

RESEARCH ARTICLE

Dimensions of Team Work Leading to Project Completion: The Moderating Role of Government Intervention

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Abstract: Project completion in extreme conditions gained significance in project management literature. This research argued that, flexibility, task delegation and risk avoidance proved supportive while completing projects in extreme conditions. Consequently, the aim of this research was to hypothetically test the effects of flexibility, task delegation, and risk avoidance on project completion. Also, this research tested the moderating role of government intervention between flexibility, task delegation, risk avoidance and project completion. Smart PLS 3.0 was applied to test the hypothetical relationship between established variables by using the data of 319 supervisors engaged in projects near to completion. Results revealed that, flexibility, task delegation and risk avoidance elucidated a positive effect on project completion. Whereas, government intervention as a moderator strengthened the relationship between task delegation and project completion, with a weak effect between the remaining predicting variables and criterion variable. Flexibility, task delegation and risk avoidance are primary concerns while completing projects in extreme conditions. This research anticipated and analytically confirmed that, flexibility, task delegation and risk avoidance had an effect on project completion.

Keywords: Project completion; government intervention; flexibility; task delegation; risk avoidance.
JEL Classification Codes: M12

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1 Introduction

Project completion related concerns have been an integral part of numerous industrial projects for decades. For instance, on completion information technology projects contributed 25.5% of GDP which is equal to 11.5 trillion USD globally as of 2016 (Guzowska & Quang, 2017). Moving towards South Asia, information technology projects completed between 2011 and 2016 contributed 1% of GDP to Pakistan which is nearly about 3.5 billion USD (Fayaz, Kamal, Amin, & Khan, 2017). On the other hand, COVID-19 increased the concern about factors related to project completion (Alenezi, 2020). For example, established literature indicated that, COVID-19 led to global project disasters (Ogunnusi, Hamma-Adama, Salman, & Kouider, 2020). These major global disasters aided in project stoppages at the completion stage (Paikan, 2021). Delays in project completion have created a hurdle for government and economic policy makers while establishing policy for future projects (Ali, Hussain, & Ahmed, 2021; Ariyanti, Putri, & Ningtyas, 2021). Therefore, this study extended past research on project completion with a focus on emerging information technology industry (Koch & Schermuly, 2021). This would help policy makers to understand and further establish the role of team dynamics for projects operated under extreme conditions (Elyousfi, Anand, & Dalmasso, 2021).

A healthy literature was established on project completion directed towards testing impact of cost, quality, price, speed, project complexity, project speed, and client requirements influence. Additionally, these established factors were tested with outcomes including project procurement, selection of construction projects, project delivery, client satisfaction, project success, and entrepreneur loyalty (Sarvari, Chan, Fakhir, Olawumi, & Aldaud, 2021). However, flexibility, risk avoidance and task delegation relationships were less studied with project completion in extreme conditions in South Asian perspective as compared to other established outcome (Hornnes & Jarland, 2021)

This research contributed in the established project management literature by recommending and analytically testing the effect of flexibility, risk avoidance and task delegation as facets of teamwork on project completion in extreme conditions, which somewhat remained overlooked (Lauer, 2021). Additionally, academicians (Xiong, Wang, Li, & Chen, 2019) had argued on flexibility, risk avoidance and task delegation. Yet, the established literature is limited on their link with project completion. Perhaps, there was a need to reflect whether these independent variables had an impact on project completion in extreme conditions (Mathar, Assaf, Hassanain, Abdallah, & Sayed, 2019). Consequently, this research examined flexibility, risk avoidance, and task delegation effect on project completion in the information (Alenezi, 2020) technology industry of Pakistan. Not surprisingly, COVID-19 has led to worldwide project delays leading to concerns related to project completion (Hussain, Xuotong, Hussain, Khoja, & Zia, 2021). In a similar vein, minimal literature existed on handling projects in extreme conditions in the information technology industry of Pakistan (Khan et al., 2021).

The established literature on team dynamics and facets of project completion focused on shared knowledge, coordination, motivation, time management, maintaining the team functions and role of leader from different industries globally (Shuhailo Derkach, 2021). Henceforth, the novelty of this research is established by studying Pakistani information technology industry as the context for research. Furthermore, this research generated a convincing idea for supervisors to handle project completion stage in risky situations. Therefore, this quantitative endeavor focused on three facets of teamwork including flexibility,

task delegation and risk avoidance which could prove necessary in the completion of a project.

1.1 Theoretical Framework

The theoretical framework for this research was based on Team Dynamics Theory (TDT). This theory posits that the dynamic capabilities of team members within a team unleashed motivational forces while working for a selected project. Consequently, influenced the direction and performance of the team (García-Morales, Jiménez-Barrionuevo, Mihi-Ramírez, 2019). Additionally, this motivation was established when members in a team were flexible, delegated individual tasks, and had the potential to avoid project-based risk (Turner, 2020). On the other hand, established literature indicated that majority of the studies on Team Dynamics Theory (TDT) were conducted in countries including Hong Kong, Australia, Nigeria, U.S.A, U.K, Brazil, Qatar, Ghana, Rwanda, Taiwan, South Africa, Finland, Indonesia, Malaysia, Srilanka, Romania, Vietnam & Jordan (Garcia & Russo, 2020). This constrained the generalization of the findings towards information technology industry of Pakistan. Moreover, it has been observed that minimal studies have been conducted in Pakistan in light of Team Dynamics Theory (TDT). Thus, this study would have significant contribution in the context of Pakistan.

