MyTRIZ Level 1 Practitioner Workshop

AUDIENCE:

Open to all

DURATION:

2 days

METHODOLOGY:

Instructor-led presentation, exercise,and discussion

CONTACT:

TRAINING REP.
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INTRODUCTION:

TRIZ is a theory created to systematize processes and procedures related to innovation and creativity in the solution of problems. TRIZ is a Russian acronym which can be expressed in English as 'Theory for the Solution of Inventive Problems' and consists of a theory, operating procedures and a range of tools created by Genrich Saulovich Altshuller (1926-1998) from 1946, with the objective of **capturing the creative process in technical and technological contexts, codifying it and making it repeatable and applicable, in short a proper theory of invention.**

The capability of inventing is usually deemed to be a natural quality and not a process which may be systematized with a scientific approach. Altshuller did not agree with the idea and started from the study of patented ideas to come up with the deduction of the general principles governing the evolution of technical systems underpinning the theory of invention heformulated.

TRIZ allows the analysis, the structuring of models and, finally, the solution of problems with a systematic approach based upon a series of subsequent stages and operating tools. Up to this day, the TRIZ methodology has proved to be the most efficient to solve inventive problems and one which may be learnt and used without any need for an innate individual creativity.

Supporting the validity of the methodology is the diffusion in companies both in small and medium enterprises, as well as in several giants at a worldwide level, among which it is worth citing 3M, BAE Systems, Boeing Corporation, Daimler Chrysler, Dow Chemical, Ford, GM, HP, Hitachi, IBM, Intel, Johnson & Johnson, LG Electronics, Motorola, Kodak, NASA, Nestlé, OTIS Elevators, Panasonic, Procter & Gamble, Samsung, Siemens, Toyota, UNISYS, Xerox, Whirlpool, Saipem and BTicino.

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COURSE OUTLINES:

DAY 1

- **Introduction - What is Systematic Innovation/TRIZ?**
- **TRIZ methodology, history & adoption**
- **Structured Problem-solving Process:** Provide step-by-step process to define a problem, analyze current situation, identify possible causes, develop solutions, discuss ways to implement solutions, standardize the solution and monitor the progress
- **Function Analysis:** People buy functions/functionality and not products. Understanding function and functionality at the most basic level is fundamental to successful application of TRIZ. Solutions change, functions stay the same. Knowledge classification by function allows ready access to other's solutions.
- **Cause & Effect Chain Analysis:** A tool to refine a problem statement and drill down to find the root cause of the problem
- **Trimming:** Typical engineers would add components to a system to enhance or solve a problem. The next tool after analyzes the function of a system and understand the root cause is to eliminate components that may not be needed for the main function. The purpose is to search for a more ideal system that is less costly and has fewer components.

DAY 2

- **Ideality:** Each system evolves towards its ideal state. The ideal state of the system is where it has all the benefits with none of the harm or none of the costs. The system is better, faster, low cost, low error, low maintenance and so on (The ideal system consists of all positives and no negatives). The ideal system is a system that does not materially exist; while its functions are achieved (ideal system is no system). In the absolute sense Ideality is impossible to achieve, but in a relative sense ideality is achievable.
- **Engineering Contradictions:** An engineering contradiction is a situation in which an attempt to improve one parameter of a system leads to the worsening (impairment) of another parameter. It can be reflected in a positive and negative interaction between two or more components.
- **39 System Parameters:** System parameter is defined as any factor that defines a system and determines (or limits) its performance. The parameter typically describes the characteristics of a system. There are 39 parameters that typically set the characteristic of most systems.
- **Contradiction Matrix:** Systematic method of solving engineering contradictions without trade-off solutions. User identifies improving and worsening features of the engineering system.
- **40 Inventive Principles:** Inventive principle is a basic generalized rule that is accepted as facts, works in exactly the same way consistently and usually followed as a basis of reasoning or explanation of the invention. Altshuller screened 200,000 patents in order to find out what kind of contradictions was resolved by each invention and the way it was achieved. He synthesized down to 40,000 patents and from this he developed a set of 40 inventive principles.
- **Exercises & Assessment**
- **Summary & Wrap-up**

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