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# Developing Two Integrated Approaches to Producing Nano Products

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**Abstract:** At the present time, in which organizations have extensive economic and commercial competition and customer needs have increased and it is related to nano technological developments and considering the direct impacts of these factors on increased efficiency and organizations survival in the world studies, planning's and all the efforts of organizations are being derived inevitably towards improving quality and reducing production costs so that nano products and services can be exported. Value engineering and pure thought are two approaches which interested organizations due to their considerable success. Double capacity of value creation can be reached by an integrative application of these two approaches. In other words, organizations involved in disembarking pure principles can improve their efforts to reduce costs and increase value but engineering application of value. In addition value engineering (VE) can be effective as an efficient and strong analytical methodology in the fields lacking pure techniques. Therefore, organization managers should provide conditions in which they can gain more advantages in creating value in their organization in the presence of these two approaches.

**Key words:** Products · Nano · Value · Pure · Development

## INTRODUCTION

Value engineering can accelerate all the efforts of implementing pure principles and operations in an organization and pure thought can improve the efficiency of sets of actions and value engineering methods [1].

Nowadays the world witnesses organizations increasing application of the pure thought and those who seriously followed this systematic method observed its productive results. Pure approach reduces costs, improves production efficiency and emphasizes the need of customers. It is obvious that organizations will only survive in the near future, which incorporate pure thought in the production of products [1-3].

**Pure Thought Pure Production:** Toyota Company, on the Go Nagoya Island in Japan, is the birthplace of pure thought. A pure producer integrates the advantages of manual production and mass production and avoids the high price of the former and the flexibility of the latter and uses machineries that are both automatic and flexible. Some of the main specifications between traditional thought and pure thought in producing nano products are the differences in the final objectives of the two. In traditional thought acceptable counting of faults and the highest acceptable level for the inventory and a wide variety of products are important. But pure thought is based on perfection that is continuous decreasing in costs, minimizing faults and inventory in endless variety of services and products and producing smaller products along with high profits [3-4].

Nowadays, Japanese producers are decreasing their workers, materials and financial sources. Their desirable issues in production and manufacture are different from that in western countries. This system aims to minimize consumption of resources which add no value to production. The term pure for products was used in Japan meaning less employees, less investment, less space, less materials, less time consumption from operations to productions and offering high quality services.

Pure structure is a systematic approach especially in Nano products. This structure identifies redundancy (every activity with no added value) and eliminates them with continuous improvement to attract customers' satisfaction by producing smaller parts and improving efficiency. It tries for the first time to provide right things in the right place in the right time. Redundancy reaches to its minimum level but there is always readiness for

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change. Pure might mean minimizing many things, less wastes, less planning time, less organizational layers and less supporters ( all these can be said at nano level); and sometimes it means more, for example, giving more authority, more flexibility, more ability, more efficiency to employees, more satisfaction to customers; and it means success in long-term competition [4].

**Principles of Pure Thought:** It simply includes following items:

- Creating production stream among competitive processes.
- Reducing unemployment (eliminating activities which do not create added value) and decreasing wastes.
- Reducing delivery time of production (which includes administrative tasks and physical processes of production).
- Continuous improvement.

Therefore pure thought is defined based on five basic principles which are:Value, value stream, stream, tensile system and evolution

**Types of Wastes and Causes:** Pure production aims to eliminate wastes in nano products in every area such as designing products, supporter networks and contact with customers and factory management. Some important redundancies are: over production, waiting, inventory, processing waste, transportation, motion, defects and rework.

**Pure Approach Requirements:** Pure approach is efficient and effective; but like value engineering or any other principle or law, it cannot answer all questions. It is not efficient in all issues and areas. Some limitations seem to result from conditions needed to disembark pure thought:

- Pure approach has its most impact in areas such as industry and services that have high financial and monetary exchange volume such as airplane manufacturing or industries encompassing a high volume of production procedures and processes like mass assembly lines, supply chains and commercial processes.
- Pure, works better for processes which have small changes and more efficient costs standard controls and methodology.
- Implementing pure principles is a long-term process that requires more stable management support.
- Implementing pure principles needs a considerable number of task forces and extensive investment to return larger capitals.

**The Approach of Two Issues in Production and Nano Products Services:** Value engineering and pure approach in nano products complement each other due to issues in different areas with balanced efficacy. In addition, they provide organizational analysts with this ability to exploit the systematic method of value engineering and pure thought to promote some of the weaknesses of one method in the other method.

Pure approach continuously reduces the wastes in production and nano products; and value engineering rapidly identifies the waste effort in production and nano products; but this is carried out in several phases not a systematic and continuous job.

Some joint qualities of the two above mentioned approaches in producing nano products are Focus on customer, visual analytical tools, operator support and work teams [5].

**VE in Lean:**

- Lean creates a good opportunity for nano products producers by means of the strong tool of VE.
- In a pure system, suppliers are not selected based on the prices they offer. They are selected based on their cooperation and experience. In this system suppliers' relationship is in the shape of pyramid in which the first supplier of nano products has the most important relationship with those who assemble and then secondary suppliers in a hierarchical order.

First class suppliers of nano products designing and more careful engineering of different sections are referred to related specialists in supplier companies when product design is completed with the continuous cooperation of supplier company engineers. Thus first class suppliers of nano products are responsible for designing and manufacturing parts of a structure. VE can be helpful in accurate design with the least production cost.

- Price determination and cost analysis in the pure system, a pure assembly company of nano products determines an objective price for the product then it reaches an agreement with the supplier over how to manufacture the product in a way they have a reasonable profit with this price. In other words in this system price is determined based on market capacity rather than supplier costs.

Both supplier and assembly people use value engineering techniques to reach a final price (to reduce costs of each phase and identify factors reducing costs of each phase) then supplier and assembly people of nano products agrees on a price with a reasonable profit for the supplier. Promoting the role of VE in determining price and cost analysis is one of the issues on which many organizations are involved. In pure disembarking and focusing, VE is attracting more and more attention in applying pure thought [5].

Continuous cost reduction in the lifespan of a model is another feature of nano product production and supply according to pure thought. Since prices are determined based on a reasonable framework, assembly people know there is a diagram for every products. They know costs should be reduced in the following years. In fact reforms are carried out more rapidly in pure production companies. VE techniques can be a good guideline for reviewing nano product prices in a pure organization and can help reduce production costs followed by reduced price of the product in the lifetime of a product.

**Lean in VE:** Lean is not based on an analytical technique. It does not offer much analytical mechanism to VE but it has two elements which VE can use them.

- One of the main principle of Lean is movement toward eliminating seven types of wastes. Value engineers should bear these seven principles in mind. A skilful team in VE can identify these seven types of wastes.
- When an organization starts to use Lean it aims to be aware of costs, wastes and intra-organizational values to find the ways of reducing the costs more easily and increase value. VE experts can exploit the result of this movement to reduce cost, eliminate wastes and increase value [7-8].

## CONCLUSION

Integration of VE and Lean can create very good abilities to take a big picture of continuous improvement by VE and by focusing on the use of VE to create value in order to lean their organization better and more rapidly. In a competitive environment, especially world competitive environment, those organizations which disembarked pure principles and benefited ways of value creation, like value engineering, received many advantages. Considering the fact that annually high percentage of gross national income is spent on investment in pure making projects of organizations. Considering limitations in financial sources in financing these activities and abilities of value engineering in optimum budget and hiding weaknesses of pure making of organization, it is necessary to take actions in using the important place of value engineering in the process of disembarking and implementing of pure thought in organizations [5-8].

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