

# **The Implementation of Project Management Performance Assessment Model (PMPM) to construction projects**

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## **Abstract**

This study was conducted on basis of Project Management Performance Assessment (PMPA) Model, which was derived from European Forum of Quality Managers (EFQM) business excellence model to investigate the relationship of attributes on project management performance (PMP). The empirical study through questionnaire has been conducted in construction industry of Pakistan to investigate the practical implication of PMPA Model. Based on literature review and survey data, it is investigated that the performance in construction projects could be increased at different management levels. The study has concluded that a variation exists between the attributes of the model to measure the level of effectiveness in PM performance. The results have also shown that while enhancing the knowledge of project life cycle process and highlight the key performance indicators the PM Performance could increase.

## **Keywords**

*Project management, PMPA Model, Construction in Pakistan, Performance Assessment*

## **1. Introduction**

Historically the project managers focused more on the success of the projects, which was mainly gauged by completion of the projects within the given cost, schedule (time) and at the desired level of technical performance or quality. The quality performance was better judged with the customer satisfaction. The traditional project management though focused on the various processes and knowledge areas but couldn't evolve a quantified measure of the Project Management performance which could lead to the success of the projects (Bryde,2003).

The subsequent research in the 1980's and 1990's however revealed that the project management is multidimensional and the success of the projects can't be isolated with the project management. Even the particular dimension (s) which can reflect the project success has been debated throughout the two decades. Most of the researchers have reported that the "Quality" in terms of customer satisfaction could lead to project and project success performance ( Atkinson, 1999; Tukul and Rom , 2001).

The later research endeavored to propose an appropriate model for measuring the Project Performance which can lead to successful project performance as a result. Bryde (2003) argued that the modeling of

Project Management (PM) performance can have two major objectives. Firstly it may give a disciplined approach for the management of project successfully and secondly it can focus on the delivery of the project at the desired level of quality and performance which will ultimately lead to customer satisfaction, a basic dimension of project success. Hence the model of PM performance has to incorporate the multidimensional, multiple stakeholders as well as quality of process and product. Bryde (2003) proposed a Project Management Performance Assessment Model (PMPA) on the basis of European Federation of Quality Management (EFQM) model, which is shown in Fig.1

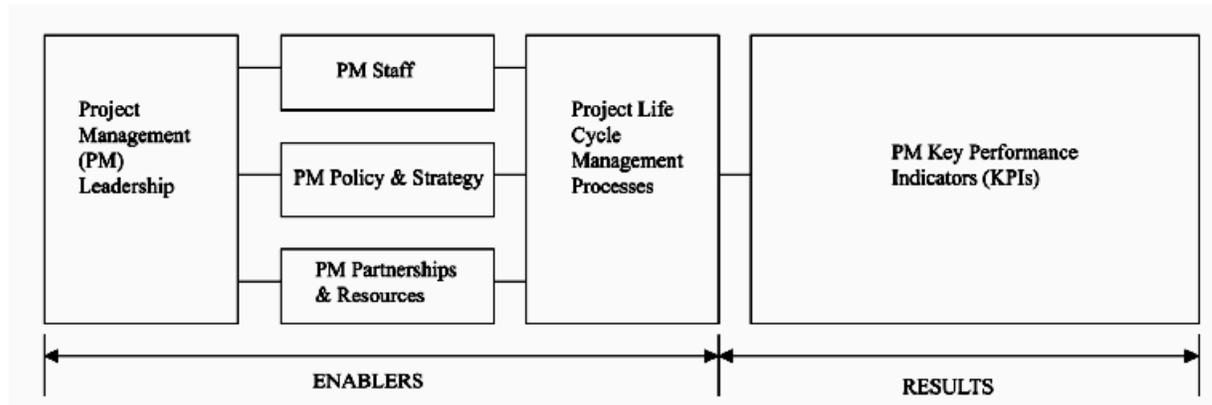


Figure 1. The proposed PMPA model of Bryde (2003)

On the basis of data collected from 22 organizations in UK Bryde (2003) concluded that there are variations in attitudes and behavior in each of these areas and that these variations may be used to help measure levels of PM performance.

