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Course Name: Theory of Inventive Problem Solving (TRIZ) Level 1 Practitioner

Synopsis

Innovation is an important skill much needed in the new economy. With competition becoming increasingly intense, innovation is no longer a "nice-to-have" skill but a "must-have". There is a way to learn INNOVATION in a systematic approach. The approach is called TRIZ or Theory of Inventive Problem Solving. TRIZ is a Russian methodology discovered about 66 years ago but has remained a well-kept secret. This open secret has finally reached you through the MyTRIZ Level 1 Workshop.

Malaysia TRIZ Innovation Association (MyTRIZ) in partnership with International TRIZ Association (MATRIZ), will facilitate a two-day workshop to cover the history of TRIZ, share the insight of the profound discovery, provide in-depth knowledge into 6 techniques and impart the application aspect of the methodology. The workshop included an assessment for certification as TRIZ Level 1 Practitioner. TRIZ is a catalytic program for employees to upgrade their problem solving and innovation skills to international certification standards.

TRIZ is recognized as one of the powerful methods for innovation. It is embraced by many corporations namely Siemens, Samsung, Intel, Whirlpool, LG, Christian Dior, Boeing, Procter & Gamble, L'Oreal, KIA, Hyundai, etc.

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What You Will Learn

TRIZ (Theory of Inventive Problem Solving) training aims to equip participants with the knowledge and skills necessary to apply TRIZ methodologies to solve complex problems and foster innovation within their organizations. The specific learning outcomes of TRIZ training typically include;

1. **Understanding TRIZ Fundamentals**: Participants will learn the basic principles and concepts of TRIZ

2. **Problem-Solving Techniques**: Attendees will become proficient in various TRIZ tools and technique

3. **Identifying and Defining Problems**: Participants will learn how to accurately identify, define, and analyze problems using TRIZ methodologies, breaking down complex issues into manageable parts.

4. **Generating Innovative Solutions**: Training will focus on using TRIZ to generate creative and effective solutions to technical and non-technical problems.

5. **Contradiction Resolution**: Learners will understand how to identify and resolve contradictions (conflicts between two or more elements) using TRIZ strategies

6. **Systematic Innovation**: Participants will develop the ability to apply a systematic approach to innovation, using TRIZ principles to enhance product design, improve processes, and create new business models.

7. **Practical Application**: Attendees will engage in hands-on exercises and case studies to apply TRIZ tools to real-world problems, reinforcing their learning through practical experience.

8. **Enhanced Creativity and Innovation Skills**: Overall, participants will leave the training with enhanced creative thinking and innovation skills

Who Should Attend

The following groups should consider attending TRIZ training:

1. Research and Development (R&D) Teams
2. Product Designers and Engineers
3. Innovation Managers
4. Quality Assurance and Quality Control Teams
5. Process Improvement Teams
6. Project Managers
7. Technical and Operations Staff
8. Business Analysts
9. Consultants
10. Academics and Researchers
11. Entrepreneurs and Startups
12. Marketing and Product Management Teams

Prerequisite

N/A

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Course Methodology

- Theory
- Hands-On
- Discussions
- Interactive Classroom Session

Course Duration

2 day(s) - 9am - 5pm

Course Structure

Session 1: Introduction to TRIZ methodology, history and adoption

- 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 he formulated.

- 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.

Session 2: *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.

Session 3: 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.

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Session 4: Cause & Effect Chain Analysis

- A tool to refine a problem statement and drill down to find the root cause of the problem.

Session 5: Trimming

- Typical engineers would add components to a system to enhance or solve a problem. The next tool after analyze 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.

Session 6: Ideality

- Each system evolves toward 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.

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Session 7: Engineering Contradiction

- 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

Session 8: 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.

Session 9: 40 Inventive Principles

- Inventive principle is a basic generalized rule that is accepted as fact, 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 were 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.

Session 10: Contradiction Matrix

- Systematic method of solving engineering contradictions without trade-off solutions. User identifies improving and worsening features of the engineering system.