

# Constructing of Young Man Engineer Promotion Seminar that Applies the Idea of Separation in Time

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# One aspect of TRIZ/USIT development strategy

## **Technological problem embarrassed because of current state**

- ① It is possible to solve for myself.
  - ② If it is not a specialist in the trade, it is not good.
  - ③ It wants to try it new and not to fail.
- It is not possible to enter it easily.

What is not being possible to work easily for myself alone because the manufacturer is embarrassed now?

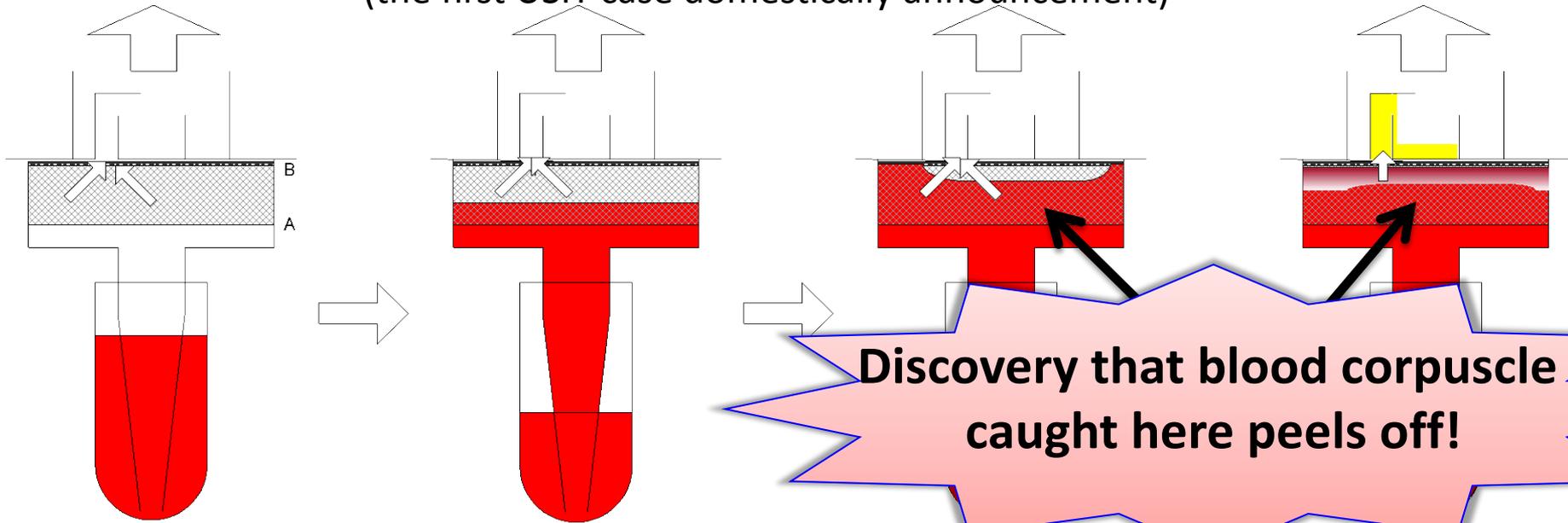
**The young man engineer doesn't grow up.**

How is TRIZ/USIT used for the young man engineer promotion?

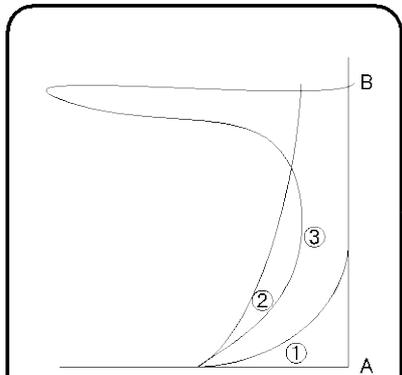
- ① The term named TRIZ/USIT is not used.
- ② The effect especially uses a large method by the TRIZ/USIT support.
- ③ It makes it to an easy way on which even the new man can work to advance.