The six enablers as identified by Bryde (2003) are show in Fig.1. These enablers are explained as follows:

### ***1.1 Project Management (PM) Leadership***

At the top of the PMPA model lies in the project management Leadership (PML) which serves as the central nervous system of the proposed model. In his original PMPA model, Bryde (2003) proposed that:

- (1) *PM Leadership should focus on the development of a broad role for PM in the organization.*
- (2) *Leadership focuses to produce awareness to view project as a vehicle for managing all types of change.*
- (3) *Leadership should ensure the pm system support the development of project culture.*

The project managers who adopt transactional and transformational leadership may improve team communication, team collaboration, and team cohesiveness, which leads to project success (Yang et al,2011). The need for transformational leadership is further highlighted while dealing with project portfolios in the project driven organizations ( Kissi et al,2012). At the same time the leadership styles is tied with empowerment pattern for effective project management ( Shazia *et. al* ,2009). More recently the term authentic leadership has been used as pre-requisite for the project success, which incorporates both the transformational leadership and ethical leadership (Walker and Walker,2010)

### ***1.2 Project Management (PM) staff***

Managing and Planning human resource for projects and establishing an equitable recognition and reward system is pre-requisite for the success of the projects. Dealing with the human side of the project is the major challenge for the Project managers and PM systems.

The continuous learning and development is also essential for improving the productivity of the project staff and for this purpose job rotation can be a viable option in the projects (Bourgeon; 2007). The job rotation also brings diversity in the project staff, which can lead to enhanced sense of achievement at the renewed and revised roles. This can further result into high degree of satisfaction for the project staff. This kind of motivation of the project staff is an essential ingredient of the high performance project teams. The motivation together with the trust among the project team members can make the project teams more agile and proactive to deal with project at inter-organizational levels (Maurer,2010).

### ***1.3 Project management (PM) Policy and strategy***

Latest research has focused on the strategic dimensions of the projects and its linkage with the organizational goals and objectives. The traditional approach of achieving the objectives of cost, time and technical performance is no more effective to greater extent (Shinar and Dvir ;2007) The concept of project strategy is viable and persuasive. However, the researchers and mainstream practitioners still lack an understanding of how project strategy is realized in practice (Morris and Jamieson, 2005) Project strategy could be a mechanism to link the business strategy to project management. Strategic business alignment of an organization and project strategy becomes an important direction for projects.

### ***1.4 PM Partnerships and Resources***

For the success of project management, partnerships between suppliers and contractor organization are considered as vital part in the success of project management practices. The successful delivery of large-scale construction projects defines the role of partnering, or “win win” project management partnership that is truly highlighted in the success of project (Milosevic, 1990 and Moore *et al.*, 1992). The long term relations with partners and the effectiveness of project procurement are essential for contractual project procurement in construction industry (Latham, 1994; Egan, 1998). The importance of partnership and good professional relationship with stakeholder, suppliers and sponsor should maintained in “PM partnerships and resources” in the context of PMPA model.

### ***1.5 Project life Cycle management processes:***

Literature review testifies the focus of PMPA model on “project life cycle management processes” for enhancement of the conceptual base of the project life cycle, which integrate processes in the early and after delivery stages of the project (Turner, 1993). There is an emphasis for customer reviewing and perceptions on upstream and downstream activities.

### ***1.6 PM Key performance Indicators:***

The final element of the PMPA model provides the rationale for multidimensional characters of project management success criteria in form of key performance indicators. Project management KPIs” focus is not only on achieving and meeting the diverse range of expectations of the stakeholders but also on the methods used within the PM system for performance against KPIs. For measuring the performance of project oriented companies and for applying benchmarking approach the establishment of suitable key performance indicators (KPIs) are very necessary which are most critical in determining the overall growth and success of the company. Performance measurement of construction projects gradually moves away from the typical procedures like cost, time and quality in the direction of quantitative and qualitative measures (Rehman *et al.* 2010).

