Using TRIZ to Find Creative Solutions

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Jack Stuart Theory of Intelligence: Have These Three in Balance

Creativity

Perseverance

Decision Making

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Dreamer

Creativity

Dullard

Having Too Much of a Good Thing?

Stubborn

Perseverance

Flighty

What if We Fall Short on a Skill?

Impulsive

Decision Making

Indecisive

Advantages of Experience & Education

Know what works
Know what doesn't work

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Disadvantages of Experience & Education

Analogies can be wrong
Experiences could be wrong

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What to do?

1. Think
2. Five Whys (Thinking with direction)
3. Brainstorm (Collective thinking)
4. Force thinkers outside their paradigms
5. Scientific Approaches

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What TRIZ Is

TRIZ-Russian Acronym for 'Theory of Inventive Problem Solving'

A suite of tools to increase the chances of solving problems creatively

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Problems with Problems

- Agreeing with what is wrong

- Agreeing on the problem description

- Agreeing on direction of solutions

- Finding a new solution (Going beyond experience)

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First Pass at Problem Identification

- Operational Definitions-make sure everyone is speaking the same language

- Reduce problems to their essence- eat the elephant one bite at a time

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What TRIZ Does-I

- Uses different approaches for different complexity of problems

- States an ideal situation

- Looks for patterns

- Describe problems by reducing to "An actor performing an action on an object."

- Zoom in and zoom out

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What TRIZ Does-II

- Break problem into contradictions

- Apply separation principles to look for answers

- Look to current resources for solutions

- Uses Complex protocols like the ARIZs to solve complex problems

TRIZ Quick Solution
(Low Levels only)

1. Identify the Customer

2. Identify the Value/Cost elements (aka: Idealized Final Result-IFR) from the customer perspective

3. List functions that affect the V/C elements

4. Use Matrix to suggest solution possibilities

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TRIZ Problem Format

- Frame the problem-solution independent, language driven

- Restate problem as a contradiction

- List available resources

- Describe Ideal Final Result (IFR)

- Solutions should approach IFR using current resources, solving the contradiction

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Idealized Final Result (IFR)

- Described as all Benefit and no Harmful Effect

- Compare to finance (Value/Cost) ratio

- IFR would be all Value with no Cost

- Values and Costs can be further broken down to Cost, Quality, Schedule or Trust elements

TRIZ-like Matrix for Transactional Business

- Matrix-Used to solve defined contradictions

    Suggests solutions when the Dilemma is defined

- Dilemma-Compares the feature that gets worse when another feature gets better

    In traditional TRIZ compared physical features
    In Transactional TRIZ compares Value/Cost features

- Transactional TRIZ-Compares Cost, Quality, Schedule and Trust (Risk)

    Uses subsets of these four to result in 21 Transactional features

    Uses Altshuller's 40 solutions unedited

Table of Transactional Dilemmas and Solutions Strategic Level-Generalized Matrix-Layout

		Features that get worse				
		Cost	Quality (Dis-satisfier)	Quality (Satisfier)	Schedule	Trust
Features That get	Cost	X				
	Quality (Dis-satisfier)		X			
	Quality (Satisfier)			X		
	Schedule				X	
	Trust					X

Sample of Table of Transactional Dilemmas and Solutions Strategic Level-Generalized Matrix

		Features that get worse		
		Cost	Quality (Dis-satisfier)	
Features that get	Cost	X	Reverse cost-cutting	
	Quality (Dis-satisfier)	Find COPQ to offset	X	
	Quality (Satisfier)	Raise price; look for waste	Find offset; reverse trades	