# An effective way to proceed at a plasma filter case

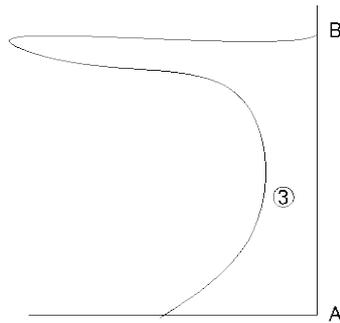
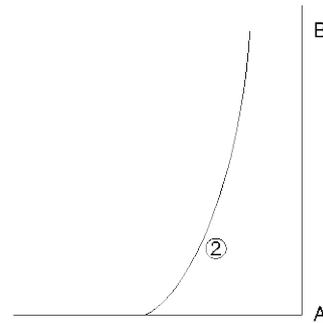
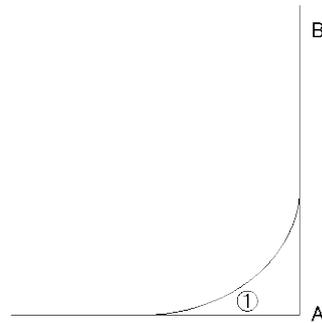
From the filtration performance improvement support of the blood corpuscle filtration filter  
(the first USIT case domestically announcement)



**Discovery that blood corpuscle caught here peels off!**



時間的  
空間的  
変化  
まとめ



The phenomenon that had not been noticed till then was able to be noticed by doing "Separation at time".

# Method of focusing on phenomena (Named as "Story Charting Method")

1) Method for understanding of essence of technology (level the first grade of high-school) from knowledge of easy science

2) It is a method to see it as for the phenomenon that will be seen, and not seen actually

How to proceed:

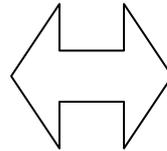
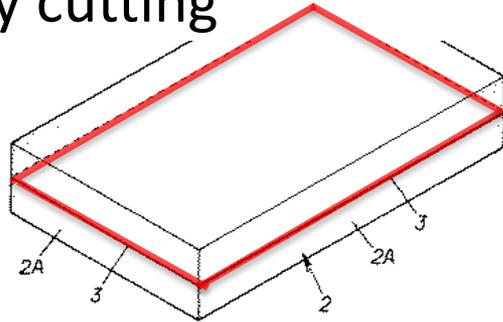
- ① Time is chased like the story and the phenomenon is shown in figure.
- ② The phenomenon is understood while showing in figure.

- ① Even if the professional skill power is not high, it is safe.
- ② Old-timer engineer's technological problem solving power is actually improved.

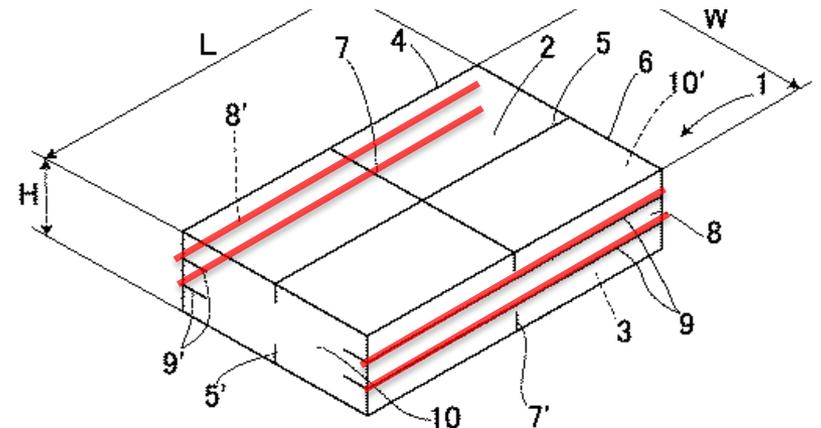
# Young man engineer promotion seminar case where cutting rice cake is assumed to be theme

