

삼성신경영  
20주년기념  
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# Quality-based Management through Human and Technological Assets

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# Speaker



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The 3rd Generation Representative of Operations & Production Management Laboratory (OPM Lab.), which has the oldest history in this area in Japan.

## **Education:**

March, 1970 Bachelor Course Graduation, Department of IMSE, Waseda University  
March, 1972 Master Course Graduation, Department of IMSE, Waseda University  
March, 1975 Doctor Course Graduation, Department of IMSE, Waseda University

## **Research Interests:**

Operations & Production Management including manufacturing strategy, KPI/KAI measurement, Kaizen/Lean technology, global manufacturing & logistics, global transfer of continuous improvement technology, TPM, supply chain portfolio, reverse logistics, bottleneck management, line production systems, innovation processes, skill management.

## **Academic Role:**

Chairperson of Japan Society of Logistics Systems (JSLS)  
Chairperson of International Federation for Logistics and SCM Systems (IFLS)

## **Recent Works:**

"A Study on the Performance Evaluation of the Visual Management Case-base: Development of an Integrated Model by Quantification Theory Category III and AHP", International Journal of Production Research (IJPR), Vol. 51, No. 2, pp. 380-394, 2013.

Karakuri Kaizen Technology: Case Analysis, DVD Vol. 1, Published in collaboration with Katayama Lab. and Japan Institute of Plant Maintenance (JIPM), 2012.

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# 1. Background and Business Direction

## 1) Digital Technology Innovation and Informatisation

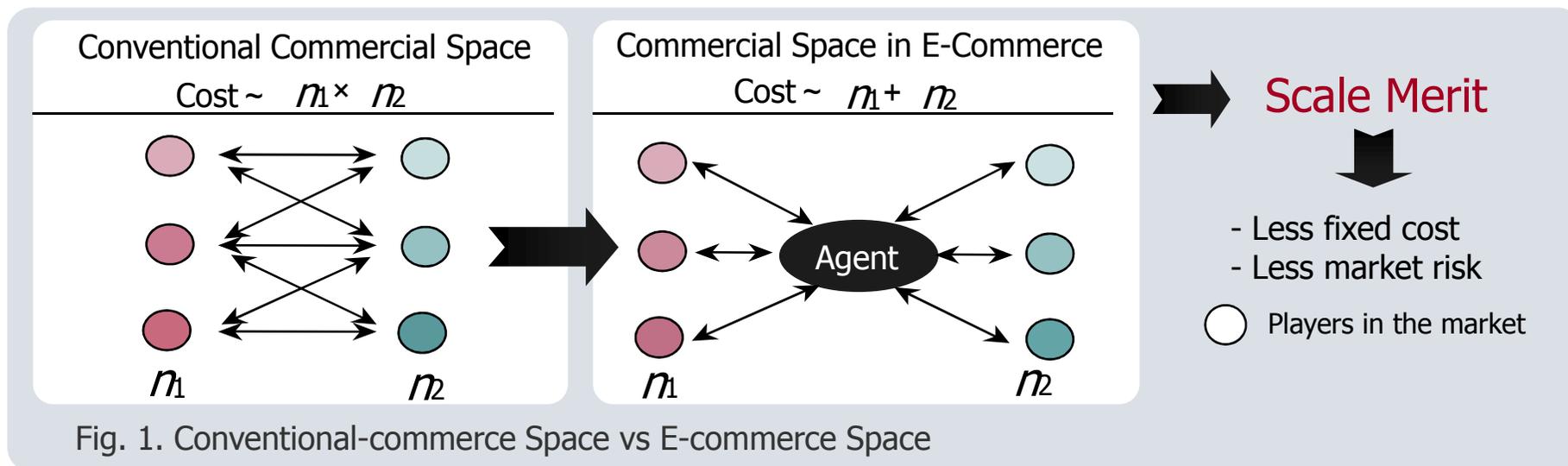
Deterioration and less applicability of analog technology

