TRIZ Application to a Non-Technical Problem

- From a Proposal Example in the Intellectual Property Analyst Workshop -

2019/9/6

TRIZ Symposium 2019

Tsunamasa Shioya

Intellectual Property Creation Research Subcommittee, Japan TRIZ Society

AIPE (Association of Intellectual Property Education)

Agenda

About the intellectual property creation research subcommittee meeting

Reason to pay attention to application to nontechnical issue

What is a common problem to the intellectual property analyst?

Process where nontechnical issue is solved

Development with non-TRIZ user

Possible use to development in organization of TRIZ

1.

About the Intellectual Property Creation Research Subcommittee

1-1. Introduction of Subcommittee

About the Subcommittee

【Member】

Kimihiko Hasegawa (chief examiner)
Toshimitsu Kataoka
Narumi Nagase
Shigeru Suzuki
Hirotsugu Ishihara
Sadao Nishii
Takuya Fujii
Yasunori Nakao
Tsunamasa Shioya

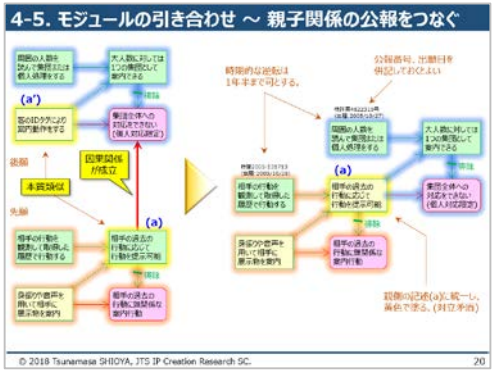
TRIZ expert
Intellectual property member
Engineer of active service
AIPE recognition intellectual property analyst
Diversity is a feature.

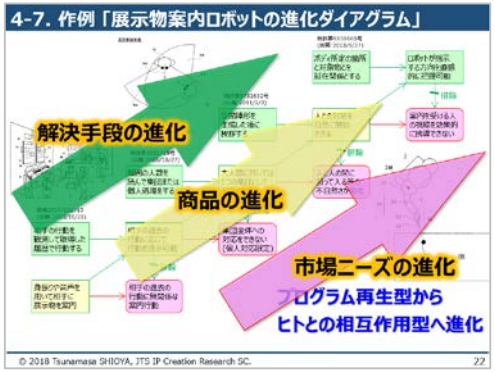
It gathers in Tokyo based on half a day of the afternoon, and it acts once every 1-2 months.

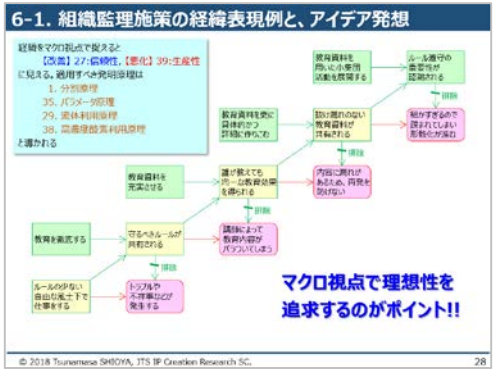
Presentation at the last Symposium

In subcommittee meeting theme "Making case with the evolution tree of the service robot", it reports on a concrete method to make the evolution diagram from the patent journal.

Announcement name: Evolution diagram making that uses I-TRIZ PF





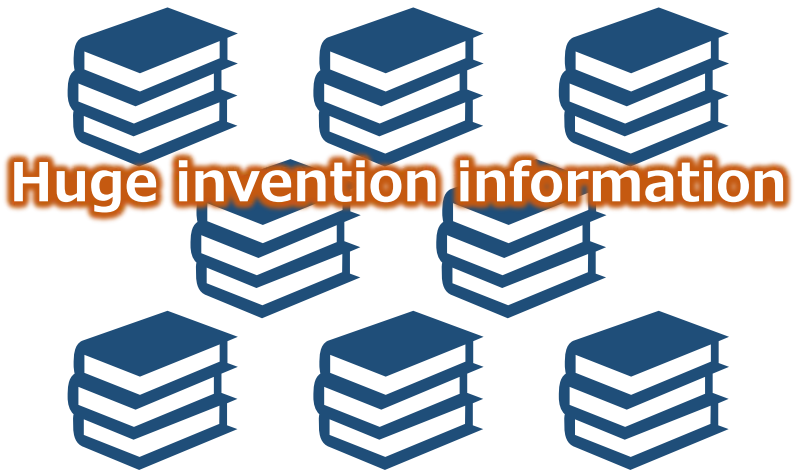


It introduced the possible use to the nontechnical issue as a research step in this.
This announcement is a location as the sequel in this part.
(Derivation of subcommittee meeting theme)

2.

Reason to pay attention to application to nontechnical issue

2-1. Psychological inertia that limits possibility of TRIZ



Making to law and systematization

Systematic approach
Principle of separation
Invention principle and contradiction matrix of 40
Place analysis and material-invention standard solution
Technological effect (effects)
Trend of technological evolution
Algorithm of problem solving
・・・

Doubt

TRIZ is the one made a law based on the huge, technical problem solving case.
However, does using it only to solve a technical problem : under the influence of psychological inertia?

Basic thought of TRIZ

It is correctly opposite to the problem.

The brain is made to work correctly.

Does even the solution of the nontechnical issue : this in similar?

2-2. Voice concerning nontechnical issue and possibility of TRIZ

Voice to be often heard	Possible application of TRIZ
It sleeps only for myself due to power shortage ･･･.	It is necessary to use unused resources well.
It doesn't stand if it sets up there ..here...	It is necessary to solve the confrontation contradiction.
The directionality that should be aimed to begin with ･･･	It is necessary to consider the ideal solution and the ideal.

There is a possibility.

Engineer in Japan
2.4 million people

Worker in Japan
67 million people

When application to the nontechnical issue becomes possible

From engineer's TRIZ to people's TRIZ.

Data出所: Government statistics

This announcement shares the finding obtained from the attempt to apply TRIZ to a familiar, non-technical problem solving by the speaker who is the intellectual property analyst, and proposes the possibility expansion and the spread of TRIZ.

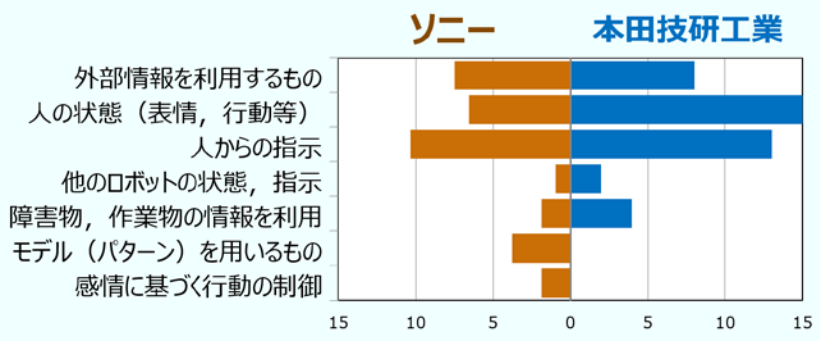
3.

