

# Machinery & Steel Structures Business Operation

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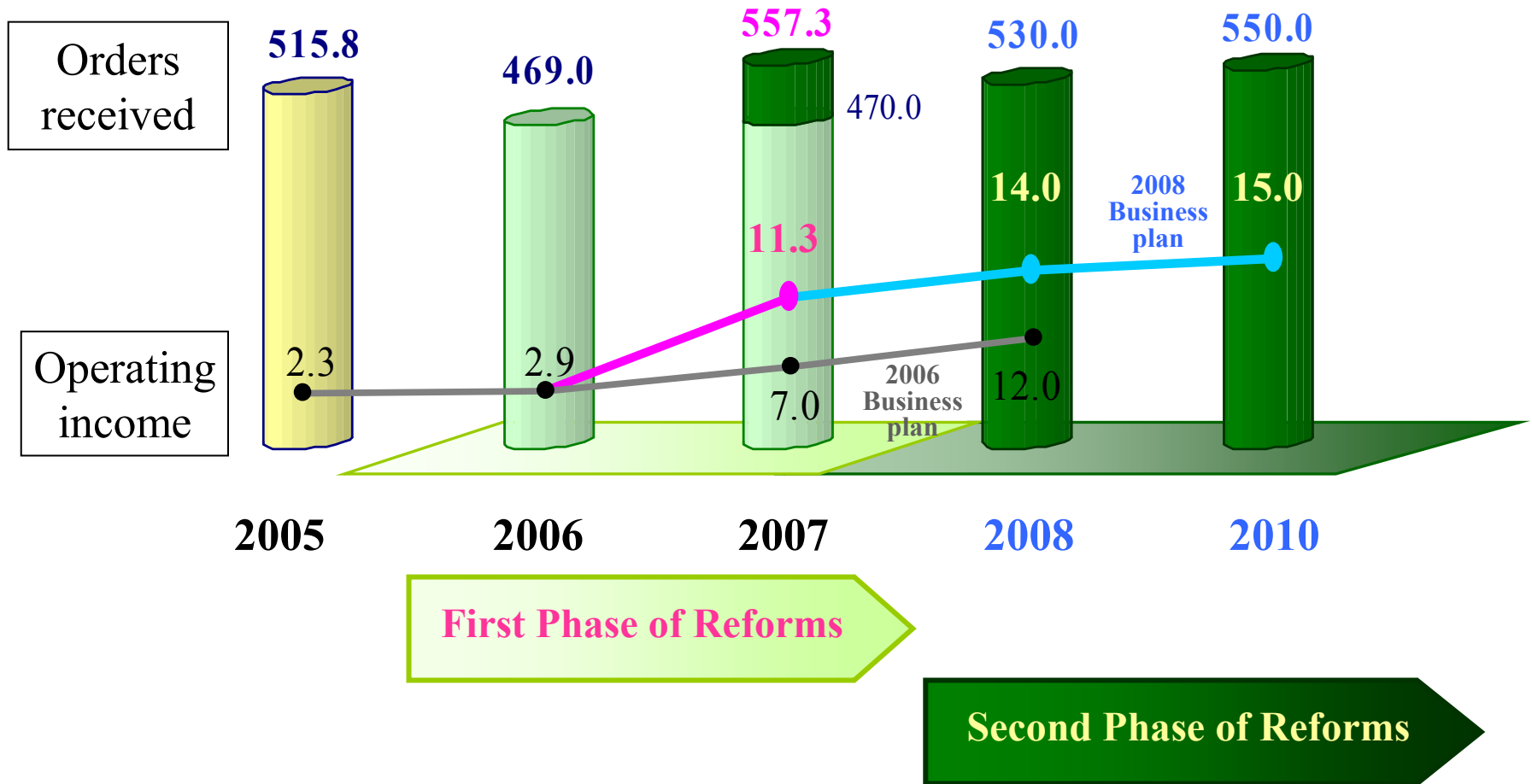
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# 1. Progress with Business Reform

