

Business TRIZ & Quick TRIZ Process



March. 12, 2010, at Global TRIZ Conference 2010 in Korea

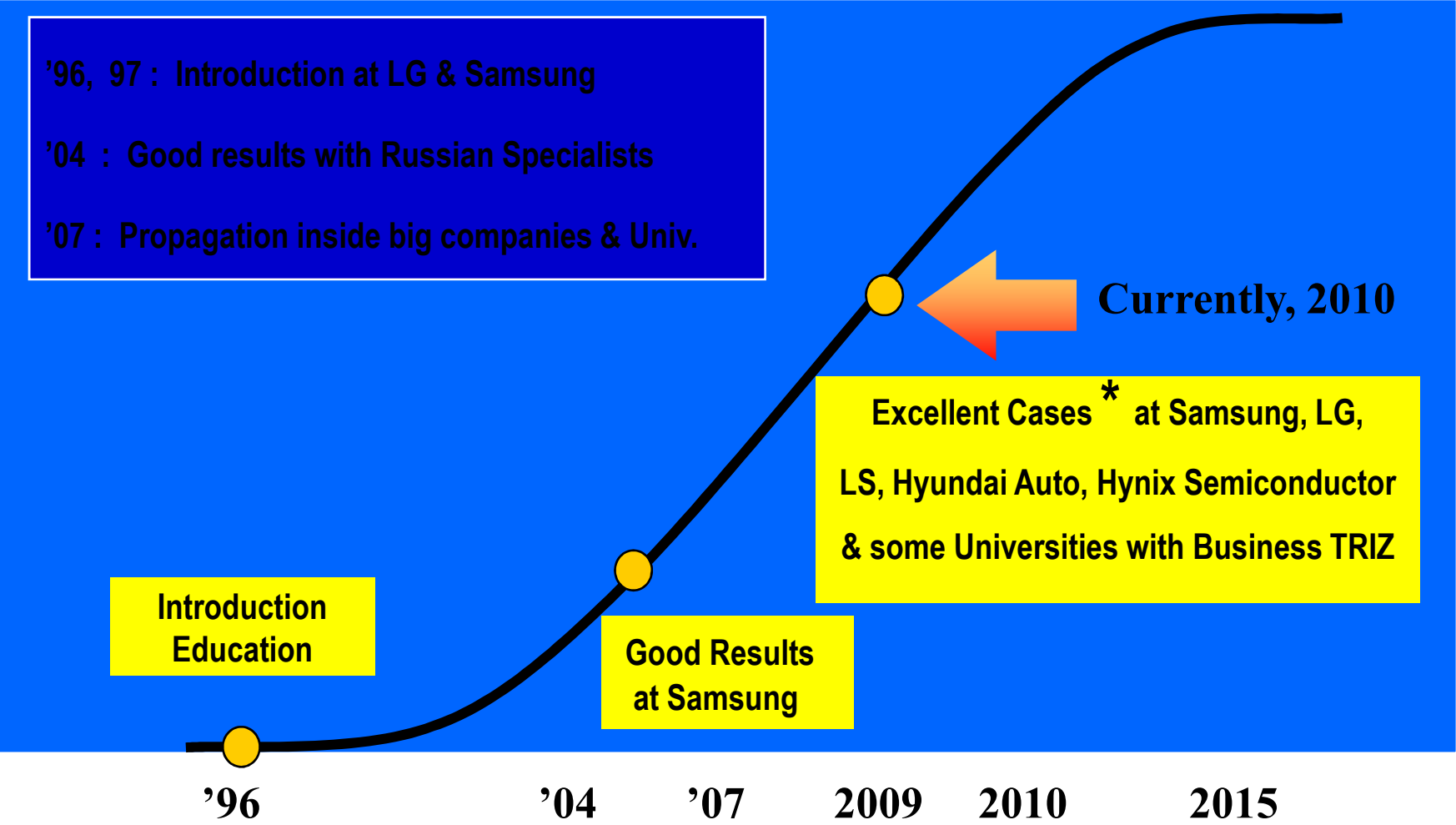
Korea Polytechnic University, Doowon Technical College