2 Literature Review

2.1 Team Flexibility on Project Completion in Extreme Conditions

The first hypothesis was developed to satisfy the specific research objective 1. Previously established literature provided several definitions of flexibility. Byrd, 2000 defined flexibility as the ability to make changes to the time (when), location (where) and manner (how) in which a project or task was to be completed. Dougherty, et al., 2020 defined flexibility as an assistance to regulate the emotions of team members in order to manage the diverse demand of varying situations. On another note, it was indicated that flexibility is the ability to manage the project with unanticipated environment circumstances being essential for the successful completion of the project (Biron, et al., 2021). An article published in US described flexibility as one of three variables which enabled the traps in the workplace (Iqbal, Nawaz, & Abdul, 2017). In a similar vein, Ullah & Narain (2020) indicated that, workforce flexibility is the management organizational labor capacity and capability in the operational environment. Also, it is the approach to mitigate the system imbalances caused by uncertainties.

H_1 : Flexibility within a team has a significant relationship with Project Completion in the information technology industry of Pakistan

2.2 Task Delegation with Project Completion in Extreme Conditions

The second hypothesis was developed to satisfy specific research objective. Literature established various definitions of task delegation. Past research indicated that, the practice of task delegation among the team members has increased from past few decades. This

helped the supervisors of the projects to manage the projects effectively & efficiently in extreme conditions (Goetz, Wald, & Freisinger, 2021). One of the studies indicated that, task delegation process was associated with high level of employee job satisfaction (Dayyala, Walstrom, & Bagchi, 2021). In a similar vein, signified task delegation to maintain the health of team members. Consequently, completing the project efficiently and effectively in extreme conditions (Assaad, El-Adaway, & Abotaleb, 2020). Likewise, (Drouin, Müller, Sankaran, & Vaagaasar, 2018) indicated that, the decision-making process about the projects increased due to the task delegation within the project team members. This resulted in completing the projects on time.

H₂: Task delegation within a team has a significant relationship with Project Completion in the information technology industry of Pakistan.

2.3 Risk Avoidance on Project Completion in Extreme Conditions

In general, established literature defined project risk as an uncertain event which created a threat for the supervisors of the projects (Yuan, et al., 2018). Ideally, project supervisors played a key role in minimizing risk during ongoing project. On the other hand, documented literature indicated that various types of risks came into play while working on the project. For instance, project was not completed on time, which led to delay in the project. Secondly, project was not completed within the budget, which increased cost of business client significantly (Sohu, et al., 2017). Thirdly, project was not completed according to the quality expected by the business client. This type of risk led to failure in project completion (Saeed, 2018). Results from conducting research in Manila indicated that, to minimize the probability of raising the risk associated with the project was the prime responsibility of the project supervisors (Cleveland & Cleveland, 2020). Moreover, failing to minimize the probability of the project risk led to a doubt about its completion (Fogel, 2018). Izmailov, Korneva, & Kozhemiakin, (2016) results indicated that in Russia only 44% of the projects completed successfully on time. Also, while 30% of the projects die due to the risks arise during the different phases of the project. Now a days the project supervisors use advance technique of critical chain project management (CCPM) to minimize the risk arising during the projects (Hussain, et al., 2021).

H₃: Risk avoidance within a team has a significant relationship with Project Completion in the information technology industry of Pakistan.

2.4 Government Intervention as a Moderator between Flexibility and Project completion in extreme condition.

It entailed that, government intervention played a moderating role in between flexibility and project completion in extreme condition. Government intervention was previously studied as moderator in multiple studies. For example, a study was conducted in China in context of supply chain sector. This study indicated that, government intervention in the projects maintained the equilibrium condition between flexibility and project completion (Enderwick, 2020). Similarly, research was conducted in Australia by Marimuthu et al., (2021), It was revealed that, the emerging economies where institutional environment is weak the level of flexibility faced by supervisors was very low. Moreover, (Hubbard, 2020) discussed in his book that the poor flexibility management used by the government author-

ities created a hurdle for the supervisors to take concrete decisions to minimize the flexibility on the projects. Moreover, in the absence of good flexible policies the government is unable to plan the risk management process (Peters et al., 2019). Previously various studies were conducted in the risk management of the construction industry. It was indicated that, government played a moderation role in the risk management process (Taofeeq, Adeleke, & Lee, 2020). Furthermore, it was revealed that e-government reporting system provided a suitable flexibility plan in different projects of different industries (Sundberg, 2019).

H₄: Government interference moderates the relationship between flexibility within a team and project completion in Pakistan

2.5 Government Intervention as a Moderator between Task Delegation and Project completion in extreme condition.

The fourth hypothesis was developed to satisfy specific research objective (5). This hypothesis established that, government intervention played a moderating role in between relationship of task delegation and project completion in extreme condition. Government intervention was previously studied as a moderator in multiple studies. For instance, according to Edith, (2015) the energy sector in South Africa signified high involvement of the general public in the project. In a similar vein, a case study was conducted in Netherlands. It was argued that, governments deviated the task delegation among their different departments (Overman, 2016). Additionally, some researchers contradicted by stating that the responsibility of task delegation in the government is not fruitful. In another research conducted in Europe it was observed that, the Government used its various powers to delegate the tasks to the other departments to complete their operations (Cass, 2017). Furthermore, a study was conducted in Turkey. It was observed that government delegated its powers in the crises of Turkey to facilitate project completion (Terzi, 2018).

H₅: Government Interference moderates the relationship between task delegation with in a team and project completion in Pakistan.

