THE IMPORTANCE OF LIFE-CYCLE COST ANALYSIS FOR PROJECT PLANNING

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Introduction

Life-cycle cost analysis (LCCA) is the process of economic evaluation used to assess the most cost-effective option among various initial costs of the product or project development, operation, maintenance and decommission. Life-cycle cost analysis is an important step in the estimation of factors when making a budget for any new project. The analysis takes into account the cost of development of a new technology and equipment, the cost of training and retraining employees, and losses associated with a decrease in the target profit for the period of a new project development.

Purpose and Basic Principles

The life-cycle cost analysis should be performed in the beginning of the design process so that there is still time to improve the pattern and ensure minimum life-cycle costs. Its main purpose is to calculate the total cost of alternative projects and to choose a design that will correspond to the quality and function of a business or a product. In project planning, all costs can be categorized into four main groups: project design, development, project operation, and project maintenance (Rad & Anantatmula 2005). The life cycle cost analysis presupposes the analysis of the system of these costs over the entire life span. When calculating the LCC, only the costs that are relevant to the project and considerable in number needed to make a decision regarding the investment. As stated in the report published by the American Society of Civil Engineers and the Eno Center for Transportation (2014), there are five main steps that can be defined in the process of life cycle costing for the project management: determination of the alternatives, estimation of time for each element, calculation of the cost for each element, life-

cycle cost calculation by adding all elements for every year and, finally, analysis of the results.

Life cycle costing process can be presented in a simple form of a table of calculated annual costs, however, it can also be in a form of a complex model, which makes it possible to create scenarios based on assumptions about future expenses (Buys, Bendewald & Tupper 2010). The complex form of the analysis usually reflects the complexity of the project or assets as well as the effects these costs will have on the decisions made by the company. There are many benefits one can get when choosing the LCC method for analysis of the project design. First of all, it allows evaluating all competing options in purchasing on the basis of the product life costs. It is important to note that the life-cycle cost analysis techniques are applicable to almost all services and equipment purchasing decisions. Second of all, application of the LCC method allows the management to be aware of all the factors that the cost depends on and the resources needed for the project development. Another important fact that stands for using the LCC analysis is that it allows estimating the full supply cost more accurately, thus, decision-making can be improved significantly. In addition, the life-cycle cost method helps to forecast future expenditures more precisely, which helps the organization to make long-term plans for costs assessments.

Conclusion

The use of the life-cycle cost analysis method can result in significant savings for the company. With the help of this technique, it is possible to compare the costs and benefits of the project or the product and find the best alternative with the lowest cost. Notwithstanding all the benefits one can get from using the analysis, it still has some drawbacks. In particular, it can be very challenging to input all the

data available, and it is quite difficult to learn how the process of this method works if compared to others. Nevertheless, while planning to launch a new project, it is very important to have a strong data analysis behind to see the complete financial picture. Life-cycle cost analysis can be one of the best forecasting methods that can reduce the investment risks as well as reduce the future costs significantly.

References

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