



Value creation in capital waterway projects: Application of a transaction cost and transaction benefit framework for the Miami River and the New Orleans Inner Harbour Navigation Canal



Arjan Hijdra^{a,*}, Johan Woltjer^b, Jos Arts^c

^a Ministry of Infrastructure and the Environment, Rijkswaterstaat, P.O. Box 24057, 3502 MB Utrecht, The Netherlands

^b Regional Development and Planning at the Faculty of Spatial Sciences, University of Groningen, The Netherlands

^c Environmental and Infrastructure Planning at the Faculty of Spatial Sciences, University of Groningen, The Netherlands

ARTICLE INFO

Article history:

Received 8 March 2013

Received in revised form 24 October 2013

Accepted 29 October 2013

Keywords:

Waterways

Transaction cost

Transaction benefits

Value creation

Infrastructure

Value capturing

ABSTRACT

Waterways have many more ties with society than as a medium for the transportation of goods alone. Waterway systems offer society many kinds of socio-economic value. Waterway authorities responsible for management and (re)development need to optimize the public benefits for the investments made. However, due to the many trade-offs in the system these agencies have multiple options for achieving this goal. Because they can invest resources in a great many different ways, they need a way to calculate the efficiency of the decisions they make. Transaction cost theory, and the analysis that goes with it, has emerged as an important means of justifying efficiency decisions in the economic arena. To improve our understanding of the value-creating and coordination problems for waterway authorities, such a framework is applied to this sector. This paper describes the findings for two cases, which reflect two common multi trade-off situations for waterway (re)development. Our first case study focuses on the Miami River, an urban revitalized waterway. The second case describes the Inner Harbour Navigation Canal in New Orleans, a canal and lock in an industrialized zone, in need of an upgrade to keep pace with market developments. The transaction cost framework appears to be useful in exposing a wide variety of value-creating opportunities and the resistances that come with it. These insights can offer infrastructure managers guidance on how to seize these opportunities.

© 2013 Elsevier Ltd. All rights reserved.

Introduction

Infrastructure (re)development by public agencies seems headed for trouble. A great many public assets are ageing and funds to replace or redevelop them are limited. Nevertheless, because highways, railways waterways and the like play a vital role in urban and regional economies, a way must be found to maintain or upgrade these assets. For waterways like canals and heavily modified rivers, one of the earliest forms of infrastructure, this is most certainly the case (ASCE, 2006; Heijer et al., 2010; Hijdra, 2014; Pointon and Grier, 2004; US Army Corps of Engineers, 2009). In maintaining, rebuilding or revising infrastructure projects, a wide variety of pathways to implementation is possible. Variations are possible in time, space and the actors involved. Because maintenance and improvement of these assets can have enormous social and environmental consequences, many trade-offs must be made. These trade-offs should reflect concerns about efficiency, that is,

maximize the ratio between the services provided to the public and the resources used. This is a common definition of value.

Interestingly enough, a focus on value does not come naturally for public entities, although a movement in that direction is noticeable (Stoker, 2006). Many governmental infrastructure projects are developed in a siloed approach with a restricted view on related issues, which are valued by other stakeholders (Bateman, 2009). Auxiliary values are covered by the obliged compensatory and mitigative measures. This raises a few questions. First of all it is not clear why agencies are not actively pursuing solutions, which are considered to be more valuable for a broader group of stakeholders, perhaps including the agency itself. In other words; opportunities to be more efficient are not seized. Secondly, in the cases where additional gains beyond a singular goal were employed and captured, the question can be posed: what circumstances led to this behaviour leading to more efficient outcomes?

These questions address the problem of infrastructure development, which often leads to highly specialized structures but with a wide range of externalities, which are not traded off in a multi-stakeholder setting. Public agencies are often bound to deliver projects within the legal context, achieving a pre-agreed level of

* Corresponding author. Tel.: +31 6 51110726.

E-mail address: Arjan.hijdra@rws.nl (A. Hijdra).

service for the minimum cost. This leads to the paradox that the agency, as a public body, is striving for delivering a specific service in order to reduce inefficiencies for society, but at the same time this specific service obstructs the process of achieving efficiency in a broader sense.

The above-mentioned situation could be characterized as a classical economic problem. The opportunities for public agencies to create value are not that different from options available to the private sector. Firms tend to pursue the best value proposition they can, minimizing the cost relative to the products sold or services delivered. Transaction costs are at the heart of this calculation (Coase, 1937; Williamson, 1979, 1981, 1998). Transaction costs are defined as costs, which result from a transaction itself and describe the sacrifices for a party in relation to the transaction activities. Or in other words, transactions cost focuses on the resistances and frictions necessary for a transaction to take place. Through this lens in- or outsource dilemma's can be analyzed. Expanding the framework with transaction benefits broadens the analytical value towards cooperative strategies (Blomqvist, 2002).

