2nd Global TRIZ Conference 2011 in Korea

Two Directions for TRIZ Methodology to Improve Corporate Value

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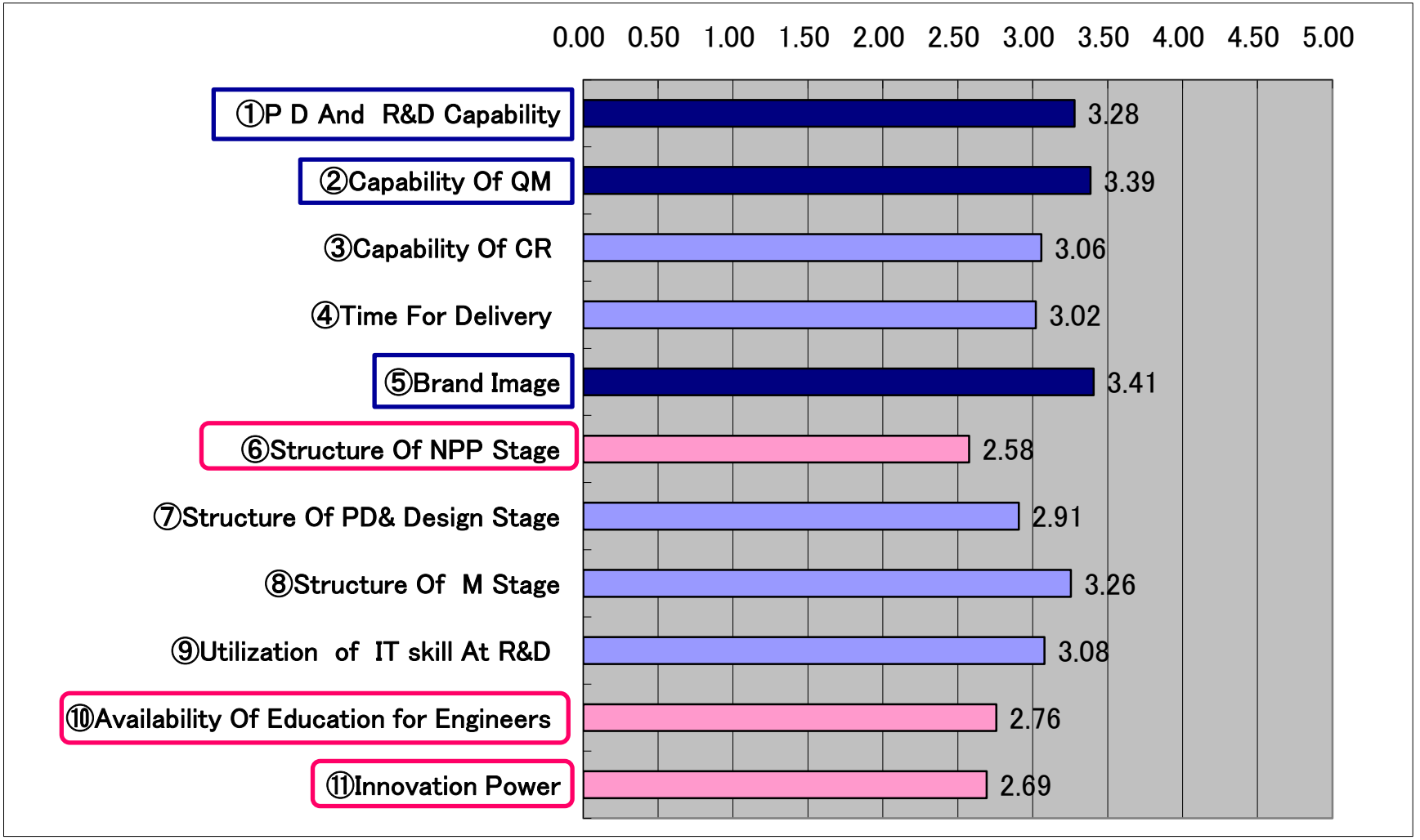
WASEDA University
Dr. Manabu Sawaguchi

