Module 3: Ideate – Breaking Cognitive Fixedness and Generating Ideas

Srikant M Datar
SIT: Tools & Principles for “Breaking Fixedness”

- Functional
- Structural
- Relational
- Closed World

SIT | Function Follows Form

**EXISTING SITUATION**
- Manipulation (thinking tools)
- Virtual Product

**FORM**

**FUNCTION**
- Identify benefits, advantages, markets
- Identify challenges
- Adaptations

**IDEA**

Marketing Filter
Feasibility Filter
**Task Unification**—Assigning a new task to an existing resource.

**Multiplication**—Adding copies of a component that is different from the original in some way (Qualitative Change)

**Division**—Dividing a product or process into its component parts in order to reconfigure the parts in different ways.

**Subtraction**—Improving a product by removing essential features or attributes.

**Attribute Dependency**—Creating or removing dependencies between external factors and internal attributes.

Source: SIT, 2012
Creative Problem Solving
Two Mindsets for Innovation

Creative Problem Solving
Solving a problem without defining it

- Problem that is difficult to define
- So many ways of looking at it
- Clear vision of the end point
- Want to find best way to reach it

Function Follows Form (FFF)
Change the form, then explore the potential functionalities

- A clear starting point (product, process, service)
- Curious about what the future could hold it
- Who know what potential evolutions could emerge?
- Want to explore

Source: SIT, 2012
Cognitive Fixedness

Cognitive Fixedness is a state of mind in which an object or situation is perceived in one specific way, to the exclusion of any alternative.

This phenomenon is efficient and extremely common because it allows one to perceive, recognize, and interact with familiar objects and situations based on past experience. But its price is a limitation of our ability to break free from our routine habits and to arrive at innovative solutions.

Source: SIT, 2012
Shortening the Creative Leap

**Phase 1**
Creating a coherent and detailed “Problem Story”

**Phase 2**
Applying SIT Tools to break fixedness & generate solutions

Source: SIT, 2012
UDPs and Qualitative Change
Choose a random UDP to start the chain.

Ask “So what?” and “Why?” from the perspective of the “Problem Owner.”

Each sentence presents only one UDP.

UDP’s are facts, sentences you don’t need to argue about.

There must be a cause and effect relationship between the UDP’s.

Make sure there isn’t a big gap between each pair of UDP’s.

Source: SIT, 2012
My Chain Of Undesired Phenomena
SIT for Creative Problem Solving

10
9
8
7
6
5
4
3
2
1

Source: SIT, 2012
“The Problem Story”: The Existing Situation

The MORE pressure is put on the barrier the MORE likely it is to collapse.

Source: SIT, 2012
“The Problem Story”: Qualitative Change!!

The MORE pressure is put on the barrier the LESS likely it is to collapse.

Source: SIT, 2012
Breaking the Chain with Qualitative Change

Existing Situation

Reverse

Neutralize

Source: SIT, 2012
“The Problem Story”
What function are we looking for?

**Undesired:** People gather near the barrier
**Desired:** People will not gather near the barrier

<table>
<thead>
<tr>
<th>Problem Components</th>
<th>Environmental Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Things that create, transfer or are the victims of, the UDP</td>
<td>Things that are found in the problems locale. They do not directly take part in the UDP.</td>
</tr>
</tbody>
</table>

Source: SIT, 2012
Assigning a new function to an existing component in our closed world. How can component X provide the desired action Y?

Source: SIT, 2012
Three Types of Solutions

- **Type I**: Qualitative Change
- **Type II**: Closed World
- **Type III**: Solution Cost ($)

Source: SIT, 2012