

The importance of the early phase: the case of construction and building projects

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Abstract

The quality of the execution of the early project phases may dramatically influence the project performance. In spite of this, early project phases have only attracted limited attention in past research. In this article we address two factors of key importance for project performance, i.e. uncertainty and the influence of project stakeholders. To shed light on the challenges encountered in the early phase we also report findings from a large-scale research project in the construction and building industry. We highlight managerial and theoretical implications.

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1. Introduction

This article addresses the importance of the early phase of projects. In spite of the fact that past research shows that how the early phase of a project is executed may dramatically influence the project's value generation, it is surprising to observe that this has almost been neglected in the Norwegian construction and building industry. Another observation is that the current understanding in this industry is limited as to which aspect of the early phase has greatest effect on total project performance. Improved insight into the project's early phase allows for better understanding of project value generation, stronger industrial involvement in the early phase, improved decisions, and thus better project execution.

The authors of this paper maintain that two factors in particular affect project performance; uncertainty and the influence of the project stakeholders. The reason is

that, at this early stage of a project, little is known about the project activities and project execution. This means that project uncertainty is at its highest during the early stage of the project, especially for projects with a high degree of novelty. Additionally, in the case of large and complex projects, many stakeholders can be involved. Stakeholders are individuals and/or organisations that are involved in or may be affected by the project activities [1], e.g. the project client, project sponsor, project manager and the employees involved in the project. The various stakeholders have different interests in and ambitions for a project depending on the type of their involvement in the same, and they influence the project according to what role they play in relation to the project. The potential influence of the stakeholders, in particular the external stakeholders, is highest in the early phase, before a detailed agenda is set and the cost involved for making changes is low. This implies that the early phase of a project development is the most important time for innovative activities and for planning a project execution that will optimise project value generation. In order to maximise this value generation it is sometimes necessary to allow for continuous innovative activities through the execution phase as well. We

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argue, however, that in the case of most major projects in the construction and building industry, conceptual development and strategic planning should be concentrated to the early phase [2].

The rest of the article is organised as follows: in the next section we report some observations from the research project, Bonus I, which primarily addresses the opportunities hidden in the nature of the early phase of major projects in the building industry. The “driving question” underlying this research project was: “How does the way the early phase is executed contribute to increased value generation” [3]. In this project, data were gathered from many sources. Here we report on this data collection and afterwards our findings. Finally we draw conclusions and highlight various implications of these findings.

2. Projects in the Norwegian construction and building industry

The Norwegian construction and building industry is one of the largest and most important industries in the country, with a turnover of NOK 330 billion and roughly 300,000 employees. The industry is a project business industry that undertakes several major and complex projects every year. The term project business implies that the parties use a tailor-made institutional form, i.e. project organisation, for most of their business activities [4,5]. In recent years this industry has shown some good project results, but too many of the projects ended up with significant cost overruns and delayed delivery times. This is illustrated in the table below.

Table 1 shows the changes in cost from initial estimate to actual cost for five completed large-scale Norwegian projects. Inspection of table one reveals deviation in delivery time from planned delivery time at start to actual delivery at completion. The deviations in project cost vary from 6% saving to 160% overrun. It is also seen that the delivery time varies from delivered as scheduled to a time overrun of three years. Table 1 shows that the actual cost of the completed Oslofjord Tunnel project was 15% higher than the initial estimate adjusted for inflation. In this case, contractually agreed changes are not included in the figure. The two projects,

Oslofjord Tunnel and the Gardermoen Airport, are perceived as successful because the deviations in cost are considered relatively small, and both were delivered on time. The other three projects show significant deviations both in cost and delivery time. The reported deviations emphasise the challenge facing the Norwegian construction and building industry. This problem is not just a Norwegian phenomenon. Low productivity, major project deviations, low profitability, and reluctance to initiate and implement new developments are also of concern in the other Scandinavian countries, the UK and the US. These problems are, however, only partly recognised by the industry itself. Moreover, the industry will have to face increased international competition in the future [6,7].

Observations like these led some Norwegian industrialists to initiate a study to evaluate

- the reliability of project execution, and
- industrial competitiveness in connection with the execution of major and complex projects. This study was undertaken during fall 1999.

One of the major conclusions from this study was that more effective execution of the early phase of major and complex projects would give a significant potential for greater project value generation [3]. This conclusion is founded primarily on the assumption that a high degree of project uncertainty exists in the early phase, and on the fact that uncertainty, by its very nature, is associated with both upside and downside risk [8]. In order to improve the project results and financial margins the project uncertainty must explicitly be taken into account. We also claim that acceptance of a high degree of uncertainty is a prerequisite for result improvement [9]. The initial study by the industry led to the Bonus I project, on which the present paper is based.

3. The Bonus I project

The purpose of this project was to gain insight into the importance of the early phase of major and complex projects in the Norwegian construction and building industry.

The project was conducted with active participation from seven major industrial companies and organisa-

Table 1
Cost and delivery time for construction projects

Project	Cost start estimate (mill NOK)	Cost at completed project (mill NOK)	Cost overrun in %	Scheduled delivery date at the start	Actual delivery
Romerikporten	800	2100	50	1998	1999
The National Bank Headquarters	1500	3900	160	1996	1998
The New National Hospital	2820	5340	89	1997	2000
The Oslofjord Tunnel	1100	1270	15	2000	2000
The Gardermoen Airport*	11,400	10,700	(6)	1998	1998

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