Part that became issue

Echigo confectionery:  
Puffy cutting



Sato food: Pari and slit



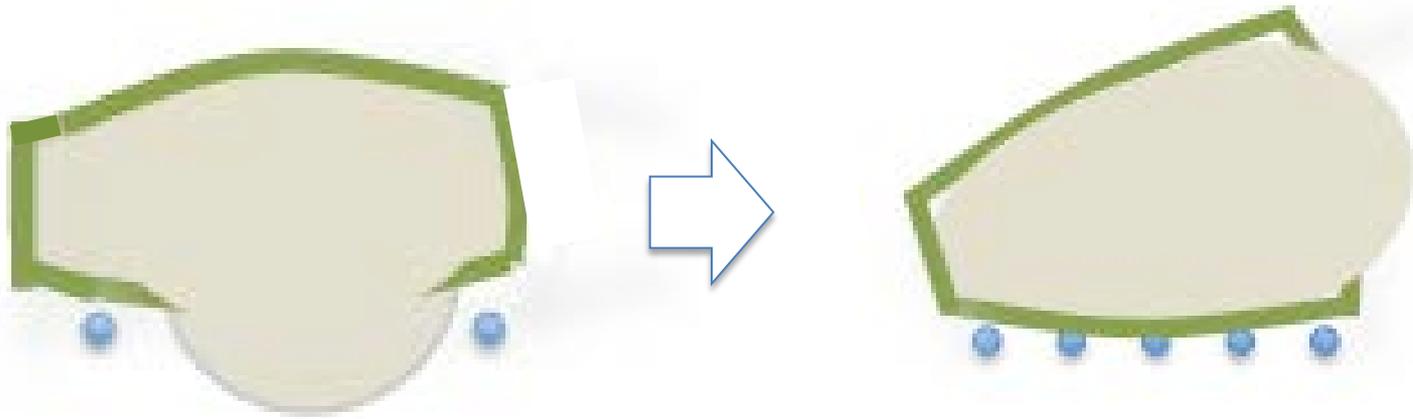
March 22, 2012

The Intellectual Property High Court decision: To the Sato food

- ① It is payment of about 800 million yen to the Echigo confectionery.
- ② Sales discontinuance of side of product that cuts it
- ③ Abandonment of manufacturing facilities for side incision

**Will other methods not have been devised?**

## Target of maneuver



It spouts from the lower side.

[Pakkuri] cracks because of the side.

**(The side incision none. )**

# Mechanism imagination procedure of the trouble phenomenon

(Think in a manner to have become the object itself)

< how to advance it: Analysis phase >

- 1.The explanation of the problem situation is written.
- 2.The story world is decided.
- 3.The start and the end of the causal relation are decided.
- 4.Characters (thing) are decided.

< purpose >

The problem situation is correctly understood.

**The thought range (space) is limited.**

**The thought range (time) is limited.**

**The thought object (thing) is limited.**

**5.The scene (scene frame) is decided.**

**It thinks at the time of the thing.**

- 6.It explains the phenomenon of each scene frame.
- 7.The phenomenon of each scene frame is made figure.
- 8.MVP \* of each scene frame is decided.

**Thing..related..think.**

**Thing..related..think..image.**

**The relations in the most important  
are decided.**

\*Most Valuable

Unit Phenomenon (most important phenomenon)

# “Determining the scene (framing)” means

To intentionally put a “discontinuity” in time

Concrete work

= It gives a name to the scene divided separately by the flexion point.

Element that becomes flexion point:

- ① Change in level of function, property value, and state
- ② Movement of energy/power/thing

## Method of scene framing: Use of "Characteristic method of space and time"

1) The characteristic that seems to change by time is enumerated.  
→ Color, hardness, temperature, volume, and surface-roughness etc.

2) Importance or the characteristic that knows is chosen.  
→ "Surface temperature on upper and lower sides"

