

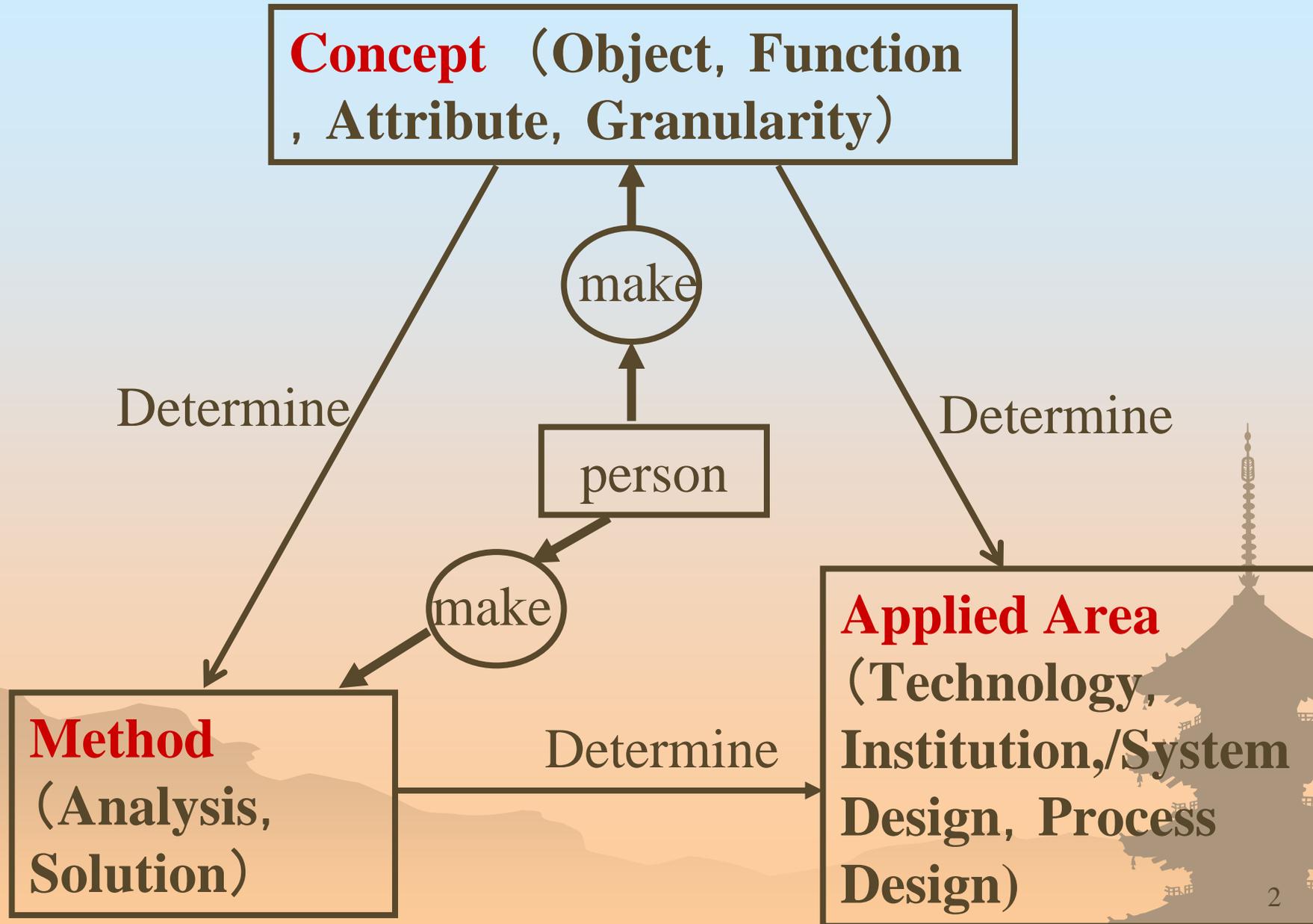
# How to Adapt Reconsidered Object to TRIZ, USIT, ASIT and HTA

