

Webinar

TRIZ Tools for Disruptive Cost Reduction

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GEN TRIZ Tools for Disruptive Cost Reduction – Abstract

GEN TRIZ Webinar, June 25, 2020

S.Litvin, PhD, TRIZ Master, Chairman/CEO of GEN TRIZ, LLC

The following factors and tools distinguish GEN TRIZ approach to cost reduction from the common engineering approach:

1. Trimming

Traditional cost reduction is focused on reducing amount of materials, labor, and energy, substitution the components with the less expensive ones, selection of less expensive vendors, etc. The idea of Trimming is to eliminate completely one or more immanent components of the product or operations of the production process with their corresponding costs (both capital and operation) without any deterioration of the product/process functionality. The idea of Trimming sounds counter-intuitive to common engineers because each of the components of the product or process was design to perform some important function. How can this component be eliminated

without losing functionality? Trimming technique achieves this challenging goal by redistribution of functions of the trimmed component between the rest of the components and the super-system. This approach allows dramatically reducing the cost without victimizing the product quality. The approach is furnished with specific algorithm of Trimming and recommendations on how to select the component to be trimmed first, second, etc.; how to select the most effective option of trimming; and how to distribute functions between the rest of components and super-system.

2. **Feature Transfer (FT)**

The idea of this tool also sounds counter-intuitive to common engineer. Instead of reducing the cost of your product, FT recommends selecting another less expensive product with the same main function. Then FT is solving a new type of problem – how to transfer the features of functionally effective but expensive product to the existing less costly one. The approach is non-trivial, because it looks like you are improving some “foreign” product instead of a cost reduction of your target product. However, this approach is very effective, because you are starting with the product that already is significantly less expensive; and nobody tried to dramatically improve its functionality. The approach is furnished with specific algorithm of FT and recommendations on how to select the alternative product or process; how to identify the key functional feature to be transferred; and how to transfer this feature to the inexpensive product/process.

3. **Trends of Engineering System Evolution (TESE)**

The idea of this approach being applied to cost reduction problems is to select the next generation product or technology that is an objective evolutionary winner in terms of value. All GEN TRIZ trends are focused on increasing the product Value which is defined as a ratio between product functionality and its cost. It allows identifying new less expensive and more productive action principles that will obsolete the existing one on the market. This approach is also not common to the engineering community, because it requires identifying and understanding new action principles that are far from the initial area of domain expertise. The approach is furnished with specific algorithms and recommendations on how to apply each Trend and Sub-Trend to the specific challenge.

4. **Function-Oriented Search (FOS).**

The idea of this tool being applied to cost reduction problems is identification of some existing functionally similar but significantly less expensive technologies in distant industries and areas of science. Common engineers fell uncomfortable in “foreign” areas of expertise. That is why the FOS approach is very counter-intuitive to the engineering community. At the same time, it is very productive, because instead of trying repeatedly

to reduce the cost of the current product or technology, FOS is bringing the existing technology that already has a lower cost. It only requires solving some adaptation problems that nobody tried to solve yet. The approach is furnished with specific FOS algorithm and recommendations on how to identify functional similarities between different products and processes; how to select the leading industries to search for less costly solutions; and how to formulate adaptation problems.

5. Key Problems Identification / Cause-Effect Chain Analysis

The idea of this approach is instead of directly addressing high cost issues; first identify underlying fundamental causes of the high cost. GEN TRIZ developed an instrumental tool for effective application of this approach. Cause-Effect Chain Analysis is furnished with specific rules and recommendations that make it effective, reliable and repeatable.

6. Main Parameters of Value (MPV) Discovery

Usually a high cost is a direct effect of high demands to product functionality. However, not all of product's parameters of value are important for consumer purchasing decision on the market. The traditional approach to identification of Main Parameters of Value is so-called Voice of the Customer. However, very often it is not sufficient, because people on the market do not know what they do not know about the objective functional interactions between the product and its super-system on different stages of product's life cycle. GEN TRIZ methodology includes a new objective tool for MPV discovery – Voice of the Product. It is based on Function Analysis and TESE and allows identifying latent parameters of value and re-evaluating the over-estimated parameters. It allows to dramatically reducing product cost by ignoring the parameters of value that are not main and concentrating efforts on MPVs only.