

# Project management effectiveness in project-oriented business organizations

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## Abstract

The aim of the study is to investigate the effectiveness of project management in terms of organizational structures, technical competency, leadership ability and the characteristics of an effective project manager. The subjects of this survey study were modern project-oriented business companies. The results indicate that organizational design is associated with project management effectiveness. For example, they indicate that project matrix and project team-based organizations are the most effective. Moreover, respondents are reasonably satisfied with the currently available selection of project management tools, yet a need was stated for multi-project management tool. The characteristics of an effective project manager were measured by means of leadership behavior in 14 managerial practices. The results suggest that planning/organizing, networking and informing are the most significant managerial practices in the leadership behavior of project managers. This study provides empirical evidence on project management effectiveness with the intent of contributing to a better understanding and improvement of project management practices.

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*Keywords:* Project management effectiveness; Organization structures; Project management tools; Leadership

## 1. Introduction

Companies are increasingly using projects in their daily work to achieve company goals. There is a growing need for the management of projects in business organizations. In recent years, researchers have become increasingly interested in factors that may have an impact on project management effectiveness. Prior research in the area has examined different ways of organizing project management [1–6]. Projects carried out in a multi-project context have been studied [7,8]. In addition, issues relating to technical competency, i.e. tools and methods in project management practices have been considered [9,10]. In particular, final cost methods [11] and earned value [12–14] have been studied. Critical success and failure factors in project management [15–18] point out the need for empirical studies of how project management tools and methods could be used to improve the quality of project management. In addition,

there is an increased need for knowledge about how these tools are used in actual project management practices within organizations.

A human resource management (HRM) study in project management has indicated that HRM practices are little researched [19]. It has been concluded [20–22] that project management effectiveness requires project managers to combine technical competency, i.e. tools, with the ability to develop and display leadership. However, there is little research that shows how technical competency and the process of leadership in project management are combined [20–22].

This paper aims to partly fulfill this gap by presenting results from a survey made on organizations in modern project-oriented business companies. The subject companies are project-oriented in the sense that their main mode of operation builds on developing and selling large-scale business-to-business products and services (for example, engineering and construction projects) tailored to fit customer needs. The survey, carried out between December 2002 and February 2003, focused on the perspective of

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the project client/owner/sponsor, and included projects carried out for the company's own purposes. More specifically, this study investigates the effectiveness of project management in terms of: (1) organizational structures, (2) technical competency, i.e. project management tools and methods, (3) leadership ability, and (4) the characteristics of an effective project manager within the context of organizations which are managing projects for their various own particular purposes.

This paper is organized as follows. First, a literature review and the purpose of this paper are presented. Then, the key results of the survey are presented and discussed. These results are also compared with previous results presented in the literature review. Finally, the paper concludes with a brief summary of the main findings and some of their implications.

### 1.1. Literature review

The research addressing project management effectiveness in project-oriented business organizations includes the following themes: (1) organizational structures, (2) technical competency, i.e. project management tools and methods, (3) leadership ability, and (4) the characteristics of an effective project manager. The following review of previous research on these aspects indicates the current state of knowledge and the gaps in knowledge concerning project management effectiveness in different organizational conditions.

*Organizational structures* ranging from the classic purely functional organization to the opposite end of the spectrum, the projectized organization, have been presented (PMBOK [23]). In projectized organizations (or project teams) most of the organizational resources are involved in the project work. Matrix organizations are a blend of functional and projectized organizations. Matrix organizations are defined by Gobeli and Larson [4] as functional, balanced and project matrix organizations. PMBOK has named these matrix types as weak, balanced and strong matrices. Most modern organizations include all of these structures at various levels. Even a fundamentally functional organization may create a special project team to handle a critical project. Project managers interact continuously with upper-level management, perhaps more than with functional managers. Kerzner [5] has presented the effectiveness of dealing with upper-level management. Within organizations, companies have organized project offices which specialize in managing projects more effectively [6]. The project office is an organization developed to support the project manager in carrying out his duties. The project team is a combination of the project office and functional employees. In larger projects and even with some smaller investments it is often impossible to achieve project success without permanently assigning personnel from inside and outside the company. Project management effectiveness refers to the success of the project. Both the success of the project and the career path of the project

manager can depend upon the working relationships and expectations established with upper-level management [5].

The project matrix and team organization structures were rated according to their effectiveness in a sample of European and Japanese firms. Project managers of multinational projects should be aware of the differences in structures and their relative effectiveness so that they can agree on the approach that will best meet project objectives [2]. It has been observed that efficiencies provided by the matrix structure may be negated by a lack of job satisfaction experienced by the functional manager [1]. The matrix form was seen to be the most dominant [3], and research was concluded with the note that further research is needed on the human and social issues.

*Technical competency* means the competency to use project management tools and methods to carry out projects. Technical competency has been researched by Fox and Spence [9], and Pollack-Johnson and Liberatore [10]. A survey of project management institute (PMI) members in the USA shows that most project management professionals rely a great deal on project management software [10]. Another survey confirms that there are literally dozens of project management tools on the market [9]. However, the majority of project managers tend to use only a small subset of these tools, the most widely used being Microsoft Project [9]. In general, project managers seem to be satisfied with the tools available even if they are not using tool to their intended capacity. Payne [7] concluded in his paper that it is estimated that up to 90%, by value, of all projects are carried out in the multi-project context. In that environment, one needs a project management tool that is capable of dealing with time and capacity simultaneously. De Boer [8] states that we may conclude that the project management theory does not provide sufficient support for the management of (semi-) project-driven organizations. De Boer has developed a decision support system to assist the management of resource-constrained (semi-) project-driven organizations in planning and scheduling decisions. To test the system, a prototype was developed in cooperation with the Royal Netherlands Navy Dockyards.

The literature [11] offers several methods of forecasting final project cost, based on the actual cost performance at intermediate points in time. The Zwikael et al. [11] study was the first empirical study to carry out a numerical comparison. Earned value [12] is a quantitative approach to evaluate the true performance of a project both in terms of cost deviation and schedule deviation. It also provides a quantitative basis for estimating actual completion time and actual cost at completion. Earned value is a very powerful project management tool. If an organization can effectively integrate this tool into their procurement, timekeeping, and executive information system, then it is probably the single best method for measuring and reporting true project performance and estimating time and cost to complete [12]. However, the effective use of this important technique is relatively rare outside of the US government and its contractors. Earned value

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