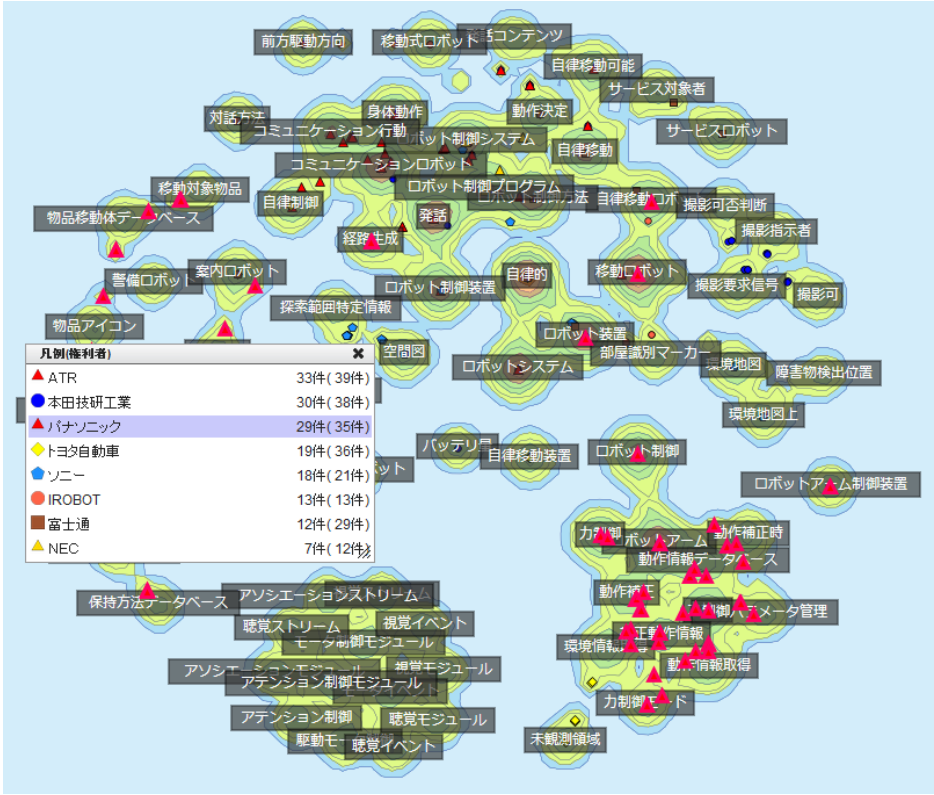
What is a common problem to the intellectual property analyst?

3-1. Introduction ～ Power of intellectual property information analysis

The statistical analysis of patent information has become easy by the evolution of analysis technics.
Using it for the research and development strategy examination etc. is generalizing because it can make technology trends visible.

Fターム	権利者	トヨタ自動車	パナソニック	ATR	ソニー	本田技研工業
		76	70	52	47	46
操作の容易化	29	3	9	0	2	0
精度，正確性の向上	16	2	2	1	1	1
特定用途への適用	22	1	4	0	2	1
エンタテインメント性の向上	53	3	3	4	1	5
オープン化，ネット対応	26	0	1	1	5	3

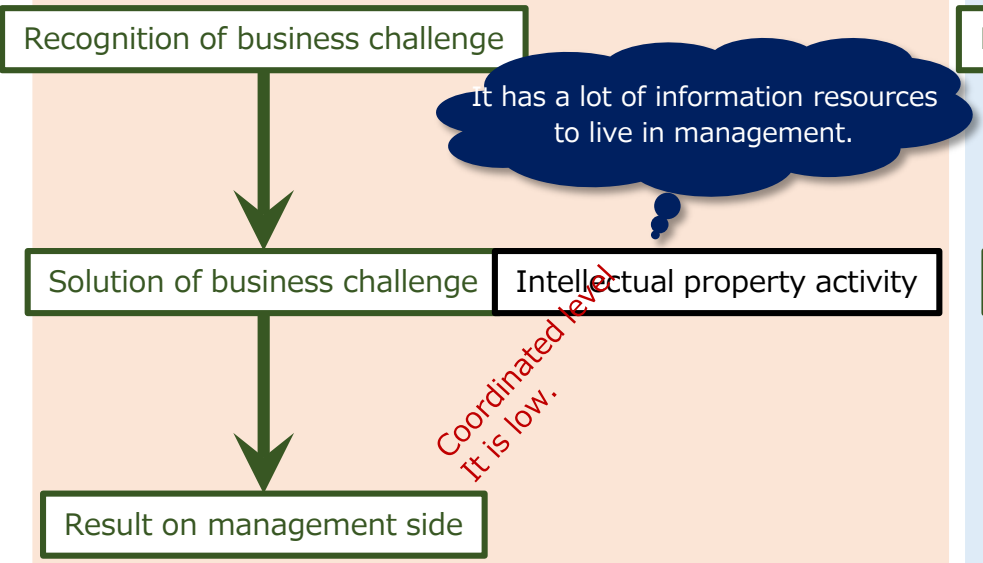




It is called IP landscape to analyze the market trend and the financial information, etc. integrated, and to make the best use of for the managerial judgement and the decision making, and "Intellectual property analyst" is a special person fortune which with the skill.
727 people of the patent field are recognized as of June, 2019.

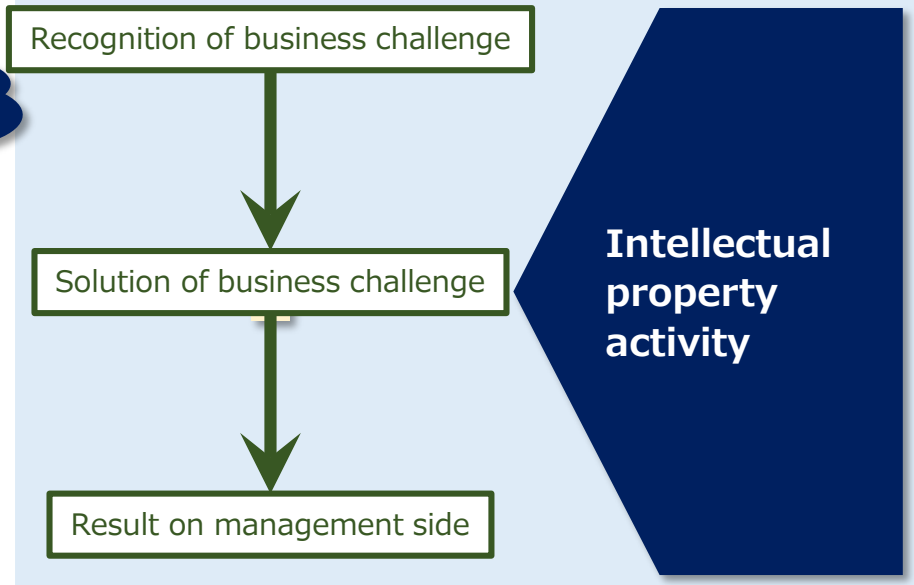
3-2. What an intellectual property analyst aims

Current management



The resource of mutual functions and information was, and it was few that "Combination" was done, and there was room for the efficiency improvement.

Appearance to be aimed



Achieving and practicing building the intellectual property activity into the administrative "Intellectual property analyst"

3-3. However, it doesn't go well easily

It is not easy to become particular.

With what do it embarrass it?

The chance cannot be gripped.
It doesn't spread easily.
It is not possible to build it in the administrative.
It is not established, and returns to the origin.
The resource is insufficient one for myself.

Do because limited knowledge is a cause?

Knowledge that makes the best use of the literary property : enough.
There is abundantly use case information.
　　It publishes in the Patent Office site.
　　There is an introduction in the book.
There is variously technique introduction seminar, too.

It doesn't go well even if working hard.

Knowledge cannot be done though is why.

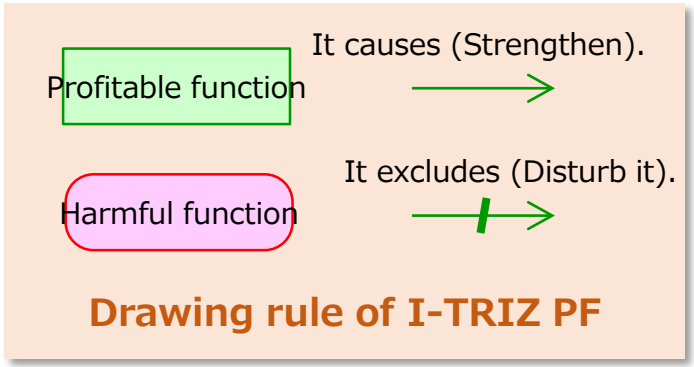
It was interested in this problem as one of the intellectual property analysts.

