

12th TRIZ Symposium

TRIZ Promotion into the Sony Semiconductor Group ～ Introduction, Training, Practice

2016.9.1

Sony Semiconductor Solutions Corporation

Akihiko Ikeda

Sony Semiconductor Manufacturing Corporation

Takeki Tanaka / Tsukazaki Hisanobu / Kouichi Owaki

Sony Group

2016/4~

Sony Corporation
Headquarters/Common platform

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graph TD; A[Sony Corporation  
Headquarters/Common platform] --> B[Sony Semiconductor Solutions Corporation  
Semiconductor Business Group]; B --> C[Sony Semiconductor Manufacturing Corporation  
manufacturing factory];
```

Sony Semiconductor Solutions Corporation
Semiconductor Business Group

Sony Semiconductor Manufacturing Corporation
manufacturing factory

Configuration

1) Sony Semiconductor Solutions Corporation

(Old: Sony Corporation Semiconductor Gp)

The history of TRIZ Introduction and Promotion Overview

2) Introduction of TRIZ into Sony Semiconductor Manufacturing(SCK)

The beginning

2004

**Consult with the
chief engineer?**

Put forward ideas!

**Development
meeting**

Cannot get ...

What should I do?



**I want
to support
them
somehow**

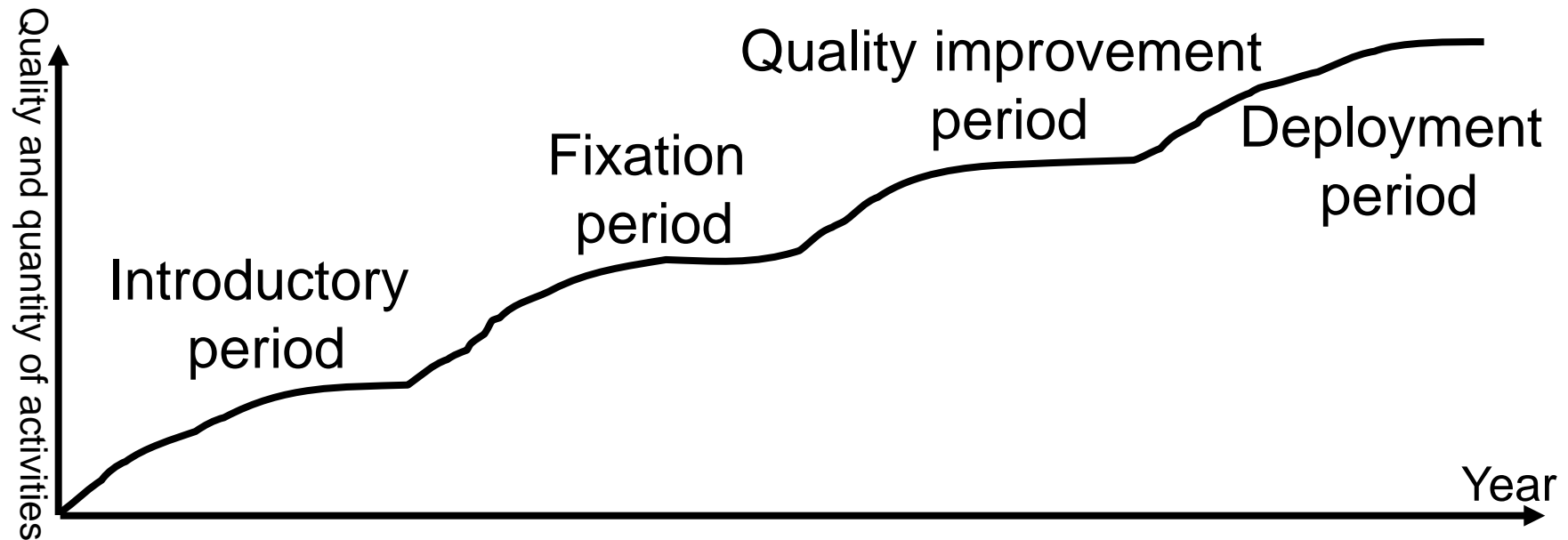
**In-house
instructor**



Bust guts !

Policy: Continuous improvement in outputs from the organization

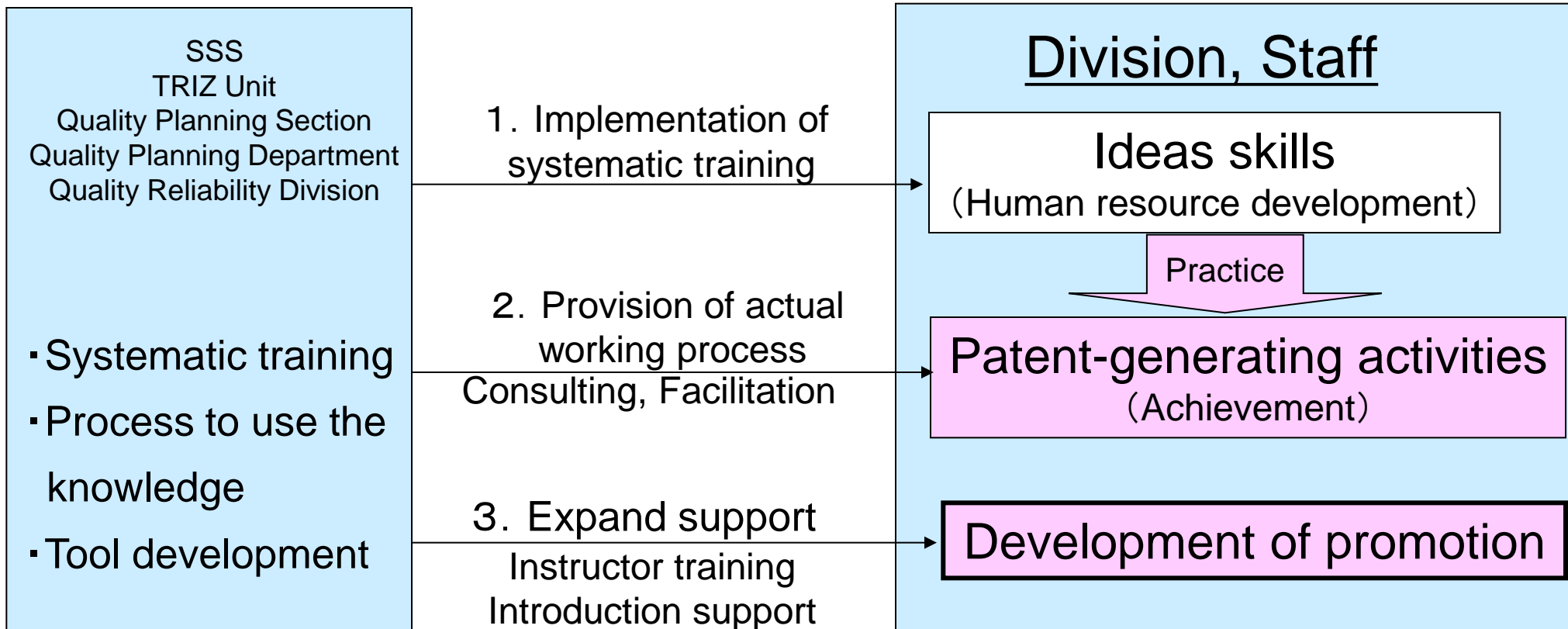
1. Create a culture in client organizations
