

Project portfolio management in practice and in context

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Abstract

Companies struggle with the sub-optimization and changes among their projects, even if various normative instructions and good practices have been introduced for project portfolio management. At the center of this paper is the need to understand project portfolio management in practice and in context. The purpose is to report a review on recent empirical research literature regarding project portfolio management, to draw attention to the limitations with viewing portfolio management as a rational decision process, and to develop new avenues for research regarding project portfolio management in practice and in context. As a result, this paper shows that, to respond to uncertainties and complexities in business environments, project portfolio management can be viewed as negotiation and bargaining and as structural reconfiguration, besides rational decision processes. These alternative perspectives offer new insight into the dilemmas identified in day-to-day project portfolio management and open up avenues for resolving them, thereby promoting success in project portfolio management.

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1. Introduction

Project portfolio management (PPM) deals with the coordination and control of multiple projects pursuing the same strategic goals and competing for the same resources, whereby managers prioritize among projects to achieve strategic benefits (Cooper et al., 1997a). Project portfolio management has received a stable and central position both in project management research, product development management research, and companies' management practices during the past decade. Project portfolio management has been developed into global standards (PMI, 2008) as well as practical toolbooks (Benko and McFarlan, 2003; Cooper et al., 2001) that are expected to help companies organize and implement their own project portfolio management. Companies have adopted project portfolio management frameworks, including the use of project evaluation and decision criteria (e.g. Martinsuo and Poskela, 2011), project evaluation and control routines (e.g. Müller et al., 2008), and other means to formalize their project portfolio management (e.g. Teller et al., 2012).

Despite the variety of instructions on how projects should be selected to the portfolio, how resources should be allocated across projects, how to align the entire portfolio with strategy, and how to assess the success of the portfolio, companies still struggle with the resource sharing problem across projects (Engwall and Jerbrant, 2003) as well as constant changes in their portfolios (Elonen and Arto, 2003). It appears that, despite the project portfolio management frameworks and their well-intended portfolio analyses and investment optimizations during portfolio planning, project portfolio management models are critiqued (Henriksen and Traynor, 1999), attention managers give to portfolio activities is inadequate (Elonen and Arto, 2003), and working with multiple projects overloads the employees (Zika-Viktorsson et al., 2006). Why?

Among possible explanations is the lack of awareness of practice (i.e. what managers actually do) and context (i.e. what are the unique conditions in which the project portfolio is being managed). Recent empirical research indicates that many such kinds of issues may be extremely relevant to the success in project portfolio management. For instance the resource issue raises many viewpoints of PPM in practice. On the one hand, projects must share their resources and knowledge, to diffuse

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good practices and learn from each other (Nobeoka and Cusumano, 1995, 1997). Such sharing can clearly benefit the entire portfolio as capability and technology synergies can be exploited and capacity use be minimized. On the other hand, however, projects should try and enhance their autonomy (Martinsuo and Lehtonen, 2009), to optimize their resource use in pursuing their own performance and business goals. Centering resources for a single project can also benefit the entire portfolio as project execution speed may be maximized and new products can be brought to market rapidly. This dilemma in resource sharing is poorly understood and hardly solved in project portfolios and is just one among others. Many other deviations from the companies' PPM frameworks appear in the day-to-day practice (e.g. Blichfeldt and Eskerod, 2008), suggesting that the current frameworks do not cover all relevant factors.

Also, the context and the micro-level dynamics of portfolios generate repeated concerns for project and portfolio managers. Even if risks and uncertainties are supposed to be covered as part of portfolio analyses (e.g. Archer and Ghasemzadeh, 1999b; Henriksen and Traynor, 1999), the mundane reality of new customer requests, added feature requirements, schedule and cost changes, and risk realization impact project portfolios more *between* portfolio analysis events than *during* them. This means that portfolio managers must pay attention to their context continuously and not just during portfolio selection or other pre-planned portfolio analysis events. Changes may be necessary for optimizing the portfolio and satisfying the customers, but at the same time they alter the logic of the project portfolio management system by displaying political and emotional decision processes instead of rational ones (e.g. Christiansen and Varnes, 2008). Implications of the context dependencies and micro-level dynamics of portfolios have not, yet, been sufficiently understood and explained at the portfolio level.

The practice and context of PPM question the applicability of "traditional", normative decision making centered project portfolio management, particularly in rapidly changing business environments. Although the popular press has suggested some dynamic solutions to portfolio management (Benko and McFarlan, 2003; Brown and Eisenhardt, 1998), empirical research has not, yet, developed or adopted feasible solutions to project portfolio management that would sufficiently account for practice and context.

1.1. Research task and questions

The purpose of this paper is to report a review on recent research literature regarding project portfolio management, to draw attention to the dilemmas identified in prior research and their underlying sources, and to develop alternative viewpoints to project portfolio management in practice and in context to frame future studies. The paper is focused on three research questions:

RQ1. In what ways is current project portfolio management understanding limited?

RQ2. How are the practice and context of project portfolio management accounted for in recent empirical research?

RQ3. How should forthcoming research on project portfolio management be guided to enable better awareness of practice and context?

The paper is conceptual in nature and, therefore, no new empirical evidence is reported. However, prior empirical research is broadly covered, and particular attention is paid to suggesting avenues for further research based on the review. The references used in this review are primarily from research in product development portfolios, due to extant research being focused on them. However, modern firms are increasingly involved in both delivery and development projects, and their portfolios may share the same resources. Therefore, this paper assumes that any types of projects may be included in project portfolios. Some particularities of project types are considered as part of future research avenues.

Next, the dominating viewpoint of project portfolio management as a rational decision making process is introduced and its underlying features are analyzed (RQ1). Then, recent empirical literature is reviewed first regarding the PPM practice and then regarding PPM in context (RQ2). In the discussion section, two alternative perspectives are analyzed as possible complements to the rational decision making view (RQ3). Finally, conclusions are drawn and avenues for further research are suggested.

2. Project portfolio management as a rational decision making process

Project portfolio management (PPM) has become a central way for companies to manage their product development efficiently and effectively (e.g. Cooper et al., 1997b; Roussel et al., 1991). Among the key issues has been that projects are selected and managed in line with strategy and that resources are allocated to projects with the optimization of the entire portfolio in mind (e.g. Archer and Ghasemzadeh, 1999a,b; Arto and Dietrich, 2004; Arto et al., 2004; Englund and Graham, 1999). A lot of research attention has been on the tools and techniques for portfolio evaluation and prioritization (Hall and Nauda, 1990; Henriksen and Traynor, 1999; Ringuest and Graves, 1999; Spradlin and Kutoloski, 1999), portfolio-oriented product development process management (Cooper et al., 1997a, b, 2002), and resource management dilemmas and solutions (Hansen et al., 1999; Hendriks et al., 1999; Engwall and Jerbrant, 2003). Holistic project portfolio management frameworks have been developed (Archer and Ghasemzadeh, 1999a; Benko and McFarlan, 2003; Cooper et al., 2001; Dye and Pennypacker, 1999) and indicate that project portfolio management could well be seen as an overarching system and approach for managing product development.

The frameworks and models for project selection, resource allocation and overall portfolio management portray project choices as a rational decision making process, which definitely has its merits. Successful firms have been shown to have a systematic approach for their portfolio evaluation, decision

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