

# THE KAITEKI COMPANY



Sustainability



Health



Comfort

## *APTSIS* 15

Step 2 (FY2013-FY2015)

### Presentation to Investors

June 9, 2014

Yoshimitsu Kobayashi  
President & Chief Executive Officer  
Mitsubishi Chemical Holdings Corporation

The forward-looking statements are based largely on information available as of the date hereof, and are subject to risks and uncertainties which may be beyond Company control. Actual results could differ largely, due to numerous factors, including but not limited to the following: Group companies execute businesses in many different fields, such as information and electronics, performance products, polymers and processed products, pharmaceuticals, carbon and inorganic products, and petrochemicals, and these business results are subjected to influences of world demands, exchange rates, price and procurement volume of crude oil and naphtha, trends in market prices, speed in technology innovation, National Health Insurance price revision, product liabilities, lawsuits, laws, and regulations.

# List of Abbreviations

MCHC: Mitsubishi Chemical Holdings Corporation  
 MCC: Mitsubishi Chemical Corporation  
 MTPC: Mitsubishi Tanabe Pharma Corporation  
 MPI: Mitsubishi Plastics, Inc.  
 MRC: Mitsubishi Rayon Co., Ltd.  
 LSII: Life Science Institute, Inc.  
 TNSC: Taiyo Nippon Sanso Corporation

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APIC: API Corporation  
 HLC: Healthy Life Compass Corporation  
 JPP: Japan Polychem Corporation  
 LICC: Lucite International (China) Chemical Industry Co., Ltd.  
 LSIM: LSI Medience Corporation  
 MCPI: MCC PTA India Corp. Private Limited  
 METI: Ministry of Economy, Trade and Industry  
 MHLW: Ministry of Health, Labour and Welfare  
 NICE: National Institute for Health and Clinical Excellence  
 NKC: Nippon Kasei Chemical Company Limited  
 NSCI: The Nippon Synthetic Chemical Industry Co., Ltd.  
 NNE: Nishi Nippon Ethylene LLC  
 PTT: PTT Public Company Limited  
 QKK: Qualicaps Co., Ltd.  
 SABIC: Saudi Basic Industries Corporation

CRO: Contract research organization  
 CTS: Compound technology services  
 DPP IV: Dipeptidyl Peptidase IV  
 EOG: Ethylene oxide and glycol  
 EVOH: Ethylene vinyl alcohol  
 GaN: Gallium nitride  
 HDPE: High density polyethylene  
 ICT: Information and communication technology  
 LCM: Life cycle management  
 LLDPE: Linear low-density polyethylene  
 LNG: Liquefied natural gas  
 MAA: Methacryl acid  
 MMA: Methyl methacrylate  
 MOCVD: Metal Organic Chemical Vapor Deposition  
 MOS: Management of Sustainability  
 MOT: Management of Technology  
 NCF: Non-crimp fabric  
 OLED: Organic light emitting diode  
 OPV: Organic photovoltaic  
 PBS: Polybutylene succinate  
 PC: Polycarbonate  
 PCM: Prepreg compression molding  
 PE: Polyethylene  
 PHL: Phenol  
 PMI: Post merger integration  
 PMMA: Polymethyl methacrylate  
 PP: Polypropylene  
 PVC: Polyvinyl chloride  
 PVOH: Polyvinyl alcohol

SAP: Super absorbent polymer  
 SBUs: Strategic business units  
 SGLT2: Sodium Glucose Cotransporter 2  
 SM: Styrene monomer  
 SMC: Sheet molding compound  
 UTT: Utility

FY2011: April 1, 2011 – March 31, 2012  
 FY2012: April 1, 2012 – March 31, 2013  
 FY2013: April 1, 2013 – March 31, 2014  
 FY2014: April 1, 2014 – March 31, 2015  
 FY2015: April 1, 2015 – March 31, 2016

Note:

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## Today's Agenda

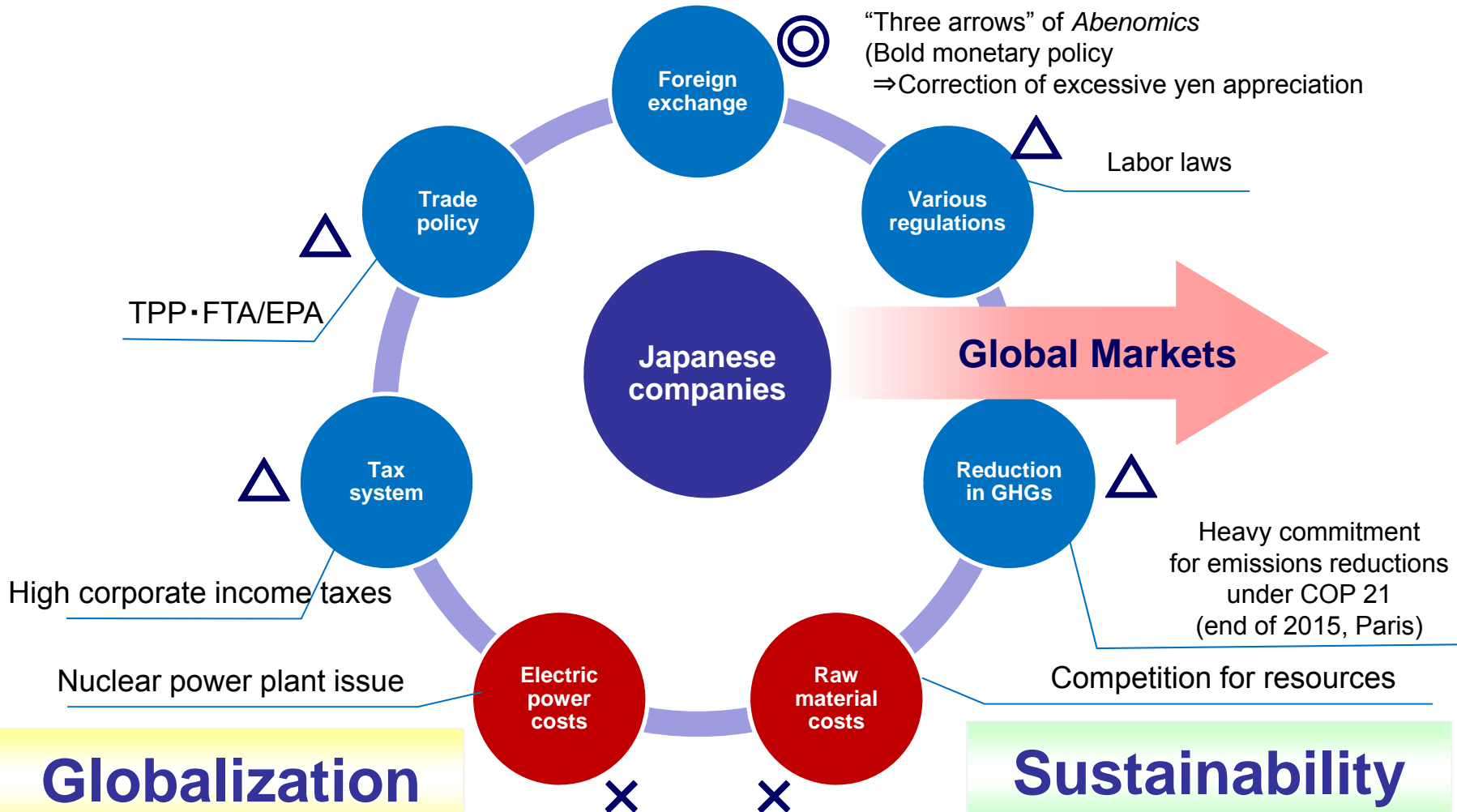
1. **Business Environment Awareness and Management Challenges**
2. **Progressing toward Improved Performance**
  - 2.1 ***APTSIS* 15 Step 2 Plan and Performance**
  - 2.2 **Progress Situation by Each Growth Model Category**
3. **Life Science Institute, Inc. (LSII)**
4. **Strengthening of Capital Alliance with Taiyo Nippon Sanso Corporation (TNSC)**
5. ***KAITEKI* Management**

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# 1. Operating Environment for Japan-based Companies

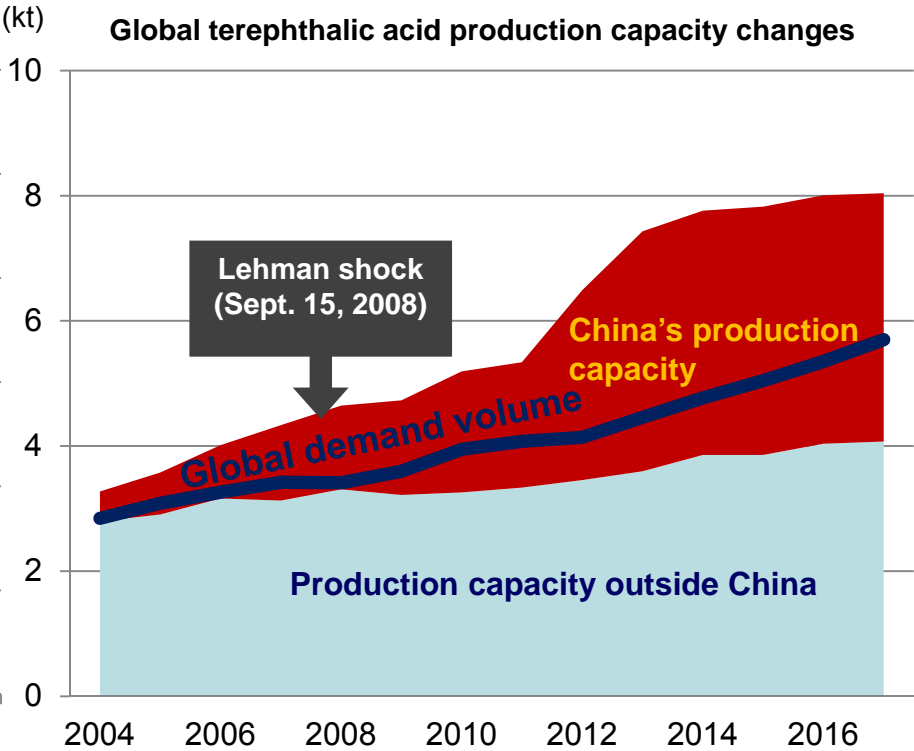
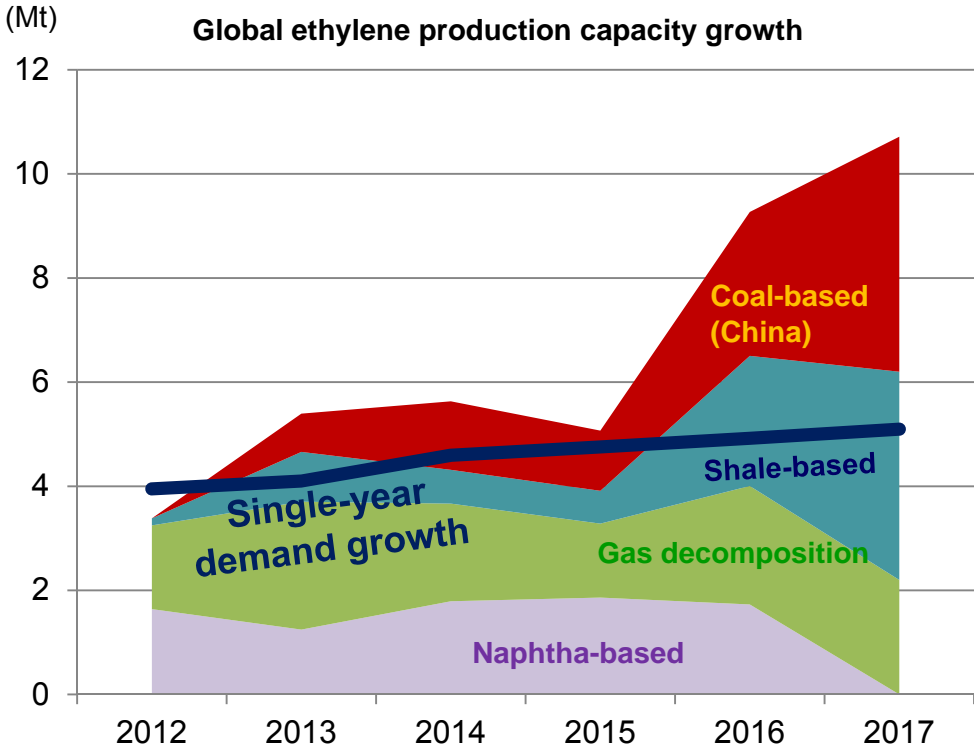
■ Competitive conditions for Japan-based companies are gradually improving, but global competition is becoming increasingly intense.





# 1. Structural Changes in the Chemical Industry

- Structural changes in the chemical industry
  - Shale revolution, emergence of coal chemistry in China
  - Excessive capital investments and supply-demand imbalance in China
  - Advance with sustainability and health-centered management
- Evolution of manufacturing architecture
  - Modularization, digitization, commoditization, Internet of Things (IoT)

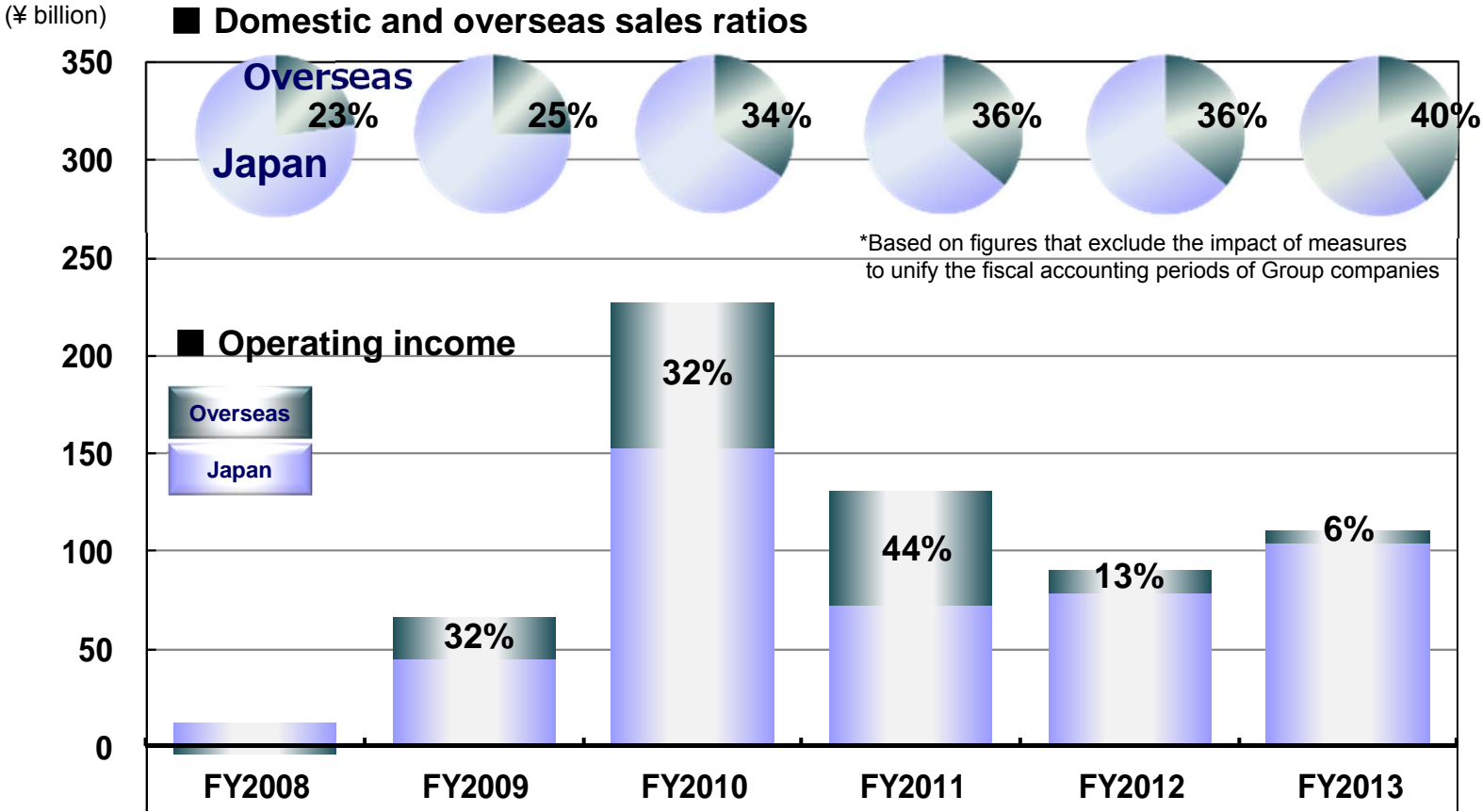


Prepared by MCC

Source: "Global Supply and Demand Trends for Petrochemical Products" compiled by METI (Apr. 30, 2013)

# 1. Trends in Domestic and Overseas Performance

■ Overseas business is growing in terms of sales, but its profitability has declined sharply.



