The 7th TRIZ Symposium in Japan
Held by Japan TRIZ Society, NPO
Special Interest Lecture

USIT: A New Paradigm for Creative Problem Solving -- Its Concept and usage --

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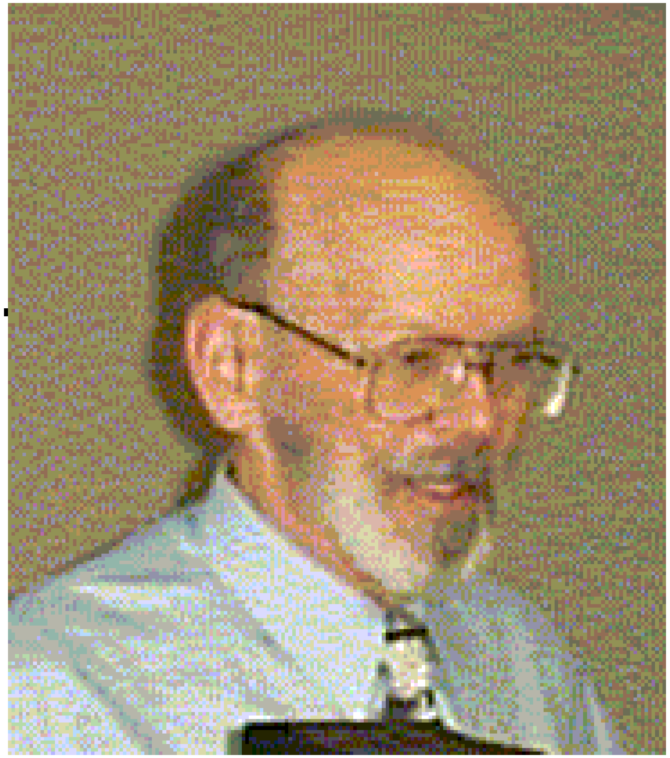
USIT (Unified Structured Inventive Thinking)

In 1995 Ed Sickafus developed USIT at Ford.

As its basis he introduced Israeli SIT,
i.e., a much simplified version of TRIZ.



On his basis as an experimental physicist,
he built up solid concepts and frameworks.

He created a well-defined thining process for
problem solving.

He trained about 1000 engineers and
promoted its application projects in Ford.

Since 1999, Toru Nakagawa introduced USIT
into Japan, and extended it further as
a simplified, unified, new generation of TRIZ.

Ed Sickafus
(USA)

Nakagawa's Recommendations:
(Positioning USIT and TRIZ)

Today, (Technical) Innovation is crutial for industries.

We need concepts and methods for Creative Problem Solving.

- **From TRIZ, we learn philosophy and knowlede bases.**
  TRIZ has deep philosophy and systematic way of structuring/ applying knowledge.
  -- It may take a long time to learn, but useful as a background.

- **From USIT, we learn how to think (or thinking process).**
  USIT is a clear, practical process for thinking.
  Useful everywhere, every time.
  -- We can lean it much more easily through case studies and actual usage.

Apply USIT/TRIZ to your real problems, and get your results!

Outline of the Lecture

[1] From TRIZ to USIT

[2] A Simple Case Study of USIT

[3] The Whole Process of Problem Solving with USIT

[4] Understanding USIT as a 'New Paradigm'
for Creative Problem Solving: 'Six-Box Scheme of USIT'.

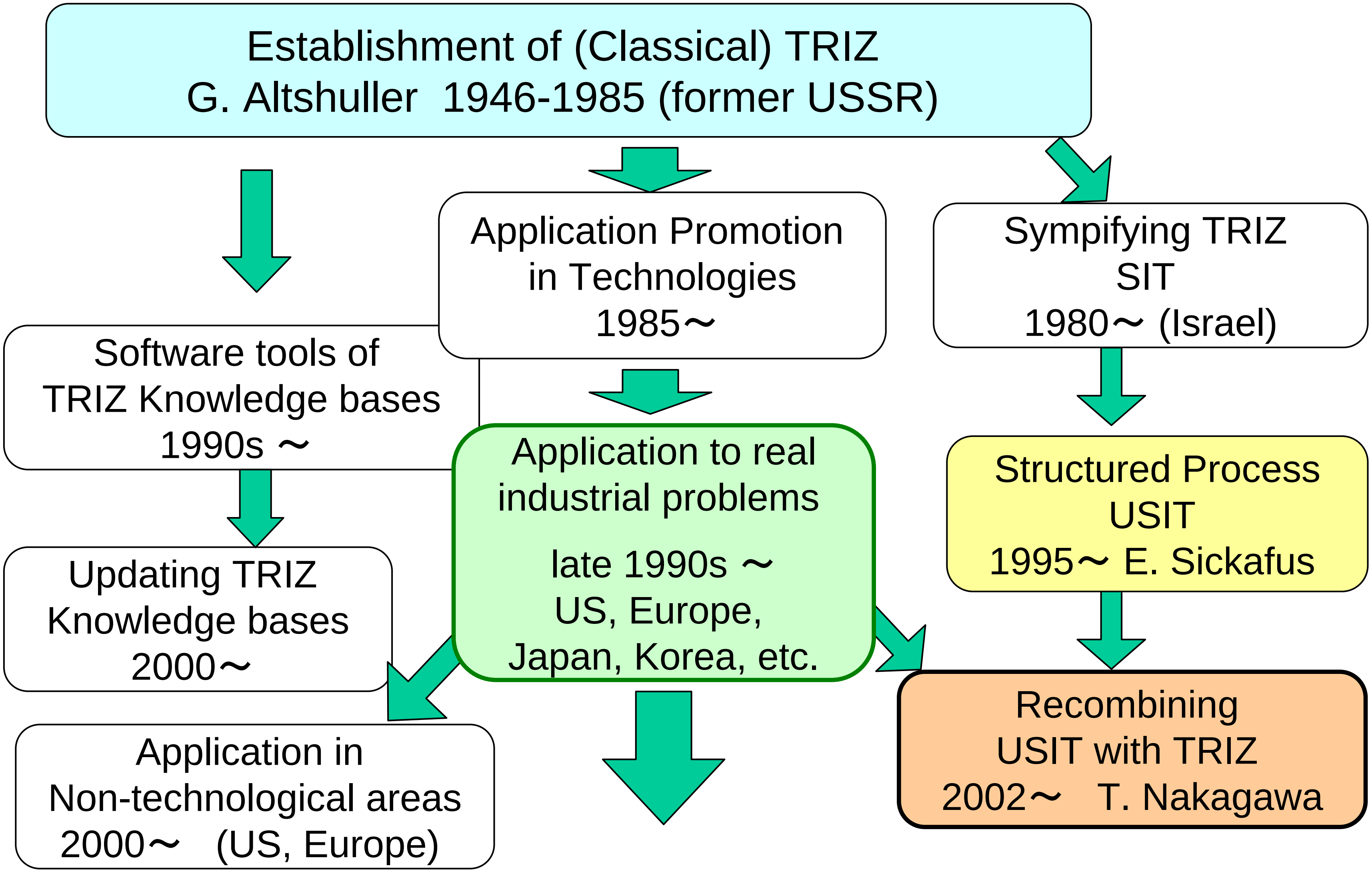
[5] For Practices of USIT

Ref. Information Sources of USIT/TRIZ

[Appendix] Conventional TRIZ Paradigm vs. New USIT Paradigm.

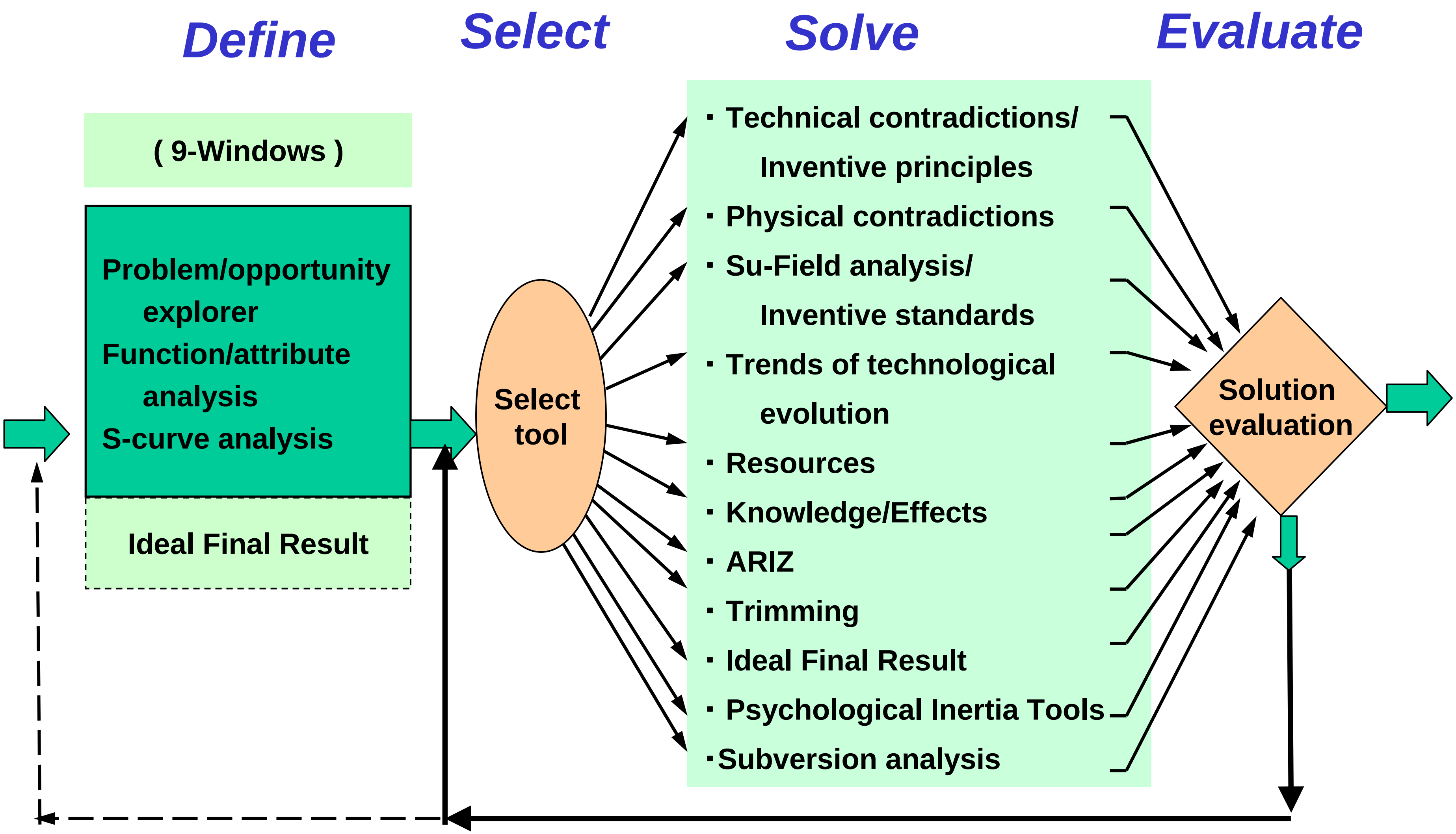
[1] From TRIZ to USIT

Overview of TRIZ (and USIT) World History



Overall Procedure in TRIZ

Darrell Mann's "HOSI" (2002)