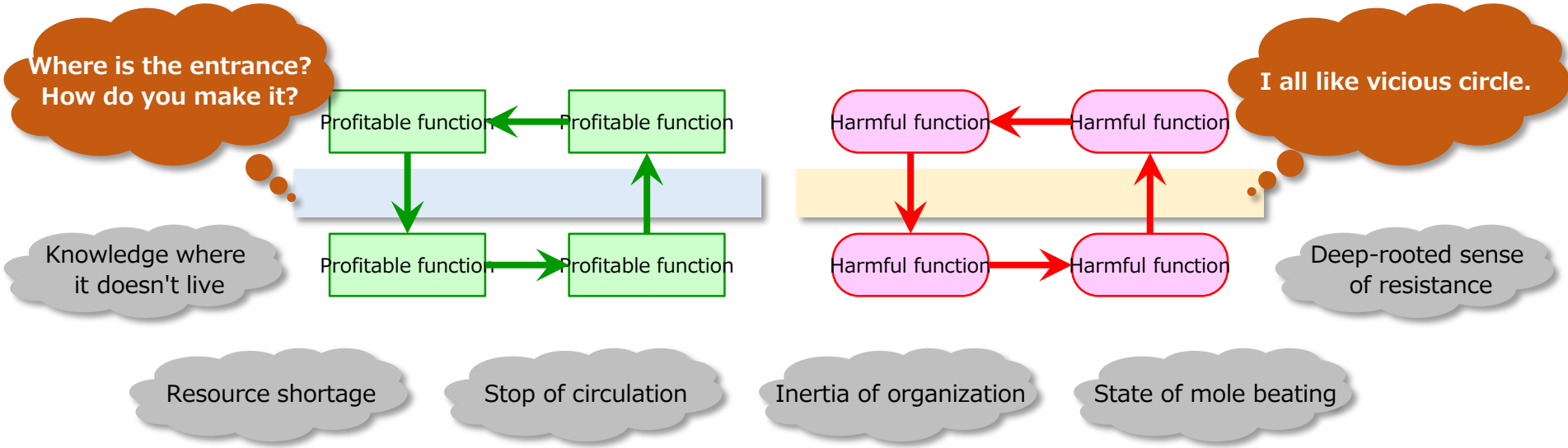
3-4. What is "It doesn't go well" concretely?

The asked voice is brought together.

- **The circulation model of a profitable function cannot be made.**
- **The circulation model with a strong harmful function cannot be destroyed.**

It has been understood to belong to either the above-mentioned.





Because the idea was requested from the solution, the application of TRIZ decided to be tried.
Here, the development of the process where the nontechnical issue was solved was needed.

4.

Process where nontechnical issue is solved

4-1. It is difficult to apply how to solve a technical problem as it is

There is a difficulty in classical TRIZ application.

The characteristic parameter of technical contradiction is not used easily.

17	Temperature
18	Illuminance
19	Energy consumption of movement object
20	Energy consumption of body at rest
21	Output
22	Energy penalty

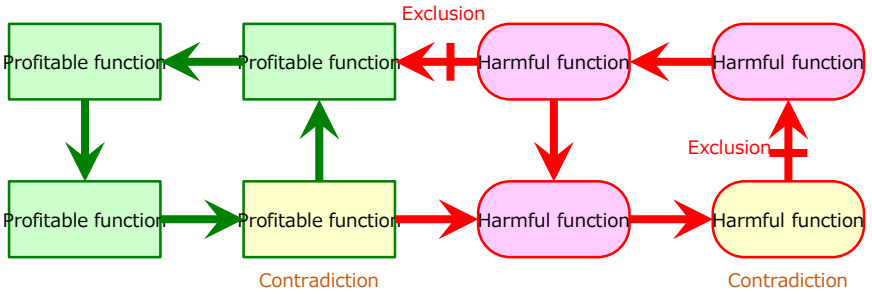
Which is relegation?

Place material-analysis is not used easily.

It was thought that application was difficult because there were a lot of parts not applied easily to the nontechnical issue.

Reason thought that I-TRIZ is suitable

It is good at schematization of a complex causal relation.
The disciple can also master it because it is simple.



It is easy to use problem grasp (ISQ) clearly.
Digging up of systems approach and resource

Comparatively, system that does easily.
Plainly of the operator system
It is gentle also to the intellectual property charge who is the TRIZ beginner.

The causal relation of a lot of invisibility systems that are is made visible easily and it is simple on the nontechnical issue.
I-TRIZ was adopted in the present study.

4-2. How to catch nontechnical issue

It thinks from a legal definition of the invention.

It is acceptable even if it doesn't use it.

Article 2 of patent law

The advanced one of creations of technical thought using laws of nature is said, "Invention" by this law.

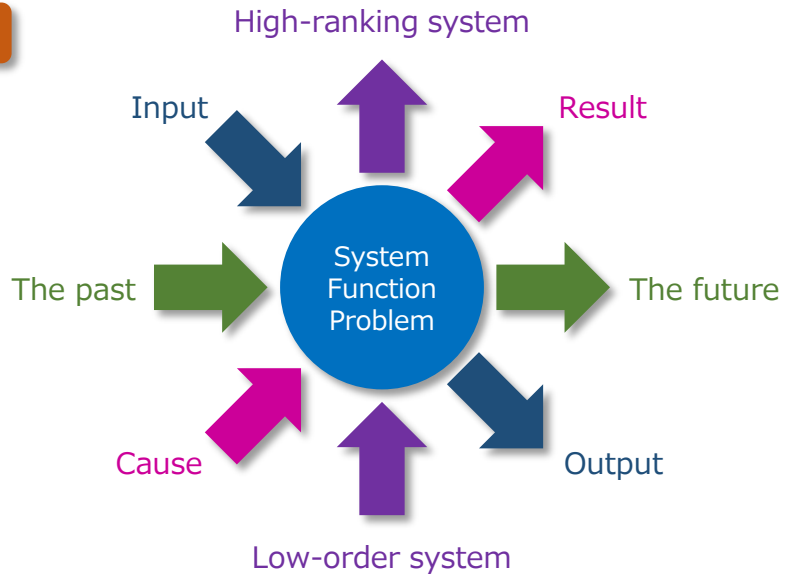
It replaces it with the creation of social thought.

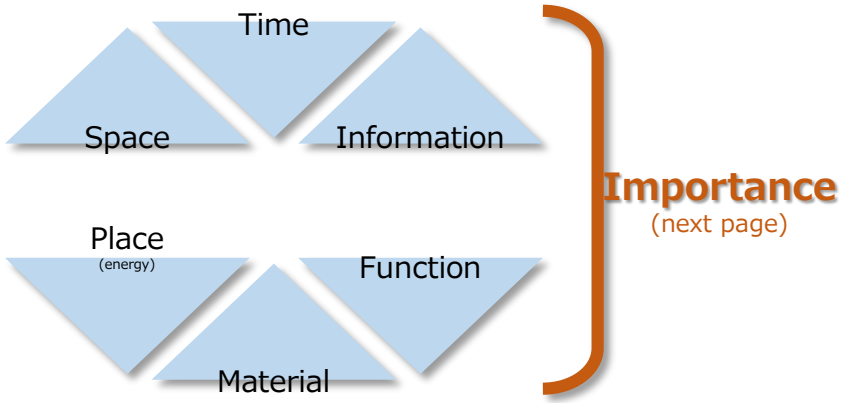
- It doesn't become the object of protection by the patent.

It thinks about the solution by catching a problem in a society and a corporate organization the invisibility system, and using a resource the invisibility system.

You may honestly catch not only the physical one but also the organization custom and psychology and feelings.
It is possible to correspond with a standard tool of I-TRIZ.

Digging up of multi viewpoint analysis and resource (I-TRIZ)

