THE KAITEKI COMPANY

APTSIS 20

Presentation to Investors

December 8, 2016

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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, industrial gases 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

New MCC: Integrated company by the merger of three chemical companies: MCC, MPI, MRC

APIC: API Corporation
MFC: Mitsubishi-Kagaku Foods Corporation
NKC: Nippon Kasei Chemical Company Limited
NSCI: The Nippon Synthetic Chemical Industry Co., Ltd.
QKK: Qualicaps Co., Ltd.

LIBTEC: Consortium for Lithium Ion Battery Technology and Evaluation Center
MAFF: Ministry of Agriculture, Forestry and Fisheries
NEDO: New Energy and Industrial Technology Development Organization

AA: Acrylic acid
AE: Acrylic ester
ALS: Amyotrophic lateral sclerosis
API: Active pharmaceutical ingredients and intermediates
BPA: Bisphenol A
BtoB: Butene to butadiene
DLC: Diamond-like-carbon
DTP: Dimethyl ether to propylene
EO: Ethylene oxide
ESS: Energy storage system
FPD: Flat panel display
GaN: Gallium nitride
HPMC: Hydroxypropyl methylcellulose
ICT: Information and communication technology
IoT: Internet of things
MBR: Membrane bio reactor
MMA: Methyl methacrylate
MOS: Management of Sustainability
MOT: Management of Technology
OCA: Optical clear adhesive
OLED: Organic light emitting diode

PC: Polycarbonate
PE: Polyethylene
PEEK: Polyether ether ketone
PET: Polyethylene terephthalate
PBT: Polybutylene terephthalate
PP: Polypropylene
PTA: Terephthalic acid
PTP: Press through package
PVOH: Polyvinyl alcohol
RFID: Radio frequency identifier
SCR: Selective catalytic reduction
VCM: Vinyl chloride monomers
xEV: Collective term for EV, HEV, PHEV, etc.

FY2016: April 1, 2016 – March 31, 2017

Agenda

1. **Toward Accomplishing the Medium-term Management Plan *APTSIS 20***
   - Progress in Fiscal 2016
   - Action Plans
2. **Growth Strategies for the New Mitsubishi Chemical Group**
3. **Management System of Mitsubishi Chemical Holdings**
4. **Toward Realizing *KAITEKI***

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Business Environment

Society, Economy, Market

- Aging and expanding global population
- Diversification of market economy (Japan, U.S., Europe, China, Russia, etc.)
- Advancing globalization and expansion of regional economic zones:
  Development of emerging countries' economies led by Asia
- Acceleration of technology innovation and emergence of data-driven economy
  (Digitalization, modularization, ICT introduction, AI, robotics, 3D printers)
  (Big data, IoT, Internet of everything, Industry 4.0)
- Increase in importance of CSR in business management
- Regeneration of chemical industry in the U.S.
  and expansion of coal chemical industry in China
- Utilization of hydrogen
- Post 3.11 energy policy review (Japan)
- Olympic/Paralympic games, earthquake restoration (Japan)

- Stagnation of the emerging economy, such as China, Brazil, and Russia
- Brexit
- Acceleration of technology innovation and changes in society
  (IoT, AI, auto operation, sharing economy)
- Change of government in the U.S.

Health, Medicine

- Increase in medical costs
  and strengthening of medical economic evaluation
- Change of the disease structure
  with the super aging of Japan's population
- Promotion of ICT introduction
  (medical information, healthcare information, IoT, etc.)
- Development of regenerative medicine and precision medicine

- Paradigm shift of medical treatment from "Cure" to "Care"

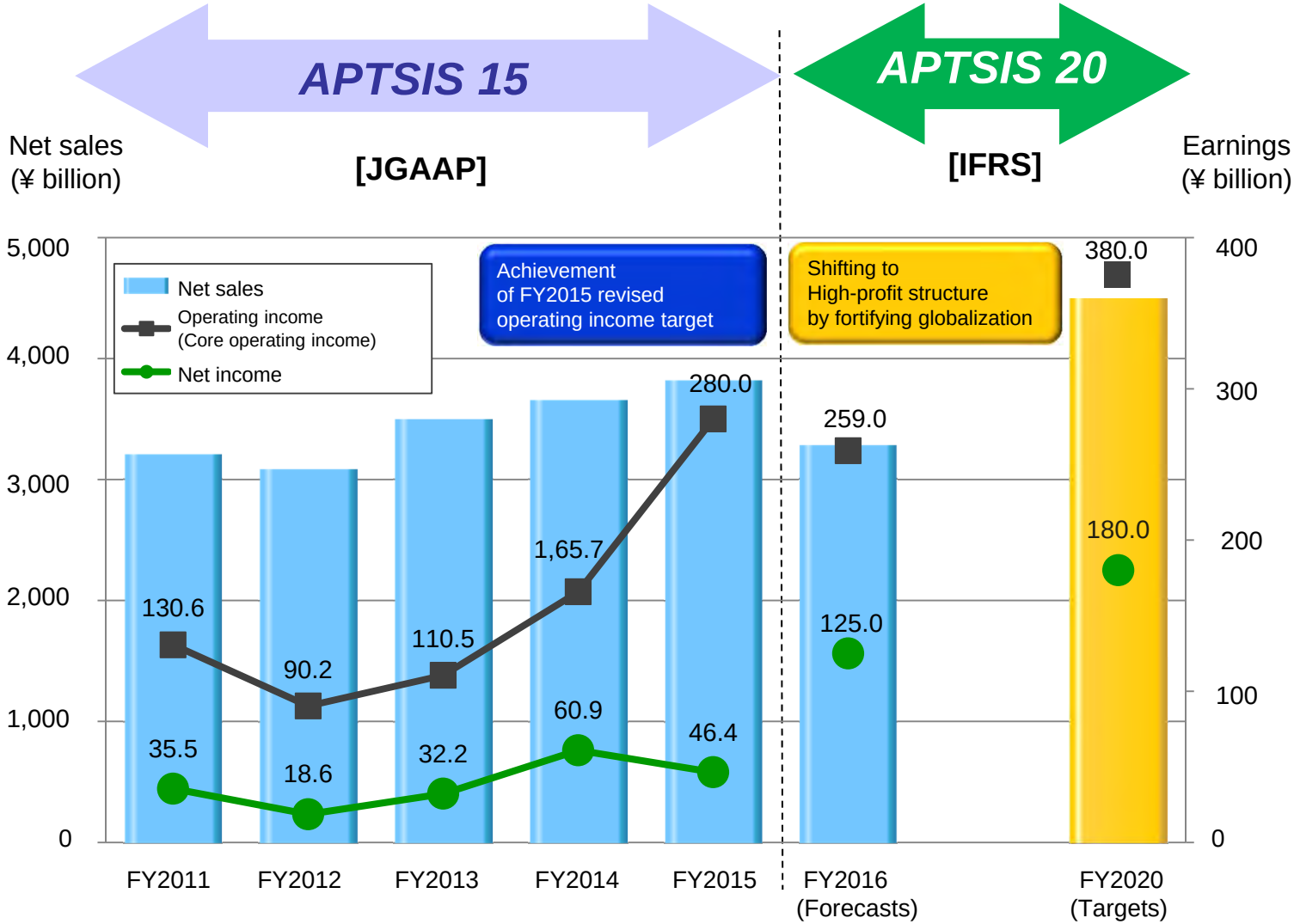
Global Environment, Resources

- Worsening climate change
- Pollution and insufficiency of water resources
- Destruction of ecosystem
- Fluctuation of natural and fossil resource markets
- Shale revolution

- Paris Agreement entered into force.
- Adoption of SDGs

Operating Results

■ Anticipating ¥259 billion in core operating income for fiscal 2016
(Performance Products: ¥71 billion, Industrial Materials: ¥100 billion, Health Care: ¥88 billion*)



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016 (Forecasts)	FY2020 (Targets)
ROE (%)	4.6	2.3	3.7	6.4	4.8	12.6	12.0

Measures by Business Domain

■ Implementing measures steadily in each business domain based on each basic policy

Performance Products

■ Promotion of generating synergy in the MCHC Group

- **Converting NSCI to a wholly owned subsidiary**
- **Converting NKC to a wholly owned subsidiary**
- Integration of MRC wastewater treatment business
- Reorganization of MPI film/sheet processing business

■ Increasing profitability of overseas businesses

- **U.S.: Expansion of polyester film production line (Scheduled to start operation in 2017)**
- **U.S.: Expansion of carbon fiber production line**
- Carbon fiber: Establishing JV for wind turbine blade business
- **Quadrant: Acquisition of Piper Plastics, Inc. in the U.S.**
- Performance polymers: Establishing a business network in Vietnam

■ Making new energy businesses competitive sooner

- Profitability improvement of battery material business
  - Suspension of electrolyte production line in the UK
  - **Establishing JV with Ube Industries, Ltd. in China**

Industrial Materials

■ Implementing fundamental measures for unprofitable and low-profit businesses

- **Withdrawal from PTA business (India, China)**

■ Increasing profitability of overseas businesses

- Polyolefin compound: Full-scale production in India, raising operation rate of production facility in Thailand
- MMA Saudi PJ: Smooth progress
- Industrial gases:
  - **Acquisition of part of Air Liquide's industrial gas business and related business assets in the U.S.**
  - Awarded large-scale on-site supply contracts in Texas and Louisiana
  - Penetration into the Myanmar market

■ Realization of high-productivity corporate structure

- MMA
  - Lucite Singapore: Improving energy efficiency
  - Lucite Beaumont Plant: Starting full-fledged operation
- **Unification of ethylene production facilities in Mizushima**

Health Care

■ Sustainable growth and enhancing profitability

- Ethical pharmaceuticals
  - Licensed products: *Invossa* (cell therapy product)
  - Obtaining approval of *Remicade* for increased dosage and shorter dosing intervals in treating psoriasis
  - Filing an application for a combination drug of *Tenelia* and *Canaglu*
  - **Basic agreement on the establishment of JV for vaccine manufacturing business**

■ Increasing profitability of overseas businesses

- Ethical pharmaceuticals
  - Establishment of a sales company in the U.S.*
  - **FDA's acceptance of NDA filing for *Edaravone* (*Radicut*) to treat ALS and starting the examination**
- Qualicaps: Acquisition of a Brazilian hard capsule manufacturing company*

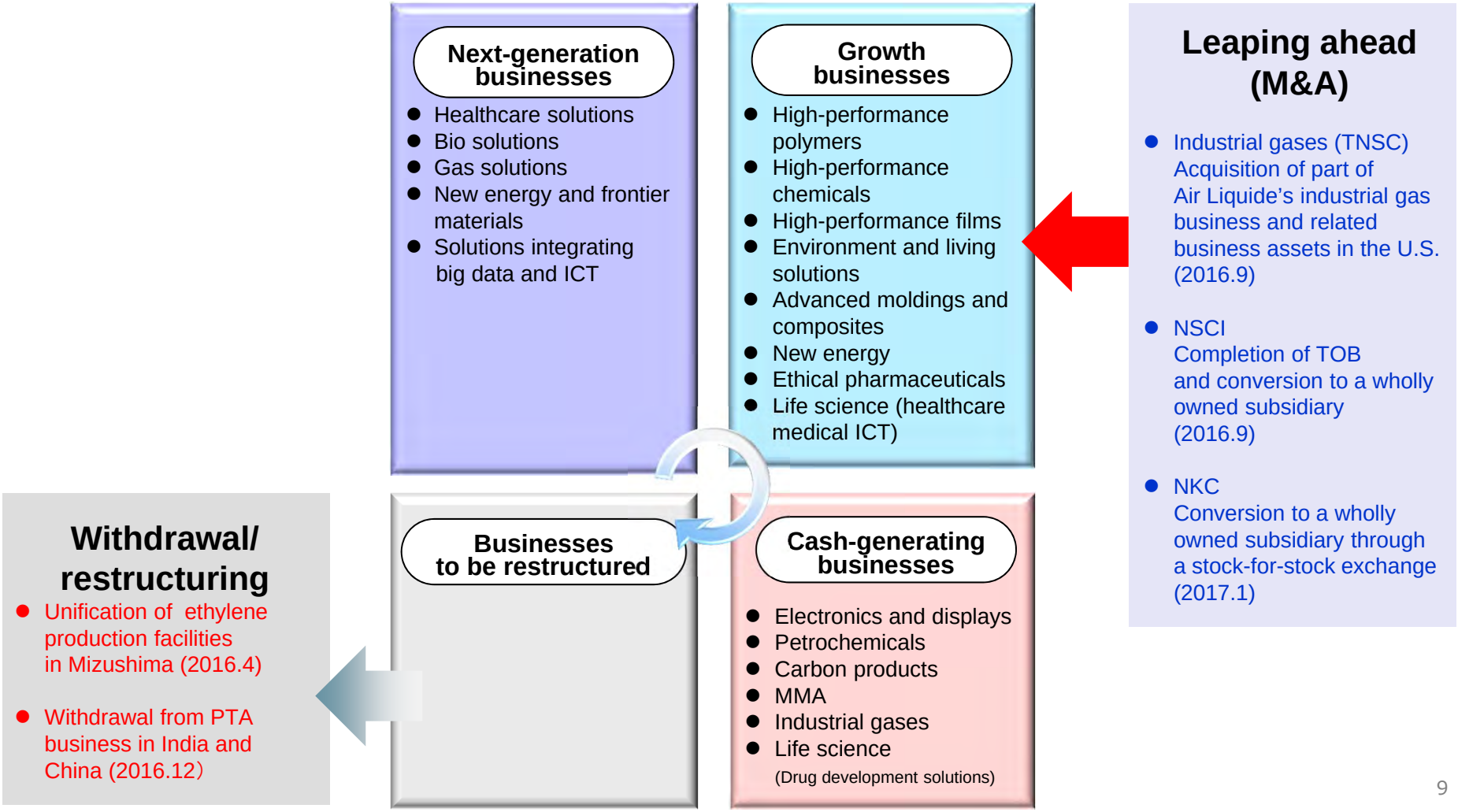
■ Realization of high-productivity corporate structure