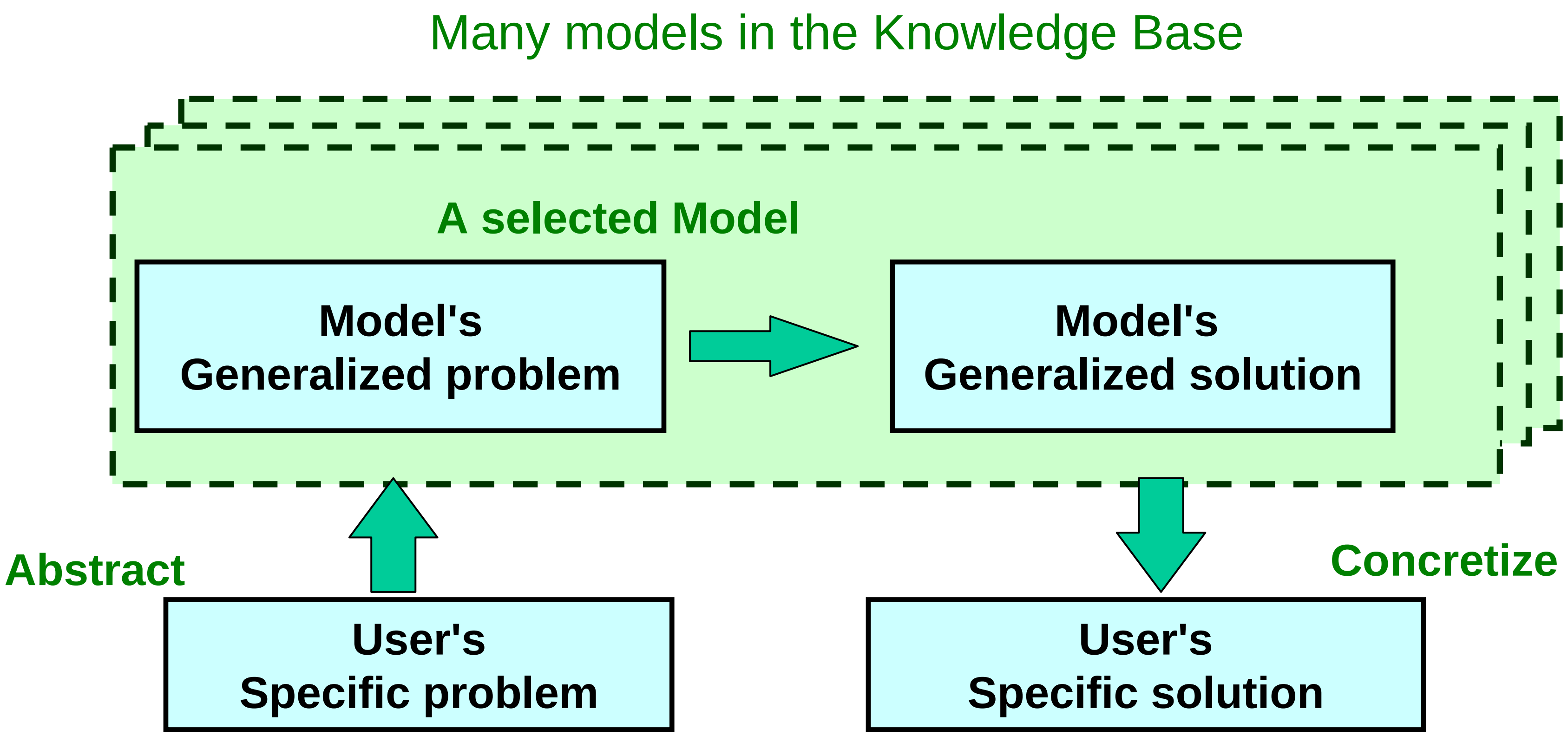
You may learn one by one as you need. (Mann)

We need a simpler and straightforward method. (Nakagawa)

Basic scheme for Problem Solving
(Conventional: "Four-Box Scheme)

Science & Technologies (Many models, specialized in areas)

==> (Traditional) TRIZ (**Across areas**, but many separate tools)



Contents of the boxes depend on areas, models, and problems; thus cannot be described in any further terms in a general way.

TRIZ in the traditional way:

[Mann's textbook as well]

Principal Models for Solution Generation request their own analysis methods (for abstraction):

Contradiction Matrix	→	Inventive Principles
Su-Field analysis	→	Inventive Standards
ARIZ (for Phys. Contradictions)	→	Separation Principle
---	→	Trends of Evolution

Separate analysis methods provide insufficient and narrow understanding of the problem.

→ The solution process is confusing and not effective enough.
Difficulty in learning the overall process of TRIZ.

The lack of a clear overall structure in TRIZ is the root cause of the “TRIZ slow-penetration problem”.

We need to reconsider the Essence of TRIZ.

Penetration of TRIZ is slow

not because TRIZ is poor in its contents,

but because TRIZ is so rich.

Mann has made it easier to learn, but not simpler.

We should better understand the essence of TRIZ rather than handbook-type knowledges.

→ **Actually it's simple !!!**

We need a simple and practical problem solving method.

→ **That's USIT !!!**

Toru Nakagawa
at TRIZCON2001, March 25-27, 2001

Essence of TRIZ in 50 Words.

Essence of TRIZ:

Recognition that
technical systems evolve
towards the increase of ideality
by overcoming contradictions
mostly with minimal introduction of resources.

Thus, for creative problem solving,
TRIZ provides with a dialectic way of thinking,
i.e.,
to understand the problem as a system,
to make an image of the ideal solution first, and
to solve contradictions.

USIT (“Unified Structured Inventive Thinking”)

Developed by Ed Sickafus (at Ford) (1995 -)

Simplified and unified from TRIZ

Further extended in Japan (1999 -)

A clearly defined, effective process:

Define the problem,
Analyze the problem, and
Generate solutions.

Readily applicable to real industrial problems for obtaining conceptual solutions.

**** USIT does not depend on tables, handbooks, or software tools.**

Extension of USIT in Japan ---> Significance of USIT

Extension of USIT in Japan	Significance of USIT
(1) Sickafus developed USIT, and we introduced USIT into Japan. (1999 Nakagawa)	Easy-to-learn TRIZ Slow-but-Steady Strategy for promoting TRIZ in Japan.
(2) We reorganized TRIZ solution generation methods and constructed USIT Operators. (2002, Nakagawa, Kosha, Mihara)	**USIT has unified the whole body of TRIZ.** **USIT is a new generation of TRIZ.**
(3) We represented the USIT procedure in the Six-Box Scheme and realized it as a new pradigm. (2004, Nakagawa)	**No need to depend on the analogical thinking.** **A New Paradigm of Creative Problem Solving.**
(4) We have established the methods for education in university, training industrial engineers, and practical application to industrial problems	Easy-to-learn Case Studies Full traning in 2 days Steady Strategy of promoting TRIZ

[2] A Simple Case Study of USIT

T. Shimoda and T. Nakagawa (2006)

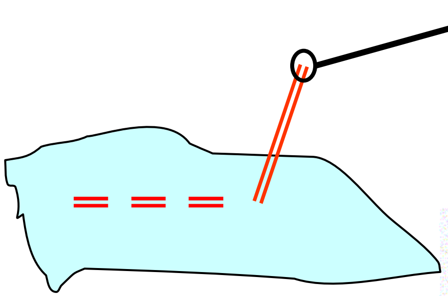
Everyday-life Case Study in USIT:
How to fix a string shorter than the needle at the end of sewing

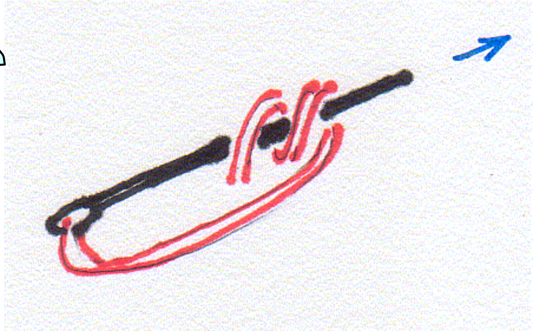
Define the Problem:

(a) Undesirable effect: The string is shorter than the needle and prohibit applying the standard way of making a knot.

(b) Task statement: Devise methods for fixing the string left shorter than the needle.

(c) Sketch:





(d) Plausible root causes:

The standard way of making a knot is applicable only when the string left is longer than the needle.

(e) Minimum set of relevant objects:

Cloths, string (already sewn), string (left), the needle

Problem Analysis (1): Understanding the present system

(1) Functional analysis: What is the function of the Needle?

A base for making a loop of the string;

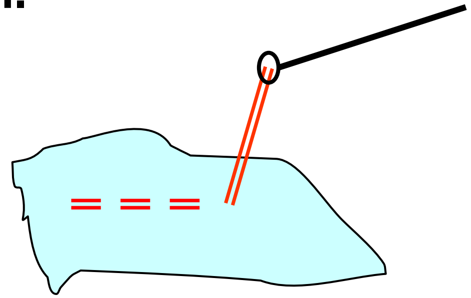
A guide for passing the end of the string through the loop

(2) Attribute analysis: Properties taken for granted form the Constraints:

The string does not expand = Its length does not change.

The needle is hard = No change in shape and length.

When any of these constraints is lifted,
there appears a novel solution.



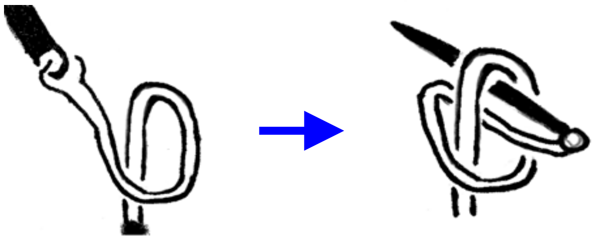
(3) Analysis of time characteristics: Processes of sewing:

Solutions at the final stage and solutions at any earlier stage.

(4) Analysis of space characteristics: A knot makes the string thick at the end.

Watch out about the topology in making a knot and in the 'hole and string' .

Several known solutions:

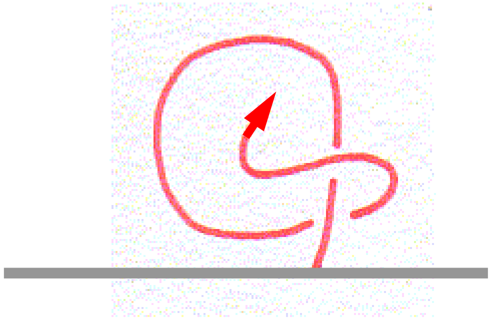


A well-known technique.
Difficult to make the loop
of string in the space;
need some practices

The hole of the needle has a slit,
thus the string can be passed and
removed without cutting the loop of
the string. (a commercial product)

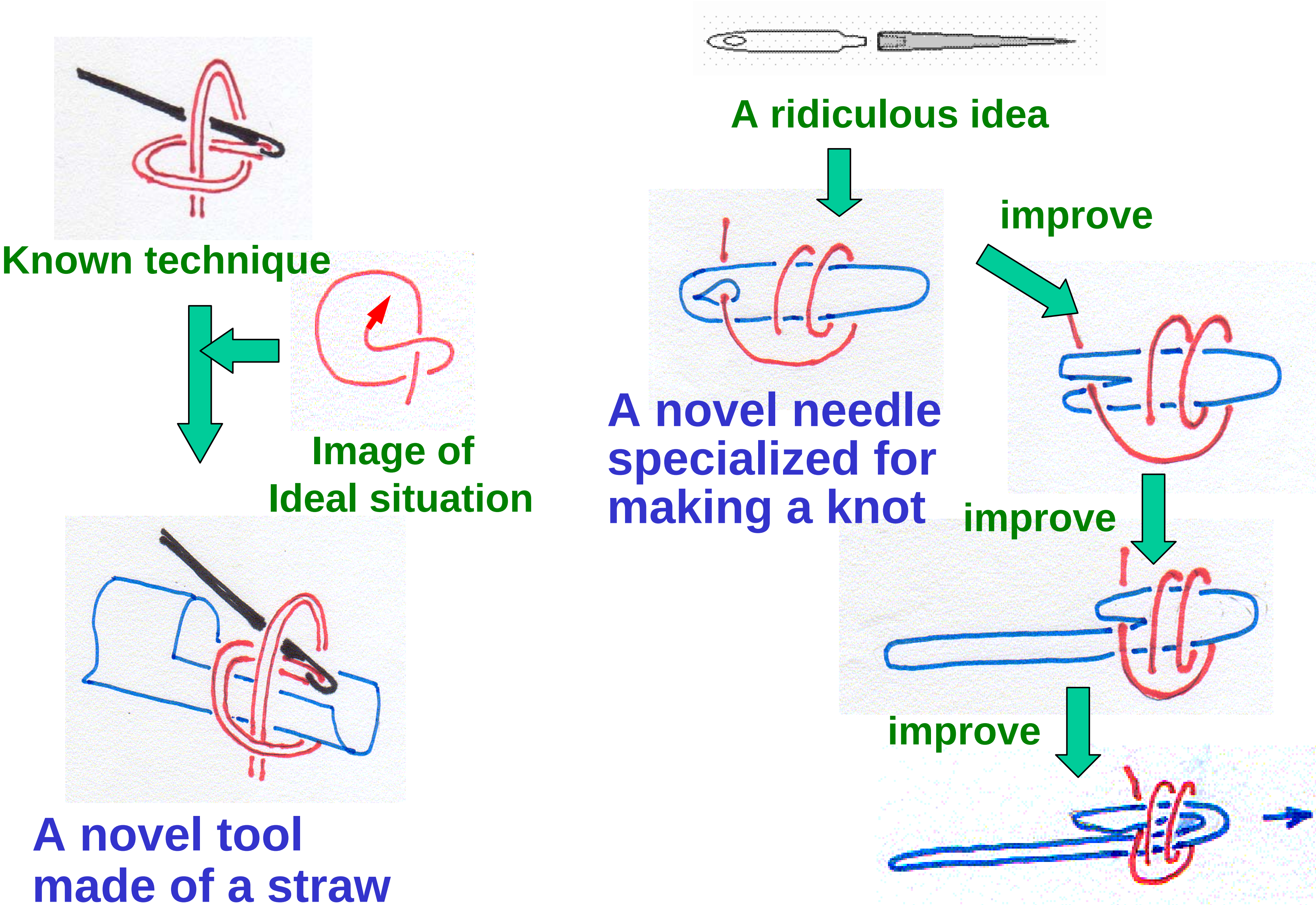
Problem Analysis (2) : Understanding the Ideal system

