If you want to change how people think, give them a tool the use of which will lead them to think differently.

—Buckminster Fuller (1976)
Critical thinking means you **ask the right questions**; systems thinking means you **see the big picture**. If you do that, you will have a set of skills that transcends any particular set of technical skills, which may or may not become obsolete.

—Michael Hammer, 1997
The Evaporating Cloud

Diagram:
- Objective
- Requirement #1
- Prerequisite #1
- Requirement #2
- Prerequisite #2

(Conflict)
The problem...
The *Easy* Part...
The More Difficult Part...
A little history...
The Original Thinking Process Concept

The Logical Thinking Process

- Current Reality Tree identifies the underlying problem
- Evaporating Cloud resolves conflict associated with change
- Future Reality Tree tests proposed solution
- Pre requisite Tree overcomes implementation obstacles
- Transition Tree prescribes step-by-step implementation
- Prerequisite Tree (resolving implementation obstacles)

The Original Reality Tree Concept

Current Reality Tree (problem identification)

- UDE
- UDE

Evaporating Cloud (conflict resolution)

- INJ
- CP

Future Reality Tree (proof of solution concept)

- DE
- DE

Legend:

- UDE = Un实际控制 Effect
- CP = Core Problem
- INJ = Injection
- DE = Desired Effect
- OBS = Obstacle
- IO = Intermediate Objective
Second-Generation TP Concept
To repeat what others have said requires education; to challenge it requires brains.

—Mary Pettibone Poole, 1938

A Glass Eye at a Keyhole
New approach to solution...
Underlying Assumption

Absence of a well-defined target... like shooting in the dark!

“If you don’t care where you’re going, then any path will do.”
Intermediate Objectives (IO) Map

Critical Success Factor

Supporting Necessary Condition

GOAL

CSF#1

CSF#2

CSF#3

CSF#4

NC

NC

NC

NC

NC

NC

NC

NC
A Benchmark
Challenge:

Evaporating Cloud always relevant to a system’s goal
How it works...
Create an IO Map

Goal

Critical Success Factors

Necessary Conditions
“Go deep!”

Intermediate Objectives (IO) Map
Start your Evaporating Cloud

Diagram:

Objective

Requirement #1

Prerequisite #1

Do THIS

(Conflict)

DON'T do this (or do THAT)

Prerequisite #2

Requirement #2
Relate EC elements to IO Map

Intermediate Objectives (IO) Map

Do THIS

CSF

Goal

CSF

DON'T do THIS
Conflict within a single branch
Conflict at a lower level
The key...find a convergence point
Example...

Objective

Requirement #1

Prerequisite #1

???

Spend money on new product development

DON’T exceed the budget

Requirement #2

Prerequisite #2
Example (cont’d)

Intermediate Objectives Map

**GOAL**
Make more money, now and in the future.

- Marginal contribution maximized
- Costs controlled
- Inventory minimized

Relations:
- Marginal contribution maximized → Costs controlled
- Costs controlled → Inventory minimized
- World-class product development

Key objectives:
- Effective budget control
- Efficient production operations
- Robust sales operation
- Robust marketing program
- Attractive price point
- Superior customer service
- Desirable products
- Superior product quality
- W-4-P minimized
- Robust end-to-end supply chain management
- Raw material inventory minimized
- Finished goods inventory minimized
- Minimize scrap and rework
- Robust continuous improvement
- Optimize fixed costs
- Optimize variable costs
In summary...

- Establish a “benchmark”
- Articulate the conflict
- Find the appropriate IO Map branches
- Go upward to a convergence point
Q & A...?
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