

**OLYMPUS**

Your Vision, Our Future

# Promotion of scientific methods including TRIZ

- Challenge to the output against time in the development field -

**September 10, 2011**

**DEM Technology Department**

**Monozukuri Solution Division**

**Olympus Corporation**

- 1. About Olympus**
- 2. Promotion of scientific methods in Olympus**
- 3. Time requirement for the application of methods**
- 4. Approach for saving time of scientific methods**
  - (1) Saving time in learning process**
  - (2) Optimal selection of process for the target**
  - (3) Reduced loss in the methods**
  - (4) Improved efficiency by combination of methods**
- 5. Promotion system in Olympus**
- 6. Summary**
- 7. The next expansion**

# 1. About Olympus

Established : October 12, 1919

Head office : Shinjuku-ku, Tokyo, Japan

Capital : ¥ 48,332 million (As of March 31, 2011)

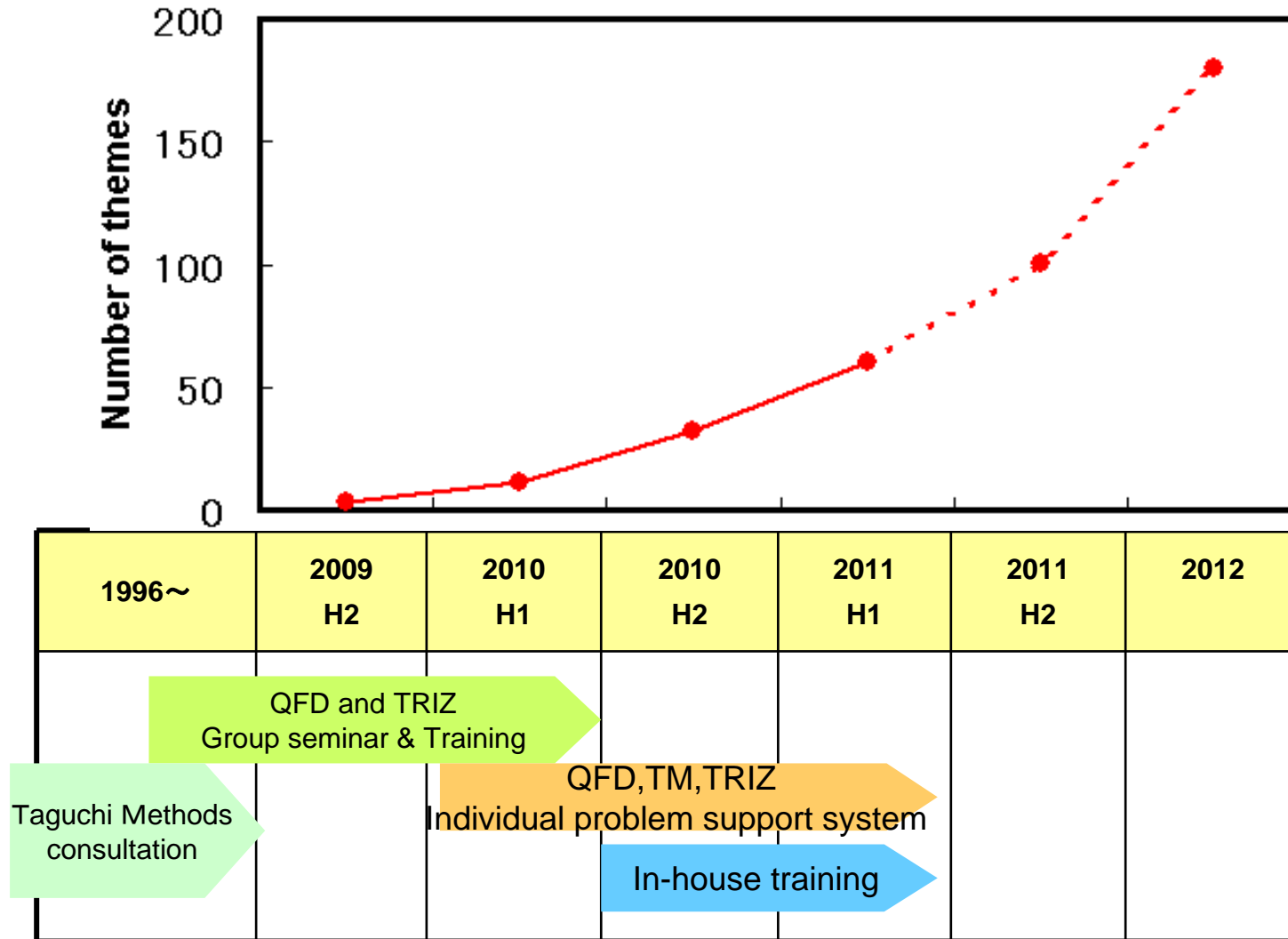
Consolidated net sales : ¥ 847,105 million (Fiscal Year Ended March 2011)

Consolidated headcount : 39,727 (As of March 31, 2011)



## 2. Promotion of scientific methods in Olympus

Trends in the number of themes



#### Designers are sensitive to the time

Because..

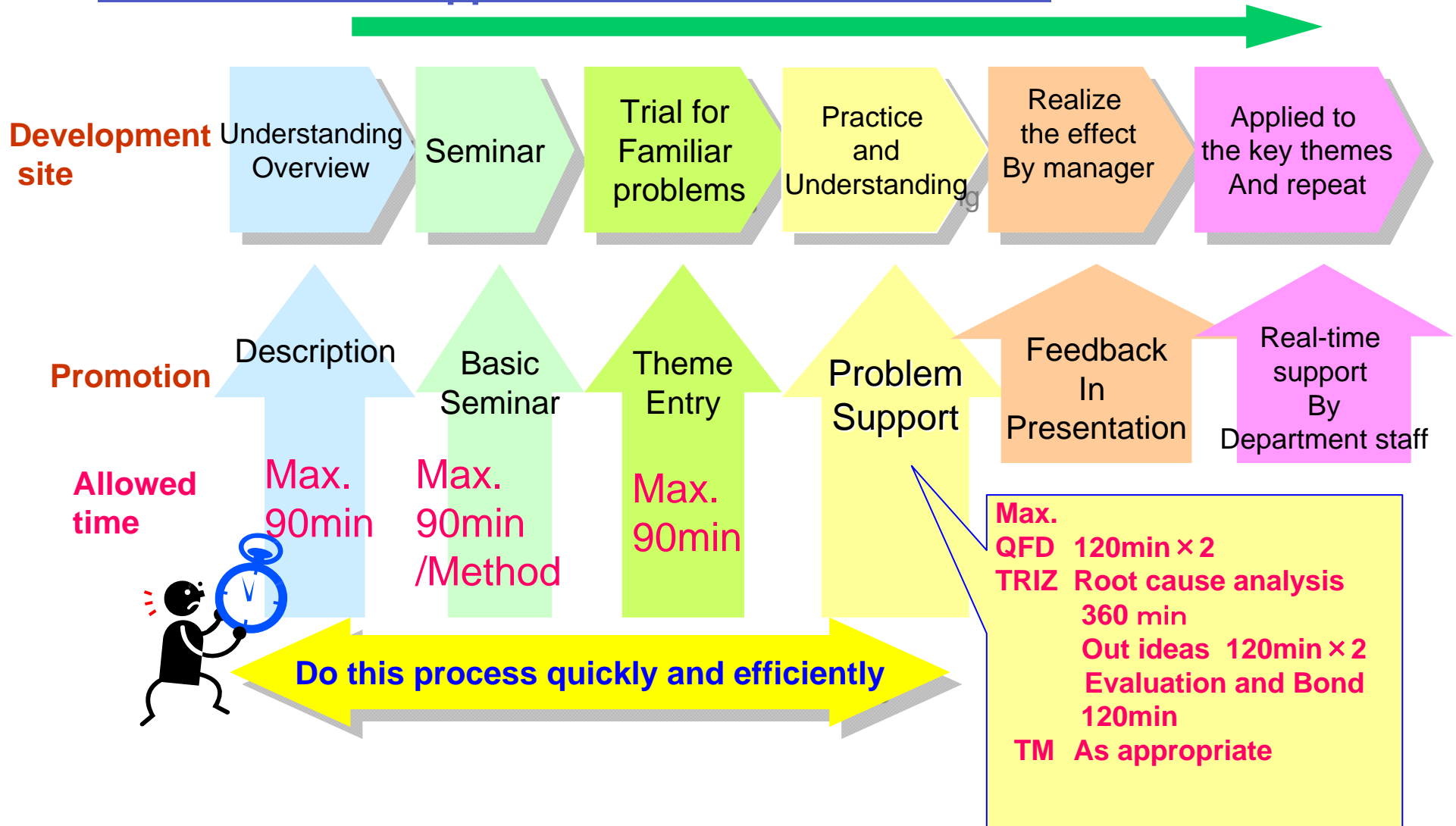
- ◆ No time for training after the Lehman Shock
- ◆ No time for new methods ,because product development cycle is fast
- ◆ Not useful for methods such as QFD despite the time-consuming