**Ideal arrangement of a sting in space
for making a knot**



**It should be nice if we could hold
the string in this arrangement
in the space.**

Solution Generation:
Generate Ideas and Construct Solutions



[3] The Whole Process of Problem Solving with USIT

USIT Process：

(1) Define the Problem

(2) Analyze the Problem

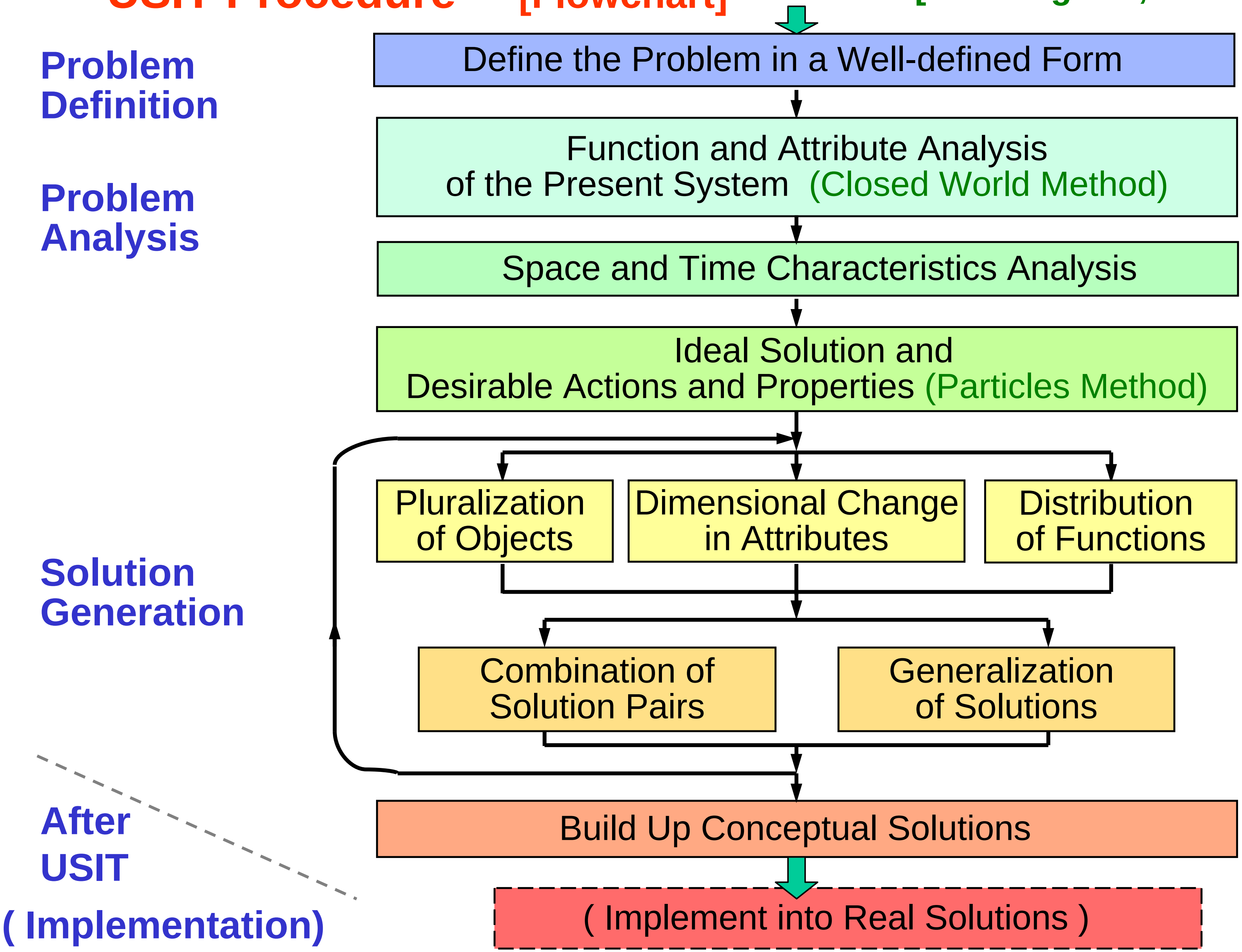
Understand the Present System

Understand the Ideal System.

(3) Generate Ideas for Solutions

USIT Procedure [Flowchart]

[T. Nakagawa, Mar. 2005]



USIT Case Study: Picture Hanging Kit Problem

Problem Definition Step: Specify a Well-Defined Problem

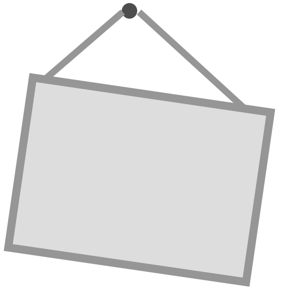
(1) An unwanted effect

The picture is apt to tilt without knowing.

(2) Probem Statement (in a line or two)

Improve the ordinary kit (with a nail, a string, and two hooks), so as not likely to tilt.

(3) Simple sketch of the problem situation



(4) Plausible root causes (multiple causes)

imbalanced frame, vibration from the wall, slip of the string at the nail.

(5) A minimum set of relevant objects

a frame, two hooks, a string, a nail, and a wall

Basic Concepts in USIT: (by Ed Sickafus)

Object: A component of the system, and an entity existing by itself and occupy a space

Attribute: Category of characteristics of Object (Note: not a value)

Function: Action between Objects, which changes or controls an attribute of the target object.

Examples and anti-examples:

Examples of Objects: A nail, a picture frame, an airplane, an electron, light (a photon), air, 'information', ...

Anti-examples of Objects: A hole, a force, heat, electric current, ...
(These do not exist by themselves.)

Examples of Attributes: Color, weight, shape, positon, reflective index, ...
(These are expressed as categories.)

Anti-examples of Attibutes: Red, 10 kg, square, ...
(These are values of Attributes.)

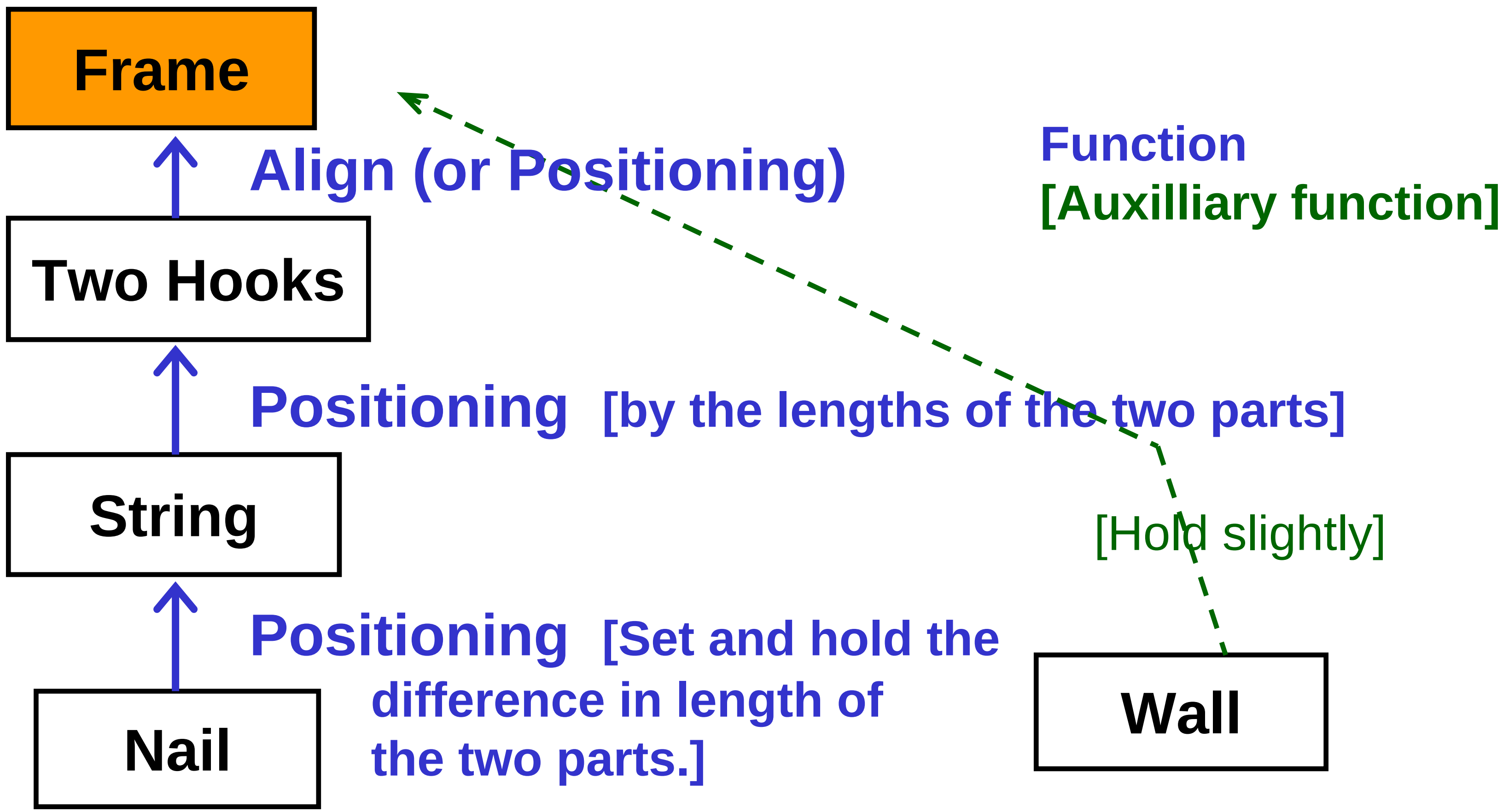
Examples of Functions: Accelerate, apply force, change color, contain, ...