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Professor Kyeong won, Lee

- **TRIZ Experience (Secretary General of Korea TRIZCON 2010)**
 - learned “Classical TRIZ” at **LG Electronics in 1996 first**
 - taught “TRIZ” in class of “Creative Mechanical Design” at Univ. for 10 yrs.
 - **CEO & Chief Consultant at TRIZ Eng. & consulting company, “KID“**
 - Visiting scholar at **Wayne State University for TRIZ research in 2004**
 - TRIZ related papers : 7 English (Mosquito trap, Toilet), 100 Korean papers
- **Interests : (Mechanical) Conceptual Product Design, Kinematics and TRIZ_**
- **Academic Background (10 times at International TRIZCON)**
 - Mechanical Engineering at Seoul National Univ. (B.S)
 - KAIST (Korea Advanced Institute of Science and Tech.) (Master, Ph.D.)
 - Stanford University (Post Doctorial Visiting Scholar)

Korea TRIZ on rapid progressive curve



'96, 97 : Introduction at LG & Samsung
'04 : Good results with Russian Specialists
'07 : Propagation inside big companies & Univ.

Excellent Cases * at Samsung, LG, LS, Hyundai Auto, Hynix Semiconductor & some Universities with Business TRIZ

* The Cases are not opened by secret policy at companies in Korea

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I. Simplified “Quick TRIZ” process

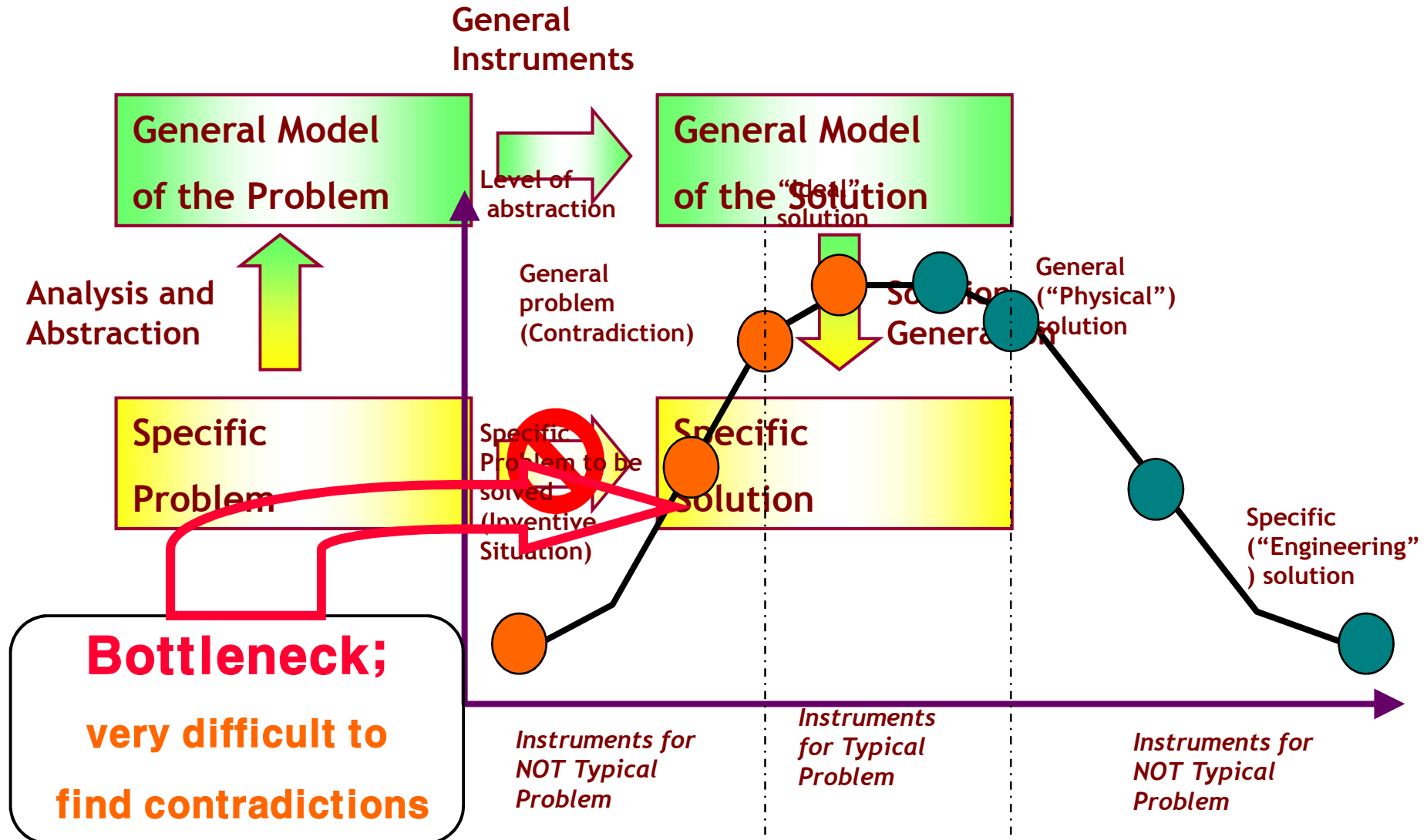
II. Problem (Business TRIZ)

