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Role of Project Planning in Success of Construction Projects: Mediated by Top Management Support

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Abstract

This research aims to examine the relationship between project planning and project success, mediating it through the participation of upper management. Using a self-administered survey questionnaire, data have been collected from managers, supervisors, and workers on Peshawar construction projects. The data set was analysed using the Partial Least Square Structural Equation Model (PLS-SEM) to provide a descriptive statistic for identifying demographic characteristics, and the model was used to test research hypotheses. According to the results, project planning is vital to the success of any construction endeavour. Planning for the success of a project has been shown to have a direct correlation with upper management support. Important managerial and theoretical implications result from the findings for construction project managers and policymakers.

Keywords: *Project Success, Project Planning, Top Management Support, Construction Projects*.

Introduction

Businesses are now operating in a period of intense competition on globally integrated marketplaces. As a result, corporations start working on performance-based programmes. Any project, whether those involving IT, building, education, or healthcare, needs to be carefully planned, staffed, managed, controlled, and assessed (Fallah & Gholipour-Kanani, 2016). Organization should complete and execute projects within the allotted time frame, scope, budget, and risk-free way in order to succeed in projects.

Projects are viewed of as temporary organizations endeavor about which resources are allotted in order to accomplish the required work and achieve the necessary objectives of stakeholders (Turner, 2009). Therefore, project success directly influences the socio-economic wellbeing of stakeholders (Andersen, 2006; Irfan et al., 2018). Further, economic development of an economy is also closely related with the

success rate of public sector projects. In this regards, the public's standard of life is directly impacted by several construction projects, including those involving roads, bridges, buildings, and irrigation systems (Tai, Wang, and Anumba, 2009). Furthermore, it is anticipated that a 1% increase in government spending on infrastructure development projects will result in a 1% rise in GDP (Oyewobi et al., 2016)

However, numerous empirical evidences documented the failure of construction project both in developed and emerging economies (Assaf, and Al-Hejji, 2006). In this regards, Irfan, and Hassan, (2019) highlighted in their studies that project managers are facing numerous challenges and barriers to complete their projects in terms of time, cost, budget and scope. They argue that complex nature of construction projects, dynamics work environment and project uncertainties are the main reasons of project failure (Irfan, and Hassan, 2019). Due to inadequate planning (Nzekwe, Oladejo, and Emoh, 2015) subpar methods of monitoring and control (Al-Hazim, Salem, and Ahmad, 2017), and a dearth of human resource competences (Dang, and Le-Hoai, 2016), the problem of delayed, overbudgeted, low quality, and inadequately helpful projects is now becoming pandemic globally (Al-Hazim, Salem, and Ahmad, 2017).

The standard project management objective is to "...complete a project on schedule, within budget, and to satisfy the expected outcomes or end-product goals" (1987 Simpson). The success or end goal objectives must always be distinct and explicitly expressed in advance, according to this commonly recognized concept of the project manager's function. The project manager merely needs to develop a solid project plan and see it through to completion.

Planning has been identified as being among the key determinants in project success in a number of research studies of project management success factors (Aronson, & Lechler, 2009). A comprehensive review of the available literature revealed that there is a lot of support for the idea that planning is a prerequisite for project success. In addition, the literature demonstrated that planning is not solely the important aspects of project management but also essential to successful completion of projects. Further, numerous researchers documented that detailed and in-depth preparatory planning contributes to project success (Belassi, and Tukel, 1996; Dvir, 2005). However, while a poor project plan will undoubtedly lead to project failure, a strong project plan does not ensure project success (Dvir, and Lechler, 2004). Similar to this, effective project planning and scheduling are essential to the realization of infrastructure projects (De Snoo et al., 2011).

Top management support, or TMS for short, is the second limb of the project management trident and refers to executive top management engagement or involvement. For senior management to successfully plan, all project stages must garner attention, resources, funds, room for manoeuvre, and time delays. However, studies demonstrate that even well-funded programs can fail due to either insufficient oversight or excessive attention (Bonner et al., 2002; Tufail, 2020). The issue appears to be either "too much or too little" for both planning and TMS. Hence, a reasonable balance needs to be established in order to achieve beneficial results while avoiding unfavorable ones. This begs the question of whether TMS influence is proportionate to top executives' degree of attention, or if changes may lead the ostensibly linear connection to become curved.

Project success in the construction industry is plagued by major problems and obstacles including poor planning (Nzekwe et al., 215) and senior management support (Ahmed and Lodhi, 2021). Additionally, project managers have trouble finishing their projects in accordance with the timeline, agreed budget, and parameters due to poor project planning, dynamic work environment and lack of management support in construction projects (Irfan and Hassan, 2019). This issue is important and demand for further research to study project planning in relation to project success in construction sector.