2.6 Government Intervention Moderates between Risk Avoidance and Project completion in extreme condition.

The sixth hypothesis is developed to satisfy specific research objective of this study. It entails that government intervention played a moderating role between relationship of risk avoidance and project completion in extreme condition. Government intervention has been previously studied as moderator in multiple studies; for example, a study was conducted in China but in context of supply chain sector, findings suggested that Government intervention in the projects maintained the equilibrium condition between the supply and demand policies (Dai, Si, & Wang, 2017). Research was conducted in China by Zhou, Li, Yan, & Lyu, (2021), which revealed that in emerging economies where institutional environment was weak the level of risk faced by supervisors was ultimately high. Yet, few studies had attempted to explain the procedures to minimize the risk raised on the projects. Hubbard, (2020) discussed in his book that the poor risk management used by the government authorities created a hurdle for the supervisors to take concrete decisions to minimize the risk on the projects. Moreover, in the absence of good data the government was unable to plan the risk management process (Peters, Hanssen, Gutierrez, Abrahams, & Nyenswah, 2019).

Previously various studies were conducted in the risk management of the construction industry in which the government played a moderation role in the risk management process (Taofeeq, Adeleke, & Lee, 2020). Furthermore, it revealed that e-government provides a suitable plan of risk management in different projects of different industries (Sundberg, 2019).

H_6 : Government Interference moderates the relationship between risk avoidance within a team and project completion in Pakistan

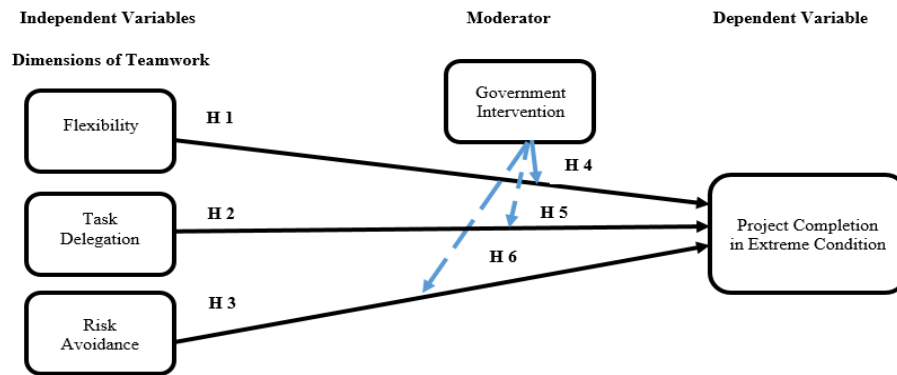


Figure 1: Conceptual Framework

3 Research Methodology

A positivist paradigm was established, which helped in answering the research objectives (Kumatongo & Muzata, 2021). Moreover, this research strategy relied on deductive reasoning. Furthermore, the said hypotheses for this study were formed on the basis of literature deduced from published research articles and documented statistical reports. The next section would discuss the research instrument and data collection procedure.

3.1 Instrument of Data Collection

Previously established questionnaires utilized in different research were adopted and then adapted to collect the data. Three dimensions of team work including flexibility, task delegation and risk avoidance leading to project completion were established along with the number of items in Table 1. This research study used the seven-point likert scale to gather the opinion of the respondents. A seven-point scale directed respondents towards having more options to disclose their opinion and feel more comfortable to answer the questions (Sullivan & Artino Jr, 2013). The scales have been introduced in such a course of action, beginning with independent variables, followed by moderating and dependent variable.

3.2 Sampling Size and Technique

The unit of analysis for the current study was project supervisors working on different projects in information technology industry of Pakistan. Supervisors were chosen because

they were held accountable for project planning and scheduling (Brunet, 2021). Also, they were responsible for assessing risk and completing the project on time. Moreover, they provided guidance to team members where required (Hansen, 2020). It took time and cost consuming task to visit 319 project supervisors for collection of data. To avoid this inconvenience, snowball sampling technique was used to collect the data. By using google doc a questionnaire was distributed amongst project supervisors. Consequently, 319 responses were received.

Table 1: Population of Rawalpindi and Islamabad

City	Inhabitants in Millions	% of Total Population	Sample Size
Rawalpindi	1,743,101	74.34%	237
Islamabad	601,600	25.66	82

3.3 Method of Data Collection

There are various methods used by the researchers for the collection of data. While keeping in view that the data collection is time taking process, google doc had been used for this purpose. The link of google doc was sent to the supervisors using a snow ball technique. These supervisors were working in project-based organizations in information technology industry in the vicinity of Rawalpindi and Islamabad. With the help of snowball technique, the link of google doc questionnaires were further shared among the project supervisors.

3.4 Data Analysis Tools

SMART PLS 3.0 algorithm was used to estimate the research with two models: measurement model and structural model. The measurement model provided the assessment of effect to test the hypotheses while, the structural model examined the reliability and validity of the data (Hair & Nitzl, 2020). Additionally, it worked with a more extensive scope sample sizes and due to bootstrapping procedures, it didn't need any assumptions of data normality (Ramli, Latan, & Nartea, 2018). Furthermore, in recent year the PLS-SEM was increasingly being adopted in research disciplines, including marketing and business, etc. (Kwong & Wong, 2013). Moreover, it guaranteed more theoretical miserliness and delivered better expectations to the models with complex connections.