III. Results from Case Studies

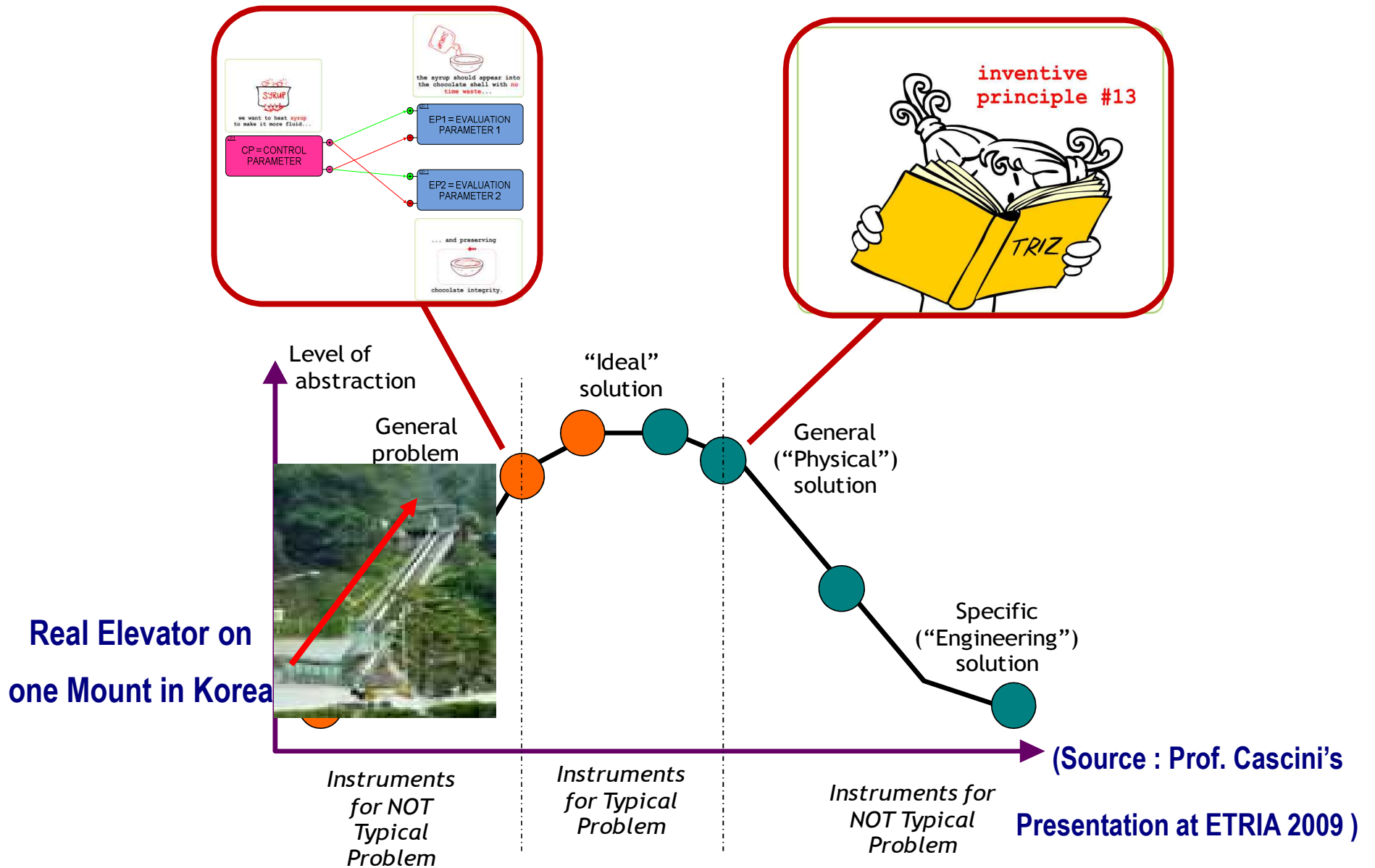
IV. Conclusion & Korea TRIZCON 2011

“Hill” model of problem solving process

(Source : Prof. Cascini’s Presentation at ETRIA 2009)