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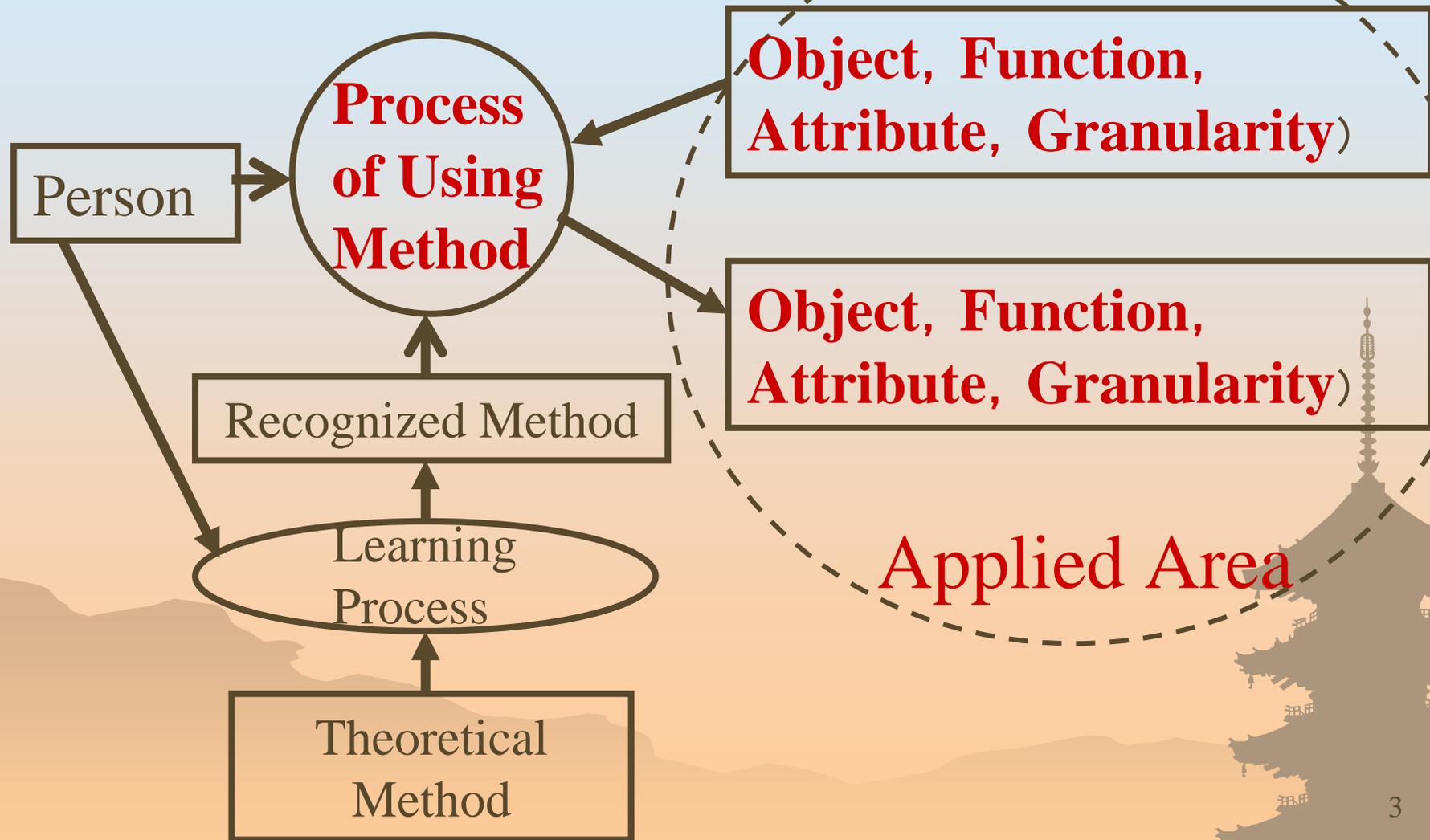
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The 1<sup>st</sup> TRIZ Symposium in Japan 2005.09