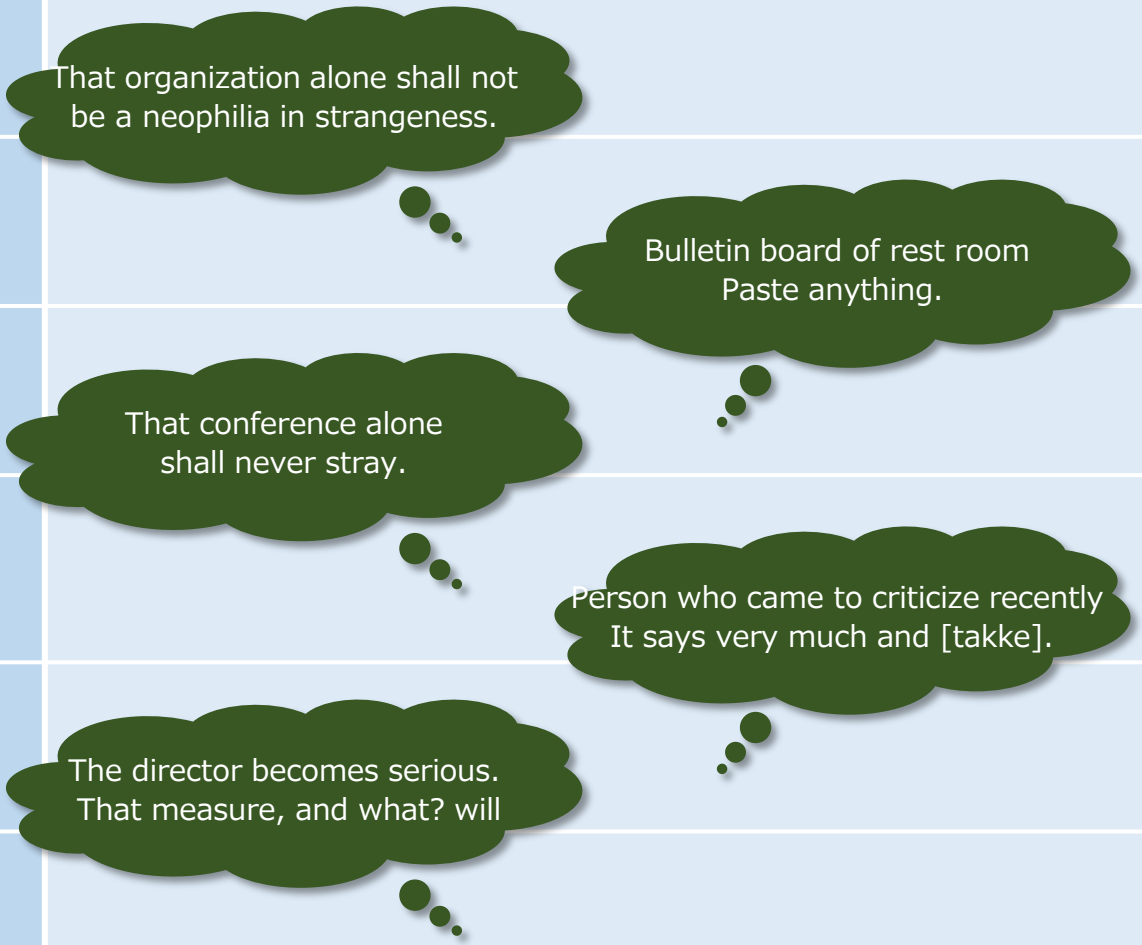




4-3. Digging up of resource

In both aspects of a natural science and the social science, the resource of the inside, the underusage, unused, and the use of use is dug up.
An invisibility, qualitative, negative one is intentionally enumerated.

Material	Key and IT system Bulletin board and common books Data room and data base
Place	Business environment (3C, 5F, SWOT) Atmosphere, energies, and the dark Culture and climate of organization
Space	Office and passage Conference room Rest room
Time	Working hours Conference time that stagnates and becomes complicated After the retire from one's office at break time
Information	Strategy and high-ranking policy Accumulation of organization Consultation, criticism, intelligence, and rumor
Function	Organization and conference body Director, employee, and faction Charisma and ..anti.. power



4-4. It is examined to change the resource by "Invention Matoba"

Do you take the shape of the source worth using it if it does very?

		Machine	Heat	Chemistry	Electricity	Magnetism	Electromagnetic force
		Visible action	Zeal and power	Synergy	Stimulation and transmission	Charm and interest	Influence exercise
Material	Key and IT system Bulletin board and common books Data room and data base						
Place	Business environment Atmosphere, energies, and the dark Culture and climate of organization						
Space	Office and passage Conference room Rest room						
Time	Working hours Conference time that stagnates and becomes complicated After the retire from one's office at break time						
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Function	Organization and conference body Director, employee, and faction Charisma and ..anti.. power						

The business environment is pungently analyzed in the sample.

An interesting case is posted in the rest room.

Information resources are obtained in the rest room.

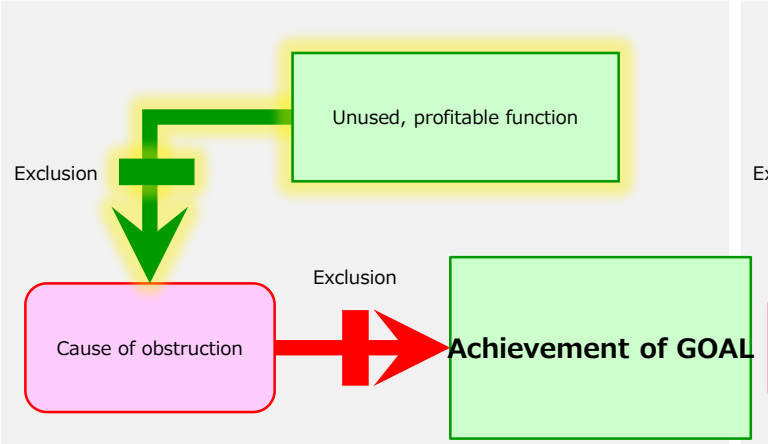
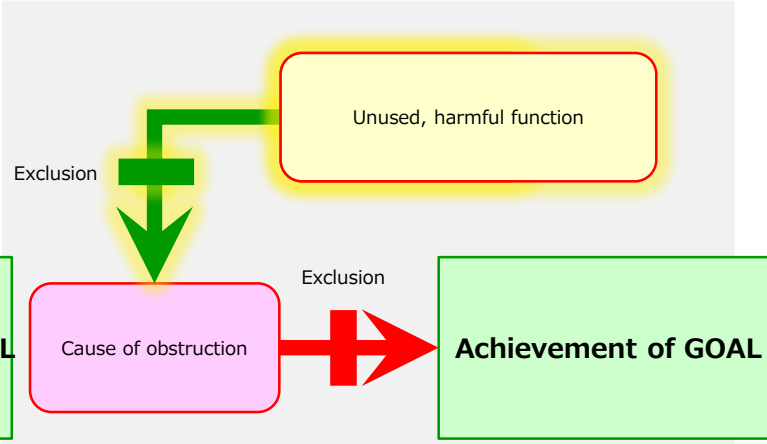
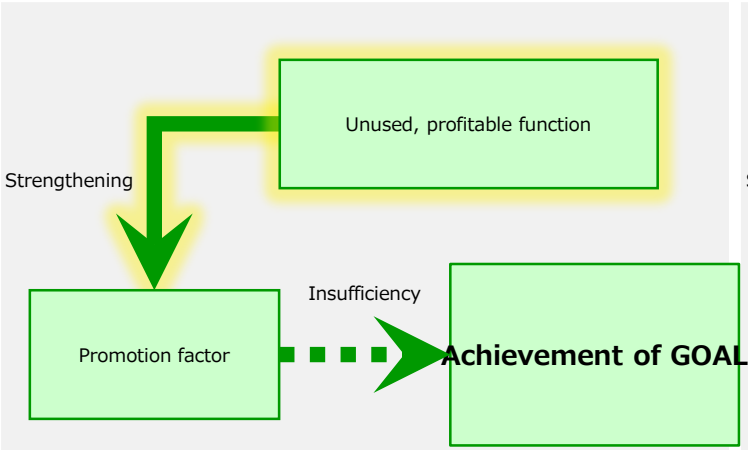
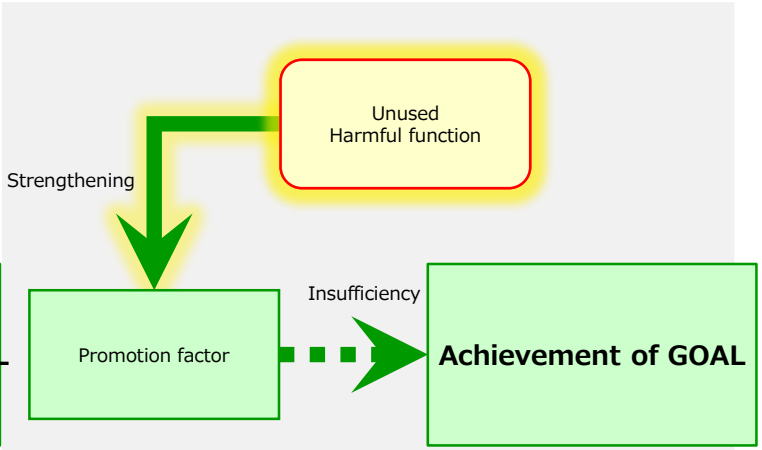
Information that can change stagnation is offered.