Thus, the objective of this study is to fill this knowledge gap by examining the interaction between a wide range of project planning elements and the successful completion of a project from a variety of vantage points. Our goal is to examine the correlation between the planning effort put out for a project and its level

of success as viewed from many angles. Data has been collected from project managers, project supervisors and project employees of construction projects in Peshawar. The analysis revealed that the success of construction projects is highly dependent on effective project planning. It was also revealed that the necessity of top-level management's buy-in moderates the relationship between rigorous planning and a project's eventual success.

Literature Review

Project Success (PS)

A project, according to Rose (2013), is a temporary endeavor used to develop a special good, procedure, or service. Turner and Muller (2005) defines project as, a short-term organization to which resources are given to carry out a distinctive, innovative, and temporary activity while managing the inherent unpredictability and requirement for synergy in order to achieve desirable outcomes of transition.

PS has also been studied by scholars for many years, yet no one concept of PS has been ever proposed (He et al., 2019). Baker et al. (2007) state that a project is regarded successful if it "meets the technical performance specifications and/or mission to be executed, and if there is a high degree of satisfaction about the project outcome among the key individuals in the parent organization, key people in the client organization, key people on the project team, and key users or clients of the project effort."

According to Baccarini (1999), one must concentrate on the successful implementation and project management success to successfully complete the project. According to (De Wit, 1988), a project is regarded successful when it satisfies the criteria and everybody participating in the project expresses pleasure with the project's output.

Project Planning and Project Success (PS)

A project is an original attempt that has never been finished before. As a result, it might be challenging to accurately predict all the project-related operations at the outset of planning. PS was studied by Dvir et al. (2005) in connection to PP activities. The findings of a study including more than 100 R&D projects imply that the degree of management processes and procedures execution, which would be easily facilitated by contemporary computerized tools and project management training, is indifferent to PS. Conversely, the investment in requirements analysis and creating technical specifications is strongly connected with PS. The significant implication from these findings is that every attempt should be made at the earliest stages of a project to precisely define its objectives and the specifications for its deliverables.

Planning is often defined as "figuring out in broad strokes what has to be conducted and how to execute it to achieve the desired aim" (Gulick, 1936). In the public sector and construction projects pre-PP is the stage after strategic planning, when a contract is made, and before project implementation (Gibson & Gebken, 2003). According to conventional thinking, planning is the most crucial elements in project management, and projects that have included proper planning possess high probability of success (Wang and Gibson, 2008; Lalic, 2022). Spending more time on such tasks will lower project uncertainty and complexity and enhance PS. In contrast side, poor planning and evaluation will result in a project failure (Thomas, et al., 2008).

Top Management Support (TMS) and Project Success (PS)

Additionally, projects are a consequence of long-term goals that are established by senior management, and PP is the choice of the process, policies, and programs to accomplish those goals. Another definition of PP is that it involves setting up a preset course of action for the anticipated circumstances (Kerzner, 2009). The

Project Management Institute states that the planning phase involves identifying and honing project objectives as well as choosing the best options to carry them out (Project Management Institute, 2017).

Top and senior management role has been recognized essential in supplying and enabling the resources needed for project accomplishment (Staehr, 2010). Also, senior management often plays a significant role in setting the project's scope (Boonstra, 2013; El-Gohary et al., 2023). Also, they continue to be able to organize the environment in which companies operate and simplify the resource allocation. As a result, the literature on project management strongly supports the realization and appreciation of the significance of top management assistance (McComb et al., 2008). In addition, Green (1995) conducted a study on R & D projects and highlighted that the initiatives with top management backing were less likely to fail. Moreover, Meredith and Mantel (2010) referred to initiatives with backing from high management as "holy cows," denoting the fact that these kinds of projects have a low failure rate.

Furthermore, according to Boonstra (2013), numerous academics have documented on multiple facets of TMS. For instance, Guimareas and Igbaria (1995) asserted that the interests, comprehensions, and affirmations of senior management are crucial components for PS. Likewise, to this, several academics have recommended that senior management should position oneself as project advocates for effective project delivery (Naranjo-Gil, 2009). Clear communication of the project's value, the resolution of any disagreements that may arise, and cooperation for the project team are all examples of project advocating (Morton, 1983). Furthermore, timely allocation of resources is another crucial component of top management assistance (Bruqué-Cámara et al., 2004). Furthermore, senior managers should stress the value of supervision and assessment operations in various projects, according to Kazanchi and Reigh (2008). Some cited issues of TMS as well, including change management, resource allocation, and supporting the project goal (Dong et al., 2004). Furthermore, a number of studies have looked at TMS among the crucial success elements. TMS, according to Young and Jordan (2008), recognized as the crucial critical success factors in a project's success.