Results of Questionnaire Survey about “Japanese Manufacturers”

[Q1] About Current Challenges At Your Company (Respondents Are 95, But Partly 92,94)

1: very low appraisal 2: low appraisal 3:average 4:high appraisal 5:very high appraisal



Highly Evaluated (Best 3)		Not evaluated highly (worst3)	
Brand Image	3.41	Structure Of New Product Planning Stage	2.58
Capability Of Quality Management	3.39	Innovation Power	2.69
Product Development And R&D Capability	3.28	Availability Of Education For Engineers	2.76

The Score Difference Between The best 3 And Worst 3 Differs Significantly (Level Of Significance:0.01) Through Statistical Hypothesis Testing.

Consideration regarding [Q1]

contribution

Capability of Quality Management(Best2)

Structure Of Manufacturing Stage（Best4）

Companies are confidence of "Brand Image (Best1)"

They are confidence of "PD and R&D capability(Best3)" too

They are "Advantages" at Japanese Manufacturers

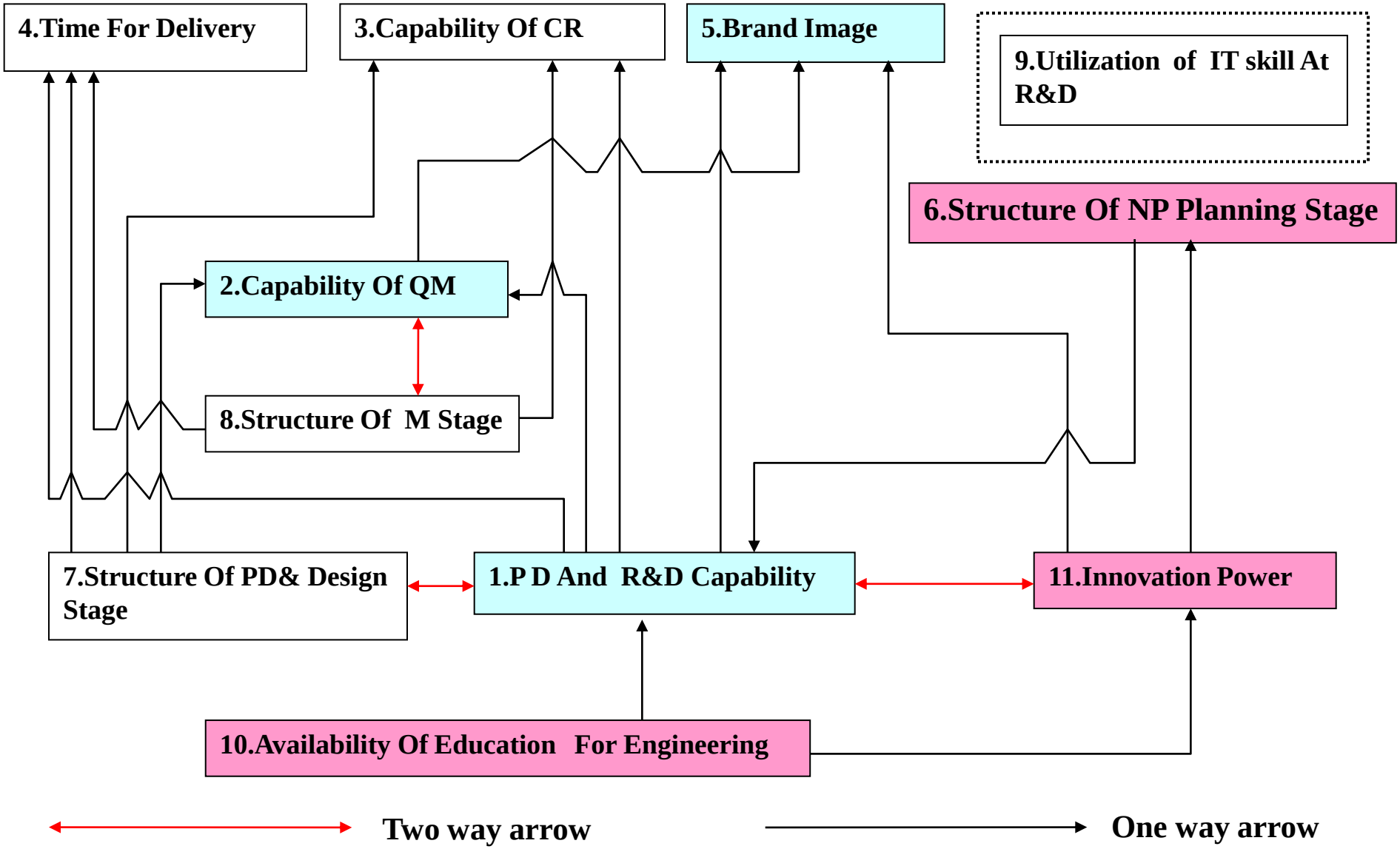
Japanese Manufacturers are confidence in applied technologies for commercialization of product