## 2. Application of PMPA Model in Construction projects of Pakistan

The construction industry is vital for the development of any nation. The construction projects such as buildings, roads, and bridges are the measure of the economic growth of societies. Over the past few decades in Pakistan, numerous studies have highlighted the construction projects success criteria. While these criteria and their influencing factors have been discussed from tendering, prequalification, and long term historical perception perspective (Alzahrani *et al.*, 2012). The theoretical framework of PMPA is shown in Fig.2

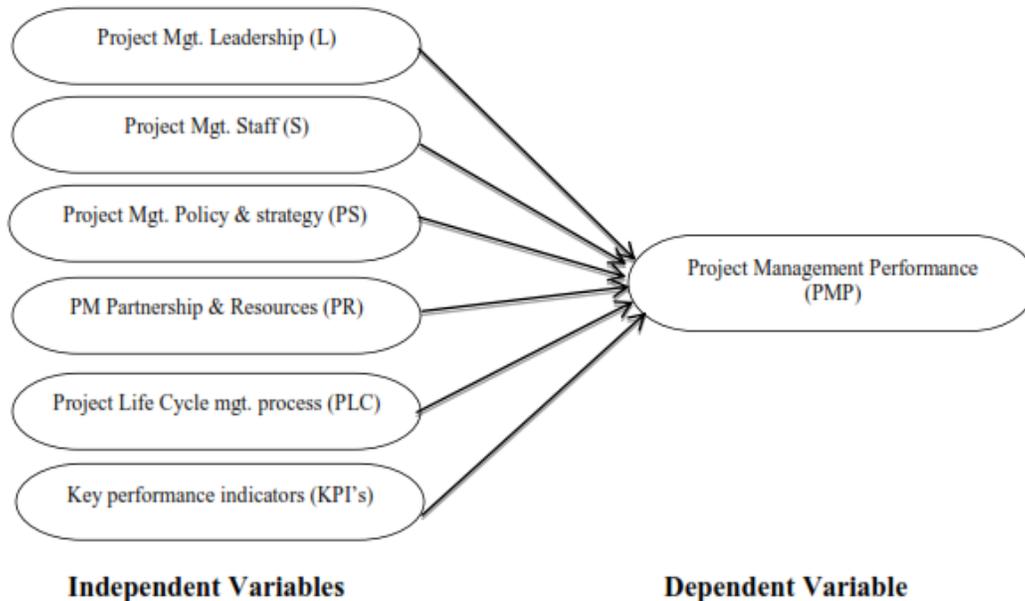


Fig. 2 Theoretical framework of Project Management Performance Assessment Model (PMPA Model)

## 3. Research Objectives and significance

The objective of this research is to explore the implementation of PMPA model to construction projects in Pakistan and identify various important attributes which can help in their successful completion.

To measure the project management effectiveness for construction projects has always been a problem for the senior managers. In this study with the application of PMPA Model to the construction projects and the major attributes for the successful project management have been analyzed on the basis of responses from major stakeholders. This will help in better management of the construction projects through improved project management practices.

## 4. Research Methodology

In this research a total of seven variables were considered for analysis. The dependent variable project management performance has been assumed to depend on six independent variables i.e. PM Leadership, PM Staff, PM Policy & Strategy, PM Partnership and Resources, PM life cycle management and Key performance indicators. Questionnaire survey has been conducted on Likert's scale (5 for strongly disagree, 4 disagree, 3 neutral 2 agree and 1 for strongly agree). The questionnaire was developed and customized in consultation with the experts from construction industry. Responses from 150 construction related professionals with construction firms, project managers in Public sectors and senior site Engineers were contacted through variety of communication modes, such as internets, E-mails, personal interviews.

The response rate was about 62%. The data collected was coded in the excel sheets and imported in SPSS-16.0 for various analyses.

#### 4. Results & Discussions

The various descriptive measure of the responses have been shown in Table 1

Table 1 Descriptive Statistics mean, range, mode, standard deviation of variables

Variables	N	Range	Minimum	Maximum	Sum	Mean	Mode	S.D	Variance
PMP	85	1.83	3.17	5.00	356.67	4.20	4.00	0.45	0.21
Leadership	85	2.14	2.57	4.71	318.29	3.74	3.86	0.43	0.19
Staff	85	2.14	2.29	4.43	318.57	3.75	3.71	0.38	0.15
PS	85	1.92	2.83	4.75	321.50	3.78	3.67	0.36	0.13
PR	85	1.80	3.20	5.00	334.40	3.93	4.00	0.51	0.26
PLC	85	1.56	3.44	5.00	355.11	4.18	4.00	0.33	0.11
KPI	85	3.92	3.58	7.50	346.47	4.08	4.17	0.46	0.21

