

REDUCING UNJUSTIFIED COSTS BY USING VALUE STUDIES AND FUNCTIONAL ANALYSIS (A FIELD STUDY)

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ABSTRACT

There are several factors putting a lot of strain on the Iraqi economic units, including higher product costs and lower product merit, given the fierce competition that the units are currently facing as a result of multiple competitors entering the market and offering products at lower costs, better functional performance, and higher quality than local products. Thus, the study focused on the application of value engineering and its potential to reduce costs and increase product value in the Najaf factory that makes men's clothes. This was carried out in an attempt to alleviate the difficulties the firm has due to its reliance on traditional cost-control methods.

INTRODUCTION

Rapid advancements in technology, globalization of markets, intense competition, dependence on information, and customer-centeredness have all contributed to the modern business environment's rapid developments. These developments have affected consumer preferences and their demand for high-quality, reasonably priced, and functionally sound products that satisfy their needs. Due to these developments, economic units found it difficult to apply the widely accepted systems and approaches to cost accounting because they lacked the necessary information. Therefore, in response to the aforementioned developments, it was only natural that contemporary techniques be investigated in the field of cost accounting. It is evident that the economic unit finds value engineering technology via the creation of a work team appealing., or research sample, which is one of the main reasons value engineering technologies arise for companies to lower costs and increase the value of the product.

Research Methodologies in Chapter One

First: Research issue:

The main focus of the study is that manufacturing costs for Iraqi economic organizations are higher than those of foreign competitors that sell their goods on the market. Both from an economic and a consumer standpoint, the worth of their products has declined for Iraqi

economic organizations as well. The economic units don't employ technology in spite of these issues. Presently efficient in terms of finances and administration.

Second: Research importance:

Because it emphasizes the benefits of value engineering technology and how adaptable it is to changing environmental conditions, the research is significant. The development of this technology has been justified by its ability to assist economic entities in cutting expenses and raising the value of their goods by eliminating jobs that are pointless or of no use. These factors have put economic units under strain and in difficult positions going forward. value from the perspectives of the consumer and the economic unit, and attempt to exclude it.

Third: Research aims:

Two approaches to construct the research objectives are to examine the cognitive underpinnings of value engineering (VE) technology and how it might reduce costs and increase product value to raise the production Raising the economic unit—a Najaf Al-Ashraf business producing ready-made clothing for men—to the level of goods that are competitive.

Fourth: Research supposition:

The subsequent hypothesis underpins the research: Value engineering and technology utilization can assist the economic unit or research sample in cost reduction and value enhancement in a manner that satisfies requirements of the contemporary workplace.

Fifth: The research sample:

Since the business is significant and produces goods that have an impact on citizens' lives, it will host the research at the Ministry of Industry and Minerals' General Company for Textile Industries (Men's Clothing Factory in Najaf Al-Ashraf). Value engineering technologies will also need to be applied to the study sample. The accounting and cost data for the research topic for the year 2022 will be used to carry out the investigation. because of its function in lowering costs and raising the value of the item being studied.

The second chapter: Theoretical overview of value engineering as a means of cutting expenses and raising product value**First: Concept of value engineering:**

A group of researchers presented a set of principles for the value engineering approach, which are made clear by the following table:

Value engineering is a rigorous, analytical process that seeks to provide all necessary services at the lowest feasible cost while upholding the required performance and quality criteria in order to optimize value for money. (Rane,2016:1410).

Value engineering is a method focused on functions with the goal of maximizing cost savings and optimizing product design. It is one of the tools used at various manufacturing stages to identify and eliminate non-essential and non-crisis expenses. (Arivazhagan,at.el.,2017:65).

It is the systematic process of locating and removing needless expenses that leads to a thorough examination of how a service or product is used, as opposed to merely developing its

features. It's not a decrease in amount., cutting expenses, lower standards, assurance of quality, design review, or lower-priced materials. This job analysis raises costs despite improving the desired functionality (Elamir,2017:46).