\*Overseas royalty income is included within figures for domestic performance.



# 1. Factors Placing Downward Pressure on Revenue

## Overseas

- ◆ Regarding terephthalic acid, PHL/PC chain, China-centered global excess production capacity (supply-demand imbalance) causing considerable deterioration of profitability
- ◆ Regarding MMA chain, delayed launch of expanded North American plant capacity causing opportunity losses and increased costs

## Domestic

- ◆ Regarding pharmaceuticals, growing market shares of generics reducing revenue from long-listed products
- ◆ A portion of growth driver businesses have suffered from delayed market launches.

# 1. Management Issues Requiring Emphasis

## ■ Implementation of portfolio transformation

1. Transform TNSC into a consolidated subsidiary
2. Expand the business of LSII
3. Generate further synergies

## ■ Strengthening profitability of growth businesses

1. Expanding and strengthening revenue base of MMA business
2. Accelerating development of business in performance products (carbon fiber, alumina fiber, etc.)

## ■ Promotion of structural reforms

1. Restructure and rebuild petrochemical-related businesses
2. Implement fundamental countermeasures regarding terephthalic acid, PHL/PC chain businesses

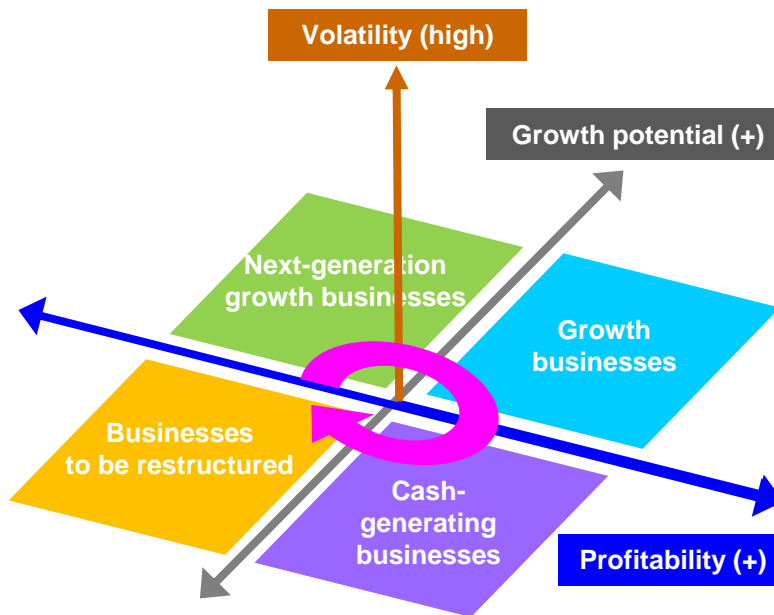
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## 2-1. Business Life Cycle Management and Variability Management

- Managing and operating businesses through a combination of the four-quadrant model (management based on product life cycles and business growth potential and profit potential) and the growth model (management based on the variability of profit structures)

Four-quadrant model in business portfolio management



Growth model

	<h3>Stable businesses</h3>	
<ul style="list-style-type: none"> <li>Polyester film</li> <li>PVOH/EVOH</li> <li>Engineering plastic products</li> <li>Pharmaceuticals</li> <li>MMA/PMMA</li> </ul>	<ul style="list-style-type: none"> <li>High-performance graphite</li> <li>Performance polymers</li> <li>Specialty chemicals</li> <li>High-performance films</li> <li>Food ingredients</li> <li>Diagnostics &amp; support for new pharmaceutical development</li> <li>Coke and others</li> </ul>	
	<h3>Growth driver businesses</h3>	
<ul style="list-style-type: none"> <li>Carbon fiber and composite materials</li> <li>White LED lighting and materials</li> <li>Lithium-ion battery materials</li> <li>Water treatment systems and services</li> </ul>	<ul style="list-style-type: none"> <li>Organic photovoltaic modules and materials</li> <li>Organic photo-semiconductors</li> <li>Advanced performance products (AQSOA and others)</li> <li>Agribusiness solutions</li> <li>Sustainable resources and others</li> </ul>	
	<h3>Volatile businesses</h3>	
<ul style="list-style-type: none"> <li>Performance molding products</li> <li>Terephthalic acid</li> <li>PHL/PC chain</li> <li>Polyolefins</li> <li>Basic petrochemicals</li> </ul>	<ul style="list-style-type: none"> <li>Carbon black and rubber</li> <li>Electronic and industrial films</li> <li>Fibers and others</li> </ul>	

# 2-1. Portfolio Transformation

■ Transforming the business structure based on the four-quadrant model

**Withdrawal**

**Impact on sales (¥300 billion)**

- Fertilizer (Dec. 2009)
- Nylon chain (May 2010)
- Domestic terephthalic acid (Dec. 2010)
- PVC chain (Mar. 2011)
- SM chain (Mar. 2011)
- Piping materials (Mar. 2013)
- SAP (Mar. 2013)

**Next-generation growth businesses**

**Businesses to be restructured**

(Currently being examined)

- Naphtha cracker integration
- Polyolefins
- Terephthalic acid

**Growth businesses**

**Impact on sales +¥800 billion**

- MRC (Mar. 2010: Management integration)
- NSCI (Dec. 2012: Acquisition of majority shareholding)
- QKK (Mar. 2013: Acquisition)
- Quadrant AG (May 2013: Made into a wholly owned subsidiary)

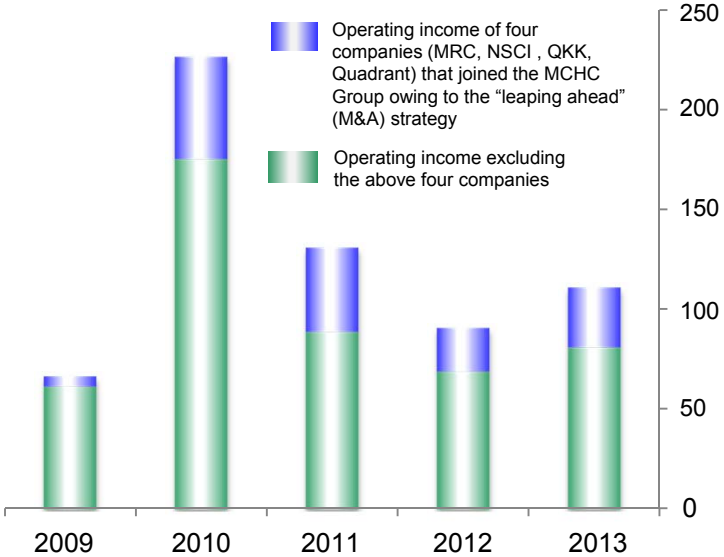
**Cash-generating businesses**

**Leaping ahead**

**TNSC**

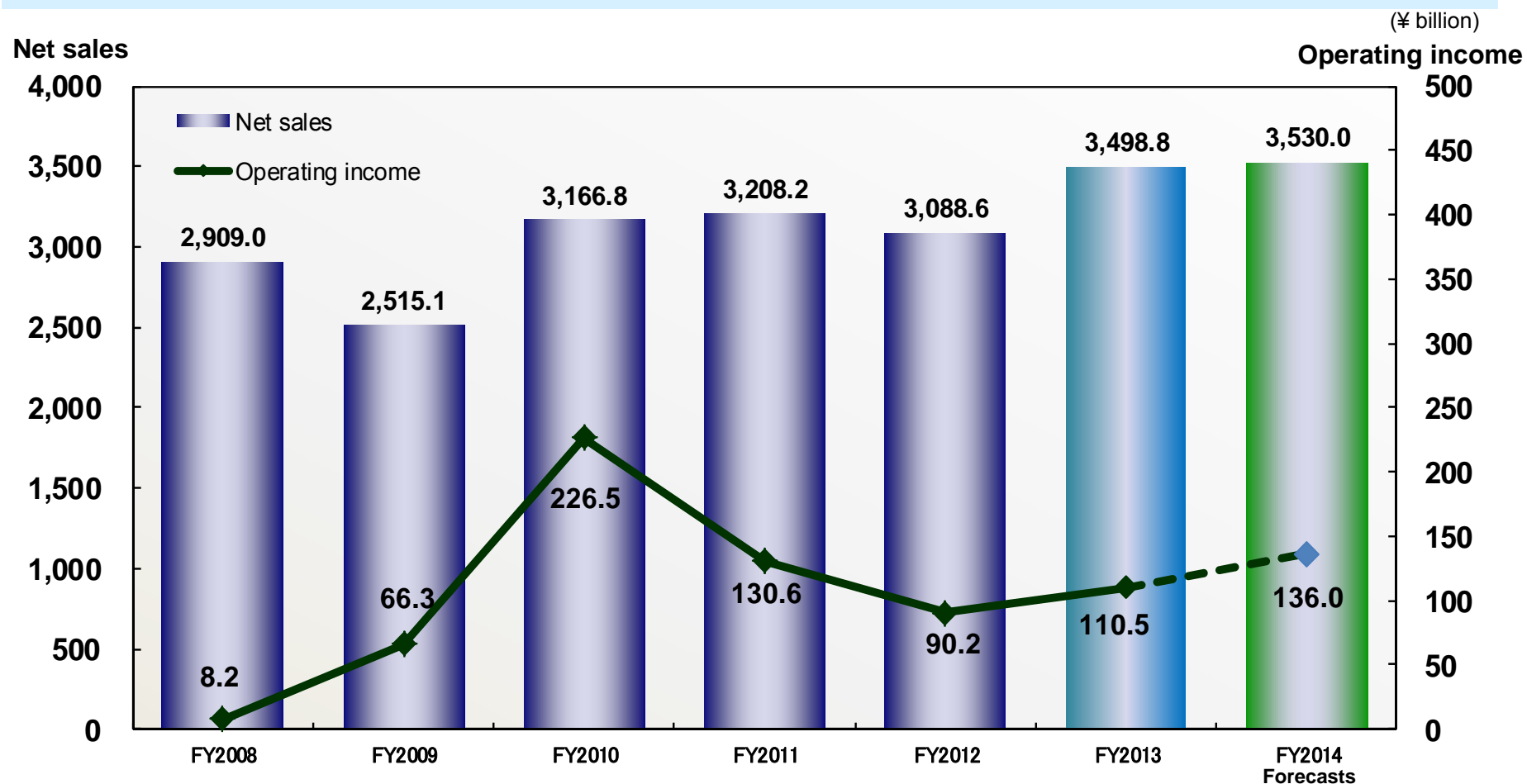
**To become a consolidated subsidiary in 4Q, FY2014**

Changes in operating income (¥ billion)



## 2-1. Financial Results and Outlook for FY2014

- In FY2013, higher sales and cost reductions, along with yen depreciation, led to year-on-year growth in sales and profitability.
- In FY2014, plans call for the implementation of still further profitability-enhancement measures to enable an additional increase in profitability.



Figures for FY2013 include ¥151.9 billion in sales and ¥3.9 billion in operating income attributable to the impact of measures to unify the fiscal accounting periods of Group companies.



## 2-1. Actual Results for FY2013 vs. Outlook for FY2014

- Designed Materials segment shows robust performance
- Health Care segment shows pharmaceuticals profit roughly unchanged from previous year and growth in LSII profit
- Polymers segment shows outlook for enhanced performance in MMA/PMMA and polyolefins

Operating income (loss) (¥ billion)

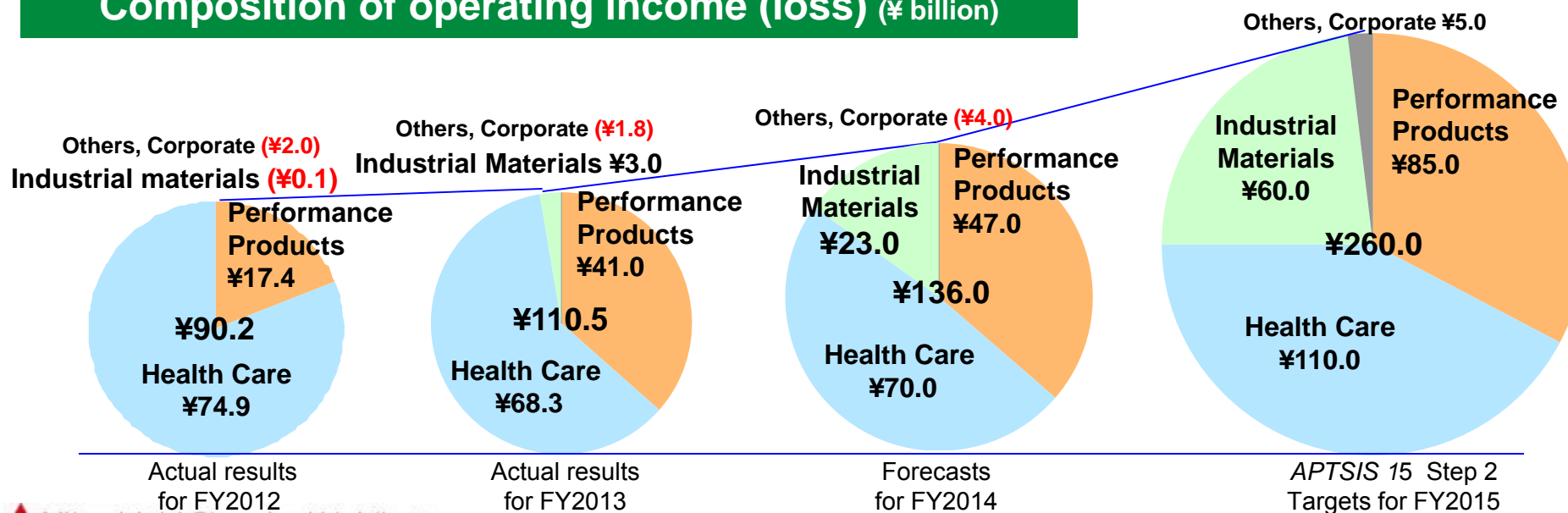
Domains	Segments	Actual results for FY2012	Actual results for FY2013	Forecasts for FY2014	Change (FY2014 vs. FY2013)	Comments
Performance Products	Electronics Applications	(5.1)	(5.5)	(3.0)	+2.5	<ul style="list-style-type: none"> <li>• Robust performance in phosphors and display materials</li> <li>• Reduced loss margins for GaN substrates and recording media</li> </ul>
	Designed Materials	22.5	46.5	50.0	+3.5	<ul style="list-style-type: none"> <li>• Robust performance in food ingredients, fibers and other products</li> <li>• Increased profit in polyester film, alumina fiber, and certain other products. (+10: impact of segment definition change)</li> </ul>
Health Care	Health Care	74.9	68.3	70.0	+1.7	<ul style="list-style-type: none"> <li>• Pharmaceuticals profit roughly unchanged from previous year</li> <li>• Increased profit from LSII (QKK, LSIM)</li> </ul>
Industrial Materials	Chemicals	(0.2)	0.7	4.0	+3.3	<ul style="list-style-type: none"> <li>• Margin of losses in terephthalic acid diminished</li> <li>• Income from EOG and ethanol increased</li> </ul>
	Polymers	0.1	2.3	19.0	+16.7	<ul style="list-style-type: none"> <li>• Capacity expansion of U.S. Beaumont plant contributes to MMA/PMMA profit growth</li> <li>• Increased profit recorded for polyolefins</li> </ul>
	Others	6.5	5.7	4.0	(1.7)	
	Corporate	(8.5)	(7.5)	(8.0)	(0.5)	
	<b>Total</b>	<b>90.2</b>	<b>110.5</b>	<b>136.0</b>	<b>+25.5</b>	