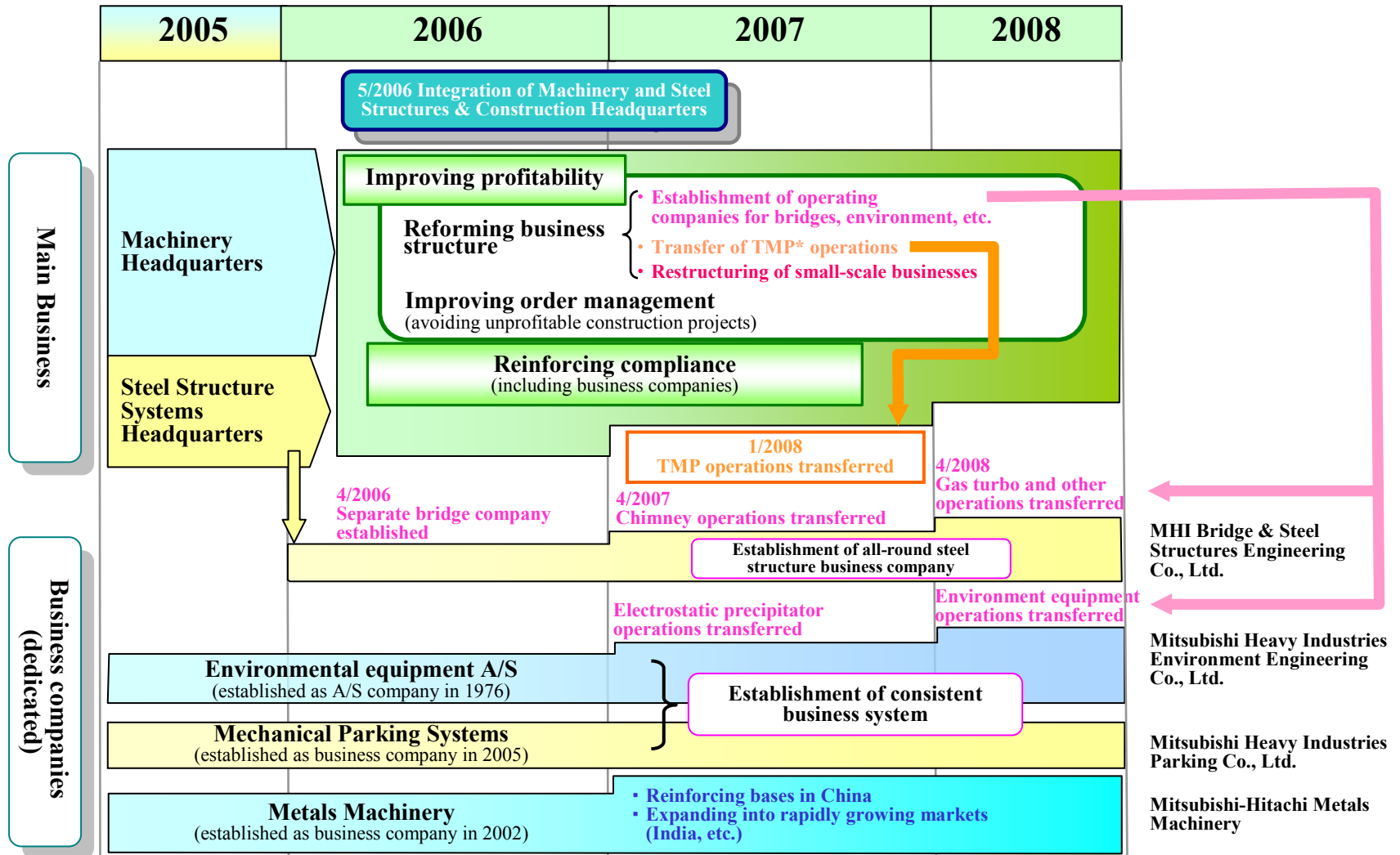
(1) Amount of orders received and operating income (consolidated)

(In billion yen)