“Elevator“ to go up the “Hill of TRIZ” easily



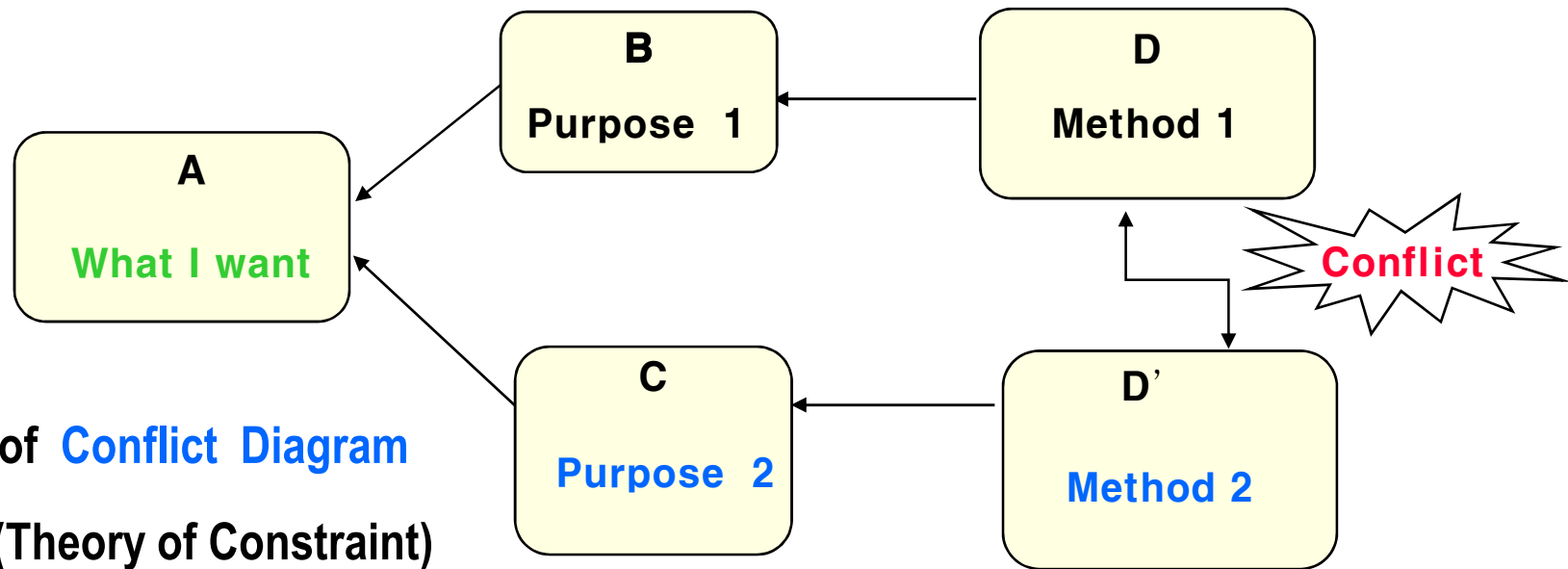
“Elevator type”
Modeling



Called by

“ Quick TRIZ”

like “QSS” (Quick Six Sigma)