Functional Analysis in USIT

Picture Hanging-Kit Problem

[T. Nakagawa Mar. 4, 2009]

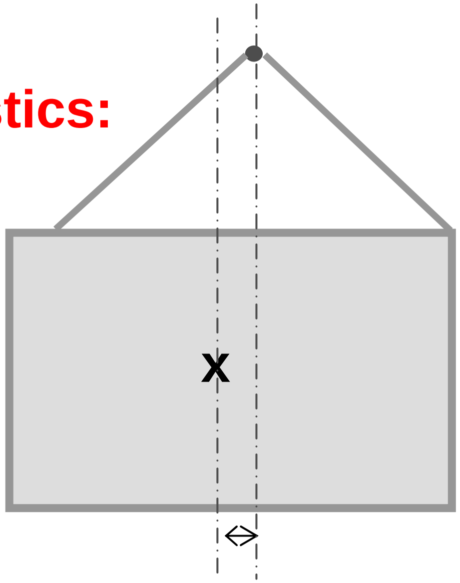
Mechanism to hold the frame untilted, in the present system



Space & Time Analysis in USIT

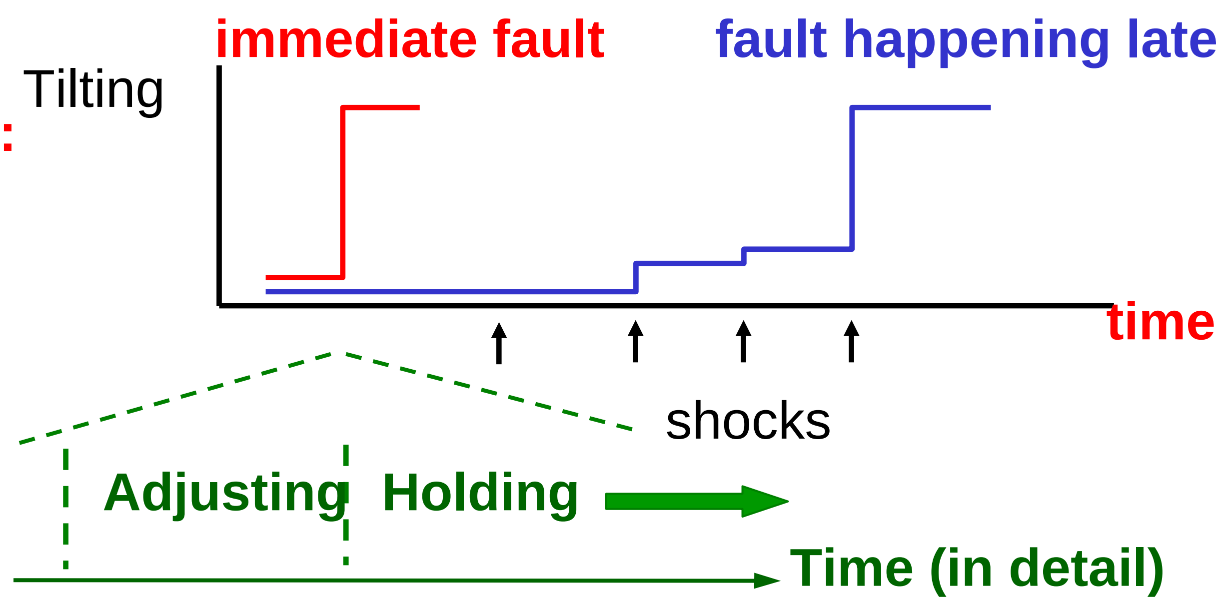
Picture Hanging Kit Problem

Space Characteristics:

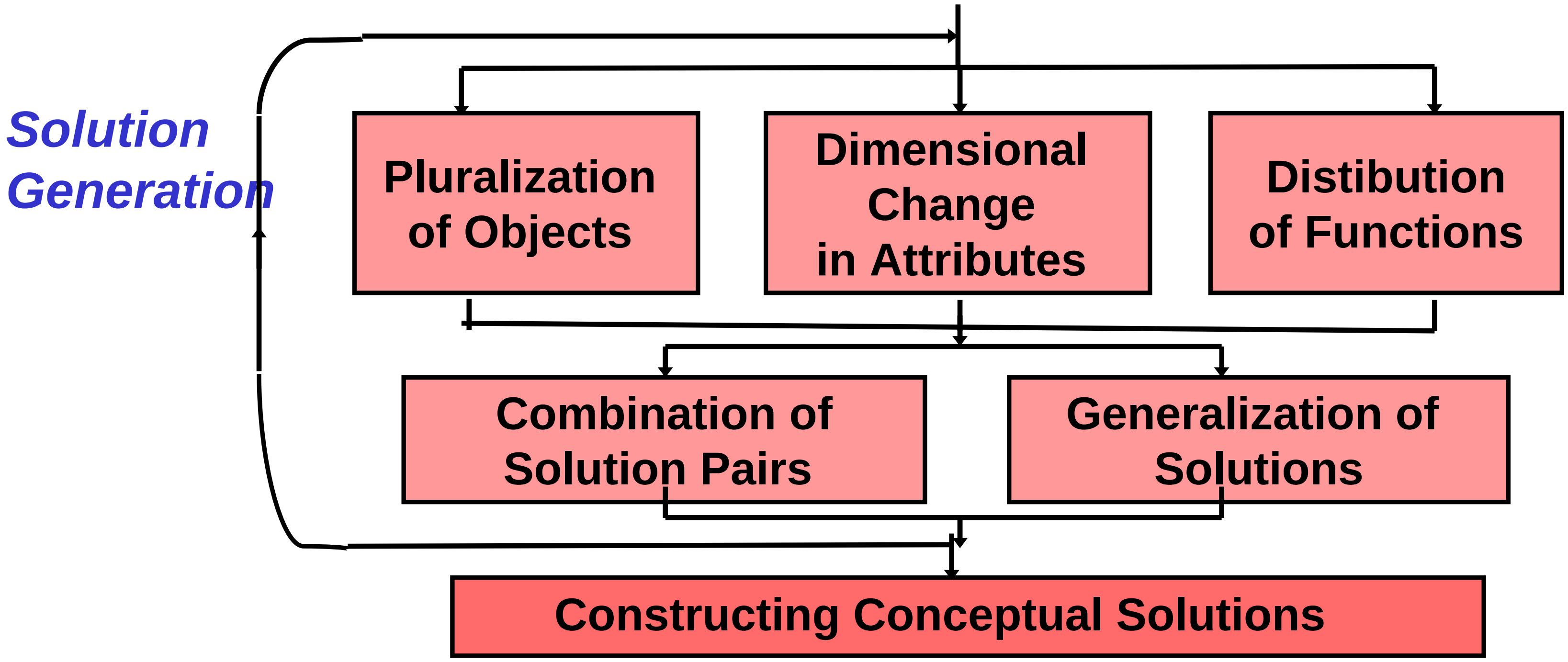


Offset of the frame's center of mass from the vertical line below the string is the main cause of the problem.

Time Characteristics:



Solution Generation Step in USIT : 'USIT Operators'



USIT Operators are applied repeatedly onto all possible operands in the system/solution space.

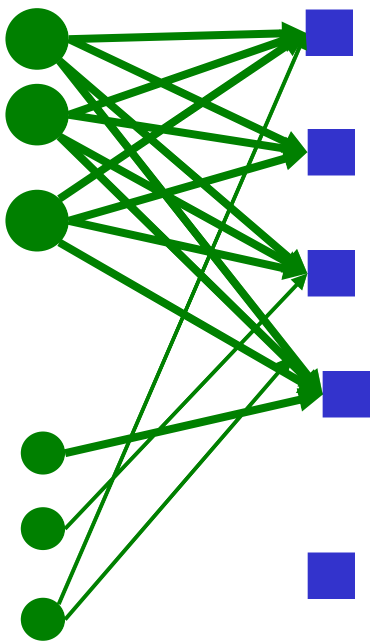
Pluralize	an Object	(into 0, 2, 3, ... ∞, 1/2, 1/3, ... 1/∞, ...)
Change	an Attribute	in terms of dimensions
Redistribute	Fuctions	onto Objects
Combine	A pair of solutions	
Generalize	A solution	

"USIT Oprators": A system of solution generaton methods

-- Obtained by re-organizing all the solution methods in TRIZ

T. Nakagawa, H. Kosha, and Y. Mihara (ETRIA 2002)

TRIZ methods for Solution Generation → **USIT Operators (5 Main-, 32 sub-methods)**

TRIZ methods		USIT Operators
40 Inventive Principles		Object Pluralization
76 Inventive Standards		Attribute Dimensionality
35 Trends of System Evolution		Function Distribution
Separation Principle		Solution Combination
Self-X Principle		Solution Generalization
Trimming		

USIT Operators are further classified in a hierarchical way.

USIT Operators

Nakagawa, Kosha, Mihara (2002)

(1) Object Pluralization Method

a. Eliminate
b. Multiply into 2, 3, ..., ∞
c. Divide into 1/2, 1/3, ..., 1/∞
d. Unify
e. Introduce or modify ⟺ KB
f. Introduce from the Environment.
g. From solid to powder/liquid/gas

(2) Attribute Dimensionality Method

a. Deactivate a harmful attribute
b. Activate a useful attribute ⟺ KB
c. Enhance a useful or suppress a harmful attribute
d. Introduce a spatial attribute or vary in space
e. Introduce a temporal attribute or vary in time
f. Change the phase or the inner-structure
g. Attributes at the micro level
h. Properties of the system as a whole

(3) Function Distribution Method

a. Reassign to a different Object
b. Divide the compound Functions and assign them separately
c. Unify multiple Functions
d. Introduce a new Function ⟺ KB
e. Vary the Function in space, use space-related Functions.
f. Vary the Function in time.
g. Detection/measurement Function.
h. Enhance adapting/coordination/control
i. With a different physical principle

(4) Solution Combination Method

a. Combine functionally
b. Combine spatially
c. Combine temporally
d. Combine structurally
e. Combine at the principle level.
f. Combine at the super-system level

(5) Solution Generalization Method

a. Generalize/specify
b. Hierarchical system of solutions

An example of USIT Operator sub-method

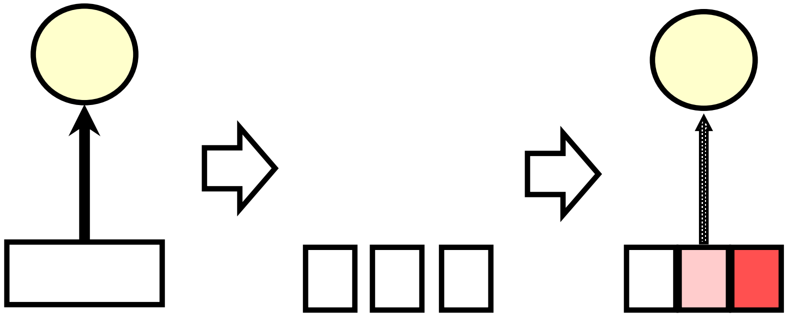
(1) Object Pluralization Method

(1c) Divide the Object (into 1/2, 1/3, ..., 1/∞).

Divide the Object into multiple parts (1/2, 1/3, ..., 1/∞), modify the parts (slightly, or differently for different parts), and combine them for using together in the system.

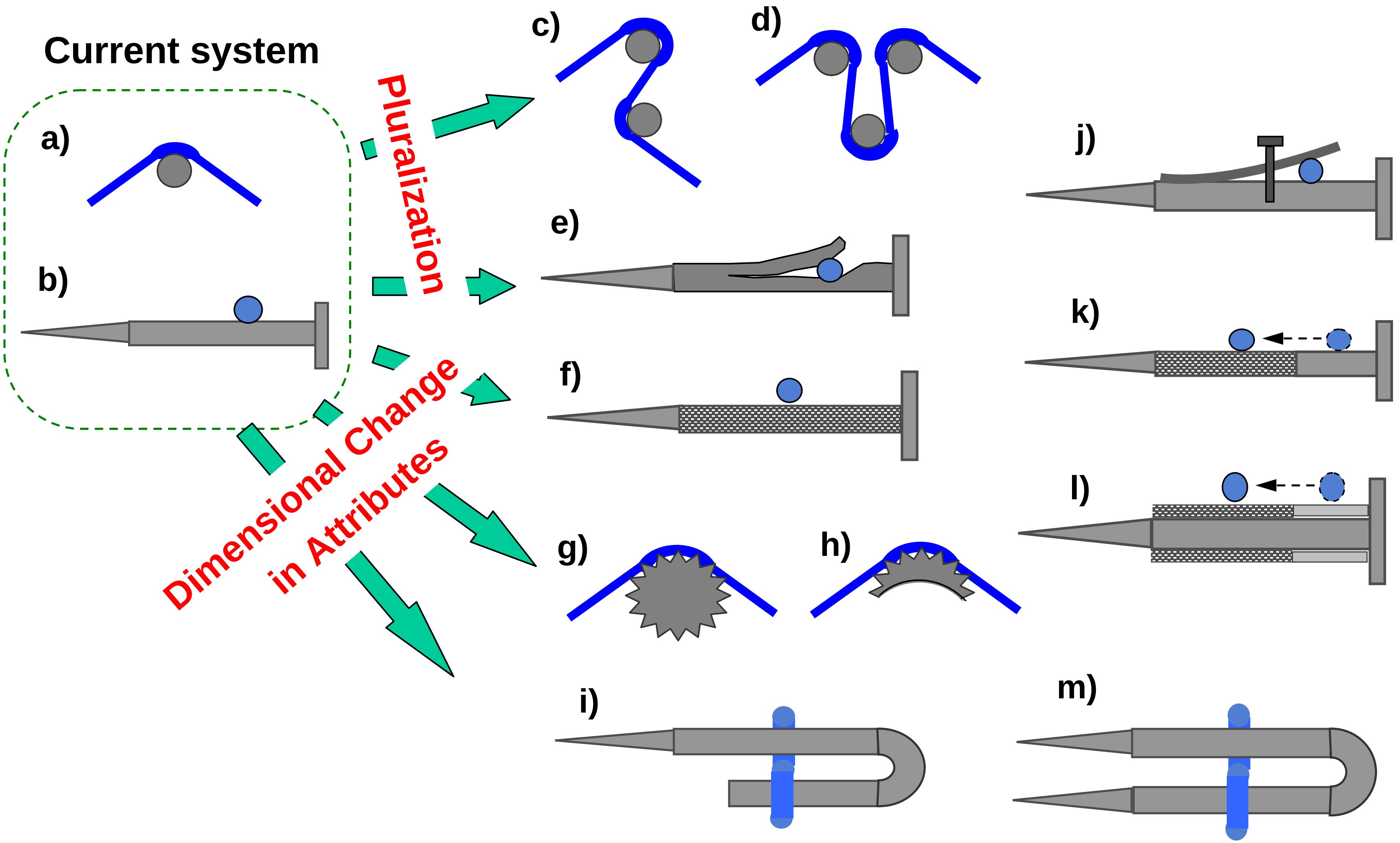
TRIZ Inventive Principles which brought this sub-method:

P1. Segmentation
P2. Taking away
P3. Local quality
P15. Dynamicity



Examples of Application of USIT Operators: (Part)

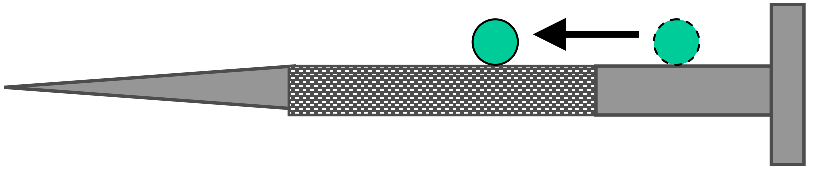
Picture Hanging Kit Problem. USIT Operators are applied to the nail.



A solution can be interpreted (or derived) in multiple ways:

A case of solution

Picture Hanging Kit Problem



(a) Object Pluralization Method

Divide the Nail Object into halves, change the smoothness of the two parts, and use them in combination.

(b) Attribute Dimensionality Method

Change the values of the Smoothness Attribute in parts of the Nail.

(c) Function Distribution Method

The Adjusting and Holding Functions of the Nail are re-assigned to different parts of the Nail.

(d) Solution Combination Method

The solution of making the Nail smooth for easier adjustment and
the solution of making the Nail rough for better holding

are combined in space by dividing the Nail.

→ are combined in time. [This interpretation of the idea is most important.]

Multiple ways of intrpretation = Redundancy in USIT Operators for making the solution generation easier.

'Separation Principle for Solving Contradictions' in TRIZ

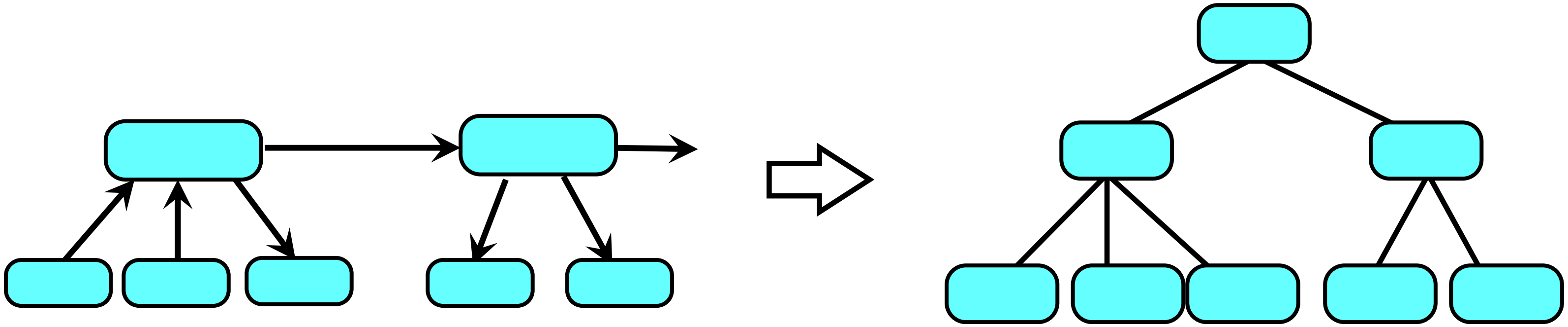
==> 'Solution Combination Method' in USIT

(4) Solution Combination Method

Combine multiple solutions (or multiple elements of solutions)
in various ways
(such as functionally, spatially, temporally,
structurally, at the principle level, etc.)
so as to form a new solution
which enhances the strong points,
complements the drawbacks, and
overcomes the contradictions.
Also solve the problem
by transferring to the super-system level.

(5) Solution Generalization Method in USIT

Represent a solution in a more general way,
form a solution template, and
obtain concepts of solutions
in the associative manner.
Also generate a hierarchical system of solutions.



USIT (i.e., a simple and unified TRIZ)
analyzes any problem in a standard process and
generates solutions systematically and comprehensively.

How to learn/apply USIT Solution Generation Methods

-- It takes time to master them.
They contain the essence of all the methods in TRIZ.

(A) Understand the meaning of each sub-Operator.

- Read/learn texts of solution generation merhods (in USIT and in TRIZ).
- Learn various examples of application.
- Interpret for yourself any solution in terms of USIT operators. -- This is effective!

(B) Realize which (sub-)Operators are effective in various situations

- Basically any sub-Operator is useful. Do not bother too much in selection.
- Analysis of the problem often guides you naturally to some sub-Operators.
- There are several frequently-used sub-Operators. You can learn them soon.

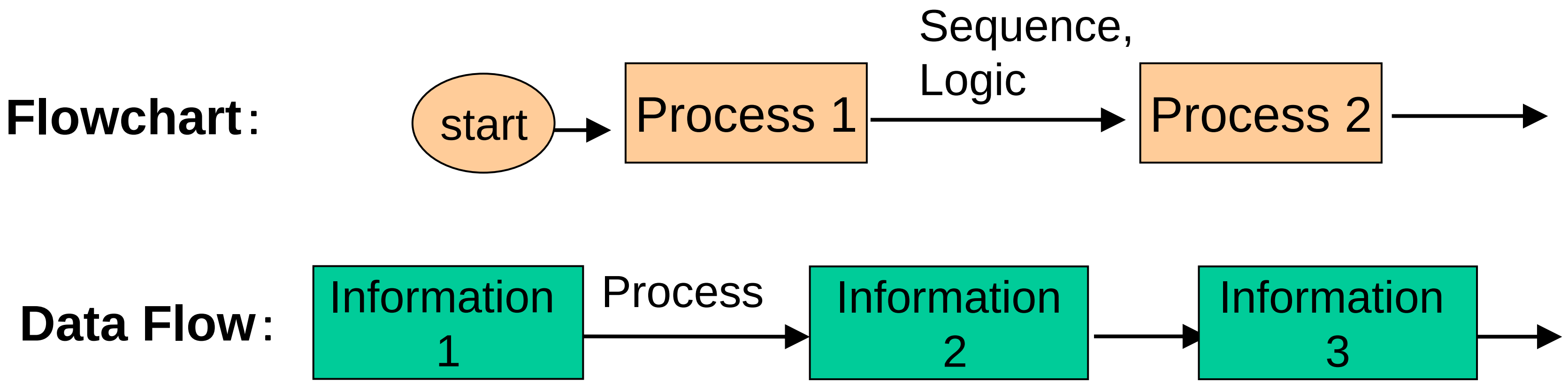
(C) Master the secrets of applying each sub-Operator to real problems.

- Apply the sub-Operator onto the target anyway, and then think of its good usage.
- Apply it not in conventional ways but in its essential, principle-based ways.
- Application methods may never be unique. Think differently and flexibly.

[4] Understanding USIT as a 'New Paradigm' for Creative Problem Solving: 'Six-Box Scheme of USIT'.

We repesented the USIT procedure in Data Flow Diagram.

(T. Nakagawa, Sept. 2004)



Facts well known in computer science:

Data Flow describes the in/out and intermediary information as requirements.

There may be different methods (How) for achieving such requirements (What).

Flowcharts try to describe the means (How) to perform.

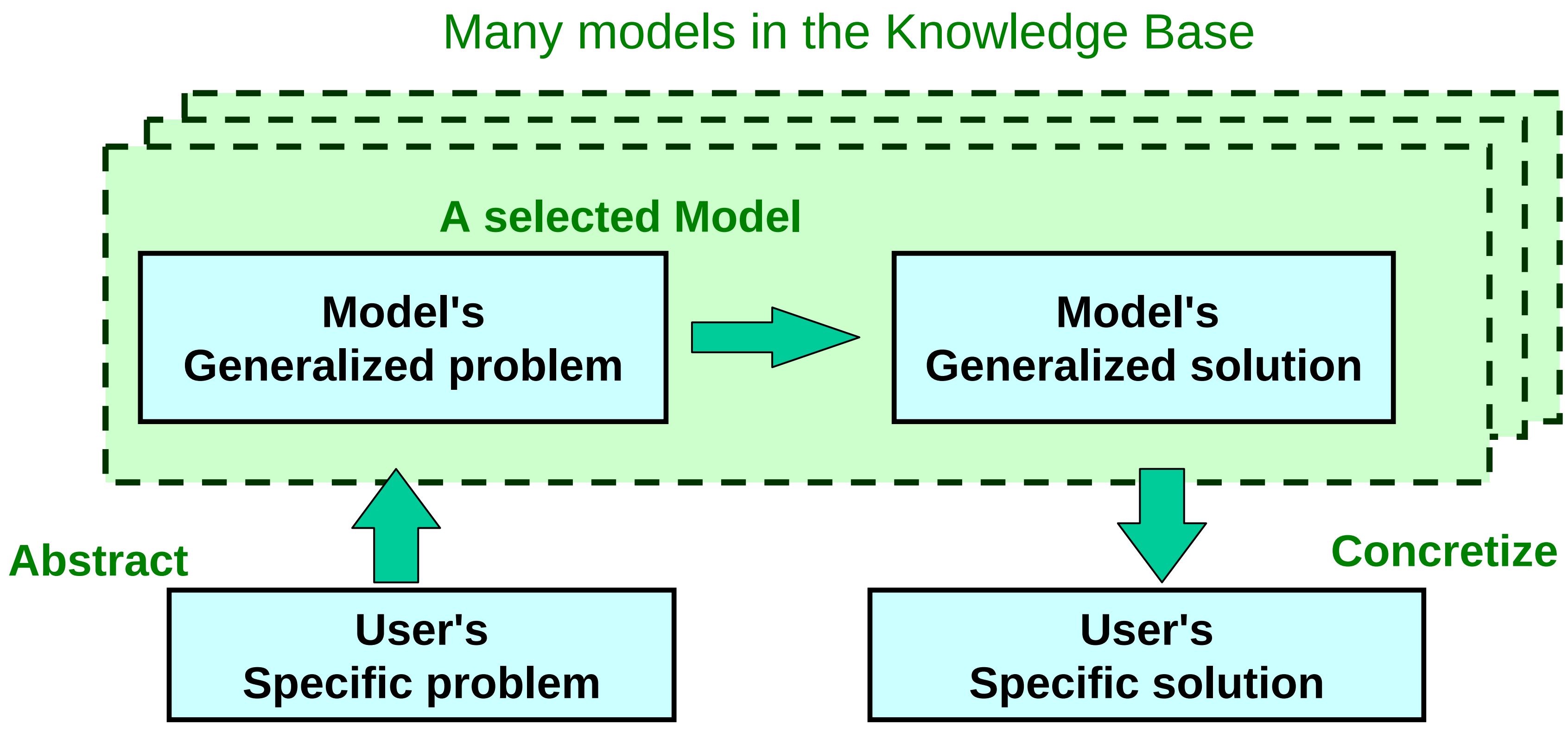
The information to be handled are implicit, not specified explicitly.

Data Flow representations are more basic and stable than the Flowcharts.