on the other side of the coin

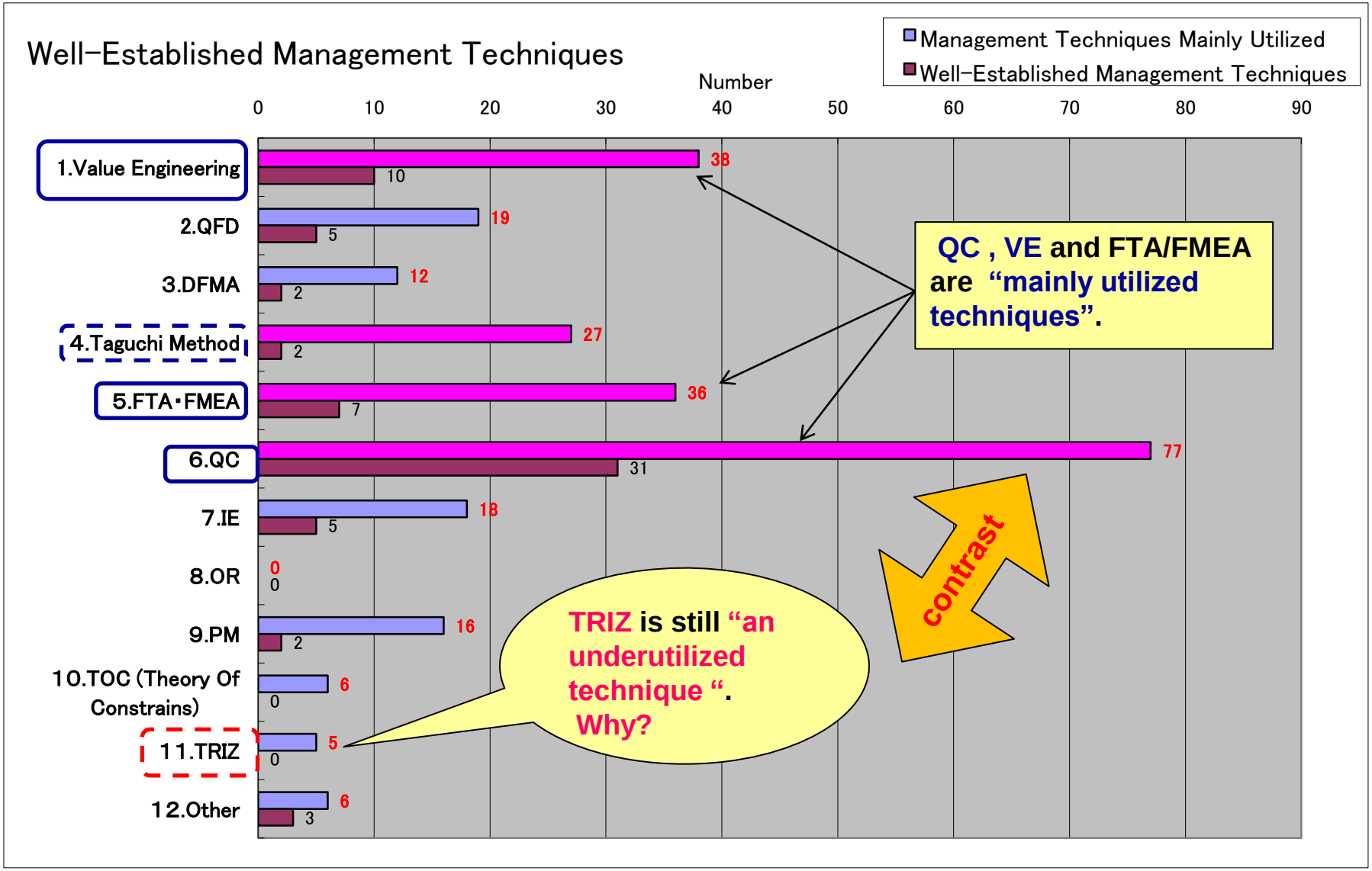
It's very important to solve this GAP.