- MTPC: Implementing early retirement*
- **APIC: Transfer of Fukuroi Plant**

*Completed: Jan. to Mar. 2016

Portfolio Transformation

■ From fiscal 2010 to fiscal 2016, attained an increase of ¥1,400 billion in net sales through M&A and implemented ¥450 billion of business withdrawal or restructuring.
In fiscal 2016, unified ethylene production facilities in Mizushima, and decided to convert NSCI and NKC to wholly owned subsidiaries and withdrew PTA business in India and China.



Toward Attaining ROE of 10% or Higher

- Positioning each operating company and subsidiary within the criteria of each business domain
- Optimizing the business portfolio and resource allocation with regular monitoring

Actions

- Conduct PDCA cycle with regular monitoring
- Plan resource allocation
- Evaluate business portfolio (including downsizing, withdrawal, and sale)

Next-generation businesses

Growth strategies
R&D

Growth businesses

Growth strategies
R&D
Synergy
M&A

Businesses to be restructured

Restructuring
Downsizing or withdrawal

Withdrawal

Cash-generating businesses

Growth Strategies
Synergy
M&A

Criteria

- **Growth potential**
  (Sales growth rate)
  ▶ ≧ 4%/year
  (World economic outlook: 3.5%*)
- **ROS**
  - Performance Products: ≧8%
  - Industrial Materials: ≧5%
  - Health Care: ≧14%
- **ROIC**
  - Performance Products: ≧8%
  - Industrial Materials: ≧5%
  - Health Care: ≧5%

*IMF outlook 2016 – 2020 average

Priority Measures for Accelerating Growth

Performance Products

Industrial Materials

Health Care

1. Generate integration effects and synergy due to establishment of the new MCC

2. Incubate new businesses with R&D and accelerate M&A

3-1. Industrial gas and MMA
Maintain and expand the global share

3-2. Petrochemicals
Reinforce the business foundation with production optimization

4-1. Ethical pharmaceuticals
Intensify the pipeline and expand businesses in the U.S.

4-2. Life science
Promote next-generation healthcare, and healthcare and medical ICT businesses

5. Intensify marketing and access to the global market

6. Accelerate R&D and early commercialization of next-generation businesses

7. Improve productivity: promote health management, revise work styles, reduce overlapping functions, utilize IoT, etc.

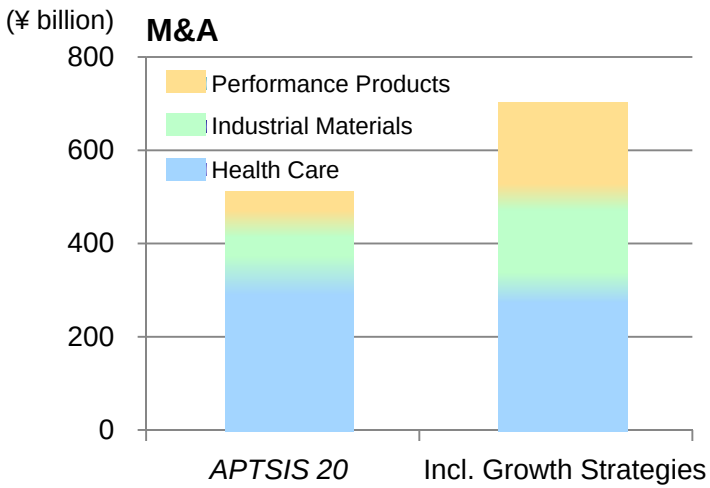
Resource Allocation

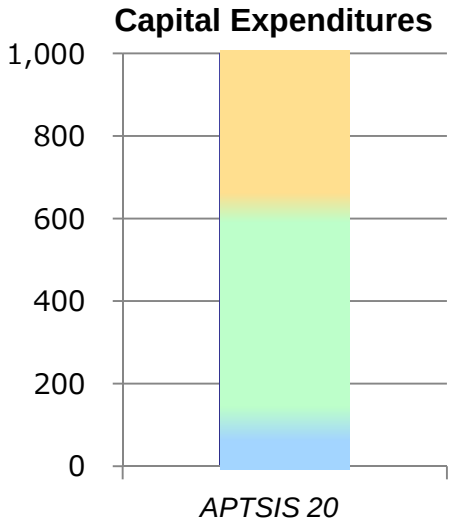
- Incorporating new MCC Group growth strategies, and considering an increase of ¥100 billion to ¥200 billion for M&A, mainly in the Performance Products domain
- Generating increased funds for M&A, principally by sale of assets

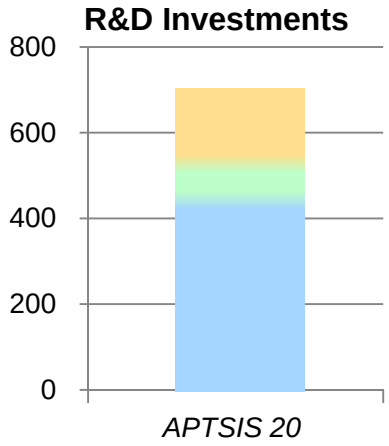
Priority businesses for M&A

Performance Products	New markets	High-performance films	Food ingredients	Performance polymers
	New technologies	High-performance engineering plastics	Carbon fiber and composite materials	Performance chemicals
Industrial Materials	Overseas development	Industrial gases		
Health Care	Development in North America	Ethical pharmaceuticals (Specialty areas)		
	New markets	Healthcare, Medical ICT		

Resource Allocation Plan

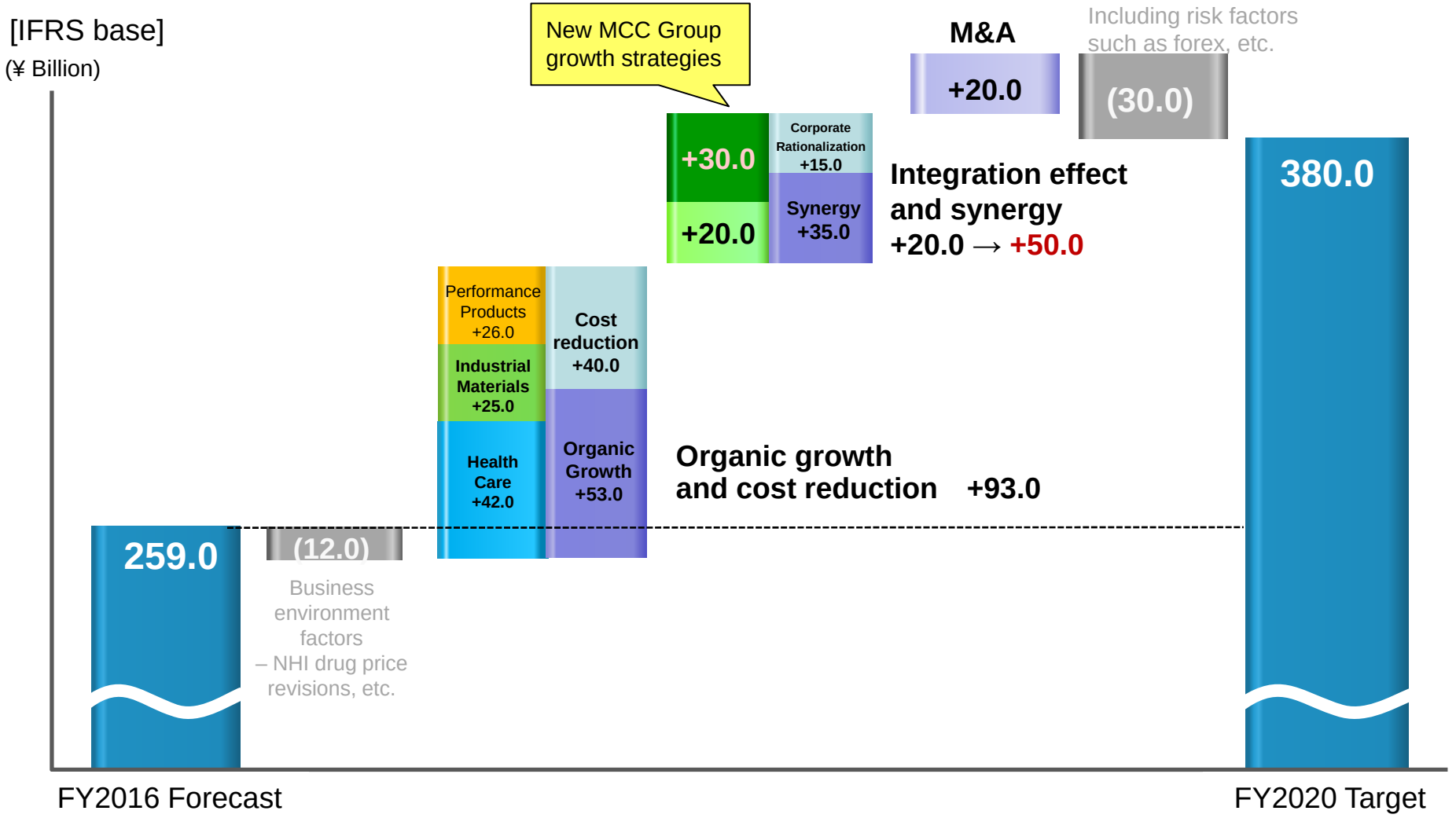






Plan to Achieve Core Operating Income Target

- Total ¥50 billion by adding ¥30 billion as “Integration effects and synergy,” owing to new MCC Group growth strategies
- Achieving original profit targets for fiscal 2020 is critical.