# 1. Progress with Business Reform

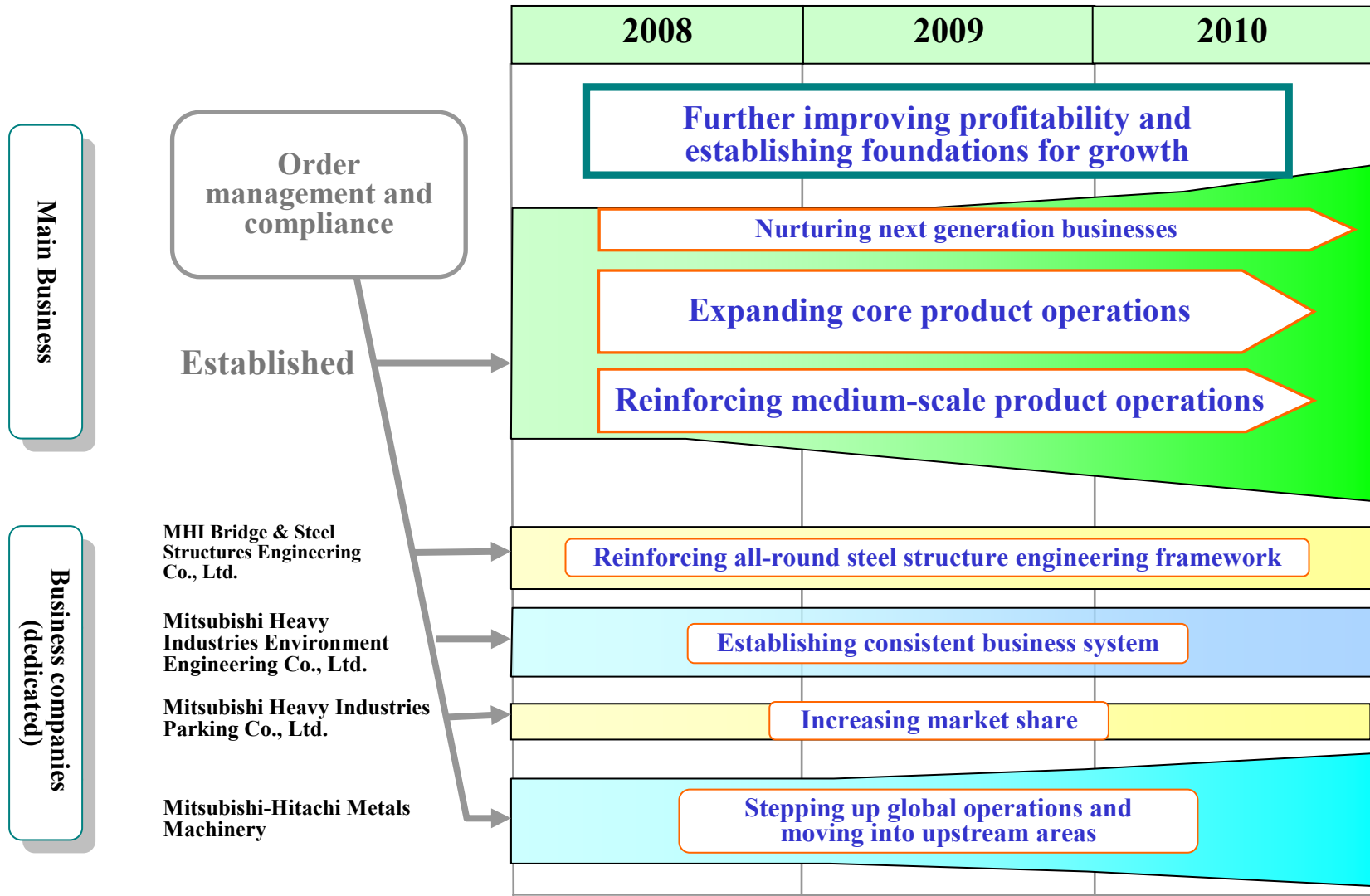
## (2) First Phase of Reforms (2006 - 2007)



\*TMP: Turbo-molecular pumps (transferred to Shimazu)