Very Low Appraisal To "The Structure Of New Product Planning Stage (Worst 1) =Most important challenge!

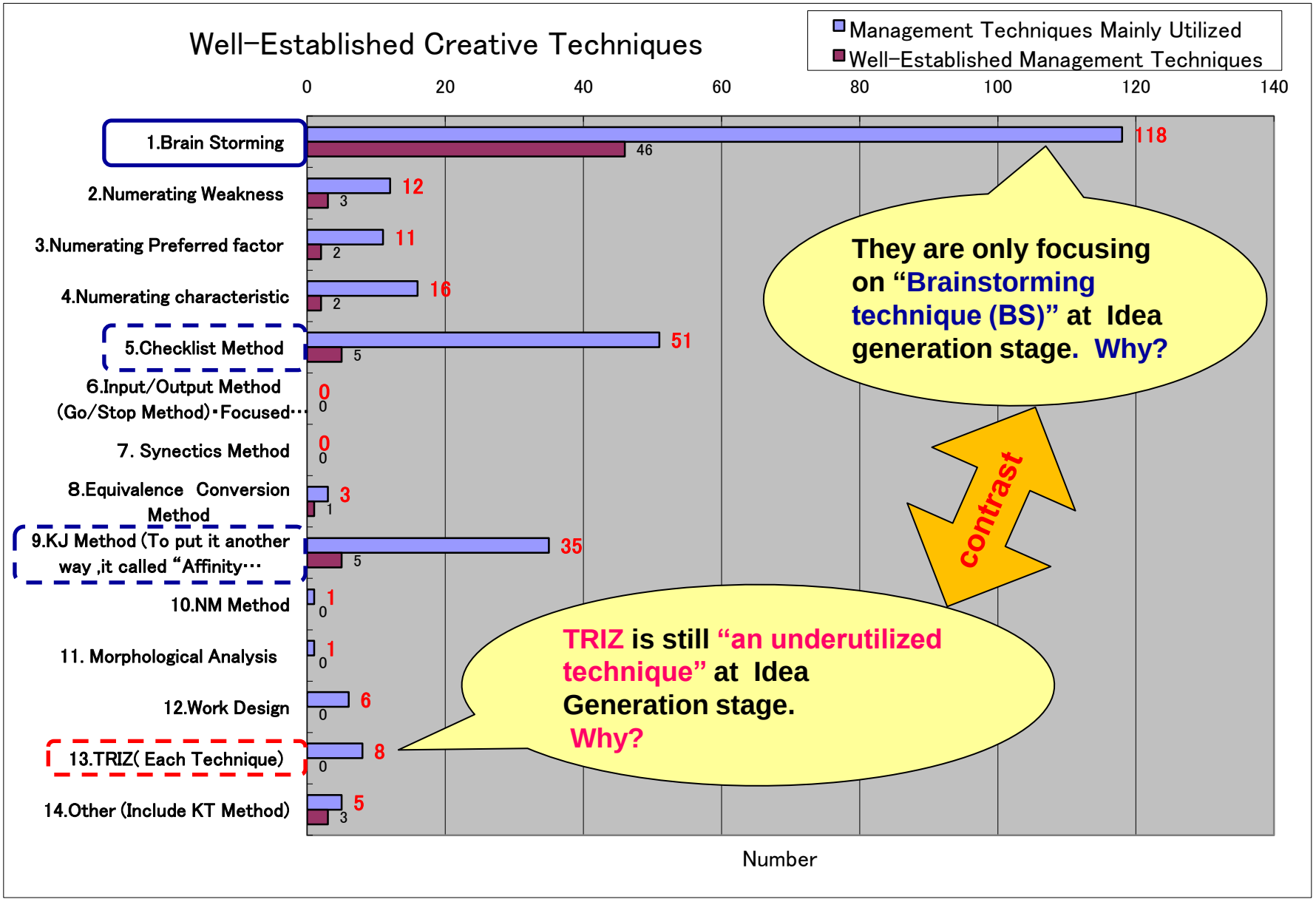
Diagram Of "Cause –Effect Relationship" Regarding Challenges :Utilization of ISM Method- [Q2]



