the research. Recent studies did not explore the mediating role of CKS amid PL and PS inclines the potential gap. The research gap is to investigate mediating role of CKS on PL and PS.

Furthermore, the moderating role of Project Risk Management (PRM) amid CKS and PS is not explored yet. To achieve the precise outcomes project-based organizations focuses on duties and accountabilities to assist over control risk including improved communication [223]. There are a lot of benefits of using the tools of PRM [224]. According to Wallace et al. [211], the upper and lower risks would have an inverse impact on project performance with the release of accountability in the area of each management approach. Project Risk Management integrates in all project management processes [225]. Implementing Project Risk Management (PRM) is a cautious activity that organizations must conduct to achieve viable advantage [14]. Hence, the relationship amid PRM, CKS and PS in terms of moderation is not clear which indicates the second gap of research.

In this perspective, study has provided opportunities to study this unique relationship between PL and PS via CKS as mediating variable and PRM as moderating variable in the context of software development sector. Software projects are in the need of rational decision making which is possible through PRM. As PL has the potential to engage the employee and participate in decision making so there is more need to study on the subject [226].

As the recent studies has suggested that Participative Leadership (PL) impacts on Project Success by improving performance, sustainability, innovation, efficiency and effectiveness so the purpose of current research to study the PS in the perspective of PL through CKS as a mediating variable including study in detail the moderating role of Project Risk Management (PRM).

The initiative of this research is to identify the connection amid PL and PS through mediating role of CKS and moderating role of PRM. The valuable means of PL with effective CKS and PRM for PS will be provided in this research.

This research will contribute to literature in many ways. For example, this research investigates the mediating role of CKS on PS, which is not available in existing studies of research. Moreover, examining the moderating role of PRM to improve the existing literature of PL.

## 2.9 Research Model

The research model of this research study is depicted in Figure 2.1:

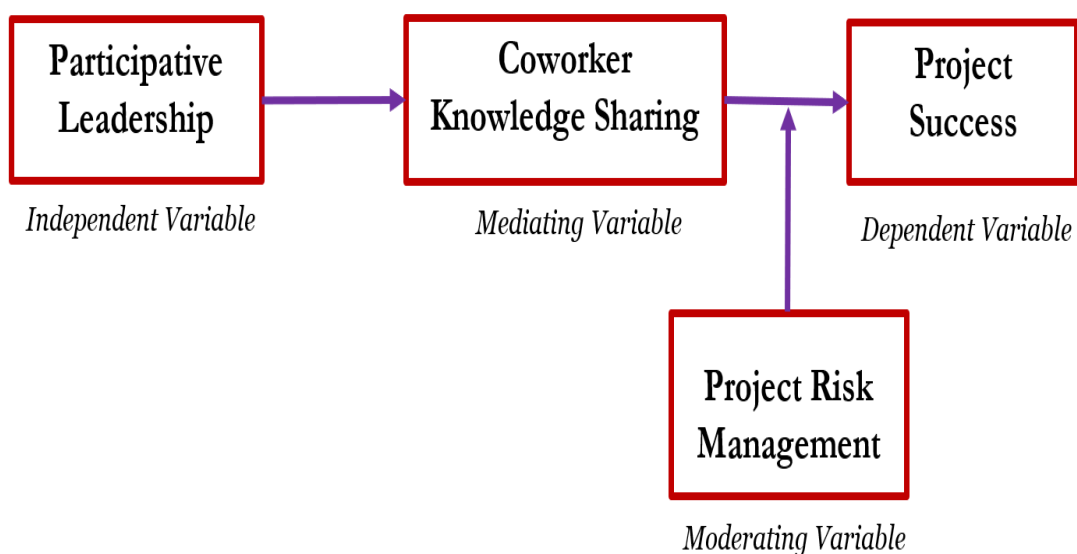


FIGURE 2.1: Research Model

This model works for an organization, who undertakes projects and we can see how this model works by observing the theoretical framework. This model depicts the impact of PL on PS by emphasizing on the role of PL which is related to PS through proper Project Risk Management by project managers and coworkers who are not only responsible for team motivation and inspiration but also for decision making for organizational goals. A project manager is held accountable for project decision as PL has provides incentives for active participation among coworkers so that they can share their knowledge in order to produce innovative product and solves the uprising problems and emergent risks during the life cycle of the project or product. As rational decision making is the possible through research and logical evaluation by selecting the possible choices based on reasons and facts.

PL plays a vital role in good decision making which not only help the project manager but also increases the chances of PS. It means good participatory leader not only identify the change in project life cycle but also give vision and guideline to project team for the execution of change. So, Project Risk Management will be moderating variable for strengthen or weaken relationship amid CKS and PS, where CKS usually provides room for decision making which is possible with the help of in order to produce novel product. Moreover, Project Risk Management is the effective and efficient source of decision making and tool to deal with change in the best possible way in software projects.

The intermediary variable is the middle variable/"middleman" amid Independent Variable (IV) and Dependent Variable (DV). Explaining the association amid IV and DV is the ultimate objective of mediating variable. For instance, IV is not effecting DV directly but by the help of mediating variable. In the form of pictogram, Participative Leadership (IV) → Coworker Knowledge Sharing as Mediator variable → Project Success as Dependent variable (DV). The research model represents that Participative Leadership impacts Coworker Knowledge Sharing (mediator variable) and then Coworker Knowledge Sharing is positively influencing Project Success.

To modify the relationship amid IV and DV, a third party variable is required which is known as Moderator variable. It is used to estimate the strength of relationship amid IV and DV. To depict this information in pictorial form, the arrow line of the PRM as moderator variable is pointing the center of the arrow lined relationship amid CKS as mediating variable → PS as DV. The research model represents that Project Risk Management is a moderator variable between Coworker Knowledge Sharing (MV) and Project Success (DV), then relationship between Participative Leadership and Project Success can be stronger for innovative product or outcomes in software projects.

As CKS is about ideas according to knowledge sharing is possible therefore, knowledge sharing area is best fit in software development especially in context of software teams who are constantly best invest in knowledge sharing efforts in order to made better communication. As team members have a diverse knowledge and

have a skill to solve a problem with possible solutions, it is the duty of the project leader to assign right task to a right person by using is leadership style. According to studies, the corrective actions are taken by the leaders in software development are usually due to communication gap and this communication gap is caused by deterioration of team work. However, Participative Leadership play a vital role in managing teams. In software development sector, novel product is the true essence of Project Success which is possible through Participate Leadership by team work, useful ideas of individuals and employee creativity. Participative Leaders consult employees in making organizational decisions. It is the duty of the project manager to maintain a risk register and report the high-level risk to project steering committee on monthly basis. Decision making itself a risk. Coworker Knowledge Sharing is based on interpersonal skills of coworkers to share their knowledge and information in decision making process. PL is about question asking for good quality decisions. It is the responsibility of the senior management to manage projects properly by using authority and with good decision making for the purpose of oversee the project. Overall efficiency of the project relies on proper PL. Through proper PL one can have a good decision regarding project with the participation of project team. In short, PL is about participation of employee. One of dimension of PL is stakeholder satisfaction, this type usually impacted by participation approach and culture of the project.

In software projects, risk checklist, risk frame works are used with the help of risk response strategies by applying different tool and techniques which are used by organization for risk assessment, benefit in subsequent projects and business outcomes. The risks are monitored throughout the life cycle of the project and detect before the threat materialized. In this regard, knowledge of risk is important in order to deal with knowledge sharing risks by using probability and impact matrix. Alone information, task relevant ideas and suggestions by Coworker Knowledge Sharing are not sufficient for Project Success. There is a sheer need of Project Risk Management which maintains system for information update in general and changing standards or regulations in particular. Therefore, Project Risk Management is the moderator variable and modifying the relationship between PL and



PS for useful decision making in software projects.

By mapping the research model with PDM theory, we can observe that this theory will play its role in current study. As this theory gives an insight that participatory leaders are the soul of the organization because participatory leader is the one who works for organizational goals. It can be observed that research model which is given above, whose components are PL, CKS, PRM and PS is the best fit for PDM theory. This theory is derived for responsible planning and management of resources, which are the responsible factors for project success (PS). Project Success (PS) is about meeting project objectives in terms of triple constraints Scope, Cost and Time. Since, Project Governance provides the structure of authority, which not only deals with control of project activity and project processes in order to allocate resources but also provides a management framework for decision making. Therefore, PL is the critical element of any project and participatory decision-making theory that emphasized on managerial behavior in the corporations within the governance structure. However, managers are one who choose to behave as stewards or agents while their choice is reliant on their psychological motivation and their perception of situation. In day-to-day business, the Participatory Leaders view the whole process as commitment to the organizations and its stakeholders. PDM theory is focused on leader's participatory behavior and pro-organizational behavior. Decision making is a risk itself and Coworker Knowledge Sharing is based on interpersonal skills of coworkers to share their knowledge and information in decision making process. PL is about question asking for good quality decisions. It is the responsibility of the senior management to manage projects properly by using authority and with good decision making for the purpose of oversee the project. Alone information, task relevant ideas and suggestions by Coworker Knowledge Sharing are not sufficient for Project Success. There is a sheer need of Project Risk Management which maintains system for information update in general and changing standards or regulations in particular. PRM guides the Project Managers in decision making and helps in action taking in order to alleviate risk for achieving organizational goals such as processes and resources. While PDM theory focused on the association between leaders and members. The

goal of this theory is specifying the leadership style for the increase of the productivity of the employee's performance, motivation, satisfaction and empowerment of an employee. The primary aim of PDM is for the organization to benefit from the "perceived motivational effects of increased employee involvement. Each team member has the opportunity to share ideas and perspectives to improve the effectiveness and efficiency of the team as a participatory approach creates such kind of environment.

It prepares the leaders to deal with difficult situations which come in the form of change and motivates the team in order to increase the organizational performance for achieving project goals. Leader's association with its member is not only important for Project Success but it is also helpful in organizational gains. The goal of theory is specifying leadership style for the increase of the productivity of the employee's performance, motivation, satisfaction and empowerment of an employee. Job satisfaction, task motivation and performance by subordinate when combine with Participatory Leadership it influences job performance in the perspective of participatory decision-making theory.

Hence, the PDM theory is perfectly fit on research model. This underpinning theory will provide base for result explanation and help us in order to find the direction of the research in the form of end result.

## 2.10 Research Hypotheses

Summary of the proposed hypotheses of the Current Study are given below:

**H1:** There is a positive relationship between Participative Leadership (PL) and Project Success (PS).

**H2:** Coworker Knowledge Sharing positively mediates between Participative Leadership (PL) and Project Success (PS).

**H3:** Effective Project Risk Management positively moderates between Coworker Knowledge Sharing (CKS) and Project Success (PS).

# Chapter 3

## Research Methodology

This chapter is based on inclusive methods and processes that were implemented and performed in this research for generating appropriate results. With the help of proper instrumentation, primary data were collected and analysis of the data was performed by various statistical tools. Population, sample characteristics, research design and reliability of each variable along with variables' instrumentation and sampling technique used in this research are highlighted in this chapter.

### 3.1 Research Design

#### 3.1.1 Type of Study

The main concentration of this research is to understand the relationship amid PL and PS along with mediating role of CKS and moderating role of PRM in IT/Software Industry in milieu of Islamabad and Rawalpindi. For gathering the essential data for attaining proper results, IT/Software Industry was targeted. Convenience sampling techniques was also used in this research. The established target was 350 of sample size in the beginning. It was supposed that the entire population of Islamabad and Rawalpindi will be representing the population sample that will assist in attaining the appropriate results from the sample statistics. To approach large measure of population, the quantitative method approach is

used as well. Therefore, to achieve the quality of the data, quantitative method approach is used in this study.

### **3.1.2 Study Setting**

It can be said that this research is a field study as the designed survey questionnaire was filled during working hours by the respondents who are employees (Engineer Manager, Project Manager, Project Leader, Team Leader, Software Engineer, Computer Engineer, Advisor and Expert) of Software/IT Industry in twin cities of Pakistan. The core team members of the projects like Engineer Manager, Project Manager, Project Leader, Team Leader, Software Engineer, Computer Engineer, Advisor and Expert; who had the direct impact on the success of the project; had answered the questions of the survey related to latent variables i.e., Participative Leadership (PL), Coworker Knowledge Sharing (CKS), Project Risk Management (PRM) and Project Success (PS). Hence, the participants of this survey were associated from top management level to subordinate level and all the information related to the research was gathered from Software/IT Industry of Rawalpindi and Islamabad. Because of Pandemic COVID-19, the process of data collection had faced hurdles in accomplishing the set target. While collecting the data, proper SOPs were followed and all the survey questionnaires were filled by the particular respondents of the research.

### **3.1.3 Unit of Analysis**

The main component of a research is unit of analysis. From various subordinates (like Engineer Manager, Project Manager, Project Leader, Team Leader, Software Engineer, Computer Engineer, Advisors and Experts) the information was collected which have experience on different projects. Thus, Engineer Manager, Project Manager, Project Leader, Team Leader, Software Engineer, Computer Engineer, Advisor and Expert are the unit of analysis of this study. As stressed by Jugdev and Müller [227], the worthwhile output is relied on satisfaction of key

stakeholder so this approach is related to goals of the organization and success of the project. As the specific subordinates who are the core team members are the unit of analysis of this study and along with that as they have a direct impact on the success of the project, its execution, performance and instigation as well by the IT/Software based project organization and industry, hence, this research is based on micro level.

### **3.1.4 Population and Sampling**

The population of this research relies on the subordinates that were recently employed in various IT/Software houses of twin cities of Pakistan (Rawalpindi and Islamabad). For gathering data, this study has covered numerous projects. Therefore, the survey questionnaire was filled from various Software/IT houses that are working on numerous projects (i.e., Web applications design & development and Mobile application development). The respondents were specifically the subordinates who are working on projects and core team members of it i.e., Project Manager, Engineer Manager, Project Leader, Software Engineer, Computer Engineer, Team Leader, Advisors and Experts. The Participative Leadership (PL) has an impact of its subordinates (core team members) who are working on a particular project; hence, the survey was filled by them related to PL in a project. The coworkers have also an impact on project and have experience of Coworker Knowledge Sharing (CKS) (the mediating variable); hence, such respondents have also filled the questionnaire. The Project Risk Management (PRM) (the moderating variable) is a special part of every project and plays an essential role in Project Success (PS). Hence, the workers who deals with Project Risk Management (PRM) were also the respondents of the survey. The questionnaire was distributed in November, 2020 with the help of Google Forms among 350 workers that are associated with Software/IT Industry in respect to COVID-19 pandemic. With the help of Likert 5-point scale, the feedback was rated by the respondents that are ranges from 1 strongly disagree to 5 strongly agree. The survey was composed of demographic variables related to respondents/participants i.e., Gender,

Age, Qualification, Experience, Designation. Initially, the questionnaire was distributed among 350 workers and were the set target due to COVID-19 pandemic. Out of 350, 315 responses were received but number of genuine responses are 308. Hence, the sample size is 308 and the response rate is 88%.