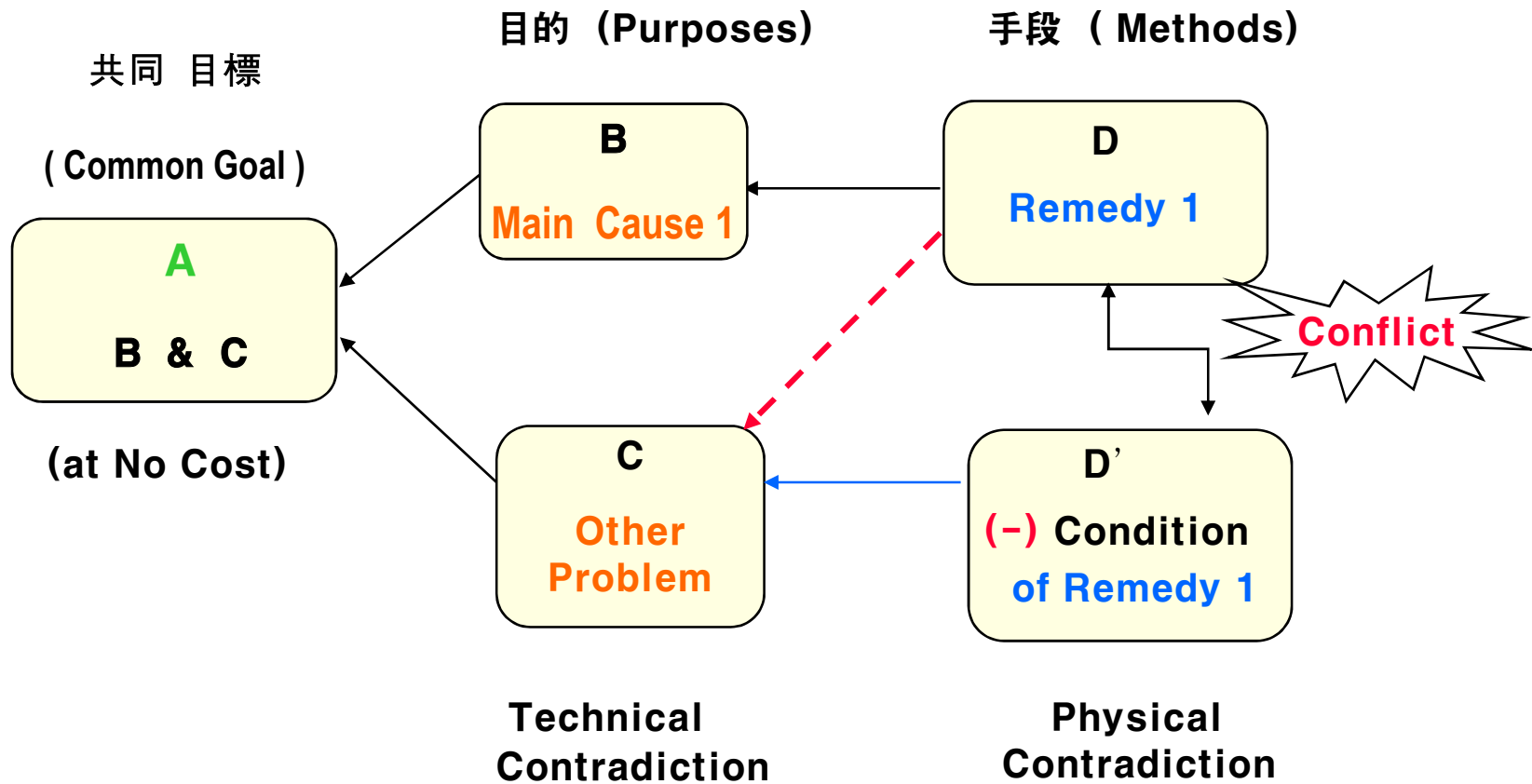


By help of **Conflict Diagram**
of T.O.C. (Theory of Constraint)

“Elevator type” Modeling in “Quick TRIZ”