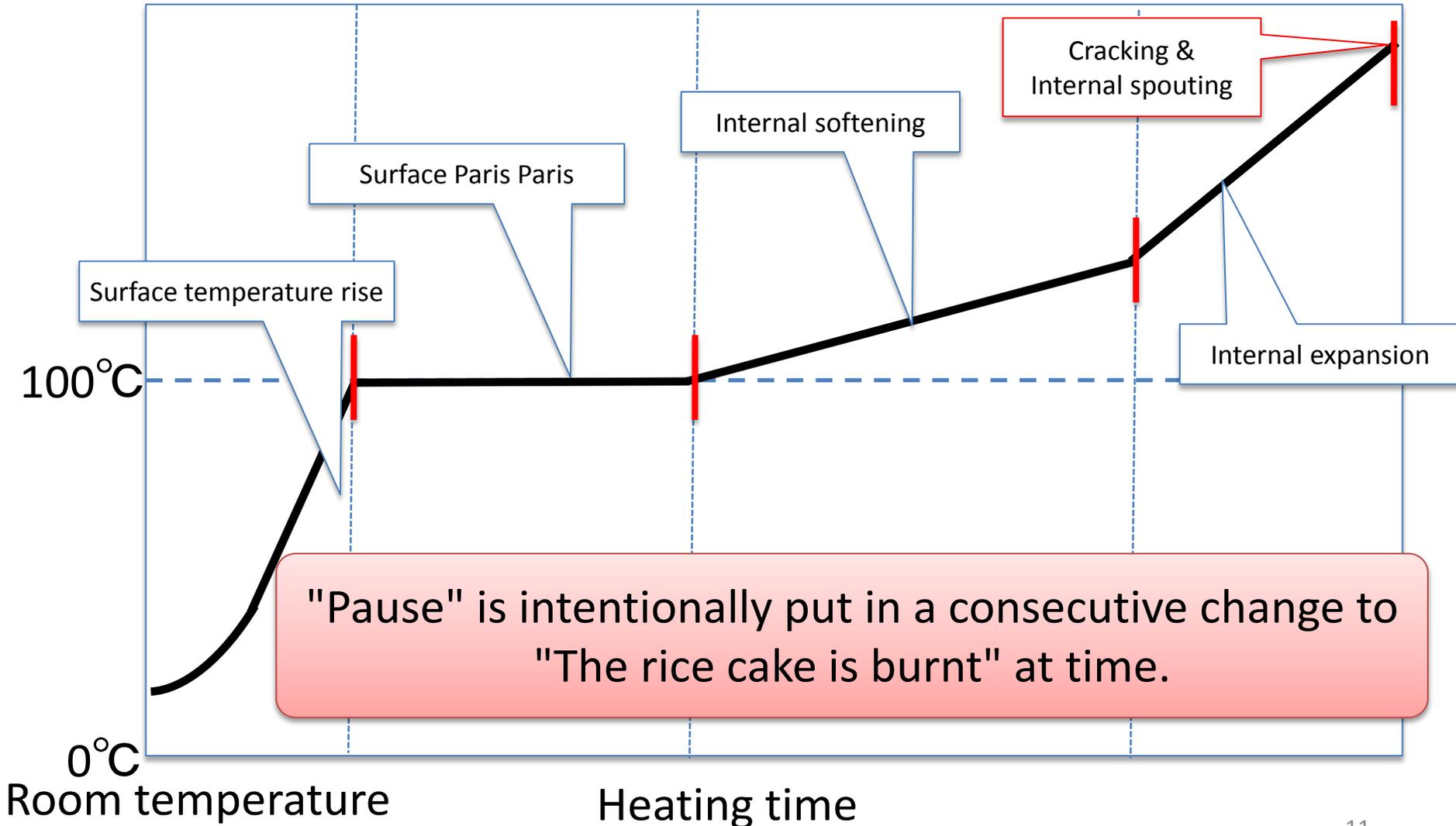
3) Plots a graph imagining how chosen characteristic changes according to time. → slide 11 that

4) The graph is found changing (flexion point).  
→ 11 red slide vertical line: |

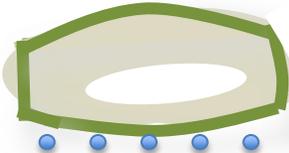
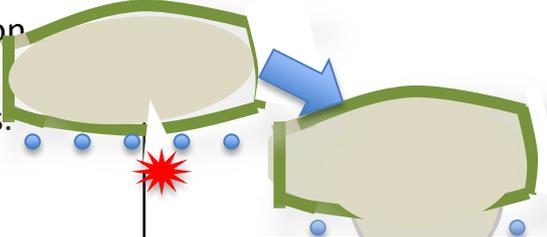
5) The scene is divided before and behind the flexion point thought to be important.

→ Spouting of 11 slide each scene name

# Presumed surface temperature change when baking cut rice cake



# Scene development chart (What is happenig there?)

	Scene Frame	Illustration of phenomenon	Explanation of phenomenon	MVP
1	Surface temperature Rise		①The temperature on upper and lower sides of the rice cake goes up by the heater radiation. ②The temperature on the rice cake side goes up by the air convection.	The surface temperature goes up.
2	Surface Paris Paris →Moisture sealing up		①The whole face is dehydrated. ②Starch becomes hard. ③The omission of moisture stops.	The surface hardness goes up. Moisture is sealed up.
3	Internal softening		①The corner rounds. ②Internal starch softens by moisture + heat.	Internal starch softens.
4	Internal expansion		①Steam expands and the volume expands. ②Inner pressure is received, and the entire rice cake swells.	Steam expands.
5	Crack Formation →Inside It gushes.		①The part where the surface coat is weak cracks. ②A soft internal rice cake spouts from the crack.	①The weakness part cracks. ②The rice cake spouts from the crack.

# Effect on young man engineer promotion by "Story charting method"

## 1.Improvement of technological content understanding

It thinks by using simple figure to guide the time of the thing.

→The essence of the technology is acquired by minimum expertise power.

## 2.Improvement of the entire technological grasp force

The scene development chart where the entire technology of a large problem is included is drawn.