2. Support activities of client organizations
3. Grow up together with client organizations



Year	2004~2006	2007~2009	2010~2012	2013~2016
Content	Course construction	Support continued use of	Independent operation by the site	Expanding support

Contents to provide

1. The development of a method to get innovative ideas
2. The development of the process
3. Development of promotion



Introduction of TRIZ into Sony Semiconductor Manufacturing(SCK)

- for manufacturing factory -

Sony Semiconductor Manufacturing Corporation

Human Resources Development Section

Human Resource Department

Takeki Tanaka / Tsukazaki Hisanobu / Kouichi Owaki

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- 1. SCK Profile**
- 2. Motivation
(TRIZ in the SCK's problem-solving approach)**
- 3. The history of promotion activity of TRIZ**
- 4. Curriculums of TRIZ in SCK**
- 5. Actual results**
- 6. Epilogue**

SCK Profile

Company: Sony Semiconductor Manufacturing(SCK)

Founded: April 1, 2001

Headquarters: Kumamoto, Japan

Major Products: Semiconductor design,
development, manufacture, customer service

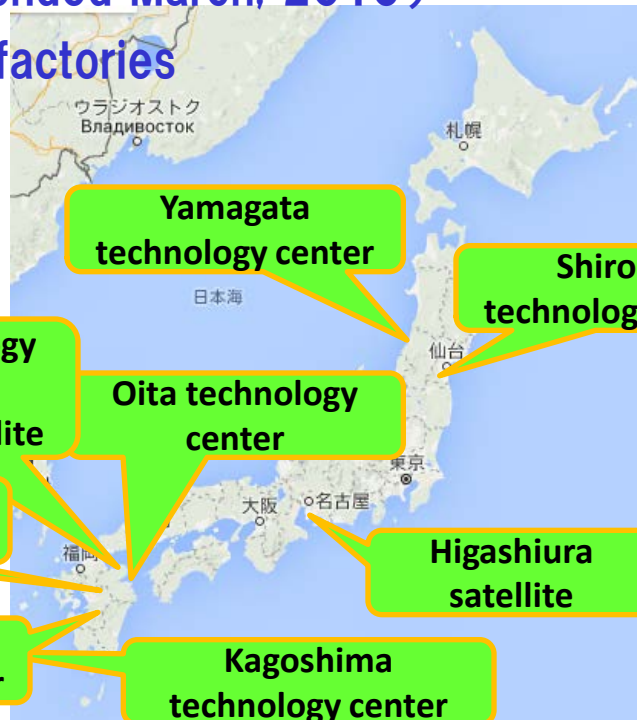
Capital: 24.25 billion yen

Headcount: About 9,400(as of Apr 1, 2016)

Sales: 474.9 billion yen

(Fiscal year ended March, 2015)

Locations of factories



Be a trusted and shining company

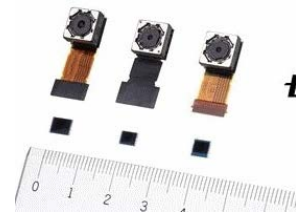
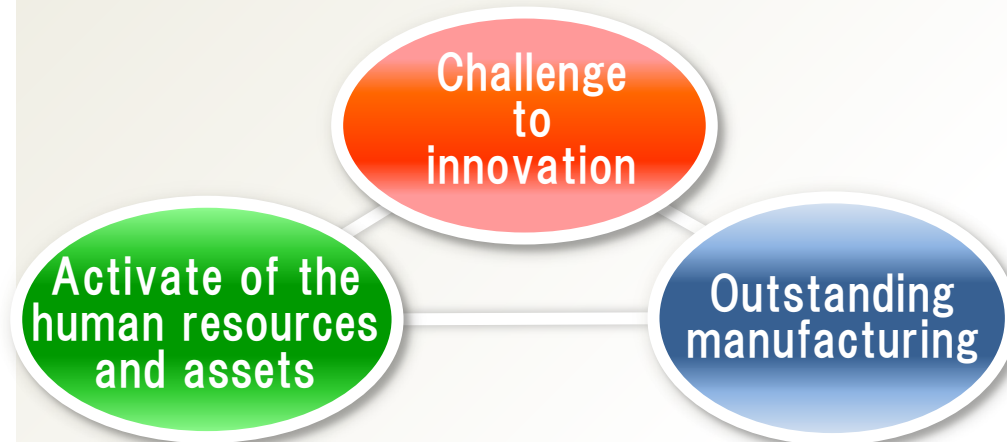