## 2-1. APTIS 15 Step 2: Plan and Actual Results

	Actual results for FY2012	Actual results for FY2013	Forecasts for FY2014	APTIS 15 Step 2 Targets for FY2015
Key indices: Exchange rate	¥83.3/\$1	¥100.5/\$1	¥102.0/\$1	¥90.0/\$1
Naphtha price	¥57,500/kl	¥67,300/kl	¥70,000/kl	¥65,000/kl
<b>Net sales</b>	¥3.1 trillion	¥3.5 trillion	¥3.5 trillion	¥4.3 trillion
<b>Operating income</b>	¥90.2 billion	¥110.5 billion	¥136.0 billion	¥260.0 billion [¥280.0 billion*]

### Composition of operating income (loss) (¥ billion)

\*Including "leaping ahead" (M&A)

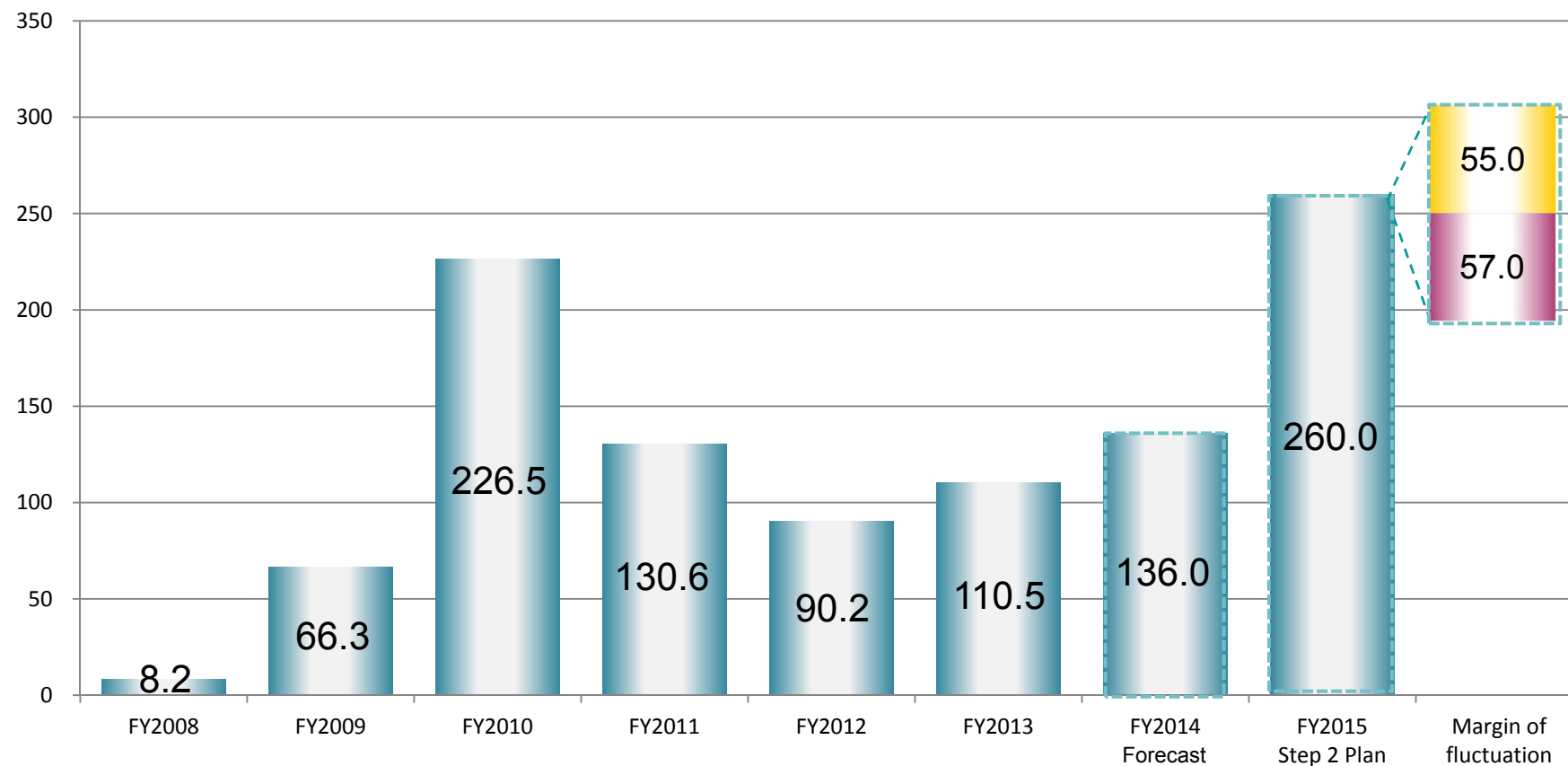


## 2-1. Preparing for FY2015

- Ensuring implementation of all important measures for addressing management issues meriting emphasis, and endeavoring to ensure attainment of FY2015 targets







### APTSIS 15 Step 2: FY2013 - FY2015

Operating income (¥ billion)



## 2-1. Current Degree of Attainment Regarding FY2015 Targets

- Continue launching requisite measures going forward for each element of the four-quadrant/growth model

	Stable businesses	Growth driver businesses	Volatile businesses
Next-generation growth businesses		Concerted efforts to expedite business launches 	
Growth businesses	Pharmaceuticals struggling Existing business growth LSII development Leaping ahead (M&A) strategies 	Expedite profitability attainment 	
Cash-generating businesses	Robust performance 		Generally robust performance 
Businesses to be restructured			Still further structural reforms 

## 2-2. Stable Businesses: Progress

### ■ FY2015 operating income target of ¥225.0 billion

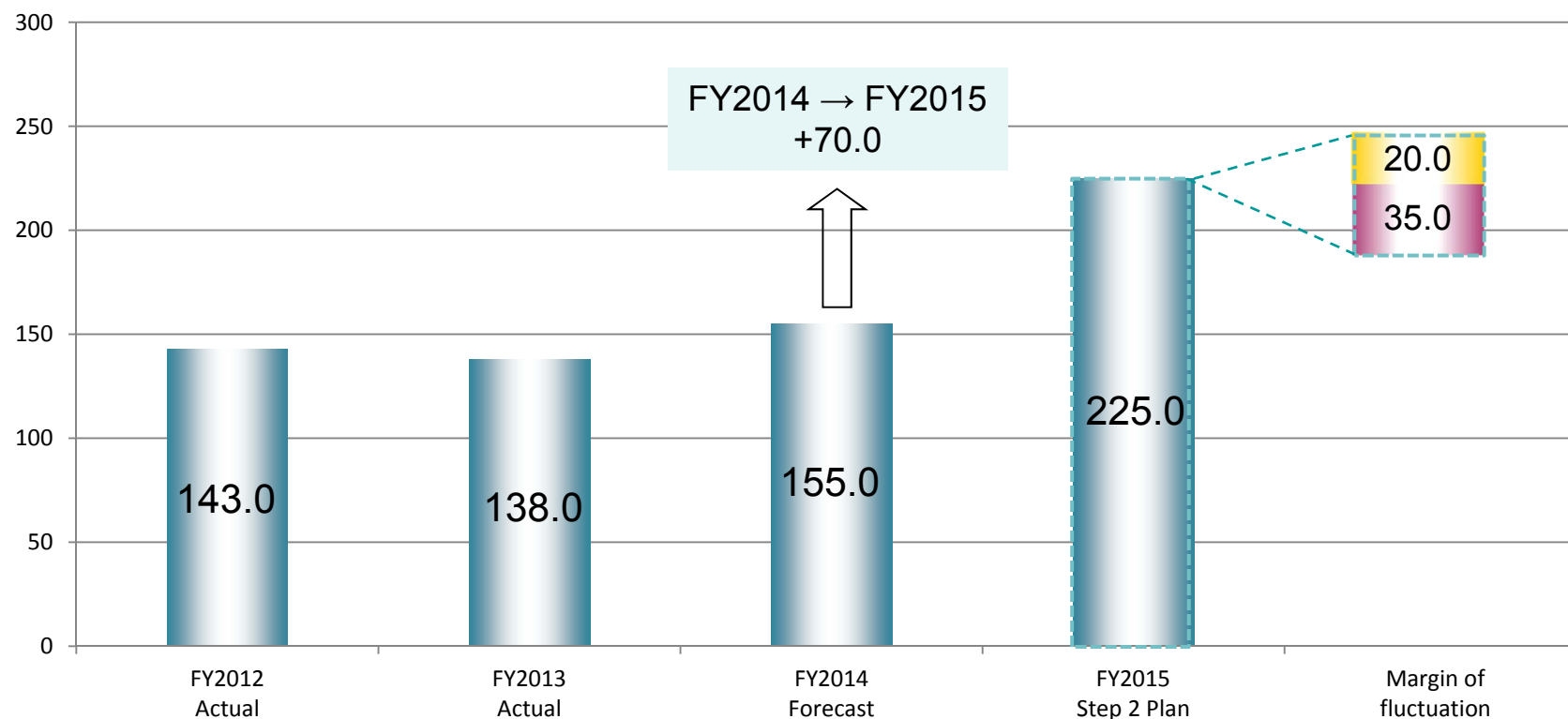
#### Current:

- High hurdles for attainment of stable businesses targets

#### Outlook:

- Profitability increase owing to implementation of measures for improving MMA/PMMA performance
- Robust performance in such stable businesses as performance polymers and PVOH/EVOH (NSCI)

Operating income (¥ billion)



## 2-2. Stable Businesses: Major Policies and Progress

Main SBUs	Major policies	Progress
<b>Pharmaceuticals</b>	<ul style="list-style-type: none"> <li>• Nurturing development of new pharmaceuticals and priority products</li> <li>• Expand licensed-out products (royalty revenues)</li> </ul>	<ul style="list-style-type: none"> <li>• Erosion of long-listed product sales by generics proceeding more rapidly than anticipated</li> <li>• Increase in royalties from <i>Gilenya</i> and <i>INVOKANA</i></li> <li>• Revision of financial results forecasts for FY2015 (¥35 billion downward adjustment)</li> </ul>
<b>MMA/PMMA</b>	<p><b>[MMA monomers]</b></p> <ul style="list-style-type: none"> <li>• Steadily meet growth in demand by expanding production capacity</li> </ul> <p><b>[Acrylic sheets, molding materials]</b></p> <ul style="list-style-type: none"> <li>• Expand sales for general applications, rolling stock, and construction material applications</li> </ul>	<ul style="list-style-type: none"> <li>• U.S. Beaumont plant: Increase production capacity MMA: Restarted production in Nov. 2013 MAA: Scheduled to start production in Jun. 2014</li> <li>• Thailand: Began operating new MAA facility in Feb. 2014</li> </ul>
<b>Polyester film</b>	<ul style="list-style-type: none"> <li>• Establish local production bases to tap into growing demand in China</li> </ul>	<ul style="list-style-type: none"> <li>• China: Begin full-scale operations of Suzhou plant during 2014</li> <li>• Construction of new processing line proceeding on schedule (production to be started in 1Q of 2015)</li> </ul>
<b>ALPOLIC Aluminum fiber</b>	<ul style="list-style-type: none"> <li>• Accelerating global development</li> <li>• Strengthening/expanding high-value-added products</li> </ul>	<ul style="list-style-type: none"> <li>• Begin operating German production base (scheduled for Sept. 2014)</li> <li>• Increasing demand for automotive applications</li> </ul>
<b>PVOH/EVOH</b>	<ul style="list-style-type: none"> <li>• Bolster earnings capability by flexibly adapting to market trends</li> </ul>	<ul style="list-style-type: none"> <li>• Constructing a new extra-wide production facility for OPL (optical PVOH) film (No. 6 facility)</li> </ul>
<b>Performance Polymers</b>	<ul style="list-style-type: none"> <li>• Expand business foundation through M&amp;A</li> <li>• Augment globally leading products in growing automobile field</li> </ul>	<ul style="list-style-type: none"> <li>• Implementing PMI with objective of maximizing development of synergies with acquired businesses (CTS, etc.)</li> </ul>

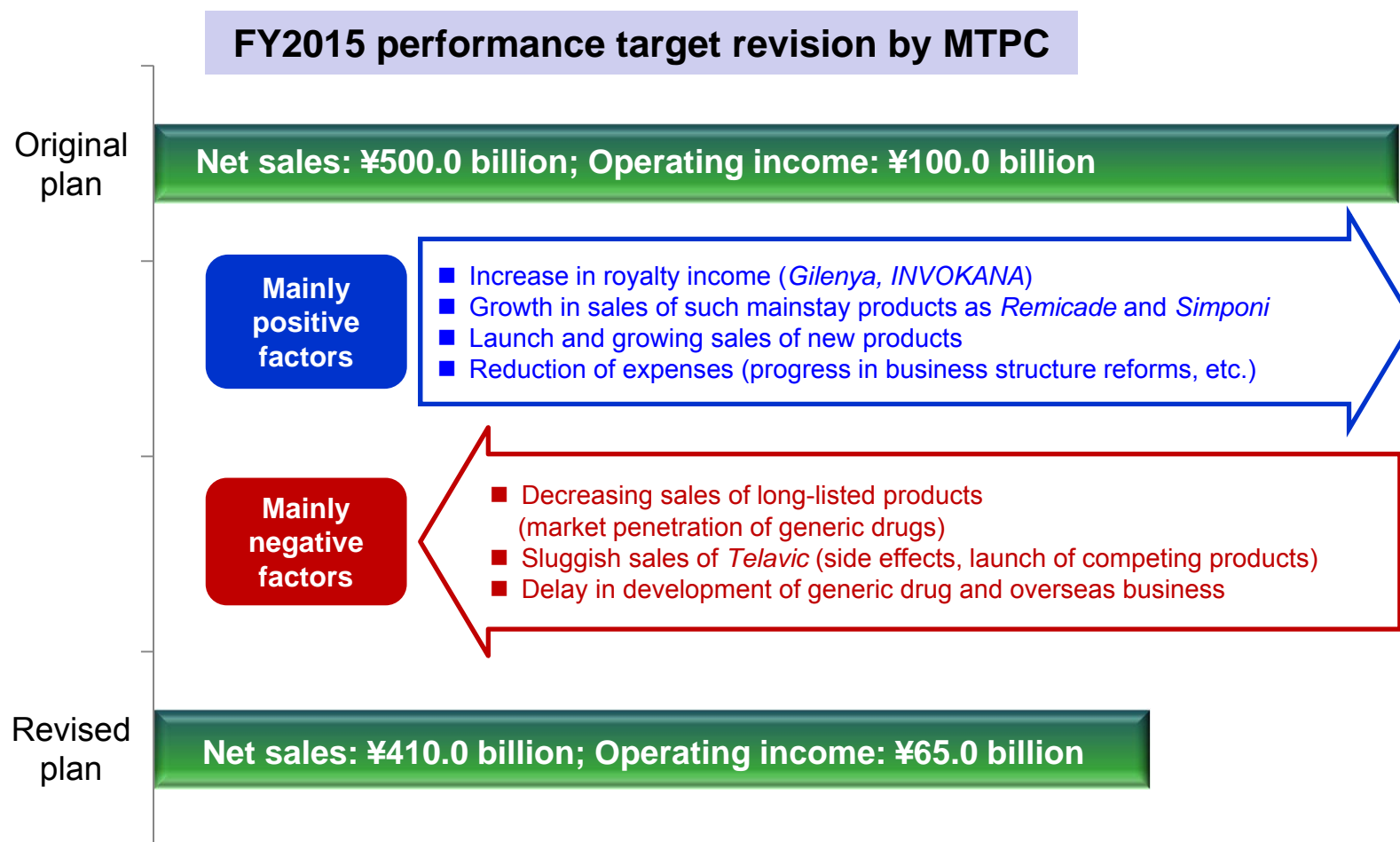


## 2-2. Pharmaceuticals

- **Growth in sales of key products and expansion of royalty income**
  - **Implementing investments and business/structural reforms designed to promote future growth**
- 
- **Expansion of royalty income**
    - *Gilenya*: FY2013 royalty income of ¥32.2 billion (up 64.8% from the previous FY)
    - *INVOKANA*: Rapid growth in U.S. market
  - **Growth in sales of *Remicade* and *Simponi***
    - Exceeded ¥100 billion on a drug price basis
    - Continue using LCM-centered product-value-maximization methods to increase sales
  - **Growth strategy in diabetes field**
    - Approaching sales-expansion period for *Tenelia* (DPP IV inhibitor)
    - Launching *Canaglu* (SGLT2 inhibitor) in the Japanese market
  - **Strengthening vaccine business**
    - Positioned as the fourth core therapeutic area
    - Converted Medicago, Inc. into a subsidiary as part of plans for global business expansion
  - **Promoting business/structural reforms**
    - Promoting structural reform project
    - Restructuring domestic production base network

## 2-2. Pharmaceuticals

- Factors including decreasing sales of long-listed products and the impact of reimbursement price revisions are causing the operating environment for domestic pharmaceutical business to deteriorate rapidly.