Numerical Targets for Fiscal 2020

- Improving capital efficiency and achieving *APTSIS 20* numerical targets, regardless of changes of the world economic climate

		IFRS base
Financial Index (MOE)	**Core operating income**	**¥380.0 billion**
	ROS (Core operating income)	**8%**
	Net income attributable to shareholders of the parent	**¥180 billion**
	ROE	**12%**
	Net D/E ratio	**0.8**

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Consolidation of SBUs and Acceleration of Growth

- Establishing 10 business domains and consolidating 56 SBUs into 26, from viewpoints of market access, etc., through integration of three chemical companies
- Accelerating growth by developing a business structure that capitalizes on market information and technological competence

会社名	SBU
MCC	機能性樹脂
	PHL/BPA/PC
	PET
	エンプラ(PBT)
	サステイナブルリソース
	スペシャリティケミカルズ
	スペシャリティ第2
	エポキシ樹脂
	無機ファイン
	有機EL
	EL薬品
	半導体関連
	アクリレート
	リチウムイオン電池材料
	EOG・エタノール
	オキソ・可塑剤
	C4ケミカル
	石化基礎原料
	PTA
	高純度グラファイト
	カーボン・ゴム
	コークス
	PE
	PP

会社名	SBU
MPI	アルミナ繊維
	複合材
	軽金属
	機能成形品
	AQSOA
	エンプラ製品
	ポリエステルフィルム
	環境･資材分野
	農業資材
	フィルム
	包装容器
	加工フィルム
	電子・産業フィルム
	バッテリーセパレータ
	バイオポリマー（OPF）
	炭素繊維

会社名	SBU
MRC	MMA/PMMA
	AN及び誘導品
	機能化学品
	炭素繊維・複合材料
	繊維
	アクア

56 SBUs

26 SBUs

SBU	事業部門
パフォーマンスポリマーズ	高機能ポリマー
エンジニアリングポリマーズ	
サステイナブルリソース	
機能化学品	高機能化学
機能材料	
食品機能材	
光学フィルム	情電・ディスプレイ
情報電子	
ア	
包	高機能フィルム
工	
ホ	
ア	環境・生活ソリューション
イ	
高	高機能成形材料
繊維	
機能成形複合材料	
炭素繊維複合材料	
アルミナ繊維・軽金属	
リチウムイオン電池材料	新エネルギー
ｴﾈﾙｷﾞｰ変換ﾃﾞﾊﾞｲｽ部材	
石化基盤	石化
ポリオレフィン	
基礎化学品	
炭素	炭素
MMA	MMA

Focus Markets and Solutions

MCHC Group Philosophy and Vision

Good ***Chemistry*** *for Tomorrow*

Creating better relationships among people, society, and our planet.

Realizing KAITEKI

Mega Trends

- Worsening climate change, pollution and insufficiency of water resources
- Increasing global and ageing population
- Advancing globalization, expansion of regional economic zones, and development of emerging countries' economies
- Digitalization, modularization, ICT introduction
- Increasing medical costs, regenerative medicine and personalized medicine

Environmental and societal issues that the New MCC Group must address

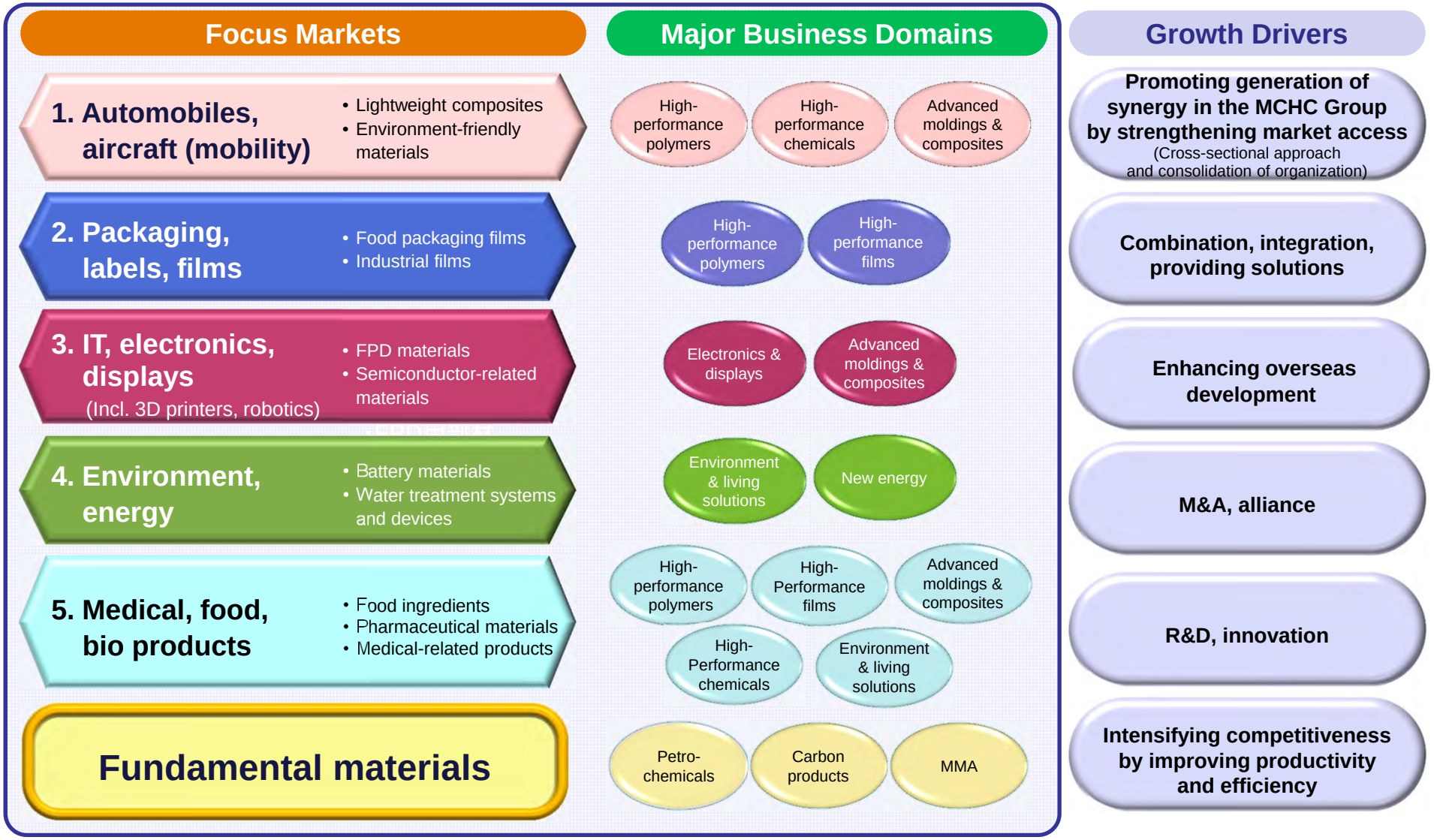
- Efficient use of resources and energy
- CO_2 reductions
- Securing clean water resources
- Food and agriculture problems
- Health maintenance and disease treatment
- Smart society

Focus Markets and Solutions

1. Automobiles, aircraft (mobility)	• Products and services that contribute to environmental issues such as improving fuel efficiency by reducing weight
2. Packaging, labels, films	• Products and services that contribute to Products and services that contribute to longer product life and longer shelf life of food and medical products • Products and services that meet diversified needs (functions and raw materials)
3. IT, electronics, displays (incl. 3D printers, robotics)	• Products and services that contribute to a smart society and more comfortable
4. Environment, Energy	• Products and services that contribute to improvement of production and efficiency in agricultural, fishery, and livestock industries, and effective use of water resources • Products and services that contribute to resource and energy conservation
5. Medical, food, bio products	• Products and services that contribute to health maintenance and reduced physical burdens, improved diagnostics, and medical advancement and efficiency

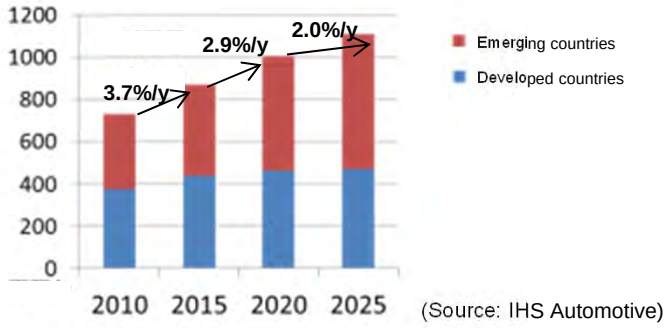
Focus Markets and Growth Drivers

- Focusing on five markets
- Accelerating growth based on the most effective growth drivers, while generating synergy among related business divisions



Automobiles, Aircraft (Mobility)

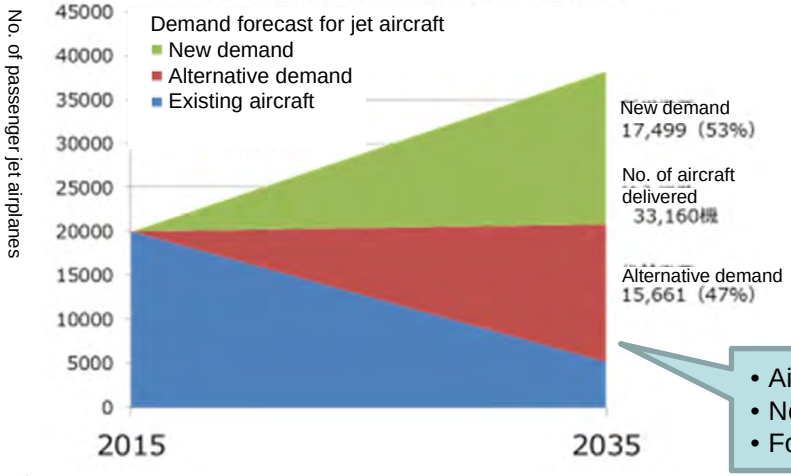
Global Auto (Passenger Car) Markets



(Source: IHS Automotive)

2010: 73 mil units
2016: 90 mil units
2020: More than 100 mil units *Slowdown in growth
After 2025:
- Developed countries: Flat market growth and an increase in environmental friendly vehicles are expected.
- Emerging countries: Market growth is expected, centering on China.

Global Aircraft (Passenger Airplane) Markets*



- Aircraft in service will increase from about 20,000 to 38,000 over the next 20 years.
- New demand for 33,000 aircraft will be generated
- Forecasting growth rate of over 10%/year

*Source: Market forecast for passenger airplanes by Japan Aircraft Development Corporation (Mar. 2016)

Trends

- **Lower dependence on fossil fuels**
  - Expanding EV and FCV markets
  - Improving fuel efficiency through weight reduction
- **Environment-friendly and zero emission**
  - CO_2 reduction
  - Nox and SOx reduction
  - Measures to reduce dust [particulate matter]
  - Measures to reduce VOCs
- **Automotive IT/electronics and changes in mobility concept**
  - Self-driving vehicles
  - Advancement of safety functions
  - Convergence of automobiles using IT and social systems
- **Acceleration of Japanese automakers' global expansion**

Technologies, Products, Solutions

- **Reducing weight with alternative materials**
  - ✓Plastics
  - ✓Carbon fiber composite materials
- **Environment-friendly materials and technologies**
  - ✓Alumina fibers
  - ✓Water soluble coating materials
  - ✓Bio-based polymers
  - ✓SCR catalyst (zeolite)
  - ✓Lithium-ion battery materials
- **Globally expanding networks in growing markets**
  - ✓Plastic compounds
  - ✓Carbon fiber composite materials

Automobiles, Aircraft (Mobility)

■ Provide various solutions for automobiles with wide-range of technologies and products of the new MCC Group

Lightweight

PP	Engineering plastics	Carbon fiber composite materials
Performance polymers	PE	

Functional Solutions

Gas barrier films	Acrylic film *Acryplen*	Low weight reinforced thermoplastics *GMT, SymaLITE*
IMD (In-mold decoration) molding film/sheet *DIAFIX*	White LEDs, GaN substrates, LED epitaxial wafers	Plastic film-laminated steel sheet *HISHIMETAL*
	Decorative metallic transfer foils	*MC NYLON*
		Water-soluble adhesives
		Carbon black wet master batch
		Acrylic molding material *ACRYPET*
		Acrylic sheet *SHINKOLITE*

Environmental Applications

Alumina fiber *MAFTEC*	Aluminum composite material *ALPOLIC*	Bio-based engineering plastic *DURABIO*	High-purity aqueous urea solution for SCR system *AdBlue*
High-performance zeolite for SCR catalyst *AQSOA*	Lithium-ion battery materials	Coating material *DIANAL*	

Automobiles, Aircraft (Mobility)

Automobiles, Aircraft (Mobility)	Current business scale (2015): ¥300 billion Target business scale (2020): ¥420 billion

Strengthening Market Access and Overseas Development

Strengthening activities in the AMS*

Promoting group-wide global marketing approaches, including technical support, one stop service, etc.