Table 2: Description of variables

Constructs	Authors	Items	Est. Rel.
Flexibility	(Byrd, 2000)	4	0.86
Task Delegation	(Xiong Chen & Aryee, 2007)	5	0.78
Risk Avoidance	(Riley, et al., 2004)	6	0.76
Government Interventions	(Bollinger & Ihlanfeldt, 2003)	5	73
Project Completion in Extreme Conditions	(Zhu et al., 2016)	8	0.8

3.4.1 Independent Variables

This research has incorporated three independent variables, which are discussed in the following:

3.4.1.1 Flexibility

Flexibility as the capability to make changes to the time (when), area (where) and way (how) in which a project or assignment is to be completed (Byrd, 2000). Likewise, a seven-point Likert scale is used for operationalization of the survey questionnaire. Additionally, one in the scale displayed a high level of agreement, while the seven in the scale demonstrated a high level of disagreement. The general impact of flexibility was worked out by taking the average of 4 items showed in Table 2.

3.4.1.2 Task Delegation

Task delegation as a capability to share their burden with other people. It comprised of giving authority to the subordinates for carrying through an assigned task (Xiong Chen & Aryee, 2007). Likewise, a seven-point Likert scale is used for operationalization of the survey questionnaire. Additionally, one in the scale displayed a high level of agreement, while the seven in the scale demonstrated a high level of disagreement. The general impact of task delegation was worked out by taking the average of 5 items showed in Table 2.

3.4.1.3 Risk Avoidance

Risk avoidance was the ability of the project managers for removal or minimization of hazards, activities, and exposures that can negatively affect an organization's assets (Riley et al., 2004). Likewise, a seven-point Likert scale was used for operationalization of the survey questionnaire. Additionally, one in the scale displayed a high level of agreement, while seven in the scale demonstrated a high level of disagreement. The general impact of risk avoidance was worked out by taking the average of 6 items showed in Table 2.

3.4.2 Moderator

3.4.2.1 Government Interference

Government interference as an action carried out by the government or public entity that affected the market economy with the direct objective of having an impact in the economy (Bollinger & Ihlanfeldt, 2003). Also, beyond the mere regulation of contracts and provision of public goods. Likewise, a seven-point Likert scale was used for operationalization of the

survey questionnaire. Additionally, one in the scale displayed a high level of agreement, while the seven in the scale demonstrated a high level of disagreement. The general impact of Government Interference was worked out by taking the average of 5 items showed in Table 2.

3.4.3 Dependent Variable

3.4.3.1 Project Completion

Project completion as the state of project coming to its final outcome effectively and efficiently, within the given deadline (Zhou, Li, Yan, & Lyu, 2021). Also, the success factor was not merely based on achieving the objective. But achieving the objectives in a given time period.

4 Results

Majority of the responses were received from males (70 %), whereas only (30%) females participated in this research. Also, geographic and demographics of respondents including region, gender, age, supervisory experience, and team members supervised were established in Table 3.

Table 3: Geographic and Demographics

Major Segmentation Variables	Category	Respondents	%age
Geographic region	Rawalpindi & Islamabad	319	100%
Demographics			
Gender	Male	222	70%
	Female	97	30%
Age	18 - 25	97	30%
	26 - 33	106	33%
	34 - 41	66	21%
	42 - 49	34	11%
	50 and above	16	5%
Supervisory Experience in Years	0 to 5	146	46%
	06 to 5	91	29%
	11 to 15	55	17%
	16 and above	27	8%
Team members supervised	0 to 5	149	47%
	0 to 6	67	21%
	11 to 15	69	22%
	16 and above	34	11%

4.1 Measurement Model Assessment

The reliability and validity of data were assessed through the measurement model. To begin with, coefficient alpha (CA), composite reliability (CR), and internal consistence reliability, were taken into account. Coefficient alpha values above 0.7 were considered adequate (Marinus et al., 2002). Accordingly, composite reliability values above 0.70 were acceptable (Hamid, Sami, & Sidek, Discriminant validity assessment: Use of Fornell & Larcker criterion versus HTMT criterion, 2017). This completed the evaluation of both CA and CR. Moving forward, led to evaluate reliability indicators and outer loadings for measurement model assessment. (Hair, Ringle, & Sarstedt, 2011) suggested values above 0.70 for both indicators of reliability and outer loadings. Values in Table 4 indicated that CA, CR and OL were all above the required threshold. Consequently, led to measuring construct validity. It is composed of two components. At first, the convergent validity, "average variance extracted (AVE)" was measured. It exceeded 0.50. The discriminant validity was evaluated through Fornell and Larcker criterion (Hair & Nitzl, 2020). Here, the square root of AVE must be greater than the correlations amongst constructs. Results in Table 5 indicated that the square root had a greater value (Afthanorhan, 2013). Moreover, Heterotrait–Monotrait (HTMT) ratio as a more rigorous method was used to evaluate discriminant validity (Voorhees, Brady, Calantone, & Ramirez, 2016). Authorities proposed value below 0.90. Documented values in Table 6 indicated that, HTMT values were less than 0.90. As all the threshold values were met for convergent validity, the constructs were further evaluated using a structural model.

4.2 Assessment of structural model

The structural model for this research was based on values assessed through beta, t-values, and f^2 effect size test scores Hair, Ringle, & Sarstedt, (2011). A boot strapping procedure was used as suggested by Hair, Ringle, & Sarstedt, (2011) to obtain t-values. Moreover, a blindfold procedure in PLS-SEM was applied to know about the predictive relevance (Hair & Nitzl, 2020).