## 2-2. Business Development of MMA/PMMA

### ■ Establish global operations and strengthen competitiveness

#### Overview of FY2013

##### ■ Slowdown of the Chinese economy

- Downturns in sales volume and price
- Price stagnation due to increased competition in other Asian markets

##### ■ Delay of the Beaumont Plant in the U.S.

- Purchase/resale of other manufacturers' products
- External purchase of main raw materials
- Delay in start of production of MAA

#### Key measures toward FY2015

##### ■ Establish optimized global operations

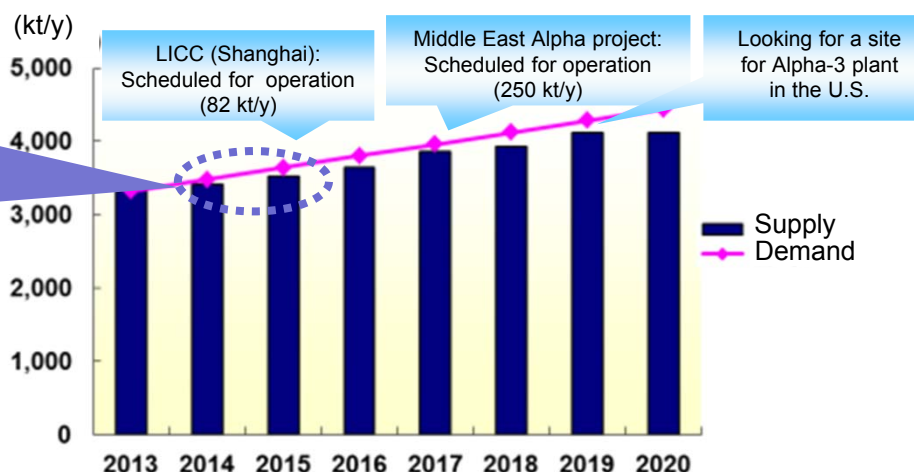
- Establish optimized operation systems for Asia by Aug. 2014 and for U.S. and Europe by Dec. 2014
- Launch Middle-East Alpha project in Jun. 2014
- Considering U.S. project

##### ■ Increase the rate of return and rationalization

- U.S. (Beaumont Plant):
  - MMA: Commenced production [Nov. 2013]
  - Completed the full production system (capacity: 156 kt/y) [Jan. 2014]
  - MAA: Commence production (capacity: 23 kt/y) [Scheduled for Jun. 2014]
- Thailand (A new MAA facility): Commenced production (capacity: 8 kt/y) [Feb. 2014]
- China (Shanghai Plant): Expand and rationalize facilities (capacity: 82 kt/y) [Scheduled for Jan. - Mar. 2015]
- Singapore: Improve energy efficiency by 15% [Scheduled for Jan. - Mar. 2016]
- Progressive introduction of new catalysts [from FY2015]

### Supply-demand balance of MMA monomers

- Establishment of global operations
- Optimization of production in line with raw materials and the balance between supply and demand



# 2-2. MMA Middle East and U.S. Projects

- The Middle East project will create a strategic base for supplying growing emerging country markets in Eastern Europe, India, the Middle East, Africa, etc., and will further strengthen MRC's global top position regarding MMA chain business.
- Create the world's largest MMA production capability using a new ethylene production method (Alpha method) using gas-based raw materials that offers an overwhelming cost advantage

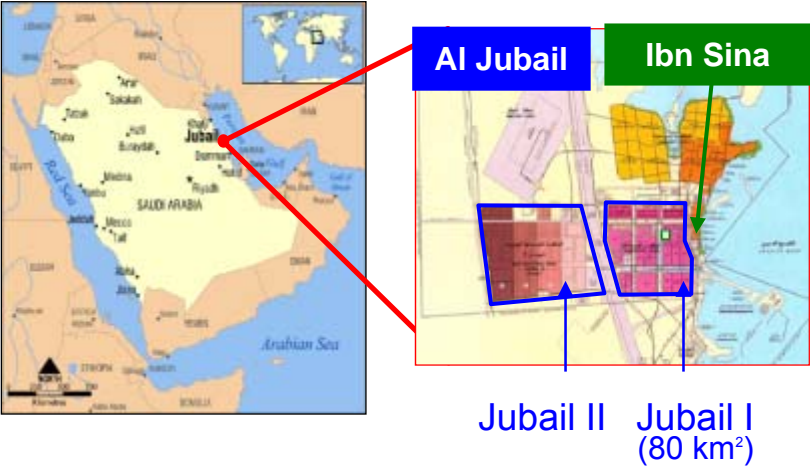
### [Middle East project]

Currently at final stages of establishing a joint venture and placing construction orders, after obtaining foreign capital investment authorization

### [U.S. project]

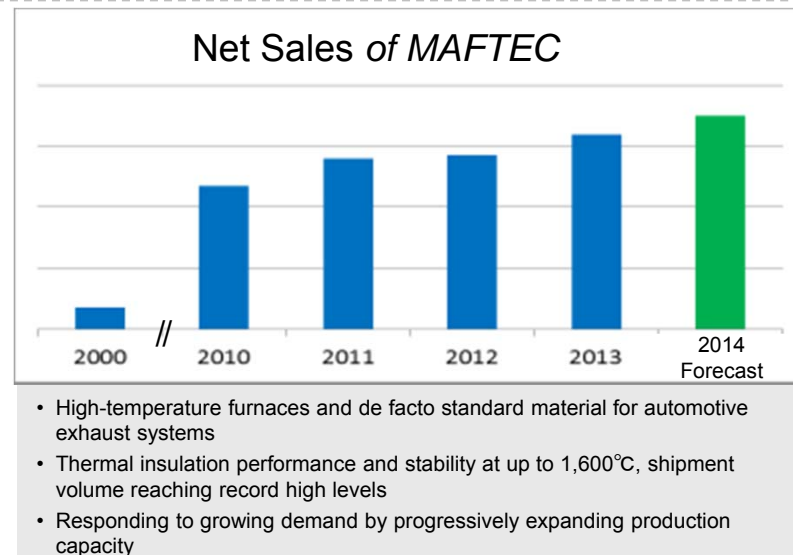
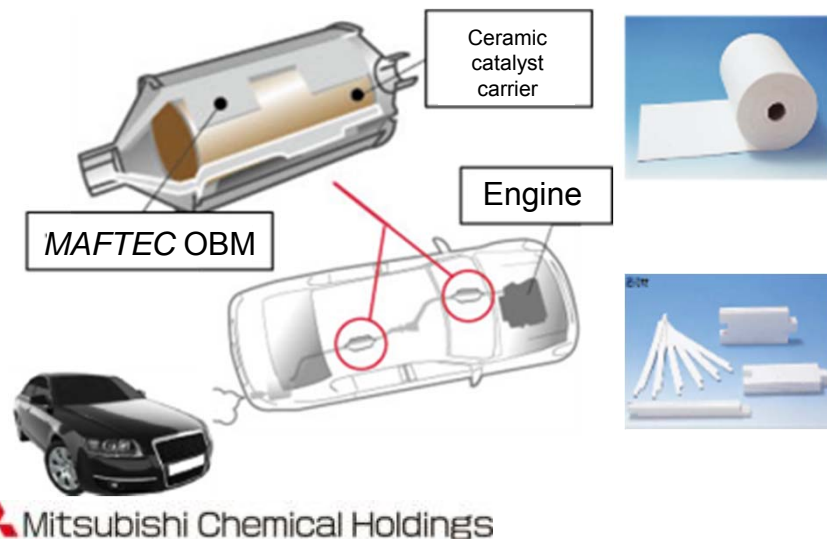
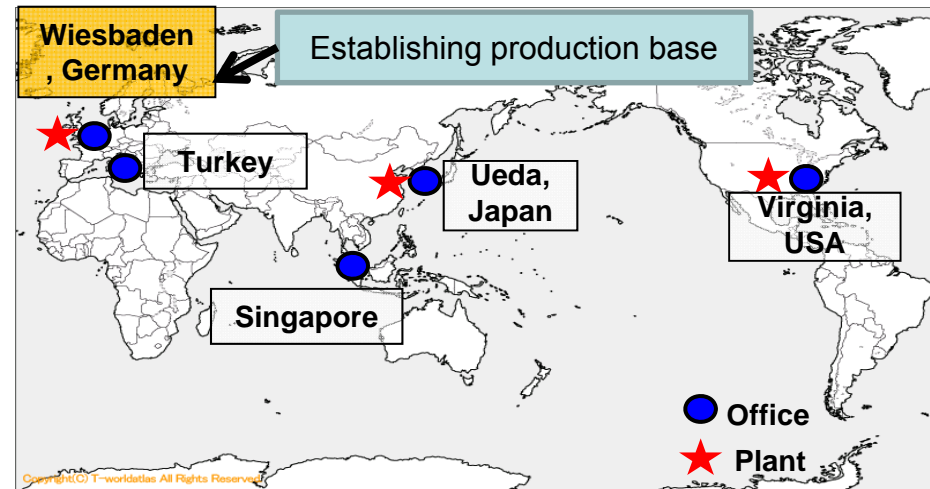
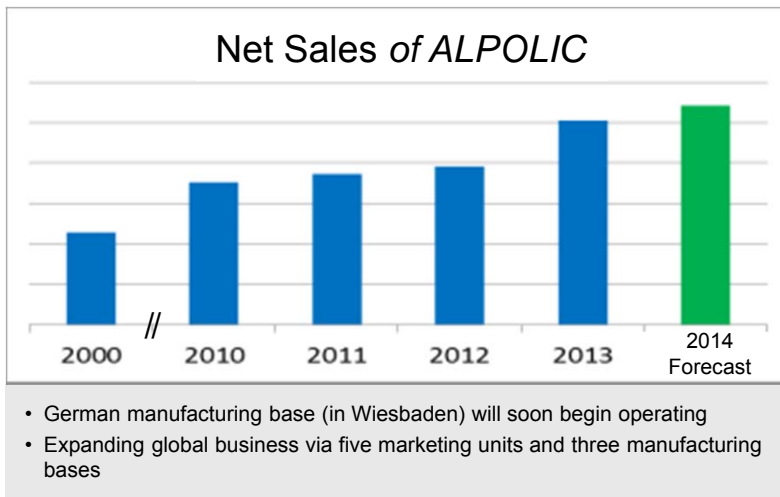
Currently under consideration regarding construction of an Alpha-method MMA plant in the U.S. Gulf of Mexico coastal region

- The Saudi Methacrylates Company (SAMAC)
- 50/50 joint venture with Saudi Basic Industries Corporation (SABIC)
  - Production capacity: MMA (monomer) 250 kt/y  
PMMA (molding material) 40 kt/y
  - Scheduled for completion: FY2016



## 2-2. ALPOLIC and Alumina Fiber (MAFTEC)

- **ALPOLIC:** Expanding global market development as the top brand of aluminum composite panels
- **Alumina fiber:** Leveraging heat-insulation properties, heat resistance, and flexibility to contribute to the purification of automobile exhaust gases and improvement of high-temperature furnace energy conservation performance



## 2-2. Growth Driver Businesses: Progress

### ■ FY2015 operating income target of ¥10 billion

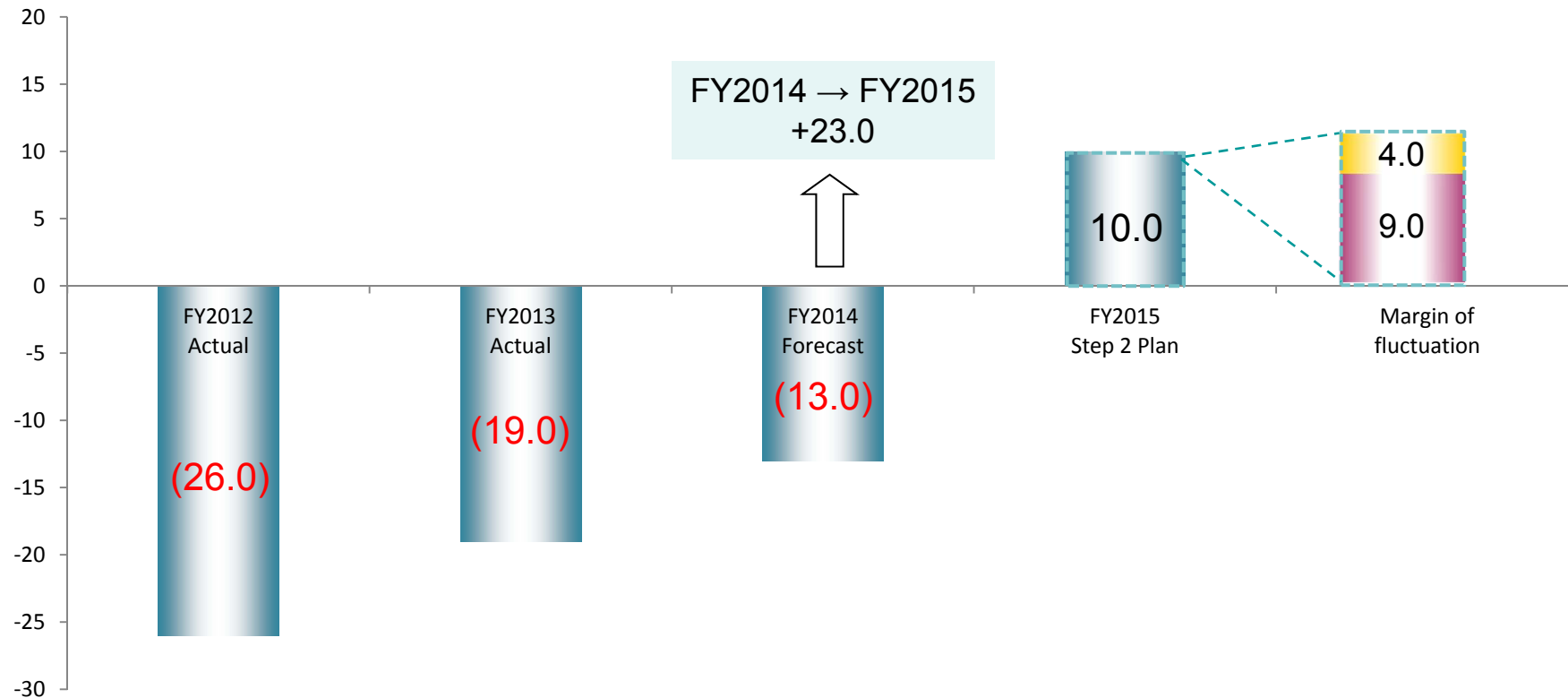
**Current:**

- Attaining the target will be difficult owing to delays of a portion of business launches

**Outlook:**

- Fail to attain target for lithium-ion battery materials, etc.
- Expect to achieve earnings recovery for carbon fiber and composite materials

Operating income (¥ billion)