China
Technical Center China
Deepens and expands group-wide activities

Asia Pacific
Technical Center Asia
Is scheduled to be established in Thailand within FY2016

Japan

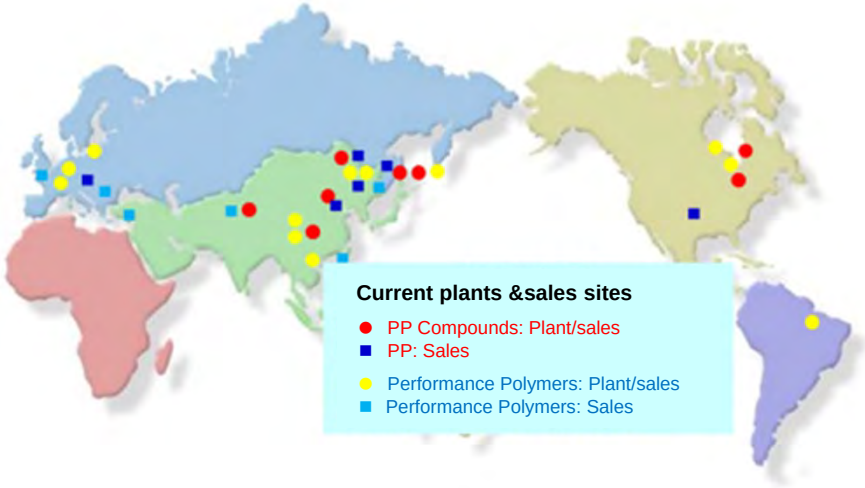
North America
Started group-wide activities in FY2016

Europe
Plan to start group-wide activities in FY2017

Enhancing overseas development of plastic compound businesses

Globally expanding supply capacity centering on growing automotive industry, in areas close to customers

Targets:
PP compounds, performance polymers
Supply capacity:
Building new plants, production capacity increase, establishing JV, M&A
Candidate areas for additional/expanded sites:
India, Southeast Asia, China, Europe, Russia, US, Mexico, Brazil, etc.



*AMS: Automotive solutions

Automobiles and Aircraft (Mobility)

Automobiles, Aircraft (Mobility)	Current business scale (2015): ¥300 billion Target business scale (2020): ¥420 billion

■ Combining/integrating materials and process technologies in each business domain, to contribute to lighter weight, more environment-friendly automobiles and aircraft

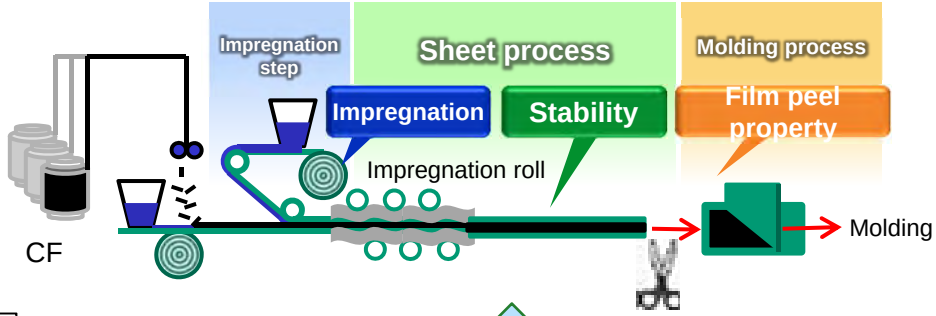
Combination, Integration, Providing Solutions

Replacing metals with high-performance engineering plastics in growing aircraft market (high fuel efficiency/lightweight)

Aircraft interior part (bracket)

Wear strip supports

Combining matrix resins and additives in the High-Performance Products Domain with carbon fibers to introduce distinctive, complex products in growing markets



High-Performance Chemicals Domain

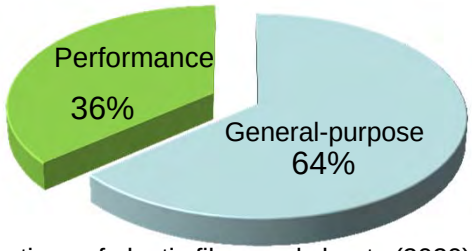
Carbon Fiber and Composite Materials Division

Combining carbon fiber and high-performance engineering plastics (PC, nylon, and super engineering plastics) to introduce thermal plastic composites for aircraft manufacturers, etc.

Packaging, Labels, Films

Global Market for Plastic Films and Sheets

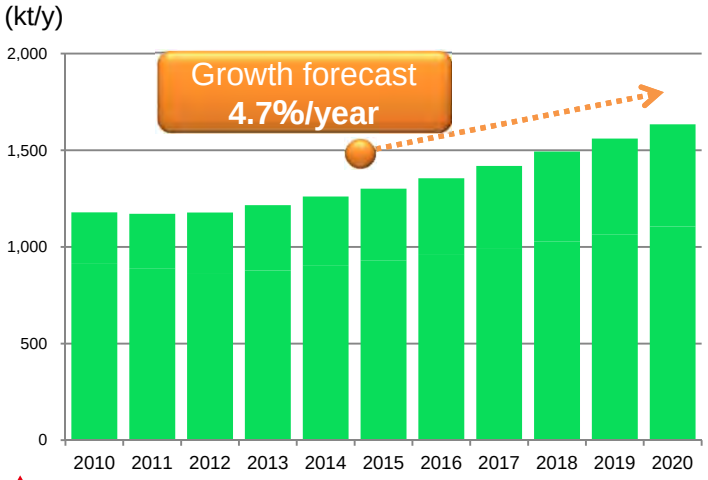
- The global market value is about ¥14 trillion (2020 forecast*1), a growth rate of 2.4%/year.
  Performance film market occupies 1/3 of this market.
- The growth forecasts are as follows:
  Performance PET films: 4.7%; barrier films: 3.5%*2;



Applications of plastic films and sheets (2020)*1

*1Based on data by Fuji Chimera Research Institute, Inc. (2016)
*2Based on TSC Forecast Vol. 2 by NEDO

Global Demand for Performance PET Films



Mitsubishi Chemical Holdings Estimation by MPI

Trends

- Food and medical products
  - Food loss problems (Longer product life and longer shelf life)
  - Home-meal replacement and individual meals
  - Safety and security (traceability)
  - Child resistant and senior friendly (pharmaceuticals)
- Packaging
  - Environmental-load reductions, renewable resource utilization
  - Multi-function, high-performance
  - Smart packaging and sensor films

Technologies, Products, Solutions

- Realizing longer product life and longer shelf life by barrier performance
- Development of performance films by combining technologies (high gas barrier, transparency, easy peel, low moisture permeability, etc.)
- Release films for medical, automotive, and industrial use
- Products using renewable resources

Packaging, Labels, Films

■ Taking advantage of diverse technologies held in the group, utilize them to various applications

Core Technologies in the Group

- Polymeric material design
- Sheeting
- Surface modification
- Compounding

Optimal Combination

Functions

- Multilayer control
- Separation
- High gas barrier
- Control of porous structures
- Biomass

Examples

Food | **Industry, Medical**


Multilayer co-extruded film
DIAMION


Easy peel

Label liner


SiOx vacuum coated high gas barrier film
TECHBARRIER


High-barrier bottles using DLC* technology

*Diamond-like-carbon


Moisture transmission film
KTF

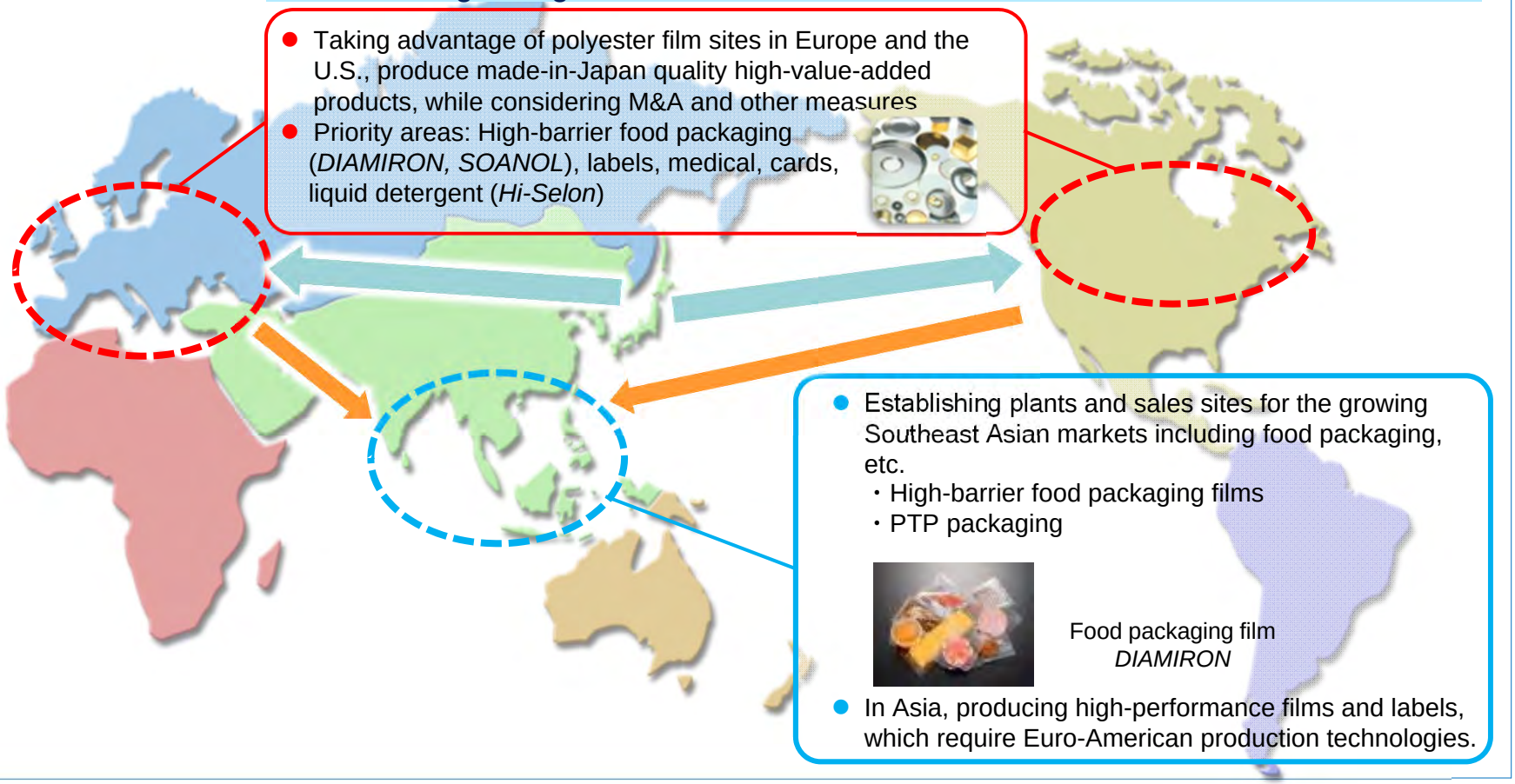

Bio-based film and sheet
Ecoloju

Packaging, Labels, Films

Packaging, Labels, Films	Current business scale (FY2015): ¥180 billion Target business scale (FY2020): ¥230 billion

Enhancing Overseas Development

- Establishing overseas plants and sales sites centering on food packaging and medical packaging
- Expanding business in the high-performance film market in Europe and the U.S., and in the growing Southeast Asian market



- Taking advantage of polyester film sites in Europe and the U.S., produce made-in-Japan quality high-value-added products, while considering M&A and other measures
- Priority areas: High-barrier food packaging (*DIAMIRON, SOANOL*), labels, medical, cards, liquid detergent (*Hi-Selon*)

- Establishing plants and sales sites for the growing Southeast Asian markets including food packaging, etc.
  - ・High-barrier food packaging films
  - ・PTP packaging

Food packaging film
DIAMIRON

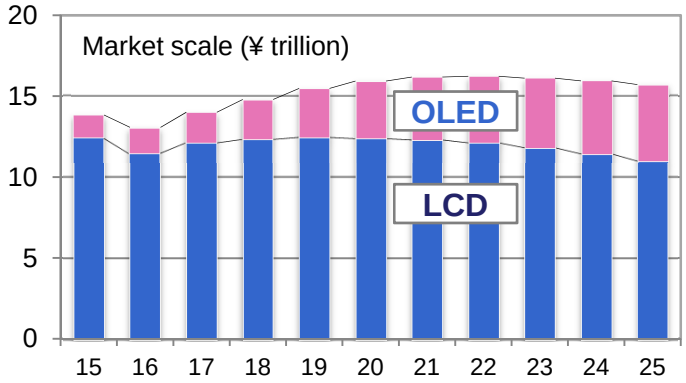
- In Asia, producing high-performance films and labels, which require Euro-American production technologies.

