



Owner project capabilities for infrastructure development: A review and development of the “strong owner” concept

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Abstract

Research on the management of major projects is one of the main themes of Peter Morris' work. We address this theme in the context of transportation infrastructure projects and focus in particular on the contribution of the “strong owner” to project performance. After defining the strong owner concept, we will suggest that the theoretical literature on dynamic capabilities can be the source of deeper insight into the strong owner and will thereby develop the concept of *owner project capabilities*. The paper will then present a framework generated from a review of the existing literature complemented by pilot empirical research which provides the basis for a research agenda on the role of the owner of the infrastructure assets in achieving high performance on transportation infrastructure projects. In discussion, the paper suggests that the framework developed is applicable to a wider variety of major projects and programmes.

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1. Introduction

The social and economic role of infrastructure in modern societies is well understood (Stevens et al., 2006), yet its acquisition has typically been fraught. An important theme of Peter Morris' work over the last 30 years (e.g. Morris, 2013; Morris and Hough, 1987) is the management of the infrastructure projects through which such assets are acquired by both the public and private sectors. The aim of this paper is to build on the original work of Morris and Hough (1987), and particularly their finding on the importance of a “strong owner” for high performance on major infrastructure projects, by developing a framework for understanding *owner project capability*. This will be done through an abductive literature review complemented by pilot research with four national transport infrastructure owners.

The development of such a framework is particularly timely because a recent research has identified the so-called “infrastructure gap” (World Economic Forum, 2012) which is the gap between the current investment in infrastructure, and the investment required to support properly economic growth; a gap which is widened by the severe dilapidation of many existing public sector infrastructure assets (Kessides, 2004). At the same time, there is growing political clamour for using infrastructure investment to stimulate growth, particularly in the ailing economies of Europe, but also in countries such as China, and such investment, if properly done, can be self-financing under current macroeconomic conditions (IMF, 2014). Our starting point is the seminal work of Morris and Hough (1987) on major projects and the role thereon of “strong owners”. Next, we introduce our theoretical perspective on *owner project capabilities* for major infrastructure projects developed from recent work in strategy on “dynamic capabilities” (Helfat et al., 2007) and discuss our research method. The core of the paper is devoted to the development of the proposed

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framework, focusing on transportation infrastructure as an important sub-class of economic infrastructure. In the discussion, we will suggest that the main lines of argument also apply to social and business infrastructure and to information infrastructure. We aim thereby to contribute to theory and practice in the management of projects in two ways. First, we provide an extended review of the literature on the management of major infrastructure projects since the publication of Morris and Hough (1987) complemented by empirical research with transport infrastructure agencies. Second, we provide an analytic framework that views research from the perspective of the economic infrastructure owner in order to provide the basis for further research and practice on *owner project capabilities*.

2. Major project challenges for the infrastructure owner

For much of the period since 1945, research on major project management was dominated by the challenges of the Cold War armaments programmes and closely related programmes such as the space mission (Morris, 1994). The research conducted under the auspices of the Major Projects Association during the 1980s and published as Morris and Hough (1987) broke new ground in extending the empirical research base to non-military major projects, and in particular to *economic infrastructure*, defined as that which “keeps the country running” (NAO, 2013: 5) including energy, transportation and telecommunications (IMF, 2014). This research provided the empirical basis of some of the abiding themes of Morris’ research around the importance of front end definition and the “management of projects” as well as the defining feature of the project life-cycle. It thereby provided the basis for a continuing interest in managing major projects.

In summarising the findings of their case studies, Morris and Hough (1987: Chapter 11) identify the importance of a “strong owner” as a dimension of project success. The theme is revisited in Morris (2013: Fig. 10.1) where the importance of the various owner roles is explored. However, the strong owner is discussed in the context of legal and contractual matters – in effect the owner is reduced to a client as mere contract-giver – and not related to the discussions on stakeholder management, institutional context, and project strategy. This leaves a sense of lack of agency in Morris and Hough’s (1987: Fig. 12.1; see also 1994 Fig. 46) summative research model (Dalton, 2007); that is, it is not clear who should be doing what to ensure “project success”. Although these broader topics are discussed in some length in Morris’ (2013) latest book, they are not explicitly connected with the owner role. These considerations therefore beg the research question of what is meant by a “strong owner” on major projects? This paper will attempt to answer this question by focusing on transportation infrastructure projects. We here define “success” in terms of the achievement of the expected benefits of the investment project for the owner rather than the broader set of criteria encompassing other stakeholder interests (Cooke-Davies, 2002; DeWit, 1988).

3. The capabilities literature and managing major projects

Research on innovation in complex product systems has identified the project-based firm and its *project capabilities* as central to competitive advantage in high technology industries (Brady and Davies, 2004; Davies and Brady, 2000; Ethiraj et al., 2005; Lampel, 2001; Nightingale et al., 2011). However, this literature is essentially supplier-focused. That is, it is focused on the activities of the project-based firms that supply new infrastructure assets such as information systems, high speed trains, and training simulators rather than the owners of those assets (Flowers, 2007) which typically act as both investors in, and operators of, such assets. This supplier focus underlies the recent development of perspectives such as the “business of projects” (Davies and Hobday, 2005), the “P-form” (Söderlund and Tell, 2009, 2011) and “project business” (Artto and Wikström, 2005; Artto et al., 2011). It also provides an important input for our own exercise.

Davies and Hobday (2005; Table 3.1) provide a useful summary of project capabilities for supply-side firms which they categorise as “pre-bid, bid and offer” capabilities and “project and post-project” capabilities. Similarly, Ethiraj et al. (2005) identify the importance of “client-specific capabilities” and “project management capabilities” in the performance of software services firms. We can usefully summarise these as *commercial* and *project coordination* capabilities; the latter form much of the core content of the project management discipline. However, the project management literature does not usually identify whether these are the responsibility of the supplier alone, or should be shared with the owner and by default, it is often presumed that they are a supplier responsibility. Suppliers’ commercial capabilities are about both their relationship with their clients, and their relationships with their own suppliers. We can infer that owners will need to “match” suppliers’ commercial capabilities with their own.

In addition to being supplier focused, this literature on project and commercial capabilities does not distinguish between dynamic and operational capabilities (Helfat et al., 2007), although the identification of the importance of “base-moving projects” (Brady and Davies, 2004; Davies and Hobday, 2005) for innovation in project-based firms could well be developed to address this distinction. *Operational capabilities* are the ability of the organisation to deploy its resource base (human, material, etc.) to provide effectively and efficiently goods and services to its customers. *Dynamic capabilities*, in contrast, are the ability “of an organization to purposefully create, extend, or modify the resource base” (Helfat et al., 2007: 4). As Winter (2003) points out, what is a dynamic capability for a purchasing firm may only be an operational capability for a supplying firm. Thus, project capabilities for a project-based firm may – almost by definition – be operational, but for a purchasing owner organisation they are almost always dynamic because they extend the resource-base of that organisation, but are not its “core business” (Kay, 1993). We therefore propose to focus our research on *owner project capabilities* — that is the dynamic capabilities required by the owner organisation for the acquisition of infrastructure assets in order to extend or improve its operational capabilities in

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