### **3.1.5 Sampling Technique and Data Collection Procedure**

The castoff procedure for collection of data is known as sampling. In this research, convenience sampling technique was used as it more related to non-probability sampling and was adopted because of time limitations. On the basis of feasibility of appropriate data collection, the data was collected in this sampling. Hence, to study the impact of PL on PS with mediating role of CKS and moderating role of PRM this sampling technique was used to collect data from Software/IT Industry that are running in twin cities of Pakistan i.e., Islamabad and Rawalpindi.

The research scholar has led this survey with an aim to understand the noteworthy insight of PL and PS on Software/IT industry that are accompanied with mediating variable CKS and moderating variable PRM; was depicted in the attached cover letter of questionnaire. Respondents' privacy was guaranteed by assuring them of keeping their name confidential along with their reactions that helped them to respond the questionnaire freely and honestly.

## **3.2 Instrumentation**

### **3.2.1 Measure**

The survey questionnaire was designed in English language and were distributed online among the participants. The data was gathered on the foundation of Likert-type 5-point scale which was fluctuated from 1= Strongly Disagree to 5 = Strongly Agree. In the beginning, the questionnaire was distributed amid 350 individuals. The reliability and validity were tested by the help of Cronbach's Alpha technique.

The acceptance range of it is 0.7 and all the measurement disclosed the score. The survey was distributed amid sample-based organization belong to twin cities of Pakistan once the reliability and validity was established. None of the respondent faced any kind of difficulty in understanding the questionnaire as all of them were graduated from university and the writing of the questionnaire is simple.

For all the variables adaptive instruments are used form previous literature and related details are as follows in Table 3.1:

### **Participative Leadership**

PL scale established by Arnold et al. [3]. It carries 6 items.

### **Coworker Knowledge Sharing**

Kim and Yun [9] seven-item scales were assumed to evaluate CKS.

### **Project Risk Management**

The scale of PRM is built on 9 item scale of Wallace et al. [211].

### **Project Success**

PS scale established by Aga et al. [34]. It carries 14 items which expresses the PS.

TABLE 3.1: Instrumentation

<b>Variables</b>	<b>Source</b>	<b>Item</b>
<b>Participative Leadership</b>	Arnold et al. [3]	6
<b>Coworker Knowledge Sharing</b>	Kim and Yun [9]	7
<b>Project Risk Management</b>	Wallace et al. [211]	9
<b>Project Success</b>	Aga et al. [34]	14

## **3.3 Statistical Tool**

Through IBM SPSS AMOS, fitness statistics of measurement model was tested and analyzed which includes various indices like RMSEA, AGFI, GFI and CFI.

If the value of GFI is greater than 0.8 and is closer to 1 then it is considered as good fit. Also, if the value of AGFI is not lower than 0.8 and closer to 1 then it is considered as good fit. If the value of RMSEA is greater than 0.05 then it represents best fit model. On the basis of fit statistic criteria CFA approach was used.

### **3.3.1 Measurement Model**

For validation of measurement model that is based on four latent variables i.e., Participative Leadership (PL), Coworker Knowledge Sharing (CKS), Project Risk Management (PRM), and Project Success (PS), Confirmatory Factor Analysis (CFA) approach was applied. Various indices were considered for achieving this purpose like RMSEA, CFI, Incremental Fit Index (IFI) and Tucker-Lewis Index (TLI) to assess the model fit. The results of CFA measurement model are shown in Chapter 4.

## **3.4 Pilot Testing**

Pilot study is suggested as a proactive strategy for avoiding uncertainties like time and resource constraints. 30 filled questionnaires are the minimum criteria for conducting pilot testing and 50 at maximum for evaluating the validity of the data. Pilot testing is used to ensure there is no fault in scale or in variable. Therefore, with 30 questionnaires pilot testing was carried out in this research.

## **3.5 Techniques for Data Analysis**

The data analysis was done on SPSS-21 after collecting from 350 respondents by adopting the following procedure:

1. Only those questionnaires were finalized for analysis that were filled appropriately.



2. Each variable was coded use them for data analysis.
3. Tables of frequency were used for explaining the features of samples.
4. Descriptive statistical analysis was carried out by using numerical values.
5. AMOS-26 was used to check the fitness of the measurement model by adopting CFA approach.
6. The reliability of each variable was tested by using Cronbach alpha.
7. For checking the significant relationship among all variables, correlation analysis is carried out.
8. Linear regression analysis was carried out between dependent variable and independent variable for finding out the proposed relationship.
9. The mediation and moderation analysis are carried out by considering Preacher and Hayes processes.
10. The proposed hypotheses were tested for checking the acceptance and rejection statistically.

# Chapter 4

## Results

The fundamental relationship between PL and PS can be found with help of linear regression. Acceptance and rejection of hypothesis checking can be possible through regression analysis. Preacher and Hayes [228] Macros are used for further mediation and moderation analysis. In this regard, there are some steps which are must be followed. The very first step is about putting the variable PS into the outcome variable. The next step is to put PL into IV column. The necessary step is to choose the Model number in order to perform mediation and moderation analysis through Preacher and Hayes respectively.

### 4.1 Results of Demographic Data

The demographics section of the questionnaire was divided into age, gender, experience, qualification and designation subsections in this research study. The respondents of this research were belonging to Software/IT industry. Elaborated sample characteristics are given below:

#### 4.1.1 Gender of Respondents

The society is based upon gender which is an essential element for bifurcation between male and female representation. Therefore, it is also a part of the demographic section of survey questionnaire. The ratio of male and female respondents

who took part in the survey are displayed with the evidence of 69.5% and 30.5% respectively in Table 4.1:

TABLE 4.1: Gender Distribution

Gender	Frequency	Percent
Male	214	69.5
Female	94	30.5
<b>Total</b>	<b>308</b>	<b>100</b>

### 4.1.2 Age of Respondents

Another essential element of the demographic section is age and was included for collecting the information of the respondents. The respondents have age range from 26 to 33 were 50 with 16.23%. The respondents having the age range from 34 to 41 were 131 in total with percentage of 42.85%. The respondents having range from 42 to 49 were 116 with 37.67%. Whereas, the respondents with age greater than 50 were 11 in number and 3.57%. In Table 4.2 shows the age distribution of the respondents in detail:

TABLE 4.2: Age Distribution

Age	Frequency	Percent
18-25	0	0
26-33	50	16.23
34-41	131	42.85
42-49	116	37.67
50 and above	11	3.57
<b>Total</b>	<b>308</b>	<b>100</b>

### 4.1.3 Experience of Respondents

One of the efficient demographics is experience as it is prerequisite of Project Success (PS) and contributes in Participative leadership (PL) as well. Out of

308 respondents in total, 59 respondents were belonging to experience range 5 to 10 with 19.15%. The respondents with experience range 11 to 16 were 137 in number having percentage 44.48%. The experience ranges from 17 to 22 were 88 in frequency and have percentage of 28.57%. The experience ranges from 23 to 28 were 21 and its percentage was 6.81%. The respondents having more than 29 years' experience were 3 in number and 1% in percentage. The Table 4.3 represents the experience distribution of the respondents:

TABLE 4.3: Experience Distribution

<b>Experience</b>	<b>Frequency</b>	<b>Percent</b>
<b>5-10</b>	59	19.15
<b>11-16</b>	137	44.48
<b>17-22</b>	88	28.57
<b>23-28</b>	21	6.81
<b>29 and above</b>	3	1.0
<b>Total</b>	308	100

#### 4.1.4 Qualification of Respondents

Qualification is basically an attribute, quality or ability that accepted a person to perform a particular job or task. Hence, it is also the part of demographic section. The Table 4.4 shows the details of qualification of the respondents where most of the respondents were Bachelor degree holder with 62.66%. The MS/M.Phil. degree holder respondents were 108 in number with 35.06%. However, the respondents with Ph.D. degree were 7 in number and 2.27%.

TABLE 4.4: Qualification Distribution

<b>Qualification</b>	<b>Frequency</b>	<b>Percent</b>
<b>Metric</b>	0	0
<b>Inter</b>	0	0
<b>Bachelor</b>	193	62.66
<b>MS/M.Phil.</b>	108	35.06
<b>Ph.D.</b>	7	2.27
<b>Total</b>	308	100

### 4.1.5 Designation of Respondents

Table 4.5 depicts the following frequency of respondents having Project Manager with 2.92%, Engineer Manager with 1.62%, Project Leader with 15.25%, Team Leader with 19.80% Software Engineer with 33.44%, Computer Engineer with 16.88%, Advisors and Experts with 10.06%.

TABLE 4.5: Designation Distribution

Designation	Frequency	Percent
Project Manager	9	2.92
Engineer Manager	5	1.62
Project Leader	47	15.25
Team Leader	61	19.80
Software Engineer	103	33.44
Computer Engineer	52	16.88
Advisors and Experts	31	10.06
<b>Total</b>	<b>308</b>	<b>100</b>

## 4.2 CFA for all Latent Variable

Table 4.6 shows a first rate fit of the data achieved by measurement model with  $RMSEA = 0.06$ ,  $CFI = 0.93$ ,  $TLI = 0.92$ ,  $IFI = 0.91$ , and  $Df/X^2 = 2.78$  derived by using CFA approach. It depicts the validity of the four-factor model is satisfactory. In addition, it also represents that all the items loaded are significant according to their peculiar latent factors. The range of the factor loading is from 0.65 to 0.99.

TABLE 4.6: Measurement model

Model	Factors	$X^2/Df$	RMSEA	IFI	TLI	CFI
Hypothesized Model	Four	2.78	0.06	0.91	0.92	0.93

Following diagram is the CFA Model of PL variable:

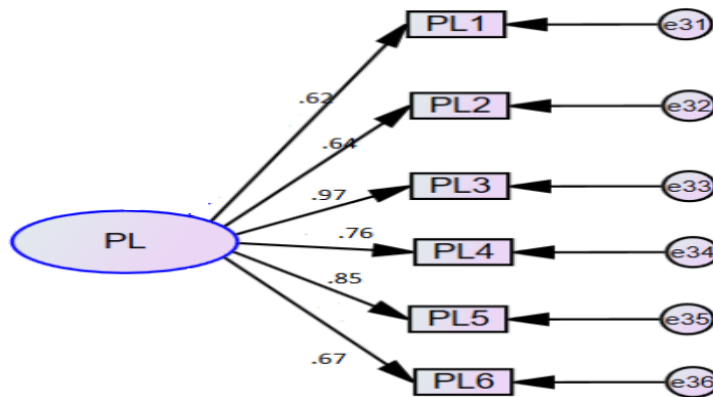


FIGURE 4.1: CFA for PL Variable

Following diagram is the of CFA Model of the CKS variable :

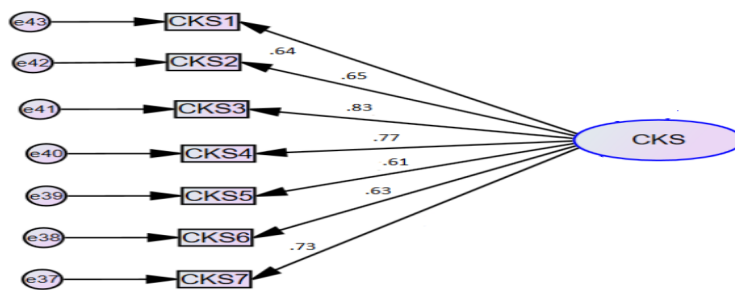


FIGURE 4.2: CFA for CKS Variable

Following diagram is the CFA Model of PRM variable :

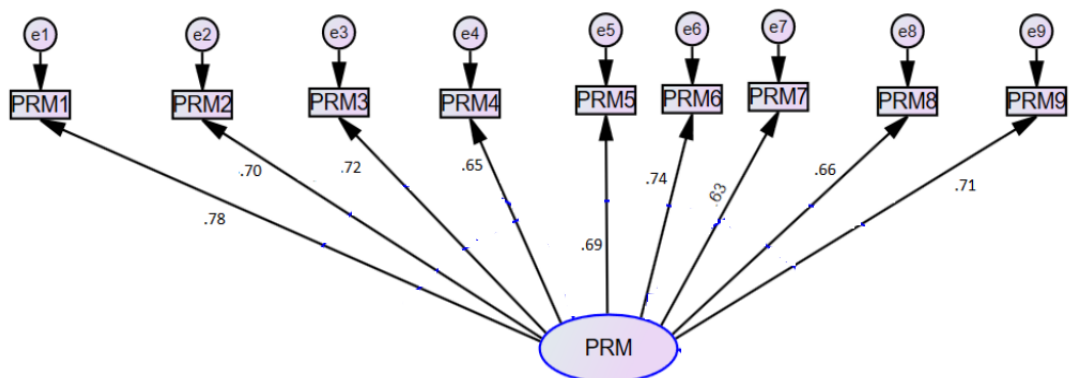


FIGURE 4.3: CFA for PRM Variable

Following diagram is the CFA Model of PS variable :

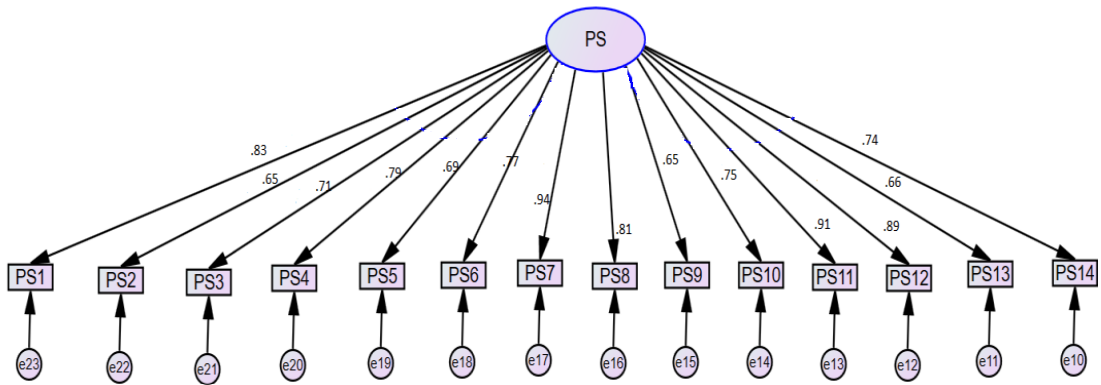


FIGURE 4.4: CFA for PS Variable

Following diagram is complete CFA Model:

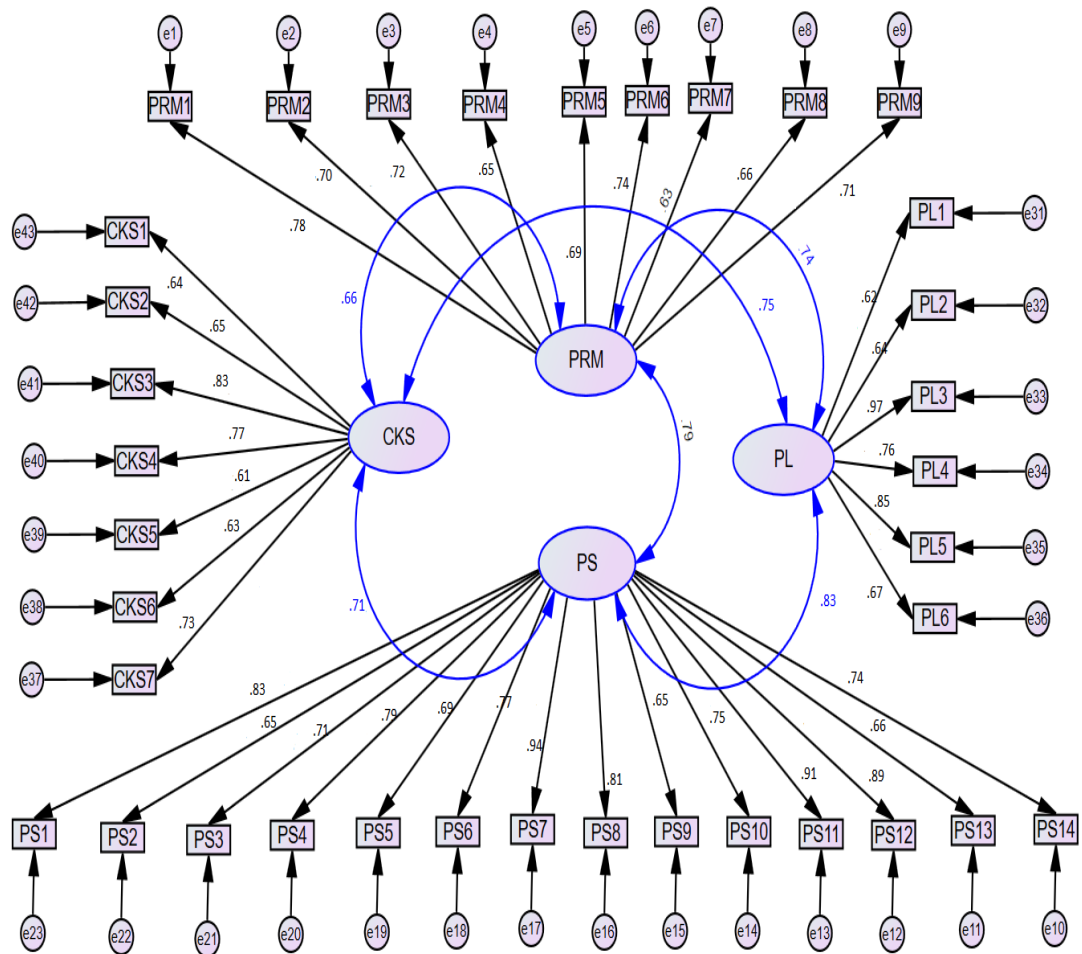


FIGURE 4.5: CFA for Complete Model

### 4.3 Reliability of a Scale

Reliability of a scale can be distinct as the scale that produces the same results specifically when it is tested again and again. With the help of Cronbach's Alpha ( $\alpha$ ) the reliability of the scales used in this research were tested. If the value of Cronbach's Alpha ( $\alpha$ ) of a scale is greater than 0.7 then it means the scale is highly reliable whereas the range of Cronbach's Alpha ( $\alpha$ ) is from 0 to 1. Hence, the reliability value of all variables i.e., PL, CKS, PRM and =PS are greater than 0.7 as depicted in Table 4.7 which is  $\alpha = 0.764$ ,  $\alpha = 0.790$ ,  $\alpha = 0.868$  and  $\alpha = 0.771$ .

TABLE 4.7: Scale Reliability

Variable	Cronbach's Alpha	Item
Participative Leadership	0.764	6
Coworker Knowledge Sharing	0.790	7
Project Risk Management	0.868	9
Project Success	0.771	14

### 4.4 Descriptive Statistics

Representation of descriptive statics of the data is given in Table 4.8. The sample size is represented by N and total number of respondents are 308. However, the mean values represent the average number of respondents. Thus, the highest mean value is of Participative Leadership (PL) i.e., 3.70 and the lowest mean value is of Project Success (PS) i.e., 3.38.

TABLE 4.8: Descriptive statistics

Variable	N	Min.	Max.	Mean	SD
PL	308	1	5	3.70	0.932
CKS	308	1	5	3.65	0.975
PRM	308	1.33	5	3.68	0.892
PS	308	1.57	5	3.38	0.833



## 4.5 Correlation Analysis

There is no normality problem in the current data, therefore, correlation analysis is possible in order to determine the link among all variables. The current study aims to conduct the correlation analysis in order to find the correlation among PL and PS in the perspective of mediating role of CKS and moderating role of PRM in such a way that; the proposed hypothesis must be valid. Here, it is to know the importance of Pearson Correlation range ( $r = -1$  to  $1$ ). The strength of the relationship among two variables can be checked through the magnitude of the value of  $r$ . PS variable was significant and positively related to PL ( $r = 0.319^{**}$ ,  $p < 0.01$ ) is depicted in the Table 4.9, Coworker Knowledge Sharing (CKS) is the mediating variable was positively related to PL ( $r = 0.440^{**}$ ,  $p < 0.01$ ) and PRM is the moderating variable which is positively correlated to PL ( $r = 0.390^{**}$ ,  $p < 0.01$ ).

TABLE 4.9: Correlation Analysis

Variable	1	2	3	4
PL	1			
CKS	0.440 <sup>**</sup>	1		
PRM	0.390 <sup>**</sup>	0.783 <sup>**</sup>	1	
PS	0.319 <sup>**</sup>	0.303 <sup>**</sup>	0.397 <sup>**</sup>	1
p < 0.01 <sup>**</sup>				

## 4.6 Regression Analysis

The regression analysis execution made us enable to understand the dependence of one variable to another. Basically, it the extent to which one variable for instance PS depends on independent variable (PL). In current research study, interaction effect of PL and PS can be examined through Preacher and Hayes [228] methods for mediation and moderation regression analysis. Mediation effect of mediator Coworker Knowledge Sharing (CKS) on relationship of PL and PS can be observed

through mediation regression analysis. Model 4 is used for mediation analysis and for moderation analysis Model 5 is used in Preacher and Hayes [228] Processes. Separate mechanism is adopted for both mediation and moderation analysis.

Table 4.10 is given below and depicts that the results of the hypothesized relations between PL and PS. The current study is used research model in which the dependent variable or predicting variable that is PS has a significant relationship with PL in this regard linear regression analysis was conducted so that causal relationship can be established between PL and PS. According to results Participative Leadership ( $\beta = 0.406$ ,  $p < 0.01$ ) has direct positive relationship, which can be ensured in such a manner that is increase in PL will ultimately increase in PS and similarly decrease in PL will results in decrease in PS which means  $\beta$  value is positive and this value will affect in a positive manner more over the value of  $R^2 = 0.112$ . This value gives us understanding that one unit change in PL brings 0.112 unit of positive change in PS. Hence,  $p$  value = 0.01. So, the relationship is highly significant which means **Hypothesis 1** is supported. Hypothesis 1 is accepted, which is shown by results and it means that PL has positive impact on PS.

TABLE 4.10: Results of the regression analysis for PS

Predictor	Project Success		
	$\beta$	$R^2$	P
Participative Leadership	0.406**	0.112	0.01
$p < 0.01^{**}$			

Current research study is based on Participative Leadership (PL) is denoted by X and Project Success (PS) is denoted by Y. The input is X variable while Y is an outcome variable. The pictorial demonstration of the model is given below:

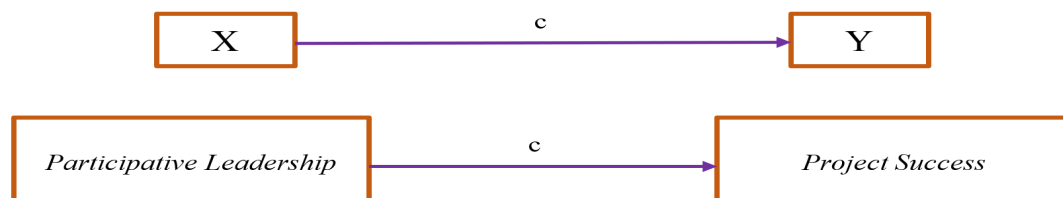


FIGURE 4.6: Conceptual Unmediated Model

## 4.7 Mediation Analysis

Assumption about the Hypothesis 2 was that Coworker Knowledge Sharing plays a mediating role among PL and PS. Bootstrapping method was conducted for mediational analysis. Preacher and Hayes [229] introduced the bootstrapping method for the estimation of indirect effect in addition to 95% of confidence interval. According to Hayes and Scharkow [230], this method provides the opportunities to researchers for testing mediation in order to avoid defects. By using PROCESS Macros of SPSS, with the help of Model 4 one can carried out mediation analysis easily with the aim to measure the indirect effects of PL on PS.

Table 4.11 is the complete demonstration of mediation results in terms of direct and total effect with the inclusion of indirect effects of bootstrapped results of Participative Leadership on PS. In fact, lower-level confidence interval and upper-level confidence interval is 0.122 and 0.215 in order to measure the indirect effect of PL on PS. So, the effects of PL on PS were mediated by Coworker Knowledge Sharing (CKS) and p value = 0.01. Therefore, there is a 95% of confidence interval that CKS mediates between PL and PS. ULCI and LLCI has same positive sign. Hence, one can conclude that mediation is happening. Thus, **Hypothesis 2** is accepted that CKS mediates in relationship between PL and PS.

TABLE 4.11: Mediation Analysis

IV	Effect of IV on M (Path a)	Effect of M on DV (Path b)	Direct effect of IV on DV (Path c')	Total Effect of IV on DV (Path c)	Bootstrapping Results for Indirect Effects LL95CI	UL95CI
PL	0.464**	0.219**	0.078**	0.336**	0.122	0.215

\*\*p < 0.01

where IV =Independent Variable, M =Mediator, DV =Dependent Variable, LL=Lower Limit, UL=Upper Limit, CI= Confidence Interval.

Given below, there is a mediation model where variable X demonstrates the IV while Y demonstrates the DV. The essential thing is the mediating variable (M), which is necessary for the completion of mediation process. Total effect can be

determined through path c in the given model. So, the impact of PL on PS can be measured by CKS.

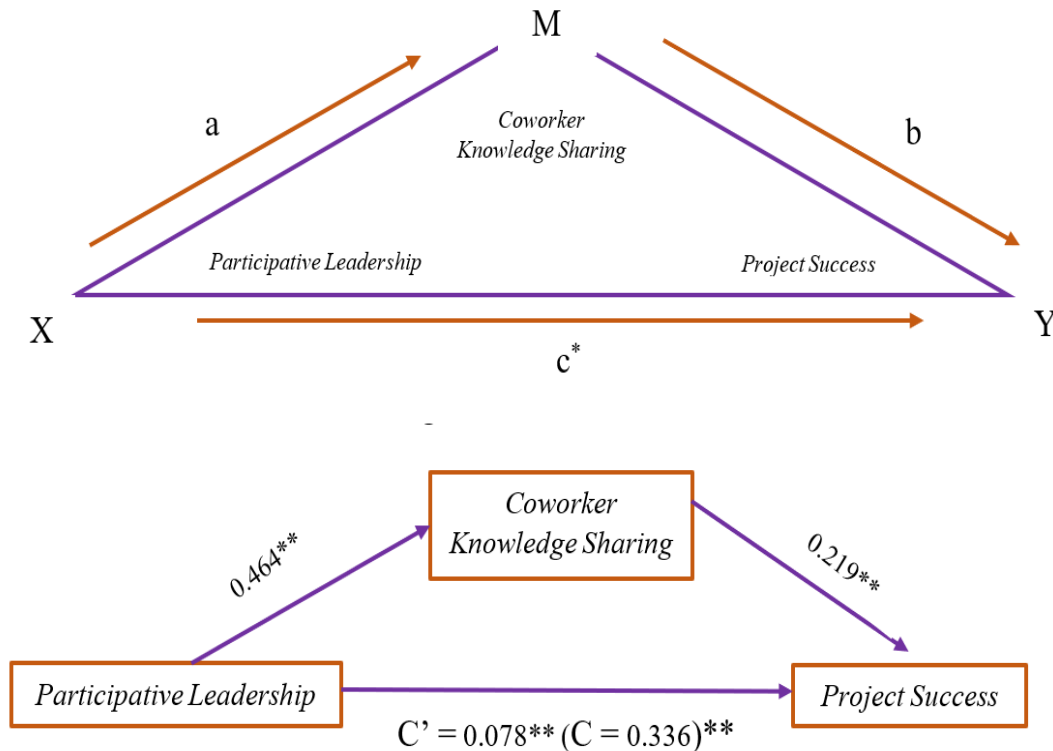


FIGURE 4.7: Coefficient of Mediated Model

## 4.8 Moderation Analysis

The assumption about Hypothesis 3 was that PRM is positively moderating between CKS and PS. Firstly, in order to check the association among CKS and PS. The demonstration of results has shown that PRM ( $\beta = 0.424$ ,  $p < 0.01$ ) which means direct positive relationship is ensured that is increase in PRM will towards increase in PS and along with that decrease in PRM will decrease in PS. Here,  $\beta$  value is positive and it will affect in a positive manner and  $R^2 = 0.057$  which means one unit change in CKS brings 0.057 units of positive change in PS. Hence,  $p$  value  $< 0.01$  which is the indication that relationship is highly moderate among CKS and PS. Moderation analysis is carried out by using Model 5 with the PROCESS Macros of SPSS. The Table 4.12 is the clear depiction of Hypothesis 3 that interaction term of “CKS\*PRM” moderates on the association of “CKS

and PS” has lower and upper confidence interval of 0.034 and 0.169. As both values have same sign and no zero is present. Therefore, hypothesis is accepted. While interaction term is positive with possessed with regression coefficients ( $\beta = 0.424$  and  $p = 0.00$ ) which means PRM moderates the relationship of CKS and PS such that CKS has stronger positive relationship with PS for PRM which means **Hypothesis 3** is accepted.