Though many authors (Jugdev & Müller, 2005; O'Brochta, 2008; Thamhain, 2004) have concurred that TMS is essential as an explanatory variable for the project's successful completion, very few studies have looked into the interrelated influence of TMS, particularly in construction projects. Furthermore, Ofer (2007) contended that the key component in the "secret for PS" is TMS. Also, top management must resist prejudice and understand how crucial PS is for the overall success of the firm (Swink, 2000).

Conceptual Framework

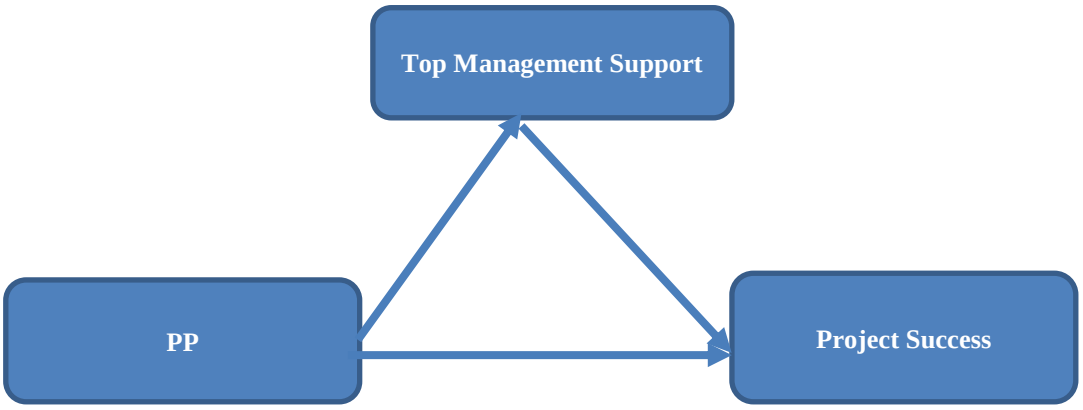

Figure No 1: Study Model

Summary of Hypotheses

H1: PP significantly directly influence PS.
H2: PP significantly directly influence TMS.
H3: TMS significantly directly influence PS.
H4: TMS significantly mediate the relationship between PP and PS.

Research Methodology

Research design

In order to examine the effect of PP on PS of construction projects, a quantitative study approach was adopted. Participants were chosen for the research using a survey-based methodology, and quantitative data were gathered to test hypotheses of the study. To distribute the questionnaire for data collection in construction project, simple random sampling approach was utilized with respondents from construction businesses. A simple random sampling strategy was used to collect data from a sample of 280 construction consultants, project managers, project supervisors and project employees.

Data collection procedure

Data from a subset of participants was gathered using a primary data collecting technique. A questionnaire was given to contractors, project managers, project supervisors and employees who were chosen at random in order to gather the primary data. The employees that are hired must be actively involved in construction project.

Measure

The survey questions were written in English and disseminated to the participants online. The data was acquired using a 5-point Likert-type scale, where 1 is for "Strongly Disagree" and 5 for "Strongly Agree." The initial distribution of the questionnaire was made to 280 people. All of the respondents were project manager, project team member, project employees and supervisors, so they had no trouble comprehending the questionnaire, which was written in a straightforward manner. The Cronbach's Alpha and composite reliability method was used to examine the validity and reliability.

Its acceptance range is 0.7, and every analysis revealed the result. Once the survey's validity and reliability were confirmed, the hypotheses were assessed using partial least square structural equation model. For all the variables adaptive instruments are used form previous literature and related details are as follows in Table 1:

Table No 1: Construct Source and Reliability

Construct	Source	No of Items	Cronbach's Alpha	Composite Reliability
PP	Irfan et al., 2020	08	0.832	0.867
TMS	Ahmed and Philbin 2022	07	0.764	0.796
PS	Joslin and Müller, 2015	07	0.803	0.843

Data Analysis

The partial least square structural equation model (PLS-SEM) was used for hypotheses testing using Smart PLS software. The PLS-SEM consist of two stages. In the first stage the measurement model was assessed

for their quality criteria using factor leading, internal consistency reliability and validity. In the second stage the structural model was assessed for hypotheses testing.

Results

Demographic Characteristics

Table 2 depicts descriptive analysis of the demographic factors of the survey respondents. The demographic characteristic consists of gender, age, education and experience level of the respondents.