The meeting to be enjoyed comfortably after the retire from one's office is held.

The anti power of a reverse-opinion is combined.

The feared director is applied to the ally.

4-5. The resource is made a function, and the causal relation of the current state is changed

	A positive resource is made the best use of.	A negative resource is made the best use of.
Cause of obstruction Exclusion		
Promotion factor Insufficient cancellation		

※The expression of "Insufficiency" was expediently used for I-TRIZ PF though was not.

5.

Development with non-TRIZ user

5-1. Outline of approach

The approach that introduced TRIZ in various, intellectual property community was executed last October.

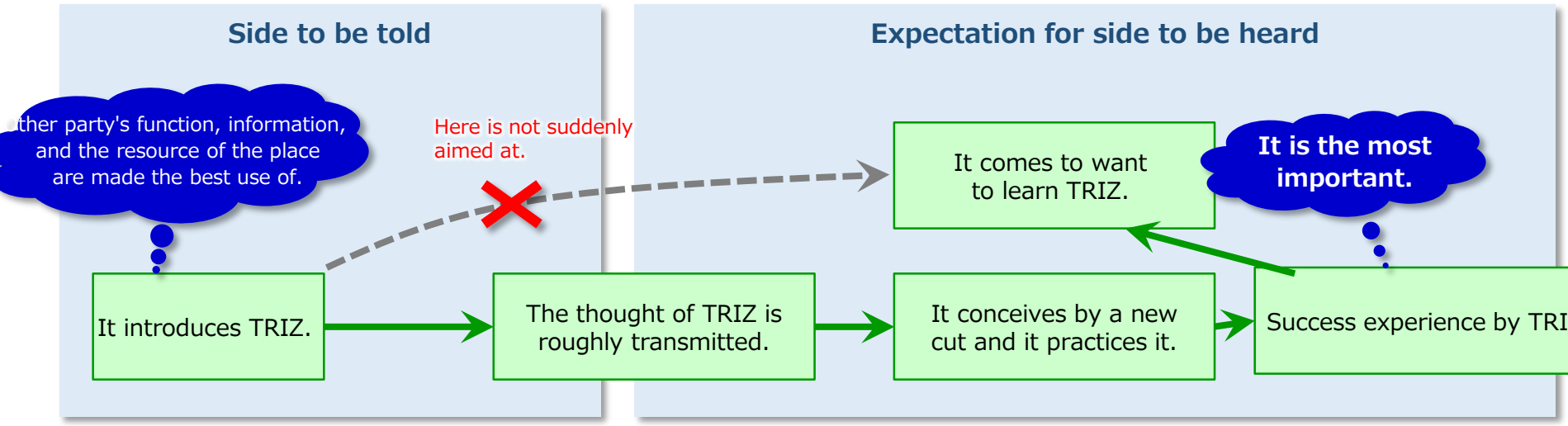
Four times in total

200 people in total

Most of the object are not TRIZ users.

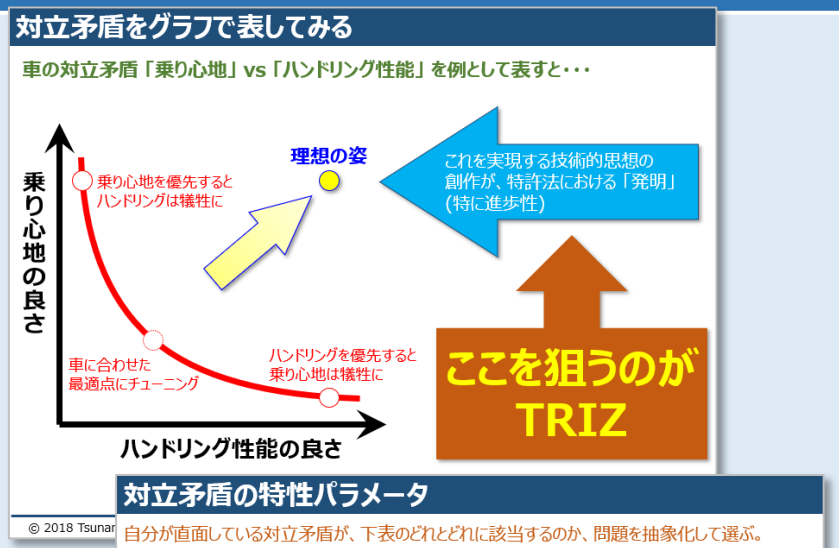
Because it is not an engineer, one felt that the nontechnical issue is familiar.

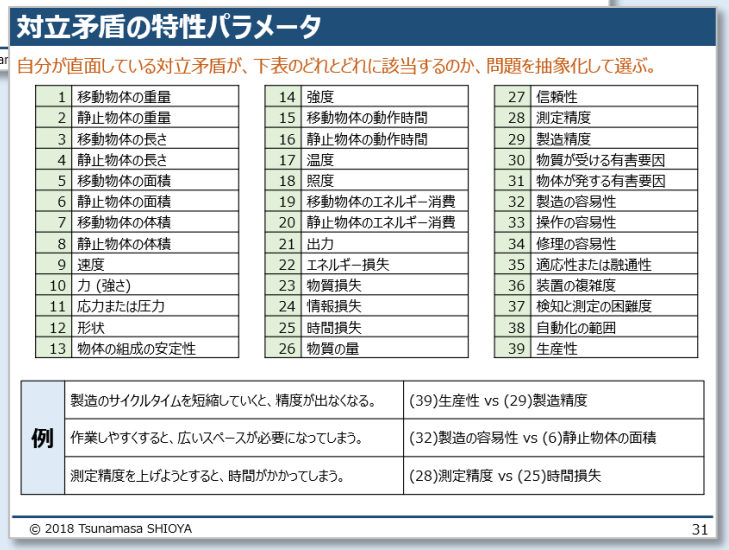
Concept It is excluded that it is difficult. It is interested also in TRIZ assuming useful contents for the other party.



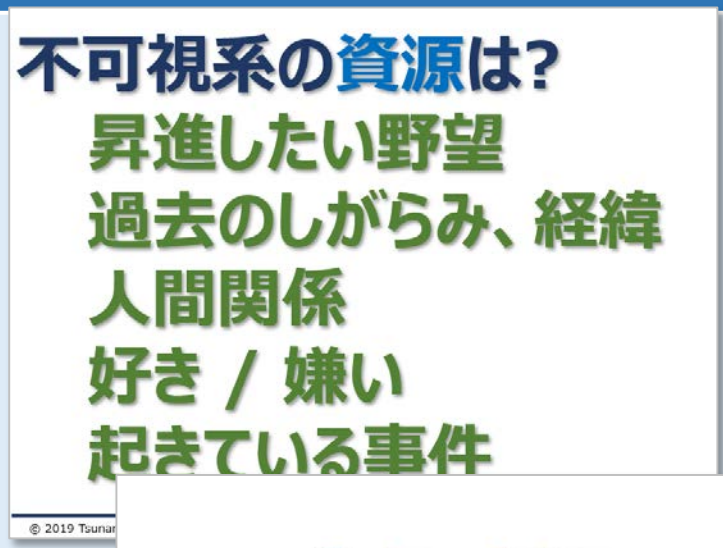
5-2. It actually told it ～ It limits it to the core part that can be used at once

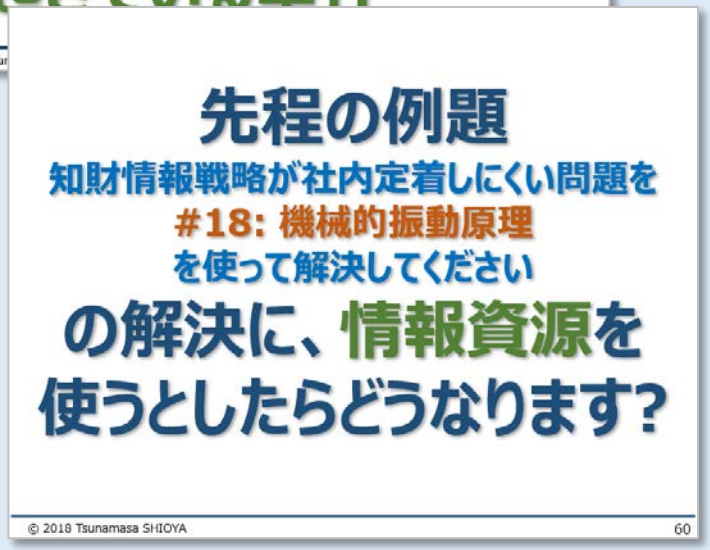
Do not run away to optimization.
"It is necessary to look straight at the confrontation contradiction. "





The conception is insufficient only in the invention principle.
"It is necessary to make the best use of unused resources. "





5-3. Using of compulsion conception by Inventive Principles together

It introduces it referring to the conception case where an arbitrary invention principle is used.