While interaction term is positive with possessed with regression coefficients ( $\beta = 0.424$  and  $p = 0.00$ ) which means PRM moderates the relationship of CKS and PS such that Coworker Knowledge Sharing has stronger positive relationship with Project Success for Project Risk Management which means Hypothesis 3 is accepted.

TABLE 4.12: Moderation Analysis

	$\beta$	$R^2$	SE	P	Bootstrap Indirect LLCI	Results Effects ULCI
Interaction term (CKS*PRM)→Project Success	0.424**	0.057	0.258	0.00	0.034	0.169
p<0.01**						

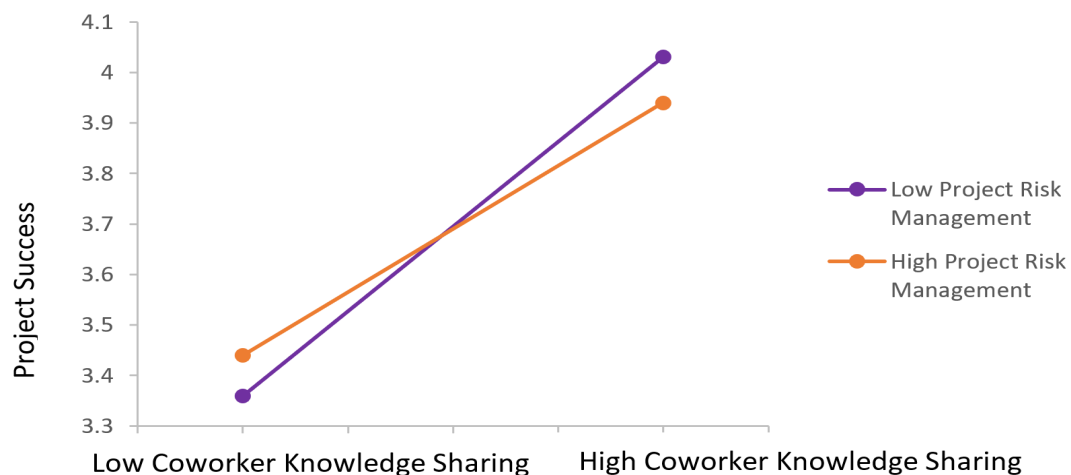


FIGURE 4.8: Interactive special effects of CKS and PRM on PS

The graph given above depicts that indirect effect of CKS on PS measured through “Coworker Knowledge Sharing \* Project Risk Management” was significant for

project success ( $\beta = 0.424$ ,  $p < 0.01$ ). Confirmed moderation for Hypothesis 3 through results and graphical representation of Hypothesis 3 is given below that shows that **Hypothesis 3** was accepted.

Project Risk Management (PRM) moderates the indirect effect of Coworker Knowledge Sharing (CKS) on Project Success (PS) via interactive coordination by using Model 1 through PROCESS Macros.

Table 4.13 representation that the conditional indirect effect of CKS on PS via interaction coordination becomes more stronger from lower to higher level of Project Risk Management (PRM), where both have same sign and indirect effect was significant ( $\beta = 0.447$  at lower level to  $\beta = 0.281$  at higher level).

TABLE 4.13: Moderated Mediation Analysis

Mediator (Coworker Knowledge Sharing)	Project Risk Management	Indirect Effect	SE	Boot LLCI	Boot ULCI
Interactive Coordination	3.39	0.281	0.107	0.235	0.658
Interactive Coordination	3.68	0.364	0.101	0.165	0.563
Interactive Coordination	3.97	0.447	0.111	0.063	0.500

## 4.9 Summary of Accepted/Rejected Hypothesis

The summarized results of the Hypotheses are given below in Table 4.14:

TABLE 4.14: Hypotheses Summarized Results

Hypotheses	Statements	Status
<b>Hypothesis 1</b>	There is a positive relationship between Participative Leadership and Project Success.	Accepted
<b>Hypothesis 2</b>	Coworker Knowledge Sharing positively mediates between Participative Leadership and Project Success.	Accepted
<b>Hypothesis 3</b>	Effective Project Risk Management positively moderates between Coworker Knowledge Sharing and Project Success.	Accepted

# Chapter 5

## Discussion, Recommendations and Conclusion

### 5.1 Discussion

The research study is useful in Participative Leadership literature and has implications on practical grounds in association amid PL and PS. Management is about to assign right task to a right person and project managers always are in the need of innovative or creative ideas with possible solutions of difficult problems. According to findings, this research is in fact about the impact of PL on PS which is significant. The current study confirms the results of previous studies like Miao et al. [231] argued that PL is about continuous monitoring and encourage the participation of coworkers in order to make good decision making and good strategic planning which is necessary for Project Success (PS). Finally, Participative Leadership (PL) positively predicted Project Success (PS).

The mediating variable is Coworker Knowledge Sharing (CKS) and its mediating role with Participative Leadership (PL)(which is an independent variable) was established in order to predict the Project Success (PS). The effects of PL on PS can be increased when Coworker Knowledge Sharing (CKS) act as a mediating agent amid PL and PS which can be shown by results. Direct effect of PL on PS was significant, when both variables were mediated with Coworker Knowledge

Sharing. Software houses have an excellent mechanism in order to address task problems with ideas, suggestions and through information sharing. The major focus of software developmental sector projects is on monitoring and controlling. Current study has moderating variable is Project Risk Management (PRM), which is an essential component in any project forecasting and for decision making in effective manner for Project Success. Coworkers are an important source of information sharing and are an asset of organization in order to perform organizational processes. These coworkers maximized their efforts in order to maintain high performance, standards and reliable product which would ultimately results in the form of PS. Trust is the crucial factor for PS [232]. Some Managers gives significant importance to communication skills because it is important tool to handle crisis situation and conflict resolution. Project risks can be minimized with good communication and PRM is necessary for good decision making, which results in Project Success.

## **5.2 Practical and Theoretical Implications**

The contribution of study is both in practical and theoretical terms. There are some limitations of the study that there is very limited literature is available on Project Risk Management (PRM) among Participative Leadership (PL) and PS. The outcomes of the study indicates that Participative Leadership (PL) plays a vital role in Project Success (PS) by putting an emphasize on Coworker Knowledge Sharing (CKS) as a mediating variable and moderating variable as Project Risk Management (PRM).

This study is conducted in Pakistani context in order to examine the impact of Participative Leadership (PL) on Project Success (PS), where leader's role is always significant and essential in streamline the efforts for enhancing Participative Leadership (PL). Culture is an important element of civilized societies, which has influential impacts on individual's lives and organization as well. In Software Development Sector, Participative Leadership (PL) is usually conducted with the aim to employees should take part in important decision making. High level of ability



to take decisions makes the Participative Leadership (PL) more effective. PL provides the indirect way of controlling organizational decisions. Cost of conformance technique is useful to make the quality product through proper risk management. This research study will help the researcher to PL enhance the chances of Project Success (PS). It helps the project manager or project leader to interact and coordinate with project team in an effective manner for Project Success (PS).

The useful and most important theoretical contribution is the role of Coworker Knowledge Sharing (CKS) as mediator among PL and PS. Previous studies are about the role of PL on PS but CKS has yet not studied as mediator. The results of the study depict role of PL increases when CKS act as a mediator among PL and PS. Motivation is necessary for employees and Participative Leadership (PL) plays a vital role in motivation of employees. However, Coworker Knowledge Sharing (CKS) is the vital variable for sharing task information, ideas and suggestions. So, studying these variables in Pakistani context of software development sector is the unique opportunity and put significant contribution in participative leadership literature.

Another contribution of this research study is moderating role of Project Risk Management (PRM) among CKS and PS. Outcomes of study suggested that PRM is most effective variable for good decision making in order to set the right direct of the project. Hence, PRM moderates among PL and PS in Pakistani context, which is the significant contribution in PL literature. Project Risk Management (PRM) should be conducted in a proper manner so that it will help in good decision making and risk response strategies; in order to mitigate the emergent risk and prior risks which would moderates the effects of Coworker Knowledge Sharing (CKS) on PS.

The importance of this research study is on both grounds i.e., theoretical as well as practical, especially in the field of project management or business world. Globalization has minimized the distances among the countries and provides avenues of strategic competition. In this regard, PL along with CKS is one of the significant aspect in defining the future shape of software development sector in PS context. For this reason, this study is useful for software development sector both in short

term and long-term gains which provides insight on PL through CKS in order to increase the chances of PS.

### **5.3 Strengths of the Research Outcome**

The strengths of the research study are given below:

1. For reporting purpose and data collection 350 key persons were contacted who are employed in software houses IT industry of Islamabad and Rawalpindi.
2. Data analysis is carried through SPSS.
3. Responses are collected from project manager, engineer manager, project leaders, team leaders, software engineers, computer engineers, advisor and experts for the variables i.e., PL, CKS, PRM, and PS.
4. Coworker Knowledge Sharing is the mediating variable of the study as it is mediating among PL and PS.
5. Project Risk Management is the moderating variable of the study as it is significantly moderating among CKS and PS for good decision making.
6. Respondents have an expertise in PRM and these people are employed in software houses and working on software development projects.
7. It is the responsibility of the managers and respondents to assign right task to a right person in order to manage projects in day-to-day basis.
8. Their aim is good decision making in order to set the right direction of the projects and solves the problems with their best possible knowledge sharing capabilities and participative abilities for Project Success.
9. CKS as a mediator with PL and PS is studied for the very first time, so it is an essential contribution in PL literature.
10. CKS is significantly mediates among PL and PS with aim of moderation of PRM.

11. The Software Development Sector projects have the ability to perform detailed Project Risk Management for PS by good decision making.
12. The Software Development Sector are the dire need of current era.

Moreover, globalization is the phenomenon that allows the organization for competitive advantage through creativity and innovation. This study provides the evidence that Project Risk Management (PRM) in software development sector is effective and efficient PRM in the software projects will help in risk catering in order to produce evidence that Coworker Knowledge Sharing (CKS) is conducted in a good manner for Project Success (PS). This would also help in managing the team risks and communication risks for managing the projects. Innovative products and creativity are essential for software development sector and usually depend upon Coworker Knowledge Sharing (CKS) which is about sharing task relevant ideas. This study will also facilitate the software development sector of Pakistan in order to increase the importance of Participative Leadership (PL). The implementation of PL increases the chances of PS along with moderating effects of PRM which promotes the risk taking and risk ownership. PRM allows the teams to work in an effective manner in order to polish their skills for risk avoidance. The potential of the study lies under addition of PRM and CKS for increasing the value of projects. New risks and challenges have paved the way to understand the importance of PL. This study is significant because it allows team members to learn from previous projects and from project manager experience for the improvement of CKS. The crux of the study is about considerate the PL is possible along with effective and efficient CKS when Project Manager is enabled to do PRM. This study has positive contribution in studying PL for PS by making use of appropriate skills of coworkers and effective Project Risk Management.

Software Development Sector is diverse in nature and having multiple projects like Web Design and Development, and Mobile/Smart Applications. These projects have need to manage properly through PRM because PRM is about identification of all risks, estimation of risks, analyzing all the risk and developing risk response strategy. This study is unique in nature and facilitates in literature enhancement

for studying the impact of PL on PS on Software Development Sector in Pakistan to effectively improve PL and PRM for PS. PL should be conducted under the mechanism of CKS for PS.

This study is conducted in Pakistani context in order to study the impact of PL on PS. Human capital is an asset of the organization and their leadership behavior vary from region to region so decision making process facing difficulties in PL perspective but it become an easy when CKS mediates between PL and PS. In research and development, this research has the potential to reduce the gap for PS by identifying the importance of CKS and moderating effects of PRM.

## **5.4 Limitations of the Research**

Every research has few limitations and the limitation of this study is given below:

1. The current study has certain limitations because the sample was based upon managers, leaders and software engineers who are working in Software Development Sectors.
2. The Software houses and IT industry are located in Islamabad and Rawalpindi only.
3. Time and resource constraints plays a vital role in the successful delivery of project goals. However, there are few limitations in the study. Due to this reason, Software Development Sector and IT industry are the set targets and it can be expanded to other sectors (NGOs, INGOs, IGOs and Project Based Organization) as well for generalization of results.
4. The current study is consist of one mediator and one moderator in a study due to time and resource restrictions. However, more mediators and moderators can become the subject of the study.
5. Data collection is carried out from Islamabad and Rawalpindi as a set target due to time constraints. However, the expansion of the study can be expanded to other cities of Pakistan.

6. Convenience sampling has been used in the study for ease and access.

## **5.5 Future Directions of the Research**

Beauty lies in the eyes of beholder is a famous proverb usually used to enhance the quality of the product and the beauty of the research is about to make complex problems into simple through unique ways, which is necessary for future research. This research is about study the impact of PL on PS with mediating variable CKS but future research should examine the other mediating variable like absorptive capacity. The way forward for future researchers is to study this model in the perspective of public and private sector for innovative products and services.

Moderating variable other than PRM can be studied with other variables for association of CKS and PS for future studies. Moreover, the uniqueness of CKS as a mediating variable in the PL literature cannot be denied and CKS can be tested in association with other variables as well.

Ultimately, PRM should be conducted in effective manner so that it increases the chances of PS. Since, risk exposure has significant importance in software development projects. Therefore, future studies can consider risk exposure as a variable for study the impact of PL on PS. In the present study, PDM theory is used for studying the impact of PL on PS. This study suggested that the future work can be carried out with other theories like path goal theory. Moreover, CKS will be combined with risk exposure or with organizational culture and project communication.

## **5.6 Recommendations**

This research is significant about impact of Participative Leadership (PL) on Project Success (PS) with Coworker Knowledge Sharing (CKS) as mediating variable and Project Risk Management (PRM) as moderating variable and it can be observed that Project Risk Management (PRM) add values to the study and it

becomes more stronger enough when element of trust as a moderating variable is exposed towards the association with PL on PS [10].

Leader is the one who has the charismatic personality and his style is versatile in shaping the future dynamics for organizational goals in order to deal with challenges because an effective PL is necessary for rational decision making. Effective and efficient PRM is essential for PS because projects are itself risky and decision its self is a risk. PL that allows the subordinates to participate in decision making and share their novel ideas, knowledge, recommendations and suggestions. PL supports in proper allocation of resources and control of project activities. Project manager is the one who is responsible for its decision with effective PRM. It is a responsibility of project manager to do project execution and it is the sheer need of the PM to work on his capabilities for the increase of his competency in all circumstances. Manager is one who responsible assigning right task to a right person and PL encourage the participation of every employee in decision making. The PL is improving the retention so it is recommended that PL is necessary for happy and motivated work force. PL encourages the morale when the voice of the people will be heard and they are more likely to contribute because their contribution is valued. As value is the function of scope and capability. Therefore, high level and low risk should be managed properly for good decision making. It is recommended to understand the determinants of risk exposure [233].