Table 4: Reliability and Validity of Measurement Model

Constructs Items	OL	CR	CA	AVE
Flexibility	0.75	0.85	0.525	0.54
Task Delegation	0.66	0.83	0.672	0.65
Risk Avoidance	0.77	0.87	0.545	0.52
Project Completion	0.76	0.91	0.518	0.57

Table 5: Discriminant Validity of Constructs Fornell- Larker Criterion

Constructs	F	TD	RA	PC
F	0.81	0	0	0
TD	0.74	0.76	0	0
RA	0.66	0.67	0.72	0
PC	0.63	0.65	0.67	0.71

Table 6: Heterotrait–Monotrait ratio (HTMT)

Constructs	F	TD	RA	PC
F	0.707	0	0	0
TD	0.677	0.727	0	0
RA	0.6	0.62	0,785	0
PC	0.527	0.58	0.6	0.794

Table 7: Results of Structural Model Analysis

Hypothesis	Relationship	Std.	t-values	p-value	f ²	Decision
1	F →PC	0.272	5.03	0	0.198	Supported
2	TD→PC	0.282	5.99	0	0.17	Supported
3	RA→PC	0.353	6.97	0	0.229	Supported

Table 8: Moderation Analysis

Hypothesis	Relationship	Std. Beta	Std.Error	t-values
4	Flexibility *Gov- ernment Inter- vention →Project Completion	0.057	0.95	1.134*
5	Task Delega- tion** Gov- ernment Inter- vention →Project completion	0.079	0.095	2.143**
6	Risk Avoidance* Government Intervention → Project comple- tion	0.021	0.095	0.463*

***p < 0.001, **p < 0.01, *p < 0.05

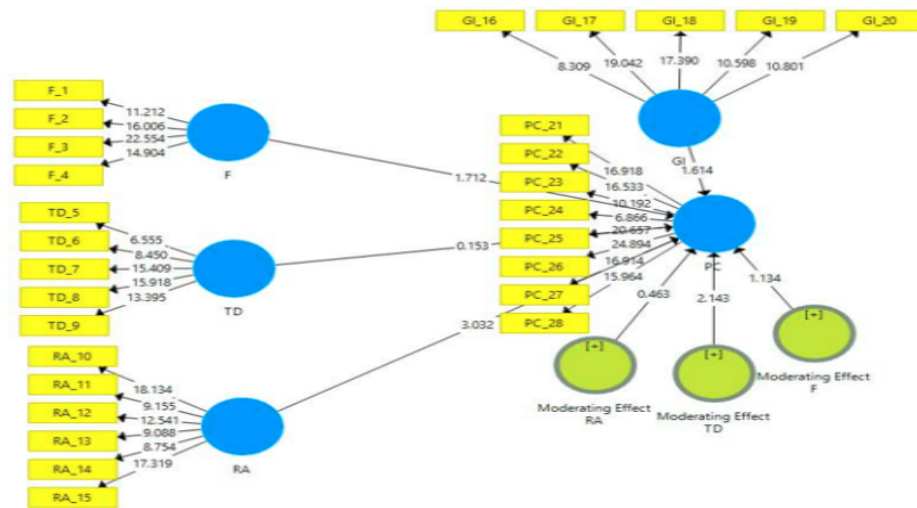


Figure 2: PLS-SEM Model with Moderation

5 Conclusion

The objective of this research was to test a model for project completion in extreme conditions. On the basis of Team Dynamic Theory (TDT) this research claimed that, the relationship between flexibility, task delegation, risk avoidance and project completion in extreme conditions could be significant while working on different information technology-based research projects in Pakistan. To elucidate the argument, the documented research presented a discussion on managing risks in project. Additionally, the impact of government intervention as a moderator between flexibility, task delegation, risk avoidance and project completion were also tested to respond to previously established research frameworks on project management. To begin with, (H1–H3) relationship with project completion were considered. Results in Table 7 confirmed that, these hypotheses were consistent with the philosophical construction of Team Dynamic Theory (Kozlowski, Watola, Jensen, Kim, & Botero, 2009). While hypothesizing H1 it was observed that, team flexibility (Byrd, 2000) had a positive influence on project completion ($\beta = 0.272$, t -value= 5.03 and p -value=0.00) as established in Table 7 signified that, providing flexibility amongst team members provided them adequate space to conceptualize their thoughts into reality. This result was in-line with previously established research. Project-based organizations in other developing countries preferred having team flexibility while working on a project in the information technology industry (Agarwal, Dixit, Nikolova, & Sankaran, 2021). Consequently, consistent with the ongoing debate in information technology industry team flexibility positively influenced project completion in extreme conditions. Also, while hypothesizing H2, the impact of task delegation on project completion in extreme conditions was determined. Task delegation had a positive impact on project completion ($\beta = 0.282$, t -value = 5.99 and $p=0.00$) indicated in Table 7. (Chen & Aryee, 2007) signified that, delegating individual responsibilities to every team member made the task interesting, engaging and achievable

with in the designated time. Also, the result for H2 signified that, the process of delegating tasks to team members increased their association level with the project. Consequently, having a positive impact on their job performance while working on a project (Dasí, Pedersen, Barakat, Alves, 2021). Moreover, H3 confirmed a positive impact on project completion in extreme conditions ($\beta = 0.353$ t-value = 6.97 and $p = 0.00$) documented in Table 7. Munns and Bjeirmi, (1996) in previously established research posited that risk avoidance played a key role while working on a project. Also, assessing risk before time assisted in smooth project completion. Furthermore, the established results on moderation analysis given in table 8 indicated that government intervention strengthened the relationship between task delegation and project completion, ($\beta = 0.079$, t-value = 2.143). However, weakened the relationship between flexibility, risk avoidance and project completion in extreme conditions ($\beta = 0.057$, t-value 1.134, = 0.21, t-value = 0.463). Previous study indicated that, government intervention helped in monitoring the ongoing project and played the role of a catalyst towards project completion (Cheah & Ho, 2020).