Image sensor



MOS LSI
MMIC

Exmor RS



Organic EL display



Reflective LCD
Display panel

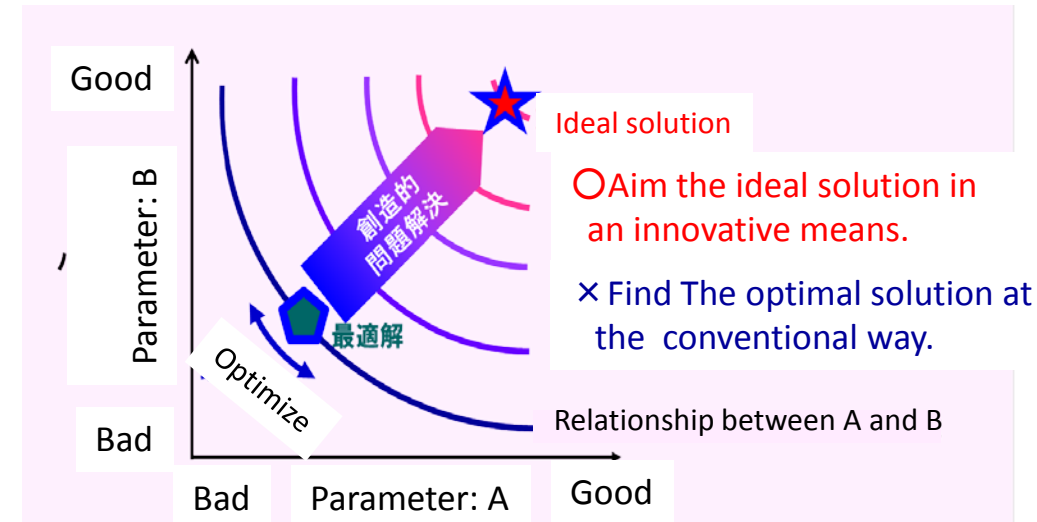
Motivation (TRIZ in the SCK's problem-solving approach)

Introducing TRIZ in order to strengthen the "Improve" (Innovation from new ideas)

Approach	Tools
Define	Customer diagram, BSC, Define diagram, EM method, Biz-CE diagram, CTQ List
Measure	Graph (Pareto diagram, etc.)
Analyze	CE diagram, EM method, Statistical Test, Statistical Estimation, Taguchi method, DOE, Multivariate analysis, etc.
Improve	Taguchi method, DOE, etc.
Control	Control Chart, Standard Operating procedure, Etc.

(Method for the Ideas)

What we want to do with "TRIZ".



To strengthen the "improve"
= To support the idea skills

⇒ Challenge to innovation
Develop creative human resources for
our outstanding manufacturing.

The history of promotion activity of TRIZ

Recognition (upper management) ⇒ Trial ⇒ Result ⇒ Reputation ⇒ expand

FY2012

FY2013

FY2014

FY2015

★ **Proposal to the president.**

It seems good. But
maybe other officers
don't know TRIZ.

Firstly, you should
explain to officers what
"TRIZ" is. Then,
investigate their needs.

Guidance by
Mr. Ikeda

→ **Explain TRIZ to officers one by one**

→ **One team has started training.
(Lectures and practice)**

★ **Internal award of Six Sigma (Gold)**

We chose the theme.

- Difficult.
- Unresolved.
- Couldn't achieve goal
