

Linkages between Organization Design Structures, Performance Measurement Systems and Project Performance in Project Based Technical Environment—An Empirical Analysis

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ABSTRACT

The purpose of this paper is to examine the socio-technical structures prevailing in technical organizations. It explores relationships that exist between technical and social structures and imperative project management practices, using statistical techniques. The study investigates links between organization design structures, project management performance, multiple dimensions of project managers' competencies including personal, business knowledge, interpersonal and managerial competencies and project performance. A systematic teardown approach was adopted for the analysis of various competencies. The statistical analysis technique, ANOVA (Analysis of Variance) was conducted to validate various factors. The results of statistical analysis has shown that organization design structures are not the major determinants, only organizational design structures with functionally structured resource distributions are established as determinants of project management performance. Furthermore, it was proven that the project managers' competencies have a major influence on project performance. This study will help to improve performance of technical projects and will lay a foundation for the framework of improvement and development of organizations.

Keywords: *Analysis of Variance, Organization Design Structures, Performance, Performance Management Systems, Project Management, Project Management Performance*

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INTRODUCTION

The complex and unpredictable nature of projects generates serious challenges for the managers involved and project-based organizations (Landaeta, 2008). Managers are finding it even more difficult to balance cost, schedule and performance. They are focusing on devising new ways to deal with these issues (Componation, 2008). Knowledge of managing projects for the development of systems has not kept pace with the increasing complexity and integration of the projects themselves (Sausser & Boardman, 2008). The conventional concepts of project management are shifting to new paradigms. Theorizing project management at the organization level is also being pursued (Artto & Wikstrom, 2005; Crawford, 2006). However, an integrating link at the organizational level that would integrate all parts of project management as a true field of organizational management is still missing (Aubry, Hobbs, & Thuillier, 2007). The Standish Group report in 2000 emphasized on the need to examine and improve interdependencies that exist between various dimensions including: members of a project team, performance measurement systems and the project manager. This study aims to investigate the links that exist between organization design structure, performance measurement systems and project success in technical organizations.

According to Kendra and Taplin (2004), the total failure rate of projects came out as 72 percent (Standish Group study, 2000). It was found that 28 percent of IS projects were successful. The study revealed that out of these 28 percent, 97 percent of the projects had dedicated project managers employed. Among these, 58 percent of these projects have deployed a well maintained measurement system. Interestingly it was also found that 46 percent of these projects have used certain project management methodologies within their organization.

The study is based on the Socio-Technical System that has been established in literature to improve organizations' project management

performance (Kendra, 2003). The objective is to study the linkages that exist between social, technical structures and performance of technical organizations. Social structures are discussed in terms of organization design structures and project manager competencies as well as technical structures in terms of performance measurement systems. These were first suggested in projects success model (Kendra, 2003) with focus on cultural influence, whereas this study aims to investigate the interdependencies that exist between different factors of socio-technical structures. Past studies on socio-technical system theories, were based on configuration approach with focus on evolution and design of systems (Lock, 2004; Dwyer, 2011; Jenkins, Stanton, Salmon, & Walker, 2011) whereas this study focuses on the interdependencies that exist between different dimensions with which were missing in the previous studies. Thus the implication of model under study, as discussed in detail later in this article, is it will introduce new ways to manage project success without redesign of the existing system. A pilot research on technical organizations revealed that organizations have not closed down their ongoing technical projects, but investment in the new endeavors and extension of operations is discouraged. In these circumstances, it is important for the organizations to analyze their performance and efficiency. The review of literature and discussion from the representatives of technical organizations revealed lack of material and knowledge about technical and social structures in technical organizations. Nevertheless, it was indeed encouraging that the recognition of the importance on the issue exists on all levels including senior management and line managers. However, participants were reluctant to share information regarding their projects and organizations. Thus different channels and techniques were employed to explore different dimensions addressed in this study. With the prevailing scenario in mind, the aim is to explore relationships and interdependencies that exist between technical and social structures

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