## 2-2. Growth Driver Businesses: Major Policies and Progress

Main SBUs	Major policies	Progress
<b>Electronics applications</b>	<p><b>[GaN substrates]</b></p> <ul style="list-style-type: none"> <li>• Win new customers</li> <li>• Launch large substrates</li> </ul> <p><b>[OLED lighting, OPVs]</b></p> <ul style="list-style-type: none"> <li>• Accelerate market development with partners</li> <li>• Establish production technologies for OLED modules with the wet coating process and OPVs</li> </ul>	<p><b>[GaN substrates]</b></p> <ul style="list-style-type: none"> <li>• Currently being evaluated by customers and expected to be certified at meeting customer requirements</li> </ul> <p><b>[OLED lighting, OPVs]</b></p> <ul style="list-style-type: none"> <li>• Began demonstration testing of see-through-film OPVs</li> <li>• Began production of OLED modules with the wet coating process (Mar. 2014)</li> </ul>
<b>Carbon fiber and composite materials</b>	<ul style="list-style-type: none"> <li>• Concentrate business development on growth fields (industrial applications, automobiles)</li> <li>• Achieve sweeping cost reductions through restructuring</li> <li>• Strengthen intermediate materials business through M&amp;A and business alliances</li> </ul>	<ul style="list-style-type: none"> <li>• Began supplying new major customers in fields of wind turbines and pressure vessels</li> <li>• Increasing precursor production owing to positive evaluation of orders for environment-friendly BMW i3/i8 vehicles</li> <li>• Expanding sales for use as an intermediate material for sports goods as well as sales of processed products</li> </ul>
<b>Water treatment systems and services</b>	<p><b>[Cleansui]</b></p> <ul style="list-style-type: none"> <li>• Strengthen overseas business and review domestic marketing to improve awareness</li> <li>• Expanding overseas businesses</li> </ul> <p><b>[Water treatment]</b></p> <ul style="list-style-type: none"> <li>• Increase share of domestic market</li> <li>• Promote alliances with ASEAN partner engineering companies</li> </ul>	<p><b>[Cleansui]</b></p> <ul style="list-style-type: none"> <li>• Introduction of new models has increased market share 5 percentage points</li> <li>• Sales in China up 80%</li> </ul> <p><b>[Water treatment]</b></p> <ul style="list-style-type: none"> <li>• Expanding in such fields as petrochemicals, pig farming, coal wastewater</li> <li>• Consolidation of Wellthy Corp. from 4Q of FY2013 contributing to revenue</li> </ul>
<b>Lithium-ion battery materials</b>	<ul style="list-style-type: none"> <li>• Strengthen development for non-automotive applications</li> <li>• Thoroughly reduce costs by right-sizing production structure, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Implementing measures to reduce raw materials costs, improve production yields, etc.</li> </ul>
<b>Sustainable resources</b>	<ul style="list-style-type: none"> <li>• Commercializing Thai-based PBS joint venture</li> <li>• Accelerating marketing of isosorbide polymer <i>DURABIO</i></li> </ul>	<ul style="list-style-type: none"> <li>• Planning to construct 20kt-capacity PBS plant (FY2015)</li> </ul>

## 2-2. Carbon Fiber and Composite Materials

### ■ Proactively developing industrial applications to generate revenue and realize growth in business scale

#### [FY2013 Summary]

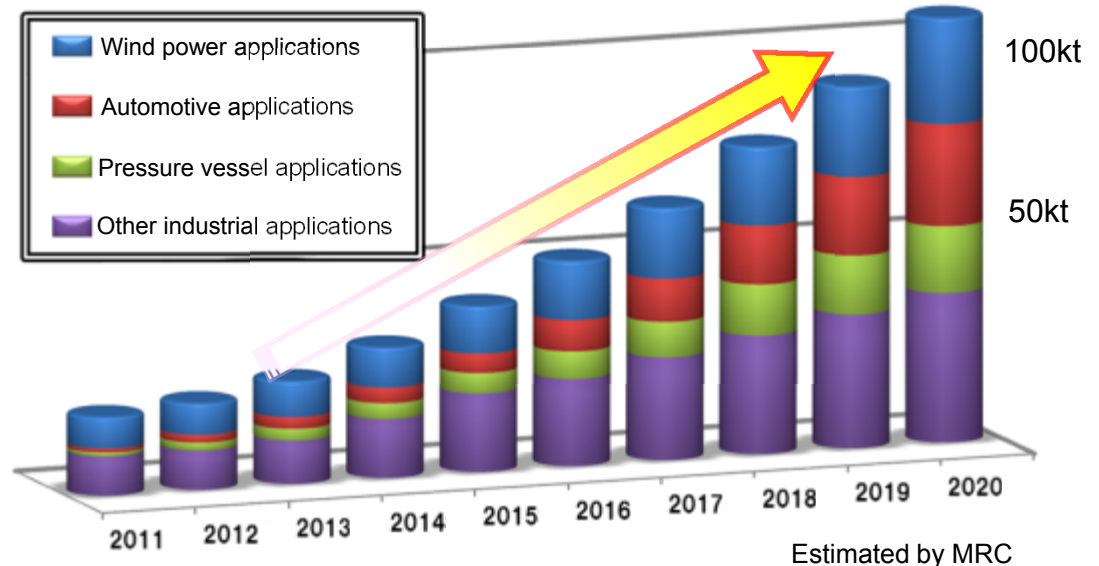
- Demand for industrial applications expected to rapidly expand
  - Full-scale expansion of aircraft-related demand
  - Pressure vessel-related demand beginning to rise
  - Wind power-related demand recovering
  - BMW i3 mass production vehicle incorporating carbon fiber
- Robust demand for sports-related applications, price recovery progressing

#### [Main measures to be implemented prior to fiscal 2015]

- Proactive development of industrial-application products for which rapid demand growth is anticipated
  - Additional production facilities for carbon fibers and yarn (precursor)
  - Promoting marketing of distinctive intermediate materials - PCM, SMC, NCF, towpreg, etc.
  - Expanding value chains related to automobiles, pressure vessels, and wind power
- Pursue global No. 1 position regarding sports applications



**Demand Forecast for Carbon Fiber (Industrial application)**



## 2-2. Sustainable Resources

### ■ PBS: 20 kt/y plant under construction in Thailand scheduled to begin operating in 2015 (Jul. – Sept.)

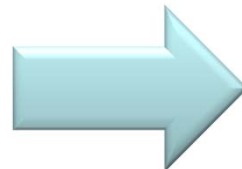
- Established joint venture PTT MCC Biochem Company Limited in cooperation with PTT Public Company Limited of Thailand to commercialize PBS business as a pioneering move toward realizing PTT's biochemistry complex concept.
- MCC is providing technology licenses, exclusive patents, and market development measures to support the world's first business producing PBS from plant-derived materials.
- The plant construction is advancing on schedule  
Location: Map Ta Phut, Rayong, Thailand (within Asia Industrial Estate)  
Capacity: 20 kt/y  
Technology: Licensed from MCC
- Besides conventional biodegradation applications (packaging, automotive interiors, etc.), new applications are being developed to utilize compatibility with natural fiber.



Shift to plant-derived raw materials to be accompanied by rebranding from 2015

**GS Pla<sup>TM</sup>**

(Petrochemicals-based materials)



**BiOPBS<sup>TM</sup>**

(Plant-derived materials)

## 2-2. Volatile Businesses: Progress

■ FY2015 operating income target of ¥20 billion

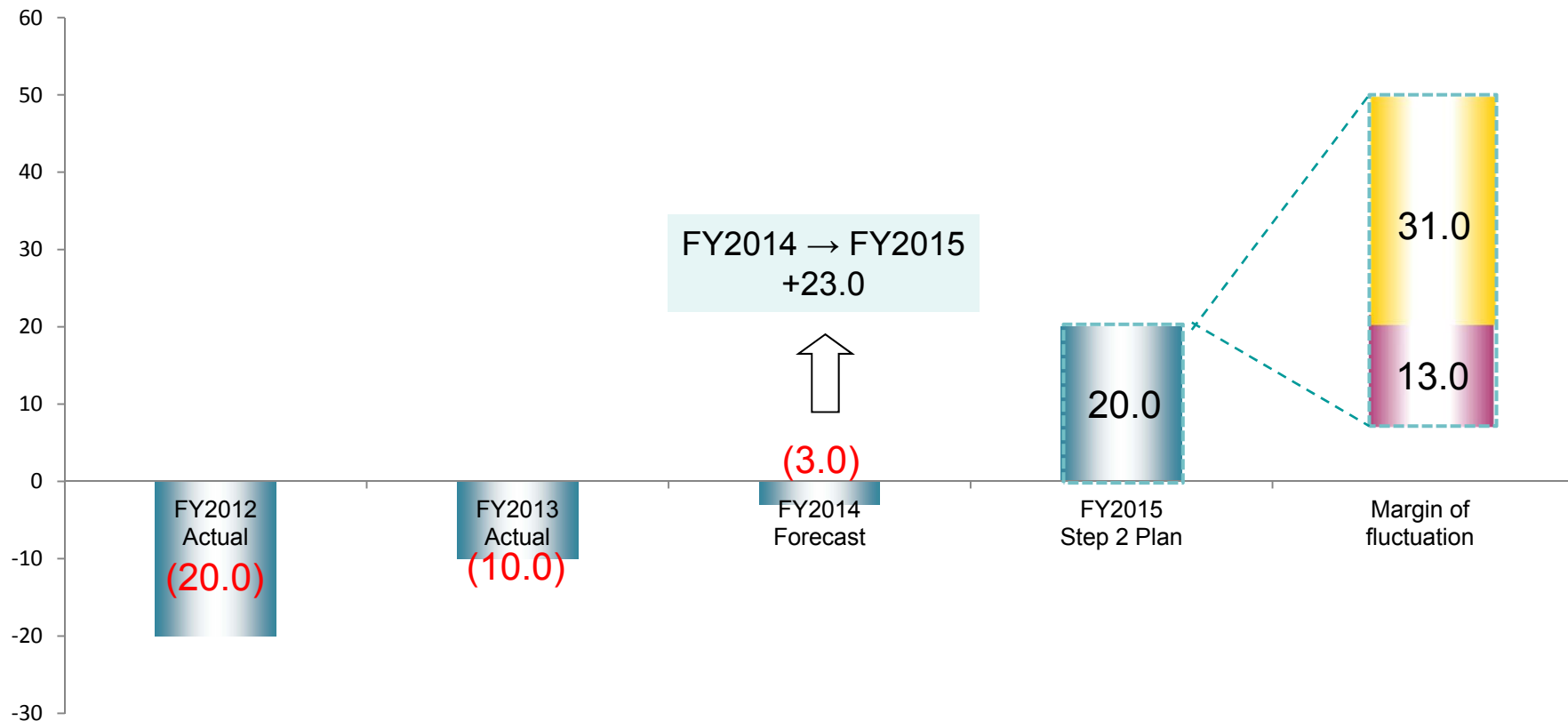
Current:

- Aiming to somewhat exceed planned target through structural reforms centered on cost-reduction measures

Outlook:

- Profitability enhancement in basic petrochemicals and polyolefins through structural reform measures, including facility consolidation measures, etc.
- Come up with fundamental countermeasures regarding terephthalic acid

Operating income (¥ billion)



## 2-2. Volatile Businesses: Major Policies and Progress

Main SBUs	Major policies	Progress
<b>Basic petrochemicals</b>	<ul style="list-style-type: none"> <li>Restructuring of naphtha crackers and optimized operation at the Kashima Plant and the Mizushima Plant</li> <li>Cost reductions</li> <li>Alliance with oil refinery</li> </ul>	<ul style="list-style-type: none"> <li>Consolidating naphtha crackers at single cracker unit at the Kashima Plant (Jul. 2014)</li> <li>Consolidate Nishi Nippon Ethylene naphtha crackers at single cracker unit (scheduled for Apr. 2016)</li> </ul>
<b>Polyolefins</b>	<ul style="list-style-type: none"> <li>Increase sales ration of strategic products and high-performance products</li> <li>Optimize production structure by streamlining production lines</li> </ul>	<ul style="list-style-type: none"> <li>Integrated PP compounds business within JPP (Feb. 2014)</li> <li>Halt operation of Kawasaki No. 1 PP facility (scheduled for Apr. 2014)</li> <li>Halt operation of Kawasaki No. 1 PE facility (HDPE) (Apr. 2014)</li> <li>Halt operation of Kashima No. 1 PE facility (LLDPE) (scheduled for Mar. 2015)</li> </ul>
<b>Terephthalic acid</b>	<ul style="list-style-type: none"> <li>Thoroughly reduce costs (MCPI: Shift to electricity purchases, Shift to coal thermal power generation for boilers, etc.)</li> <li>Reduce reliance on Chinese market</li> <li>Consider introduction of safeguards and anti-dumping provisions</li> </ul>	<ul style="list-style-type: none"> <li>Progressing toward goal of connection with grid power for all MCPI facilities (to be completed by FY2014 year-end)</li> </ul>
<b>PHL/PC chain</b>	<ul style="list-style-type: none"> <li>Thoroughly reduce costs (rationalize logistics, improve output levels, etc.)</li> <li>Establish non-phosgene PC technology</li> <li>Strengthen earnings capabilities via higher-performance PC</li> </ul>	<ul style="list-style-type: none"> <li>Implementing thorough cost-reduction measures (improving phenolic acid decomposition processes to increase production efficiency, conserve resources/energy, and lower fixed costs)</li> </ul>

## 2-2. Terephthalic Acid and PHL/PC Chain

### Terephthalic acid

- Leveraging a combination of improved marketing conditions and cost-reduction measures, including downsizing moves, to improve profitability by a large margin at each site

#### Business environment

China's large margin of excess capacity is continuing to depress the market, and exports to China are down sharply.

#### Important measures

- India:** Increased capacity utilization at the No. 2 plant reached 97% (May 2014). We are expecting to reduce costs by purchasing electricity from the grid (by end of 2014) and converting to coal fuel (fuel oil → coal; by end of 2015)  
Aiming to realize profitability by establishing regional pricing (plus supplemental charges corresponding to Chinese shipping cost differences and custom duties)
- Indonesia:** Realize profitability through regional pricing achieved by introducing a floor price system
- Korea:** Operational optimization (downsizing) measures to greatly reduce losses  
Expand domestic market share through domestic industry restructuring within Korea and minimize exports
- China:** Respond to slack domestic market conditions stemming from considerable excess supply capacity through structural adjustment measures, including the possibility of recruiting new partners

### PHL/PC chain

- Promote thorough cost reductions and advance with reforms designed to build a stable profit structure

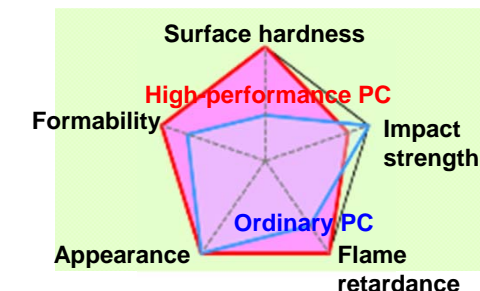
#### Business environment

Continued slack market conditions for PHL, bisphenol-A, and PC

#### Important measures

- Thorough cost reductions and measures to ensure stable/safe plant operations
- Improve profitability through measures to expand domestic sales
- Improve profitability by offering high-performance PC products
- Complete packaging of non-phosgene PC technology and advance toward concrete licensing arrangements

[Characteristics of high-performance PC]





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4. Strengthening of Capital Alliance with Taiyo Nippon Sanso Corporation (TNSC)
5. KAITEKI Management



## 3

## Establishment of LSII

- Consolidation of healthcare-related businesses designed to provide solid foundation for business expansion




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 LSII Group companies
 

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LSI Medience Corporation (LSIM)  
 Clinical testing, Pharmaceutical development support,  
 Diagnostic reagents and instruments



Qualicaps Co., Ltd. (QKK)  
 Capsules for pharmaceuticals and health and nutrition,  
 Pharmaceutical equipment