[Q3]About Management Techniques Mainly Utilized (multiple answers allowed)and Well-Established Management Technique



[Q4] About Creative Techniques Mainly Utilized (multiple answers allowed) and Well-Established Creative Technique



"Speculation(1)" about the Survey

At one time (1960 to1980's) → **Age of "Catch Up Strategies"**

QC has been contributing to the improvement of "Product Quality" through "QC circle" and "Kaizen Activities(KA)" since 1960's (high-growth period)

VE has been contributing to the improvement of "cost performance" through "Cost Reduction Activities(CRA)"since 1973 oil shock.

Not only QC but also VE practitioners actively utilized Brainstorming technique (BS)" at Idea generation stage.

Nobody knew TRIZ

***Kaizen Activities(KA) with QC**

***Cost Reduction Activities(CRA) with VE**

"Hands-on Policy " with "Full Participation"

Japanese unique corporate culture has been brewed

At that time(from 1960's to 1980's),a lot of export-driven manufacturers , in particular , electronic manufacturers, automotive companies and precision instruments makers had become activated through "Kaizen Activities(KA) "with QC and "Cost Reduction Activities(CRA)" with VE

"Three Big Hits" in home electrical appliance were called "Three holy durables" (1960's)

Refrigerator

1957 national

Wash machine

1955 Toshiba
VB-3

Black-and-white TV set

About 1960
X(?)maker

"Three Big Hits" in consumer durables were called "3C"(1970's)

Car

X(?)maker

Cooler(Air-conditioner)

RAC-101S
Toshiba

Color TV

1975
X(?)maker

http://www.daiseikai.com/howto/history/history_04_j.htm

http://www.toshiba.co.jp/living/exhibition/05/history/laundry.htm

http://panasonic.jp/labo/history/product/cook/reizo/chr_table/

The Vicissitude of Power Relationship about Main Electric Appliance

Product Name	Inventor(basic patent)	Export share around the world(Productization)	1980	1989	1990's-
Color TV	RCA(USA)	Japan(33.2%)	16.3%	Newly Industrializing Countries	
		USA(-)	(-)		
Telephone set	A.G Bell (USA)	Japan(11.4%)	32.0%		
		USA(16.4%)	10.8%		
VTR	Ampex(USA)	Japan(83.7%)	57.3%		
		USA(3.5%)	1.7%		
Calculator (including electric calculator))	Bell Labs(USA)	Japan(64.1.%)	43.3%		
		USA(5.5%)	4.9%		

Integral Architecture → Modular Architecture

The Relationship Between Innovation and Japanese Manufactures

1st Phase (Basic Research) : Level of Solution 5 → Discover a new principle & phenomenon in scientific field

US Companies and Universities still keep a strong ability in "1st and 2nd Phase.