**Long time to apply methods and training is NG !**

# 3. Time requirement for introduction of methods(2)

## Allowed time for application of scientific methods



## 4. Approach for saving time of scientific methods

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7



- ◆ Saving time in learning process
- ◆ Optimal selection of process for the target
- ◆ Reduced loss in the methods
- ◆ Improved efficiency by combination of methods

# 4-(1) Saving time in learning process

## ① Individual problem support system

### Basic seminar and Individual problem support

Group seminar & Training (13days)



Group seminar (3days)

+



Training (10days)



Individual problem support system (3days~)



Basic seminar (90min × 1-4)

+



Individual problem support (90min × n)



## 4-(1) Saving time in learning process

### ②Result of Individual problem support system

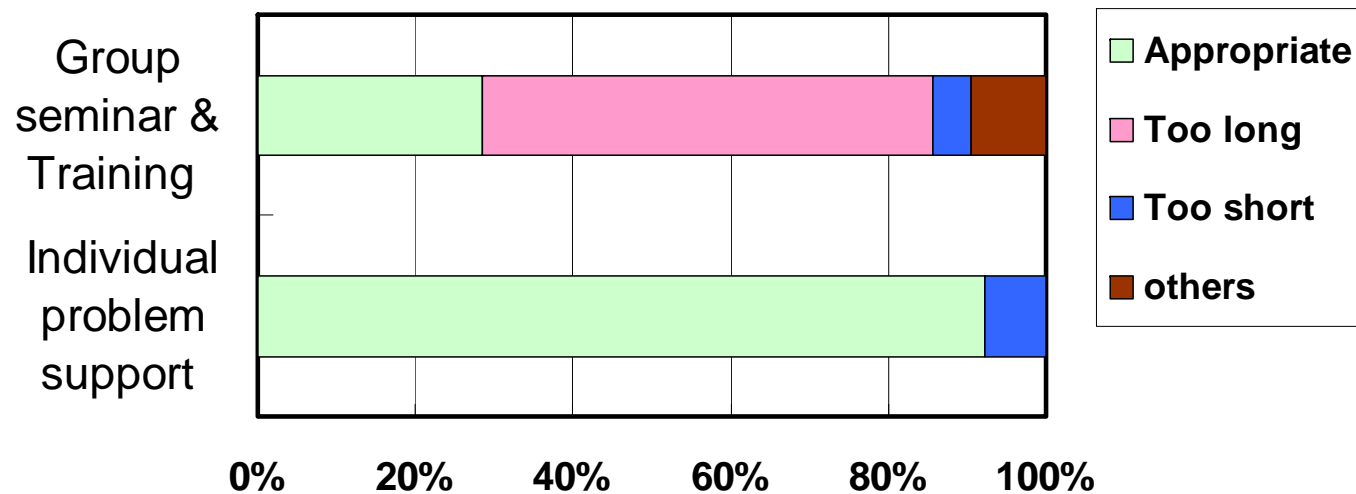
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#### Individual problem support system

Determine method to problem in the first consultation.  
Attend to basic training and receive our support in each milestone.