- Functional reinforcement of hardware platform by digital-information technology

## 2) Commercialisation of information value

Wide recognition of value and utility of information

- Formulation of market  $\Rightarrow$  Launch of internet business etc.
- Development of advanced ICT & SNS



# 1. Background and Business Direction

## 3) Globalisation and Multi-nationalisation

Maturity of Local Market and Enlargement of Free Trade and Boarderless Investment

- Mixture of Matured, Growing, Depressing and Booming Area
- Construction and/or Relocation of Production Sites
- Operations under Multi-national and Varied Environment
- Balancing Global and Local Operations (Glocalisation)
- Supply Chain Risk Management
- Fluidisation and Maldistribution of Human Resources



## 4) Shift to Information-based Management

Advancement of Information Technology for Management (e. g. ERP)

- Grasping Necessary and/or Useful Information Accurately and Timely and Utilising it for Management
- Shift from Area Specified Technology to Management Technology



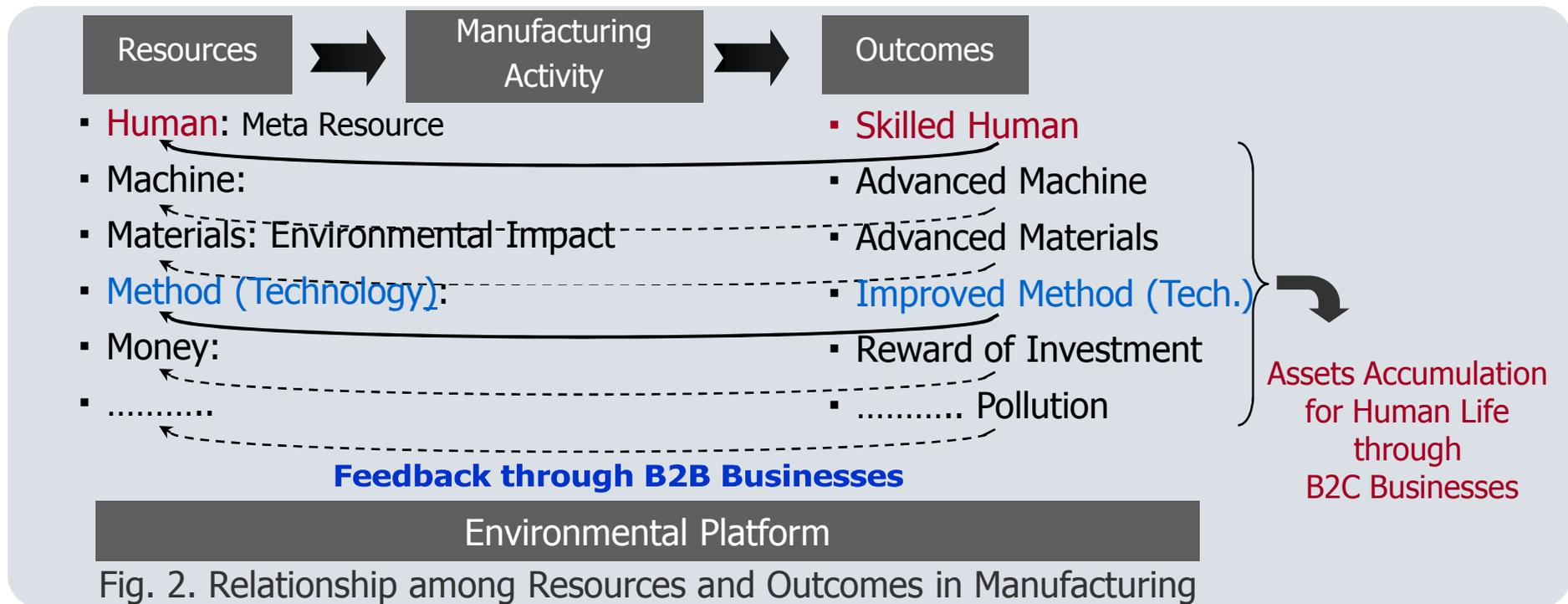
## 5) Diversification of Customer Needs

Importance of New Product Development (NPD) Function

- Reinforcement of NPD Function by Information Technology  
(e. g. CAD/CAM, CAPP, DFX)
- Awareness Prioritisation of Corporate Social Responsibility (CSR)



## 2. Human Resource and Technology as Competitive Weapons



**Human Resource (HR):** The most important resource among corporate resources, being able to control other resources as the Meta Resource.