→ It explains by the context of an important actually feeling of drawing out not the praise of the invention principle but the resource.

1	Division principle
2	Separation principle
3	Locality quality principle
4	Asymmetric principle
5	Combination princi
6	Generality princi
7	Nest principle
8	Balance principle
9	Advance reaction pri
10	Advance action princi
11	Prior protection principle
12	Potential principle
13	Reverse-concepti
14	Curved surface principle
15	Dynamic principle
16	About principle
17	Another dimension shift principle
18	Mechanical vibration principle
19	Periodic action pri
20	Continuity principle

It precedes only in the section friendly and it develops.

They are made to disappear in other measures, and it combines and it introduces it.

The assumption questions and answers matched to other party's interest are prepared.

It recommends to there is an influence and the title person ([sutema]).

It advances it to [ajairu] without working over the plan too much.

The measure continues in honestly and the smell of mud without becoming interrupted.

21	High-speed execution principle
	Principle that changes and
23	Feedback theory
24	Mediation principle
25	Self-service principle
26	Alternative principle
27	Short longevity principle that is cheaper than expensive long life
28	Mechanical system substitution iple
29	Fluid use principle
30	Thin film use principle
1	Porous quality use princ
2	Discoloration use princi
33	Homogeneity principle
34	Exclusion/reproductio
	Parameter principle
	Aspect change principle
37	Heat expansion principle
8	High density oxygen use pri
9	No revitalization atmospher
0	Composite materials princip

After it trains firmly, it develops at a dash.

The failure and the success case are shared.

Anyway, it is executed to worry this and that.

The viewpoint that talks about the charm is matched to other party's interest.

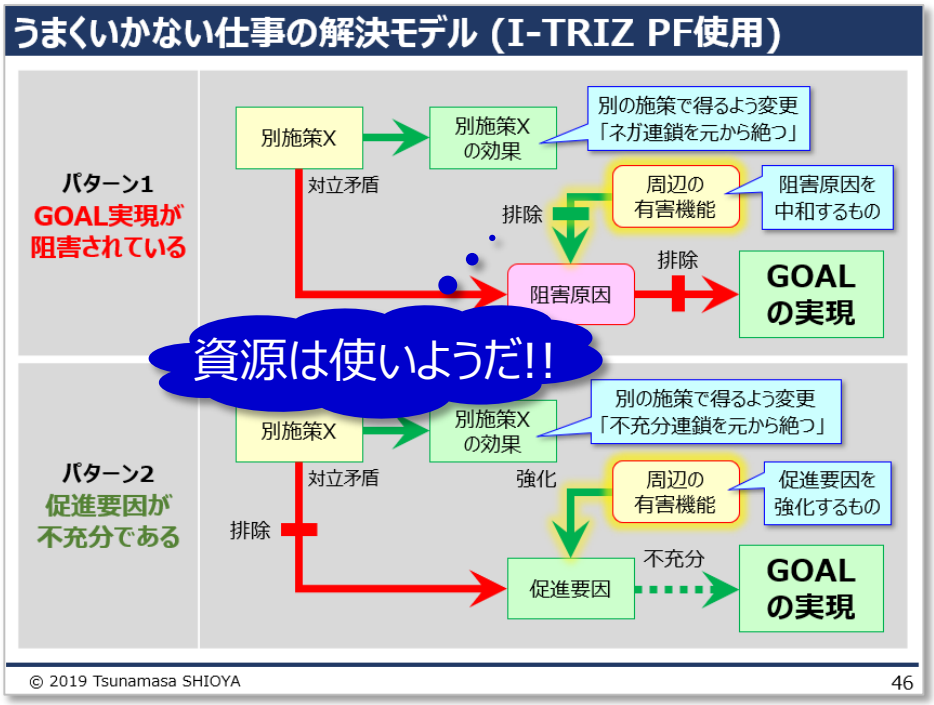
Only the person who has the influence teaches and it makes it to the fan.

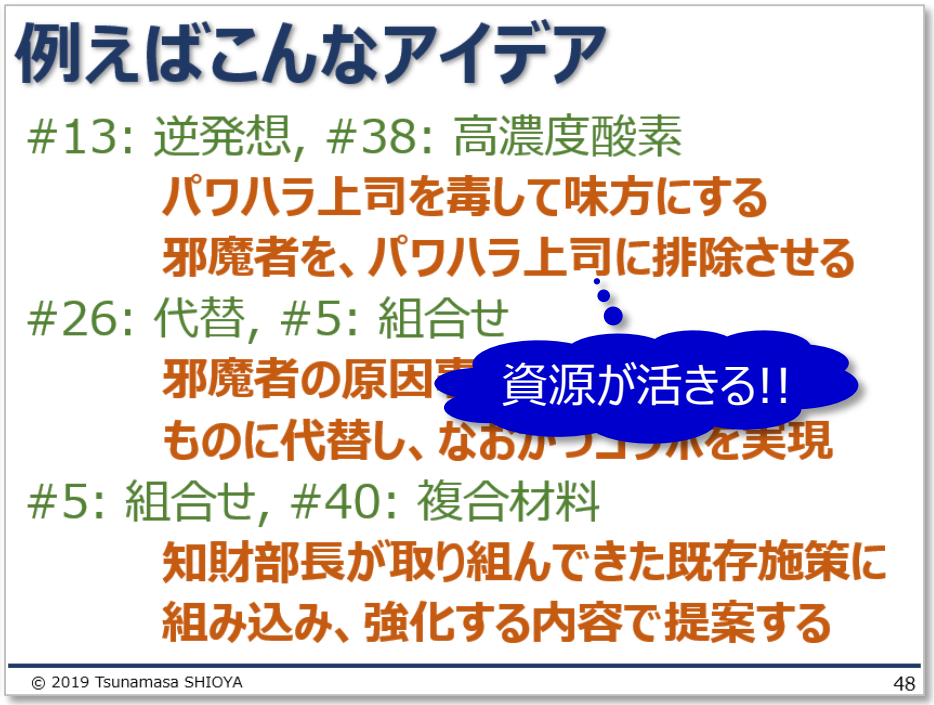
The approach is made and incontrovertible air is made.

5-4. It proposes the usage of an unused resource

The resource drawn out is built in to change the causal relation into a preferable direction.
It proposes that you use the invention principle together with the conception of the built-in idea if necessary.

※The concept of "Confrontation contradiction" seems to feel that it is difficult in non-engineer unexpectedly.



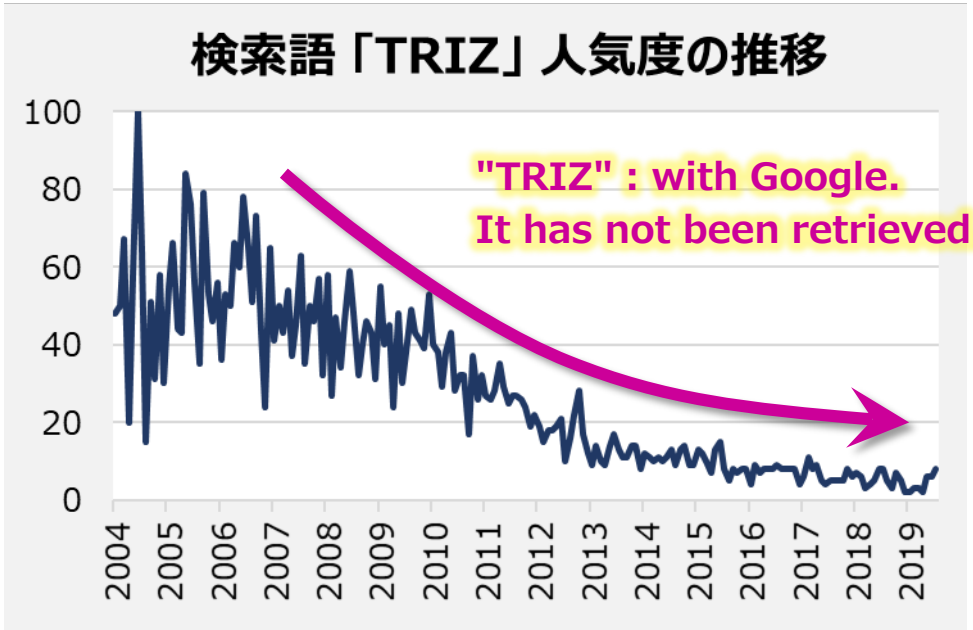


It emphatically explains neither the confrontation contradiction nor the invention principle.
You may explain with a target axis to change the causal relation of the problem.