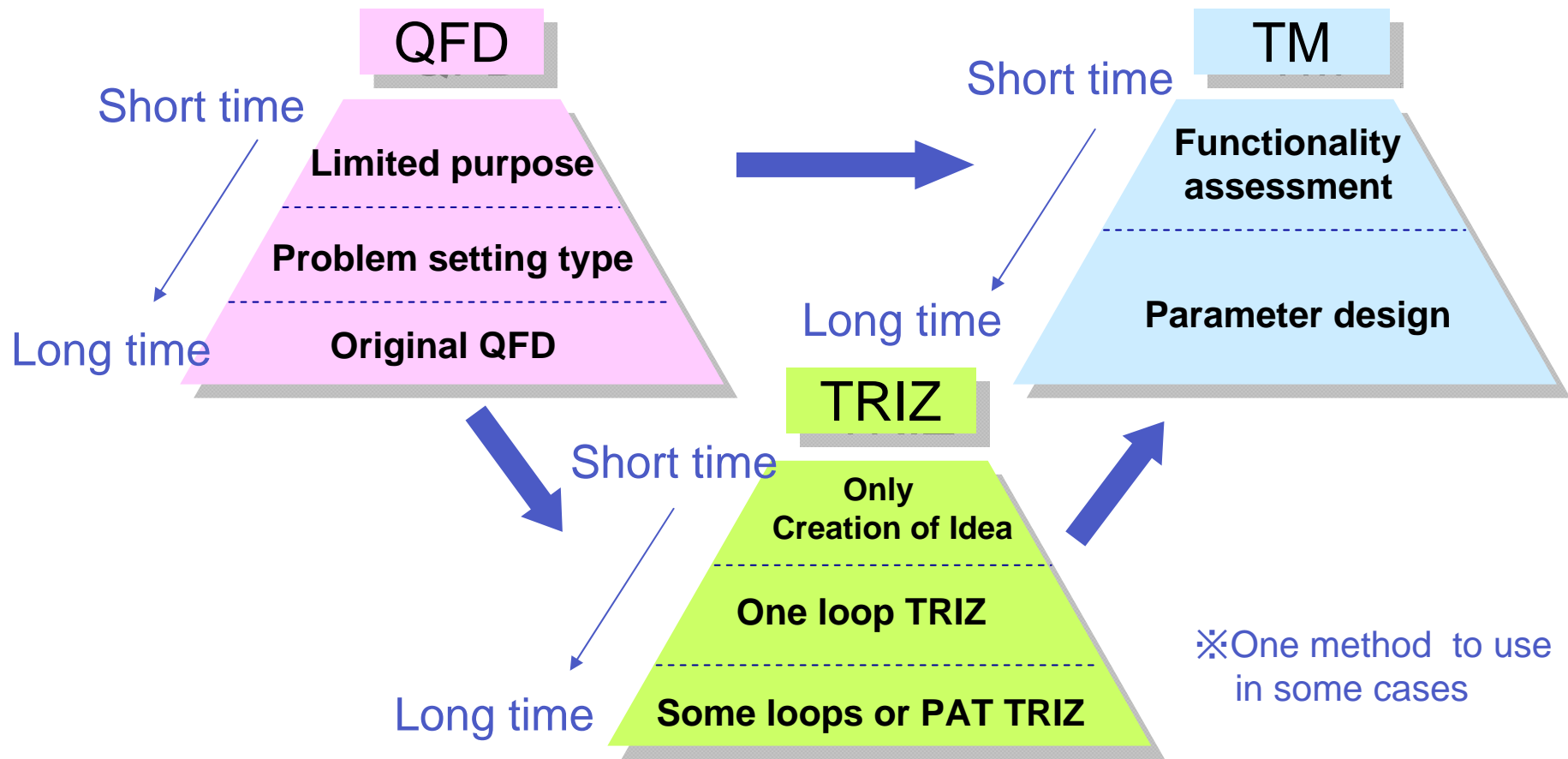
#### Result of survey on learning time

(Individual problem support system: 4 teams , Group seminar & Training:7teams, 50 engineers )



