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# The Significance of Accurate Production Cost Estimation in the Construction of a Project

## Analysis and Control of Production Cost

### Introduction

The cost incurred by the company is the production cost that is a combination of labor, raw materials, and other additional expenses. Costs provide an overview of the total construction expenditure (Jstor, 2015 p. 436). Cost planning techniques are influenced by a reasonable factor that is the control that is exercised during the construction of the architect. At the basis of the analyzing and controlling the production cost, cost data is purposeful in order to supplement the areas, volumes, numbers and others. Cost control manages to limit the expenditure of a client to a particular agreed amount. It is usually quite difficult convincing financiers regarding the cost of a project. The substantial facets of the management include cost data sources identification and estimating costs through the use of BCIS and RICS.

### Source of Cost Data

**Subcontractors/Contractors:** In computing or estimating construction costs, estimators rely on subcontractors/contractors to provide quotations and the services needed to complete the estimation and the project itself. The information sources provided by the contractor estimators ensures that cost estimates are realistic and feasible. The challenging part about data obtained from them is the quality or the reliability.

**In-house data sources:** These are information relating to financial statements within the company that helps construction management determine the production costs in the construction project life cycle.

**Price books:** Price books are used to estimate the cost of a construction project. In civil engineering, price books provide the most accurate data in the construction industry such as SPON's price books and BCIS price books. It provides clear understanding of the way the market values productions as compared to the income it brings to the firm and are affected by decisions made in accounting regarding depreciation and some other variables (Ashworth, 1994 n.p).

**Rate database:** It is a database that is computerized for use in estimating information that is

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often used with the construction estimating software during the formation of cost estimates. It is an electronic equivalent to cost book that can be maintenance costs, operating costs, etc.

Obtaining information from internal and external specialists is also beneficial in trying to gather data relating to the cost of construction. (Ashworth, 1994 n.p). Cost data can also be acquired from correctly published literatures, national and local institutional sources. The alternatives applicable to the field of concern must be considered in a situation where costs management consist of isolation of required materials and the one to one planning of methods of construction and budget. Cost data sources vary from country to country, for example; wholesale acquisition cost are considered very crucial sources of cost data in the United States of America (BCIS, n.d).

## **Applications of Cost Data Civil Engineering**

The Building Cost Information Service has an application for cost analysis civil engineering cost analysis. Cost analysis preparation is supported by general principles, definitions, common elements and published instructions (BCIS, n.d). Cost data also estimates the future cost of a project and controls its design to ensure sustainable cost control. Cost through the use of information is balanced to make sure that money is spent in accordance with the set priorities. Information is useful in negotiating rates with particular specialists for the purpose of speeding up the development of a project. (Kirkham et al. 2007 n.p). These activities give rise to other uses that can be of concern in some crucial sections of the quantity surveyor for research. The applications relate to an understanding of economic and political trends and a relationship between decisions made in designing and the degree to which its effect changes the cost. Analysis, classification and structuring of large quantities of data in some way assists in the development of models for evaluation.

Calculations in data require quantities of work to be measured at the times of labor that are maybe suspended. Record sheets are usually copied in the form of feedback to the estimating department, and this can be used in future projects to inform the estimates. (Ashworth, 1994 n.p).

Estimation done using traditional methods develops a system of classification against costs recording. Outputs from this type of projects can be a significant source of data for use in estimation. Production standards, for both the firm and labor, influences the range of characteristics of a project. Estimators are supposed to assimilate different factors when adopting a standard output in order to achieve a good estimate. These features include resources used, special labor skills requirements, location and accessibility, design and labor standards. (Beamon, 1998 p. 290).

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Uses of data are classified into four; forecasting of cost, comparison of cost, balancing of cost and an analysis of cost trends. Forecasting simplifies problems encountered to prevent the user from being overwhelmed by too many data. Involves the concentration of significant quantities and items of the expenditure of the ones with the least cost significance. Comparison of cost is choosing data which is structured and in a form that if the specification or design of an item is changed, usage of cost data will reflect the change of the commodity cost. Balancing of cost means the overall cost of smaller units which are used for checking purposes and allows a strategy of cost for the development of the design. Analyzes of cost trends is a view of the way costs of different products change between one point in time and another or in relation to each other.

## **Validation of the Estimate in Cost Data Control**

Confirmation of estimates is a crucial phase where the cost of the estimates counterchecked against the office per square meter. Validation of the estimate improves the accuracy of the cost data thus maximizing profits. It is necessary that the right tools are put in place while performing validation. Also, the skill to convey swift check on estimates differs with the availability of appropriate and relevant estimation materials and tools for validation.

## **Initial Approximate Estimate for Decision Making**

These costs include operation and maintenance costs where the cost of constructed premise include material costs, the costs of operating the building and the maintenance cost. Some of the costs needed for initial decision-making include; land acquisition, viability studies and planning, Engineering design and architecture, materials labor and equipment and furnishing costs. The operational and maintenance costs include; staff management, repairs and maintenance, episodic renovations, taxes, and insurance, etc.

## **Detail and Accurate Estimate of Costs**

Cost estimates are categorized into three depending on their functionalities that are the bid, control and design estimates that can be used individually in any project. Design estimates occur during the design and planning of the project. Bid estimates are an estimate that result from a combination of subcontractor quotations, construction procedures, and quantity takeoffs. Control estimates are costs incurred in the process of construction is goes that are the estimates for monitoring the project.

## **Recommendations for RICS and BCIS Cost Estimates**

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The use BCIS and RICS in a construction company are very crucial in that it helps determine the total cost of construction and profit expectation. Thus, it enables a company minimize the cost of acquiring material and another requirement for construction. Therefore, recommended the two cost estimates should be considered for use in any construction project.

## Advantages and Disadvantages of BCIS

### Advantages

- It provides on the market and helps in mediating the costs in order to ensure that they are reasonable costs and predicting the cost of the building.
- It enables the company efficiently perform its tasks and achieve its goals substantially. Using of the BCIS saves invaluable time given all that a company needs is in place.
- It is crucial in predicting the companies expectation in terms of profit margins
- It also acts as an independent, reliable source of cost data
- Disadvantages
- BCIS is a tool that makes work easier thus reduces the innovative abilities of the construction personnel.
- Construction personnel requires special training in using BCIS thus time-consuming and result in extra costs.

### Common Deficiencies

The most common deficiency of price books is the fluctuation in tender prices, for instance the SPONs fall of tender prices of brickworks between 2008 and 2013 thus estimating cost data might result in an inaccurate forecast of construction cost. Another deficiency if the poor communication between building professionals and inexperienced building clients resulting in miss interpretation of M&E services and inaccurate cost estimates. BCIS and RCIS publications provided an informed early stages of communication leading to improved early cost advice for M&E services thus mitigating above deficiencies in estimating cost data from cost data sources. A failure to acknowledge prejudices that come with making cost estimates work against appropriate planning, and the execution of a project within the estimated costs is another deficiency. The cost data sources such as the suppliers and sub-contractors help avoid the problem of construction performance failure due to under budgeting by providing detailed information about their quotations in which the construction budget is set within it. Other deficiencies include change of scope of work, insufficient design information, and insufficient estimating time.

### Conclusion

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Determining project estimates is a crucial process in construction management which requires identifying the best tools for carrying out the cost estimation. It ensures that projects consume reasonable funds and minimizes waste regarding the initially estimated budget of the project. Therefore, cost estimates such as BCIS and RCIS are necessary for determining the cost data of a project. Thus, they should be included in every construction project for analysis and controls of production costs.

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