This paper focuses on the realization of value for infrastructure projects, seen through the lens of transaction cost and transaction benefits. However, further insight and clarification, and subsequent operationalization of such a framework for the infrastructure sector could help to analyze smart strategies to address the challenges that lie ahead. Evidently, the design of the physical product should find its proper place in this framework, as it is the physical object, and its use, that delivers value and externalities. The transaction cost and transaction benefit framework is applied on two case studies to explore the explanatory character when applied to waterway redevelopment. In the following section the methodology will be described in further detail. In the following section, the methodology will be described in further detail. Theoretical background will be described in third section. In fourth section, the application of the framework in two case studies is shown and the results are described in next section. "Discussion and conclusions" section concludes the study.

Materials and methods

Transaction cost theory assumes the presence of markets and free choice. The domain of public policy delivery is different, requiring the approach to be tailored to this sector and to keep a keen eye on the limitations (Alexander, 1992). On the basis of theory on value creation for firms, using a transaction cost and transaction benefit framework, the relevant elements for developing infrastructure in a multi-party setting are used to set up a tailor-made framework for this sector. This framework is then analyzed from the perspective of the derived characteristics of public agencies compared to firms to identify the validity and limitations of the application of such a framework in the sector of infrastructure development. This leads to a framework similar to the framework of firm behaviour in creating value through its governance structure and product development related to that, but with the addition of the role of the design of the infrastructure in delivering value, and with the restrictions of free choice for the involved public entities.

The above-mentioned framework is tested by applying it to two empirical case studies in the sector of waterway development. Amongst the different infrastructure sectors, waterways are particularly illustrative here for three reasons: First, water is a medium, which relates to many societal values, functions and interests. The potential for value creation by making smart combinations, functionally and institutionally, is therefore relatively large compared to other infrastructure settings. Second, in many countries institutions governing water have a narrowly defined assignment, which creates a tension between this assignment and the

potential societal economic value of the water. Efforts to employ the diversity of values by applying an Integrated Water Resources Management approach remain troublesome (Biswas, 2004). And third, waterways are widely regarded as a common good which indeed should be managed taking the 'greater good' into account, meaning socio-economic value creation should be a goal (Global Water Partnership, 2005; UN Water and Global Water Partnership, 2007; Ward, 2009).

Selection of the case studies was based on four criteria:

- (1) Maturity of the projects. Both projects selected have gone through the entire approval process and are being implemented, or are approved for implementation. This condition was set to make the distinction between ideas and plans which are very successful in creating value on paper but which somehow never made it to implementation, and the projects, which can be considered the 'proof of the pudding'.
- (2) The project had to be located in areas with intensive multiple land use, having significant potential for cooperation and value creation. Settings in which multiple parties have multiple interests meet this condition. This condition was set in order to be able to analyze the value creating capabilities of the organizations involved.
- (3) The projects had to be of a size that ensures significant attention by stakeholders. Otherwise a project could be implemented as a 'routine' operation without much thought about alternatives. Projects above a \$100 million have been selected to avoid any concerns about this condition.
- (4) The projects had to be in the field of navigation. Such projects typically serve economic purposes, creating an opening for bringing other beneficial interests into the decision making process. The tradition of a siloed approach by waterway authorities provided situations where there is room for broad optimization.

Based on these criteria, two case studies were selected which represent two distinct situations common in western countries where redevelopment of waterways play a role: an urban waterway and an industrial waterway respectively, represented by the Miami River and the New Orleans Inner Harbour Navigation Canal. The Miami River restoration project, about to reach completion, addressed interests like navigation, ecology, recreation, waterfront development, stormwater improvement, cultural heritage and more. Total investment exceeds \$200 million and come from multiple sources. The waterway is an important link for the seagoing vessels serving the many islands in the region. For the New Orleans Inner Harbour Navigation Canal, a project for enlargement of the canal and its navigation lock is planned. The project has been approved and is under preparation. The total project costs are estimated at around \$1.2 billion. The project combines two purposes of two organizations; inland navigation for the US corps of engineers and deep draft shipping for the port authority. Due to its location within the flood prone area of New Orleans, it correlates to many other issues. The first case, the Miami River, shows a highly integrated approach, both in governance and in the product. The second one, the Inner Harbour Navigation Canal in New Orleans, shows a specialized approach, with a limited institutional interaction.

The case studies have been based on documents, website postings, local observations by the authors themselves, and through semi-structured interviews with several members of the project teams responsible for planning these projects. The interview questions were structured according to the framework of analysis (see Appendix B). Per project, 5–8 officials were interviewed (Appendix 1). The interview transcripts have been screened on remarks matching the theoretical framework elements. Documents, website postings and local observations have been used to cross check statements and remarks where possible. Generalized conclusions

Download English Version:

<https://daneshyari.com/en/article/6548720>

Download Persian Version:

<https://daneshyari.com/article/6548720>

[Daneshyari.com](https://daneshyari.com)