1) List all causes of Problem → 2) match each remedy for cause



I. Problem

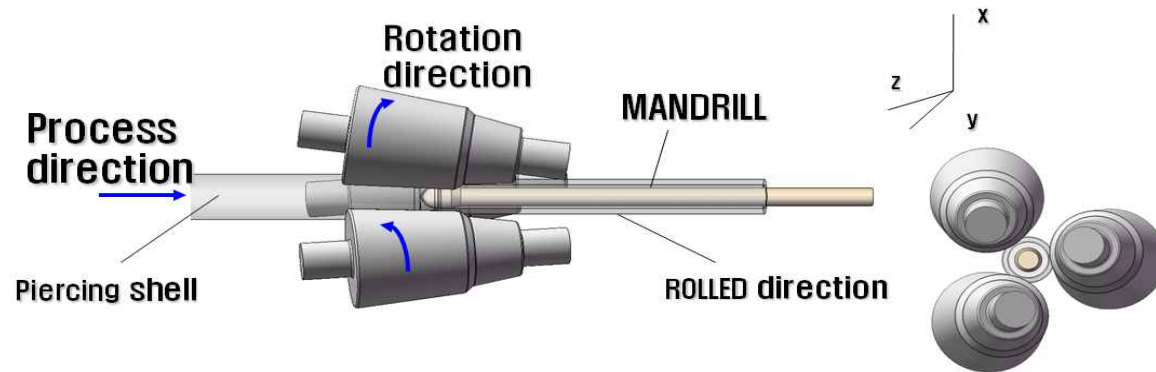
Why seamless steel Pipe?

Seamless Steel Pipe is made from a solid round steel bar, which is heated and pushed or pulled over a form of pipe until the steel is shaped into a hollow tube.



Applicable for
High-Valued Steel products
with endurance on

- High temperature
- High pressure
- Corrosion-resisting



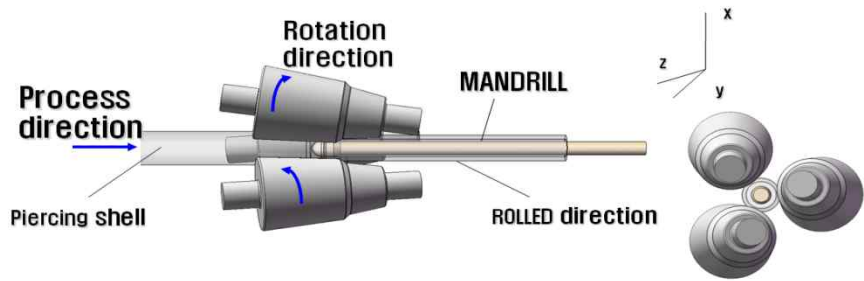
Advantages

- Short process
- less residual stress v.s. "Extrusion"
- excellent dimensional stability.