## ***API Corporation***

API Corporation (APIC)  
 Active pharmaceutical ingredients and intermediates

## Healthy Life Compass Corporation

Healthy Life Compass Corporation (HLC)  
 Self-health check

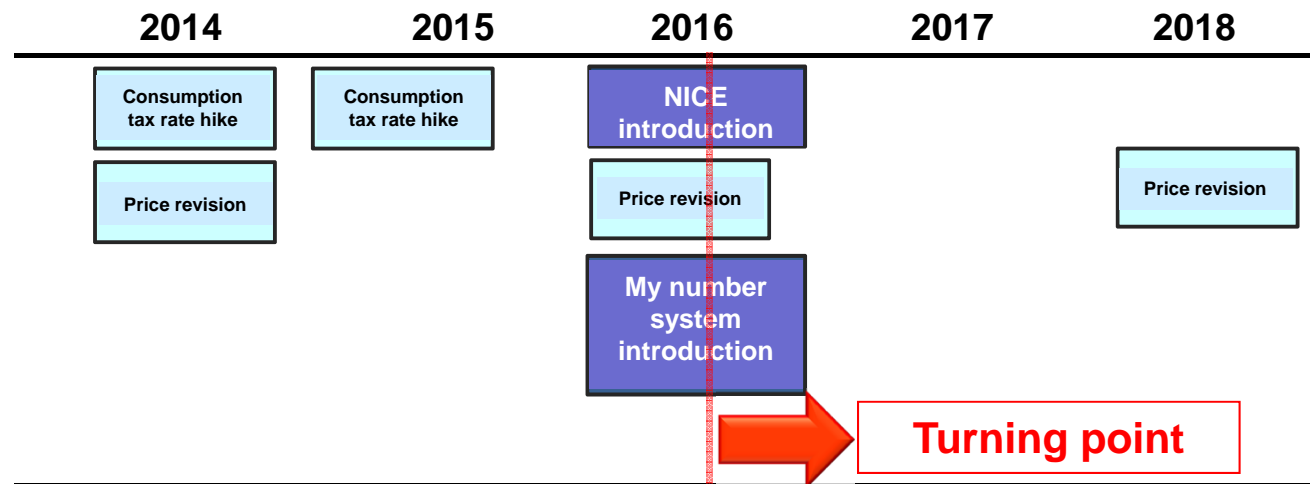
## 3. for Business in the Healthcare Field

### ■ Environment being propelled by trends of healthcare operations efficiency-boosting and IT utilization

1. Countermeasures regarding rise in national healthcare costs owing to demographic aging and growing incidence of lifestyle-related diseases

2. Government promotion of measures to increase healthcare efficiency and utilize IT

- 1) NICE-based system introduction to evaluate pharmaceuticals from dual perspectives of efficacy and cost economy
- 2) My number system introduction to upgrade information management systems



# Strengthening and Expanding Healthcare-related Businesses

## 3.

### ■ Strengthening existing businesses and promoting greater intra-Group collaboration while also seeking to create and promote new growth businesses

#### ■ Strengthening existing businesses

- LSIM: Expediting drafting of plans for base network restructuring  
Strategic investment in IT environment  
Human resource responses
- APIC: Rebuilding commissioned operations  
Global expansion  
Base network restructuring
- QKK: Expanding U.S. operations  
Promoting cellulose capsule product sales  
Promoting capsule manufacturing equipment sales
- HLC: Building new business model  
Collaborating with local governments

#### ■ Realizing synergies through concerted LSII and MCHC collaboration

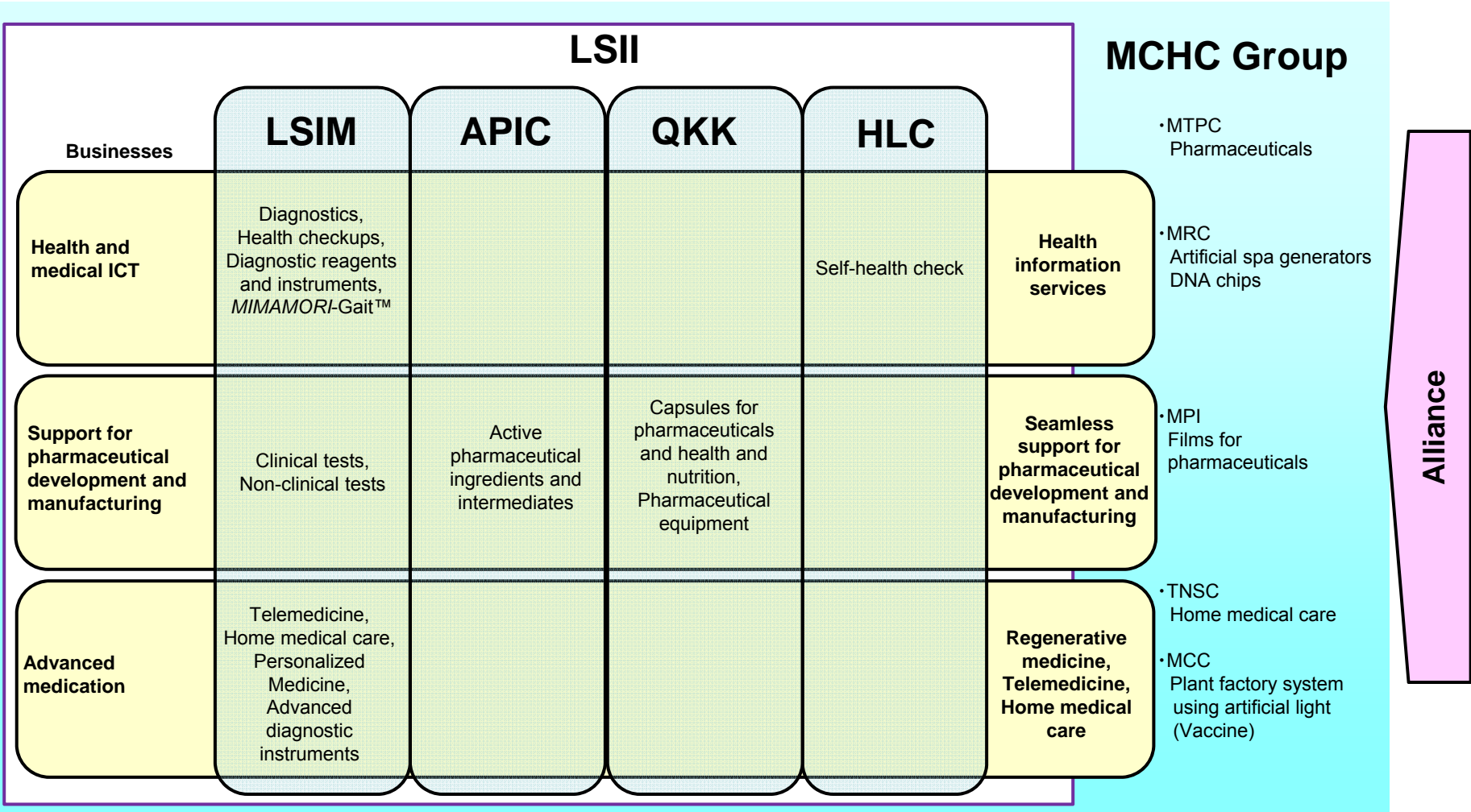
- Development and marketing synergies generated by leveraging Group company networks

#### ■ Creating and promoting new growth businesses (profit sources)

- Health and medical ICT
- Support for pharmaceutical development and manufacturing
- Advanced medication

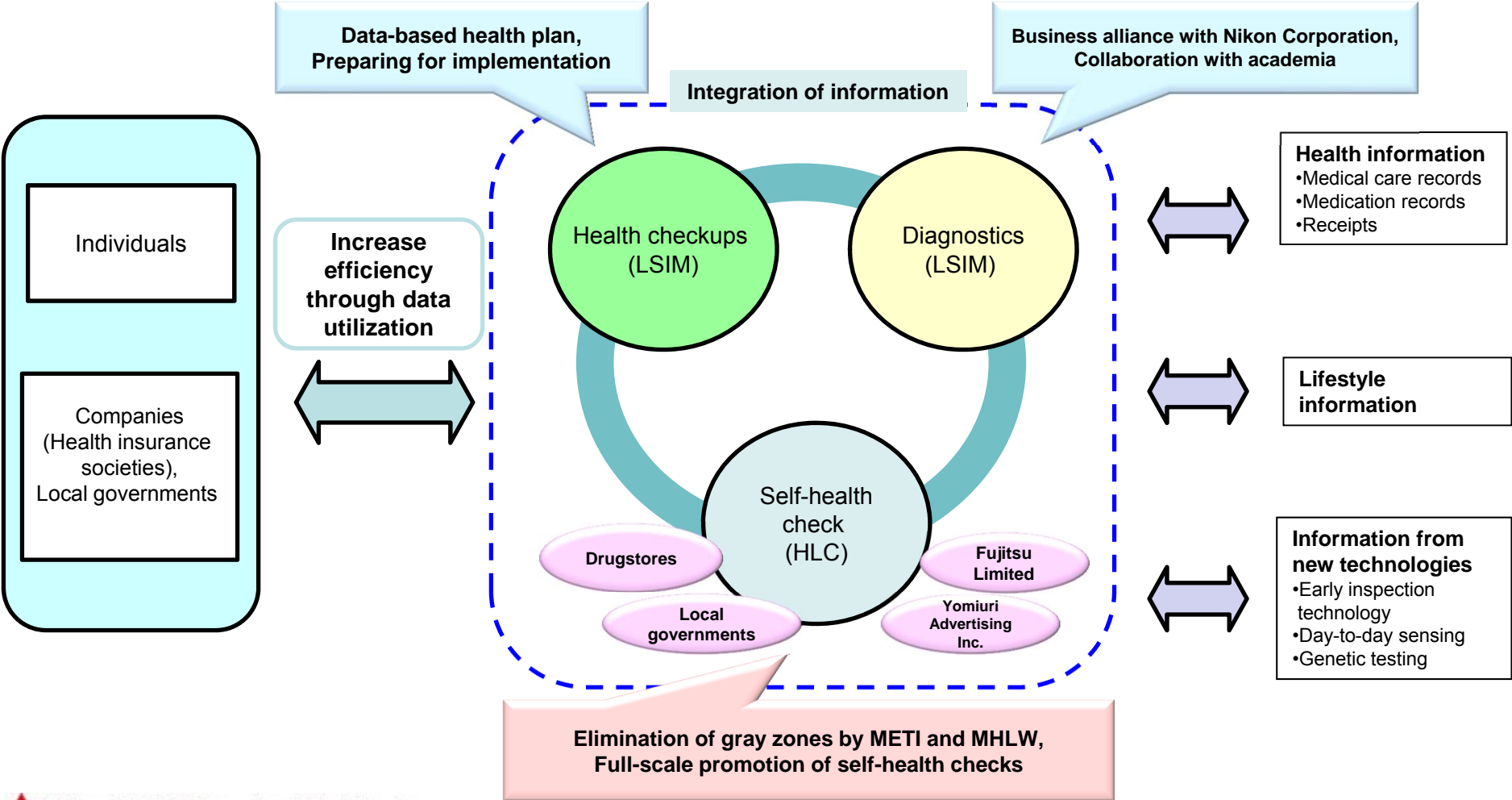
# 3. Business Development through Concerted Collaboration

■ Arrange concerted collaboration within the MCHC Group as well as alliances with external entities to build a business structure able to generate high levels of added value



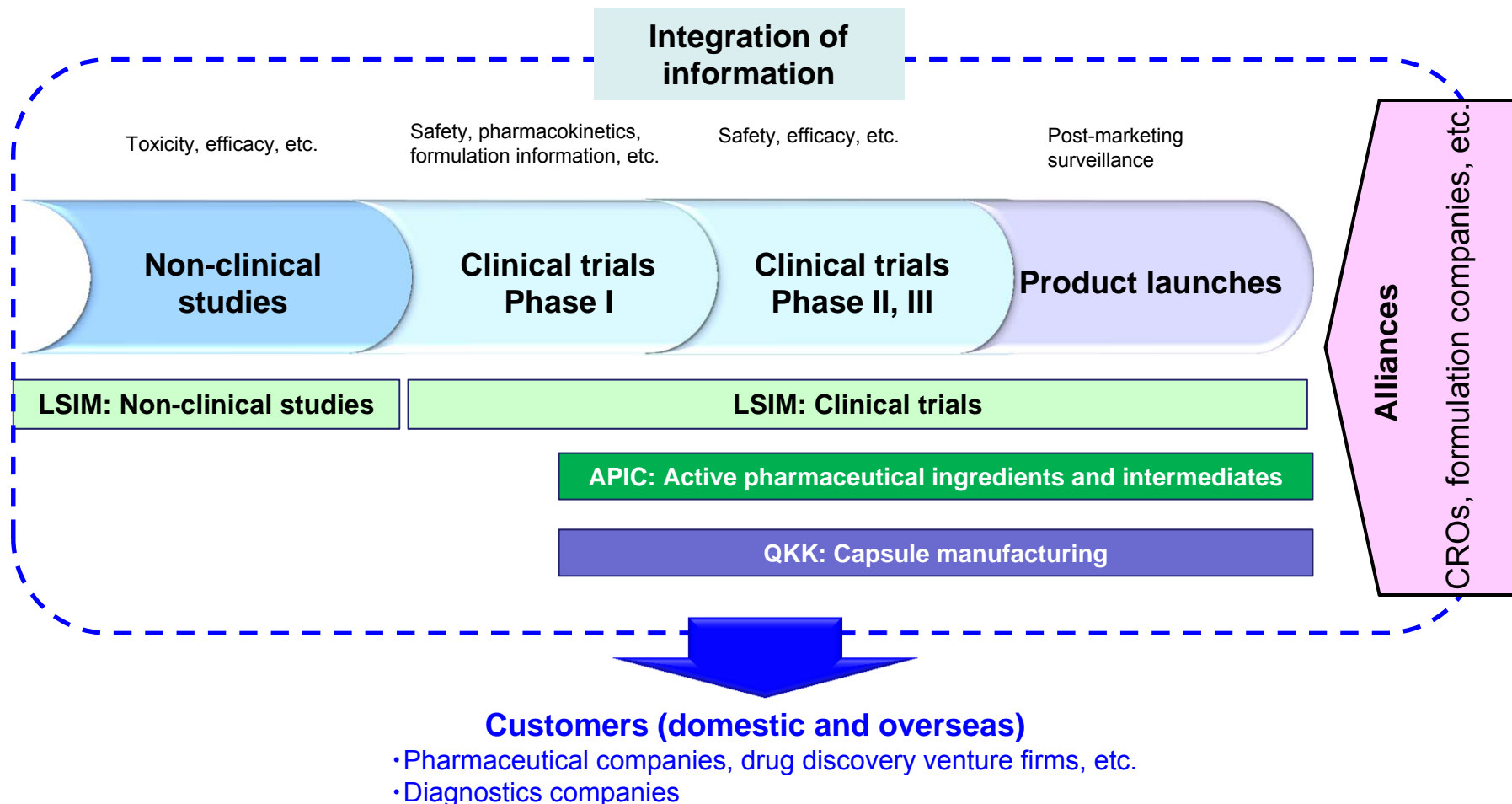
### 3. Health and Medical ICT

■ Integrated information associated with self-health check, health checkups, diagnostics, etc. to contribute to increased healthcare efficiency and create new businesses (contributing to the lowering of healthcare costs)



## 3. Pharmaceutical Development and Manufacturing

■ LSII consolidates drug discovery and pharmaceutical support operations and interlinks related functions and information so that it can provide seamless support for pharmaceutical development and manufacturing and contribute to increased efficiency.



