

# A CASE STUDY ANALYSIS THROUGH THE IMPLEMENTATION OF VALUE ENGINEERING

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**Abstract** — This paper presents the basic fundamental of Value Engineering and its different phases that can be implemented in any product to optimize its value. A case study is discussed of a bath fitting product in which the material of the product is changed according to the value engineering methodology. The material is chosen such that the cost is reduced without affecting the value of the product and its design. To find the best possible alternative from the choices we have incorporated a tool named as Decision Matrix. Decision Matrix gives the most appropriate result and is even easy to use. Hence the cost is reduced as a result of the analysis.

**Keywords** — *Value Engineering (VE), Various phases of VE, Analysis Worksheet, Decision Matrix*

## I. INTRODUCTION

Value Engineering (VE), which is originated from the US military industry in the early 60 of this century, has been extensively applied in construction industry nowadays. Foo, T.H.(2002) and Chong, S.N.(2002) has given some useful frameworks on the application of VE.<sup>[1]</sup> However, in India, VE is mostly associated to any alternative design with the intention of cost cutting exercise for a project, which is merely one of the initial intentions of the VE. This paper outlines the basic frameworks of Value Engineering and presents a case study showing the merits of VE in a Bath Fittings Manufacturing Industry.

## II. DEFINITION OF VALUE ENGINEERING

Value Engineering is the systematic application of recognized techniques by multi-disciplined team(s) that identifies the function of a product or service; establishes a worth for that function; generates alternatives through the use of creative thinking; and provides the needed functions, reliably, at the lowest overall cost.

Value Engineering may be defined in other ways, as long as the definition contains the following three basic precepts:

1. An organized review to improve value by using multi-disciplined teams of specialists knowing various aspects of the problem being studied.
2. A function oriented approach to identify the essential functions of the system, product, or service being studied, and the cost associated with those functions.
3. Creative thinking using recognized techniques to explore alternative ways of performing the functions at a lower cost, or to otherwise improve the design.

## III. WHAT VALUE ENGINEERING ISN'T

Value Engineering is not just "good engineering." It is not a suggestion program and it is not routine project or plan review. It is not typical cost reduction in that it doesn't "cheapen" the product or service, nor does it "cut corners." Value Engineering simply answers the question "what else will accomplish the purpose of the product, service, or process we are studying?" It stands to reason that any technique so useful should be applied to every product, and at each stage of the normal day-to-day development of a highway product. This is not the case. The practice of VE entails a certain amount of expense, that must be justified by potential cost savings. Accordingly there must be a recognized need for change and a distinct opportunity for financial benefit to warrant the added cost of a VE effort.

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## **Table of Contents Engineering Case Study Examples**

1. Understanding the eBook Engineering Case Study Examples
  - The Rise of Digital Reading Engineering Case Study Examples
  - Advantages of eBooks Over Traditional Books
2. Identifying Engineering Case Study Examples
  - Exploring Different Genres
  - Considering Fiction vs. Non-Fiction
  - Determining Your Reading Goals
3. Choosing the Right eBook Platform
  - Popular eBook Platforms
  - Features to Look for in an Engineering Case Study Examples
  - User-Friendly Interface
4. Exploring eBook Recommendations from Engineering Case Study Examples

- Personalized Recommendations
  - Engineering Case Study Examples User Reviews and Ratings
  - Engineering Case Study Examples and Bestseller Lists
5. Accessing Engineering Case Study Examples Free and Paid eBooks
    - Engineering Case Study Examples Public Domain eBooks
    - Engineering Case Study Examples eBook Subscription Services
    - Engineering Case Study Examples Budget-Friendly Options
  6. Navigating Engineering Case Study Examples eBook Formats
    - ePub, PDF, MOBI, and More
    - Engineering Case Study Examples Compatibility with Devices
    - Engineering Case Study Examples Enhanced eBook Features
  7. Enhancing Your Reading Experience
    - Adjustable Fonts and Text Sizes of Engineering Case Study Examples
    - Highlighting and Note-Taking Engineering Case Study Examples
    - Interactive Elements Engineering Case Study Examples
  8. Staying Engaged with Engineering Case Study Examples
    - Joining Online Reading Communities
    - Participating in Virtual Book Clubs
    - Following Authors and Publishers Engineering Case Study Examples
  9. Balancing eBooks and Physical Books Engineering Case Study Examples
    - Benefits of a Digital Library
    - Creating a Diverse Reading Collection Engineering Case Study Examples
  10. Overcoming Reading Challenges
    - Dealing with Digital Eye Strain
    - Minimizing Distractions
    - Managing Screen Time
  11. Cultivating a Reading Routine Engineering Case Study Examples
    - Setting Reading Goals Engineering Case Study Examples
    - Carving Out Dedicated Reading Time
  12. Sourcing Reliable Information of Engineering Case Study Examples

- Fact-Checking eBook Content of Engineering Case Study Examples
  - Distinguishing Credible Sources
13. Promoting Lifelong Learning
- Utilizing eBooks for Skill Development
  - Exploring Educational eBooks
14. Embracing eBook Trends
- Integration of Multimedia Elements
  - Interactive and Gamified eBooks

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