

REVIEW OF COST INFLUENCING FACTOR IN ESTIMATING AT PLANNING STAGE

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Abstract: The objective of this study is to determine the critical cost influencing factors of building construction projects. The importance of accurate estimates during the early stages of capital projects has been widely recognized for many years. Early project estimates represent a key ingredient in business unit decisions and often become the basis for a project's ultimate funding. Identification of cost-determinant variables and evaluation of their degree of influence play an essential role in construction building. The objective of this research is to extract the key cost-influencing factors with new concept and methods to help control the expenditure. Paper served as a summary of literature review done on so many variables affecting at the planning stage construction cost estimates are identified through literature.

Keywords: Cost-influencing factors; Estimating; Construction projects; planning stage

I. INTRODUCTION

Construction industries have win projects with the lowest bids. Therefore, without any controlling key of cost influencing factors, construction companies will not be able to control the overall cost effectively, which will in turn increase project costs and affect overall profit. In fact, construction cost overrun is a common problem in construction industries.

Cost estimation is an experience-based process. Construction practitioners are aware of unknown circumstances, uncertainty, and incompleteness of factors affecting construction costs.

Early estimates are critical to the initial decision-making process for the construction of capital projects. It has major risk for construction company to decide at initial stage. As such, the importance of early estimates to owners and their project teams cannot be overemphasized.

Early estimates are typically plagued by limited scope definition and thus high potential for scope change and are often prepared under stiff time constraints. Furthermore, reliable cost data are often difficult to obtain during the conceptual stages of a project, particularly if basic design and geographic issues remain unresolved. Early estimates, even when grossly inaccurate, often become the basis upon which all future estimates are judged with future estimates sometimes being "corrected" to be consistent with early estimates.

II. PROBLEM STATEMENT

In construction industry it is usual problem that the actual cost of project exceeds than estimated cost of a project. This problem needs proper planning, management and control on project to resolve it.

The aim of this study is to determine the critical cost influencing factors of building construction projects at the planning stage.

III. FACTOR AFFECTING OF COST INFLUENCING IN ESTIMATING

The standpoint of the quantity surveyors to explore cost-influencing factors. To identified variables which affect planning stage of construction cost estimates through literature. These factors are divided into 9 categories—client characteristics, consultant, design parameters, contractor attributes, firm's ability & site management, project characteristics, contract procedures and procurement methods, resource availability and external factors and market conditions.

Client characteristics

The increasingly complex and varying demands placed upon the construction industry by its clients need to provide more sophisticated commercial and industrial working environments, at minimum cost and maximum speed, but additionally from the fact that client organizations are also complex with different categories of customers requiring discrete solutions. Clients are not a homogeneous organized group of individuals, or organizations, and are thus unable to apply uniform standards from their own, or consultants.

- ✓ Financial ability / payment record
- ✓ Project finance method /appropriate funding in place on time
- ✓ Priority on construction time / deadline requirements
- ✓ Client requirements on quality
- ✓ Experience level
- ✓ Monitoring & feedback by client

Consultant

The Project Management Consultancy has a wide variety of roles to play during the construction process. Construction project gives benefits to the Customer / Client in terms of satisfaction and it consists of business development, profit, resources utilization, etc. Because of this consultancy plays a multifaceted part in the construction project, and is usually involved in the

project from the project's inception to its completion. It is important to fully understand Project Management Consultancy and authority. Doing so ensures that the Consultancy can be fully maximized on each construction project.

- ✓ Working relationships with client / contractors / other design team consultants (previous / present)
- ✓ Submission of early proposals for costing / cost planning
- ✓ Absence of alterations and late changes to design (no 'design-as-we-go' on site philosophy).
- ✓ Expertise of consultants
- ✓ Extent of experience on the type of construction

Design parameter

The architect will analyze your brief requirements and present initial design proposals. The design may still change at this stage or your architect may provide you with a number of alternative proposals in form of drawings, sketch designs and schematics.

- ✓ Completeness and timeliness of project information (design, drawings, specifications)
- ✓ Buildability of design
- ✓ Quality of design and specifications
- ✓ Inspection, testing and approval of completed works (toughness / requirements)

Contractor attributes

Construction contractors have big influences upon projects and their successes. Therefore, it is quite critical criteria a qualified contractor in the process of construction management. A competent construction contractor is one of the indispensable conditions of a proper process and completion of a construction project.

- ✓ Financial capability
- ✓ Experience on similar projects
- ✓ Current work load
- ✓ Number of sub-contractors
- ✓ Record of payments to sub-contractors
- ✓ Sub-contractor & nominated supplier

Firm's ability & site management

When construction management is provided by firm, the client benefits from project leadership that is focused on ensuring the quality of the entire project and construction process. The goal of designer-led construction management is seamless integration of the steps and processes that must occur to complete a project on time and within budget.

