TRIZ Usage Day-to-Day
Overview and Exercise
2008

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Systematic Technology and Business Innovation

TRIZ Activities

- Engineering Program Manager - Intel
  - TRIZ Projects
    - Technical and Business
  - TRIZ Program Development
    - Organization Integration
    - Program Integration (ex. TRIZ and Lean)
  - TRIZ Training
  - Competitive Analysis

- Executive Committee Member - Altshuller Institute for TRIZ Studies

- Consultant – Innomation Corp

Agenda/Overview

1. Communicate 2008 *Organization* TRIZ Usage Objective

2. Summarize Process Towards Achieving Objective

3. Discuss TRIZ Usage Techniques Currently Employed within the *Organization*

4. Capture Focused Brainstorming While Demonstrating One Technique - Drive by Consulting

1. Communicate 2008 *Organizational* TRIZ Usage Objective

- ## Improve utilization of TRIZ

  - Quantitative – how many people are utilizing the tools?

  - Qualitative – how well are the tools being used?

  - Blending – are we using TRIZ effectively in conjunction with other methods?
    - Lean, HPM, 6 Sigma

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Summarize Process Towards Achieving Objective

- Understand where we are:
  - Customer services (i.e., *organization* process engineers)
  - TRIZ practitioner support (support of our L1,2,and 3 practitioners)
  - TRIZ consulting (support of our L1, 2 and 3 consultants)
  - Management Support (does Management support the TRIZ program?)
- Mapping – gather input data
  - Focused brain storming – within this exercise and other
  - Survey – during conference and later of the entire organization's TRIZ population
  - Perception Mapping – business process CEC/9 Screens (TBD)
- Create program profile – organize and understand data
- Program redirection – make program direction decisions
- Implementation – execute any program changes
- Follow-up – did we make the right moves?

Survey

- ## Need all TRIZ trained (all levels) employees to complete the survey (33 questions)

- ## Token of Appreciation for Completed Surveys

Utilization of TRIZ Survey - Rev 5

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Instructions: check and annotate as applicable

a.) If you are trained at the Basic level - 1 (or below) please complete sections **Demographics, General, and Basic Level -**

b.) If you are trained at the Advanced level - 2 please complete sections **Demographics, General, Basic Level - 1, and Advanced Level - 2**

c.) If you are trained at the Expert level - 3 please complete sections **Demographics, General, Basic Level - 1, Advanced Level - 2, and Expert Level - 3**

Thank you for your time in improving *Org.* **utilization of the TRIZ methodology**

Demographics (all TRIZ trainees)

1 What is your highest level of education completed?
(check one box only)

- ☐ High School
- ☐ Technical/Vocational School
- ☐ Undergraduate
- ☐ Graduate
- ☐ Post Graduate

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Discuss TRIZ Usage Techniques Currently Employed in the *Organization*

Consulting Techniques	Methodology Owner	Problem Owner	"Sales" method
Walk-in consulting hours	C	T, B, c	advertising
Consultant owns problem	C	C	self selected
Consultant owns methodology	C	T, B	dept task
TRIZ class consultation	c	c	mandatory
User Group consulting	c	c	selective advertising
Drive by consulting	C	T, B	word of mouth sales

Legend
C = TRIZ consultant - Senior
c = TRIZ consultant - Junior
T = technology expert
B = business process expert

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Discuss TRIZ Usage Techniques Currently Employed within the *Organization*

Technique vs. TRIZ Program Issues

Methodology Problem Addressed	Consulting Technique					
	Walk-in consulting hours	Consultant owns problem	Consultant owns methodology	TRIZ class consultation	User Group consulting	Drive by consulting
Tech/Business owners do not know TRIZ	✓		✓			✓
Eroding TRIZ skills	✓	✓	✓	✓	✓	✓
Need focused brainstorming	✓					✓
Little problem solving time	✓			✓		✓
Consultant skills not growing enough		✓	✓			
Need to expose TRIZ to population	✓					✓
Tech/Business owner does not know TRIZ	✓		✓			✓
Tech/Business knowledge needs transferring	✓		✓			✓
TRIZ not know in organization	✓		✓			✓

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Focused Brain Storming

Want TRIZ to be ubiquitous and easy yet it takes knowledge and skills to execute

Focused Brain Storming

TRIZ Utilization Contradiction Analysis			9	22	25	36
	Worsening:		Speed	Loss of Energy	Loss of Time	Device Complexity
	Improving:					
27	Reliability		21, 35, 11, 28	10, 11, 35	10, 30, 4	13, 35, 1
33	Ease of Operation		18, 13, 34	2, 19, 13	4, 28, 10, 34	32, 26, 12, 17
35	Adaptability or Versatility		35, 10, 14	18, 15, 1	6, 29	15, 29, 37, 28
39	Productivity			28, 10, 29, 35		12, 17, 28, 24