by other way.

Fab. A



Fab. B



Fab. C

Fab. D



Fab. E



Transfer the process of Sony Corp.

**Training of SCK's Trainer.
(Tanaka, Tsukazaki, Owaki)**



Officers



Engineers



Trainers

Curriculums of TRIZ in SCK

We selected the items which suite us. We combined a lecture and a practice. The practice theme took up a business issue.

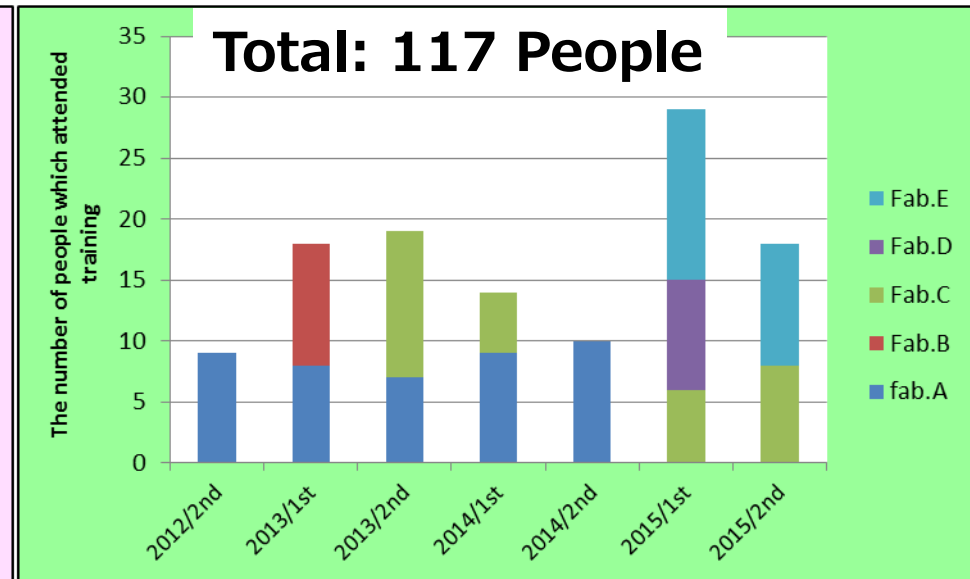
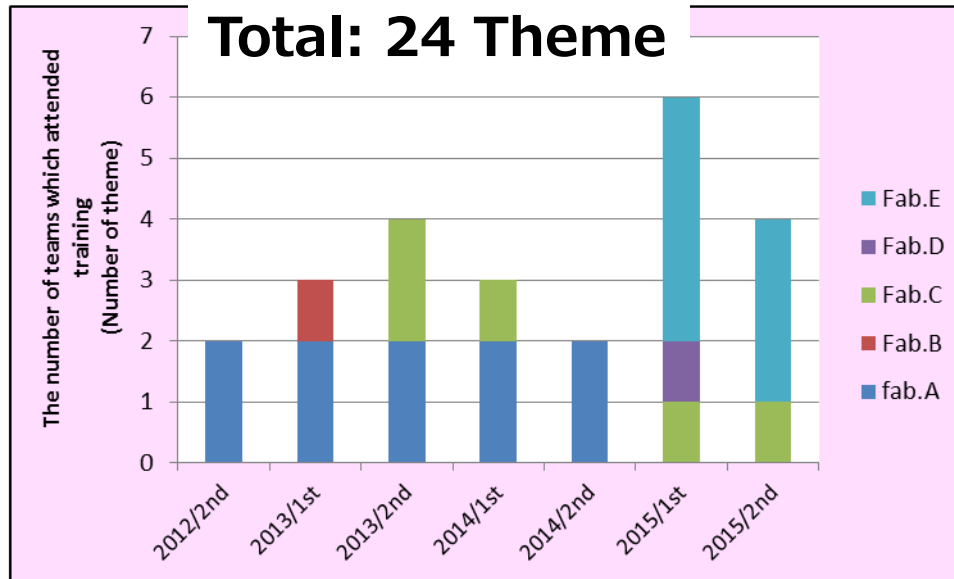
	Issue confirmati on	NAZE-NAZE-Tenkai		Function Analysis		IFR + 40 Principles	40 Principles	Technical contradictions		Physical contradictions		Technical System Evolution/ How to get idea
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
	2 hr	2 hr	2 hr	2 hr	2 hr	2 hr	2 hr	2 hr	2 hr	2 hr	2 hr	2 hr
	Lecture Practice	Lecture	Practice	Lecture	Practice	Lecture	Practice	Lecture	Practice	Lecture	Practice	Lecture Practice
Define	◎											
Measure	◎											
Analyze		◎		◎		◎	○	○		○		○
Improve		○		○		○	◎	◎		◎		◎



Track record of training ~2016/03

We trained the three in-house trainers and expanded TRIZ to five Fab. in three years.

FY	The number of teams which attended the training					The number of people which attended the training				
	Fab. A	Fab. B	Fab. C	Fab. D	Fab. E	Fab. A	Fab. B	Fab. C	Fab. D	Fab. E
2012/2nd	2					9				
2013/1st	2	1				8	10			
2013/2nd	2		2			7		12		
2014/1st	2		1			9		5		
2014/2nd	2					10				
2015/1st			1	1	4			6	9	14