The correlation of the dependent variables with various independent variables has been shown in Table 2

Table 2 Correlations of dependent and independent variables

	PMP	Leadership	Staff	PS	PR	PLC	KPI
Project Management Performance (PMP)	1						
Project management Leadership (L)	0.08	1					
Project management staff (S)	0.23	-0.01	1				
Project management Policy & Strategy (PS)	0.37	-0.12	0.50	1			
Project mgt. Partnership & Resources (PR)	0.33	-0.05	0.62	0.56	1		
PM Life Cycle Management Process (PLC)	0.30	0.04	0.43	0.66	0.49	1	
PM Key performance Indicators (KPI's)	0.31	0.10	0.35	0.19	0.47	0.29	1

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\*. Correlation is significant at the 0.01 level (2-tailed).

The results of Regression Analysis are shown in Table 3 below:

Table 3 Regression Analysis: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of Estimate
1	0.457	0.209	0.148	0.419

a. Predictors: (Constant), KPI, Leadership, PS, Staff, PLC, PR

b. Dependent Variable: PMP

The regression results of residuals are also shown in Fig. 3

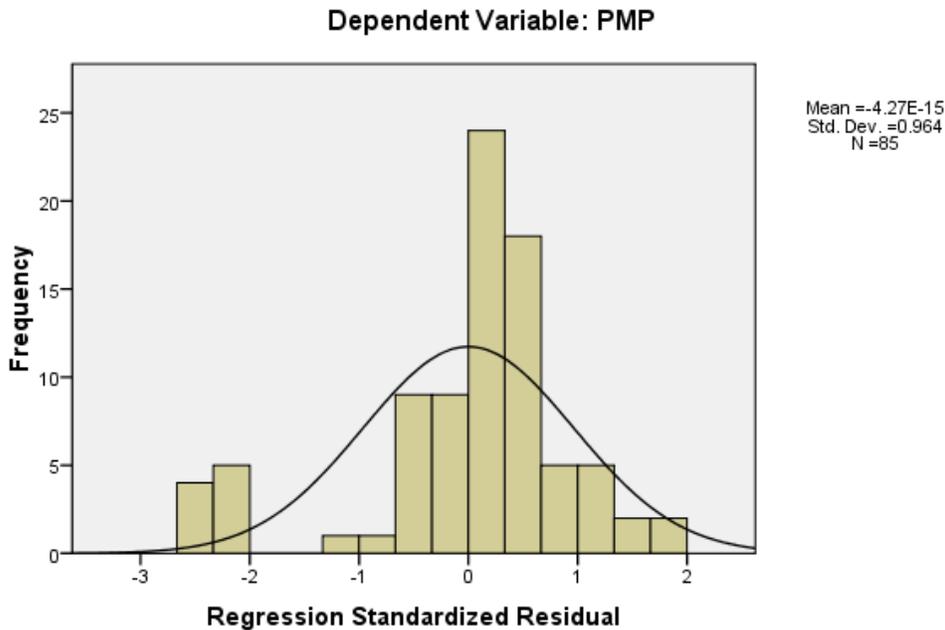


Fig 3 The regression of Standardized residuals.

The study has important implications for project professionals working in construction industry. By improving the key performance indicators and managing their life cycle processes, the project performance can be improved and they will be able to complete these projects within time, budget and scope.

The regression analysis and correlation coefficients shows that there is a positive relationship between the performance of projects with the , Project management Leadership (L), Project management staff (S), Project management Policy & Strategy (PS), Project mgt. Partnership & Resources (PR), PM Life Cycle Management Process (PLC) and PM Key performance Indicators (KPI's) in the construction industry as well.

## 5. Conclusion:

The results have shown that the Construction Project Management Performance can be improved with PMPA model as reported by the construction industry professionals. For improved performance of the construction projects in Pakistan, more emphasis is required over Project leadership, staff, policies & strategies, partnership with other firms and sub contractors and effective key performance indicators.

Further research will be required in the local context to involve more construction firms in the research process to make the results more relevant and beneficial.

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