# Structure of INVENTIVE THINKING to Make



# Structure of INVENTIVE THINKING to Manage



# Viewpoints of Reconsidering Object

1. Release **object that is the being which interact with other being by Kant, Hegel and Marx** from its framework of being : the 1<sup>st</sup> meaning of object

2. **Want to handle all the thing to be recognized and controlled & Subset of objects of the 1<sup>st</sup> meaning.**

Something to be recognized and controlled : the 2<sup>nd</sup> meaning of object

3. But difficult to check controllable or not in advance

**Something to be recognized** : the 3<sup>rd</sup> meaning of object

# Object by Kant, Hegel and Marx

## : Being which interact with other being

*Principle of Coexistence, in accordance with the Law of Reciprocity or Community* “All substances, in so far as they can be perceived to coexist in space, are in thoroughgoing reciprocity.” (I. Kant, *Critique of Pure Reason* 2<sup>nd</sup> ed, 1787)

“The sun is the object of the plant — an indispensable object to it, confirming its life — just as the plant is an object of the sun, being an expression of the life-awakening power of the sun, of the sun’s objective essential power.” “A being which is not itself an object for some third being has no being for its object; i.e. , it is not objectively related. Its being is not objective. A non-objective being is a non-being.” (K. Marx, *Economic & Philosophical Manuscripts*, 1844)

# Four Types of Definition on Object

**1. Something which interact with other thing**

**3. Something to be recognized**

**2. Something to be recognized**

**0. Matter and controlled**

# Object of the 3<sup>rd</sup> Meaning : Something to be recognized

1. **Matter**: System Object e.g.: Technical meaning

2. **“Idea”**: System Object (Added)

21. Information of individual or common notion (institution) which is born by physical entity  
e.g.: Information on document

