Application of Life Cycle Costing

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Abstract

One of the innovative effective tools for cost reduction and management is product life cycle cost management methodology which can manage product cost over entire life span. This paper deals with product life cycle cost management methodology from producer's and consumer's angles. The LCC is important tool for decision making in purchasing a product. In this respect it very essential to make this calculation together with marketing managers.

Key words

Life cycle costing, Product Life Cycle, cost

1. Introduction

Before we will explain the life cycle costing it is necessary to understand the idea of a product life cycle. The cycle is represented by a line that can be divided into four main stages: introduction, growth, maturity and decline.

2. Stages of Product Life Cycle

Product life cycle represents four main stages:

1. Introduction stage
2. Growth stage
3. Maturity stage
4. Decline stage

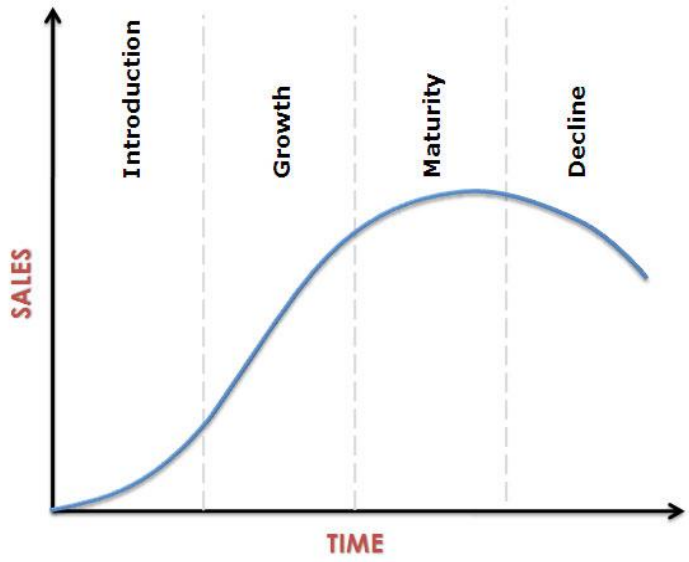

Fig. 1. Stages of product life cycle

The aim is to increase the product's value at each stage. The product life cycle is often used a part of marketing theory. Goods life cycle theory provides possibility a firm to observe where the company is, and what should be attended in the future. Thanks to this theory the managers could realize where the firm stage, understand the marketing use of each stage and they are able to set up the effective strategy to survive in markets and to get profit.

3. Life cycle cost

After understanding life cycles we can approach to so life cycle cost. Life cycle cost can be defined as the total cost of goods, projects over it is useful life. Life Cycle Costing (LCC) is a technique to get the whole cost of production. It is a special approach that examines all the parts of the cost. It is used to produce a spend profile of the goods or service over its all life-span. The results of an LCC analysis is used to help managers in the decision-making process. The LCC analysis see projects further into the future. It is very valuable as a comparative tool when long term investment in some goods is considered. The visible costs of any purchase present a small part of the total cost of production. The using of LCC techniques. It leads to better decision making at all levels, especially major investment decisions. LCC could provide more precise forecasting of future expenditure. For better explanation I would like to concentrate to life cycle cost of the purchased equipment. Standard costs for purchased equipment could include: Acquisition costs (sometimes they are named the design or development costs).

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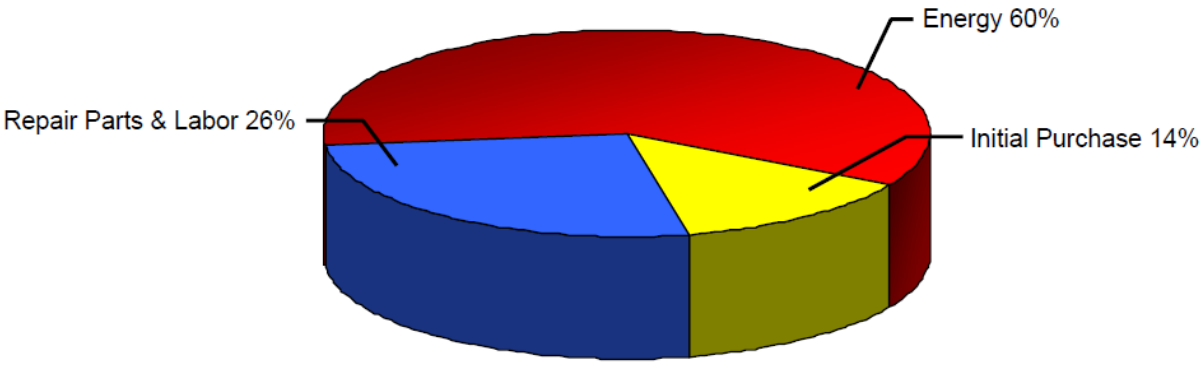

Fig. 2. : Life cycle costs of industrial pumps for 7 years

3.1. Life cycle costing process according European standard IEC 60300-3-3

This part of IEC 60300 gives a general introduction to the concept of life cycle costing and covers all applications. It explains the goals and value of life cycle costing and describes the

general methodology. It also shows typical life cycle cost elements to make project and programme planning.