IT, Electronics, Displays (Incl. 3D printers, robotics)

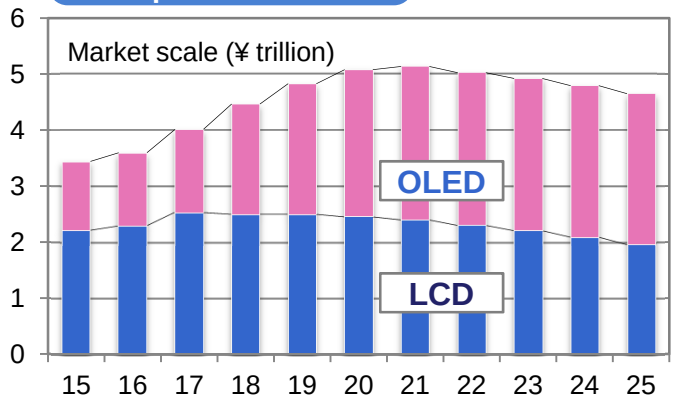
Global Display Market

Display market will remain firm toward 2020. In the smartphone panel market, OLED demand will grow.

Display Panels (Overall)



Smartphone Panels



Source: 30th HIS Display Japan Forum (January 2016)

Trends

- High definition
- Long life, energy saving
- Thin, light
- Flexible, foldable
- Increase in size
- Price reduction

Technologies, Products, Solutions

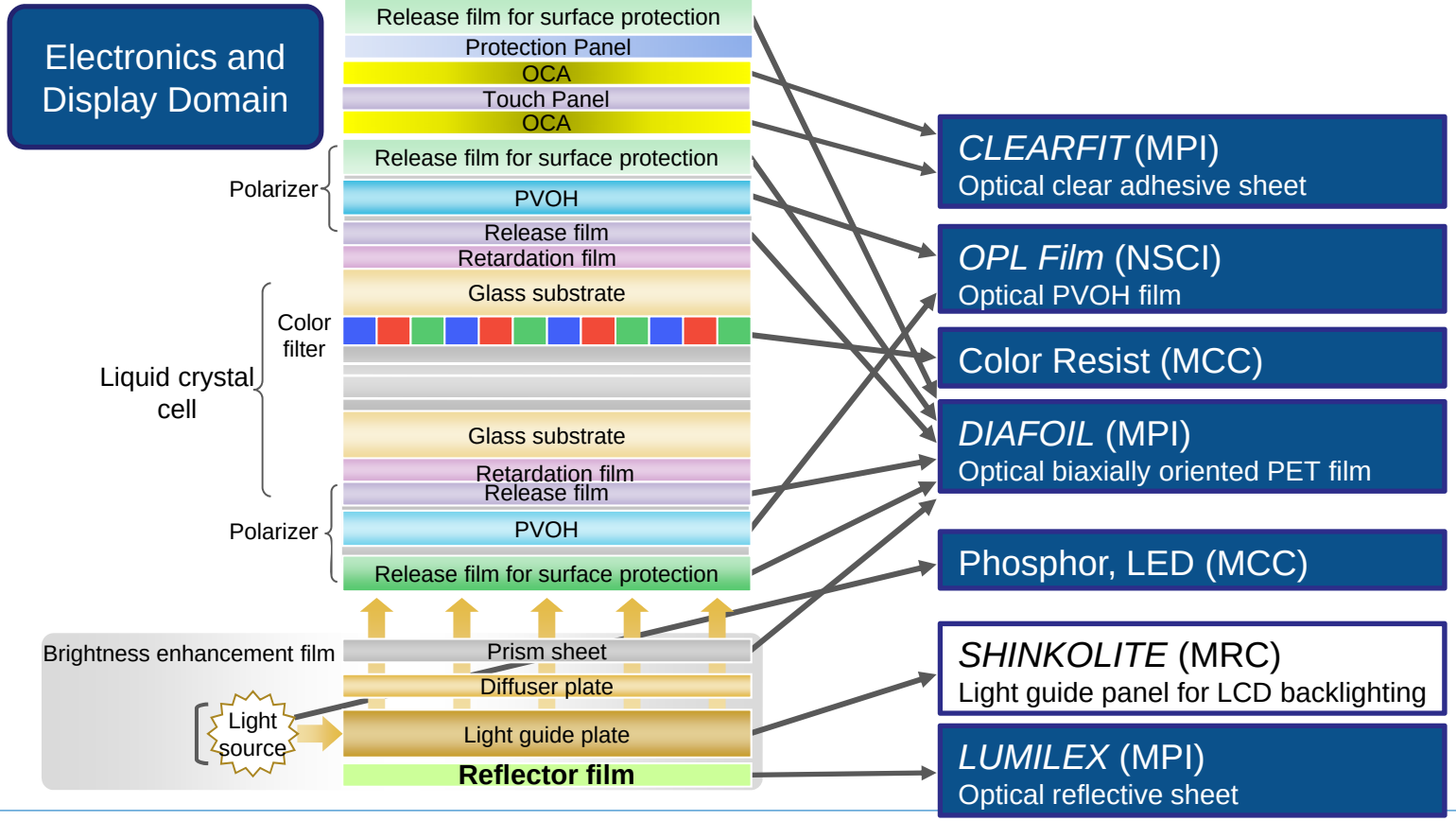
- Thinner due to combination of materials and technology (adhesives, coating technology)
- Shorter processes and cost reduction for customers due to combination and integration
- Providing plastic materials that are lightweight and flexible
- Higher quality due to high color saturation and high-definition chromatic material technology

IT, Electronics, Displays (Incl. 3D printers, robotics)

IT, Electronics, Displays	Current business scale (FY2015): ¥220 billion Target business scale (FY2020): ¥300 billion

Strengthening Market Access (Consolidation)

- Wide-range of business development in the display market
- Consolidating major display-related businesses in the Electronics and Display Domain and realizing speedy response to technology innovation in the market by strengthening market access and accelerating R&D



IT, Electronics, Displays (Incl. 3D printers, robotics)

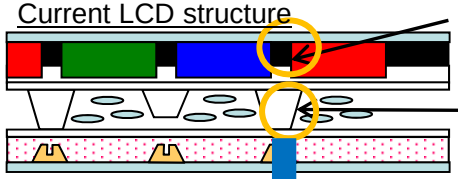
Growth through R&D and Innovation

- Corresponding to expansion of LCD and OLED markets by adjusting and integrating materials
- Developing high-performance materials and components for growing robotics and 3D printer markets

Displays

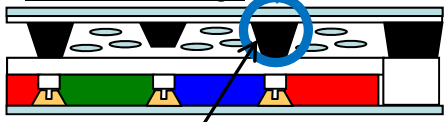
Integrated material for LCD color filter

Current LCD structure



Integrating Functions

Structural change

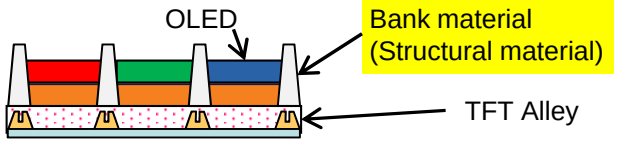


Black column spacer

Integrating black matrix and column spacer
Reduce manufacturing costs of LCD panel

Materials for OLED display mobiles

Corresponding the high quality vapor deposition process, develop new credible, low out-gas bank material and also develop high-performance film in near the futute



Robotics

Estimated market size (FY2020):¥150 billion
(Driving parts, sensors)

Structural materials	Lightweight and highly rigid composite materials
Exterior materials	Functional soft materials
Battery	high energy density battery

R&D area

Driving parts	Materials for soft actuator
Sensors	Organic print sensors, materials for RFID tags

3D Printers

Estimated market size (FY2020):¥150 billion
(Prototype filament, powder)

Filaments

✓Improve high dimensional accuracy
✓Improve manufacturing speed, etc.

A prototype using NSCI's polyvinyl alcohol related filament as support. White part dissolve in water and colored part become the product.

R&D area

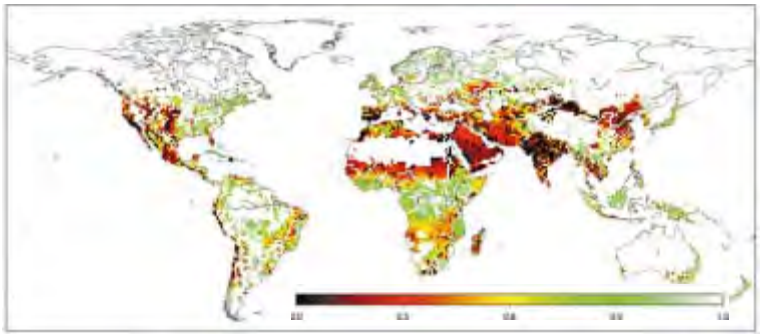
High-performance filament, ink, and powder

- ✓ High-dimensional accuracy
- ✓ High transparency and high heat-resistant

Environment, Energy

Water Stress Map

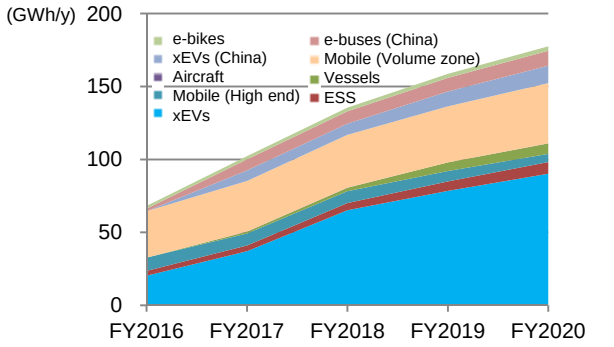
Asia and west coast of North America are highly water-stressed.



Percentage of water volume actually supplied, compared to estimated water demand from land use
(comparison ratio of cumulative water use volume and demand volume)
Computer simulation of global water resources
Source: National Institute for Environmental Studies News, 29, 3

Global Lithium-ion Battery Market

Expecting 25% annual growth by Fiscal 2020



Source: HIS (2016/05/22) MCC estimation based on B3 data

Trends

- Increasing water demand, increasing needs for safe water
- Strengthening regulations on waste water
- Energy saving
- CO_2 reductions

Technologies, Products, Solutions

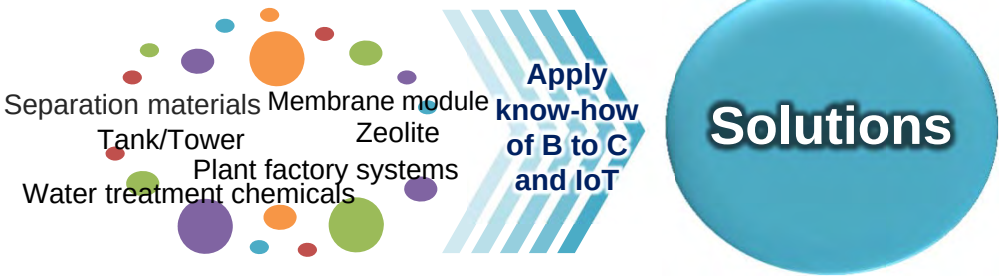
- Providing various solutions related to water treatment
  - ✓ Livestock wastewater treatment
  - ✓ Sewage treatment
  - ✓ Groundwater membrane filtration systems
  - ✓ Home-use water purifiers (*Cleansui*)
- Proposing plant factory systems in areas that are water-stressed or have limited sunlight
- Lithium-ion battery materials

Environment, Energy

Environment, Energy	Current Business Scale (FY2015): ¥110 billion Target Business Scale (FY2020): ¥170 billion

Strengthening Market Access (Consolidation)

- Aggregate water- and separation- related businesses in the Environment and Living Solutions Division



Combination, Integration, Providing Solutions

- **MCC**: Ion-exchange resins; Plant factory systems; Zeolite membranes
- **MPI**: Plant factory systems; Agricultural materials; Feed tank, Air-conditioning tower; Piping materials
- **MRC**: Membranes, MBR; Flocculants; Water treatment engineering; Home-use water purifiers; CO_2 enriched water systems; Groundwater membrane filtration system

Targets

Eating and Drinking

- Developing fully artificial light-type plant growing systems and sunlight type plant factories in areas that are water-stressed or have limited sunlight
- Livestock wastewater recycle system (phosphorus and protein recovery)

Living

- Provide solutions to housing equipment/kitchen manufacturers – overseas development