It is a method that determines (the ideal value) by examining an item's or process's capabilities. Stated differently, an item or process that consistently meets the fundamental need and has the lowest cost throughout the duration of the good or service's life cycle is considered to have the highest value.

According to the information provided, value engineering technology is a methodical effort to analyze a product's attributes and components in order to save costs and increase its value. This is achieved by reevaluating the various elements and roles to assist economic units in getting rid of those that don't add value from both the unit's and the customer's perspectives, thereby improving the functions and components. others to give the economic unit a benefit over competitors.

Second: Objectives of value engineering technology:

When value engineering technology is applied, economic units aim to increase the value of the product while lowering costs, among other objectives. (Jassem, Othman, 5: 2017)

1- Because it can reduce costs and increase the value of the product while preserving a consistent level of functionality, or the degree to which it performs for the customer, the economic unit, or research sample, is clearly drawn to value engineering innovation through the formation of a work team. creation of a work team is evidently desirable to the research sample or economic unit. The potential to reduce expenditure while enhancing the product's worth or to use fewer materials while improving functionalit.

2- Value engineering seeks to increase productivity and find the optimal combination of a product or service's function, cost, dependability, quality, and performance.

Third: How to use the value engineering method:

Its approach follows these phases in order to continue being a unique technique that depends more on real-world application than theory:

1- Information stage: During this phase, team members gather, examine, and discuss project information while asking questions such "What is it?" "What does it do?" is the response. How much does it cost? Acquiring accurate information at this point is essential, or else subsequently produced alternatives won't sufficiently fulfill the necessary functions. (Elamir, 2017: 48).

2- Stage of functional analysis: This phase deals with determining the most beneficial fields of research. Because it entails going back to the preceding component to confirm the function's value, this step is regarded as the essence of the value engineering methodology. A value engineering technology business strategy seeks to reduce costs by eliminating extraneous functionality and offering a more affordable substitute while maintaining the value that consumers will get. In order to adequately prepare redesign proposals, the VE team is challenged in this phase to tie its functional goals to the hardware of the product. (Elamir,2017:48))

3- Stage of creativity: The team must use some creativity at this phase. The primary goal of this stage is to create more affordable, alternate ways to accomplish the fundamental task. All phases of the brainstorming process are acceptable; the only thing that has to be done at this point is gather ideas; criticism should be avoided at this point since it might halt the flow of ideas. (Elamir, 2017:48)

4. Evaluation stage: Since presenting the ideas and selecting the best ones that met the predetermined standards was the aim., criticism or judgment on the ideas submitted was not permitted during this stage. The evaluation procedure consists of two stages.

A- Classification of alternative ideas

B - Choosing the right ideas. (Sorour, 2021: 211).

5- Development stage: Selecting the best option and organizing it to increase value is the aim of this stage. The technical, financial, and scheduling facts for each alternative must be included in the material that the team created so that the owner and designer could make a preliminary determination of its viability.

6. Presentation phase: The objective of this stage is to further integrate the ideas and win over the project sponsor and planner with a commitment to excellence. In reality, the proposal phase gives those with the power to carry out the approved suggested solutions the best option or options. A proposal (VEP) including the data required to make a choice and carry out the proposal is part of the preparation process for the value engineering approach.(Sharmaa2021.34)

7- Stage of execution and aftercare: The administration is responsible for making sure that the accepted suggestions are turned into procedures at this phase. There won't be any savings to help with tuition until this is completed. (Elamir,2017:48)

Fourth: Value engineering technology's contribution to cost savings and increased product value:

It reduces costs by the elimination of inefficient applications and procedures. This occurs in several domains, such as: (Kazim, 2008: 130)

1. Material substitution: Materials that accomplish the same task at a lesser cost are occasionally used in place of needless or inefficient inputs.

2. Process productivity and efficiency: The reduction is accomplished by using the most productive process possible, redesigning the product to make it easier to produce, and working to cut out parts and expenses that are superfluous because doing so causes production costs to rise.