It is recommended to understand the risk attitude [234]. According to Gabriel, Ordóñez and Faria [235] contingency planning is necessary for PS. It is important to measure the risk attitude with the help of parameters like risk appetite, risk tolerance and risk threshold. Chances of project failure can be minimized by having an eye on triple constraints. There are five dimensions of PL includes target of participation, rationale, structure, decision domain and degree of participation [119]. The major aim of PL is to facilitate and encourage subordinates to participate in process of decision making so that right decision on right time to set the direction of the project. The good PL is possible through accountability [155]. Willingness to accept of one's action refer as accountability. Openness to system, communication and to see what actions are performed by someone is refer as transparency.

There are three objects of transparency which includes decision making, policy and policy outcome [236]. Shared decision making is possible through participants in order to achieve organizational objectives [26]. PDM theory can be used as a tool in shared decision making [116]. Hence, transparency and accountability are important aspects of PL. If transparency and accountability held in a well manner, it may help in increase the chances of PS. Software Development Sector and IT sector are always in the search of innovative products because it is the need of the hour. Every sector of economy is based on technology and IT industry. Software Development Sector is getting boom in this pandemic time. Most importantly PL plays a vital role in promoting innovation [237]. Software projects are inherently risky, therefore, PRM will help in innovative projects [238]. Globalization has strongly influenced the advanced technologies and innovative processes [239]. This study has made recommendations that future research should consider innovation as a variable in order to conduct study in the both perspectives that is PL and PRM.

## **5.7 Conclusion**

Software Development Sector is progressively growing in Pakistan. The main agenda of study is to discover the association between PL and PS in Pakistani context especially in Software Development Sector. Due to this reason data is collected from software houses and IT industry located in Islamabad and Rawalpindi. There are various features of software projects which includes legal, ethical, managerial and business. Risk based management method and techniques are good for life cycle of models which help in respectable performances of software projects. Usually quality of software, risk management, software metrics and measurement and software cost are the practices of software development. The famous system C4ISR is the system of networking targeted at future combat scenarios and battle field environment. Software development is usually linked with set of problem solving and decision-making activities [240].

This study is about to put an effort to consider the mediating role of Coworker Knowledge Sharing (CKS) among PL and PS along with moderating role of PRM. The PDM theory is used in this research in order to support the proposed hypothesis. The data analysis is carried out which accept all the hypothesis. Participative Leadership (PL) is effectively used to impact on the PS. In addition, PRM is used as a moderating variable and CKS is used as mediating variable. The outcomes of each hypothesis are shown in Table 5.1.

TABLE 5.1: Summary of Hypotheses Results

S.No.	Hypotheses	Supported	Not Supported
1	There is a positive relationship between Participative Leadership (PL) and Project Success (PS).	✓	
2	Coworker Knowledge Sharing positively mediates between Participative Leadership (PL) and Project Success (PS).	✓	
3	Effective Project Risk Management positively moderates between Coworker Knowledge Sharing (CKS) and Project Success (PS).	✓	

The study is significant in context of participative leadership (PL) in order to encourage the participation of each employee in decision making for motivation of employees at work place. This study provides avenues to facilities the software developmental projects for effective decision making by avoiding risk and can increase the chances of PS. Software projects needs for effective PRM which is possible through identification of project risks, risk estimation, risk management plan and risk response strategy. Risk allocation strategy and risk mitigation is performed by PM for proper decision making. Therefore, PRM moderates the effects of Coworker Knowledge Sharing (CKS) which is about sharing knowledge related to task relevant ideas, suggestions and information for PS.

The Participative Decision Making (PDM) theory is used in order to support the proposed hypothesis. The research objectives and outcomes both are aligned with



PDM theory. According to PDM theory, every employee has to take participation in process of decision making so that workers may share their knowledge. The primary aim of this theory is to increase the involvement of employees for motivation.

Moreover, the hypothesis that Project Risk Management (PRM) moderates the relationship among CKS and PS in software development projects is accepted. This study gives the holistic approach in order to study the effect of PL on PS when CKS works as mediating variable in software development sector projects of Pakistan.

This research study is carried out during pandemic in order to study the influence of PL on PS in software development sector. For data collection google forms were used. 308 responses were used for analysis. The questionnaires were having the most comprehensive information required for carrying out the analysis of this study. Training is the essential component of PS. An important aspect of participative leadership is letting employees participate into organizational decision making. In this regard, PRM is used as moderating variable which is necessary for decision making.

# Bibliography

- [1] M. Asif, A. Jameel, N. Sahito, J. Hwang, A. Hussain, and F. Manzoor, “Can leadership enhance patient satisfaction? assessing the role of administrative and medical quality,” *International journal of environmental research and public health*, vol. 16, no. 17, p. 3212, 2019.
- [2] J. R. Turner and R. Müller, “The project manager’s leadership style as a success factor on projects: A literature review,” *Project management journal*, vol. 36, no. 2, pp. 49–61, 2005.
- [3] J. A. Arnold, S. Arad, J. A. Rhoades, and F. Drasgow, “The empowering leadership questionnaire: The construction and validation of a new scale for measuring leader behaviors,” *Journal of organizational behavior*, vol. 21, no. 3, pp. 249–269, 2000.
- [4] L. A. Ika, “Project success as a topic in project management journals,” *Project management journal*, vol. 40, no. 4, pp. 6–19, 2009.
- [5] N. J. Foss and T. Pedersen, “Transferring knowledge in mnacs: The role of sources of subsidiary knowledge and organizational context,” *Journal of International Management*, vol. 8, no. 1, pp. 49–67, 2002.
- [6] J. S. Brown and P. Duguid, “Organizational learning and communities-of-practice: Toward a unified view of working, learning, and innovation,” *Organization science*, vol. 2, no. 1, pp. 40–57, 1991.
- [7] P. J. Hinds, M. Patterson, and J. Pfeffer, “Bothered by abstraction: The effect of expertise on knowledge transfer and subsequent novice performance.” *Journal of applied psychology*, vol. 86, no. 6, p. 1232, 2001.

- 
- [8] L. Damodaran and W. Olphert, “Barriers and facilitators to the use of knowledge management systems,” *Behaviour & Information Technology*, vol. 19, no. 6, pp. 405–413, 2000.
- [9] S. L. Kim and S. Yun, “The effect of coworker knowledge sharing on performance and its boundary conditions: An interactional perspective.” *Journal of Applied Psychology*, vol. 100, no. 2, p. 575, 2015.
- [10] X. Huang, J. Iun, A. Liu, and Y. Gong, “Does participative leadership enhance work performance by inducing empowerment or trust? the differential effects on managerial and non-managerial subordinates,” *Journal of Organizational Behavior*, vol. 31, no. 1, pp. 122–143, 2010.
- [11] M. B. Majid and M. S. B. Mahmud, “Knowledge management and its impact on organizational performance: Evidence from pakistan,” *Annals of Contemporary Developments in Management & HR (ACDMHR)*, Print ISSN, pp. 2632–7686, 2019.
- [12] A. Moran, “Agile risk management,” in *Agile Risk Management*. Springer, 2014, pp. 33–60.
- [13] D. White and J. Fortune, “Current practice in project management—an empirical study,” *International journal of project management*, vol. 20, no. 1, pp. 1–11, 2002.
- [14] V. N. Leopoulos and K. A. Kirytopoulos, “Risk management: a competitive advantage in the purchasing function,” *Production Planning & Control*, vol. 15, no. 7, pp. 678–687, 2004.
- [15] B. W. Boehm, “Software risk management: principles and practices,” *IEEE software*, vol. 8, no. 1, pp. 32–41, 1991.
- [16] N. Margulies and S. Black, “Perspectives on the implementation of participative approaches,” *Human Resource Management*, vol. 26, no. 3, pp. 385–412, 1987.

- [17] T. M. Probst, "Countering the negative effects of job insecurity through participative decision making: lessons from the demand-control model." *Journal of Occupational Health Psychology*, vol. 10, no. 4, p. 320, 2005.
- [18] E. A. Locke, D. M. Schweiger, and G. P. Latham, "Participation in decision making: When should it be used?" *Organizational dynamics*, vol. 14, no. 3, pp. 65–79, 1986.
- [19] G. P. Latham, "Motivate employee performance through goal setting," *Handbook of principles of organizational behavior*, vol. 107, p. 119, 2000.
- [20] N. Iqbal, S. Anwar, N. Haider *et al.*, "Effect of leadership style on employee performance," *Arabian Journal of Business and Management Review*, vol. 5, no. 5, pp. 1–6, 2015.
- [21] F. Hashim, G. M. Alam, and S. Siraj, "Information and communication technology for participatory based decision-making-e-management for administrative efficiency in higher education," *International Journal of Physical Sciences*, vol. 5, no. 4, pp. 383–392, 2010.
- [22] S. Wang and R. A. Noe, "Knowledge sharing: A review and directions for future research," *Human resource management review*, vol. 20, no. 2, pp. 115–131, 2010.
- [23] A. H. Maslow, *The Maslow business reader*. John Wiley & Sons, 2000.
- [24] S. L. Lima, "Stress and decision-making under the risk of predation: recent developments from behavioral, reproductive, and ecological perspectives," *Advances in the Study of Behaviour*, vol. 27, no. 8, pp. 215–290, 1998.
- [25] D. L. Sackett, S. E. Straus *et al.*, "Finding and applying evidence during clinical rounds: the evidence cart," *Jama*, vol. 280, no. 15, pp. 1336–1338, 1998.
- [26] B. Scott-Ladd, A. Travaglione, and V. Marshall, "Causal inferences between participation in decision making, task attributes, work effort, rewards,

- job satisfaction and commitment,” *Leadership & Organization Development Journal*, 2006.
- [27] E. Hollander, *Inclusive leadership: The essential leader-follower relationship*. Routledge, 2012.
- [28] A. Rezvani and P. Khosravi, “A comprehensive assessment of project success within various large projects,” *The Journal of Modern Project Management*, vol. 6, no. 1, 2018.
- [29] L. E. Atwater and D. A. Waldman, *Leadership, feedback, and the open communication gap*. Taylor & Francis, 2008.
- [30] J. Kaler, “Understanding participation,” *Journal of Business Ethics*, vol. 21, no. 2, pp. 125–135, 1999.
- [31] J. J. Jansen, F. A. Van Den Bosch, and H. W. Volberda, “Exploratory innovation, exploitative innovation, and performance: Effects of organizational antecedents and environmental moderators,” *Management science*, vol. 52, no. 11, pp. 1661–1674, 2006.
- [32] D. Jiménez-Jiménez and R. Sanz-Valle, “Innovation, organizational learning, and performance,” *Journal of business research*, vol. 64, no. 4, pp. 408–417, 2011.
- [33] T. Driskell, E. Salas, and J. E. Driskell, “Teams in extreme environments: Alterations in team development and teamwork,” *Human Resource Management Review*, vol. 28, no. 4, pp. 434–449, 2018.
- [34] D. A. Aga, N. Noorderhaven, and B. Vallejo, “Transformational leadership and project success: The mediating role of team-building,” *International Journal of Project Management*, vol. 34, no. 5, pp. 806–818, 2016.
- [35] H. Doloi, “Relational partnerships: the importance of communication, trust and confidence and joint risk management in achieving project success,” *Construction Management and Economics*, vol. 27, no. 11, pp. 1099–1109, 2009.

- [36] S. K. Horwitz and I. B. Horwitz, "The effects of team diversity on team outcomes: A meta-analytic review of team demography," *Journal of management*, vol. 33, no. 6, pp. 987–1015, 2007.
- [37] N. A. Bashir, "Leadership connection to emotional intelligence and stress at workplace," *Journal of Management Research*, vol. 9, no. 1, pp. 46–47, 2017.
- [38] G. P. Latham, D. C. Winters, and E. A. Locke, "Cognitive and motivational effects of participation: A mediator study," *Journal of Organizational Behavior*, vol. 15, no. 1, pp. 49–63, 1994.
- [39] N. M. Lorinkova and S. J. Perry, "When is empowerment effective? the role of leader-leader exchange in empowering leadership, cynicism, and time theft," *Journal of Management*, vol. 43, no. 5, pp. 1631–1654, 2017.
- [40] P. R. Monge, M. D. Cozzens, and N. S. Contractor, "Communication and motivational predictors of the dynamics of organizational innovation," *Organization science*, vol. 3, no. 2, pp. 250–274, 1992.
- [41] P. Monge and M. Cozzens, "Innovation through participatory management: the case for the scanlon process," *Strategies and Practices for Technological Innovation*, pp. 319–329, 1986.
- [42] R. M. Kanter, "Three tiers for innovation research," *Communication Research*, vol. 15, no. 5, pp. 509–523, 1988.
- [43] M. Kristiansen, J. Bloch-Poulsen *et al.*, "Midwifery and dialogue in organizations. emergent, mutual involvement in action research," *Books*, 2005.
- [44] O. J. Klakegg, T. Williams, O. M. Magnussen, and H. Glasspool, "Governance frameworks for public project development and estimation," *Project Management Journal*, vol. 39, no. 1\_suppl, pp. S27–S42, 2008.
- [45] E. Dane and M. G. Pratt, "Exploring intuition and its role in managerial decision making," *Academy of management review*, vol. 32, no. 1, pp. 33–54, 2007.

- [46] L. H. Crawford and J. Helm, "Government and governance: The value of project management in the public sector," *Project management journal*, vol. 40, no. 1, pp. 73–87, 2009.
- [47] I. Nonaka and R. Toyama, "The knowledge-creating theory revisited: knowledge creation as a synthesizing process," in *The essentials of knowledge management*. Springer, 2015, pp. 95–110.
- [48] Y. Kodratoff, "Knowledge discovery in texts: a definition, and applications," in *International Symposium on Methodologies for Intelligent Systems*. Springer, 1999, pp. 16–29.
- [49] J. Roth, "Enabling knowledge creation: learning from an r&d organization," *Journal of knowledge management*, 2003.
- [50] H. Risku, A. Dickinson, and R. Pircher, "Knowledge in translation studies and translation practice," *Why translation studies matters*, vol. 88, p. 83, 2010.
- [51] A. C. Inkpen, "Creating knowledge through collaboration," *California management review*, vol. 39, no. 1, pp. 123–140, 1996.
- [52] D. Lei, J. W. Slocum Jr, and R. A. Pitts, "Building cooperative advantage: Managing strategic alliances to promote organizational learning," *Journal of World Business*, vol. 32, no. 3, pp. 203–223, 1997.
- [53] A. Srivastava, K. M. Bartol, and E. A. Locke, "Empowering leadership in management teams: Effects on knowledge sharing, efficacy, and performance," *Academy of management journal*, vol. 49, no. 6, pp. 1239–1251, 2006.
- [54] R. Kamaşak and F. Bulutlar, "The influence of knowledge sharing on innovation," *European Business Review*, 2010.
- [55] C. Wang, S. Rodan, M. Fruin, and X. Xu, "Knowledge networks, collaboration networks, and exploratory innovation," *Academy of Management Journal*, vol. 57, no. 2, pp. 484–514, 2014.