Product Innovation

2nd Phase (Development):Level of Solution4-3 → Develop a new product for not only existing but also new market with new technologies

Japanese companies keeping a strong ability in "2nd Phase" are getting decreased.

Japanese companies used to keep a strong ability in "3rd Phase" But, now, no.

Process Innovation

3rd Phase (Mass production):Level of Solution2 → Develop a sophisticated product with high quality and reasonable price

Newly Industrializing Countries are keeping a strong ability in "3rd Phase".

In the past: Integral Architecture → Now, Most of products are in Modular Architecture

“Speculation(2)” about the Survey

At the present(from 2000’s) ⇒ **Age of “Front Runner Strategies”**

In order to keep the strong competitors against rival companies around the world, Japanese manufactures have to create “ next generation product with radical innovation” systematically.
This is a “Front Runner strategy”.
But , it’s very hard to realize such a strategy. Because we don’t have “ideal targets” to catch up with in existing markets.
That’s why most of Japanese companies (especially manufactures) lost the directions to proceed.
However, some companies make an effort to create “highly-valued products with radical innovation” in the correct direction.

Some companies know TRIZ.
So, they should utilize TRIZ to realize “Product Innovation”.
(In my opinion)

Wil

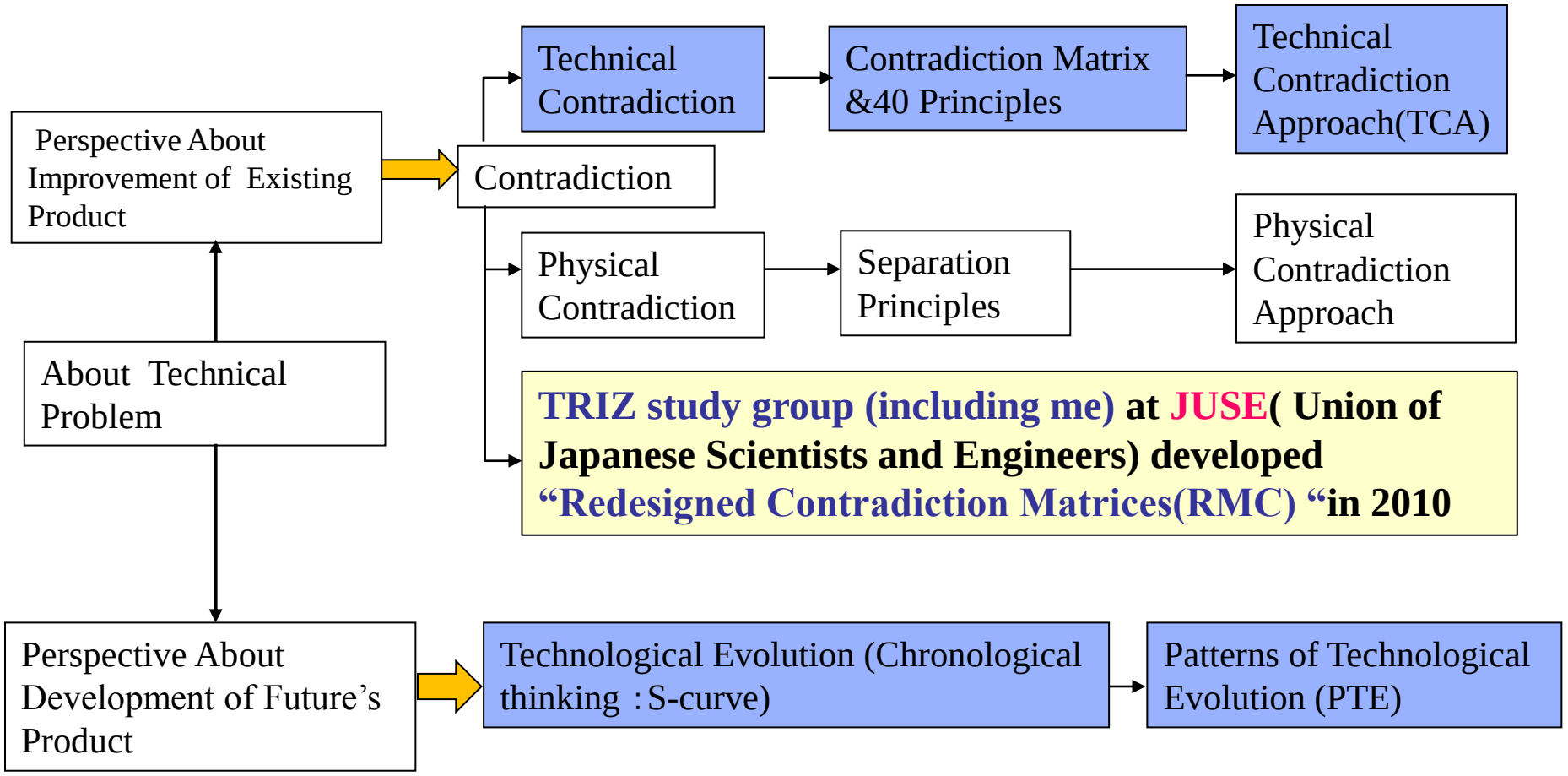
Zero alcohol beer taste beverage

HEATTECH

They have to focus on “Product Innovation”

Some companies know TRIZ. But, TRIZ is still underutilized techniques.
Because they think TRIZ is very complicated techniques.
I want to focus on a few techniques to be useful for TRIZ practitioners.

I only focus on these techniques.



Two Directions for TRIZ to Improve Corporate Value