Energy

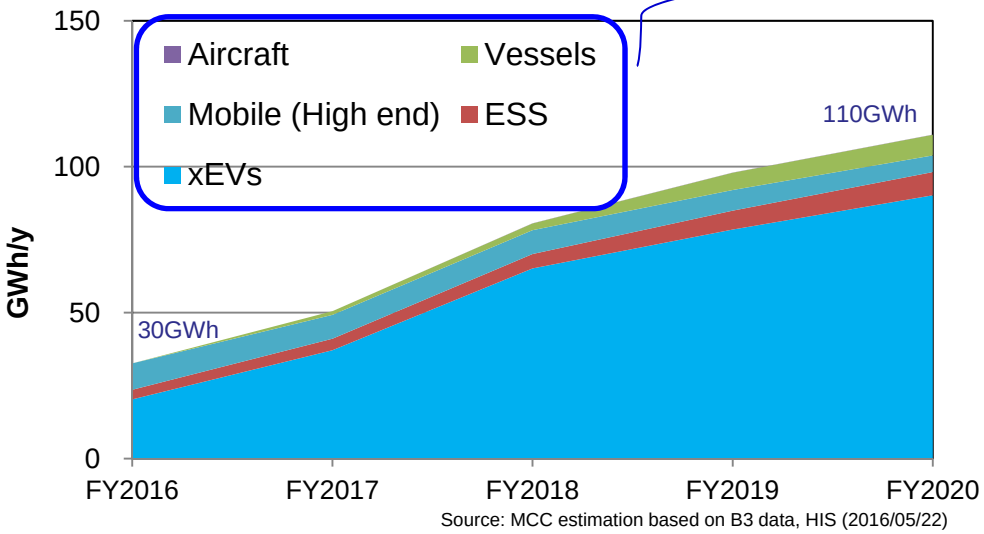
- Development of bioethanol by sugar producers

Environment, Energy

Lithium-ion Battery Materials

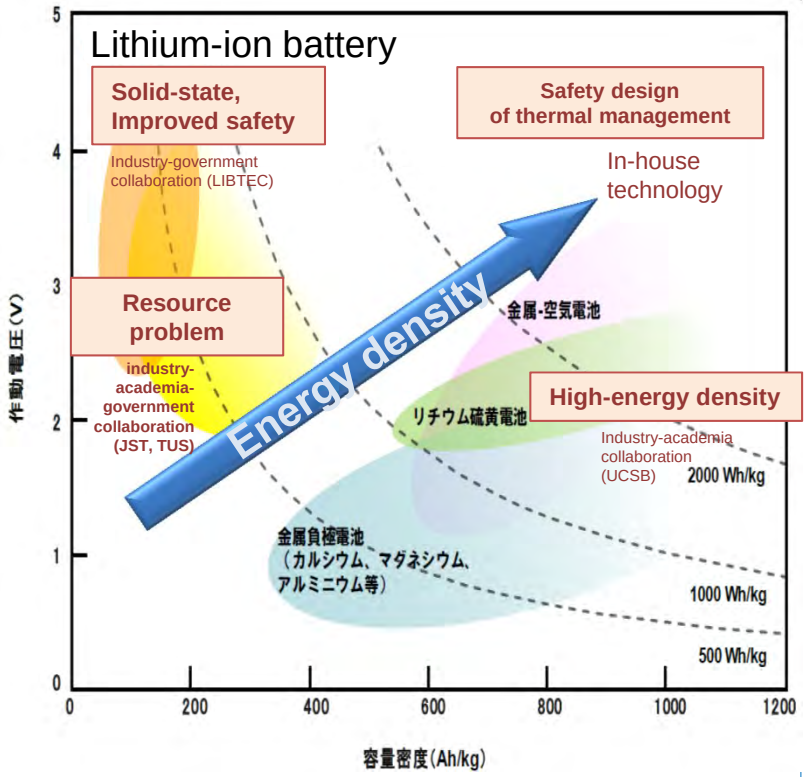
Current Business Scale (FY2015): ¥25 billion
Target Business Scale (FY2020): ¥70 billion

Target market scale (2020): ¥200 billion



Source: MCC estimation based on B3 data, HIS (2016/05/22)

Targeting large-size battery market including xEVs, ESS, vessels, etc., which require high-quality, advanced technologies, expand business by maximizing technology capabilities



Source: Battery Technology Roadmap 2013 by NEDO

Growth through R&D and Innovations

- Responding to sophistication of demand characteristics by developing high-performance additives for electrolytes and high-performance anode materials made from natural graphite
- Outsourcing R&D in next-generation battery materials to LIBTEC, etc.

Improving Productivity and Efficiency / M&A, Alliance

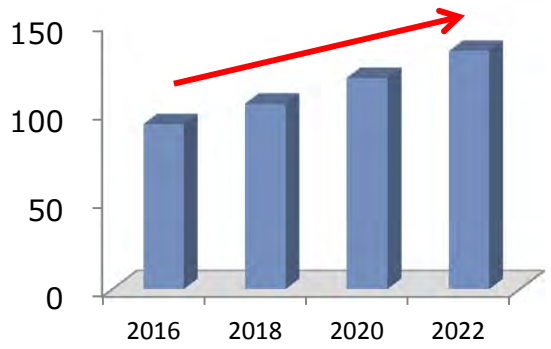
- Amid intensifying competition, aiming for growth through measures including alliances with competitors

Medical, Food, Bio Products

Global Pharmaceutical Market*1

Market growth at more than 5% annually toward 2022

(¥ trillion)

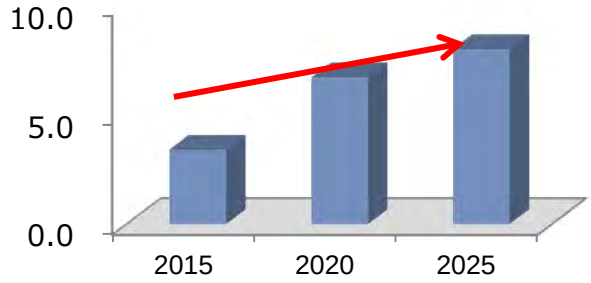


*1 Developed based on the World Review 2016 Outlook to 2022 by Evaluate Pharma (2016)

Global Orthopedic Implant Market*2

Estimate market growth at 5% - 10% annually

(¥ trillion)



*2 Developed based on the Technology Roadmap 2016-2025 (Medical, Healthcare, Food/Agriculture) by Nikkei BP (2015)

Trends

- Market
  - Super-aged society
  - Controlling increasing medical costs
  - From “cure” to “care”
  - Expansion of home care
- Product and technology
  - Biocompatible materials
    - Implant plastic materials
    - Bioabsorbable materials
  - Minimally invasive and non-invasive treatment
  - Expansion of biopharmaceuticals
  - Drug delivery systems

Technologies, Products, Solutions

- Reduction of the burden on the body by reducing weight (implant, etc.)
  - ✓ Biocompatible engineering plastics
  - ✓ Carbon fiber composite products
- Responding to diversifying needs
  - ✓ Infusion bags with thermoplastic elastomers
  - ✓ Easy extrusion PTP sheets
  - ✓ HPMC capsules
- Refining of biopharmaceuticals
  - ✓ Agents for ion-exchange separation
- Minimally invasive self-medication
  - ✓ DNA chips
  - ✓ CO_2 enriched water systems

Medical, Food, Bio Products

■ Developing products and solutions that respond flexibly to various medical needs

Examples of Products and Solutions in Medical Settings

Infusion bags, tubes

Thermoplastic elastomers

Barrier films

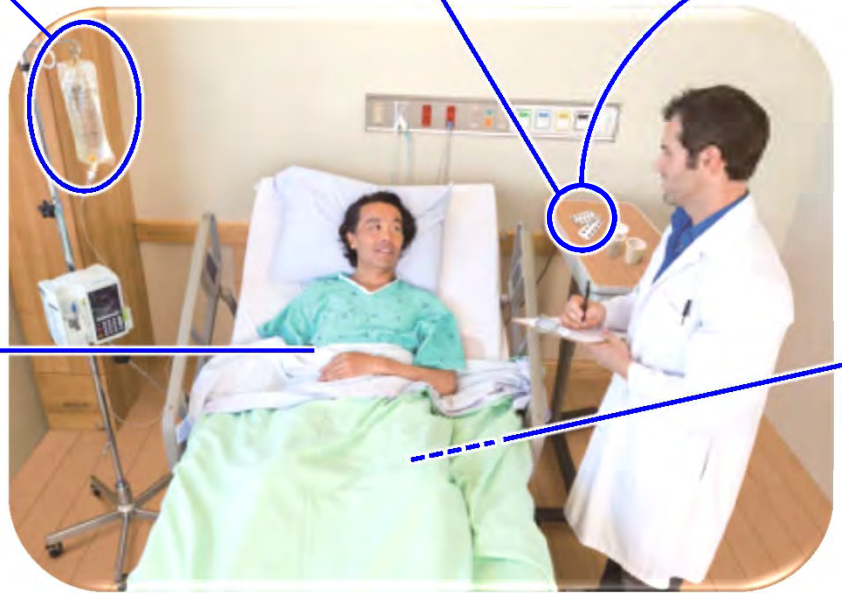
Tablets, capsules

Capsule coating

Tablets, capsules

PTP sheets
for tables and capsules

HPMC capsules



Separators for skin patches

Polyester film based release liners
for transdermal patches

Implant materials

Biocompatible
engineering plastics

Home medical care

CO_2 enriched
water systems

Diagnostic imaging

X-ray scintillator screens

Self-medication

DNA chips

Medical, Food, Bio Products

Medical	Current business scale (FY2015): ¥50 billion* *Incl. QKK Target business scale (FY2020): ¥100 billion

Strengthening Market Access (Consolidation)

■ Focusing on target markets and aiming for intensive growth

Pharmaceutical materials	Packaging materials	Implant material	Medical equipment and devices
Capsule for pharmaceuticals API Tablet coating agents	Infusion bag materials PTP sheets for tablets and capsules Syringe materials	Biocompatible engineering plastics	X-ray scintillator screens CO_2 enriched water systems DNA chips
Synergy with QKK	Product development with high barrier and multilayer technologies in the High-Performance Film Domain and synergy between MTPC (CMC Division)	Compounding high-performance engineering plastic and carbon fiber composite material	De facto in a niche market

Combination, Integration, Providing Solutions

- Replacement from metals to in vivo compatible plastic materials
  (Weight saving, lubricity)

Biocompatible engineering plastics

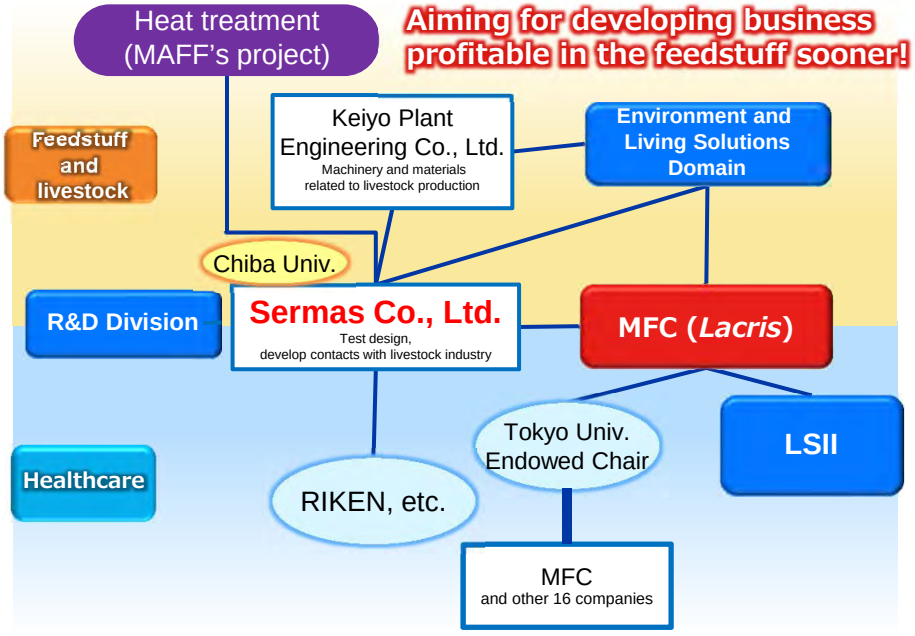
Hip joint (PE) Knee joint (PE) Spinal cord (PEEK)