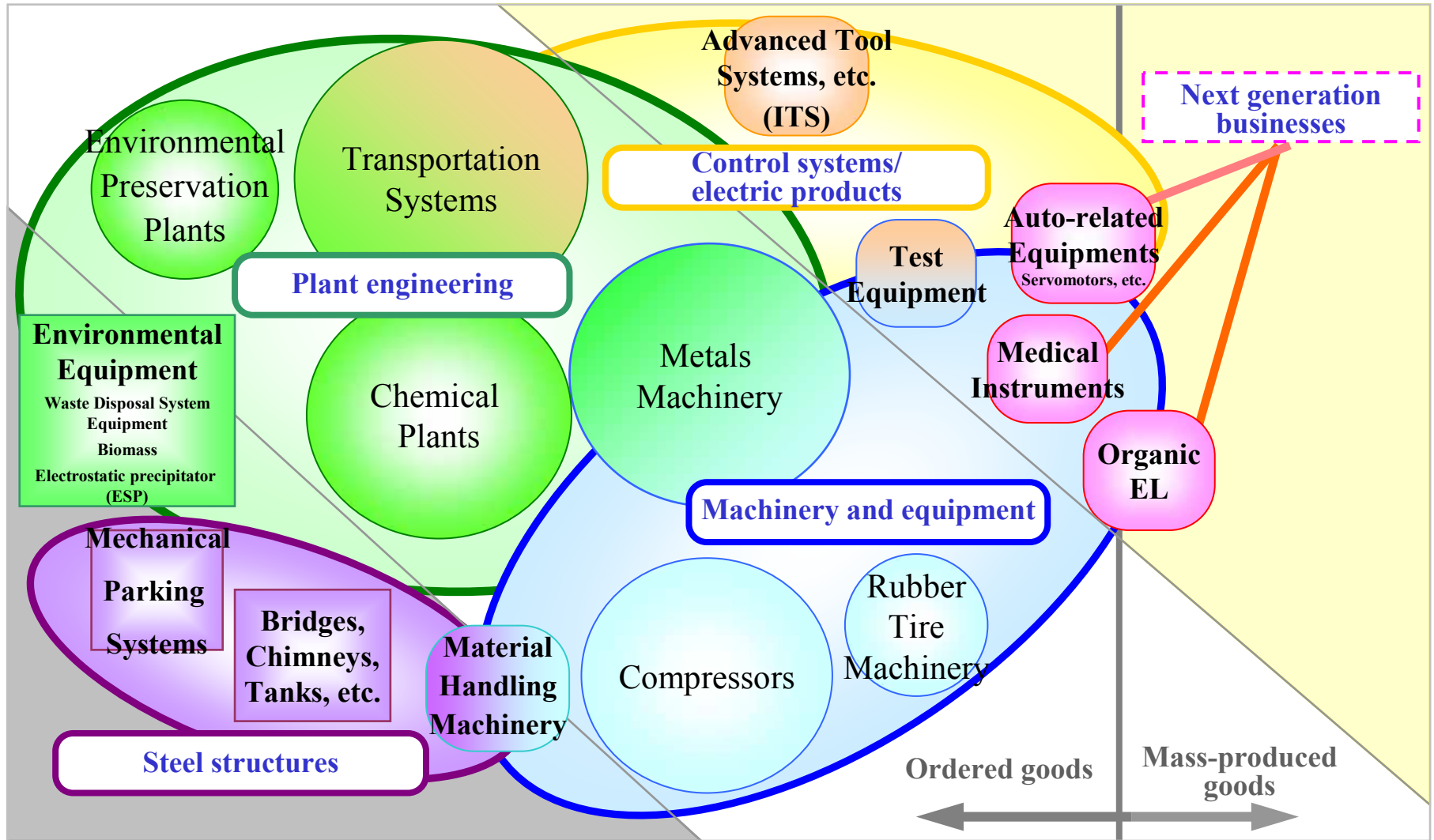
# 1. Progress with Business Reform

## (3) Second Phase of Reforms (2008 - 2010)



# 2. Business Domains

## (1) Business Structure and Global Operations






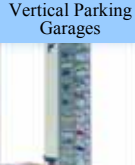







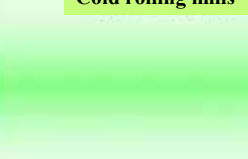





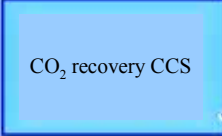




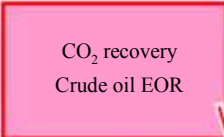
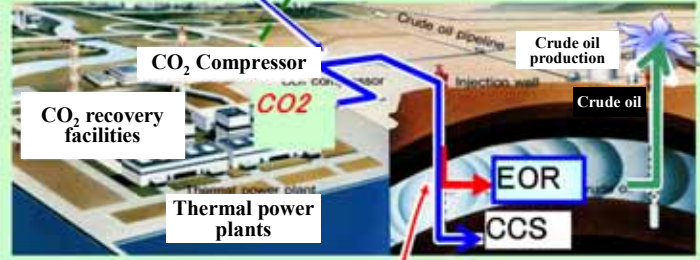
Established domestic businesses  
(Social infrastructure preservation)

Developing global businesses

Potential developing global businesses

# 2. Business Domains

## (2) Area Covered under main Businesses

	Transportation Systems	Environmental and Chemical Plants	Metals Machinery	Compressors	Medium-scale Products		
Social infrastructure							
Industry/ logistics							
Environmental Preservation							
Global warming prevention	 				  Next generation businesses		
Resource and energy development							