- [56] S. Raisch and J. Birkinshaw, "Organizational ambidexterity: Antecedents, outcomes, and moderators," *Journal of management*, vol. 34, no. 3, pp. 375–409, 2008.
- [57] I. Nonaka, "A dynamic theory of organizational knowledge creation," *Organization science*, vol. 5, no. 1, pp. 14–37, 1994.
- [58] C. Park, I. Vertinsky, and M. Becerra, "Transfers of tacit vs. explicit knowledge and performance in international joint ventures: The role of age," *International Business Review*, vol. 24, no. 1, pp. 89–101, 2015.
- [59] R. Sabherwal and I. Becerra-Fernandez, *Business intelligence: practices, technologies, and management*. John Wiley & Sons, 2013.
- [60] B. Ancori, A. Bureth, and P. Cohendet, "The economics of knowledge: the debate about codification and tacit knowledge," *Industrial and corporate change*, vol. 9, no. 2, pp. 255–287, 2000.
- [61] R. Hall and P. Andriani, "Managing knowledge associated with innovation," *Journal of business Research*, vol. 56, no. 2, pp. 145–152, 2003.
- [62] L. Crane and N. Bontis, "Trouble with tacit: developing a new perspective and approach," *Journal of Knowledge Management*, 2014.
- [63] I. Nonaka and G. Von Krogh, "Perspective—tacit knowledge and knowledge conversion: Controversy and advancement in organizational knowledge creation theory," *Organization science*, vol. 20, no. 3, pp. 635–652, 2009.
- [64] I. Nonaka and H. Takeuchi, *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. Oxford university press, 1995.
- [65] P. M. Senge, "The practice of innovation," *Leader to leader*, vol. 1998, no. 9, pp. 16–22, 1998.
- [66] A. Y. Al-Aama, "Technology knowledge management (tkm) taxonomy: using technology to manage knowledge in a saudi municipality," *VINE: The journal of information and knowledge management systems*, 2014.



- [67] P. Jeenger and R. Kant, "Understanding the knowledge sharing barriers in organisation: a fuzzy ahp approach," *Journal of Information & Knowledge Management*, vol. 12, no. 01, p. 1350003, 2013.
- [68] J. Jyoti, S. Kotwal, and R. Rani, "Impact of knowledge management practices on competitive advantage: empirical experiences from telecommunication sector in india," in *Investigating Cultural Aspects in Indian Organizations*. Springer, 2015, pp. 111–128.
- [69] K. Bhatti, S. Latif, and N. I. Rao, "Knowledge sharing intentions in doctors of private and government hospitals," *Journal Issues ISSN*, vol. 2350, p. 157X, 2014.
- [70] L. Andrawina, R. Govindaraju, T. A. Samadhi, and I. Sudirman, "Absorptive capacity moderates the relationship between knowledge sharing capability and innovation capability," in *2008 IEEE International Conference on Industrial Engineering and Engineering Management*. IEEE, 2008, pp. 944–948.
- [71] N. F. Wuryaningrat, "Knowledge sharing, absorptive capacity and innovation capabilities: An empirical study on small and medium enterprises in north sulawesi, indonesia," 2013.
- [72] S.-M. Tseng and J.-S. Huang, "The correlation between wikipedia and knowledge sharing on job performance," *Expert systems with applications*, vol. 38, no. 5, pp. 6118–6124, 2011.
- [73] J. Zhaoquan and W. Chen, "The impact of relational embeddedness, knowledge sharing on service innovation performance," in *9th International Conference on Service Systems and Service Management (ICSSSM 2012), Shanghai, China, 2012*.
- [74] D. Paulin and K. Suneson, "Knowledge transfer, knowledge sharing and knowledge barriers—three blurry terms in km," *Leading Issues in Knowledge Management*, vol. 2, no. 2, p. 73, 2015.

- [75] M. Ipe, "Knowledge sharing in organizations: A conceptual framework," *Human resource development review*, vol. 2, no. 4, pp. 337–359, 2003.
- [76] K. Werner and G. Dickson, "Coworker knowledge sharing and peer learning among elite footballers: Insights from german bundesliga players," *Sport Management Review*, vol. 21, no. 5, pp. 596–611, 2018.
- [77] A. T. Amayah, "Determinants of knowledge sharing in a public sector organization," *Journal of knowledge management*, 2013.
- [78] B. S. Chakravarthy, A. Zaheer, and S. Zaheer, *Knowledge sharing in organizations: A field study*. Strategic Management Research Center, University of Minnesota, 1999.
- [79] N. B. Jones, R. T. Herschel, and D. D. Moesel, "Using "knowledge champions" to facilitate knowledge management," *Journal of Knowledge management*, 2003.
- [80] M. Wang and S. J. Yang, "Knowledge management and e-learning," *Knowledge Management & E-Learning: An International Journal*, vol. 1, no. 1, pp. 1–5, 2009.
- [81] H. Ingram, K. Biermann, J. Cannon, J. Neil, and C. Waddle, "Internalizing action learning: a company perspective. establishing critical success factors for action learning courses," *International Journal of Contemporary Hospitality Management*, 2000.
- [82] B. Yang, W. Zheng, and C. Viere, "Holistic views of knowledge management models," *Advances in Developing Human Resources*, vol. 11, no. 3, pp. 273–289, 2009.
- [83] G. Szulanski, "Exploring internal stickiness: Impediments to the transfer of best practice within the firm," *Strategic management journal*, vol. 17, no. S2, pp. 27–43, 1996.

- [84] J.-t. Yang, "The impact of knowledge sharing on organizational learning and effectiveness," *Journal of knowledge management*, vol. 11, no. 2, pp. 83–90, 2007.
- [85] J. S. Holste and D. Fields, "Trust and tacit knowledge sharing and use," *Journal of knowledge management*, 2010.
- [86] J. N. Cummings, "Work groups, structural diversity, and knowledge sharing in a global organization," *Management science*, vol. 50, no. 3, pp. 352–364, 2004.
- [87] W. S. Chow and L. S. Chan, "Social network, social trust and shared goals in organizational knowledge sharing," *Information & management*, vol. 45, no. 7, pp. 458–465, 2008.
- [88] C.-P. Lin and S.-W. Joe, "To share or not to share: Assessing knowledge sharing, interemployee helping, and their antecedents among online knowledge workers," *Journal of business ethics*, vol. 108, no. 4, pp. 439–449, 2012.
- [89] J. Lee, H. Lee, and J.-G. Park, "Exploring the impact of empowering leadership on knowledge sharing, absorptive capacity and team performance in it service," *Information Technology & People*, 2014.
- [90] S.-h. Liao and C.-c. Wu, "The relationship among knowledge management, organizational learning, and organizational performance," *International journal of business and management*, vol. 4, no. 4, pp. 64–76, 2009.
- [91] M. Easterby-Smith, M. A. Lyles, and E. W. Tsang, "Inter-organizational knowledge transfer: Current themes and future prospects," *Journal of management studies*, vol. 45, no. 4, pp. 677–690, 2008.
- [92] J. Zhou and I. J. Hoever, "Research on workplace creativity: A review and redirection," *Annu. Rev. Organ. Psychol. Organ. Behav.*, vol. 1, no. 1, pp. 333–359, 2014.

- [93] J. Zhou and J. M. George, "When job dissatisfaction leads to creativity: Encouraging the expression of voice," *Academy of Management journal*, vol. 44, no. 4, pp. 682–696, 2001.
- [94] M. N. Aydin and M. E. Bakker, "Analyzing it maintenance outsourcing decision from a knowledge management perspective," *Information Systems Frontiers*, vol. 10, no. 3, p. 293, 2008.
- [95] J. R. Halbesleben and A. R. Wheeler, "To invest or not? the role of coworker support and trust in daily reciprocal gain spirals of helping behavior," *Journal of Management*, vol. 41, no. 6, pp. 1628–1650, 2015.
- [96] M. Černe, C. G. Nerstad, A. Dysvik, and M. Škerlavaj, "What goes around comes around: Knowledge hiding, perceived motivational climate, and creativity," *Academy of Management Journal*, vol. 57, no. 1, pp. 172–192, 2014.
- [97] J. M. Bryson and A. L. Delbecq, "A contingent approach to strategy and tactics in project planning," *Journal of the American Planning Association*, vol. 45, no. 2, pp. 167–179, 1979.
- [98] J. McManus<sup>12</sup> and T. Wood-Harper, "Understanding the sources of information systems project failure," 2007.
- [99] J. Ropponen and K. Lyytinen, "Components of software development risk: How to address them? a project manager survey," *IEEE transactions on software engineering*, vol. 26, no. 2, pp. 98–112, 2000.
- [100] F. D. Patterson and K. Neailey, "A risk register database system to aid the management of project risk," *International Journal of Project Management*, vol. 20, no. 5, pp. 365–374, 2002.
- [101] K. R. MacCrimmon and D. A. Wehrung, "Assessing risk propensity," in *Recent developments in the foundations of utility and risk theory*. Springer, 1986, pp. 291–309.

- [102] C. D. P. Martens, F. J. Machado, M. L. Martens, H. M. R. de Freitas *et al.*, “Linking entrepreneurial orientation to project success,” *International Journal of Project Management*, vol. 36, no. 2, pp. 255–266, 2018.
- [103] G. Ni, Q. Cui, L. Sang, W. Wang, and D. Xia, “Knowledge-sharing culture, project-team interaction, and knowledge-sharing performance among project members,” *Journal of Management in Engineering*, vol. 34, no. 2, p. 04017065, 2018.
- [104] J. Prinz and P. Wicker, “Diversity effects on team performance in the tour de france,” *Team Performance Management*, 2016.
- [105] P. Haake, J. Kaufmann, M. Baumer, M. Burgmaier, K. Eichhorn, B. Mueller, and A. Maedche, “Configurations of user involvement and participation in relation to information system project success,” in *International Conference on Advanced Information Systems Engineering*. Springer, 2018, pp. 87–102.
- [106] A. Irimia-Dieguez, C. Medina-Lopez, and R. Alfalla-Luque, “Financial management of large projects: A research gap,” *Procedia economics and finance*, vol. 23, pp. 652–657, 2015.
- [107] F. A. Mir and A. H. Pinnington, “Exploring the value of project management: linking project management performance and project success,” *International journal of project management*, vol. 32, no. 2, pp. 202–217, 2014.
- [108] A. K. Munns and B. F. Bjeirmi, “The role of project management in achieving project success,” *International journal of project management*, vol. 14, no. 2, pp. 81–87, 1996.
- [109] T. Creasy and A. Carnes, “The effects of workplace bullying on team learning, innovation and project success as mediated through virtual and traditional team dynamics,” *International Journal of Project Management*, vol. 35, no. 6, pp. 964–977, 2017.
- [110] M. N. Mirza, Z. Pourzolfaghar, and M. Shahnazari, “Significance of scope in project success,” *Procedia Technology*, vol. 9, pp. 722–729, 2013.

- [111] M. Ajmal, M. Khan, and H. Al-Yafei, "Exploring factors behind project scope creep—stakeholders' perspective," *International Journal of Managing Projects in Business*, 2019.
- [112] J. Lowe, I. Maggioni, and S. Sands, "Critical success factors of temporary retail activations: A multi-actor perspective," *Journal of Retailing and Consumer Services*, vol. 40, pp. 74–81, 2018.
- [113] M. A. Larsen and M. D. Myers, "When success turns into failure: a package-driven business process re-engineering project in the financial services industry," *The Journal of Strategic Information Systems*, vol. 8, no. 4, pp. 395–417, 1999.
- [114] C. Kim and H. L. Schachter, "Exploring followership in a public setting: Is it a missing link between participative leadership and organizational performance?" *The American Review of Public Administration*, vol. 45, no. 4, pp. 436–457, 2015.
- [115] Q. Miao, A. Newman, G. Schwarz, and L. Xu, "Participative leadership and the organizational commitment of civil servants in china: The mediating effects of trust in supervisor," *British Journal of Management*, vol. 24, pp. S76–S92, 2013.
- [116] S. S. Lam, X.-P. Chen, and J. Schaubroeck, "Participative decision making and employee performance in different cultures: The moderating effects of allocentrism/idiocentrism and efficacy," *Academy of Management Journal*, vol. 45, no. 5, pp. 905–914, 2002.
- [117] H. Nyström, "Organizational innovation." 1990.
- [118] A. Sagie and Z. Aycan, "A cross-cultural analysis of participative decision-making in organizations," *Human relations*, vol. 56, no. 4, pp. 453–473, 2003.
- [119] A. Somech, "The effects of leadership style and team process on performance and innovation in functionally heterogeneous teams," *Journal of management*, vol. 32, no. 1, pp. 132–157, 2006.

- [120] M. A. Smylie, V. Lazarus, and J. Brownlee-Conyers, "Instructional outcomes of school-based participative decision making," *Educational evaluation and policy analysis*, vol. 18, no. 3, pp. 181–198, 1996.
- [121] L. Lu, A. C. C. Lu, D. Gursoy, and N. R. Neale, "Work engagement, job satisfaction, and turnover intentions," *International Journal of Contemporary Hospitality Management*, 2016.
- [122] W. A. Kahn, "Psychological conditions of personal engagement and disengagement at work," *Academy of management journal*, vol. 33, no. 4, pp. 692–724, 1990.
- [123] P. Nixon, M. Harrington, and D. Parker, "Leadership performance is significant to project success or failure: a critical analysis," *International Journal of productivity and performance management*, 2012.
- [124] G. Bortoluzzi, L. Caporale, and A. Palese, "Does participative leadership reduce the onset of mobbing risk among nurse working teams?" *Journal of nursing management*, vol. 22, no. 5, pp. 643–652, 2014.
- [125] B. L. Kirkman and B. Rosen, "Beyond self-management: Antecedents and consequences of team empowerment," *Academy of Management journal*, vol. 42, no. 1, pp. 58–74, 1999.
- [126] G. M. Spreitzer, "Psychological empowerment in the workplace: Dimensions, measurement, and validation," *Academy of management Journal*, vol. 38, no. 5, pp. 1442–1465, 1995.
- [127] P. N. Sharma and B. L. Kirkman, "Leveraging leaders: A literature review and future lines of inquiry for empowering leadership research," *Group & Organization Management*, vol. 40, no. 2, pp. 193–237, 2015.
- [128] S. McShane and M. A. Von Glinow, *Organizational behaviour: Emerging knowledge and practice for the real world*. McGraw-Hill/Irwin, 2010.