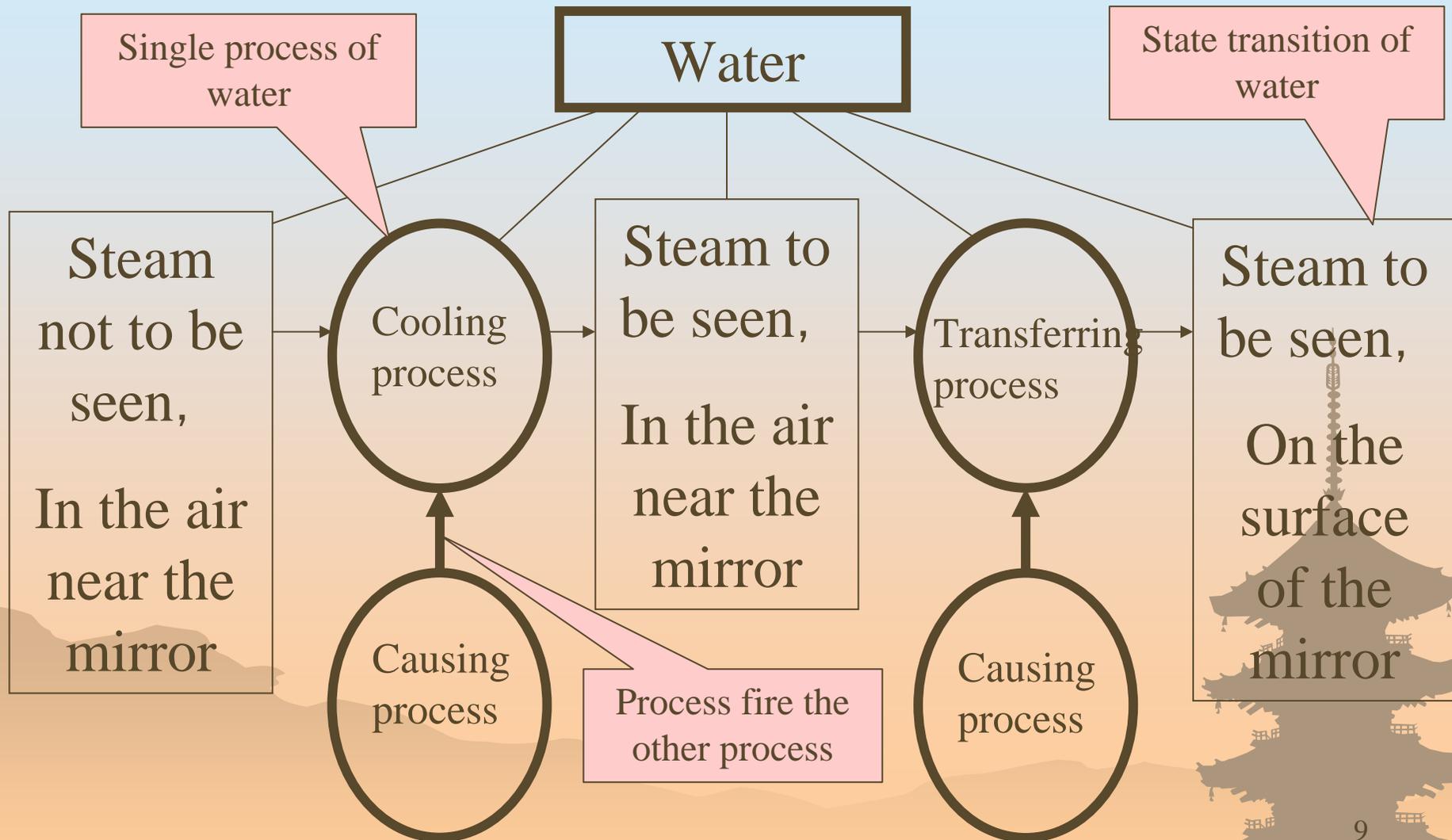
22. My idea

3. **Action (Process)** : Process Object (Added)