**Technology Resource (TR):** The resource being developed by HR and it closely supports HR.

↳ **The driving forces for formulating best corporate quality**

### 3. Feature of Samsung's Quality-based Management

**Purpose:** Featuring "Quality-based Management", especially linking with two major enablers, "Human" and "Technology"

#### 1) Speedy and Timely Management (STM)

**Human: The driver of the following abilities which contribute to formulate STM**

- Quick and On-time Response
- Coordination of Other Resources
- Development of New Relevant Methods
- Creation of The Corporate Culture etc.

**Technology: Key contrivance for the following abilities which contribute to formulate STM**

- Rapid and On-time Processing
- Supporting Human Resource (especially by Management Technology)
- Development of New Relevant Technologies etc.



**Chairman Dr. Lee's Words:**

- "Attack bravely and timely."
- "Hold a sense of crisis when going well and attack when crisis occurred."
- "21 Century is Time-based Competition."



# 3. Feature of Samsung's Quality-based Management



## 2) Pursuit of Perfection (POP)

### Human: The driver of the following abilities which contribute to formulate POP

- Attainment of The Objectives
- Creation of Teamwork Spirit
- Orchestration of The Task Force
- Development of The Common Sense of Value etc.

### Technology: Key contrivance for the following abilities which contribute to formulate POP

- Realisation of Required Quality
- Supporting Human Resource (especially by Management Technology)
- Development of New Relevant Technologies for better Quality etc.

### Chairman Dr. Lee's Words:

- "Overcome the border line of 0.0001 (100ppm)."



## "Contradiction-driven Management"

(Mission Impossible? + Think + Act by PDCA Scheme)



20 Years Ago



Still Relevant Message



Now



## 3. Feature of Samsung's Quality-based Management

### 3) Human Resource Focused (HRF)

#### ■ **Human: The driver of the following abilities which contribute to formulate HRF**

- Training Programme Development, Implementation (Leader) and Aggressive Participation (Follower)
- Career Path Design, Consultation (Leader) and Aggressive Utilisation (Follower)
- Development of 1<sup>st</sup> Class People (Leader) and Pursuit of It in Daily Work (Follower)
- Providing Neat Incentive (Leader) and Encouraged Will (Follower)
- Procurement of Necessary Human Assets (Leader) and Encouraged Royalty (Follower) etc.

#### ■ **Technology: Key contrivance for the following abilities which contribute to formulate HRF**

- Development of New Useful Technology/Knowledge
- Technology/Knowledge Transfer among People
- Network Development for Recruitment and Evaluation etc.

#### ■ **Chairman Dr. Lee's Words:**

- "1% save 99%."
- "Humanity and/or courtesy is also competitive advantage."
- "Make advantage by charisma."
- "Heeding and modesty elevate people's dignity."
- "A lot of carrots for good child and a few for bad. (punishment and reward ⇒ small and big rewards)"
- "Self-enlightenment desperately"