# 3. Advanced Medication

■ Collaboration among MCHC Group units and alliances with outside organizations to promote the commercialization of next-generation medical care businesses

## ■ Regenerative medicine

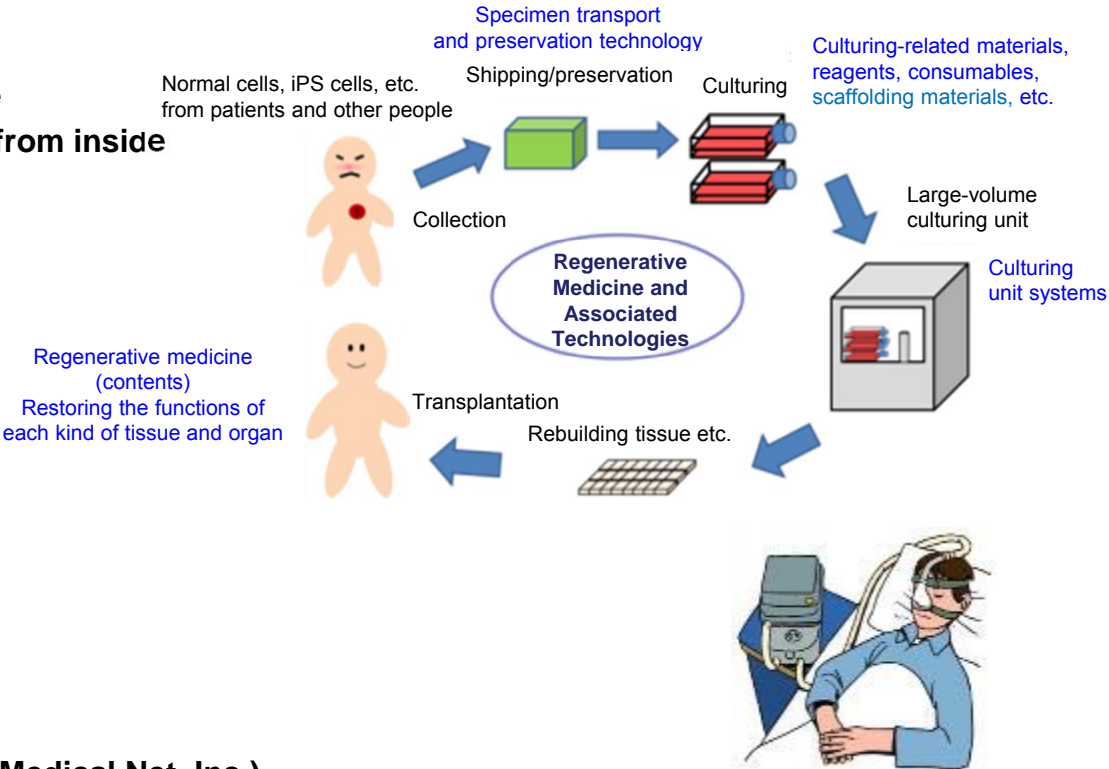
- Commercialization of regenerative medicine
- Consolidating technologies and know-how from inside and outside the Group
  - LSII, MTPC, TNSC
  - Academia, companies from outside the Group

## ■ Home medical care

- Home medical equipment (TNSC)
- Medical and health services based on health and lifestyle information

## ■ Telemedicine

- Remote image-based diagnosis LSIM (Dia Medical Net, Inc.)
- Medical and health services based on health and lifestyle information



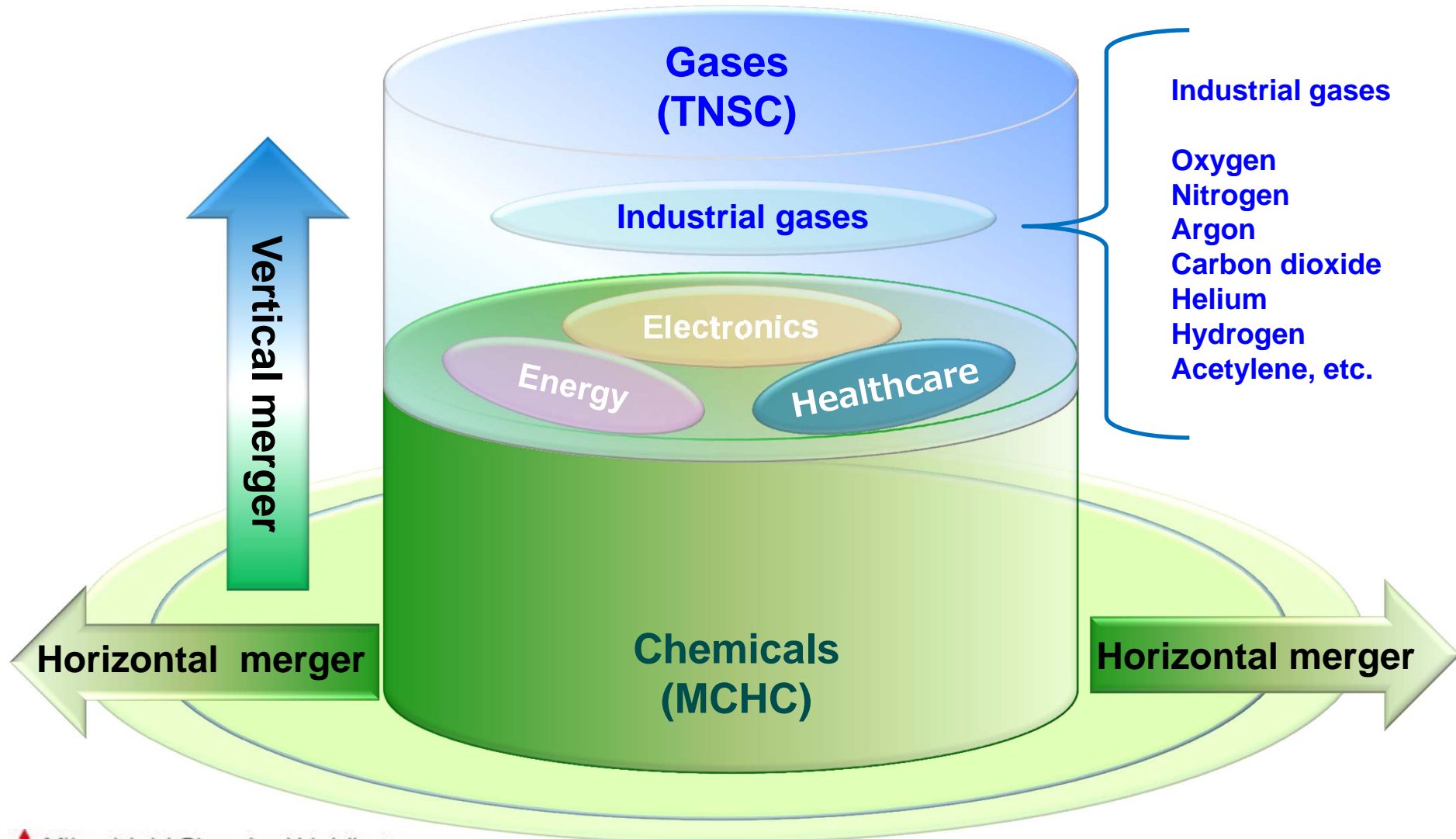


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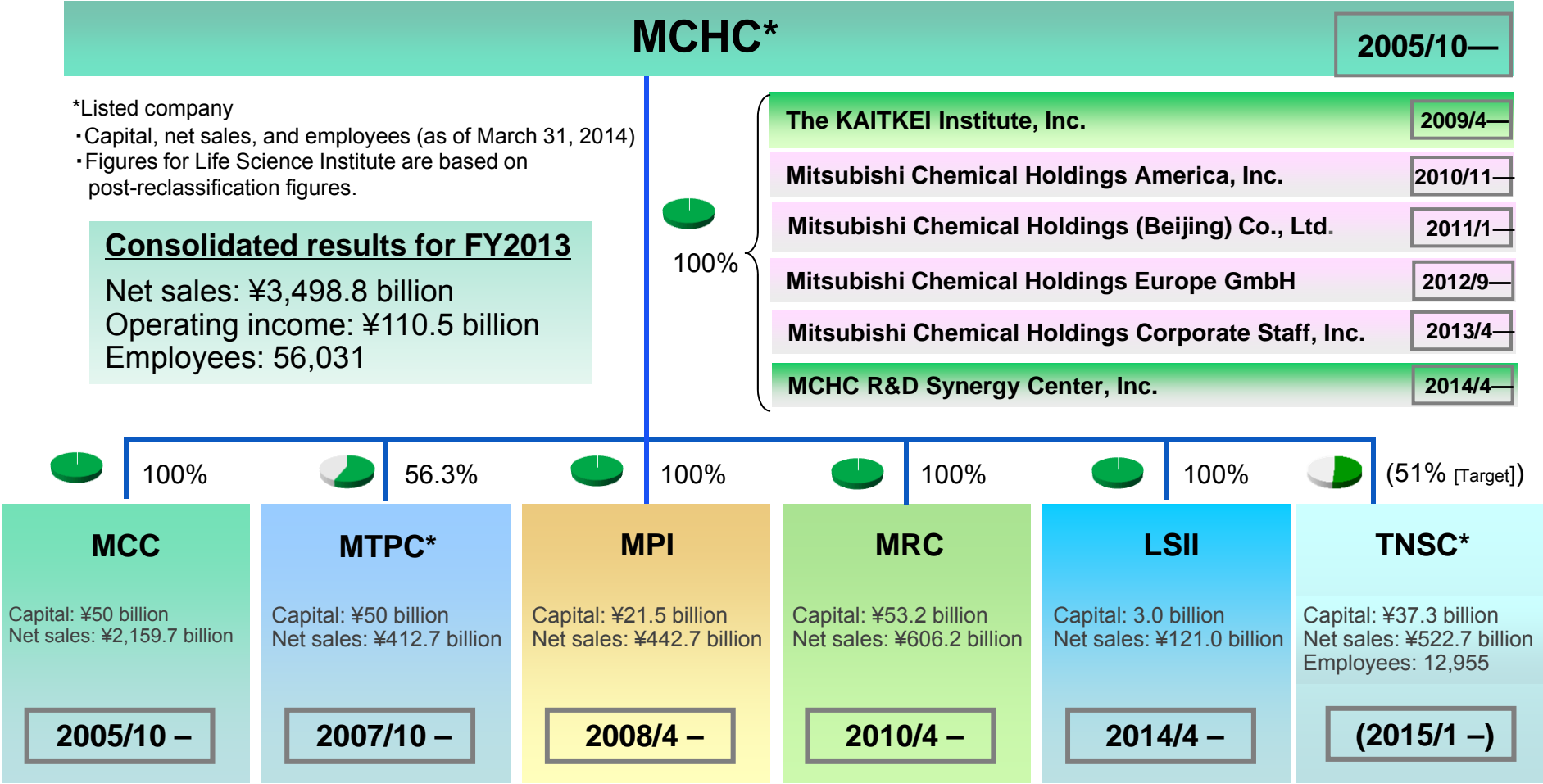
## 4. Significance of Integration with TNSC

- Integration of highly compatible chemicals and gases businesses



# 4. Organizational Structure of the MCHC Group

■ TNSC is scheduled to become the Group’s 6th operating company.



# 4. Post-Consolidation Business Portfolio

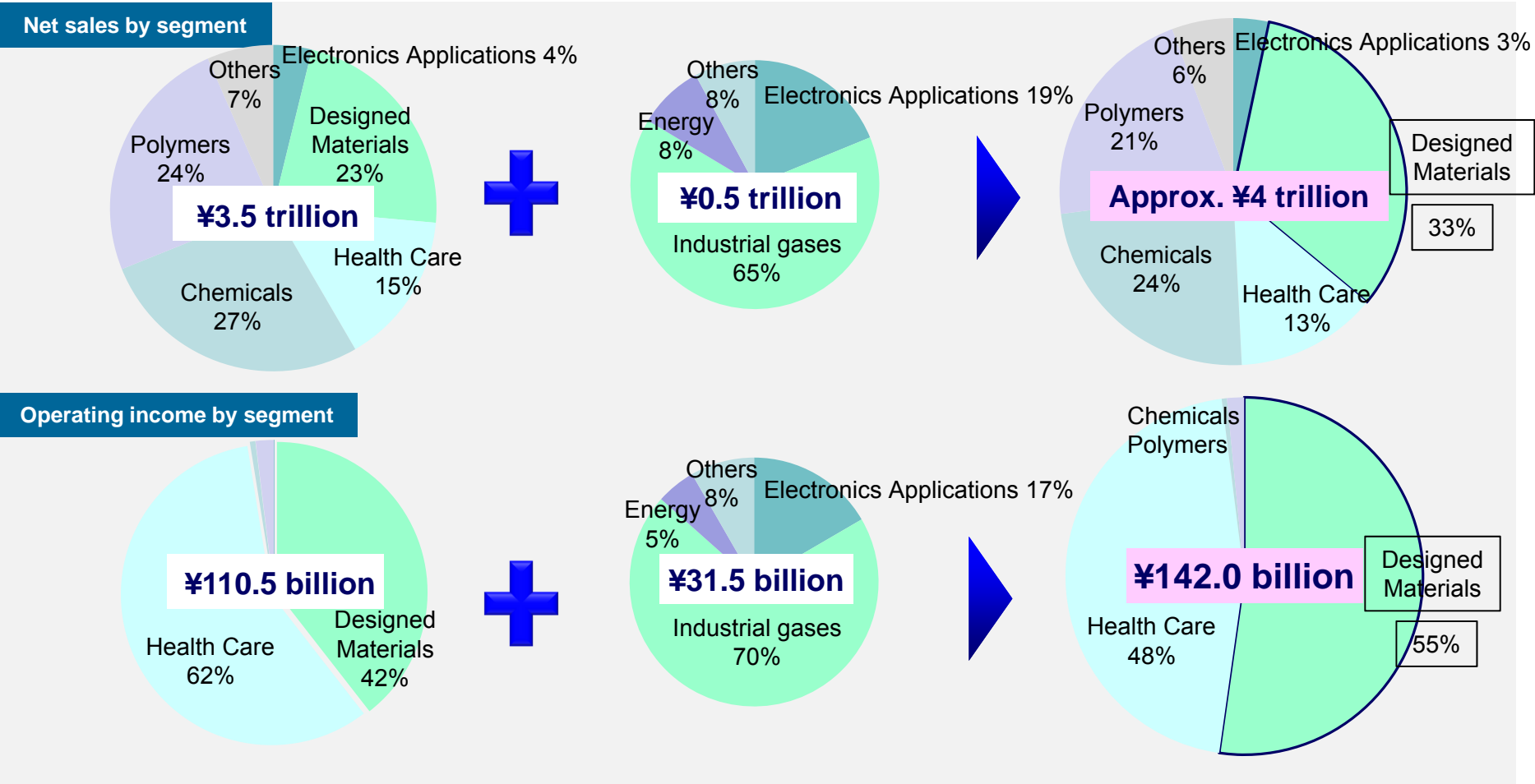
■ Incorporate ¥500 billion-scale gas businesses as stable and growth businesses

**MCHC**  
FY2013  
Consolidated performance

**TNSC**  
FY2013  
Consolidated performance

**Sum of MCHC and TNSC Figures**

(Simple addition of figures for FY2013)  
\*A portion of segment definitions are scheduled to be revised from FY2015

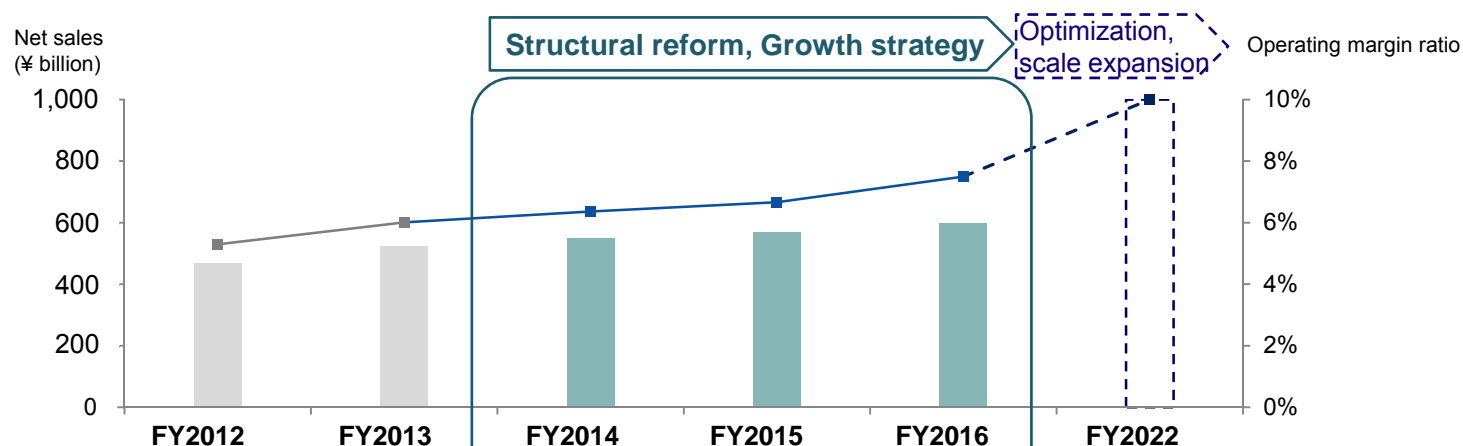


# 4. TNSC: Medium-term Business Plan

- Aiming to attain FY2016 targets of “¥600 billion in net sales, operating income ratio of 7.5%, ROCE of 8% or above, and overseas sales ratio of 40% or above”

New Medium-term Business Plan, “Ortus Stage 1”

Ortus: “Birth, Beginning” in Latin



	FY2012	FY2013	FY2014	FY2015	FY2016	FY2022
Net sales	468.3	522.7	550.0	570.0	600.0	1,000.0
Operating income	24.8	31.4	35.0	38.0	45.0	100.0
Operating margin ratio	5.3%	6.0%	6.4%	6.7%	7.5%	10.0%
Overseas sales ratio	28%	31%	34%	36%	40%	≥50%
ROCE	5.5%	6.2%	6.4%	7.0%	8.0%	10.0%

# 4. Synergies Stemming from Overseas Expansion

■ In industrial gas- and energy-related operations, considering the use of MCHC Group bases to expand its one-stop provision of services, primarily in overseas markets. Placing particular emphasis on the North America, India, and Southeast Asia regions.