Principle	Hits	Principle	Hits	Principle	Hits	Principle	Hits
35	5	18	2	1	2	21	1
28	5	17	2	37	1	19	1
10	5	15	2	32	1	14	1
29	3	12	2	30	1	6	1
13	3	11	2	26	1	2	1
34	2	4	2	24	1		

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Focused Brain Storming

TRIZ Utilization Contradiction Analysis

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35	Adaptability or Versatility	35, 10, 14	18, 15, 1	6, 29	15, 29, 37, 28
39	Productivity		28, 10, 29, 35		12, 17, 28, 24

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10	5	15	2	32	1	14	1
29	3	12	2	30	1	6	1
13	3	11	2	26	1	2	1
34	2	4	2	24	1		

Focused Brain Storming

Principle 35. Parameter Changes

A. *Change an object's physical state (e.g. to a gas, liquid, or solid).*
      Virtual prototyping
      Numerical simulation
      Virtual shopping - e.g. Amazon.com
      Telephone banking
      Electronic voting in elections

B. *Change the concentration or consistency.*
      'Six Thinking Hats' (33)
      'Six Action Shoes' (35)
      Change the team structure (e.g. football teams use substitutes)
      Stores introduce 'special offers' and other promotions

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Focused Brain Storming

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Focused Brain Storming

Change the team structure (e.g. football teams use substitutes)

Ideation – use temporary TRIZ team that is neither customer department based nor TRIZ department based but rather temporarily ("substitutes") charged to headcount of customer's department (IT Flex model)

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Focused Brain Storming

- Open discussion
  - What problem(s) are we trying to solve?
    - Want TRIZ to be ubiquitous and easy yet it takes knowledge and skills to execute
    - Others?
  - "New" solutions

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Comments or Questions?

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Back-up

- Consulting Techniques Pros and Cons

Dedicate Consultation Time

- Consultant available during regularly scheduled time slots and at predetermined locations
- Consults to trained and untrained tech owners
- Pros
  - Convenient to "customers"
  - Provides 1:1 learning/sharing
  - Can help with problem solving inertia
  - Great learning for consultants
  - Provides some TRIZ advertising opportunities
  - Supports a wide variety of customers and problem categories
- Cons
  - Wastes a lot of consultants time (slots generally not filled)
  - Better suited to arms length consulting which can slow progress and/or disfavor non-TRIZ trained customers
  - Requires dedicated time from consultants

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TRIZ Consultant Owns Analysis of Specific Issue

- Consultant owns problems
- Utilizes technical experts for support
- Pros:
  - Great Usage of TRIZ methodology
  - Consultant skill levels grows
  - Can work with non-TRIZ tech owners
- Cons:
  - Can take time to absorb technical knowledge necessary to complete exercises (functional model, CEC, etc.)
  - Tech owns can feel like they do not own solution
  - Tech owners do not learn as much about TRIZ as they could

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TRIZ Consultant Assists w/ Analysis of Specific Issue

- Tech experts own problem
- Utilizes TRIZ consultant for methodology support
- Pros:
  - Problem modeling quickly absorbs correct technical detail
  - Tech owners skill levels grows
- Cons:
  - Requires that tech owners have TRIZ skills
  - Can take time to apply TRIZ methodology (i.e., team problem execution during TREIZ training – can be slow and painful)
  - TRIZ consultant does not feel ownership of problem
  - TRIZ consultants do not grow as much in their execution of methodology

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TRIZ Class Consulting

- Tech experts own problem
- Utilizes TRIZ consultant for methodology support
- Pros
  - Dedicated consulting time
  - Provides 1:1 learning/sharing
  - Can help with problem solving inertia
  - Great learning for consultants
  - Tech owners have TRIZ Skills
- Cons:
  - Continued consultation may not be available after the class
  - TRIZ consultant does not feel ownership of problem
  - TRIZ consultants do not grow as much in their execution of methodology

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Individual Tool Consulting

- TESE – worked well with IT Innovation Forum in generating new and improved product ideas

- Contradiction Matrix – generated engineering contradictions based on short consult with Auto group and generated valuable 40 Principals list

- Nine Screens – quick and effective business process analysis with HR

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Users Groups

- Pros
  - Gathering of TRIZ trained folks
  - Could be dedicated work time

- Cons
  - VF users groups – fell away quickly
  - Informal "local" users group – hit and miss
  - Momentum problems likely due to lack of objectives

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