6.

Possible use to development in organization of TRIZ

6-1. Perception about the present state of affairs concerning TRIZ spread



Data出所: Googleトレンド, 集計範囲: 日本

In the content of the symposium announcement, in the inside and recent years to which the topicality of TRIZ keeps decreasing, the proposal of the technique and the introduction of the use case, etc. are subjects.

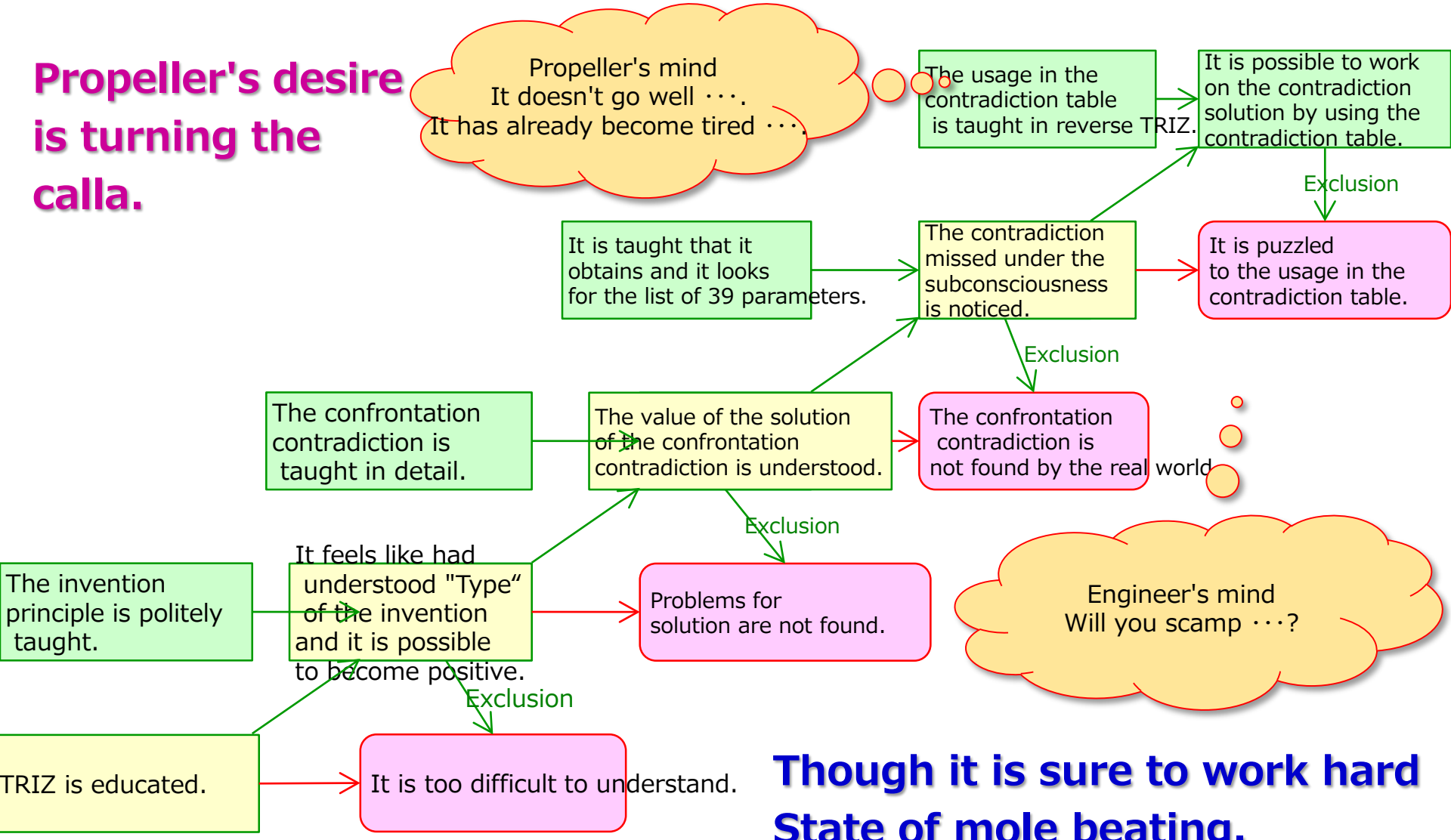
Though TRIZ is profitable

It doesn't extend why.

Does not the TRIZ user create the idea to develop TRIZ spreading now and how on earth do it do?

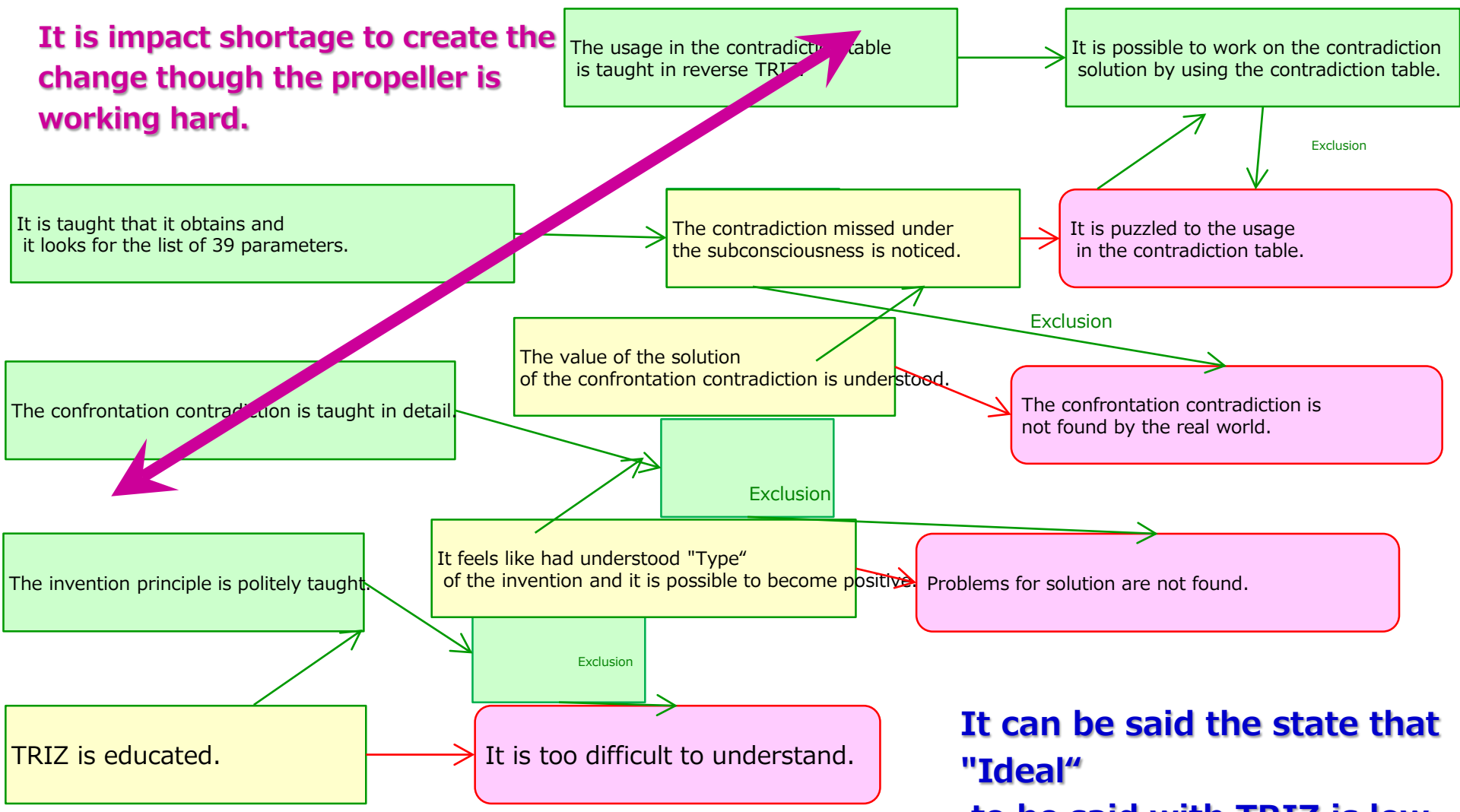
6-2. Tend you to be? ・・・ TRIZ education that doesn't go well

Propeller's desire is turning the calla.

