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Project management and its effects on project success: Cross-country and cross-industry comparisons

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Abstract

This study aims to investigate the effects of project management (PM) on project success under the parameters of scheduling, cost, and margins. We adopt a contingency approach that evaluates the complexity of the project, according to 4 categories, the effect of industry sector and countries. The methodological approach involved a longitudinal field survey in 3 countries (Argentina, Brazil, and Chile) with business units from 10 different industries over a 3-year period, and data from a total of 1387 projects were analyzed. Structural equation modeling was used to test the research hypotheses. The results show a significant and positive relationship between the response variable schedule with PM enablers and project management efforts in training and capabilities development. Project complexity has a significant effect on 2 aspects of project success: margin and schedule. Both cross-country and cross-industry analyses show a significant explanatory effect.

Keywords: Project management; Performance; Success; Contingency approach; Project management maturity; Project complexity

1. Introduction

Studies conducted over the last decade have aimed to analyze project success based on a variety of dimensions (Belout and Gauvreau, 2004; Besner and Hobbs, 2006; Bizan, 2003; Dvir et al., 2003; Gray, 2001; Kendra and Taplin, 2004; Lipovetsky, 2005; Raz et al., 2002; Repiso et al., 2007). This interest is associated with the increasing efforts (and resources) that companies are expending to implement project management (PM). However, PM remains a challenge because many projects have failed, as evidenced by several studies (Buchanan, 2008; Dai and Wells, 2004; The Standish Group International, 2009; White and Fortune, 2002).

Methods and techniques have been developed and encapsulated in bodies of knowledge by institutes and professional PM associations (IPMA, 2006; PMI, 2013). However, empirical studies highlight the challenges associated with implementing PM methodologies (Ala-Risku and Kärkkäinen, 2006; Besner and Hobbs, 2013; Chou and Yang, 2012; Hong et al., 2011). This occurs because internal and external contexts can affect PM (Papke-Shields et al., 2010).

On the one hand, some studies try to show the relationship between PM maturity and project success. The core thesis in the studies is that companies that expend efforts and resources to develop PM and to expand their PM capabilities demonstrate better performance in their projects. However, the evidence for that thesis is limited and inconclusive (Grant and Pennypacker, 2006a, 2006b; Ibbs and Kwak, 2000a, 2000b; Jiang et al., 2004; Jugdev et al., 2002; Mullay, 2006; Thomas and Mullaly, 2007; Yazici, 2009).

On the other hand, executives seek evidence that their PM efforts are both effective and producing expected results. Thus, from the project performer organization perspective the existence of a positive relation between the organizational efforts into improving project management and project success is critical to sustaining these efforts.

There remains a gap in the literature with respect to understanding the relationship between PM and project success

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(Aubry and Hobbs, 2010; Ika, 2009; Thomas and Mullaly, 2008). Further, Besner and Hobbs (2013) suggest that maturity and competence have a diverse, complex and intertwining relationship with project success, which should be studied more thoroughly. The literature continues to lack a broader empirical basis (Grant and Pennypacker, 2006a, 2006b).

This study aims to contribute to filling the research gap, evaluating both the relationship between PM training efforts and project results and the relationship between PM context and project results. PM contexts involve developing and using PM practices and methodology, along with providing organizational and administrative support. The methodological approach involved a longitudinal study, combining quantitative and qualitative strategies.

This article is divided into 5 sections. Section 2 summarizes the theoretical framework. The methodological approach is presented in Section 3. Section 4 presents and discusses the results. Finally, Section 5 concludes and provides recommendations for future studies.

2. Literature review

2.1. Project success

Project success has been the target of fruitful discussions in the project management literature (Carvalho and Rabechini Junior, 2015) that reveals the social and political contextualization of performance in project management (Sage et al., 2014).

The traditional view of project success is associated with fulfilling time, cost and quality objectives (the iron triangle). Financial criteria have been used to measure project performance, including economic return and cost/benefit analyses (Archer and Ghasemzadeh, 1999) and profits (Shenhar and Dvir, 2007; Thomas et al., 2002). Another way to evaluate the benefits of PM is to analyze the margins of a company's ongoing projects (Patah and Carvalho, 2007). The most-often utilized project performance metrics are those related to obtaining the initially planned schedule and cost values at the end of the project (Gray, 2001; Katz and Allen, 1985; Larson and Gobeli, 1989; Ling, 2004; White and Fortune, 2002), in which—as expected—there is a consensus on the financial issues involved (Archer and Ghasemzadeh, 1999; Patah and Carvalho, 2007; Thomas et al., 2002).

However, various studies have investigated new dimensions of project success (Carvalho and Rabechini Junior, 2015; Samset, 1998; Shenhar and Dvir, 2007; Barber, 2004; Ika, 2009; Jugdev and Muller, 2005). There seems to be no simple definition for this construct, once it may be measured differently in different types of projects, from different perspectives, at different stages, and in absolute or relative terms (Samset, 1998).

It is a multidimensional construct (Carvalho and Rabechini Junior, 2015; Samset, 1998; Shenhar and Dvir, 2007) and different stakeholder groups have their own perceptions of project success (Chou and Yang, 2012; Davis, 2014, Toor and Ogunlana, 2010; de Vries, 2009). Samset (1998) explores five success criteria: efficiency (related to the iron triangle), effectiveness, impact of the project on society, relevance to real needs and priorities in society, and sustainability, which relates to the project effects on the future. Shenhar and Dvir (2007) propose five slightly different dimensions of success: project efficiency, impact on the customer, impact on the team, business and direct success, and preparation for the future. For Carvalho and Rabechini Junior (2015), there is also a sustainability dimension, but it relates to the impact of the project on social and environmental aspects, more aligned with the current triple bottom line literature.

The distinction between the success of project management and that of its product/service is also an important issue in the literature of project success emphasized by several authors (Barclay and Osei-Bryson, 2010, Carvalho and Rabechini Junior, 2015; Cooke-Davies, 2002, Pinto and Slevin, 1988, Shenhar and Dvir, 2007).

2.2. Project management and success

A systematic PM consists of methods, toolkits and models. It can be viewed as the sequential application of structured processes for the purpose of institutionalizing standardized practices. Using a well-structured and well-implemented approach, capabilities can be stored and transferred over time, space and context. Additionally, PM can make organizations less vulnerable to the loss of tacit knowledge stored in individual memories (Ibert, 2004).

According to Carvalho et al. (2003), maturity models meet these needs because they systematize project methods, tool packages and methodologies, proposing a continuous improvement model to manage the change between an organization's initial and desired statuses. In general, maturity models involve structuring managerial processes and the key areas in which the capabilities and practices to be developed—and the key performance indicators—are grouped. The models may be structured according to proficiency levels, processes or domains by analyzing their repeatability and continuous improvement.

Maturity models assume that organizations' knowledge and experience can be translated into procedures, roadmaps, routines and databases, which leads to the configuration of a "collective brain" (Gareis and Huemann, 2000).

There are several maturity models, most of which have been proposed by consulting companies (Foti, 2002). Although most of the models in the PM area have been created over the last two decades, several maturity models already exist, such as the Capability Maturity Model (CMM) and Capability Maturity Model Integration (CMMI) (SEI, 2006), the Project Management Process Maturity Model (Ibbs and Kwak, 2000), the Project Management Maturity Model (Kerzner, 2001), the Organizational Project Management Maturity Model (PMI, 2008) and the PM Competence Model (Gareis and Huemann, 2000).

When companies adopt systematic PM, they assume that increased PM maturity will generate better project performance. However, the empirical results of this assumption are not yet