## 3. Feature of Samsung's Quality-based Management

### 4) Synergy Driven (SD)

#### ■ **Human:** The driver of the following abilities which contribute to formulate SD

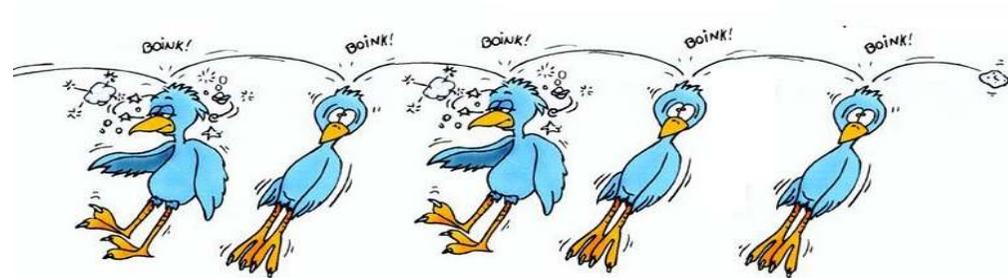
- Sense of Stance Grappling with Work
- Mutual Aids by Encouragement of Teamwork Mind
- Transfer of Success Experience among People
- Macro-scopic Sense etc.

#### ■ **Technology:** Key contrivance for the following abilities which contribute to formulate SD

- Insight of Cause-Effect Relationship etc.

#### ■ **Chairman Dr. Lee's Words:**

- "Getting five birds by one stone."



### 3. Feature of Samsung's Quality-based Management

#### 5) Insight of Business Success Story (IBS)

**Chairman Dr. Lee's Words:**

- "Discern the essentials of the business.", "Looking at far away from height.", "Set a daring go-ahead target."



#### 6) Pioneer Spirit (PS)

**Chairman Dr. Lee's Words:**

- "Innovator dominates future.", "The 1st step is self-modification.", "Not fast follower but first mover."



#### 7) Cultivation of Creativity (CC)

**Chairman Dr. Lee's Words:**

- "Not control skills but creativity for the leader."



#### 8) Learning from Failure (LF)

**Chairman Dr. Lee's Words:**

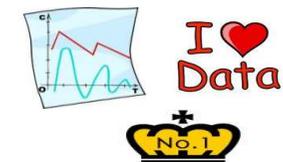
- "Go ahead toward objectives without disappointment by the failures.", "Give reward for failure with good reason."



#### 9) Technology and Data Based (TDB)

**Chairman Dr. Lee's Words:**

- "Always getting and utilising living data."



#### 10) Pursuit No. 1 (PN1)

# 4. Best Practices

**Purpose:** Learning Best Practices for Understanding The Essence of Samsung's Way



Case 1: The Way of Functional-chain (R&D → Manufacturing → Sales) Management

**Background:** Time-based Competition

**Feature:**



## a. Speedy Management

- Lead Time Reduction on Decision Making
- Development Activity and Manufacturing by ProActive/ReActive-combined Operations with Suppliers Collaboration etc.

1. ReActive-focused



Relatively Quick, but Actually, Very Bad as Bomb is transferred to Customers + Negative Brand Reputation



2. ProActive-focused



In Theory, Very Good, but Long Preparatory Lead Time + Tired



3. ProActive/ReActive-combined



Power of ProActivity & ReActivity



Samsung's Competitive Advantage



Standardised Predictive Method



## 4. Best Practices

### b. Timely Management

- Quick Gear Change when Situation has Changed



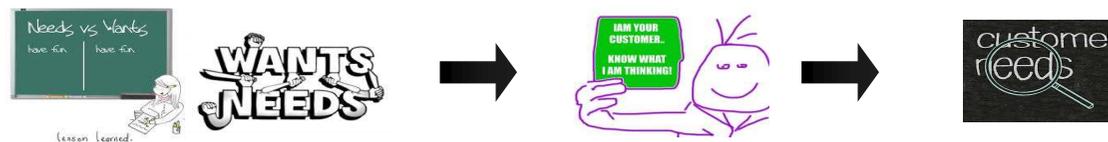
### c. Human Resource Focused

- Strong Leadership
- Team Power that Attains Objectives even by Whole Night Working
- Opinion Exchange for Further Cost Down etc.



### d. Customer Oriented

- Fusion and Collaboration of Entire Business Functions to Reveal Customers' Hidden Needs and Provide Quick Response



## 4. Best Practices

### Case 2: New Parts Development Project

**Background:** Time-based Competition

**Feature:**

#### a. Speedy Management

- Development Lead Time Reduction to 1/2 of the Previous Performance by ProActive/ReActive-combined Operations with Suppliers Collaboration etc.