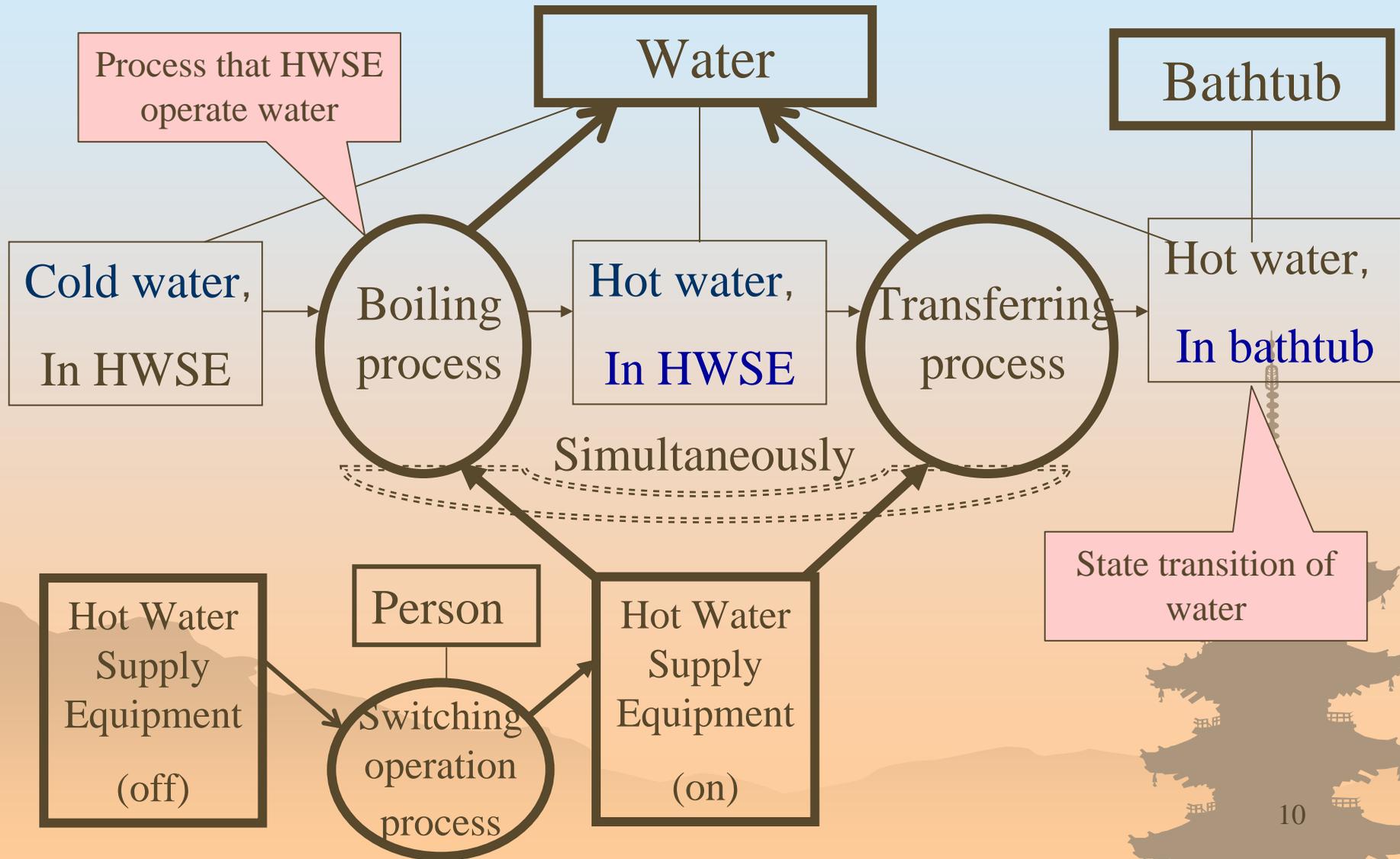
# Pragmatics of Object

1. **State** to change easily and **Attribute** difficult to change
2. Reconsider **Function** and **Granularity**
3. Every Problem in Every Area (**Technical Area** and **Institutional Area**) can be solved in
  - 1) **Use** or **Management** of Object: Change a state of object
  - 2) **Process Design**: Generate or delete a Process Object, change **attributes** of object
  - 3) **System Design**: Generate a System Object, change **attributes** of object