Basic scheme for Problem Solving
(Conventional: "Four-Box Scheme)

Science & Technologies (Many models, specialized in areas)

==> (Traditional) TRIZ (**Across areas**, but many separate tools)

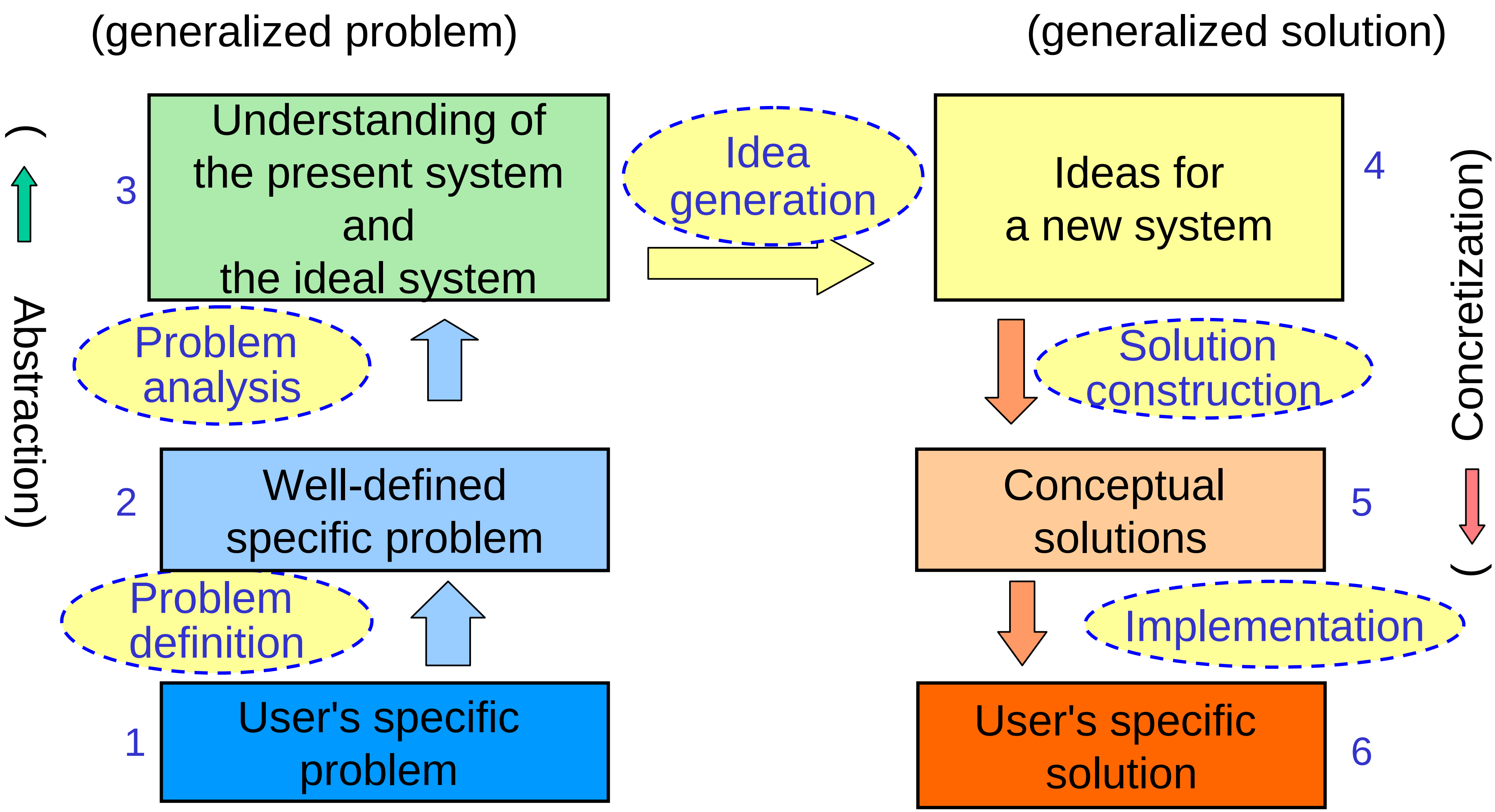


Contents of the boxes depend on areas, models, and problems; thus cannot be described in any further terms in a general way.

Six-Box Scheme of USIT: Data-Flow Representation

New Paradigm for Creative Problem Solving

A unified method across the fields



Description of the Six-Box Scheme of USIT :

Box 1: **User's specific problem:**
The problem recognized in the real world.

Box 2: **Well-defined specific problem:** (Start of the problem solving in USIT)
Unwanted effect, Task statement, Sketch,
Plausible root causes, Minimum set of relevant objects

Box 3: **Understanding of the present system:**
In terms of Objects-Attributes-Functions, Space and Time
Understanding of the ideal system:
Desirable behavior and Desirable properties.

Box 4: **Ideas for a new system:**
Pieces of core idea for improving and changing the system.

Box 5: **Conceptual solutions:** （Goal of the problem solving in USIT)
Solutions in the concept level constructed around the core ideas.

Box 6: **User's specific solutions:**
Solutions implemented in the real world.

Description of the Six-Box Scheme of USIT (continued):

1→2 : **Define the Problem:** Select the problem with the real-world criteria.
Usually through discussion.

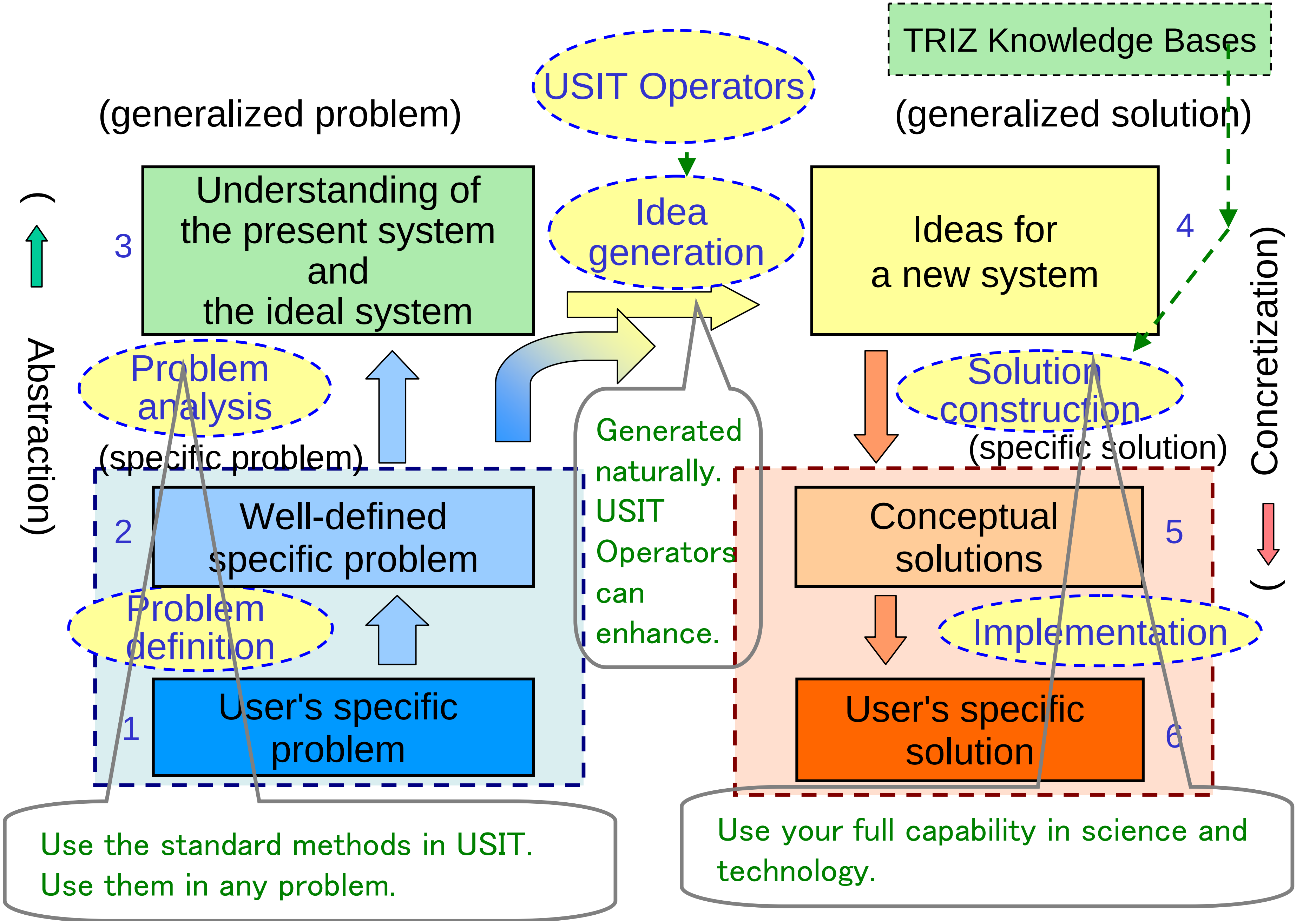
2→3 : **Analyze the Problem:** Function analysis, Attribute analysis,
Space and Time Characteristics analysis.
Particles Method for understanding the Ideal system.
(Standard set of analysis (=abstraction) methods independent of the fields.
Not a mapping to any model given from outside.)

3→4 : **Generate Ideas:**
In theory: Apply USIT Operators onto the system components or solutions.
In practice: Ideas are coming out during the analysis stage in USIT,
and during the consideration of the hierarchical system of solutions.

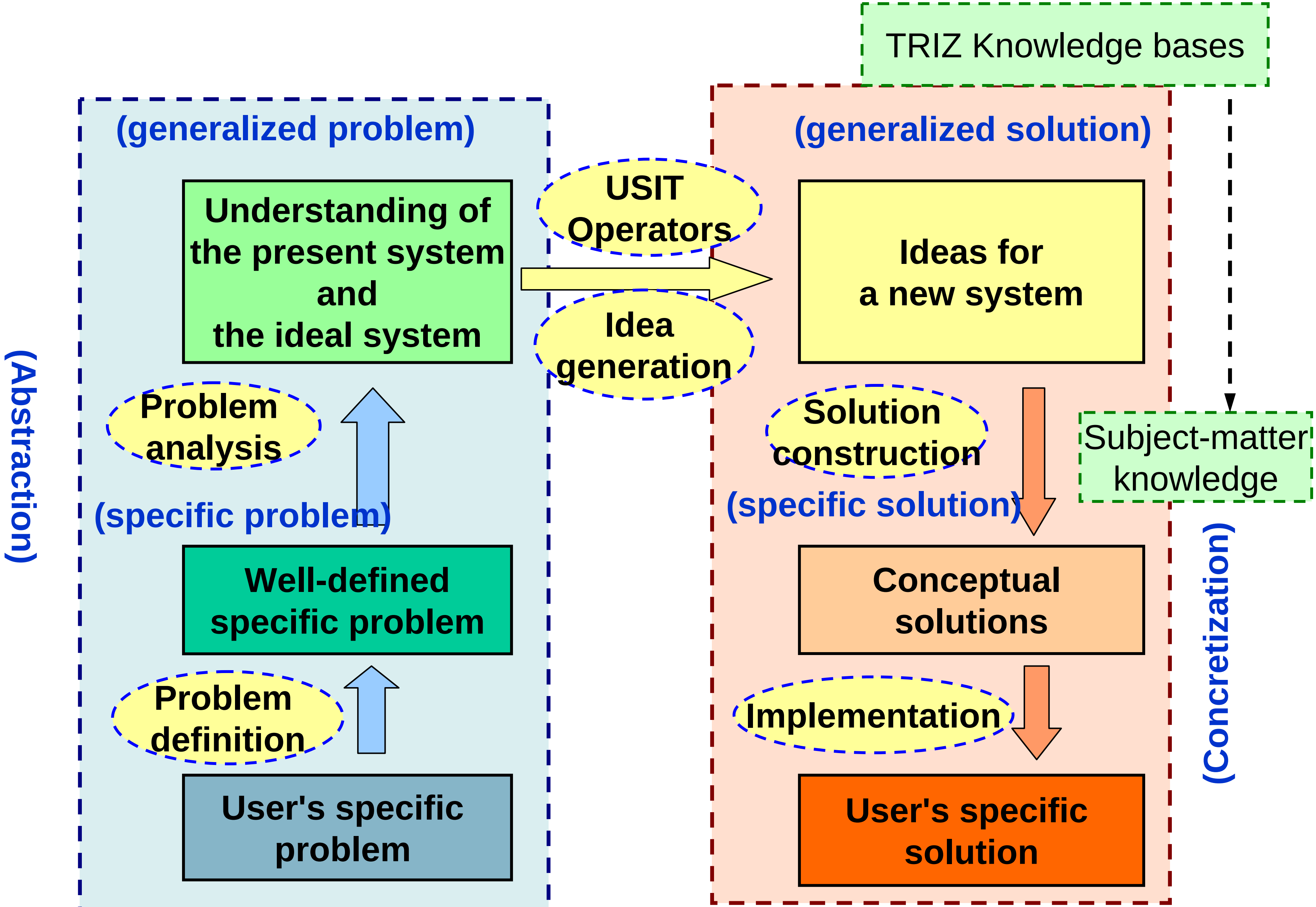
4→5 : **Build Conceptual Solutions:**
Construct solutions around the core ideas.
Scientific and technical capability related to the subject is necessary.
Knowledge bases in TRIZ are useful for supporting this stage.