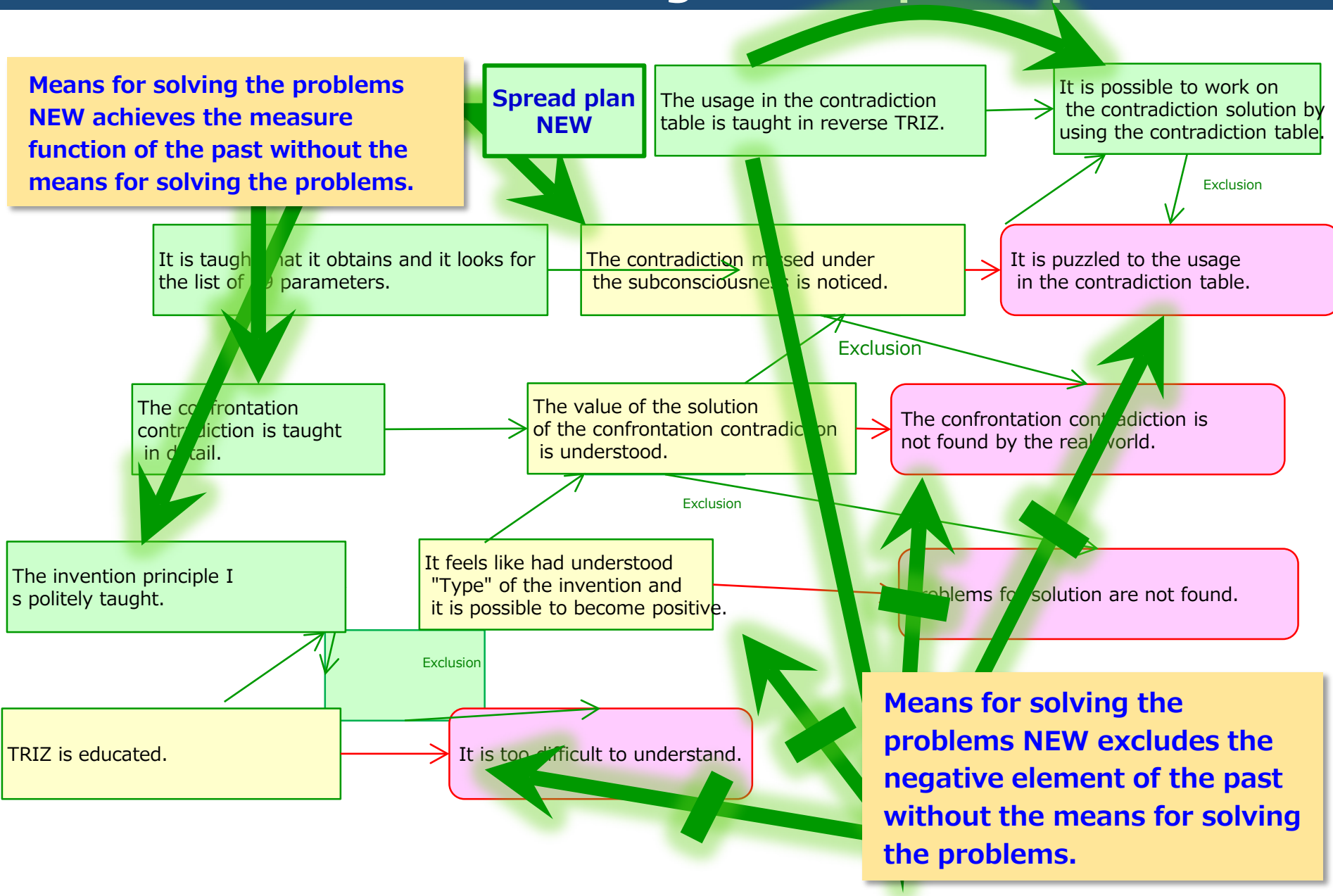


Though it is sure to work hard
State of mole beating.

6-3. However, I hate the mole to be beaten



6-4. What is an ideal and high TRIZ spread plan?

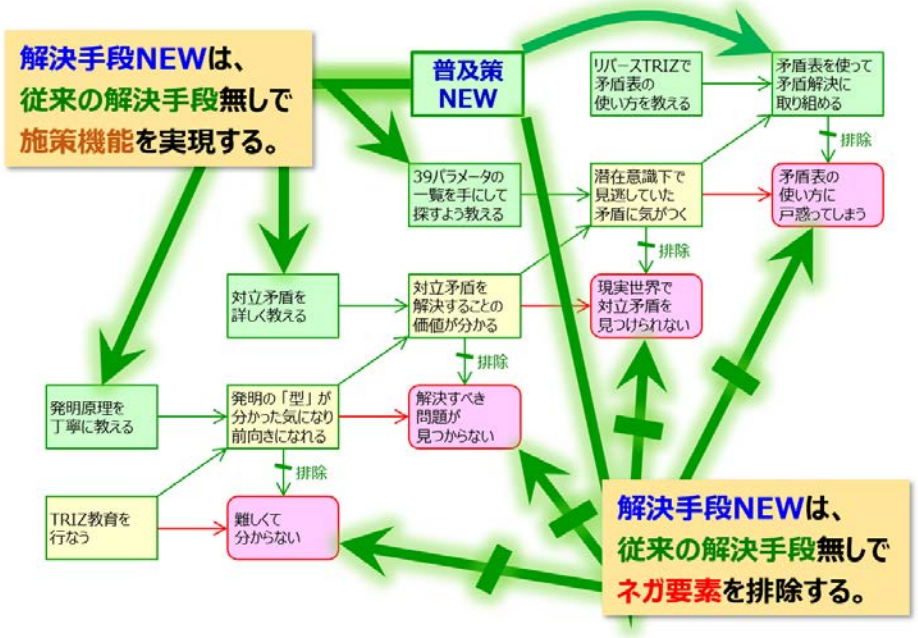


6-5. Aiming at "TRIZ spread plan NEW" creation

Spread plan NEW

What ideal solution do you draw?
To what do you pay attention as a resource that is underused, unused, and used?
Why do you want to develop TRIZ to begin with?

		機械	熱	化学	電気	磁力	電磁力
		可視的行動	熱意、迫力	シナジー	刺激・伝達	魅力・面白さ	影響力行使
物質	基幹・ITシステム 掲示板、共用図書 資料室、データベース						
場	事業環境 雰囲気、活力、闇 組織の文化、風土						
空間	事務所、通路 会議室 休憩所						
時間	勤務時間 停滞・紛糾した会議時間 休憩時間、退勤後						
情報	戦略、上位方針 組織の蓄積 相談、批判、諜報、噂						
機能	組織・会議体 役員、従業員、派閥 カリスマ、アンチな勢力						



I want to propose to solve "Do not extend though TRIZ is profitable" problem by using TRIZ.

The ideal is high. !! An unused resource is made the best use of well. !!

Summary

Summary

TRIZ can be applied to the solution of the nontechnical issue by devising the systems approach and digging up the resource.

The solution of the nontechnical issue may catch as "Creation of social thought", and find unused resources by both aspects of a natural science and the social science.

It consequentially causes the interest concern for TRIZ than teaching TRIZ immediately when introducing it as a means for solving the problems of the problem consideration of the other party.

It proposes to use TRIZ to create the spread means of TRIZ.
It wants to make the best use of an unused resource well, and to spread the ideal high.

Intellectual Property Creation Research Subcommittee

Japan TRIZ Society