Innovative Direction for TRIZ

In order to realize "Product Innovation" systematically, they have to utilize TRIZ

Patterns of Technological Evolution (PTE):Technology Prediction

Who create "Next Generation Product" like "Radical Innovation"

20XX?

2010

1979

A majority of companies but some big hesitate to introduce TRIZ in real field in Japan.

TRIZ is very complicated techniques.

New Kaizen Activities

Technical Contradiction Approach(TCA)

However, Contradiction Matrix(CM) is relatively utilized .

My recommendation!

Japanized Direction for TRIZ ("Paradoxical approach against Innovative Direction)

I introduce "New TRIZ Way" focusing on "CM"in field site oriented "New Kaizen Activities(NKA)" , which sometimes are called "New Small Group Activities(SGA)" .

A Case Examples Utilization of TRIZ Based on “Kaizen Activities”

EAST JAPAN RAILWAY COMPANY

1987:Division and privatization of “Japan National Railways”
Establishment of “JR-EAST”

JR-EAST has been doing “Kaizen Activities “ , which is called “Small Group Activities(SGA)”, since 1987.

For example, about 5,600 group activities with 37,000 people actively participated to practice “KA” in 2009.

They report their improvement plans

JR-EAST has been activated through “SGA(KA)” since 1987.

“Conventional SGA “ mainly consists of “QC seven tools”.

JR-EAST decide to restart as “New SGA”, which is called “My project” to facilitate the activation of organization further in 2010 .

“New SGA” include not only “QC seven tool” but also “Simplified TRIZ(CM and SP)”.

JR-EAST established "Academy of Technology" in 2009.
Some of excellent engineers (29people in 2010) had studied a variety of technology skills and some of MOT(Management of Technology) techniques including "TRIZ with Technology Prediction" for one year.