#### b. Human Resource Focused

- Leader's Sense of Responsibility and Grasping Detail Progress Information
- Effective Progress Management through Pertinent Orchestration
- Team Power that Attains Objectives even by Whole Night Working
- Opinion Exchange for Further Cost Down etc.



#### c. Technology Focused

- Power of Reverse Engineering for Surpassing Competitors

Reverse  
engineering



## 4. Best Practices



### Case 3: Management of Technology Sourcing

#### Feature:

##### a. Human Resource Focused

- Insight of Technology Trend Direction
- Power of Human Network Development



##### b. Data and Technology Focused

- Power of Retrieving Useful Technology/Methods
- Technology Mapping
- Audit and Evaluation of Suppliers



## 5. Future Perspective

**Purpose:** Possible Roadmapping toward Constitutionalisation of Company's Excellence based on 20 years accumulation of Samsung's Success and Growth



A Topic: Reinforcement of Performance Evaluation and Improvement System

### 1) Classification of KPI, for example listed below, and their Intensification

- a) **KSC**: Key Social Contributors
- b) **KMI**: Key Management Indicators
- c) **KPI**: Key Performance Indicators
- d) **KAI**: Key Activity Indicators

# 5. Future Perspective

## 2) Creating Global Data-base of Performance Indicators

Reinforcement of Information Network Infrastructure (Extension of ERP System covered HQ and Local Sites)