# 4-(2) Optimal selection of process for the target

## Using various types of methods according to the problem

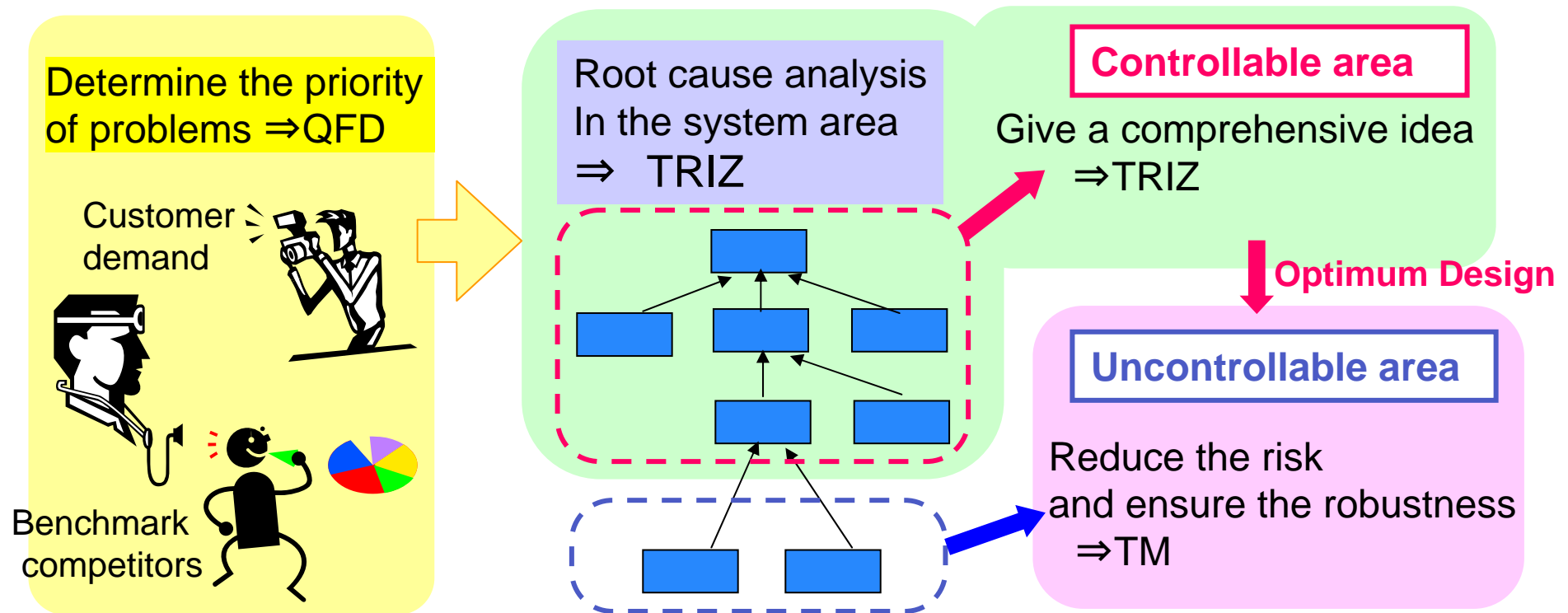


## 4-(3) Reduced loss in the methods ① Setting problem

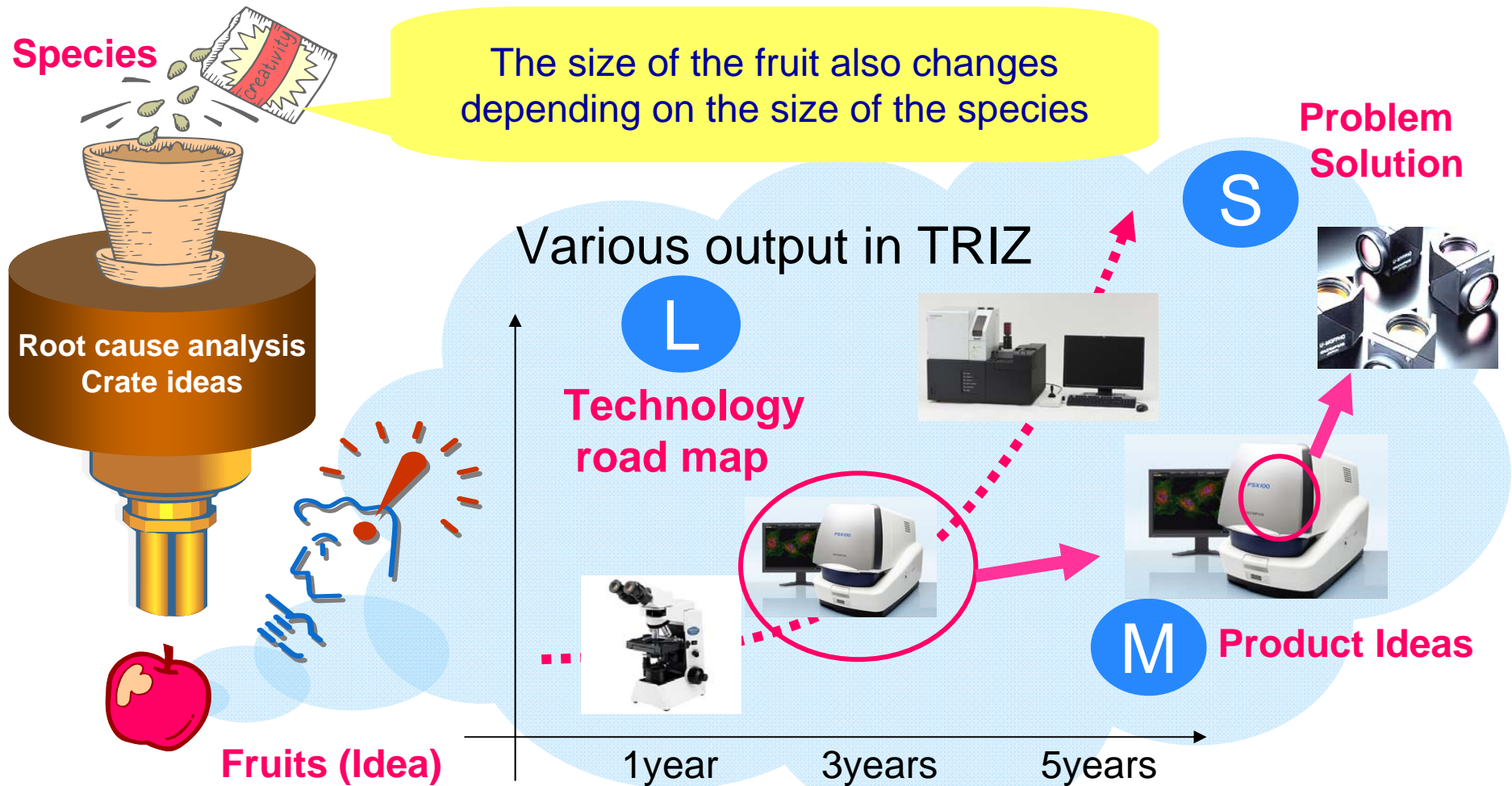
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### To clarify areas of the system in setting problem

- ① Clarify area of the system (Designer's controllable area)
- ② Give comprehensive ideas in the system area
- ③ Reduce the risk outside the controllable area