2015/2nd			1		3			8		10
Total	10	1	5	1	7	43	10	31	9	24



Actual results ~2016/03

Many teams have gotten internal commendations.

<Sony Six Sigma Award>

2012/2nd **【Gold medal】** PJ name:

Improvement about performance of washing

2013/1st **【Gold medal】** PJ name:

Establishment of package technology

2014/1st **【Gold medal】** PJ name:

Establishment of Assembly-process

2014/2nd **【Gold medal】** PJ name:

Technical study on the new structure

2015/1st **【Silver medal】** PJ name:

Improvement of a package process

<Internal improvement activities Award>

2015/Oct. **【Gold medal】** PJ name:

Reduction in recipe making time

Epilogue

<Our impressions>

- If **the purpose and goal are not defined**, the project is going off the track in the middle.
- We recognized **the importance of pre-analysis** for the idea.
If we don't think logically, we tend to use our wrong assumption,
As a result, it takes enormous time for problem solving.
- **In the team-based problem solving**, people can analyze the situation with various perspectives and creative thinking.
- People can easily master TRIZ, if **they practice it just after learning**.
- TRIZ is effective **for manufacturing sites**.
(Not only for planning dept./development dept.)

<Acknowledgments>

Thank you very much to Mr. Ikeda (Sony), Mr. Nagase (Sony) and the others who cooperated in implementation of TRIZ.

Thank you for your attention.