3. Conversion and change: this refers to creating sub-production methods and repurposing a large number of subpar or poor items in order to cut expenses. An example of this would be producing decorative tape for a certain item instead of purchasing it.

4- Product enhancements driven by the market: A product with more features than what customers want.

Additionally, it helps save costs by implementing the modern notion of cost reduction—optimal cost versus functionality—which value engineering technology embraces. This notion states that in order to lower the cost of item (A), it is necessary to preserve and enhance the quality of essential can be developed into another This is a more affordable version of the upgraded

model that offers better quality and performance than the original model. and exclude needless expenses related to the product's features and components that don't offer value when creating the existing product until it is turned into a finished good. (Al-Zamilei2017.105)

The third chapter describes how the men's clothes manufacturer in Najaf is utilizing value engineering.

First: A synopsis of the men's clothing factory in Najaf

Among the institutions under the Ministry of Agriculture and Minerals is the General Management Company for Textile and Leather Sectors, which includes the factory producing ready-made men's apparel. Initially established as the Najaf Al-Ashraf Ready-Made Men's Clothing business, it was created in July 1985. The experimental manufacturing phase began in 1987, and the commercial production phase began in 1988. The plant was in use. It has been manufacturing ready-to-wear clothing for more than 30 years, and its capacity to reduce expenses and raise product value, value engineering technology through the creation of a work team is obviously appealing to the economic unit, or research sample. aiming to satisfy citizens' wardrobe demands with a variety of contemporary models and styles that match global trends while maintaining high standards of quality ts. The plant produces a wide range of goods.

Second: Value engineering adoption of technology in factories

Three agency phases will be used to apply the value engineering method to the military park: the initial phase: earlier research on the value, it ability to lower expenses and raise the product's worth, Engineering value technology by assembling a team of collaborators is obviously appealing to the economic unit, or research sample. and Value analysis is the second phase.

Based on the first stage and the investigator's field visit, the study's focal military park product was chosen because it is in high demand and includes a wide demographic range. Form an interdisciplinary task force: At this time, experts in design, cost, procurement, production, and research & development were selected to form a work team. There are aspects of value engineering that the study sample or economic unit finds unappealing. By putting together a team, value-engineered technology can save expenditures and raise the value of the item. (research sample), in spite of the approval of the representatives from the technology division, accounts manager, production department, and cost. To achieve the objectives of the study, the work team was

Expert judgments defined the product requirements, which the military park product satisfies. The goal was to find the correlation, or relationship, between each product component and the wants of the customer, assigning a weight to each component to represent the relationship. For instance, we discover the connection between fabric The military has similar requirements for cloth durability, color stability, resistance to external factors, aesthetics, health benefits, smoothness of the fabric, and ease of cleaning; in addition, the economic unit, or research sample, finds value engineering technology appealing because it can form a work team and reduce costs while increasing the value of the product. There is a moderate correlation between color stability and fabric longevity.

Table (6) provides a breakdown of the relative significance of each of the military blessing's component components:

Table (1) The relative significance of the military park's elements

Details	Fabric	scalp	clouds	Cotton	The relative importance of customer requirements
Fabric durability	0.6021 ¹	0.3613	0.36412	0.36412	13.240%
Color fastness	0.5771	0.3463	0	0	12.440%
Resistance to external conditions	0.5936	0.5936	0.11847	0.14187	12.970%
Measurement	0.3514	0.3517	0.34513	0.34513	9.710%
Aesthetic	0.5216	0.10475	0.10443	0.14043	8.430%
Health aspect	0.5471	0.54706	0	0	10.940%
the price	0.5516	0.55154	0.56515	0.35515	11.030%
Streamline	0.5091	0.32054	0	0	10.180%
Easy to clean	0.5131	0.32078	0	0	10.260%
The total	4.76581	3.46282	1.44701	1.48721	17.7346
The relative importance of product components	26.87% ²	19.56%	8.38%	8.39%	100%

The above table interprets the relationship between the product's components and the needs of the customer as a percentage that comes from multiplying each requirement's relative importance in Table (4) by each component's contribution to addressing the needs of the client as shown in Table (5). This method evaluates the relative significance of customer requests with the aim of to improve the product's individual pieces.