- [129] A. Lee, S. Willis, and A. W. Tian, "Empowering leadership: A meta-analytic examination of incremental contribution, mediation, and moderation," *Journal of Organizational Behavior*, vol. 39, no. 3, pp. 306–325, 2018.
- [130] A. Bandura, "The explanatory and predictive scope of self-efficacy theory," *Journal of social and clinical psychology*, vol. 4, no. 3, pp. 359–373, 1986.
- [131] S. W. Kozlowski, S. M. Gully, E. R. Nason, and E. M. Smith, "Developing adaptive teams: A theory of compilation and performance across levels and time," *Pulakos (Eds.), The changing nature of work performance: Implications for staffing, personnel actions, and development*, vol. 240, p. 292, 1999.
- [132] C.-C. Huang, C.-S. You, and M.-T. Tsai, "A multidimensional analysis of ethical climate, job satisfaction, organizational commitment, and organizational citizenship behaviors," *Nursing ethics*, vol. 19, no. 4, pp. 513–529, 2012.
- [133] C. Lashley, "Employee empowerment in services: a framework for analysis," *Personnel Review*, 1999.
- [134] J. A. Wagner III and R. Z. Gooding, "Shared influence and organizational behavior: A meta-analysis of situational variables expected to moderate participation-outcome relationships," *Academy of management Journal*, vol. 30, no. 3, pp. 524–541, 1987.
- [135] M. J. Tews, J. W. Michel, and D. G. Allen, "Fun and friends: The impact of workplace fun and constituent attachment on turnover in a hospitality context," *Human Relations*, vol. 67, no. 8, pp. 923–946, 2014.
- [136] R. S. Rubin, D. C. Munz, and W. H. Bommer, "Leading from within: The effects of emotion recognition and personality on transformational leadership behavior," *Academy of management journal*, vol. 48, no. 5, pp. 845–858, 2005.



- [137] S. Kempster and K. W. Parry, "Grounded theory and leadership research: A critical realist perspective," *The leadership quarterly*, vol. 22, no. 1, pp. 106–120, 2011.
- [138] H. L. Chen and Y. L. Lin, "Goal orientations, leader-leader exchange, trust, and the outcomes of project performance," *International Journal of Project Management*, vol. 36, no. 5, pp. 716–729, 2018.
- [139] A. Newman, P. S. Rose, and S. T. Teo, "The role of participative leadership and trust-based mechanisms in eliciting intern performance: Evidence from china," *Human Resource Management*, vol. 55, no. 1, pp. 53–67, 2016.
- [140] T. Fatima, S. Safdar, and S. Jahanzeb, "Participative leadership and employee creativity: Moderating role of need for achievement," *NUML International Journal of Business & Management*, vol. 12, no. 1, pp. 1–14, 2017.
- [141] D. A. Hofmann and L. M. Jones, "Leadership, collective personality, and performance." *Journal of Applied psychology*, vol. 90, no. 3, p. 509, 2005.
- [142] M. Magzan, "The art of participatory leadership: A tool for social and organizational development and change," *Journal of Engineering Management and Competitiveness*, vol. 1, no. 1/2, pp. 21–26, 2011.
- [143] I. Kühnlein, L. Diep, and M. Ganesh, "Self-organization and the potential of a commons place," *BIOURBANISM*, p. 7, 2015.
- [144] M. J. Marquardt, *Leading with questions: How leaders find the right solutions by knowing what to ask*. John Wiley & Sons, 2011, vol. 180.
- [145] A. J. Shenhar, D. Dvir, and O. Levy, "Project success: a multidimensional, strategic concept," in *Innovation in Technology Management. The Key to Global Leadership. PICMET'97*. IEEE, 1997, p. 391.
- [146] S. Godenhjelm *et al.*, "Project organisations and governance: Processes, actors, actions, and participatory procedures," *Publications of the Faculty of Social Sciences*, 2016.

- [147] A. J. Shenhar and D. Dvir, *Reinventing project management: the diamond approach to successful growth and innovation*. Harvard Business Review Press, 2007.
- [148] B. Hanisch and A. Wald, “Effects of complexity on the success of temporary organizations: Relationship quality and transparency as substitutes for formal coordination mechanisms,” *Scandinavian Journal of Management*, vol. 30, no. 2, pp. 197–213, 2014.
- [149] A. Badewi, “The impact of project management (pm) and benefits management (bm) practices on project success: Towards developing a project benefits governance framework,” *International Journal of Project Management*, vol. 34, no. 4, pp. 761–778, 2016.
- [150] A. Mazur, A. Pisarski, A. Chang, and N. M. Ashkanasy, “Rating defence major project success: The role of personal attributes and stakeholder relationships,” *International Journal of Project Management*, vol. 32, no. 6, pp. 944–957, 2014.
- [151] B. Bygstad and O. Hanseth, “It governance through regulatory modalities. health care information infrastructure and the “blue fox” project,” in *Scandinavian Conference on Information Systems*. Springer, 2010, pp. 50–64.
- [152] K. Limsila and S. O. Ogunlana, “Performance and leadership outcome correlates of leadership styles and subordinate commitment,” *Engineering, construction and architectural management*, 2008.
- [153] M. M. Raziq, F. M. Borini, O. F. Malik, M. Ahmad, and M. Shabaz, “Leadership styles, goal clarity, and project success,” *Leadership & Organization Development Journal*, 2018.
- [154] M. Liphadzi, C. Aigbavboa, and W. Thwala, “Relationship between leadership styles and project success in the south africa construction industry,” *Procedia Engineering*, vol. 123, pp. 284–290, 2015.

- [155] G. Lenssen, S. Tyson, S. Pickard, D. Bevan, and B. Rok, "Ethical context of the participative leadership model: taking people into account," *Corporate Governance: The international journal of business in society*, 2009.
- [156] B. Zulch, "Leadership communication in project management," *Procedia-Social and Behavioral Sciences*, vol. 119, pp. 172–181, 2014.
- [157] P. Patanakul, A. J. Shenhar, and D. Z. Milosevic, "How project strategy is used in project management: Cases of new product development and software development projects," *Journal of Engineering and Technology Management*, vol. 29, no. 3, pp. 391–414, 2012.
- [158] K. M. Bartol and A. Srivastava, "Encouraging knowledge sharing: The role of organizational reward systems," *Journal of leadership & organizational studies*, vol. 9, no. 1, pp. 64–76, 2002.
- [159] P. Akhavan and S. Mahdi Hosseini, "Social capital, knowledge sharing, and innovation capability: an empirical study of r&d teams in iran," *Technology Analysis & Strategic Management*, vol. 28, no. 1, pp. 96–113, 2016.
- [160] S.-h. Liao, W.-C. Fei, and C.-C. Chen, "Knowledge sharing, absorptive capacity, and innovation capability: an empirical study of taiwan's knowledge-intensive industries," *Journal of information science*, vol. 33, no. 3, pp. 340–359, 2007.
- [161] S. J. Jo and B.-K. Joo, "Knowledge sharing: The influences of learning organization culture, organizational commitment, and organizational citizenship behaviors," *Journal of Leadership & Organizational Studies*, vol. 18, no. 3, pp. 353–364, 2011.
- [162] Y.-Y. Chang, I. Hodgkinson, P. Hughes, and C.-Y. Chang, "The mediation between participative leadership and employee exploratory innovation: Examining intermediate knowledge mechanisms," *Leadership & Organization Development Journal*, 2019.

- [163] S. Yeşil and S. F. Dereli, “An empirical investigation of the organisational justice, knowledge sharing and innovation capability,” *Procedia-Social and Behavioral Sciences*, vol. 75, pp. 199–208, 2013.
- [164] Z. Wang and N. Wang, “Knowledge sharing, innovation and firm performance,” *Expert systems with applications*, vol. 39, no. 10, pp. 8899–8908, 2012.
- [165] I. Van de Poel, L. Asveld, S. Flipse, P. Klaassen, V. Scholten, and E. Yaghmaei, “Company strategies for responsible research and innovation (rri): A conceptual model,” *Sustainability*, vol. 9, no. 11, p. 2045, 2017.
- [166] D. Matić, S. Cabrilo, L. Grubić-Nešić, and B. Milić, “Investigating the impact of organizational climate, motivational drivers, and empowering leadership on knowledge sharing,” *Knowledge Management Research & Practice*, vol. 15, no. 3, pp. 431–446, 2017.
- [167] O. AlShamsi and M. Ajmal, “Critical factors for knowledge sharing in technology-intensive organizations: evidence from uae service sector,” *Journal of Knowledge Management*, 2018.
- [168] Y.-Y. Chang, C.-Y. Chang, Y. C. K. Chen, Y.-T. Seih, and S.-Y. Chang, “Participative leadership and unit performance: evidence for intermediate linkages,” *Knowledge Management Research & Practice*, pp. 1–15, 2020.
- [169] S. I. Shah, B. Afsar, and A. Shahjehan, “Unique contextual conditions affecting coworker knowledge sharing and employee innovative work behaviors,” *Journal of Work and Organizational Psychology*, vol. 36, no. 2, pp. 125–134, 2020.
- [170] E. E. Kossek and R. J. Thompson, “Workplace flexibility: Integrating employer and employee perspectives to close the research–practice implementation gap,” *The Oxford handbook of work and family*, vol. 255, 2016.

- [171] G. Szulanski, R. Cappetta, and R. J. Jensen, "When and how trustworthiness matters: Knowledge transfer and the moderating effect of causal ambiguity," *Organization science*, vol. 15, no. 5, pp. 600–613, 2004.
- [172] A. Cabrera and E. F. Cabrera, "Knowledge-sharing dilemmas," *Organization studies*, vol. 23, no. 5, pp. 687–710, 2002.
- [173] W. Tsai, "Knowledge transfer in intraorganizational networks: Effects of network position and absorptive capacity on business unit innovation and performance," *Academy of management journal*, vol. 44, no. 5, pp. 996–1004, 2001.
- [174] J. A. LePine and L. Van Dyne, "Predicting voice behavior in work groups." *Journal of applied psychology*, vol. 83, no. 6, p. 853, 1998.
- [175] L. C. Abrams, R. Cross, E. Lesser, and D. Z. Levin, "Nurturing interpersonal trust in knowledge-sharing networks," *Academy of Management Perspectives*, vol. 17, no. 4, pp. 64–77, 2003.
- [176] S. Tangirala and R. Ramanujam, "Exploring nonlinearity in employee voice: The effects of personal control and organizational identification," *Academy of Management Journal*, vol. 51, no. 6, pp. 1189–1203, 2008.
- [177] C. J. Collins and K. G. Smith, "Knowledge exchange and combination: The role of human resource practices in the performance of high-technology firms," *Academy of management journal*, vol. 49, no. 3, pp. 544–560, 2006.
- [178] V. D. Phung, I. Hawryszkiewicz, and D. Chandran, "How knowledge sharing leads to innovative work behaviour: a moderating role of transformational leadership," *Journal of Systems and Information Technology*, vol. 21, no. 3, pp. 277–303, 2019.
- [179] M. Shujahat, M. J. Sousa, S. Hussain, F. Nawaz, M. Wang, and M. Umer, "Translating the impact of knowledge management processes into knowledge-based innovation: The neglected and mediating role of

- knowledge-worker productivity,” *Journal of Business Research*, vol. 94, pp. 442–450, 2019.
- [180] T. M. Amabile and M. G. Pratt, “The dynamic componential model of creativity and innovation in organizations: Making progress, making meaning,” *Research in organizational behavior*, vol. 36, pp. 157–183, 2016.
- [181] M. Gagné, “A model of knowledge-sharing motivation,” *Human Resource Management: Published in Cooperation with the School of Business Administration, The University of Michigan and in alliance with the Society of Human Resources Management*, vol. 48, no. 4, pp. 571–589, 2009.
- [182] R. G. Isaac, I. M. Herremans, and T. J. Kline, “Intellectual capital management enablers: a structural equation modeling analysis,” *Journal of Business Ethics*, vol. 93, no. 3, pp. 373–391, 2010.
- [183] D. Geiger and G. Schreyögg, “Narratives in knowledge sharing: challenging validity,” *Journal of Knowledge Management*, 2012.
- [184] M. Alsharo, D. Gregg, and R. Ramirez, “Virtual team effectiveness: The role of knowledge sharing and trust,” *Information & Management*, vol. 54, no. 4, pp. 479–490, 2017.
- [185] B. Y. Obeidat, M. M. Al-Suradi, A. Tarhini *et al.*, “The impact of knowledge management on innovation: An empirical study on jordanian consultancy firms,” *Management Research Review*, 2016.
- [186] D. S. Chiaburu and D. A. Harrison, “Do coworkers make the place? conceptual synthesis and meta-analysis of lateral social influences in organizations,” *Journal of Applied Psychology*, vol. 93, no. 5, pp. 1082–1103, 2008.
- [187] S. T. Acuña and N. Juristo, “Assigning people to roles in software projects,” *Software: Practice and Experience*, vol. 34, no. 7, pp. 675–696, 2004.
- [188] C. Chapman and S. Ward, *Project risk management: processes, techniques and insights*. John Wiley, 1996.

- 
- [189] H. Zhang, “A redefinition of the project risk process: Using vulnerability to open up the event-consequence link,” *International journal of project management*, vol. 25, no. 7, pp. 694–701, 2007.
- [190] D. Dalcher, “The nature of project management: a reflection on the anatomy of major projects by morris and hough,” *International Journal of Managing Projects in Business*, 2012.
- [191] S. Datta and S. Mukherjee, “Developing a risk management matrix for effective project planning—an empirical study,” *Project Management Journal*, vol. 32, no. 2, pp. 45–57, 2001.
- [192] K. De Bakker, A. Boonstra, and H. Wortmann, “Does risk management contribute to it project success? a meta-analysis of empirical evidence,” *International Journal of Project Management*, vol. 28, no. 5, pp. 493–503, 2010.
- [193] A. Gemino, B. H. Reich, and C. Sauer, “A temporal model of information technology project performance,” *Journal of Management Information Systems*, vol. 24, no. 3, pp. 9–44, 2007.
- [194] O. Sakka, H. Barki, and L. Côté, “Relationship between the interactive use of control systems and the project performance: The moderating effect of uncertainty and equivocality,” *International Journal of Project Management*, vol. 34, no. 3, pp. 508–522, 2016.
- [195] M. Keil, L. Wallace, D. Turk, G. Dixon-Randall, and U. Nulden, “An investigation of risk perception and risk propensity on the decision to continue a software development project,” *Journal of Systems and Software*, vol. 53, no. 2, pp. 145–157, 2000.
- [196] B. Shore, “Systematic biases and culture in project failures,” *Project Management Journal*, vol. 39, no. 4, pp. 5–16, 2008.