5.1 Theoretical and Managerial Implications

To begin with, this research extended established literature by taking into account information technology sector project supervisors and customer relations influence on project completion in extreme condition. This previously established literature was in majority directed towards impact of cost, quality, price, project complexity, project speed, and client requirements on project procurement, project success and entrepreneurial loyalty (Alenezi, 2020; Garcia & Russo, 2020; Hornnes & Jarland, 2021; Lauer, 2021). From a theoretical perspective, this research contributed in Team Dynamic Theory by reinforcing a linkage amongst the hypothesized constructs in the context of South East Asia. Not surprisingly, Risk avoidance was the strongest predictor of project completion ($f^2 = 0.229$), followed by Flexibility ($f^2 = 0.298$) and Task Delegation ($f^2 = 0.270$). Consequently, enriching the concept of project completion in extreme condition in Pakistan. On the other hand, this research unleashed a few implications for supervisors leading project teams. To begin with, this research proposed the significance of flexibility, task delegation and risk avoidance importance towards enhancing project success and on time project completion. Consequently, contributing to the overall success of the organization at a national level. Secondly, this research reinforced the role of supervisor as key towards fully understanding the dimensions of team dynamics leading to project success. Also, making team members practice the required dimensions of team dynamics while completing projects in extreme conditions. Furthermore, this research signified that, the policy makers and upper management should give prime importance on building teams keeping in consideration the required dynamics while undertaking a short- or long-term project in the information technology industry. At last, this research would support supervisors to adopt a proactive approach towards lowering risk while working on projects in extreme conditions.

5.2 Limitations and Future Research

Nevertheless, this quantitative investigation had a few limitations. To begin with, this research focused on team flexibility, task delegation and risk avoidance assistance in minimizing project completion risk in extreme conditions. Forthcoming studies could unleash the facets of risk leading to delay in project completion. In a similar vein, future studies

on project completion in extreme conditions can be conducted in the construction and real estate industry of Pakistan. Additionally, upcoming research might take into account the influence of team dynamics and technological factors on project completion as this research was limited to test the relationship between facets of team dynamics and project completion. Furthermore, the results of this study were confined to the information technology industry of Pakistan. Consequently, a future research effort could be made to authenticate the outcomes of this research in information technology industries of other Asian economies. On the other hand, cross-sectional data were collected in this research. Future endeavors could focus on longitudinal studies to further verify the findings.

References

- Agarwal, U. A., Dixit, V., Nikolova, N., Jain, K., and Sankaran, S. (2021). A psychological contract perspective of vertical and distributed leadership in project-based organizations. *Int. J. Project Manage.*, 39(3):249–258.
- Alenezi, T. A. (2020). Covid-19 causes of delays on construction projects in kuwait. *IJERGS*, 8(1):6–9.
- Ali, Z., Hussain, A., and Ahmed, Z. (2021). Breakdown in monitoring project performance to reduce transaction cost in public sector construction projects: A case study from pakistan. *Research Journal of Social Sciences and Economics Review (RJSSER)*, 2(1):414–427.
- Ariyanti, F. D., Putri, A. C., and Ningtyas, D. A. (2021). Implementation of lean construction and critical chain project management (CCPM) for waste management and work estimation on the ciawi dam construction project. *IOP Conf. Ser. Earth Environ. Sci.*, 794(1):012074.
- Assaad, R., El-Adaway, I. H., and Abotaleb, I. S. (2020). Predicting project performance in the construction industry. *J. Constr. Eng. Manag.*, 146(5):04020030.
- Bollinger, C. R. and Ihlanfeldt, K. R. (2003). The intraurban spatial distribution of employment: which government interventions make a difference? *J. Urban Econ.*, 53(3):396–412.
- Brunet, M. (2021). Making sense of a governance framework for megaprojects: The challenge of finding equilibrium. *International Journal of Project Management*, 39(4):406–416.
- Byrd, T. A. (2000). Measuring the flexibility of information technology infrastructure: Exploratory analysis of a construct. *Journal of management information systems*, pages 167–208.
- Cass, R. A. (2016). Delegation reconsidered: A delegation doctrine for the modern administrative state. *SSRN Electron. J.*
- Cheah, S. L.-Y. and Ho, Y.-P. (2020). Effective industrial policy implementation for open innovation: The role of government resources and capabilities. *Technol. Forecast. Soc. Change*, 151(119845):119845.
- Cleveland, S. and Cleveland, M. (2020). Leadership competencies for sustained project success. *International Journal of Applied Management Theory and Research*, 2(1):35–47.

