

Conceptual Estimating in Project Capital Planning and Validation.

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ABSTRACT

Cost modeling for capital construction projects is a critical aspect of the funding approval process. Traditional conceptual cost-modeling efforts have been undependable because they lack connection to the specific program, quality, site and locality characteristics of the project owner's expectations. Underestimating construction costs will jeopardize project success; overestimating costs will put project approval at risk. Either diminishes the effectiveness of the project owner's business planning.

This paper describes a process for evaluating the completed financial performance of multiple projects on the basis of a building's program, quality factors, and site and locality characteristics. These same factors can be used as a cost-modeling tool that dramatically increases the dependability of the outcome. The tool allows for real-time cost modeling and evaluation of multiple project considerations or solutions. The output of the cost model provides an achievable yet challenging starting point for an effective integrated target value design effort, with individual component target costs defined in addition to overall project target cost.

The process is illustrated with a case study and compared to other approaches to conceptual estimating. The paper concludes with suggestions for future research.

KEY WORDS

Capital planning, conceptual estimating, cost modeling, target costing, target value design

INTRODUCTION

Target costing, also known in construction as target value design, has the client include in their project business plan an allowable cost, what they are able and willing to pay to get what they want. What's wanted and the corresponding allowable cost are then shared with key members of the team that will deliver the project if funded. Together, client, designers and constructors validate and improve the business plan. The validation process involves evaluating the allowable cost against an expected cost (Ballard, 2008). Given that project business plans are produced prior to design, the expected cost must be determined through conceptual estimating.

Historically, conceptual estimates have been considered to vary in accuracy with the degree of project definition. Estimates with different levels of accuracy have been considered appropriate for different uses. For example, a level of project definition³ of

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³ "...roughly corresponding to percent complete of engineering" (Dysert and Christiansen, 2003)