

# Chapter 55

## The Project Management Process of Planning and Budgeting in Public Construction Projects

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### ABSTRACT

*Budgeting and scheduling are central elements in all projects through diverse estimates that are defining the level of project outcome success. It is therefore relevant to study how large public construction agencies apply cost and time scheduling in their projects. The study objective is firstly, to comprehend the process of cost and time scheduling in the initial phases of a project. Secondly, to discover which factors stimulate budget and deadline increases in publicly funded construction projects. Applied data collection is based on semi-structured interviews with publicly agency employed project and property managers. Findings demonstrate that too early decision making disrupt the deadline and total cost in the client briefing stage. Due to lack of clear defined project scope and user requirements are too optimistic. The subsequent project stages are thus pushed by an earlier decided deadline and budget, where following complications within the project organizations were found to stimulate budget and scheduling increases.*

### INTRODUCTION

An old English proverb reads: “well begun is half done” and can still be used in construction project context particularly. Flyvbjerg, Holm, and Buhl (2003) find average cost escalation of 27.6% across 20 nations publicly funded construction projects.

They argue that underestimation cannot be explained by calculation errors (Flyvbjerg, Holm, & Buhl, 2002). Assaf and Al-Hejji (2006) demonstrate that construction projects’ average schedule increase according to the contract is between 10 to 30%. The explanation and casual relationships of schedule and budget escalations is according

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to Williams (2005) difficult to comprehend due to unique project uncertainties, complexity and deadlines. However, Park, Kim, Yoon, and Nepal (2010) find that optimistic expectations to budget and schedule decrease productivity and quality during construction and end-product. Productivity in the construction sector, according to Abdel-Wahab and Vogl (2011), is further slowed down in all OECD countries in the period 1971 to 2005.

To address such sector challenges the existing body-of-knowledge has until now mainly focused on identification of critical success factors effect on either construction projects' budget or schedule by applying the relative importance index such as Kazaz, Ulubeyli, and Tuncbilekli (2012) and Olawale and Sun (2010). However, this approach and its impact has been strongly debated (Hwang & Lim, 2013). Creedy, Skitmore, and Wong (2010); Fidan, Dikmen, Tanyer, and Birgonul (2011) both find project scope changes as central elements to reduce uncontrollable project increases. The cost of such project changes and rework is according to Lopez and Love (2011); Love, Holt, Shen, Li, and Irani (2002) estimated to be 6.4 – 6.9% in direct and 5.5 – 7.4% in indirect cost of an average construction project's budget. To deal with project uncertainties Galloway (2006) find that 67% of the contractors use critical path methods in the construction schedules. However, Johansen and Wilson (2006) find gaps between the first initial schedule and later adjusted schedules due to diversity in user purpose and perspectives from the involved project parties.

A solution to construction projects' schedule and budget escalations is increased pre-project planning and project requirement definition (L.-R. Yang, Chen, & Huang, 2012). Dvir, Raz, and Shenhar (2003) argue increased pre-project planning does not guarantee a successful project outcome, but a lack of pre-project planning will on the other hand guarantee project failure. González, Alarcón, and Mundaca (2008); Hanna and Skiffington (2010); Hwang and Ho (2011) all

demonstrate a positive relationship between the level of pre-project planning and improved quality and profit with a reduction of project risk. Thomas and Ellis Jr (2007) reduce construction project's initial construction duration by up to 30% by applying pre-project planning principles. The overall advantages by applying pre-project planning are found to be in terms of enhanced project outcome, end-user satisfaction and reduced project budget and scheduling duration (Gibson Jr, Wang, Cho, & Pappas, 2006). The positive effect of feasible preconstruction and strategic project master schedules and budgets are therefore found to affect the subsequent level of success during a construction project's different project stages (Chang, Shen, & Ibbs, 2010; J.-B. Yang & Wei, 2010). Finally Hastak, Gokhale, Goyani, Hong, and Safi (2008) by applying best project management practice, owner commitment, high performance project-teams and pre-planning principles were able to reduce a planned project duration by up to 25%.

By looking at the existing literature several untapped potentials are confirmed by using pre-planning project principles. Such potentials have clearly not been sufficiently illuminated into public construction projects due to its frequent schedule and budget overrun. The objective of this research is therefore to investigate:

- How much attention does budget and schedule have in the initial project phases in publicly funded construction projects?
- What factors affect budget and schedule increases in public funded construction projects?

In the following sections, we first review the relevant literature followed by an explanation of the applied research method and present the results. Potential implications of the findings are further addressed in relation to existing literature in the final discussion section.

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