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Value Engineering: Better Way of Implementing Conventional Methods

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Abstract - *This paper concentrates on emergence of value engineering and value analysis in the field of waste management, weight optimization, sustainable manufacturing, and cost optimization and so on. The conventional methods of performing particular operations have some disadvantages and those operations need to be implemented in better way for that purpose we need to pass those operations through value engineering and analysis methods. To have successful production of goods there is need of proper balance between labour, raw material and technology driven processes. Currently the value engineering is the important aspect of manufacturing processes. Through this paper the reader will be able to understand the current trend of value engineering in the real life and manufacturing processes.*

Keywords: sustainable manufacturing, weight optimization, waste management, value engineering and analysis.

1. INTRODUCTION

The current business scenario is very challenging and demanding for cost effectiveness without compromising with the quality. The businesses cannot do anything with the final finished product to optimize their manufacturing cost that is why they need to perform optimization of raw material cost and total production cost. Currently the cost for the particular product is more or less decided by the consumer than the producer so accordingly the producers need to carryout suitable modifications in their existing processes

Generally, manufacturers need to optimize the cost in following fields:

1) Installation
2) Operational cost
3) Maintenance
4) Work force
5) Raw material
6) Transportation
7) Research and Development

Working out the required modification in processes or methods during design phase itself is the most cost effective way of optimization and that is what we do in value engineering and value analysis. To have optimum short term, initial and long term investment there in need of VAVE (value engineering and analysis) which forms the disciplined procedure concise and systematic manner.

1.1 Block diagram of VAVE-

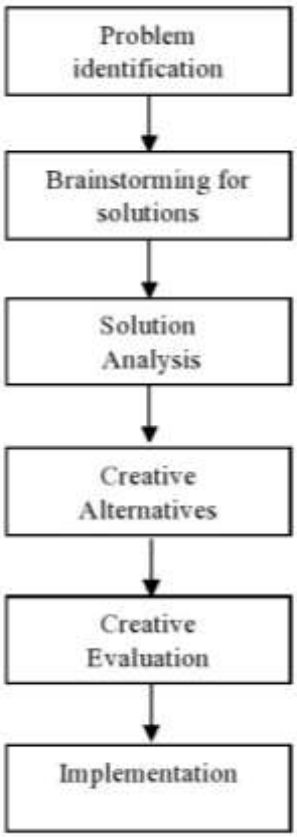

Fig 1.1 block diagram of VAVE

As we can see in the block diagram the general operations are tested for creative alternatives in order to optimize cost in all aspects. The creative alternatives are also evaluated in creative way in all possible aspects of value engineering

1.2 What is VAVE?

Value analysis and value engineering is not the cost cutting exercise or design approach it is just the creative and organized effort to analyse the particular project in purpose of achieving essential functions in all aspects. So in short we can say value analysis and value engineering as the ratio of value to the cost.

2. LITERATURE SURVEY

Zhaomiao Guo and Yan Zhou tried to perform value engineering and analysis on the plug in vehicles in united states of America. They performed analysis on the used or worn out vehicle to understand the market potential of those used vehicles in terms of current technology. They determined and prepared statistical model to understand residual value of those vehicles in particular market segment including vehicle size, material and brand [1].

Walaa Y and El-Nashar explained the advantages of drains covering over the surface drains by performing the value analysis in short they implemented value analysis in waste management. They used the life cycle methodology to understand better alternative of two of them. The objective behind there research is to decrease the pollution that occurs due to drains covering [2].

Satish M. Silaskara, and Dr. Vilas B. Shinde have performed the value engineering and analysis on the ball valve used in the hydraulic system. They performed value analysis for weight optimization for cost effectiveness without compromising with performance improvement [3].

Jing Tao and Suiran Yu performed value engineering and analysis for sustainable value management. They studied value engineering approach for modern global market in order to have realistic sustainable growth and survival [4].

3. VALUE ENGINEERING IN DIFFERENT FIELDS

value engineering made its foot mark in almost every field few which are discussed below.

1] Waste Management

This research work is mainly concerned with agriculture drainage management the drain coverings are need to be implemented in order to ensure the control of seepage, waste and corrosion of soil. In addition, there is need to control the breed of mosquitos and overuse of pests and weeds. Land value and land used for surface drains and drain covering are need to analysed separately for various aspects like disease ecology and habitation. In value engineering methodology this waste management solutions need to be analysed from inception till its disposal as even disposal requires cost.

2] Residual Value Engineering

Residual value engineering is the study of residual equipment's for its market potential that can meet modern global market. The residual value engineering generally involves weight optimization, cost optimization and material optimization without compromising in performance or quality. For carrying out the residual value engineering we first need to select the domain (firm or manufacturer) and collect their past 15-20 years data regarding their products and then we need to decide the retention rate for past product based on the technological level of latest product.

3] Machine Based Value Engineering

This involves the optimization of different parts of machines which are in production system as the product. This method is generally employed during the design phase of particular product or part. Due to unpredictably changing customer demands the machine based value engineering and analysis has gained more importance recently as it contributes to the more efficient and productive operations

4. CONCLUSION AND RESULT

1] Reduction in cycle time along with material and weight optimization also contributes to the reduced overall cost of production cycle.

2] Better product life cycle design and production methodologies sustainable development and value creation.

3] Every creative alternative is evaluated in number of perspectives like social, economics, and environmental aspects.

4] drainage covering is the better alternative than surface drain as per the study of value engineering and analysis.

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