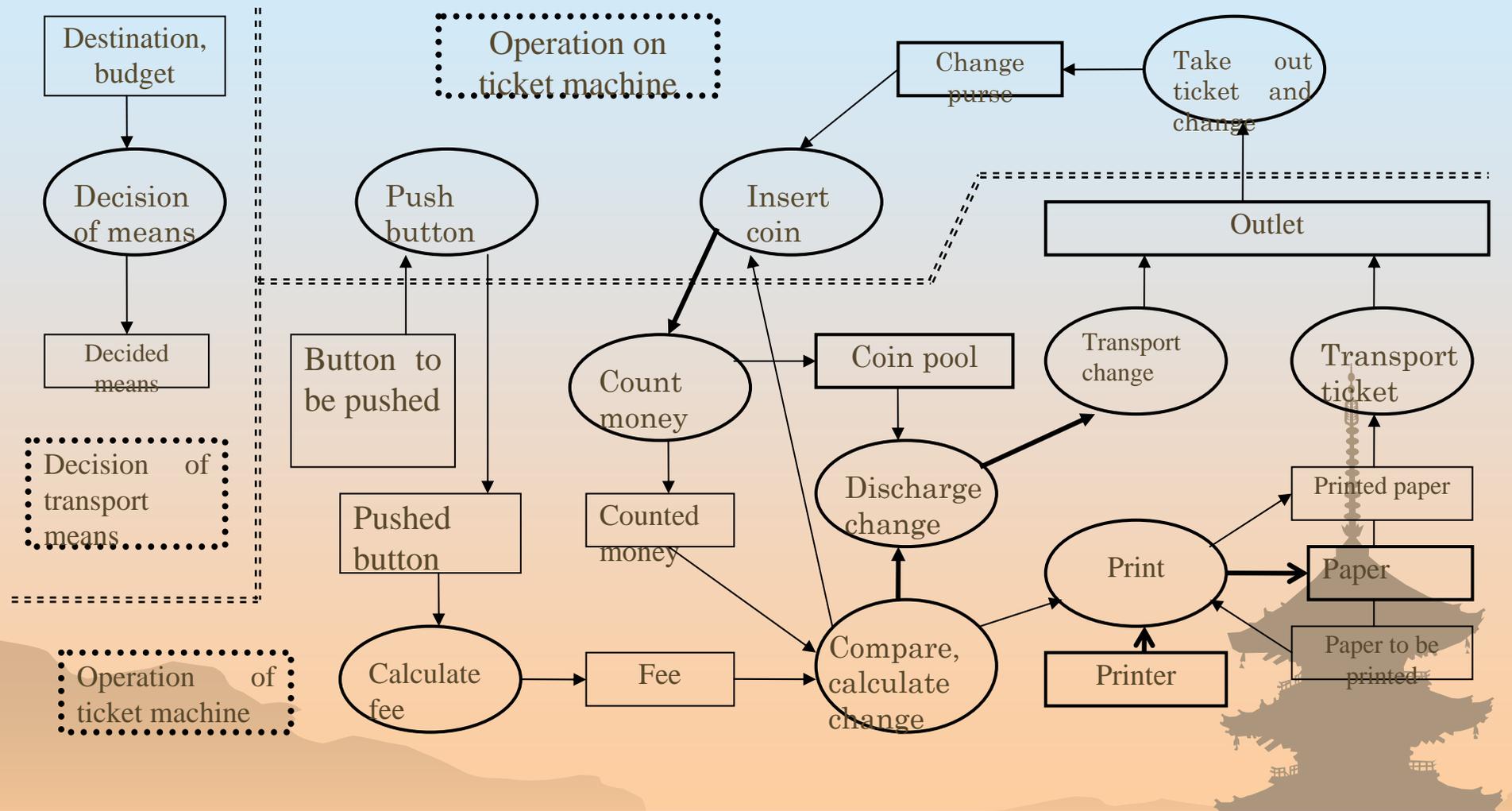
# Expression of Object World: (a part of) Steam formed on the bathroom mirror



# Expression of Object World: Supply hot water into bathtub



# Expression of Object World: A Ticket Machine



# The Way How to Express Object (outline)

## 1. Object

**Bold square**: Being (matter, “idea”), System object

**Bold ellipse**: Action process, Process object

**Square, ellipse**: Object with some attributes and states

## 2. Relation between objects

**Bold arrow**: Origin and destination of process,  
Relation between processes

**Arrow**: Change of attributes and states

**Line**: Connection between object and its attributes and  
states, Connection between being and process

# The Present Situation of TRIZ, USIT

**TRIZ**: 1. “the 40 Principles” which can handle both matter and process, is one of the most excellent achievement in human history

2. Excellent handling method of contradiction
3. Many tools and support software

**NAKAGAWA's USIT**: 1. Object is restricted to matter (exception: information)

2. Systematic method
3. Excellent reorganization of the TRIZ Solution Generation Methods into simpler five Solution Generation Methods

# The Present Situation of ASIT

1. Does not have explicit definition of object. In the application of ASIT, implicit definition is made to deal with matter, “idea” and process as objects substantially.
2. The Closed World principle restrict the object world. Have only 5(or 6) solution generation tools to be applied.
3. Have all applied area. (Technology, Institution / System Design, Process Design)
4. Have a framework that does not necessarily solve a problem.
5. Can apply even partial knowledge and expand it little by little.

Underlined part can be applied to other method.