# 3. Overall Strategy

## First Phase of Reforms

- Reconfiguring product operations and carrying out restructuring to create a business entity with sustained growth potential
- Improving profitability and reinforcing compliance

## Second Phase of Reforms

**Further improving profitability and establishing foundations for growth**

Expanding core product operations

Reinforcing medium-scale product operations

Nurturing next generation businesses

Focusing on added value

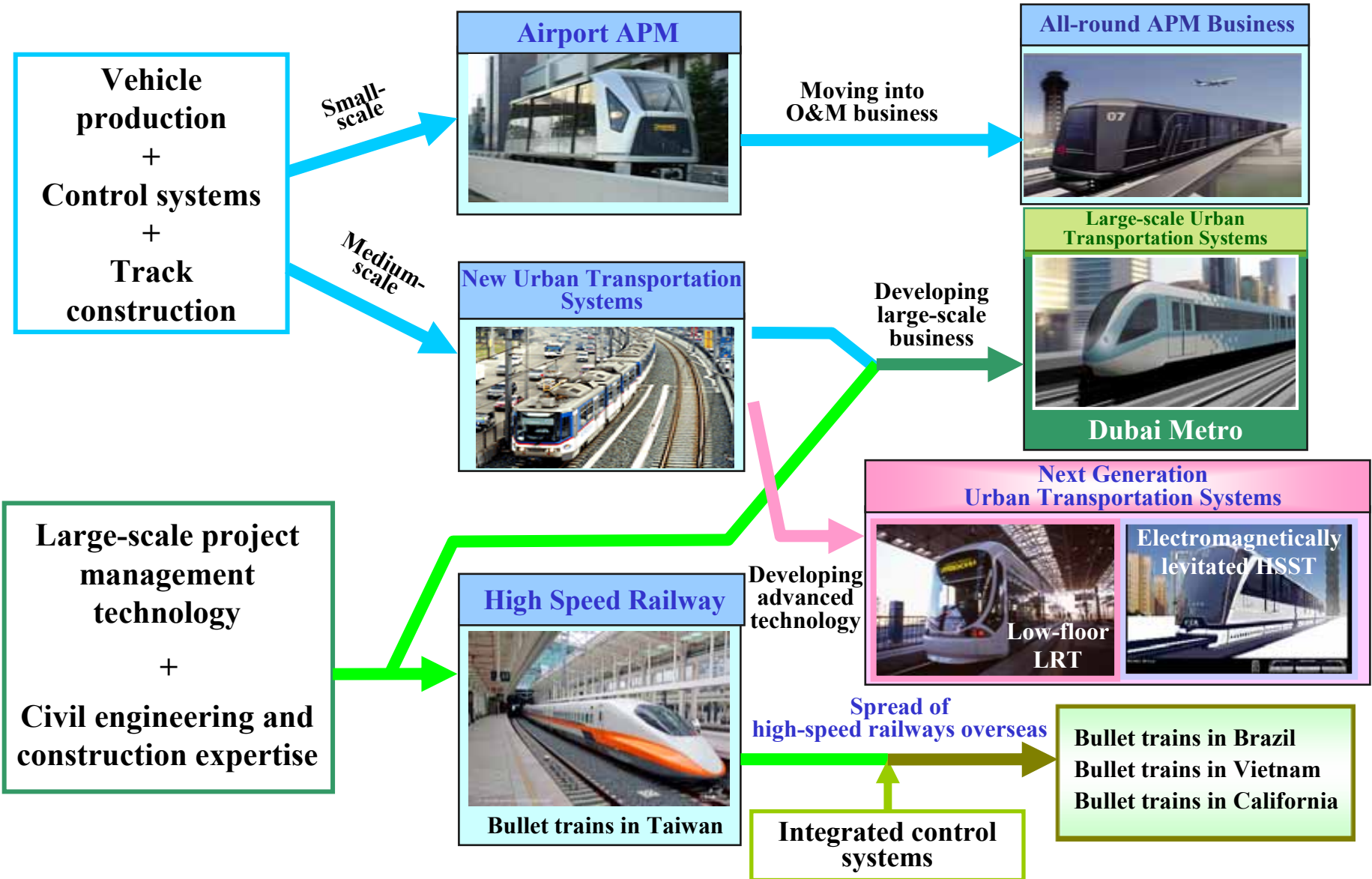
Making effective use of management resources