- Dai, D., Si, F., and Wang, J. (2017). Closed loop supply chain with delayed decision under government intervention. *Entropy*, 1(11):56–87.
- Dasngels, Pedersen, T., Barakat, v. L., and Alves, T. R. (2021). Teams and project performance: An ability, motivation, and opportunity approach. *Proj. Manage. J.*, 52(1):75–89.
- Dayyala, N., Walstrom, K. A., and Bagchi, K. K. (2021). Team characteristics moderating effect on software project completion time. *Int. j. inf. technol. syst. approach*, 14(1):174–191.
- Dayyala, N., Walstrom, K. A., and Bagchi, K. K. (2022). Team characteristics moderating effect on software project completion time. In *Research Anthology on Agile Software, Software Development, and Testing*, pages 1342–1362. IGI Global.
- Dougherty, E. N., Murphy, J., Hamlett, S., George, R., Badillo, K., Johnson, N. K., and Haedt-Matt, A. A. (2020). Emotion regulation flexibility and disordered eating. *Eat. Behav.*, 39(101428):101428.
- Drouin, N., Müller, R., Sankaran, S., and Vaagaasar, A. L. (2018). Balancing vertical and horizontal leadership in projects: empirical studies from australia, canada, norway and sweden. *International Journal of Managing Projects in Business*, 11(2):10–23.
- Edith, K. (2015). *Transition into a green economy: Are there limits to government intervention? International scientific conference on economic and social development.*
- Ellerbe, C. Y. (2020). *Exploring cost and resources in information technology projects about project completion . (Doctoral dissertation).*
- Elyousfi, F., Anand, A., and Dalmasso, A. (2021). Impact of e-leadership and team dynamics on virtual team performance in a public organization. *Int. J. Publ. Sect. Manag.*, 34(5):508–528.
- Enderwick, P. (2020). *Viewpoint-could the belt and road initiative be derailed? An analysis of impediments to completion*, volume 5.
- Fayaz, A., Kamal, Y., Amin, S. u., and Khan, S. (2017). Critical success factors in information technology projects. *Manag. Sci. Lett.*, 13(4):29–41.
- Fogel, D. B. (2018). Factors associated with clinical trials that fail and opportunities for improving the likelihood of success: A review. *Contemp. Clin. Trials Commun.*, 11(3):156–164.
- Garcia-Morales, V. J., Jimenez-Barrionuevo, M. M., and Mihi-Ramirez, A. (2011). The influence of strategic dynamic capabilities on organizational outcomes through the organizational learning process. *Ind. Innov.*, 18(7):685–708.
- Goetz, N., Wald, A., and Freisinger, E. (2021). A person-environment-fit-model for temporary organizations-antecedents for temporary working settings. *International Journal of Project Management*, 7(3):1–9.
- Hair, J. F., Ringle, C. M., and Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *J. Mark. Theory Pract.*, 19(2):139–152.

- Hair, Jr, J. F., Howard, M. C., and Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *J. Bus. Res.*, 109(5):101–110.
- Hamid, A., Sami, M. R., and Sidek, W. (2017a). Discriminant validity assessment: Use of fornell & larcker criterion versus HTMT criterion. *Journal of Physics: Conference Series*, 890(1):138–161.
- Hamid, A., Sami, M. R., and Sidek, W. (2017b). Discriminant validity assessment: Use of fornell & larcker criterion versus HTMT criterion. In *Journal of Physics: Conference Series*.
- Hansen, M. J., Vaagen, H., and van Oorschot, K. (2020). Team collective intelligence in dynamically complex projects—a shipbuilding case. *Proj. Manage. J.*, 51(6):633–655.
- Hornnes, K. M. and Jarland, H. (2021). Perceived flexibility: The impact of flexible work and work-home interaction on life satisfaction—a quantitative study of the relationships between perceived flexibility, work-home interaction and life satisfaction. *University of Agder*, 32:1–5.
- Hubbard, D. W. (2009). *The failure of risk management: Why it's broken and how to fix it*. Wiley.
- Hussain, A., Jamil, M., Farooq, M. U., Asim, M., Rafique, M. Z., and Pruncu, C. I. (2021a). Project managers' personality and project success: Moderating role of external environmental factors. *Sustainability*, 13(16):9477.
- Hussain, S., Xuotong, W., Hussain, Ph.D, T., Khoja, A. H., and Zia, M. Z. (2021b). Assessing the impact of COVID-19 and safety parameters on energy project performance with an analytical hierarchy process. *Util. policy*, 70(101210):101210.
- ICB-InterConsult Bulgaria Ltd (2017). Foreign direct investment in poland and vietnam: A compare analyses. *Studia i Prace WNEIZ US*, (49/2):247–261.
- Iqbal, D. S. M. J., Nawaz, D. M. S., Bahoo, S., and Abdul, S. M. L. (2017). Impact of project teamwork on project success in pakistan. *S. Asian J. Manag. Sci.*, 11(1):1–14.
- Izmailov, A., Korneva, D., and Kozhemiakin, A. (2016a). Corrigendum to project management using the buffers of time and resources. *Procedia Soc. Behav. Sci.*, 235:817.
- Izmailov, A., Korneva, D., and Kozhemiakin, A. (2016b). Project management using the buffers of time and resources. *Procedia Soc. Behav. Sci.*, 235:189–197.
- Khan, A., Waris, M., Panigrahi, S., Sajid, M. R., and Rana, F. (2021). Improving the performance of public sector infrastructure projects: Role of project governance and stakeholder management. *J. Manage. Eng.*, 37(2):04020112.
- Khan, J., Jaafar, M., Javed, B., Mubarak, N., and Saudagar, T. (2020). Does inclusive leadership affect project success? the mediating role of perceived psychological empowerment and psychological safety. *Int. j. manag. proj. bus.*, 13(5):1077–1096.
- Koch, J. and Schermuly, C. C. (2021). Managing the crisis: How COVID-19 demands interact with agile project management in predicting employee exhaustion. *Br. J. Manag.*, 32(4):1265–1283.