- [197] R. Olsson, "In search of opportunity management: Is the risk management process enough?" *International journal of project management*, vol. 25, no. 8, pp. 745–752, 2007.
- [198] J. Y.-C. Liu, H.-G. Chen, C. C. Chen, and T. S. Sheu, "Relationships among interpersonal conflict, requirements uncertainty, and software project performance," *International Journal of Project Management*, vol. 29, no. 5, pp. 547–556, 2011.
- [199] R. Atkinson, L. Crawford, and S. Ward, "Fundamental uncertainties in projects and the scope of project management," *International journal of project management*, vol. 24, no. 8, pp. 687–698, 2006.
- [200] R. N. Charette, "Why software fails [software failure]," *IEEE spectrum*, vol. 42, no. 9, pp. 42–49, 2005.
- [201] S. Pender, "Managing incomplete knowledge: Why risk management is not sufficient," *International Journal of Project Management*, vol. 19, no. 2, pp. 79–87, 2001.
- [202] A. Newman, H. Herman, G. Schwarz, and I. Nielsen, "The effects of employees' creative self-efficacy on innovative behavior: The role of entrepreneurial leadership," *Journal of Business Research*, vol. 89, pp. 1–9, 2018.
- [203] G. Li, H. Liu, and Y. Luo, "Directive versus participative leadership: Dispositional antecedents and team consequences," *Journal of Occupational and Organizational Psychology*, vol. 91, no. 3, pp. 645–664, 2018.
- [204] L. Chen, K. A. Wadei, S. Bai, and J. Liu, "Participative leadership and employee creativity: a sequential mediation model of psychological safety and creative process engagement," *Leadership & Organization Development Journal*, 2020.
- [205] E. T. Higgins, "Making a good decision: value from fit." *American psychologist*, vol. 55, no. 11, p. 1217, 2000.



- [206] P. L. Bannerman, "Risk and risk management in software projects: A reassessment," *Journal of systems and software*, vol. 81, no. 12, pp. 2118–2133, 2008.
- [207] S. Ghobadi and L. Mathiassen, "Risks to effective knowledge sharing in agile software teams: A model for assessing and mitigating risks," *Information systems journal*, vol. 27, no. 6, pp. 699–731, 2017.
- [208] H. Barki, S. Rivard, and J. Talbot, "Toward an assessment of software development risk," *Journal of management information systems*, vol. 10, no. 2, pp. 203–225, 1993.
- [209] N. B. Moe, A. Aurum, and T. Dybå, "Challenges of shared decision-making: A multiple case study of agile software development," *Information and Software Technology*, vol. 54, no. 8, pp. 853–865, 2012.
- [210] N. Gupta and J. Bajwa, "Analysis of knowledge sharing practices in distributed agile environment," *International Journal of Computer & Communication Technology*, vol. 3, no. 6-7, 2012.
- [211] L. Wallace, M. Keil, and A. Rai, "How software project risk affects project performance: An investigation of the dimensions of risk and an exploratory model," *Decision sciences*, vol. 35, no. 2, pp. 289–321, 2004.
- [212] S. R. Nidumolu, "Standardization, requirements uncertainty and software project performance," *Information & Management*, vol. 31, no. 3, pp. 135–150, 1996.
- [213] L. Jun, W. Qiuzhen, and M. Qingguo, "The effects of project uncertainty and risk management on is development project performance: A vendor perspective," *International Journal of Project Management*, vol. 29, no. 7, pp. 923–933, 2011.
- [214] D. Pimchangthong and V. Boonjing, "Effects of risk management practice on the success of it project," *Procedia Engineering*, vol. 182, pp. 579–586, 2017.

- [215] C. Chapman and S. Ward, "Why risk efficiency is a key aspect of best practice projects," *International Journal of Project Management*, vol. 22, no. 8, pp. 619–632, 2004.
- [216] D. Hillson and R. Murray-Webster, "Understanding and managing risk attitude," in *Proceedings of 7th Annual Risk Conference, held in London, UK*, vol. 26, 2004.
- [217] A. Collins and D. Baccarini, "Project success—a survey," *Journal of construction research*, vol. 5, no. 02, pp. 211–231, 2004.
- [218] H. Thamhain, "Managing risks in complex projects," *Project management journal*, vol. 44, no. 2, pp. 20–35, 2013.
- [219] R. Miller and D. Lessard, "Understanding and managing risks in large engineering projects," *International Journal of Project Management*, vol. 19, no. 8, pp. 437–443, 2001.
- [220] T. M. Williams, "The need for new paradigms for complex projects," *International journal of project management*, vol. 17, no. 5, pp. 269–273, 1999.
- [221] A. Carmeli, Z. Sheaffer, and M. Y. Halevi, "Does participatory decision-making in top management teams enhance decision effectiveness and firm performance?" *Personnel review*, 2009.
- [222] O. Zwikael and M. Ahn, "The effectiveness of risk management: an analysis of project risk planning across industries and countries," *Risk Analysis: An International Journal*, vol. 31, no. 1, pp. 25–37, 2011.
- [223] M. Arena, G. Azzone, E. Cagno, G. Ferretti, E. Prunotto, A. Silvestri, and P. Trucco, "Integrated risk management through dynamic capabilities within project-based organizations: The company dynamic response map," *Risk Management*, vol. 15, no. 1, pp. 50–77, 2013.
- [224] T. Raz and E. Michael, "Use and benefits of tools for project risk management," *International journal of project management*, vol. 19, no. 1, pp. 9–17, 2001.

- [225] A. Del Cano and M. P. de la Cruz, “Integrated methodology for project risk management,” *Journal of construction engineering and management*, vol. 128, no. 6, pp. 473–485, 2002.
- [226] S. C. Chan, “Participative leadership and job satisfaction,” *Leadership & Organization Development Journal*, 2019.
- [227] K. Jugdev and R. Müller, “A retrospective look at our evolving understanding of project success,” *Project management journal*, vol. 36, no. 4, pp. 19–31, 2005.
- [228] K. J. Preacher and A. F. Hayes, “Spss and sas procedures for estimating indirect effects in simple mediation models,” *Behavior research methods, instruments, & computers*, vol. Vol. 36, no. No. 4, pp. pp. 717–731, 2004.
- [229] —, “Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models,” *Behavior research methods*, vol. 40, no. 3, pp. 879–891, 2008.
- [230] A. F. Hayes and M. Scharkow, “The relative trustworthiness of inferential tests of the indirect effect in statistical mediation analysis: Does method really matter?” *Psychological science*, vol. 24, no. 10, pp. 1918–1927, 2013.
- [231] Q. Miao, A. Newman, and X. Huang, “The impact of participative leadership on job performance and organizational citizenship behavior: Distinguishing between the mediating effects of affective and cognitive trust,” *The International Journal of Human Resource Management*, vol. 25, no. 20, pp. 2796–2810, 2014.
- [232] R. C. Mayer and M. B. Gavin, “Trust in management and performance: Who minds the shop while the employees watch the boss?” *Academy of management journal*, vol. Vol. 48, no. No. 5, pp. pp. 874–888, 2005.
- [233] O. D. Cardona, M. K. Van Aalst, J. Birkmann, M. Fordham, G. Mc Gregor, P. Rosa, R. S. Pulwarty, E. L. F. Schipper, B. T. Sinh, H. Décamps *et al.*, “Determinants of risk: exposure and vulnerability,” in *Managing the risks*

- of extreme events and disasters to advance climate change adaptation: special report of the intergovernmental panel on climate change.* Cambridge University Press, 2012, pp. 65–108.
- [234] E. U. Weber, A.-R. Blais, and N. E. Betz, “A domain-specific risk-attitude scale: Measuring risk perceptions and risk behaviors,” *Journal of behavioral decision making*, vol. 15, no. 4, pp. 263–290, 2002.
- [235] S. A. Gabriel, J. F. Ordóñez, and J. A. Faria, “Contingency planning in project selection using multiobjective optimization and chance constraints,” *Journal of Infrastructure Systems*, vol. 12, no. 2, pp. 112–120, 2006.
- [236] S. Grimmelikhuijsen, G. Porumbescu, B. Hong, and T. Im, “The effect of transparency on trust in government: A cross-national comparative experiment,” *Public administration review*, vol. 73, no. 4, pp. 575–586, 2013.
- [237] D. Cantu and F. Rizzo, “Managing innovation through participatory processes,” *LEADING THROUGH DESIGN*, p. 585, 2012.
- [238] J. Bowers and A. Khorakian, “Integrating risk management in the innovation project,” *European Journal of innovation management*, 2014.
- [239] L. V. Nikolova, J. J. Kuporov, and D. G. Rodionov, “Risk management of innovation projects in the context of globalization,” *International Journal of Economics and Financial Issues*, vol. 5, no. 3S, 2015.
- [240] J. Hyysalo, M. Kelanti, J. Lehto, P. Kuvaja, and M. Oivo, “Software development as a decision-oriented process,” in *International Conference of Software Business*. Springer, 2014, pp. 132–147.

# Appendix A

## Research-Questionnaire (Project Core Team)

Dear Respondent,

I am MS Scholar at Capital University of Science and Technology, conducting research on “**The Impact of Participative Leadership on Project Success with Mediating Role of Coworker Knowledge Sharing and Moderating Role of Project Risk Management**” for the completion of my research thesis. The specific objectives of the study are to; explore the relationship between Participative Leadership and Project Success. Examine the moderating effect of Project Risk Management on the relationship of Participative Leadership and Project Success. In this regard, you are requested to fill the following questionnaire, please note down that your identity as respondent is concealed. You can freely express whatever the ground realities you see and face. All the information obtained for this research will be used only for academic purposes.

Thank you very much. Your active contribution is the real strength of this research study.

Profound Regards,  
Syeda Farwaa Haider

<b>Section: 1</b>	<b>Demographics</b>
Your gender:	1- Male 2- Female
Your age:	1 (18-25), 2 (26-33), 3 (34-41), 4 (42-49) 5(50 and above)
Your qualification:	1 (Matric), 2 (Intermediate), 3 (Bachelor), 4 (Masters) 5(MS/MPhil), 6(PhD)
Experience:	1(5-10), 2(11-16), 3(17-22), 4(23-28), 5(29 and above)
Designation:	1- Project Manager, 2-Engineer Manager, 3-Project Leader, 4-Team Leader, 5-Software Engineer, 6- Computer Engineer, 7-Advisor and Experts

### **Section-2: Participative Leadership (Independent Variable)**

Strongly disagree: 1, Disagree: 2, Neutral: 3, Agree: 4, Strongly agree: 5

*To what extent Participative Leadership helps you to complete your project effectively and efficiently.*

1	PL encourages work group members to express ideas/suggestions;	1	2	3	4	5
2	PL listens to my work group's ideas and suggestions;	1	2	3	4	5
3	PL uses my work group's suggestions to make decisions that affect us;	1	2	3	4	5
4	PL gives all work group members a chance to voice their opinions;	1	2	3	4	5
5	PL considers my work group's ideas when he/she disagrees with them;	1	2	3	4	5
6	PL makes decisions that are based only on his/her own ideas.	1	2	3	4	5

### **Section-3: Coworker Knowledge Sharing (Mediating Variable)**

Strongly disagree: 1, Disagree: 2, Neutral: 3, Agree: 4, Strongly agree: 5

*How "Coworker Knowledge Sharing" does helps you in your recent project.*

1	Coworkers in our team shares their special knowledge and expertise with one another;	1	2	3	4	5
---	--	---	---	---	---	---

2	If coworkers in our team have some special knowledge about how to perform the task, they are likely to tell one another about it.	1	2	3	4	5
3	Coworkers in our team exchange information, knowledge, and sharing of skills with one another;	1	2	3	4	5
4	Coworkers in our team freely provide one another with hard-to-find knowledge or specialized skills;	1	2	3	4	5
5	Coworkers in our team help one another in developing relevant strategies;	1	2	3	4	5
6	Coworkers in our team share lot of information with one another;	1	2	3	4	5
7	Coworkers in our team offer lots of suggestions to one another.	1	2	3	4	5

#### Section-4: Project Risk Management (Moderating Variable)

Strongly disagree: 1, Disagree: 2, Neutral: 3, Agree: 4, Strongly agree: 5

*How much Project Risk Management help you to complete your project within scope, time and cost parameters by taking care of following risks:*

1	Lack of an effective project management.	1	2	3	4	5
2	Project progress not monitored closely enough	1	2	3	4	5
3	Inadequate estimation of required resources	1	2	3	4	5
4	Poor project planning	1	2	3	4	5
5	Project milestones not clearly defined	1	2	3	4	5
6	Inexperienced project manager	1	2	3	4	5
7	Ineffective communication	1	2	3	4	5
8	Inexperienced team members	1	2	3	4	5
9	Team members lack specialized skills required by the project	1	2	3	4	5

#### Section-5: Project Success (Dependent Variable)

Strongly disagree: 1, Disagree: 2, Neutral: 3, Agree: 4, Strongly agree: 5

*Rate the following according to your most recent completed project.*

1	The project was completed on time.	1	2	3	4	5
---	------------------------------------	---	---	---	---	---

2	The project was completed according to the budget allocated	1	2	3	4	5
3	The outcomes of project are used by its intended end users	1	2	3	4	5
4	The outcomes of the project are likely to be sustained	1	2	3	4	5
5	The outcomes of project have directly benefited the intended end users, either through increasing efficiency/effectiveness	1	2	3	4	5
6	Given the problem for which it was developed, the project seems to do the best job of solving that problem	1	2	3	4	5
7	I was satisfied with the process by which the process was implemented	1	2	3	4	5
8	Project team members were satisfied with the process by which the project was implemented	1	2	3	4	5
9	The project had no minimal or start-up problems because it was readily accepted by end users	1	2	3	4	5
10	The project has directly led to improved performance for the end user/target beneficiaries	1	2	3	4	5
11	The project has made a visible positive impact on the target beneficiaries	1	2	3	4	5
12	Project specification were met by the time of handover to the target beneficiaries	1	2	3	4	5
13	The target beneficiaries were satisfied with the outcome of the project	1	2	3	4	5
14	Our principal donors were satisfied with the outcomes of the project implementation	1	2	3	4	5

**Thank you for your time and cooperation**