UHS 2021
TRIZ ; History & Basic Concept

by

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Learning Outcome

Aims

- Analyze Soft Skills issues at workplace.

Expected Outcomes

Student will be able to know the history of TRIZ and understand basic concept solving problem.

Introduction

- Teoriya Resheniya Izobreatatelskikh Zadatch (TRIZ)
- Theory of Inventive Problem Solving
- 1940’s, Genrich Altshuller, Russian patent engineer
- 200,000 patents studied, 40,000 innovative patents
- Problems repeat across industries & sciences
- The solutions used to solve these problems repeated correspondingly
- 40 Inventive Principles is the essence of these solutions

Short cut to understand TRIZ

ENGINEERING CONTRADICTION

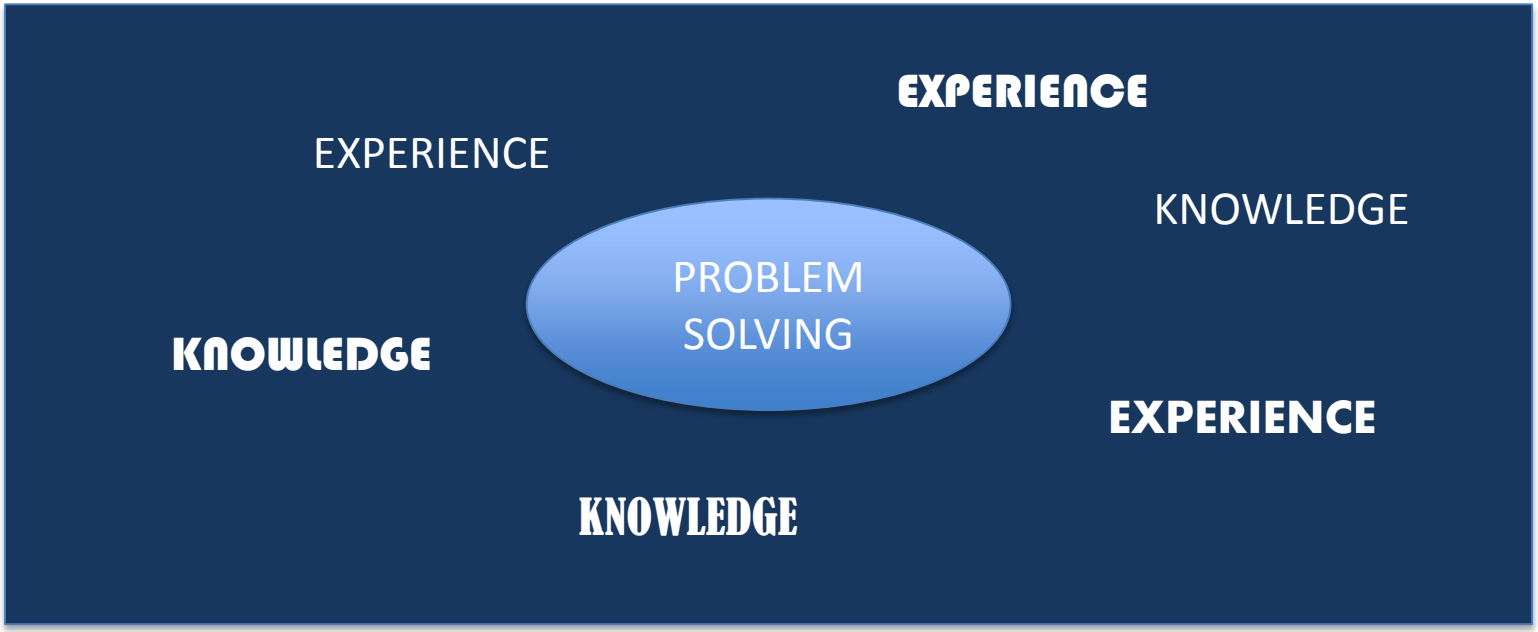
RESOLVE

BALANCE

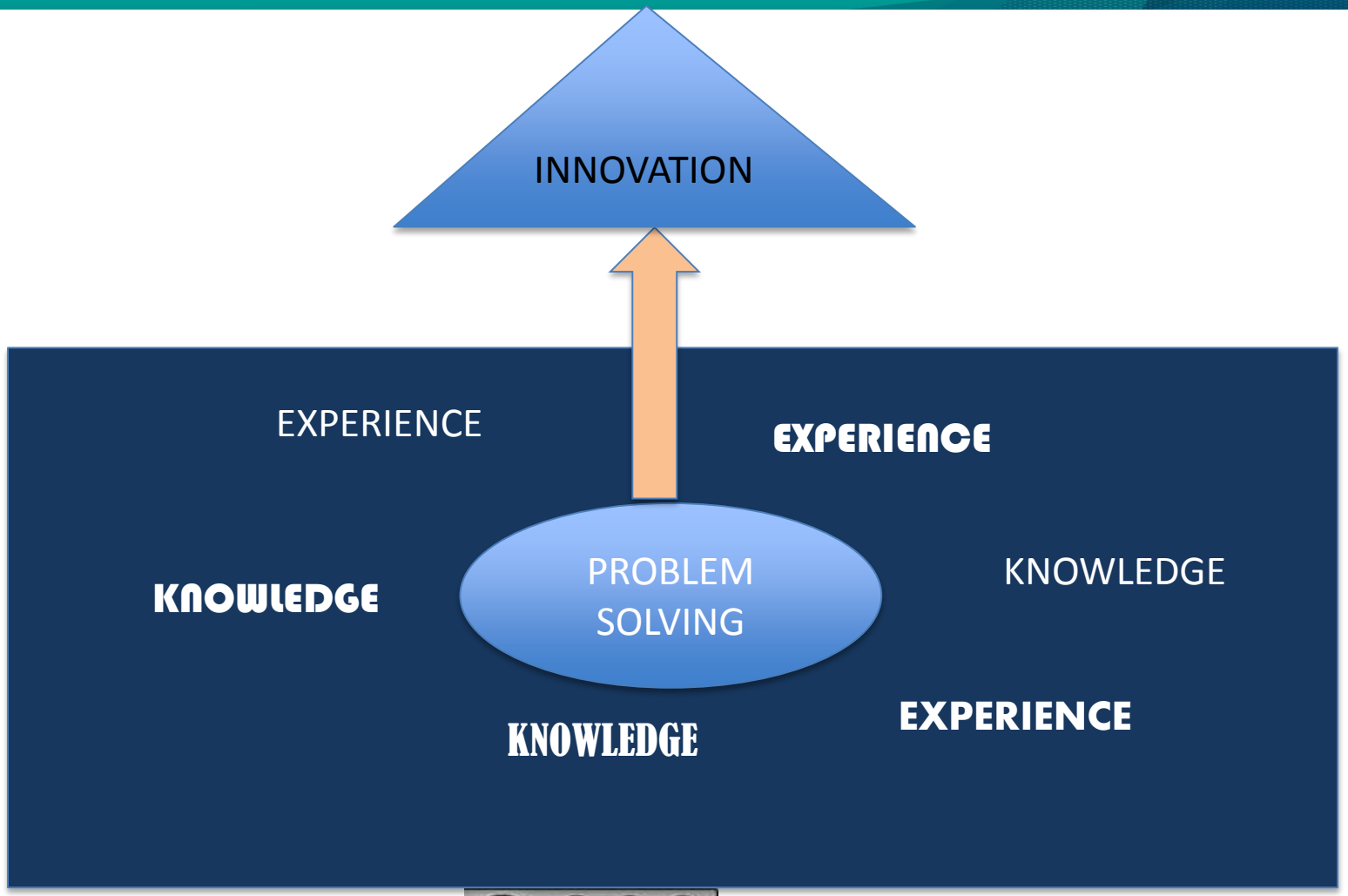
BETWEEN
IMPROVING
WORSENING
CHARACTERISTICS

Psychological Inertia (PI)

- Human Psychological Inertia need to be changed



Psychological Inertia (PI)



FOUR BASIC CONCEPT

1. IDEALITY
2. CONTRADICTION
3. RESOURCES
4. SYSTEM APPROACH

Basic Concept 1: Ideality

- Is NO system
- Consists of ALL positives and NO negatives
- Better, faster, low cost, low error, low maintenance and so on
- Ideal system is a system that does not materially exist while its functions are achieved

Basic Concept 2: Contradiction

- The opposition between two (2) conflicting forces or idea
- Happen when we are trying to improve one (1) parameter while another parameter will affected negatively
- Eliminating contradiction typically will yield an innovation
- The inventor must find and remove contradiction

Basic Concept 3: Resources

- Things (including waste), information, energy or properties of the materials that are already in or near the system
- In many cases, identification of unidentified resources solve a problem nicely
- Using resources, problems can be solved and evolve towards Ideal state
- Should be free low cost

Basic Concept 4: Systems Approach

- The opposition between two (2) conflicting forces or idea
- Happen when we are trying to improve one (1) parameter while another parameter will affected negatively
- The inventor must find and remove contradiction

Conclusion of The Chapter

1. Inventive Problem Solving accommodate engineering contradiction
2. Eliminate factors that can be barrier to solving problem
3. TRIZ uses four basic concept to in its process of problem solving

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