5→6: **Implement specific solutions:** (Real World activity after finishing USIT)
Evaluate & select the conceptual solutions.
Designing, experiments, and implementing into real products/processes.

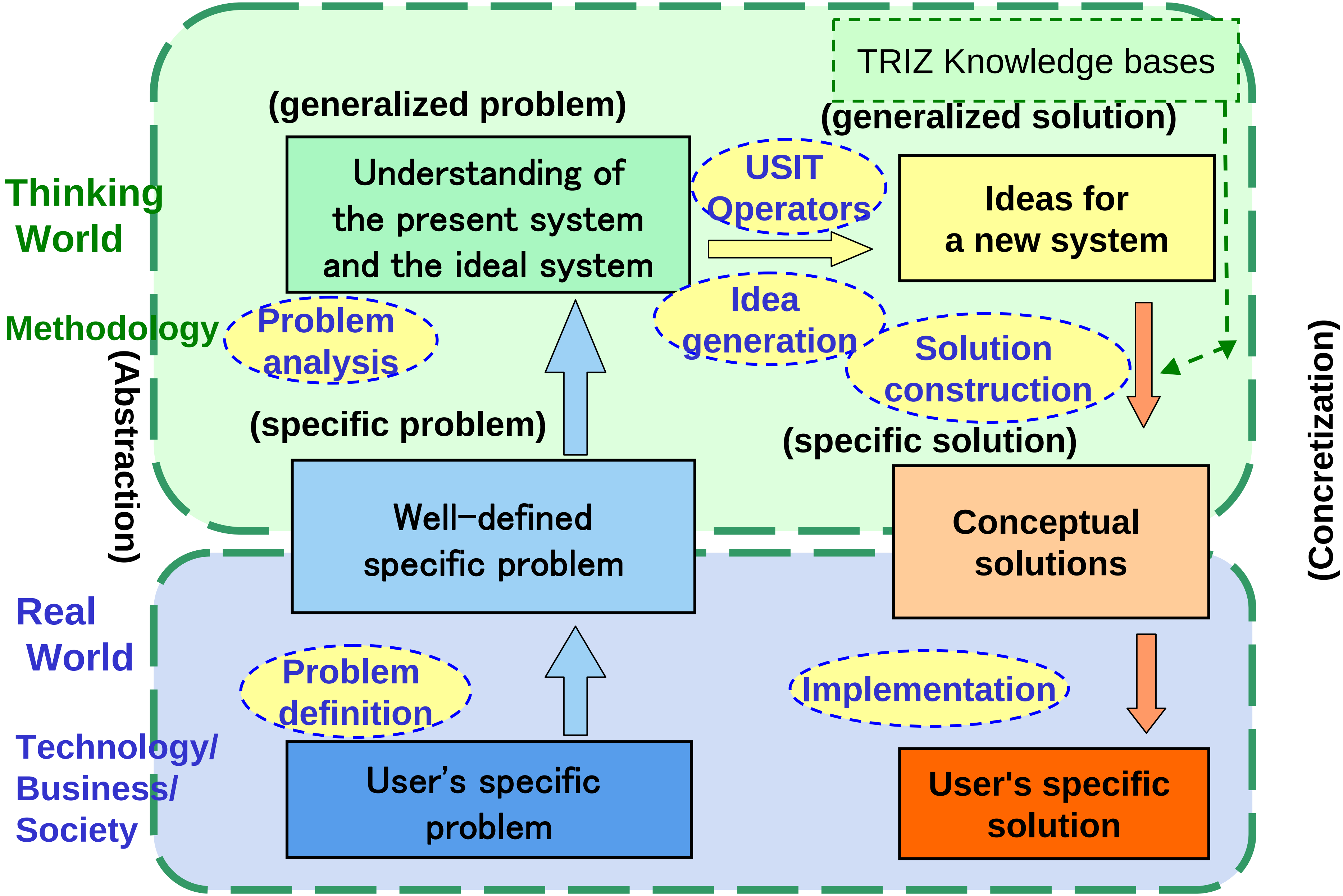
Six-Box Scheme of USIT (A New Paradigm for Creative Problem Solving)



6-Box Scheme of Creative Problem Solving (USIT)



6-Box Scheme of Creative Problem Solving (USIT)

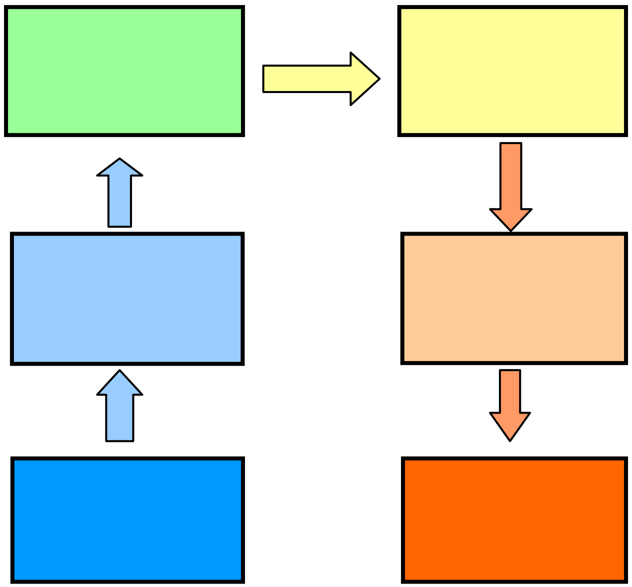


Conclusion

'Six-Box Scheme' is

A New Paradigm of

Creative Problem Solving.



The Scheme clarifies
what types of information are required
for every stage of problem solving.

This solves a fundamental problem
in TRIZ (i.e. the lack of clear overall structure).

USIT is a practical procedure
for performing the Six-Box Scheme.

[5] For Practices of USIT

How to Apply and Pracice USIT in Industries

(1) USIT is much easier to learn than (conventional) TRIZ.

⇒ Bring up (a few) USIT experts as the leaders in a company,
and train many engineers in in-house training program to understand USIT.

(2) USIT fits well for group work.

⇒ Make joint teams of 1-2 USIT experts and 4-6 engineers for problem solving.
USIT expert facilitates the team, or asks suitable questions to the engineers.

(3) USIT is applicable to real problems for conceptual solutions.

⇒ Apply to imporant real industrial problems and get results.
Can be implemented smoothly in the R&D framework in industries.
Selecting problems and implementing solutions need to be done in the criteria of the real business/technological world.

(4) Use TRIZ knowledge base tools in a complementary way.

⇒ Use USIT in a group for guiding human thinking process, and
Use TRIZ software tools as the knowledge bases, mostly individually at separate time zones.

2-Day USIT Training Seminar (Nakagawa)

Practice USIT in solving real, brought-in problems in groups.

Time	Day 1
10:00	(L0) Introduction
	(L1) Introduction to TRIZ/USIT
12:30	Lunch
13:30	Presentation of Problems
	(L2) Problem Definition
14:45	Group Work (1)
	Presentation & Discussions
16:30	
16:45	(L3) Analysis of Present System
	Group Work (2)
	P & D
19:00	

Time	Day 2
9:00	(L4) Analysis of Ideal System
	Group Work (3)
	P & D
11:15	(L5) Solution Generation
12:00	Lunch
13:00	Group Work (4)
	P & D
14:30	Group Work (5)
	P & D
16:15	Group Work (6)
	P & D
17:30	(L6) Promotion in Industries
	General Discussion
18：00	

Japan: Public Presentations on USIT from Industries: (TRIZ Symposium in Japan, 2005 - 2011)

Fuji Film Co.: Improving the USIT method (2005, 2006)

Fuji Xerox Co.: Case studies (2005)

Matsushita Electric Works: Promotion and application (2005, 2006, 2007)

Nissan Motor Co.: Promotion and application (2005)

Konica-Minolta group: Promotion & practices (2006, 2007, 2008, 2009), Method (2008, **2010**)

Toshiba group: Case study (2007)

Sekisui Chemical Industries: Promotion and application (2007)

Ricoh group: Case study (2008)

Pioneer: Promotion and application (2008)

Sharp : Promotion and application (2008, 2009)

IDEA USIT Training Seminar: Case study (2008) [Sekisui House]

MPUF USIT/TRIZ Study Group: Case Study (2008, **2010**) [SONY], Appliction method (2009, 2009, **2010**), Case Study (**2011**)

Observations:

- Most industries have tried several ways of promoting/using TRIZ.
- Among them USIT has a certain share in its weight in real applications.
- Mostly carried out in the bottom-up promotion with some support in the organization. Organizational activities seem not so strong.
- Study groups of engineers from multiple companies will play important roles in the near future (e.g., MPUF).

Ref. Information Sources of USIT/TRIZ

Web: **"TRIZ Home Page in Japan"**

http://www.osaka-gu.ac.jp/php/nakagawa/TRIZ/eTRIZ/

A public Web site established in 1998. Editor: Toru Nakagawa.

Abundom of up-to-date information, e.g. papers, intodcutory articles, case studies, conference reports, etc.

Papers by many authors from Japan and overseas, and by Nakagawa.

Pages in Japanese and in English in parallel.

Books: "Hands-On Systematic Innovation" in TRIZ Practice and Benefits Series Vol. 1. by Darrell Mann (CREAX, 2002), Japanese translation by T. Nakagawa (SKI, 2004)

"USIT Overview (eBook)" by Ed Sickafus (2001)、Japanese translation (2004)

Article: T. Nakagawa: 'Introduction to USIT: A Simple Method for Creative Problem Solving' in "Mechanical Design", Aug. - Dec., 2007 (5 series)

Papers: T. Nakagawa, H. Kosha, Y. Mihara: 'Reorganizing TRIZ Solution Generation Methods into Simple Five in USIT', ETRIA TFC 2002, France

T. Nakagawa: 'A New Paradigm for Creative Problem Solving: Six-Box Scheme in USIT', ETRIA TFC 2006, Oct.206, Belgium

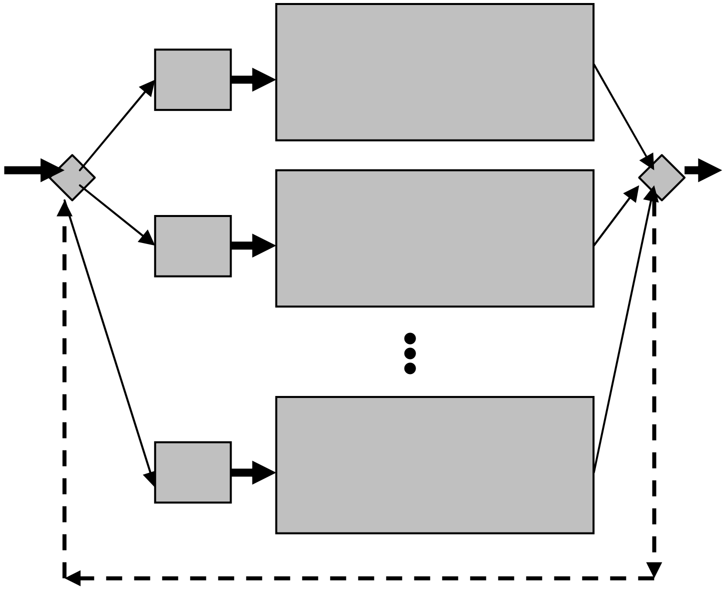
All the articles are posted in TRIZ Home Page in Japan.