## Input species and Output fruits in TRIZ process

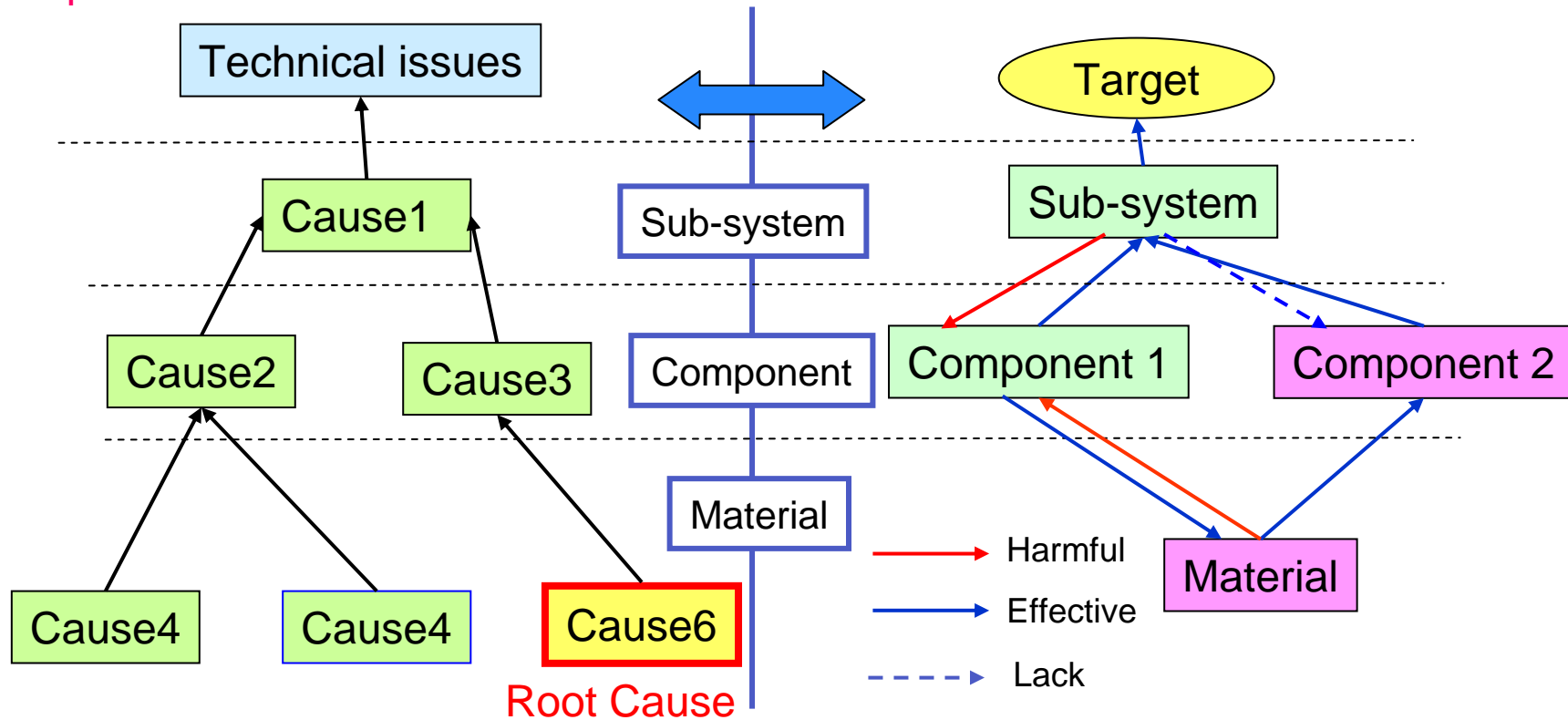


## Time of Root cause analysis

Time of Why –Why- Analysis < Time of Functional analysis

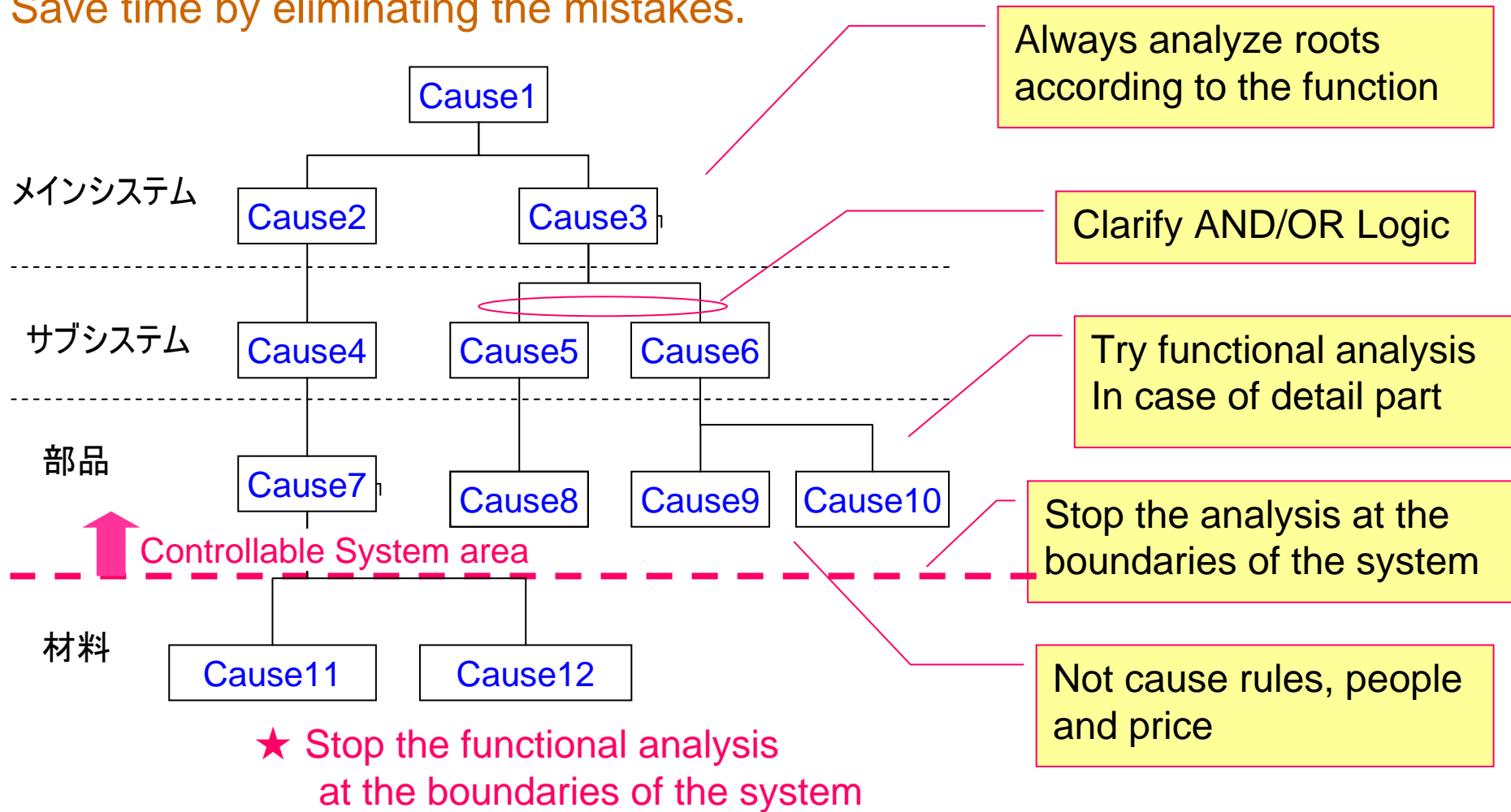
Save time by eliminating mistakes  
In the process.

Save time by using partial functional analysis



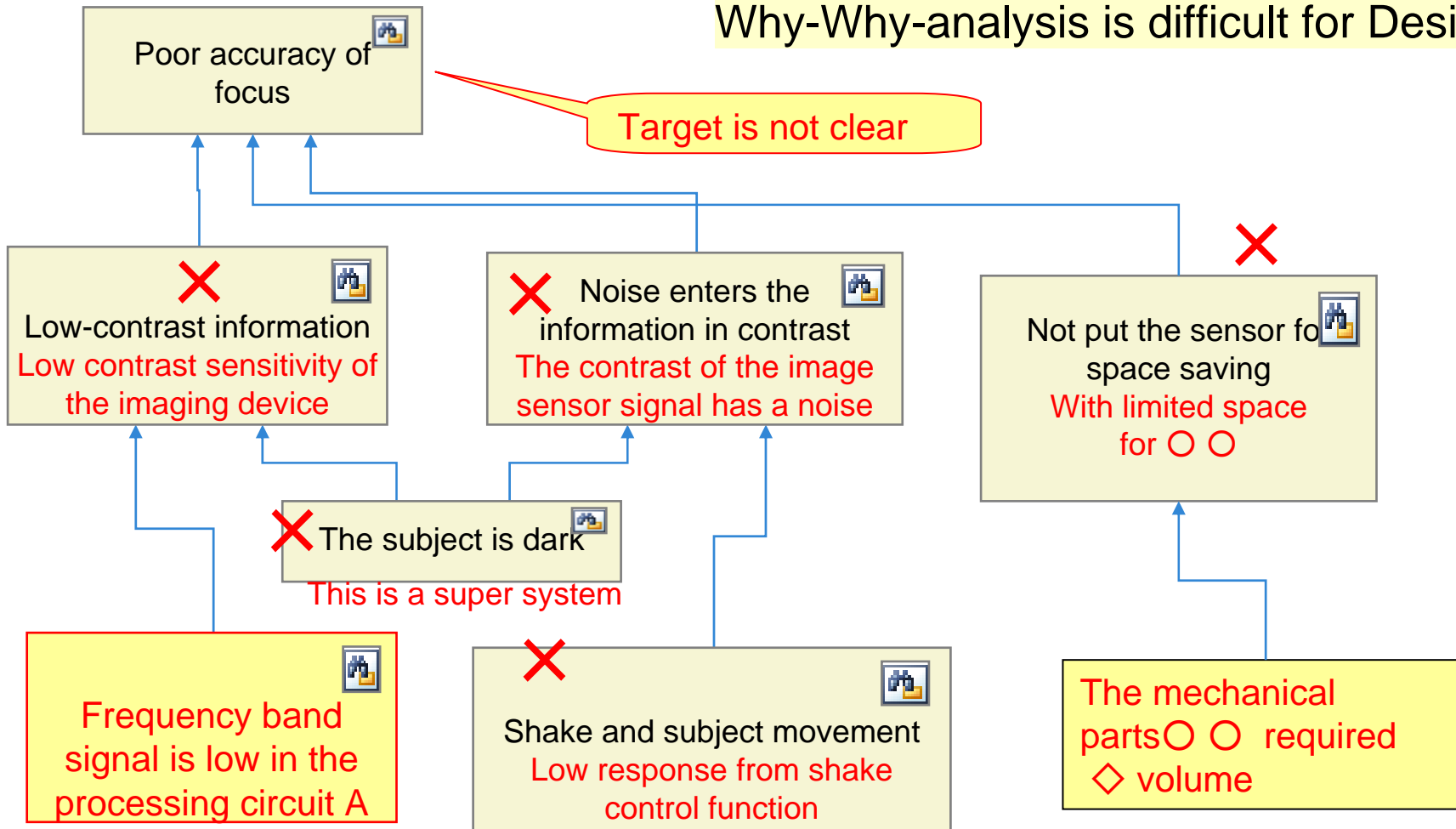
## Rules in root cause analysis

Save time by eliminating the mistakes.



## Example in the root cause analysis

Why-Why-analysis is difficult for Designer



※ Red text :Correction by instructor

# 4-(4) Improved efficiency by combination of methods

## ① QFD→TRIZ

### Problem of Original QFD

The image shows a large, dense matrix used in Quality Function Deployment (QFD). The matrix has many columns and rows, with various symbols and numbers indicating relationships between different functional requirements and technical specifications. The matrix is presented as a grid with a header row and multiple data rows.