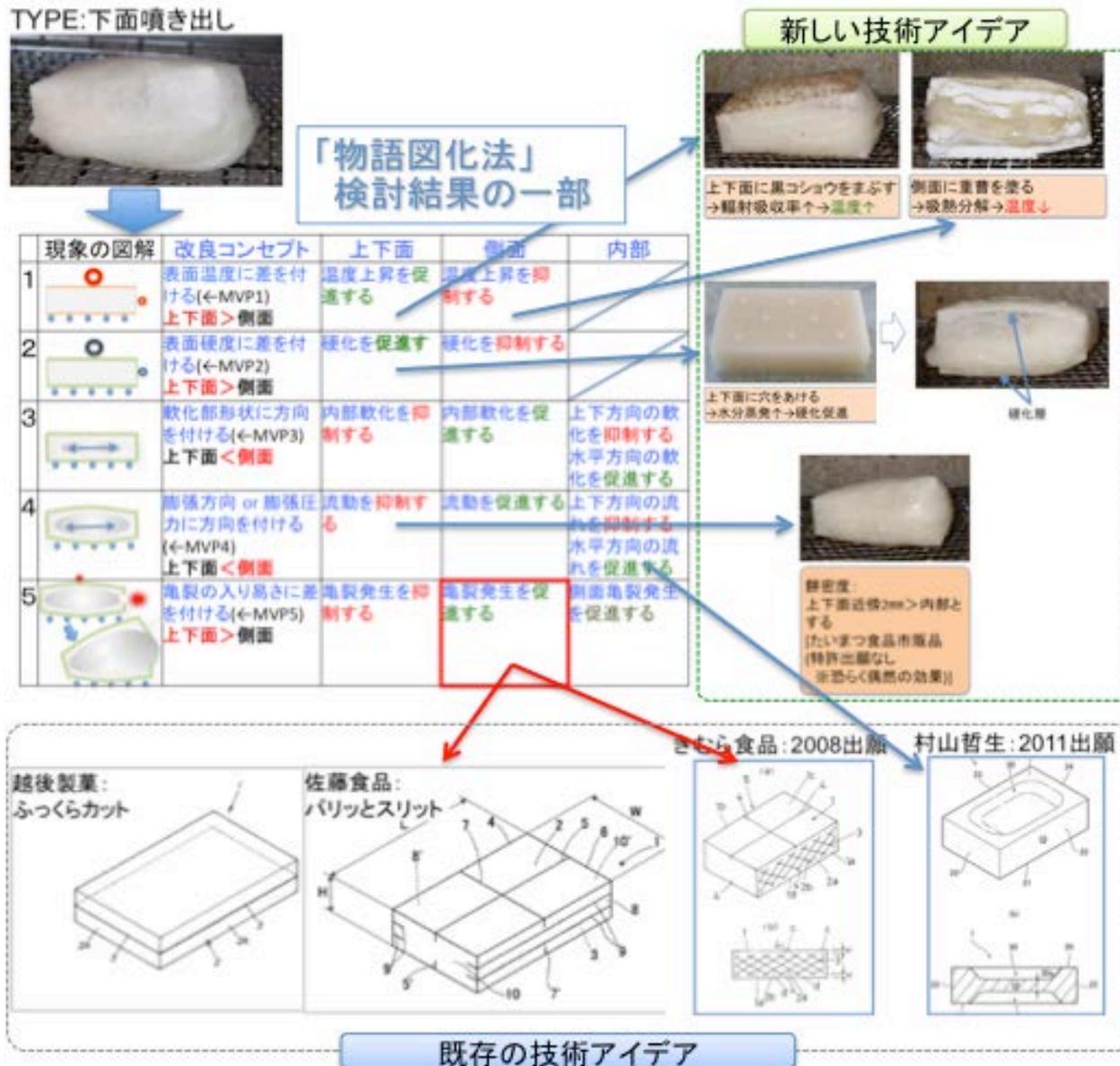
→The relation between the field and the whole of which I take charge is understood at one view.

## 3.Improvement of technological communications power

The hypothesis is naturally drawn out without impossibility.

→A technical discussion can be done without so considering the hierarchical relationship.

# Usage example as a patent map



# Students' impressions

- A decentralized phenomenon and data were able to be brought together. It was possible to discuss it all at the conference based on it.
- I thought that the more idea was able to be arranged by making the phenomenon the scene frame and illustrating it, and the leakage of the idea seemed to be lost.
- It has been understood to be able to extract the problem by thinking by making it to the order.

# Summary

- The methodology that the young man engineer acquired the technology at the early stage was able to be constructed by using the idea of the time separation.
- It is possible to separate to the phenomenon that relates mutually by applying the characteristic method of the space time in the product of a material system not limbate at time.
- It was confirmed that a decentralized phenomenon was able to be brought together by using this methodology, and there was an effect of promoting the discussion.