

A process framework for theoretically grounded prescriptive research in the project management field

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Abstract

Prescriptive research is at the heart of the project management (PM) disciplines. For decades, researchers and practitioners alike have been searching for methodological solutions to practical project management problems. Scheduling methods or risk management methodologies are just two examples. Despite this long tradition of prescriptive research, PM methods suffer from a number of problems, such as a lack of acceptance in practice, limited effectiveness, and unclear application scenarios. In this article, we identify a lack of empirical and theoretical foundations as one cause of these deficiencies. Based on a review of existing PM literature and a thorough analysis of other successful prescriptive disciplines, we develop a framework designed to serve as a guideline for theoretically grounded prescriptive PM research. The framework outlines how theories and empirical investigations can help build applicable and useful prescriptive research results. We illustrate our framework by applying it to the case of the critical chain method. Our contribution is twofold: our research results can foster the discourse on methodological support for prescriptive PM research; it may also help set up viable prescriptive research designs.

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1. Introduction

Methods for successfully initiating, planning, executing, and closing projects are at the heart of the project management (PM) discipline. Scheduling algorithms or risk management methodologies are just some prominent examples of such management methods, which constitute the notion of PM as an action-oriented² discipline that helps people and organizations solve practical problems in the context of projects (Shenhar and Dvir, 2007). The development of such methods is a major concern of project management practice and research alike,

which is why one would have expected PM to have reached a high level of expertise and maturity in delivering methods to solve practical project problems. Surprisingly, the opposite seems to be the case: Numerous studies report on serious problems related to proposed PM methods. The problems are diverse; they include:

- The usefulness and effectiveness of PM methods cannot be proven (Crawford, 2005; Thomas and Mullaly, 2007).
- There is a lack of universal applicability as well as a lack of consideration of the usage environment (contextual factors) and antecedents of successful application of methods (Besner and Hobbs, 2006; Morris et al., 2006; Russo et al., 1996).
- PM methods suffer from low adoption and individual acceptance rates (Ahlemann et al., 2009).

These problems are a major challenge for practitioners, who are interested in useful approaches to master project management; it seems as if no simple remedy is available, as too little is known about when, why, and how PM methods actually work.

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² In this context, action-orientation does not refer to the “action research” paradigm. An action-oriented discipline aims to develop solutions for real world problems.

In many cases, we lack an empirical foundation and deeper theoretical understanding of PM methods beyond their mere application (Packendorff, 1995; Williams, 2005). Theories can help us ground the design of PM methods on existing knowledge with a high degree of validity, and an empirical foundation could lead to better PM methods that provide an idea of the extent of and conditions for their effective use. Even more, we believe that a theoretically and empirically sound foundation and testing of PM methods are indispensable if PM is to gain legitimacy and credibility as a branch of science with a cumulative research tradition and a solid body of theoretical knowledge (Cicmil and Hodgson, 2006; Packendorff, 1995; Smyth and Morris, 2007; Whitty and Maylor, 2009). In the following, we use the term prescriptive research to denote this action-oriented form of science, which is concerned with the development of recommendations on how to solve practical problems (“how”). In contrast, theoretical research often tries to describe reality (“what”) and seeks to explain and predict phenomena (“why”) (Gregor and Jones, 2007; Hevner et al., 2004). Prescriptive research results mostly require adaptation prior to their use in order to account for contingencies in the usage environment. Furthermore, practitioners have to ensure that the organization is willing to adopt the research results (Davies and Kochhar, 2000; O’Dell and Grayson, 1998) by taking the required measures.

Prescriptive research can, but does not have to, draw on a particular epistemological stance. Recommendations on how problems can be solved can either be the result of an interpretive research process, or a positivist approach. For example, the former may materialize in a research process with experts exchanging their experience and finally agreeing on the problem solution, while the latter may form the basis for experimental research designs. Although the two processes differ in terms of their philosophical underpinnings, they are both forms of prescriptive research. While this paper focuses solely on prescriptive research, we regard theory building as equally important; furthermore, it has a particular relevance in respect of prescriptive research by providing the foundation.

In this article, we will first review the scientific PM literature and analyze its state regarding theoretical and prescriptive research results. This will help us deepen our understanding of the extent to which the design of PM methods is theoretically and empirically grounded as well as what challenges current researchers face when conducting prescriptive research. We will then describe how other prescriptive research disciplines approach method development and method testing. Due to their high maturity, we concentrate on evidence-based practices and design science research and investigate how they construct viable solutions to real-world problems. Based on these findings, we will then derive a process framework for prescriptive PM research that explains how theoretical and empirical insights can form a basis for the design of PM methods. To demonstrate the framework’s use, we apply it to the case of the critical chain method, which is a rare example of sound method development and evaluation in the PM discipline. The last section summarizes the findings, draws final conclusions, discusses our study’s limitations, and presents future research opportunities.

2. Project management as action-oriented discipline

A literature analysis offers the potential to (a) summarize the current state of research, (b) identify relationships, contradictions, gaps, and inconsistencies, and (c) suggest next steps to solve or address problems prevalent in this research domain (American Psychological Association, 2001). Our literature review was conducted to answer three questions pivotal to the article’s research objective:

1. *What is the project-related body of knowledge that can serve as a foundation for prescriptive PM research?* Theories can form the basis for PM methods and can help us understand why and under which conditions they yield the intended results. A lack of theories developed by PM research may render it necessary to develop new PM-specific theories or to borrow theories from neighboring disciplines.
2. *What types of solutions are constructed for project-related problems?* The answer to this question helps us understand the nature of problem solutions developed as a result of prescriptive PM research which, in turn, allows us to shape the research framework accordingly.
3. *What are the methods used to develop the solutions for project-related problems?* We aim to assess the state of solution development methodologies in PM research to identify the PM discipline’s needs in this area. Actual solution development methods can also form the foundation for our framework.
4. *What evaluation approaches have proven useful with regard to method design and testing?* Not all evaluation approaches may be of help concerning the testing of PM methods. The framework must integrate the successful approaches and must prioritize them, as each evaluation approach generates different kinds of insights.

Due to the focus of these perspectives, we chose a concept-centric approach to the literature review, as proposed by (Webster and Watson, 2002), and performed three subsequent steps to arrive at our conclusions: (1) source, time, and paper selection, (2) review and classification, and (3) analysis. These steps are discussed in the following.

2.1. Source, time, and paper selection

Because it was our intention to get a good cross-sectional overview of the research that the PM discipline is conducting, we decided to focus on a leading PM journal: the *International Journal of Project Management* (JPMA). We aim to investigate the actual state of PM (prescriptive) research. Hence, we restricted our analysis to the past 5 years (2006 to October 2010), as this timeframe should be suitable to provide a good snapshot of contemporary project management research and to focus on the most recent methodological and theoretical advances. This study is not focused on investigating the development of PM prescriptive research over the time. Instead, we intend to collect a representative sample that will capture the current state of PM research.

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