# The Present Situation and Expansion of ASIT's tool

Classification		The name of tool	Apply to	
			ASIT	Enhancement
<b>Add</b>	<b>Object</b>	Multiplication: Introduce a slightly modified copy of an existing object	X	X
	<b>Function</b>	Unification: Assign a new use to an existing object	X	X
<b>Delete</b>	<b>Object</b>	Object Removal: Remove an object	X	X
	<b>Function</b>	Function Removal: Remove function		X
<b>Change</b>	<b>Object structure</b>	Division: Divide an object and reorganize	X	X
	<b>Object</b>	Object Replace: Replace existing object with adding object obtained by multiplication		X
	<b>Attribute</b>	Attribute Change: Change attribute uniformly		X
		Breaking Symmetry: Change a symmetrical situation into an asymmetrical one	X	X

## The Comparison between TRIZ,USIT,ASIT and HTA

		Classical TRIZ	USIT	ASIT	HTA	Ideal	
<b>Object</b>	Matter	X	X	X	X	X	
	<b>“Idea”</b>	△	△	X	△	X	
	Process	△		X		X	
<b>Logical Element</b>	1. Static Relation	X	X	—	X	X	
	2. Single Movement to Change Attribute			—		X	
	<b>31. Causal Relation to Change Attribute</b>	X	X	—	X	X	
	<b>32. Causal Relation to Fire Action</b>			—	X	X	
	<b>A. Network including 1-3</b>	△		—	X	X	
	<b>B. Contradiction</b>	X		—	X	X	
<b>Function</b>	Function to Meet Market Needs				X	X	
	<b>System Simplification</b>	X			X	X	
	<b>Problem Solving</b>	X	X	X	X	X	
	Market Search after System Change			X		X	
<b>Knowledge Structure</b>	<b>Systematical Method</b>	△	X		X	X	
	<b>Can Apply with Even Partial Knowledge</b>	△		X		X	
<b>Application Area</b>	Technical Design, System Design	X	X	X	X	X	
	Technical Design, Process Design	△		X	X	X	
	Institutional Design, System Design	△	△	X	△	X	
	Institutional Design, Process Design	△		X	△	X	

# The Ideals of INVENTIVE THINKING 1

## 1. Object: easy to achieve

Object which is to be recognized can express any reality.

- Express matter and process, which only make changes, equally.

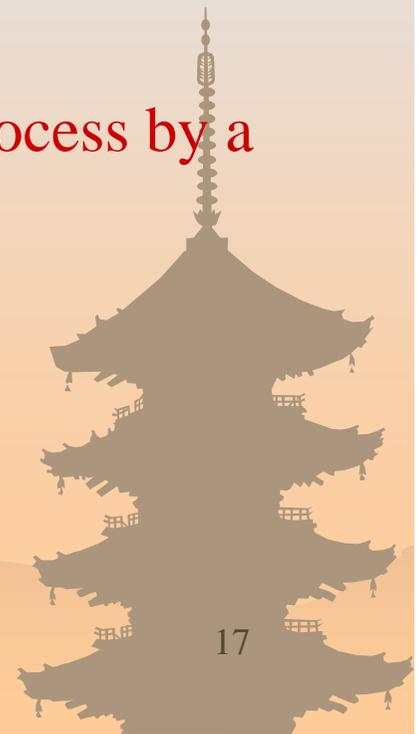
Especially express single process and firing other process by a process.

- Express idea and common notion.

## 2. Method: easy to achieve

Logical operation on object.

3. Applied area 4. INVENTIVE THINKING as an individual knowledge



# The Ideals of INVENTIVE THINKING 2

1. Object    2. Method

## 3. Applied area: easy to achieve

Any area (Technical design, Institutional design  
System design, Process design)

Especially 1) Generating business model

2) Process design of politics, economics and businesses

3) Technical design including many processes

## 4. INVENTIVE THINKING as an individual knowledge: very difficult to achieve

- All the people can handle INVENTIVE THINKING as both method of his/her work and his/her way of life.

- Can apply with even partial knowledge and expand it little by little.

# Applied Area of Object

Object	Technical design		Institutional design	
	System design	Process design	System design	Process design
Matter	RC	R		
“Idea”			RC	R
Process	R	RC	R	RC
Example			Company system design	Business management

RC: Object to be recognized and controlled

R: Object to be recognized

# The way to Apply TRIZ,USIT,ASIT to a Company

For all: ASIT or the 40 Principles

For advanced members of Technical Div.:  
adding Nakagawa's USIT or HTA

For more advanced members:  
adding TRIZ