Medical, Food, Bio Products

Food and Bio Products	Current Business scale (FY2015): ¥30 billion Target Business scale (FY2020): ¥50 billion

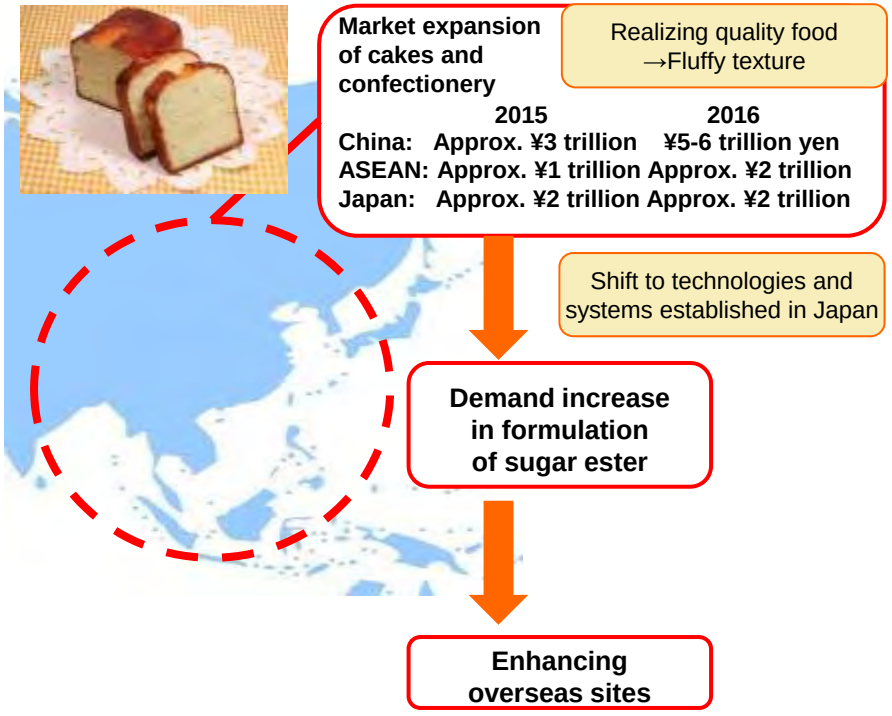
Combination, Integration, Providing Solutions

With MFC's lactic acid bacteria *Lacris* as a core material, develop intestinal flora-related domains, collaborate with internal and external diagnosis business in health care field, expand high-performance materials (nutrition/disease protection) in feedstuff and livestock field, and strengthen business.



Strengthening Overseas Development

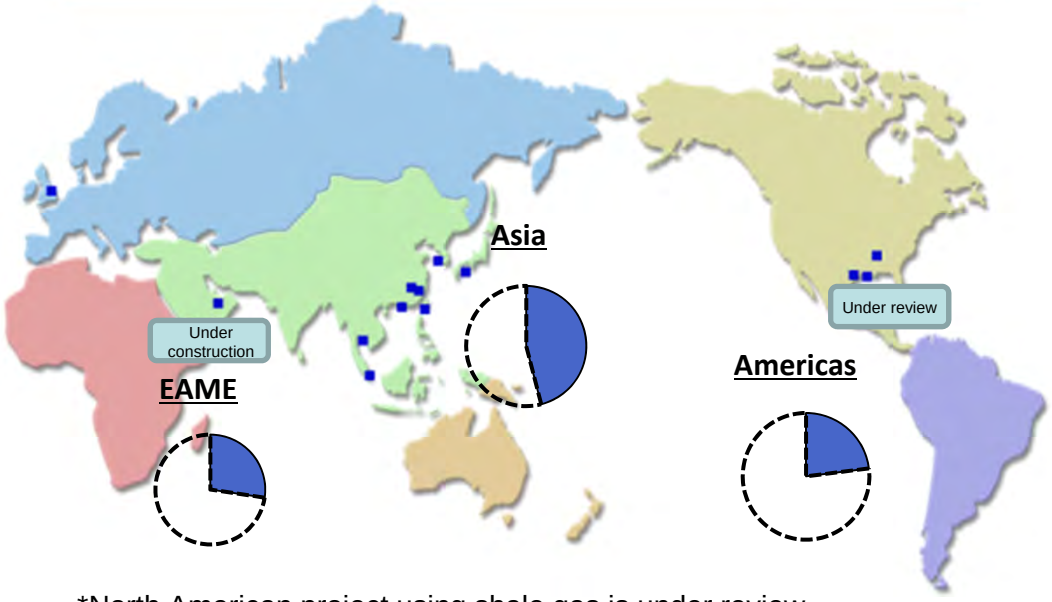
Expanding business scale by providing solutions relating to sugar ester formulation for the growing processed food market in China and ASEAN countries



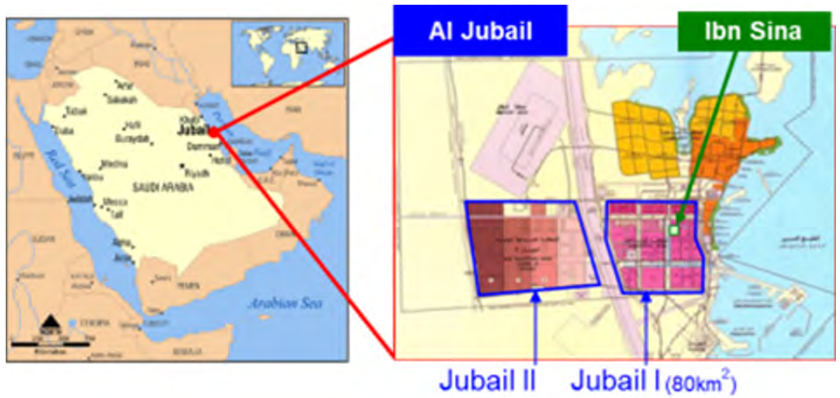
Fundamental Materials: MMA

- World's No.1 supplier with about 40% global market share
- Implementing MMA project in the Middle East (SAMAC project) on schedule
  - Constructing MMA plant (250kt/y) and PMMA plant (40kt/y) in Al Jubail (Ibn Sina) with SABIC
  - Realizing the world's largest MMA production capacity with the new ethylene process (Alpha technology) using ethane-based ethylene
  - Commercial operation: Scheduled for July 2017

MMA Production Sites and Shares by Region



Locations of SAMAC Project



*North American project using shale gas is under review.

Fundamental Materials: Petrochemicals

■ Aiming for maximizing business value by completion of business structural reforms and building a strong business foundation

Development and sales expansion of high-value-added products

Performance PE/PP: Improving the high-value-added product ratio by developing products having new functions

- PP 45% (2015) → 55% (2020)
- PE 50% (2015) → 60% (2020)

Development and sales expansion of high-value-added monomers

Utility reform

Regional energy cooperation initiatives by taking advantage of liberalized electric power policies

- Power interchange between electrical power company and different type of businesses
- Reuse of idle equipment

Technology licensing

Refining owned technologies, and proactively developing licensing business

- AA/AE/emulsion, BPA/PC, PP polymerization, DTP, BtoB, etc.

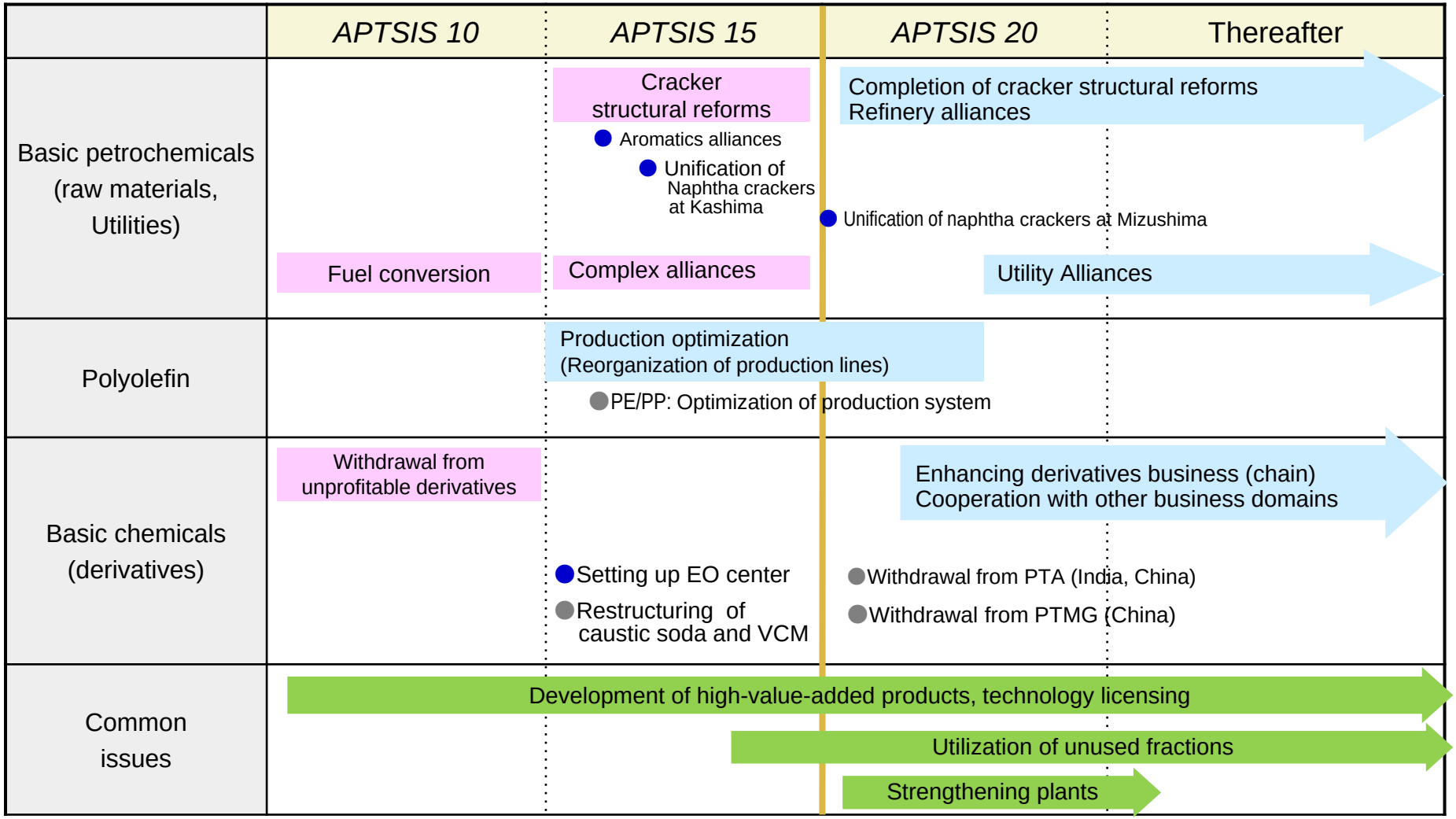
Utilization of unused fractions

Improving added value by utilizing unused fractions and derivatives

- Effective use of by products and derivatives, strengthening the chain of derivatives, etc.

Fundamental Materials: Petrochemicals

■ Strengthening businesses by continuous structural reforms



● Measures ● Restructuring, downsizing, suspension

Establishing Regional Headquarters

- Toward attaining 50% of the new MCC Group overseas business ratio in fiscal 2020 from currently 44%, accelerate overseas business expansion
- Establish Regional Headquarters “RHQ” in global 4 areas to support each regional business to achieve overseas business growth and the enhancement of profitability.
- Identify important markets and promote cross-business marketing activities in each area.

America Americas	Europe Europe, Middle-East, Africa	Asia Pacific ASEAN, India, Australia	China China, Hong Kong
Mitsubishi Chemical America, Inc. New York, Greer (SC), Charlotte (NC)	Mitsubishi Chemical Europe GmbH Düsseldorf, Wiesbaden	Mitsubishi Chemical Asia Pacific Pte Ltd Singapore	Mitsubishi Chemical (China) Co., Ltd. Shanghai

RHQ’ Functions

Marketing	• Promote cross-company marketing activities to strengthen market access. • Provide services to customers through technical support.
R&D coordination Technology scouting	• Promote business development and R&D activities in cooperation with the head office in Japan. • Strengthen access to external resources such as venture companies, academia, public organizations.
HR	• Career management system, succession planning. • Training programs, recruitment of excellent staff, etc.
EHS product stewardship	• Establish EHS standards through information sharing and introducing best practices throughout the group. • Safety audit and product stewardship.
Administration, others	• Implement a consolidated tax system in the U.S.

