

Project Management and Scheduling through National Project Management Phases in Government Construction Agencies

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ABSTRACT

Effective project coordination and management of time and cost scheduling in public funded construction projects receive a considerable focus from academics, politicians, and the construction industry itself with opposing points of view. The study objective is therefore to investigate the process of time and cost scheduling during the different project stages, and their relationships between critical factors affecting project schedules. Applied data collection was based on semi-structured interviews and a questionnaire survey with publicly agency employed project managers and property managers. A multiple research approach was thus utilized to mix the two dataset. Findings demonstrate that project complications in the execution stage is associated to lack of project requirements and design with too optimistic project deadline and budget from the initial project stages. Moreover, a relationship was found between the presence of experienced consultants and the achievement of project success throughout the project phases as particular vital.

KEYWORDS

Budgeting, Denmark, Multiple Methods, Project Construction Management, Scheduling

INTRODUCTION

Time and cost scheduling in public funded construction projects has been criticized for being too optimistic according to Bhargava, Anastasopoulos, Labi, Sinha, and Mannering (2010) and Flyvbjerg, Holm, and Buhl (2002). The effect of such over-optimistic scheduling approaches are gaps between the strategic and tactical project time plans, where project uncertainties and complications are pushed between project partners and phases (Johansen & Wilson, 2006; Song, Mohamed, & AbouRizk, 2009). The level of project success is therefore dependent on the project manager's experience and ability to handle critical project issues and their negative effect on the project organization, productivity, timetable, and budget (Ahadzie, Proverbs, & Olomolaiye, 2008; Sun & Meng, 2009). However, Flyvbjerg, Holm, and Buhl (2003), find public funded infrastructure projects often experience severe cost overruns across 20 different nations at five continents. Hedrick (1988) explain this phenomenon as the *buy in game* as a decision making strategy that's secure public funded projects reach the execution stage. Project deadline and

budget deviations are thus relative common. Nicholas and Steyn (2012) and Love, Holt, Shen, Li, and Irani (2002) argues for cost deviation between 13% to 20% as relative common in projects. According to Assaf and Al-Hejji (2006) and Olawale and Sun (2010), deadline deviations between 10% and 40% of the original contract deadline are frequently experienced in construction project.

To addresses such project complications, have previous research focused on the identification of either critical failure factors (Jha & Iyer, 2006) or critical success factors (Chua, Kog, & Loh, 1999) with their effects on time and cost. Some of the most frequently observed factors are uncertain or insufficient project planning (Doloi, Sawhney, Iyer, & Rentala, 2012), late user changes in the project or function, (Odeh & Battaineh, 2002), and the use of inexperienced consultants or construction managers (Long, Ogunlana, Quang, & Lam, 2004). The cost of such critical factors has been estimated by Lopez and Love (2011) and Love et al. (2002) to be 6.4% - 6.9% in the direct cost and 5.5% - 7.4% in the indirect cost of the total budget of an average construction project. Furthermore, factors such as quick decision making, cost reduction, and scope changes along the critical path are also find to destabilize the overall project process and its outcome (Chang, 2002; Chester & Hendrickson, 2005). However, Shane, Molenaar, Anderson, and Schexnayder (2009), conclude no definitive prioritized structure of project failure causes can be made, due to different project types and contexts. Zwikael and Globerson (2006) make a similar suggestion, by arguing critical factors are to general to support the project manager. For that reason, Doloi et al. (2012) argue for the significant importance of looking at the relationships between critical causes.

A solution to reduce the effect of such critical failure factors, Gibson Jr, Wang, Cho, and Pappas (2006) find a significant relationship between the pre-project planning effort in the initial project phase, and the success of cost and time performance in the ensuing completed project. Moreover, Gibson Jr et al. (2006) argue that time and cost planning should be accompanied by a focus on build ability and design. This argument is supported by Thomas and Ellis Jr (2007) who reduced an average construction project's execution phase by up to 30% by using simple pre-planning principles. The benefits of focusing on pre-planning before the execution phase are also studied by Hanna and Skiffington (2010) and Hwang and Ho (2011), who find increased profit margins and higher quality level with a reduced budget risk compared to normal reactive planned projects. To support the project manager Li, Chan, Huang, Skitmore, and Yang (2012) demonstrate 4D - building information modelling, virtual construction, computer simulation, and virtual prototyping supports the decision maker process to identify the most optimum project planning. Furthermore, Li, Guo, Skibniewski, and Skitmore (2008) trough using a combination of virtual prototyping technology with the IKEA business model demonstrate an improved construction process with reduced project duration and cost.

The existing research clearly shows the process complexity of planning a public funded project, and its benefits of using pre-planning principles in managing projects. However, there is an untapped potential as Doloi et al. (2012) argue of study and describe the relationships of cost and time scheduling within each project phase to understand what a project manager sees as optimization possibilities and challenges. The study aim of this research is therefore to study:

- How, from a projects manager's perspective, cost and time scheduling is conducted in the different project phases of publicly funded construction projects?

The paper is structured by a literature review firstly continued by the utilized research method and the results. Potential implications of the results are considered and discussed in relation to existing body-of-knowledge in the discussion section followed by a final conclusion.

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