The site management purpose of this section is to identify the management practices that should be employed at construction sites to guarantee a successful project before, during and through a lifetime of site use and maintenance.

- ✓ Management team (suitability, experience, performance)
- ✓ Estimation method and cost control technique (accuracy and reliability)
- ✓ Planning capability and level of resource deployment / utilization / optimization
- ✓ Productivity effects: (managerial, organizational, labour, technology)
- ✓ % of main contractor direct work and % of sub-contracted work
- ✓ Mark up policies and % (general and project wise) (special or normal conditions applied)
- ✓ Previous claims record & Present claims
- ✓ Accidents on sites record
- ✓ Bond / warranty arrangement
- ✓ Reference about the contractor.

Project characteristics

Project characteristics are a major parameter for the choice of a procurement method. Increasing project complexity forces the traditional sector to change. This complexity is to a large extent caused by the increasing demands of clients, society and the people living near the project. These processes are necessary to be successful in the ever changing and complex environment.

- ✓ Size / gross floor area
- ✓ Height / no. of stories
- ✓ No. of basement levels
- ✓ Level of uncertainty of soil conditions
- ✓ Complexity
- ✓ Type of structures (steel, concrete, brick, timber, masonry)
- ✓ Location (regions / rural; urban) (inner city / outskirts)
- ✓ Site conditions / site topography
- ✓ Construction method / technology
- ✓ Availability of free space
- ✓ Project schedule

Contract procedure and procurement method

Any contract for the construction, remodeling, renovation, lease or lease-purchase of any educational plant or ancillary facility, or day labor project, regardless of cost or fund source, shall use contracts that comply with laws governing public facilities are provided as contract procedure and construction requirements.

Procurement processes in the construction process that receives a lot of attention in the international, scientific world as well as in the national building practice, is the way that clients select their contractors

- ✓ Type of contract / Use of standard form of contract
- ✓ Payment modalities (fixed price, cost plus, BOT, PFI-DBFO, etc.)
- ✓ Method of procurement (traditional, design and build, project management, etc.)
- ✓ Claims and disputes resolution methods (litigation / arbitration / others)

Resource availability

In general, construction projects are of high value, and they employ huge resources of men, materials and machines. Major works involve heavy investments say from a hundreds of crores of rupees to a few thousands of rupees, the use of high level technology and need an open ended model for effective management of resources. Due to the resource-driven nature of construction management, Resource Management is really a difficult task.

- ✓ Material prices / availability / supply / quality / imports
- ✓ Labour costs / availability / supply / performance / productivity
- ✓ Plant costs / availability / supply / condition / performance

External factors and market conditions

Owners and constructors are bound to clearly defined duties and liabilities regarding the environment. Nearly all segments and sectors of the industry are affected by one or more environmental issues. Different country have different construction policy & level of taxation.

- ✓ Weather condition
- ✓ Government regulations/policies (health and safety, fire,etc.)
- ✓ Level of competition and level of construction activity
- ✓ Number of bidders on competitive projects
- ✓ Interest rate / inflation rate
- ✓ Stability of market conditions

IV. CONCLUSION & RECOMMENDATIONS

This study has addressed a growing concern about the loss of knowledge, skills, and experience of cost estimators. This study has identified critical cost influencing factor for developing qualified cost estimators. The competencies were classified into skills, knowledge, and personal attributes and were further classified into soft and hard subcategories.

The preliminary study is that the factors that affect design stage cost estimating accuracy must be given adequate consideration in the construction estimation process to secure an accurate design stage cost estimate as a reliable budgetary tool that guarantees cost certainty for building projects.

The paper is to provide a preliminary literature review, prior to a full research project aimed at developing have a better and reliable prediction of final cost of building projects from the elemental cost plans.

It is recommended that clients and consultants give more attention to the most important factors that affect the accuracy of pre-tender cost estimates in order to achieve more reliable and realistic estimates. They should monitor the performance of their estimates in terms of accuracy and hire a qualified technical staff to obtain accurate estimates.

Future research in this domain should be geared toward identifying currently available education and training programs for cost estimators and assessing the coverage of the programs related to the core estimating competencies and the efficiencies of the programs.

Also Future research is needed to adequately identify and quantify the drivers of estimate accuracy as they relate to the construction of buildings and infrastructure projects. In addition, the lack of projects utilizing new and unproven technologies in the research highlights the need for additional analysis once additional project data become available.

In addition, future studies to evaluate the success rate of mentoring and on-the-job training in transferring estimating competencies and minimize the gaps in estimating competencies will help companies effectively train their estimators and develop career plans for estimators.

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