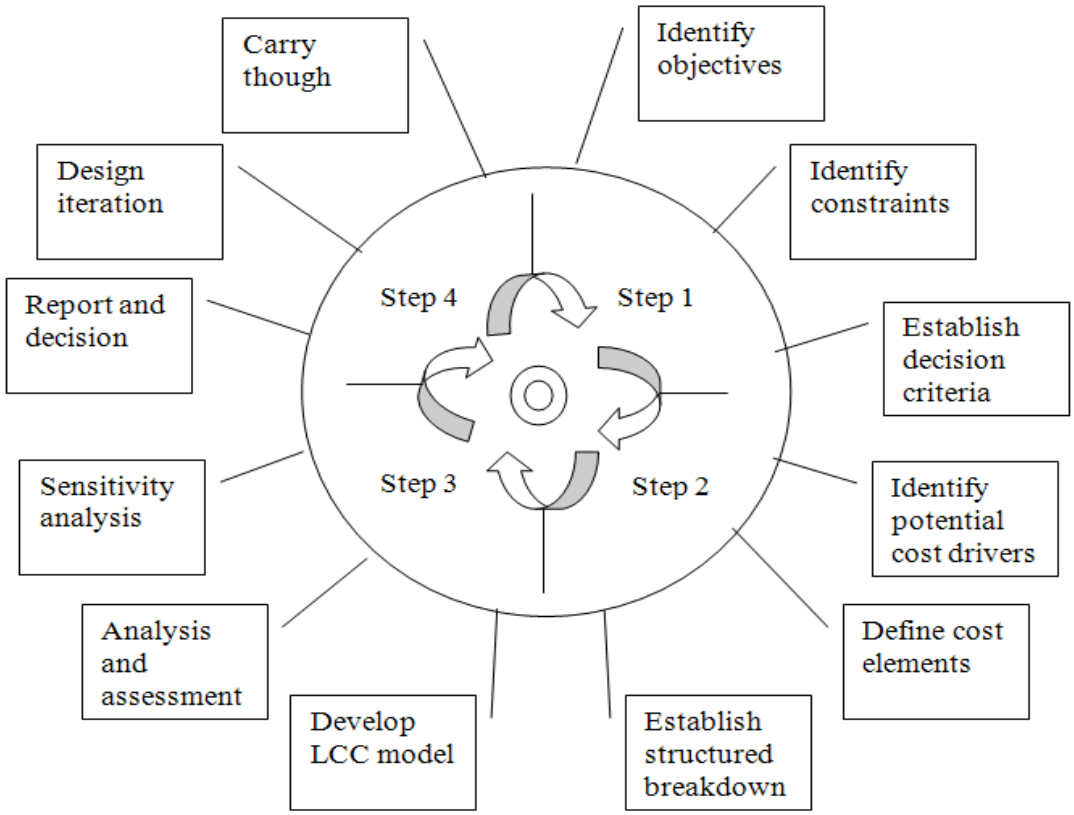

Fig. 3. : Life cycle casting process, European standard IEC 60300-3-3

Life cycle costing process consists of four steps:

Step 1 = Diagnosis and scoping

- Identify objectives
- Identify constraints
- Establish decision criteria
- Identify potential options
- Define included costs

Step 2 = Data collection and structured breakdown of costs

- Identify potential cost drivers
- Define cost elements
- Establish structured breakdown of costs
- Identify and collect data

Step 4 = Reporting and decision making

- Carry though
- Design iterative
- Report and decision

Step 3 = Analysis and modelling

- Sensitivity analysis
- Analysis and assessment
- Develop LCC model

The process is applicable to a wide range of options particularly when decisions are being considered on the following:

- the process concept
- equipment location, e. g. template-based solutions vs. satellite-based solutions
- project execution strategies
- health, safety and environment
- system concept and sizing
- equipment type
- equipment configuration
- layout
- maintence and operation strategies
- manning strategy
- manning levels
- logistic support strategy
- facility modifications
- spares and support strategy
- reuse and/or disposal

4. Application of LCC in practice (Case Study)

4.1. Life-cycle Cost Analysis - Aluminium versus Steel in Passenger Cars

In light of escalating fuel prices and the climate change LCC could play very important role in material selection decisions for automotive applications. I have read very interesting study in which author presents a new methodology for total life-cycle cost analysis and employs a case study involving the use of aluminium in automotive applications. The study presents a quantitative evaluation of the environmental impact of using aluminium in a car. The analyses compares the use of aluminium with the traditional use of steel alloys in a given automotive application by providing details of economic and environmental performance of the vehicle over the total life-cycle.

4.2. Life cycle Environmental use of LCC

The role of high-speed rail in mitigating climate change – The Swedish case Europabanan from a life cycle perspective.

The study from a life cycle perspective is used to analyse Europabanan, a proposed high-speed rail track in Sweden. The life cycle emissions reductions are found to be 550,000 tons of CO2 equivalents per annum by 2025/2030 with almost 60% of this coming from a shift from truck to rail freight and 40% from a shift from air and road travel to high-speed rail travel. In contexts similar to Sweden, it is thus an important issue whether a large increase is required in freight rail capacity anyway, since high-speed rail investments may not be justified for the passenger markets alone. The study also indicates that a substantial share of emissions

due to construction of the new railway could be counterbalanced through the reduced need for building and maintaining roads and airports, and for manufacturing cars.

5. Summary

Life cycle management philosophies consider the cost contribution from all phases of making decisions on equipment selection and operation.. LCC refers to all costs associated with a system as applied to the defined life cycle. During last time was developed a well methodological approaches of using of LCC method in practice. Given that we live in a time of gradual rise of energy and food prices, industry has to look for energy-saving technologies. In this respect LCC method could play very important role.

7. References

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