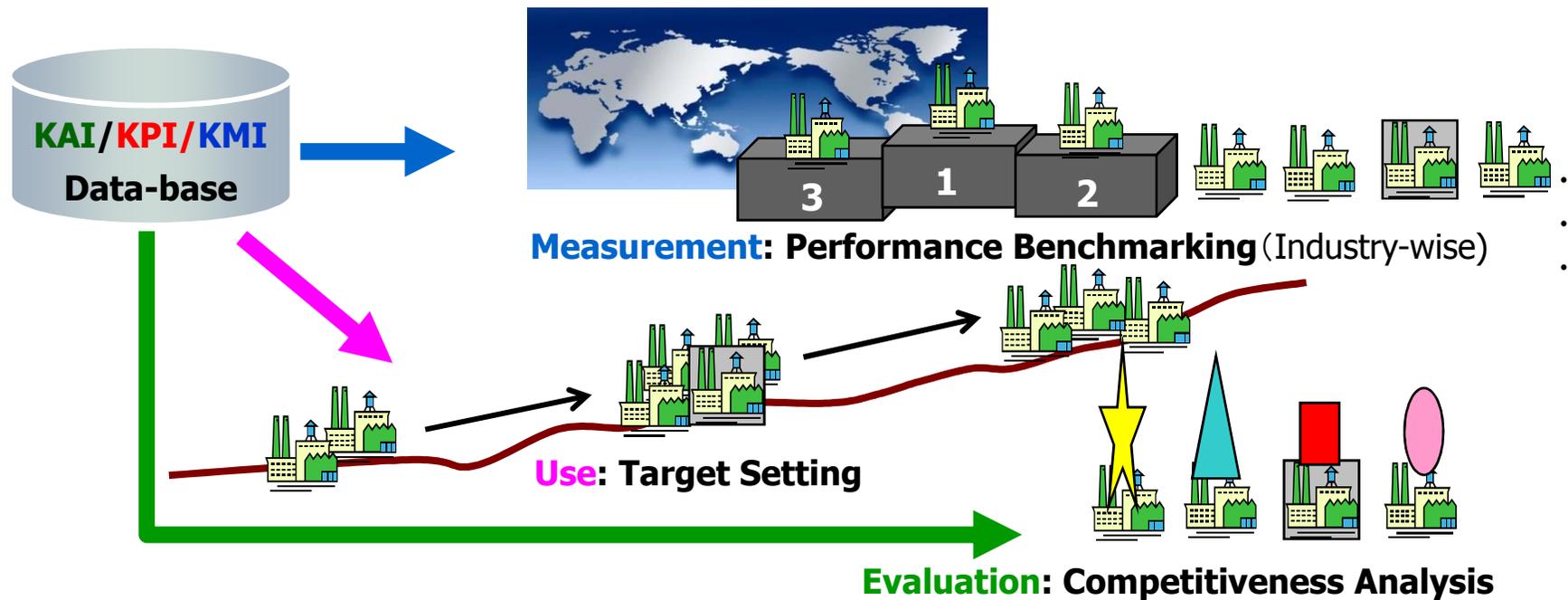


Fig. 3. Framework of KAI/KPI/KMI Data-base

# 5. Future Perspective

## 3) Evaluation of Each Site's Performance

Analysis of Causal Relation between KAI & KPI and Identification of Best Practice through Bench Marking



### 1. Performance Benchmarking

	Industry 1	Industry 2	Industry 3
Rank A			
Rank B			
Rank C			
Rank D			
Rank E			
	. . . Performance Score		

**KPI Data (Term-wise Trend)**

	KPI 1	KPI 2	...	KPI r	...	KPI s
BU 1	Data (b <sub>11</sub> )	Data (b <sub>12</sub> )	...	Data (b <sub>1r</sub> )	...	Data (b <sub>1s</sub> )
BU 2	Data (b <sub>21</sub> )	Data (b <sub>22</sub> )	...	Data (b <sub>2r</sub> )	...	Data (b <sub>2s</sub> )
...	...	...	...	...	...	...
BU k	Data (b <sub>k1</sub> )	Data (b <sub>k2</sub> )	...	Data (b <sub>kr</sub> )	...	Data (b <sub>ks</sub> )
...	...	...	...	...	...	...
BU n	Data (b <sub>n1</sub> )	Data (b <sub>n2</sub> )	...	Data (b <sub>nr</sub> )	...	Data (b <sub>ns</sub> )

**KAI Data (Term-wise Trend)**

	KAI 1	KAI 2	...	KAI i	...	KAI m
BU 1	Data (a <sub>11</sub> )	Data (a <sub>12</sub> )	...	Data (a <sub>1i</sub> )	...	Data (a <sub>1m</sub> )
BU 2	Data (a <sub>21</sub> )	Data (a <sub>22</sub> )	...	Data (a <sub>2i</sub> )	...	Data (a <sub>2m</sub> )
...	...	...	...	...	...	...
BU k	Data (a <sub>k1</sub> )	Data (a <sub>k2</sub> )	...	Data (a <sub>ki</sub> )	...	Data (a <sub>km</sub> )
...	...	...	...	...	...	...
BU n	Data (a <sub>n1</sub> )	Data (a <sub>n2</sub> )	...	Data (a <sub>ni</sub> )	...	Data (a <sub>nm</sub> )

Fig. 4. Structure of KAI/KPI Data-base

# 5. Future Perspective

## 4) Horizontal Deployment of Best Practice



- Development and Implementation of Effective Transfer Methods (Vehicles) in-between Sites, Business Functions, Business Divisions and Industries.
- **Vehicle:** Performance Improvement Technologies (Example)
- **Activity:** Mutual Learning (Example)
- **System:** ERP (Example)



## 5. Future Perspective

### 5) Constitutionalisation of Excellence

- Infinite Loop of Bench Marking and Improvement
- Reinforcement and Joint Ownership of Corporate Sense of Value  
→ Covering Entire Supply Chain