Focus Markets

- Automobiles/aircraft (mobility)
- Packaging, labels, films
- IT, electronics, displays (3D printers, robotics)
- Environment, energy
- Medical, food, bio products

Portfolio Transformation and Productivity Improvement

- After integration of 3 chemical companies, increase management effectiveness by rechecking the way to conduct all works and avoiding the waste (recheck and streamline all woks, expenses, organizations)
- ¥15 billion of productivity improvement in 2020 by the integration

Portfolio transformation

- Integrating 56 SBUs into 26, executing portfolio reforms in each SBU, and enhancing efficiency of management operations
- Liquidation and integration of about 400 affiliates into about 300 affiliates

Productivity Improvement

R&D

- Utilization of internal and external technologies and information
- Accelerating the development and improving the level of achievement by strengthening management with stage gate processes (utilization of IoT and AI)

Plant

Reduction in troubles, plant automation, technology and safety information, sharing best practices

Procurement & logistics

- Cost-effective procurement based on the range of procurement, strategic procurement by function (specialties — mass production materials), strategic procurement overseas
- Supply chain optimization, streamlining of logistics, cost reductions of logistics overseas

IS

- Improving efficiency of business and corporate management by integrating key systems
- Enhancing global communication
- Simplifying operations, advancing use of data (use of big data)

Corporate, others

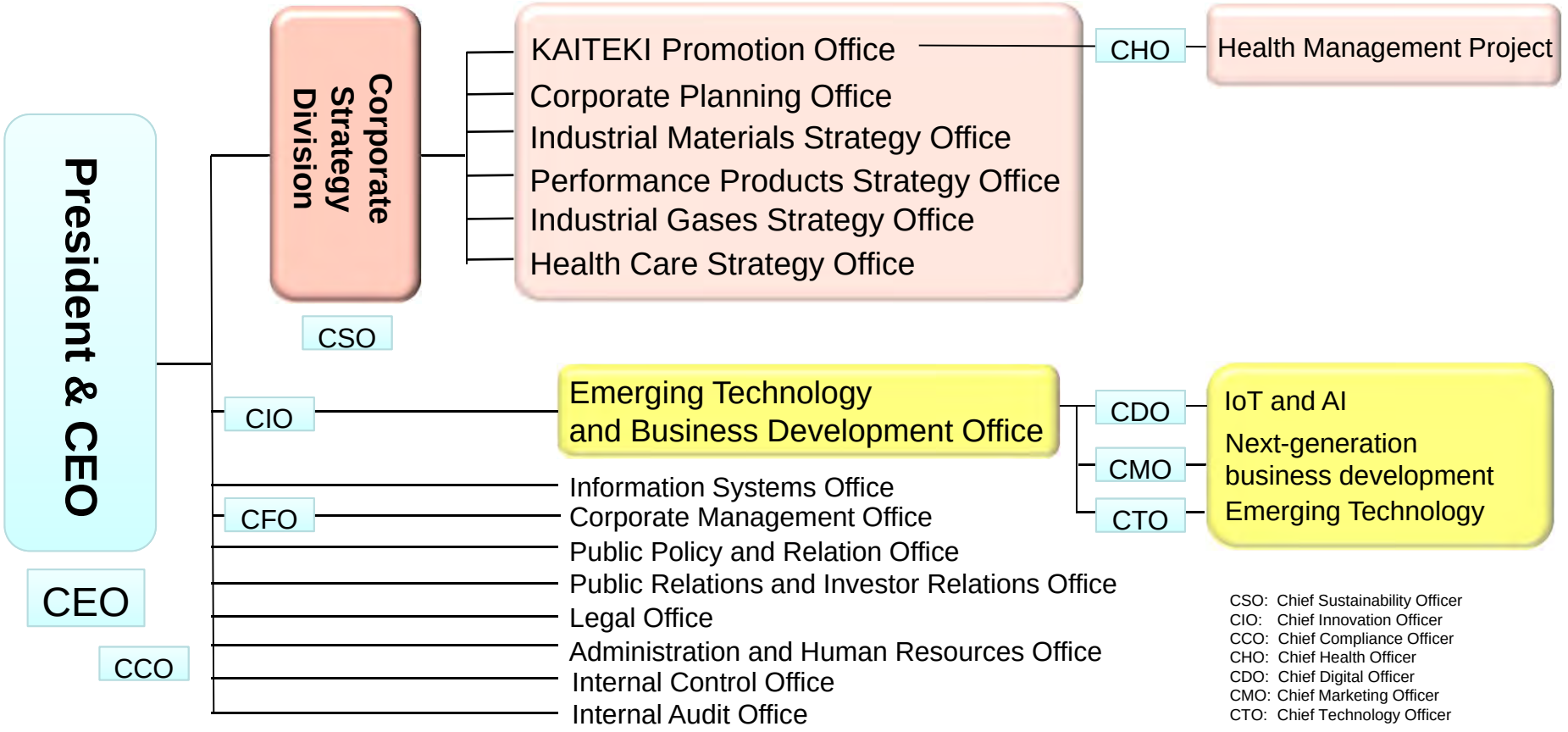
- Promoting health management
- Revising work styles, promotion of diversity
- Payment of consolidated tax in the U.S., review of insurance, cash pooling, etc. (about ¥4.0 billion/year)
- Asset light

Agenda

1. Toward Accomplishing the Medium-term Management Plan *APTSIS 20*
   - Progress in Fiscal 2016
   - Action Plans
2. Growth Strategies for the New Mitsubishi Chemical Group
3. **Management System of Mitsubishi Chemical Holdings**
4. Toward Realizing *KAITEKI*

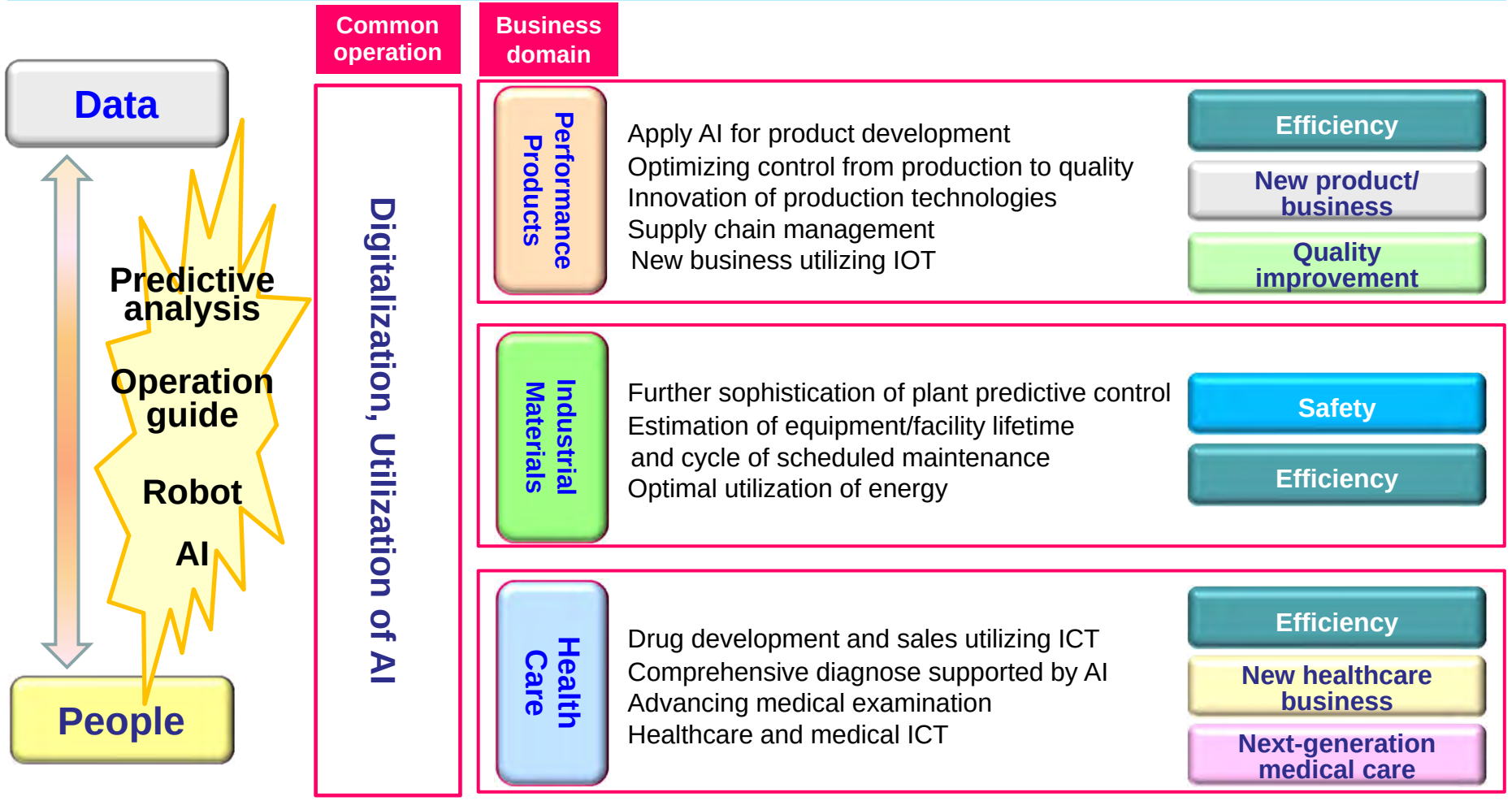
MCHC Organizational Structure (Effective April 1, 2017)

- Independently formulating medium-term strategies and more effectively monitoring of the medium-term management plan by enhancing the Corporate Strategy Division, to accelerate growth strategies
- Establishing the Emerging Technology and Business Development Office to identify cutting-edge technologies including IoT, enhancing business competitiveness by utilizing these technologies and ties with external institutions, and promoting new business incubation



Emerging Technology and Business Development Office: Plans for ICT and AI Utilization

- Utilizing ICT and AI including new sensors and analysis technologies in production, quality, R&D, business, and services, aim at productivity improvement, safety, shorter R&D period, and new business incubation
- Investment of 20 billion yen in 5 years and human resource development



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4. **Toward Realizing *KAITEKI***

Process of Enhancing Corporate Value

■ Promoting enhancement of corporate value through *KAITEKI* Management

Enhancing corporate value

Value creation

APTSIS 20

<Management policies and measures>

- ＊Growth strategies
- ＊Reinforcement of business infrastructure
- ＊ Pursuit of efficiency

×

- ＊Capital efficiency
- ＊Innovation
- ＊Sustainability

<Decision criteria for corporate activities>

＊Sustainability ＊Health ＊Comfort

<Results of corporate activities>

- MOE Index
- MOT Index
- MOS Index
- <Disclosure>
  - Annual security report
  - Integrated reporting, etc.

Materiality Assessment

Macro trend Analysis
(Paris Agreement, SDGs, etc.)

<Sources of corporate value>

＊diversity of business ＊technology platforms ＊Health management (human capital)

Improving Corporate Value Assessment

■ Establishing a virtuous cycle of improving corporate value assessment such as SRI, through deepening of *KAITEKI* Management

SRI Assessment Improvement in FY2016

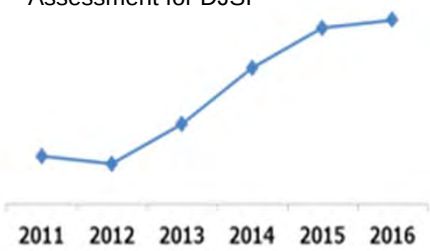
DBJ 環境格付 2016

✓ **A rank (special award)**[*1]

MEMBER OF
Dow Jones Sustainability Indices
In Collaboration with RobecoSAM

✓ **The score improves every year**
✓ **The percentile ranking has also improved**
✓ **Yearbook member (2015)**

Score trend of Sustainability Assessment for DJSI



FTSE4Good

✓ **The score has improved by 25%**

MS-SRI モーニングスター社会的責任投資株価指数

✓ **Continue to be a component**[*2]

Business & Technology Daily News 「Kigyoryoku ranking」

✓ **The ranking has improved to 36th**

*1. In November 2016, received environmental rating-based financing from Development Bank of Japan Inc. and earned accreditation for advancement of initiatives on environmental protection, and received special recognition as a model company.
*2. As of December 8, 2016