Table No 2: Demographic characteristics

Demographic variables	Category	Frequency	Percentage
Gender	Male	238	85
	Female	42	15
Age (years)	21-30	62	22.1%
	31-40	95	33.9%
	41-50	76	27.1%
	Above 51	47	16.8%
Education	Intermediate	42	15.0%
	Bachelor	96	34.3%
	Master	87	31.1%
	MS/PhD	55	19.6%
Experience (Years)	Less than 5	48	17.1%
	6-10	107	38.2%
	11-15	67	23.9%
	16-Above	58	20.7%

Partial Least Square Structural Equation Model

Factor Loading

Table 3 shows factor loading of the items of the construct. The statistic shows that all the variables and its items have an acceptable level of indicator loading that is greater than 0.70; hence providing evidence for the presence of acceptable indicator loading of the items' construct.

Table No 3: Factor Loadings

Indicators	PP	PS	Management Support
PPL1	0.732		
PPL2	0.780		
PPL3	0.820		
PPL4	0.845		
PPL5	0.712		
PPL6	0.865		
PPL7	0.789		
PPL8	0.922		
PS1		0.776	
PS2		0.713	
PS3		0.783	

PS4	0.872	
PS5	0.798	
PS6	0.902	
PS7	0.893	
TMS1		0.780
TMS2		0.823
TMS3		0.876
TMS4		0.718
TMS5		0.765
TMS6		0.769
TMS7		0.895

Reliability and Validity

The internal consistency reliability was assessed using Cronbach's Alpha and composite reliability statistics. Hair et al. (2017) recommend the threshold value for both the statistics greater than 0.708; where the statistic provide the evidence for internal consistency reliability; as for all the construct the value is greater than 0.70.

Further, average variance extracted (AVE) was used for convergent validity. The threshold value of AVE should be greater than 0.50. The statistic shows that all the variables have AVE greater than 0.50; providing evidence of convergent validity.

Table 4 Reliability and Validity

Construct	Cronbach's Alpha	Composite Reliability	AVE
PP	0.832	0.867	0.602
TMS	0.764	0.796	0.526
PS	0.803	0.843	0.515

Figure No 2: Measurement Model

Structural Model (Hypotheses Testing)

The data from the structural model are given in Table 4. Statistics demonstrate that planning plays a key part in determining a project's eventual success. The significance of the route coefficient between PP and project outcome (B = 0.431; T stats = 5.129) indicates the significance of this relationship.

Thus, PP is a significant aspect in gaining support from senior management. Given the statistical significance of the route coefficient (B = 0.342; T stats = 3,214), it is possible to conclude that PP has a significant impact on the participation of upper-level management.

Moreover, the support of higher management is essential for the successful completion of any project. The path coefficient is statistically significant (B = 0.272; T stats = 7.472), indicating that top-level management support has a substantial effect on PS.

In addition, the mediation analysis demonstrates that TMS significantly mediates the relationship between PP and PS. The significance of the path coefficient between PP and PS (B = 0.163; T stats = 2.186) suggests that the endorsement of senior-level management mediates this relationship.

Table 5: Structural Model

Paths	Path Co ef.	Sig value		R Square	Q Square
		T Stat	P value		
PPL → PS	0.431**	5.129	0.000	0.573**	0.338
PPL → TMS	0.342**	3.214	0.003	0.432**	
TMS → PS	0.272**	7.472	0.000		
PPL→TMS→PS	0.163*	2.186	.030		

** p<0.001; p<0.05

Conclusions

The objective of this study is to investigate the effect of PP on PS with mediating role of TMS. For this purpose, the data have been collected through a self-administered survey questionnaire among construction project employees. It is apparent that all of our hypotheses are correct and confirmed by the findings of the data analysis. The data was gathered from Pakistani organizations. This study thus has a Pakistani background.

Management focuses on giving the proper job to the appropriate person, and project managers are constantly looking for fresh, original ideas that might help them solve challenging issues. The influence of PL on PS is an important topic of this study, the findings indicate. The findings of earlier research, such as (Shenhar et al, 2010; Heravi, and Ilbeigi, 2012; Irfan et al., 2020) who claimed that PS depends on effective decision-making and efficient planning, PL is all about constant monitoring, and the present study supports their findings (PS).

Our study has theoretical and practical ramifications with an emphasis on project-based companies since prior research hasn't looked at the impact of PP on PS in a challenging environment, particularly in the setting of Pakistan. Our findings clearly demonstrate that TMS improves the success rate of projects. A significant relationship has been observed between PP and PS. Further, it was also confirmed that in the presence of TMS and effect of planning shows a significant effect on PS.

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