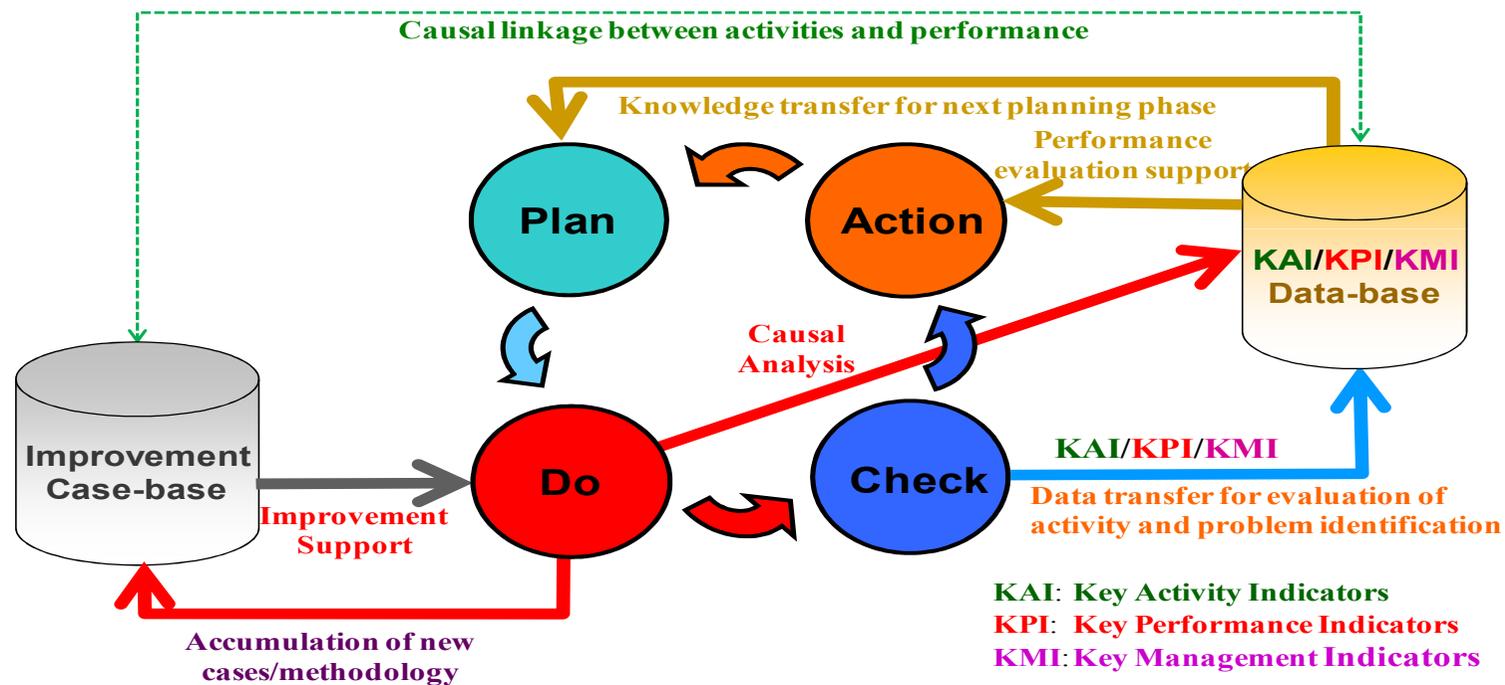
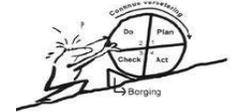