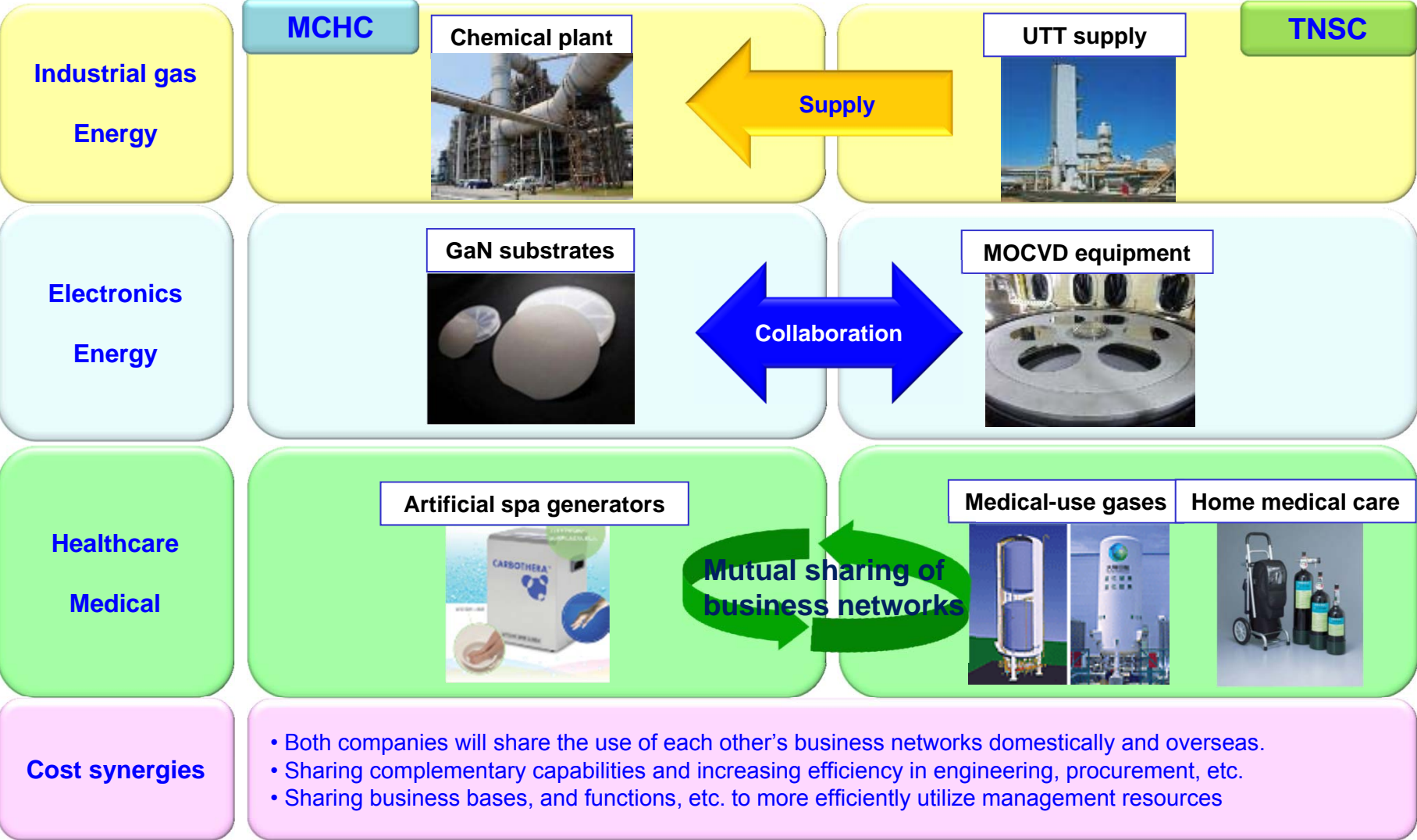
Asia: Markets Sustaining Growth and Expansion	
MCHC	TNSC
Meeting growing demand and strengthening competitive power <ul style="list-style-type: none"> <li>■ Strengthening marketing and supply systems for markets related to the automobile, packaging film, and environment/energy fields</li> <li>■ Meeting demand related to LNG</li> </ul>	Addressing growing demand in Southeast Asia and India <ul style="list-style-type: none"> <li>■ Demand for plants associated with LNG receiving terminals</li> <li>■ Liquefaction plants for natural gas satellites</li> <li>■ On-site hydrogen generation facilities</li> </ul>

North America: Opportunities Stemming from the Shale Revolution	
MCHC	TNSC
Expanding operations in products that can be technologically differentiated <ul style="list-style-type: none"> <li>■ EVOH plant expansion (under construction)</li> <li>■ Alpha process MMA plant construction (under consideration)</li> <li>■ Expanding operations in markets related to automobiles, solar panels, etc.</li> </ul>	Addressing opportunities stemming from the shale gas revolution <ul style="list-style-type: none"> <li>■ Meeting on-site demand</li> <li>■ Meeting demand for gases associated with shale gas drilling</li> <li>■ Expanding business related to LNG satellites</li> </ul>



# 4. Business Synergies

■ Aiming to realize business synergies that generate ¥5 billion in annual benefits in 2017



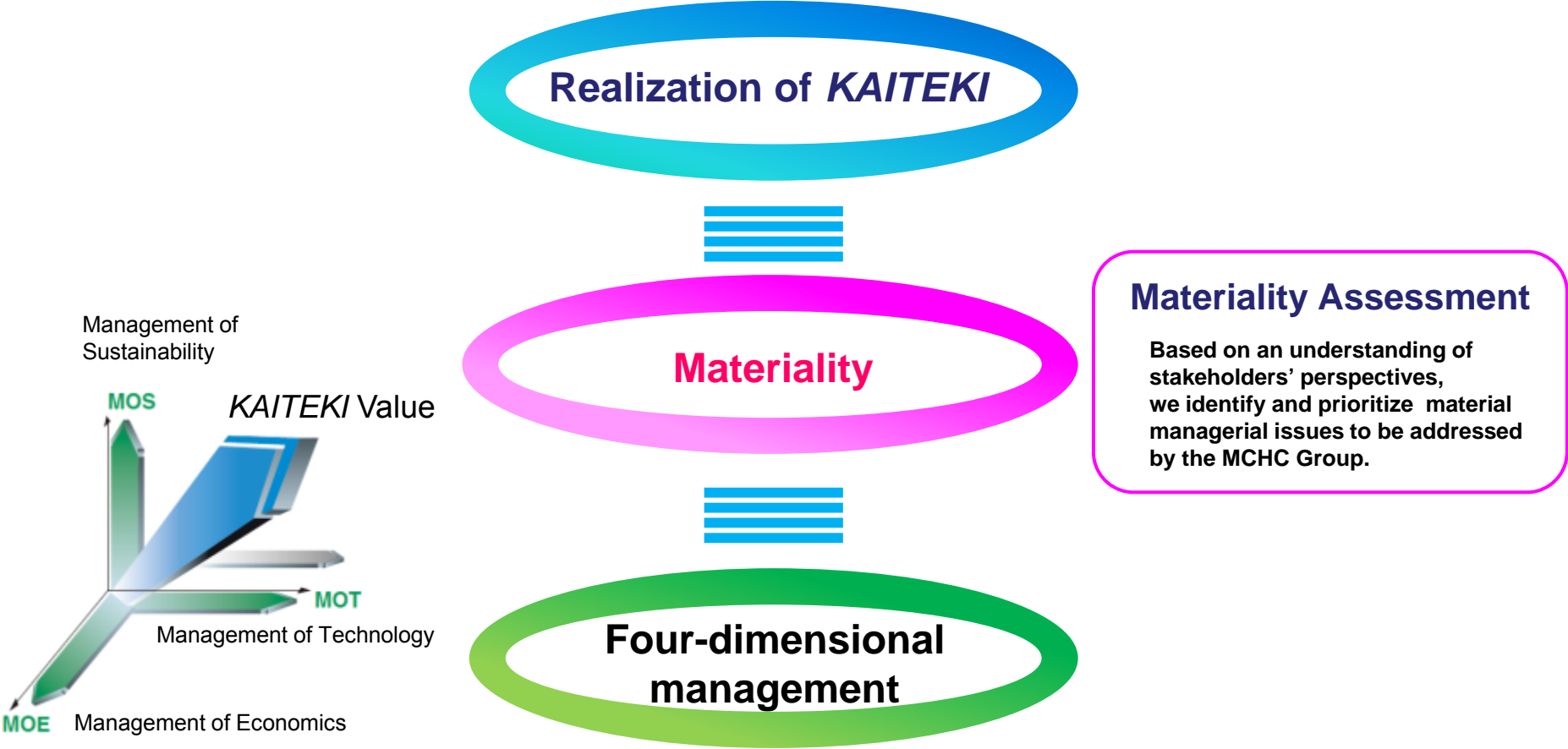


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# 5. KAITEKI Management

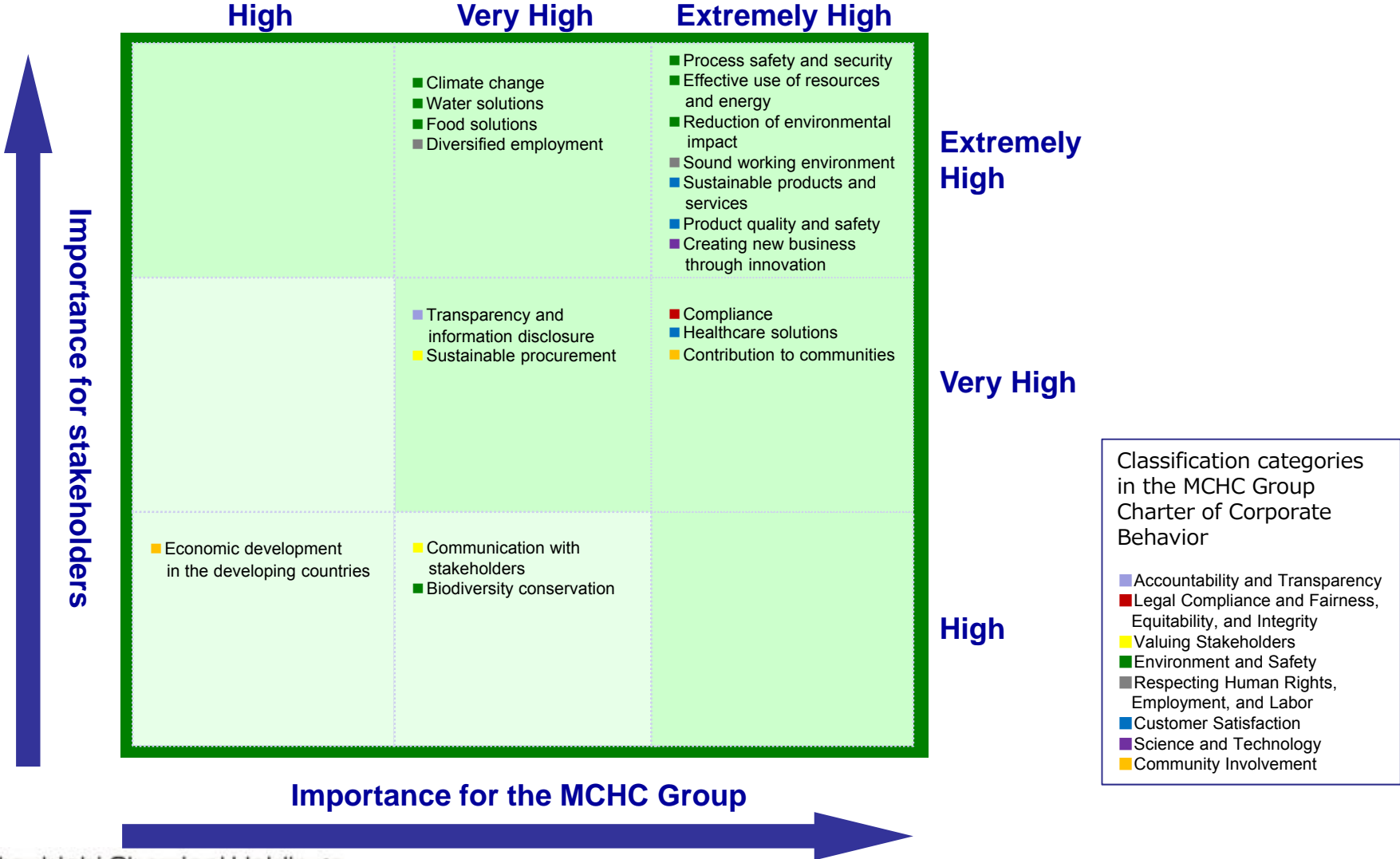
- Aiming to realize *KAITEKI* through contributing to solving material managerial issues which should be addressed by the MCHC Group



Publication of the *KAITEKI* Report that integrates financial and nonfinancial information

# 5. Materiality Matrix

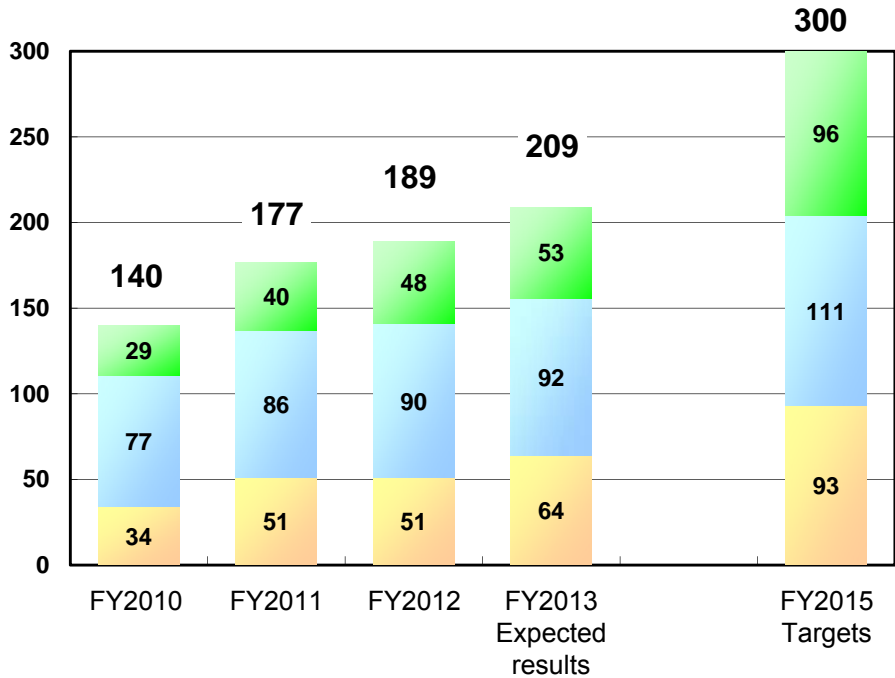
■ Identify material managerial issues that should be addressed using a process based on international guidelines



# 5. KAITEKI Management by Quantification

- MOS Index: Steady progress toward targets
- MOT Index: Start of quantitative management of R&D progress  
(Implementation from FY2014)

Progress of MOS Indexes



Objective to be achieved	Achieve zero occurrence of material accidents and compliance violations
Sustainability [Green] Index	S-1: Contribute to reducing environmental impact through products and services
	S-2: Take actions against the depletion of natural resources and implement energy-saving initiatives
	S-3: Contribute to solving social and environmental issues through supply chain management
Health Index	H-1: Contribute to medical treatment
	H-2: Contribute to improvements of QOL
	H-3: Contribute to early detection and prevention of diseases
Comfort Index	C-1: Deliver products (development and manufacturing) for comfortable lifestyle
	C-2: Improve stakeholder satisfaction
	C-3: Earn recognition of corporate trust