Following the identification of the military park's components and their respective functions, this stage determines the price of each component as well as their relative significance, as indicated in the following table:

Table (2) The price of military park components in 2022 and their relative importance

Components	Cost component	The relative importance of the component cost
Fabric	8493	66.07%
scalp	2895	22.52%
clouds	110	0.86%
Cotton	90	0.70%
Layered	500	3.89%
buttons	72	0.56%
Magic Tape	395	3.07%
sign	300	2.33%
The total	12855	100%

Source: created by an investigator using spending information

The proportional significance of the military park's component costs When a component's value index is higher than one, it indicates that each component's functional merit—or relative importance—has outweighed its cost. The component doesn't need to be improved in this instance. On the other hand, if the output is less than one, the product's value has to be

improved. Though there is room for development in terms of cost, job authorization (performance), quality, or both combined, the optimal value for the labor is achieved when the two different outputs are identical. According to The value index for each component of the military parkland product may be understood as follows from the following table:

Table (3) Find the military park product's value index.

the components	The relative importance of product components (1)	Relative importance of the cost of the components (2)	value indicator (1÷2)
Fabric	26.87%	66.07%	0.41
scalp	19.56%	22.52%	0.87
clouds	8.38%	0.86%	9.74
Cotton	8.39%	0.70%	11.98
Layered	8.89%	3.89%	2.29
buttons	10.74%	0.56%	19.17
Magic Tape	7.13%	3.07%	2.32
sign	10.04%	2.34%	4.29

According to the obtained value indicators, the elements whose relative relevance divided by the relative importance that each expense components (value index) is below a one should be updated. No agency adjustment must be made for the components in which the value index is calculated by lowering the proportional importance of the elements by the relative significance of their expenditures, is larger than one: (Iron zipper, threads, layers, buttons, magically nib, tag) As a consequence, after establishing the value index of every component—military cloth and fur—it is possible to figure out which ones need to be purpose-engineered and require cost reduction.

The expensive components of the military park were identified in the previous phase, and now they require improvement, either by lowering the price or raising the value simultaneously. At this point, efforts are made to find a solution and any recommendations and ideas that can reduce expenses and raise the value of the military park product are made. Some ideas and suggestions that, without sacrificing the product's functionality, would either improve the effectiveness and caliber of the product or lower expenses (functional merit). Thus, it was possible to reduce the cost of the fur cloth and enhance the functional merit of the military fabric component, both of which contribute to lowering costs and improving.

Chapter Four: Conclusions&Recommendations

First: Conclusions:

1. Due to competitive foreign items which are less expensive on the regional marketplace, a producer cannot afford to sell at a price that pays the expenses of making their products.
2. Two components of fur cloth and military fabric were located with the use of value engineering technology and Quality Function Deployment (QFD). These components are susceptible to methods of value engineering technology..

3. The application of value engineering technology resulted in a 587 reduction in the military park's expenses. The actual cost was (46379) before VE technology was applied, but this was reduced to (45792).

Second: Recommendations

1. To improve the administration of human resources as a whole and cost taking into account in particular in the research laboratory sample, the study recommends staff members take part in educational courses that will educate individuals about strategic methods for cost control and developments in the field of accounting as well as leadership fields.

2. To produce goods that meet consumer needs and earn their allegiance, the economic unit, or research sample, should be in regular connection with customers to learn about their requirements and preferences for the attributes of the products that satisfy these wants and preferences. It should also regularly research and analyze the market.

3. Because the use of value engineering technologies can lower expenditures and increase the monetary worth of the good or service, it is apparent that the financial unit, or research samples, has been drawn to it through the manufacturing process of a work team.

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