Huge matrix Increases our working hours



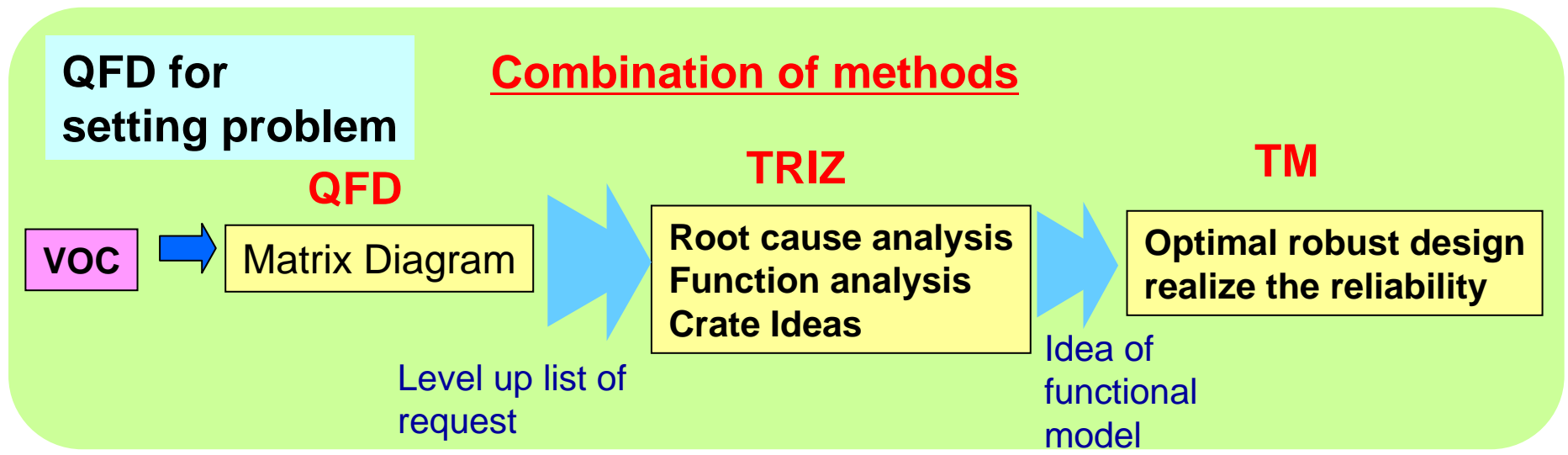
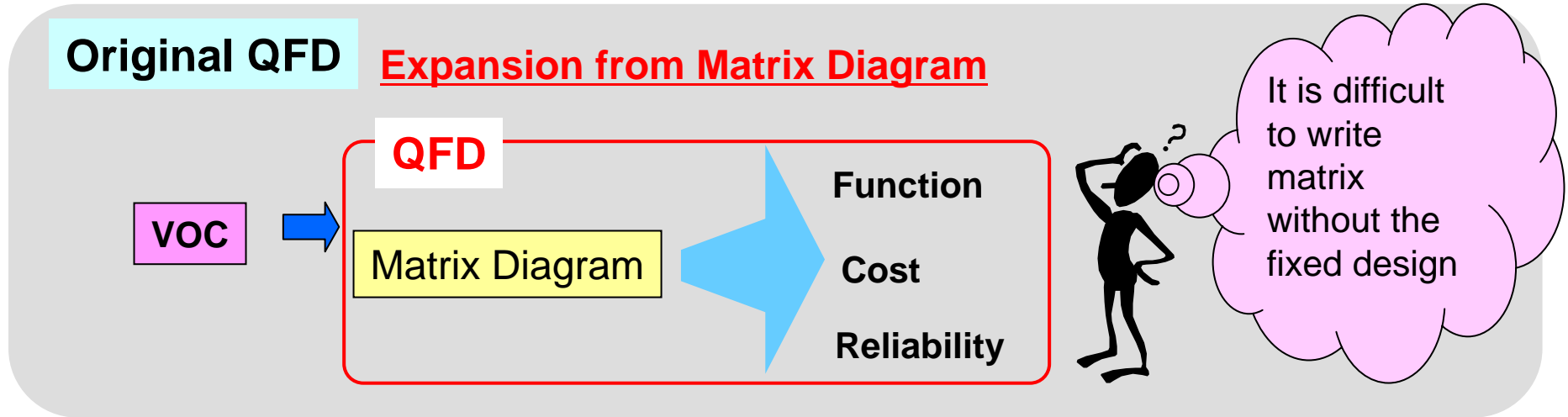
- \* Downstream functional analysis will require the precise matrix
- \* It is difficult to write all detail specifications before fixed design



