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ScienceDirect

Procedia - Social and Behavioral Sciences 119 (2014) 601 – 610

Procedia
Social and Behavioral Sciences

27th IPMA World Congress

The Importance of Project Management in the Planning Process of Transport Infrastructure Projects in Germany

Meltem Sözüer[a]*, Konrad Spang[a]

[a]*University of Kassel, Heinrich-Plett-Str. 40, 34132 Kassel, Germany*

Abstract

Transport infrastructure projects can cover very long time periods from conception to completion. Literature reviews regarding the planning periods of transport infrastructure projects in Germany have shown that the planning phase can take up to 20-29 years in the worst case. Apart from long planning periods cost overruns have become a phenomenon in transport infrastructure projects. Besides the length of the project development phase which seems to be a contributing factor in cost overruns there are also other factors influencing the costs of transport infrastructure projects. To describe the current planning process of rail and road construction projects, to explore the factors affecting planning duration and costs and to define the need for project management in public projects structured interviews have been carried out. The interviewees included experts of public agencies and engineering offices in Germany. Significant findings of this research are the confirmation of (outdated) literature about the factors influencing the duration and costs of public projects. Despite numerous influences on the duration of the planning period and the cost overruns only minor modifications have been carried out over the years. The findings of this research are of great importance to all project participants. According to the findings of the literature review and the expert interviews this paper presents opportunities for optimization by integrating essential elements of project management as standard processes in the planning phase of transport infrastructure projects.

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Selection and peer-review under responsibility of the IPMA.

Keywords: Planning Process, Project Management, Transport Infrastructure Projects

* Corresponding author. Tel. 0049 (0) 561/804 4681; fax: 0049 (0) 561/804 4688.
*E-mail address:*sozuer@uni-kassel.de

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Selection and peer-review under responsibility of the IPMA.
doi:10.1016/j.sbspro.2014.03.067

1. Introduction

Cost overruns and also time delays in construction projects are already well-known and the factors affecting cost and schedule have been studied for many years in many countries. According to the study of Hartman and Ashrafi (2004) 50% of construction projects exceed their budgeted costs by 40% - 200%. In the studies of Flyvbjerg et al. (2002-2004) cost overruns are illustrated as a quite "normal" phenomenon of transport infrastructure projects. Flyvbjerg et al. collected and analyzed data for 258 transport infrastructure projects of 20 nations and found out that rail projects show the highest escalation rate of 44,7 % and road projects appear to be less predisposed for cost overruns with an average of 20,4 %. Data published by the German Federal Parliament show that 214 road construction projects from the requirement plan of 2004 have differences between the estimated and approved costs from 10 % up to 720 % (exception) (Drucksachen Deutscher Bundestag, 2009).

Due to the fact that every project is unique it is very difficult to forecast the duration of the planning process especially of the planning approval procedure of transport infrastructure projects in Germany. The planning approval procedure can take up to 1-3 years in the best case. Depending on the size and type of the project it can also take 3-6 years or even longer (Schütte, 2005). The whole planning period can consume more than 10 years and in the worst case up to 20-29 years. Table 1 presents values regarding the planning steps of road construction projects from 1991 and 2011.

Table 1. Duration of the planning process of road construction projects

Process / Phase	**Duration in years (min.-max.)** Ronellenfitsch (1991)	**Duration in years (min.-max.)** Landesbetrieb Straßenbau NRW (2011)
Regional Planning Process / Route Determination	5-7	5-20
Draft Permit / Final Design	2-3	1-3
Planning Permission Application	5-10	3-6
PLANNING	12-20	9-29
CONSTRUCTION	3-4	2-7

Because of lengthy planning periods changes in regulations during the planning of transport infrastructure projects are not uncommon, very time consuming and costly in the planning.

2. The Planning Process and Special Aspects regarding the Planning Process

According to the HOAI (Official Scale of Fees and Services for Architects and Engineers) the planning process in Germany in general contains five main phases:

- Phase 1 – Basic Evaluation
- Phase 2 – Preliminary Design
- Phase 3 – Final Design
- Phase 4 – Planning Permission Application
- Phase 5 – Execution Planning / Construction Design

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