[Appendix] Conventional TRIZ Paradigm vs. New USIT Paradigm.

Comparisons (1) Procedure

TRIZ Traditional:

several sets of (analysis-solution) methods
with huge knowledge bases

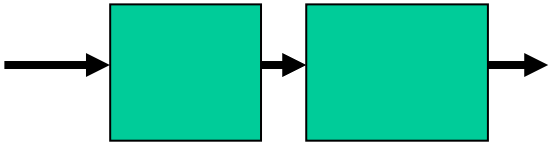


Apply one set, and, if failed, try another.
==> partial understanding of the problem

New paradigm with USIT:

A standard set of analysis and solution methods

Apply always the standard set



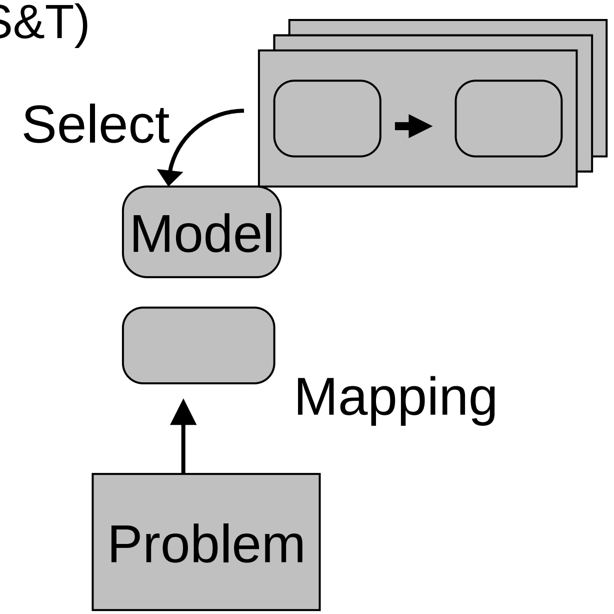
==> Full understanding of the problem

Implications of the New Scheme (1A) Analysis/Modeling

Traditional paradigm: (TRIZ and generally S&T)

A known Model is selected
from Knowledge Bases
intuitively or with trial-and-error

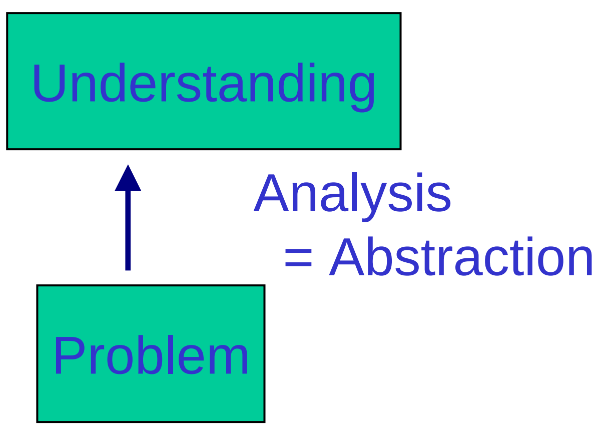
Real Problem is mapped onto the Model
on the basis of intuitive similarlity.



New paradigm with USIT:

A real Problem is well defined, and then
analyzed in the standard terms
by using standard way of analysis.

The way of Abstraction is standardized and
used consistently for any problem.

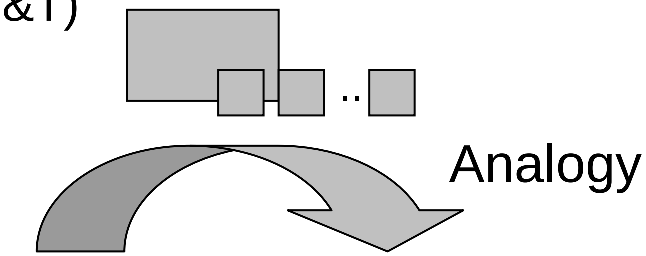


Implications of the New Scheme (2) Idea generation

Traditional paradigm: (TRIZ and generally S&T)

Presenting a few (Inventive) Principles
together with application examples

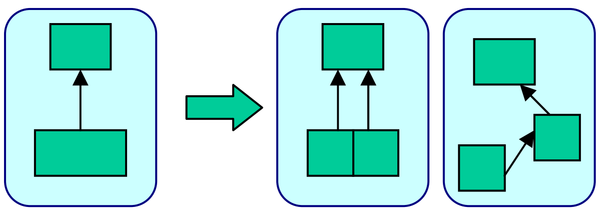
==> (Enforce) analogical thinking



New Paradigm with USIT:

(In theory)

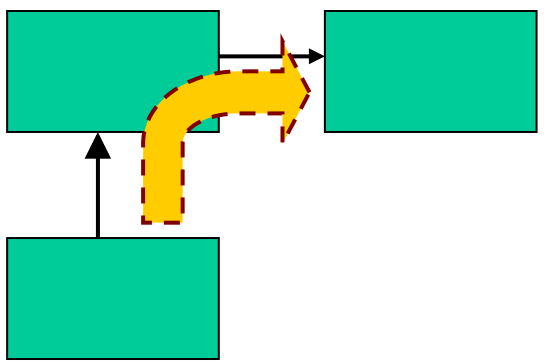
Apply USIT Operators
one after another in the abstract level



(In practice)

Already generated in the brain during the analysis stage

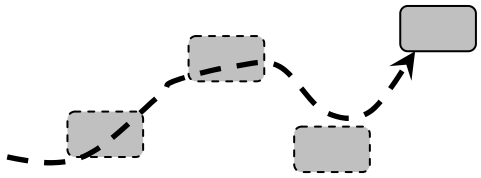
List them up and
build into a tree structure.
(Can be done smoothly)



Comparisons (3) Solution space

TRIZ Traditional:

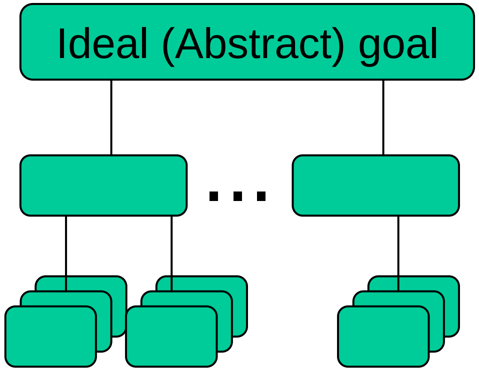
Seeks for one best inventive solution



without seeing the whole solution space

New Paradigm with USIT:

Build up a map of solution space.



In the analysis stage (Particles Method)

A tree diagram of desirable actions

In the idea generation and solution building stages

(Solution Generalization Method (a USIT Operator))

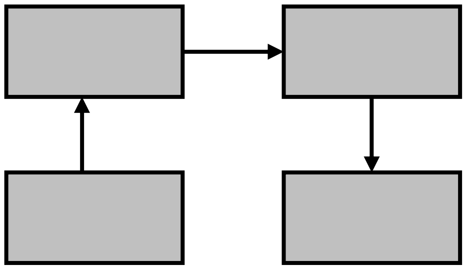
A hierarchical system of possible solutions

==> **Multiple solutions, practical and inventive**

Comparisons (4) Relation to the Real World

TRIZ Traditional:

Not clearly stated

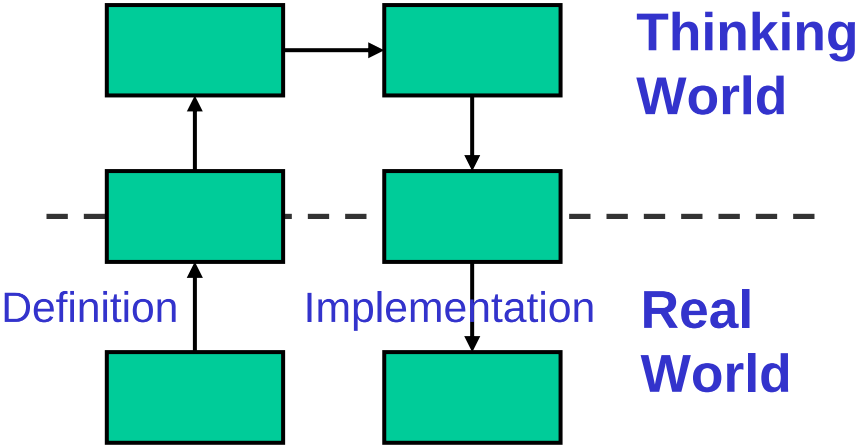


New Paradigm with USIT:

Problem Definition in the Real World

Analysis and Conceptual Solutions
in the Thinking World

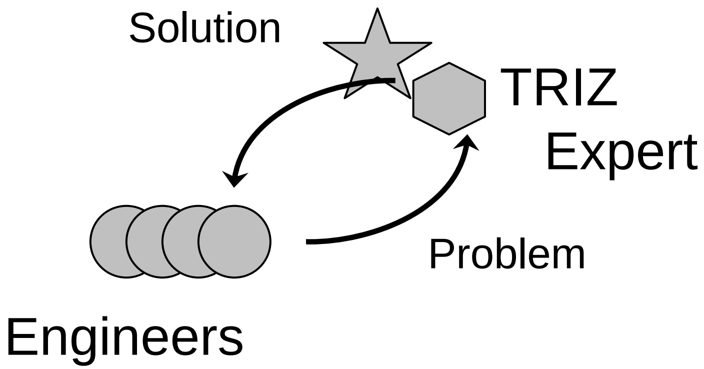
Implementing a specific solution
in the Real World



Implications of the New Scheme (3) Ideal expert

TRIZ Traditional:

an almighty inventor
an almighty contract researcher
in any technology field

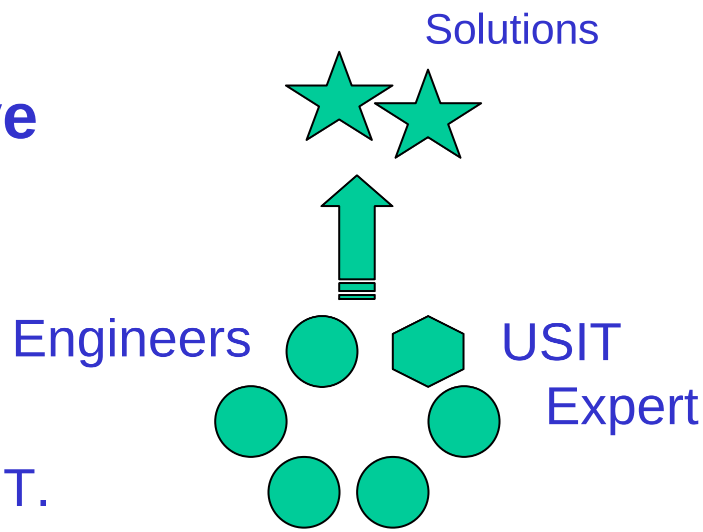


New Paradigm with USIT:

a guiding assistant of engineers
to help engineers think and solve

work together with engineers in any field

can achieve much more
than he/she can do alone
and than the engineers can do without USIT.



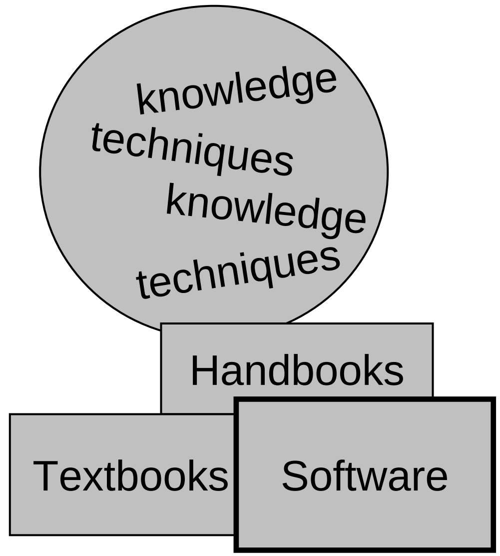
==> practical and suitable for wider penetration

Comparisons (6) Basis of Capability

TRIZ Traditional:

Huge accumulation of techniques and knowledge

Handbooks and software tools are indispensable.



New Paradigm with USIT:

Understanding how to think
in the standard methods
of problem solving

Need to be trained in group practices.

Handbooks and software tools
are only a part of supporting tools.