Fig. 5. Relationship between Activity and KPI on the PDCA Scheme

## 5. Future Perspective

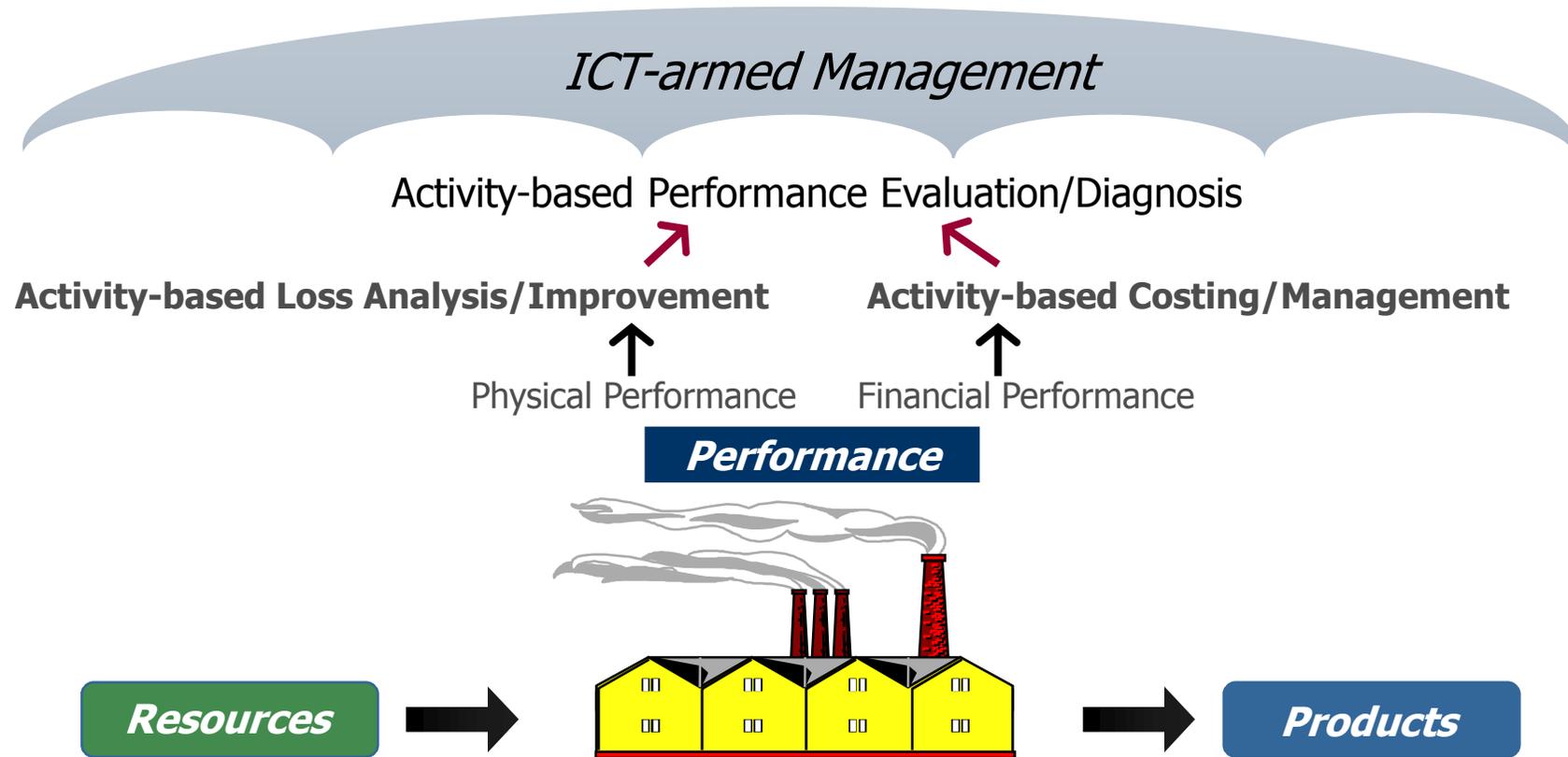


Fig. 6. Structure of ICT-armed Management



## **Some Relevant Sources on “Samsung’s New Management” are listed.**

[1] Jeon, Ok Pyo, “Winning Habit”, Sam & Parkers, 2007.

Translation: Kaoru Hasuike, 韓国最強企業サムスンの22の成功習慣, (株)阪急コミュニケーションズ

[2] Katayama, H., “Sense of Lean Management and Contribution to Customer Satisfaction”,

Industrial Engineering Magazine, Vol. 47, pp. 22-27, 2010.

[3] Kim Byungwan, “Lee Kun Hee 27 Etiquette”, Midas Book, 2012.

[4] Lee, Kyeong-Sik, “Lee Kun Hee Story”, Human & Books, 2010.