- Kozlowski, S. W., Watola, D. J., Jensen, J. M., Kim, B. H., and Botero, I. C. (2009). *Developing adaptive teams: A theory of dynamic team leadership*.
- Krause, P., Boyle, D. P., and Bäse, F. (2005). Comparison of different efficiency criteria for hydrological model assessment. *Adv. Geosci.*, 5(4):89–97.
- Kumatongo, B. and Muzata, K. K. (2021). Research paradigms and designs with their application in education. *Journal of Lexicography and Terminology*, 5(1):16–32.
- Kwong, K. and Wong, K. (2013). Partial least squares structural equation modeling (PLS-SEM) techniques using SmartPLS. *Marketing Bulletin*, 24(3):1–32.
- Lauer, T. (2021). Success factor project management: Managing correctly. In *Change Management*, pages 185–201. Springer Berlin Heidelberg, Berlin, Heidelberg.
- Marimuthu, R., Sankaranarayanan, B., Ali, S. M., Jabbour, A. B. L. d. S., and Karuppiah, K. (2021). Assessment of key socio-economic and environmental challenges in the mining industry: Implications for resource policies in emerging economies. *Sustain. Prod. Consum.*, 27:814–830.
- Marinus, J., Ramaker, C., van Hilten, J. J., and Stiggelbout, A. M. (2002). Health related quality of life in parkinson's disease: a systematic review of disease specific instruments. *J. Neurol. Neurosurg. Psychiatry*, 72(2):241–248.
- McCallum, J. (2013). Changing use of camera traps in mammalian field research: habitats, taxa and study types. *Mamm. Rev.*, 43(3):196–206.
- Munns, A. K. and Bjeirmi, B. F. (1996). The role of project management in achieving project success. *Int. J. Project Manage.*, 14(2):81–87.
- Overman, S. (2016). Great expectations of public service delegation: A systematic review. *Publ. Manag. Rev.*, 18(8):1238–1262.
- Paikan, W. N. K. (2021). Effects to construction project management impacted circular economic of covid-19 pandemic. *Int. j. appl. sci. eng.*, 9(1):449–487.
- Peters, D. H., Hanssen, O., Gutierrez, J., Abrahams, J., and Nyenswah, T. (2019). Financing common goods for health: Core government functions in health emergency and disaster risk management. *Health Systems & Reform*, pages 307–321.
- Ramli, N. A., Latan, H., and Nartea, G. V. (2018). Why should PLS-SEM be used rather than regression? evidence from the capital structure perspective. In *Partial Least Squares Structural Equation Modeling*, International series in operations research & management science, pages 171–209. Springer International Publishing, Cham.
- Riley, A. W., Forrest, C. B., Rebok, G. W., Starfield, B., Green, B. F., Robertson, J. A., and Friello, P. (2004). The child report form of the CHIP-Child edition: reliability and validity. *Med. Care*, 42(3):221–231.
- Saeed, Y. S. (2018). Cost and time risk management in construction projects. *Tikrit Journal of Engineering Sciences*, 12(4):321–341.

- Sarvari, H., Chan, D. W. M., Alaeos, A. K. F., Olawumi, T. O., and Abdalridah Aldaud, A. A. (2021). Critical success factors for managing construction small and medium-sized enterprises in developing countries of middle east: Evidence from Iranian construction enterprises. *J. Build. Eng.*, 43(103152):103152.
- Shuhailo, Y. V. and Derkach, T. M. (2021). Project-based learning for undergraduate engineering students minoring in textile technology and design. *J. Phys. Conf. Ser.*, 1840(1):012042.
- Sohu, S., Halid, A., Nagapan, S., Fattah, A., Latif, I., and Ullah, K. (2017). Causative factors of cost overrun in highway projects of Sindh province of Pakistan. *IOP Conf. Ser. Mater. Sci. Eng.*, 271:012036.
- Sullivan, G. M. and Artino, Jr, A. R. (2013). Analyzing and interpreting data from likert-type scales. *J. Grad. Med. Educ.*, 5(4):541–542.
- Sundberg, L. (2019). Electronic government: Towards e-democracy or democracy at risk? safety science. pages 22–32.
- Taofeeq, D. M., Adeleke, A. Q., and Lee, C. K. (2020). The synergy between human factors and risk attitudes of Malaysian contractors': Moderating effect of government policies. *Safety Science*, 14(2):331–337.
- Terzi, O. (2018). Coordination between the EU member states' embassies and the "EU delegation in Turkey: A case of European diplomatic representation. *The Hague Journal of Diplomacy*, 10(1):203–217.
- Ullah, I. and Narain, R. (2020). Achieving mass customization capability: the roles of flexible manufacturing competence and workforce management practices. *J. Adv. Manag. Res.*, ahead-of-print(ahead-of-print).
- Voorhees, C. M., Brady, M. K., Calantone, R., and Ramirez, E. (2016). Discriminant validity testing in marketing: an analysis, causes for concern, and proposed remedies. *J. Acad. Mark. Sci.*, 44(1):119–134.
- Xiong Chen, Z. and Aryee, S. (2007). Delegation and employee work outcomes: An examination of the cultural context of mediating processes in China. *Acad. Manage. J.*, 50(1):226–238.
- Yuan, J., Chen, K., Li, W., Ji, C., Wang, Z., and Skibniewski, M. J. (2018). Social network analysis for social risks of construction projects in high-density urban areas in China. *J. Clean. Prod.*, 198:940–961.
- Zhou, J., Li, W., Yan, Z., and Lyu, H. (2021). Controlling shareholder share pledging and stock price crash risk: Evidence from China. *Int. Rev. Fin. Anal.*, 77(101839):101839.