In 2003, JR-EAST introduced "New method" to predict and design "Next generation toilet for women at New Tohoku Shinkansen (Bullet Train), which is going to make a debut in march of 2011. Its name is "HAYABUSA"
New Method mainly consist of VE and TRIZ with Technology Prediction including Patterns of Technical Evolution.

2011

http://www.jreast.co.jp/

mock-up

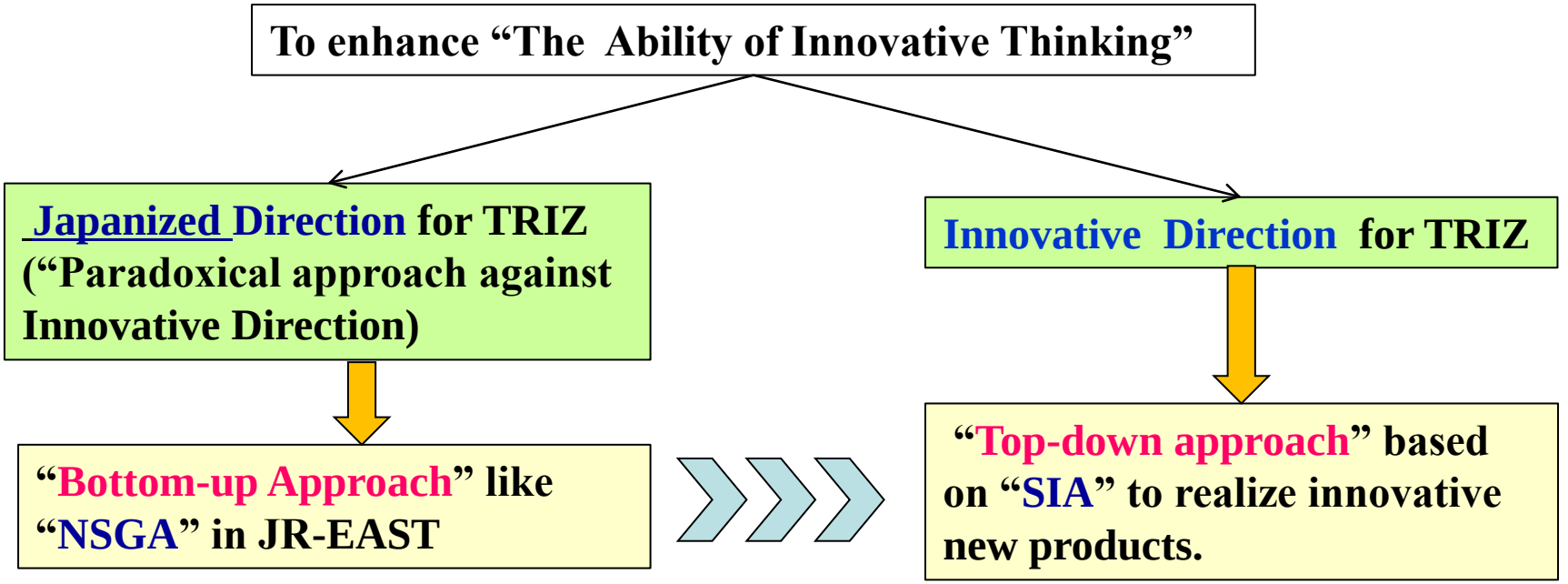
2003

JR EAST Technical Review-No.7

These activities is a Systematic Innovation Activity(SIA)" focusing on new product development at fuzzy front-end.

Summary

1)Propose Two Directions for TRIZ to Improve Corporate Value



2)Propose "Redesigned Contradiction Matrices(RMC)" as one of effective tools in field site oriented "NKA(NSGA)"

TRIZ study group (including me) at JUSE developed "Redesigned Contradiction Matrices(RMC),which have two types of Redesigned Matrix, "in 2010 and introduced "RMC" at TRIZ symposium 2010 in Japan.