# 4-(4) Improved efficiency by combination of methods

## ② QFD→TRIZ

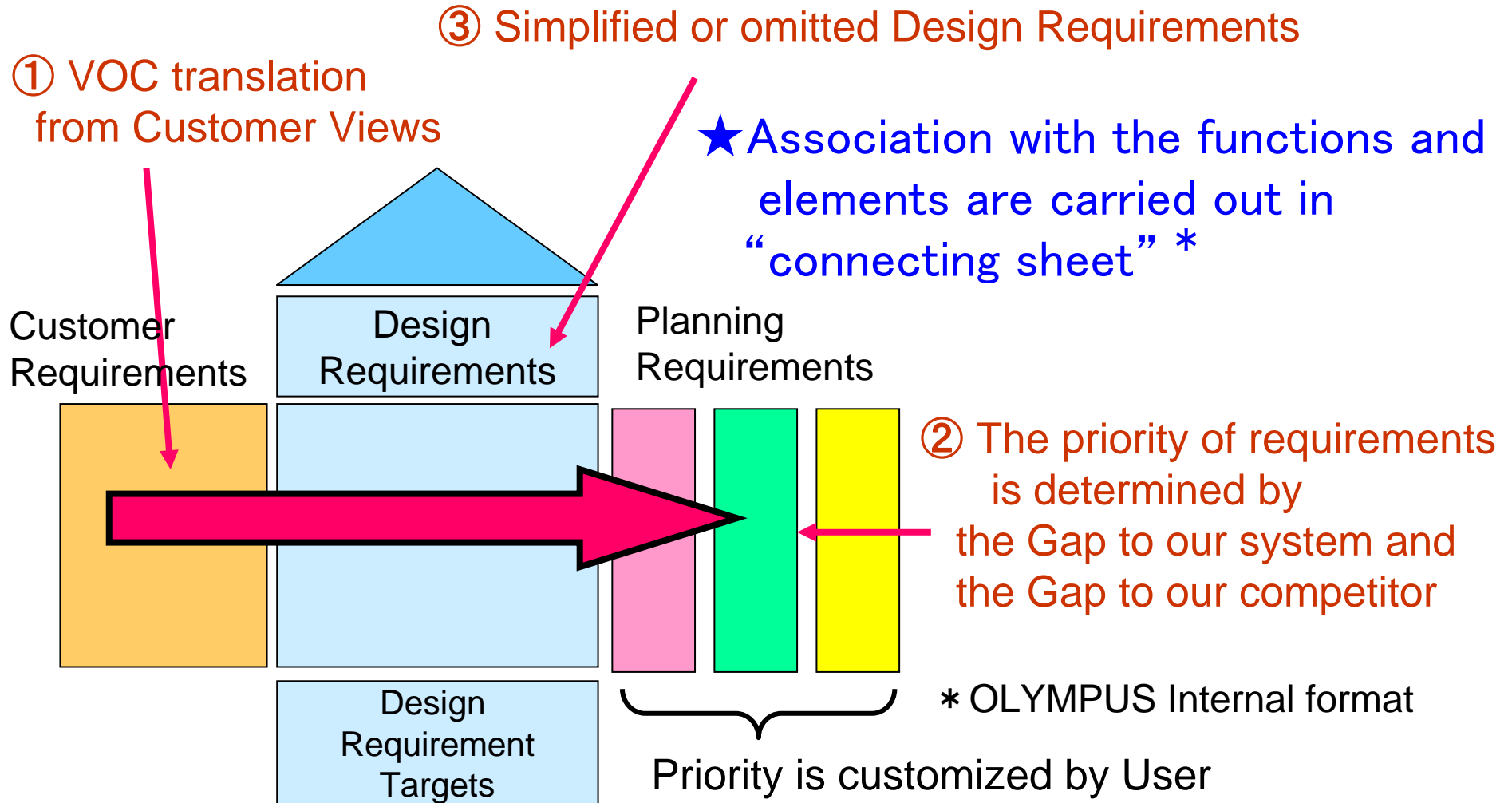
### Efficient QFD for TRIZ



# 4-(4) Improved efficiency by combination of methods

## ③ QFD→TRIZ

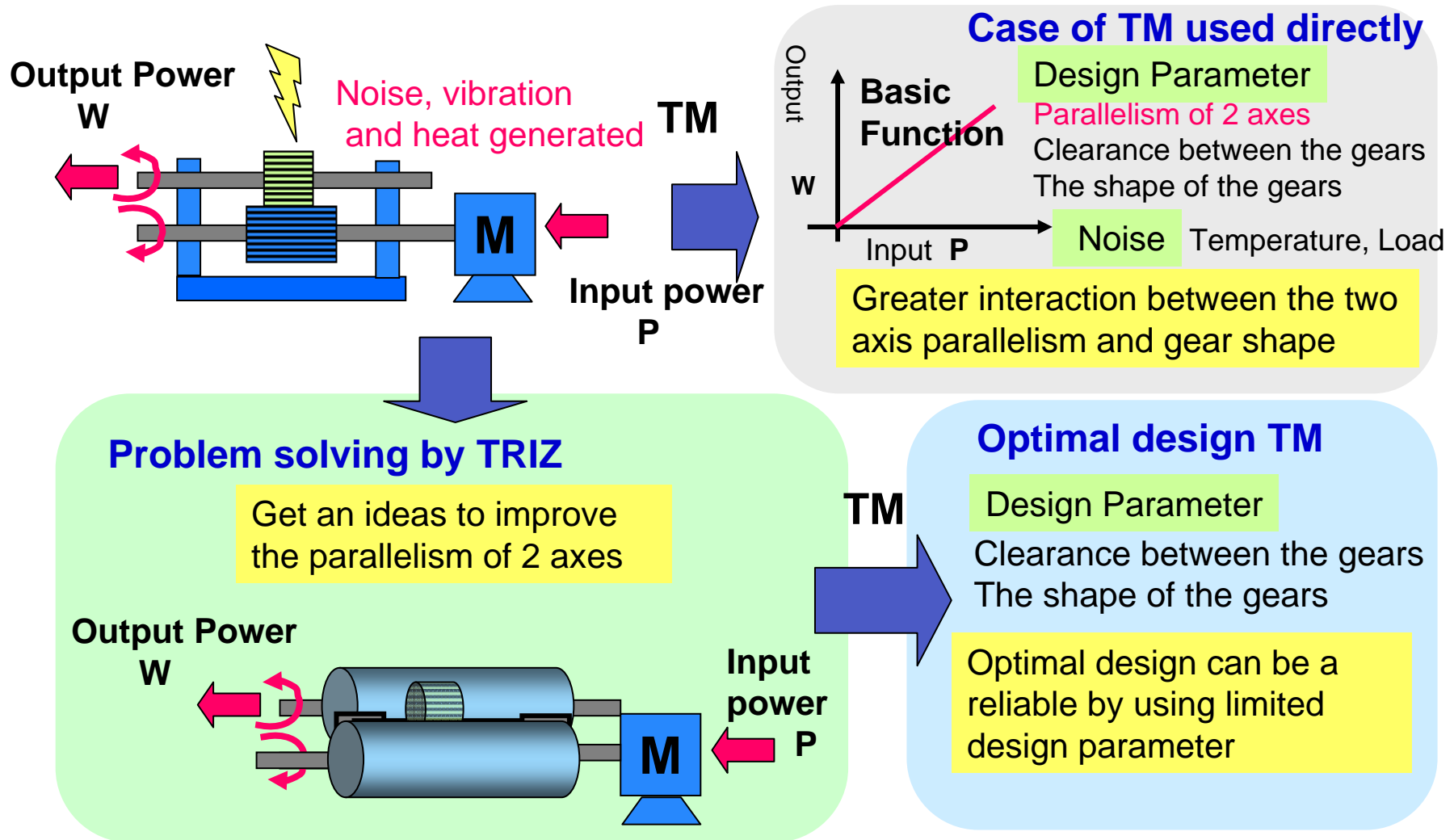
### QFD for setting problem



# 4-(4) Improved efficiency by combination of methods

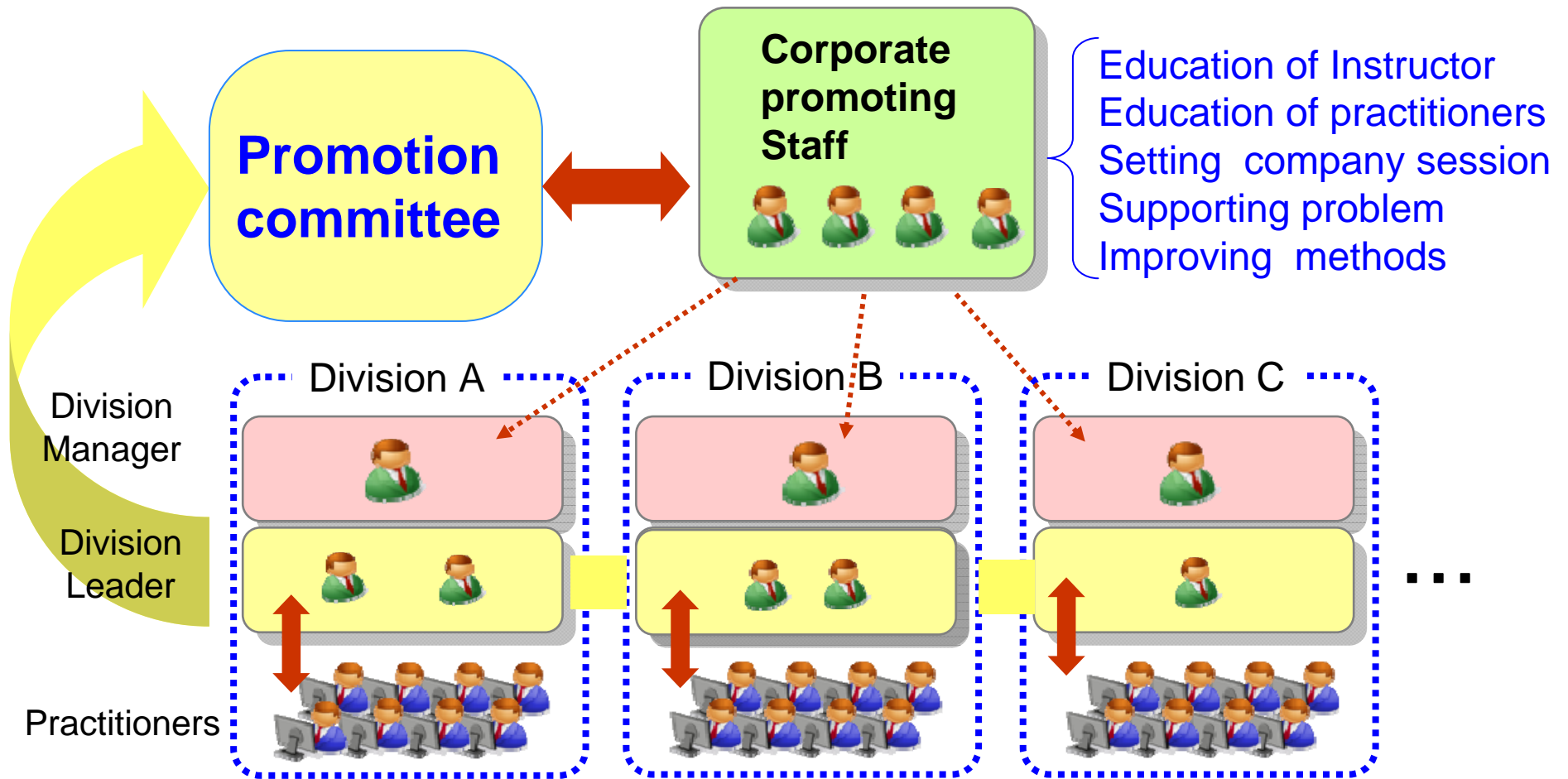
## ③ TRIZ→TM

### Example : Advantage of using TRIZ before TM



# 5. Promotion system in Olympus

## Promotion committee of the scientific method

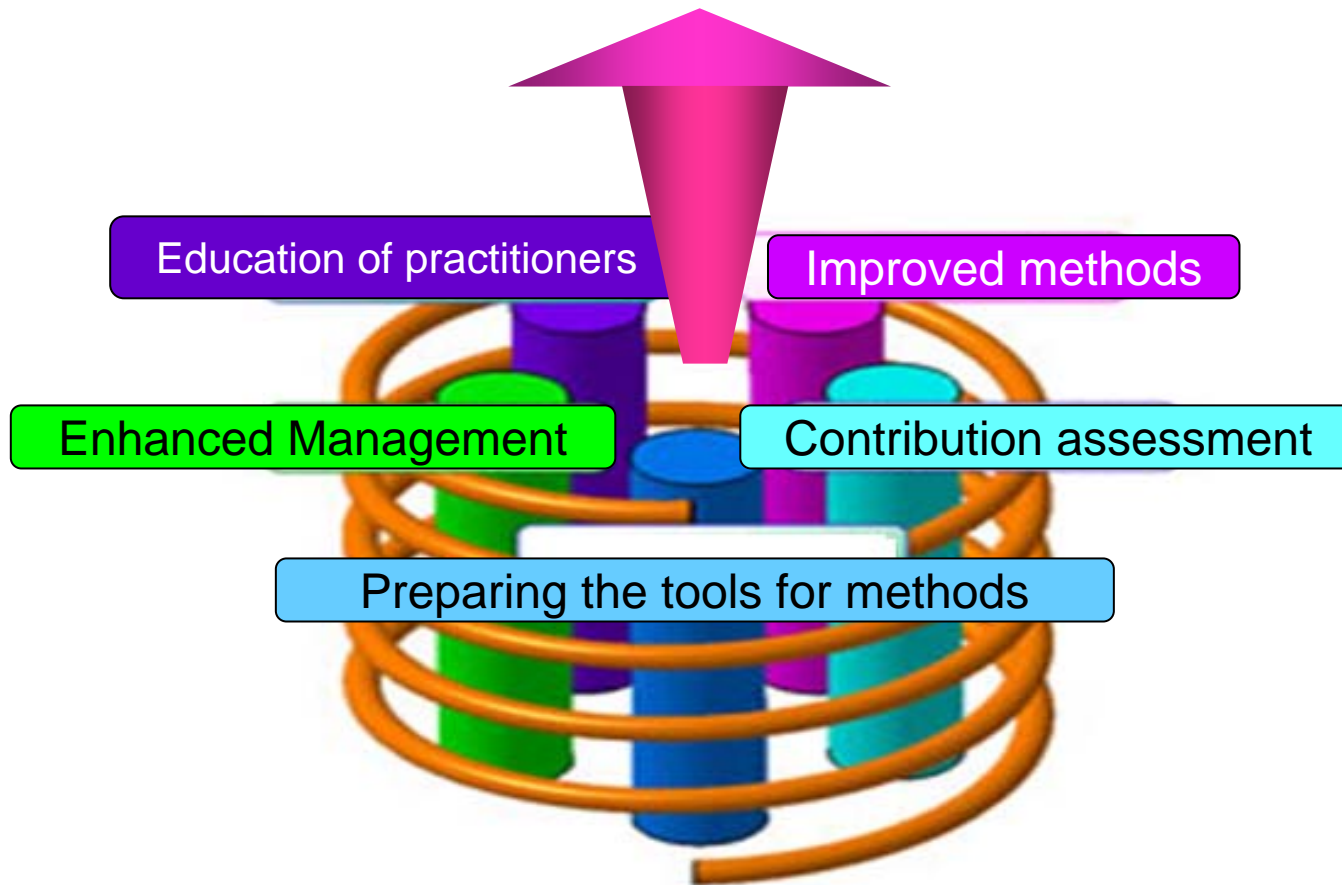


Division leaders are familiar with their technology and problems for real-time support .

- ① The product designers do not have time to put new ideas and methods in their process.  
So it is effective for us to promote and educate scientific methods based on 90 minutes.
  
- ② Promotion committee system has good function for training of practitioners as follows.
  - Division leaders are familiar with their technology and problems for real-time support.
  - Division leaders discuss their technical and promotional issues in the committee.

# 7. The next expansion

The spiral up promotion of well-balanced each actions is important for fixing methods to our company.



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