O. K. by TRIZ

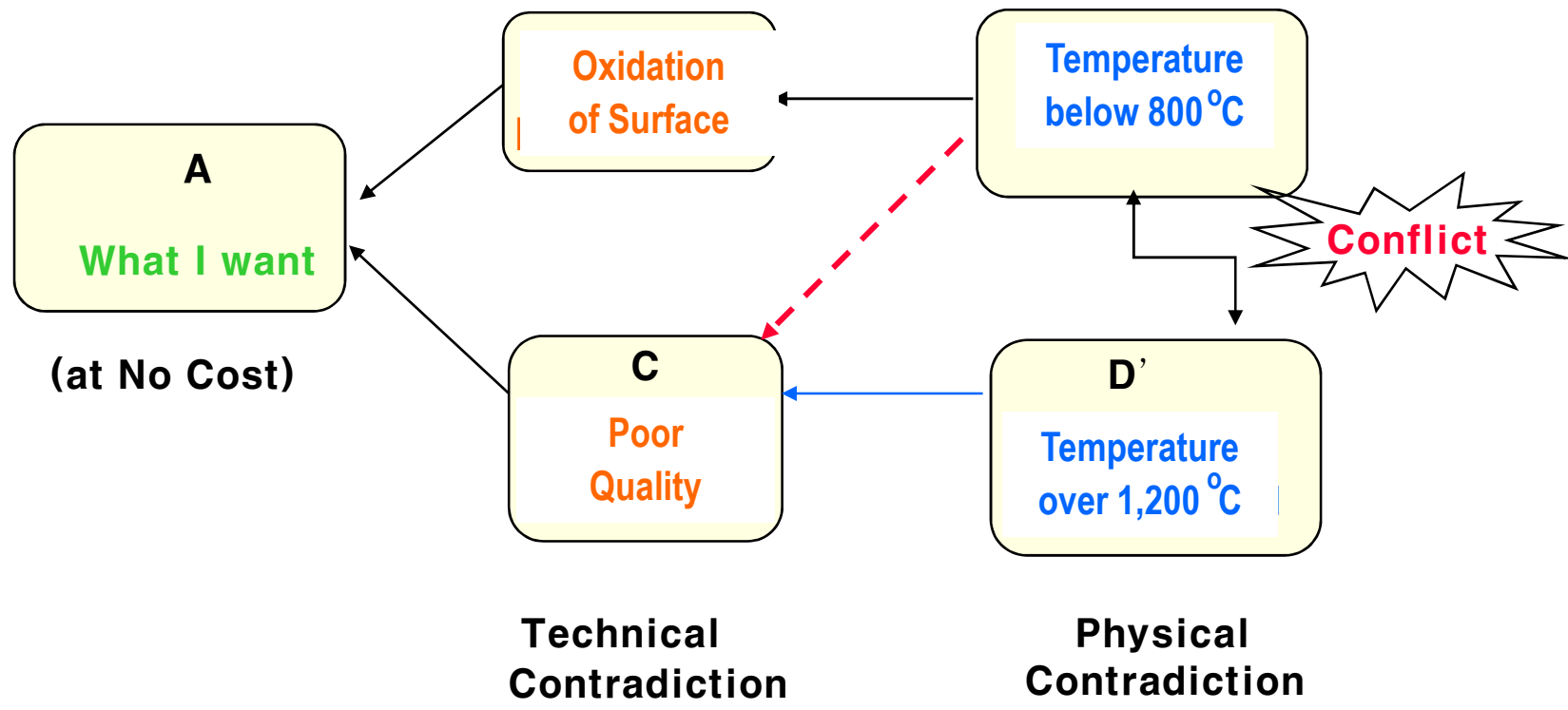
at Small Company

← How ?



← **Disadvantage ;**

Surface of Pipe is bad.



**Below 800 °C
: avoid oxidation**

**Over 1200 °C
: desired properties**

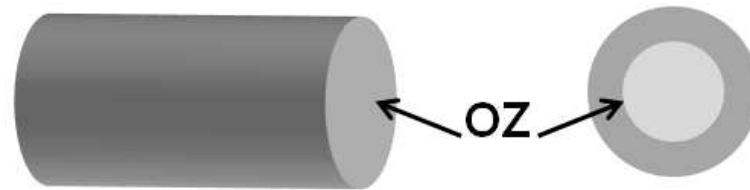


16. Partial or Excessive Action

Oxidation occurs on the shallow surface.
make the dimension bigger then machined



1. Operation time (OT): During hot rolling seamless pipe process
2. Operation zone (OZ):



3. Ideal final result (IFR):

Hot rolling seamless pipe process without oxidation

"at no cost concept"

Conceptual Ideas & Discussions

- **During hot rolling process of the seamless steels, the oxidation on the surface of steel occurs and main problem to resolve.**
- **“Quick TRIZ” approach for Small Company is introduced to solve the problem. The technical contradiction and physical contradiction were used to solve problem**
 - **easier than using the long TRIZ modeling process**
- **Scientific Effect “Inducting heating” method was estimated as the most effective and applied to the hot rolling seamless steel pipe process.**

IV. Conclusion

- **This “Quick TRIZ” Process is so effective for beginners and Non Technical persons in City Hall (see other example in paper)**

葛藤(Conflict) between 目的 (Purposes) → Technical Contradiction

葛藤 (Conflict) between 手段 (Methods) → Physical Contradiction

From 2011, there will be domestic & international conference;

“2nd Global TRIZ conference” in Seoul, on March 10, 11, 2011

(TRIZCON on May, TRIZFest on July, Japan Workshop on Sept., ETRIA on Nov.

1-st International Conference on Systematic Innovation on January, 2010)