Reinforcing risk management



# 4. Growth Strategy for Core Product Operations

## (1) Transportation Systems

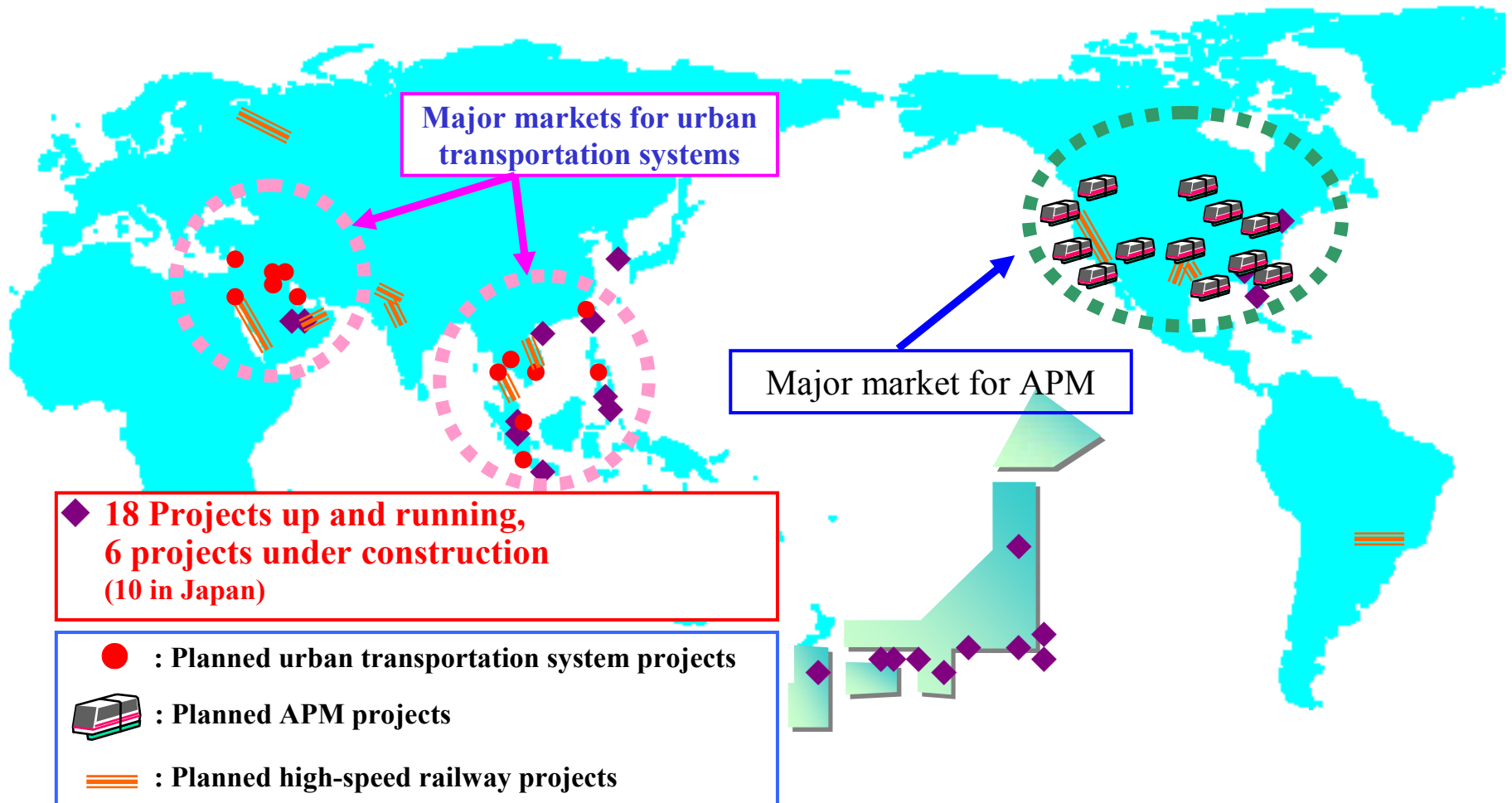


(Note) APM: Automated People Mover, LRT: Light Rail Train, HSST: High Speed Surface Transport

# 4. Growth Strategy for Core Product Operations

## (1) Transportation Systems

Expanding markets in Asia, the Middle/Near East and the United States  
⇒ Offering products and services tailored to suit individual markets

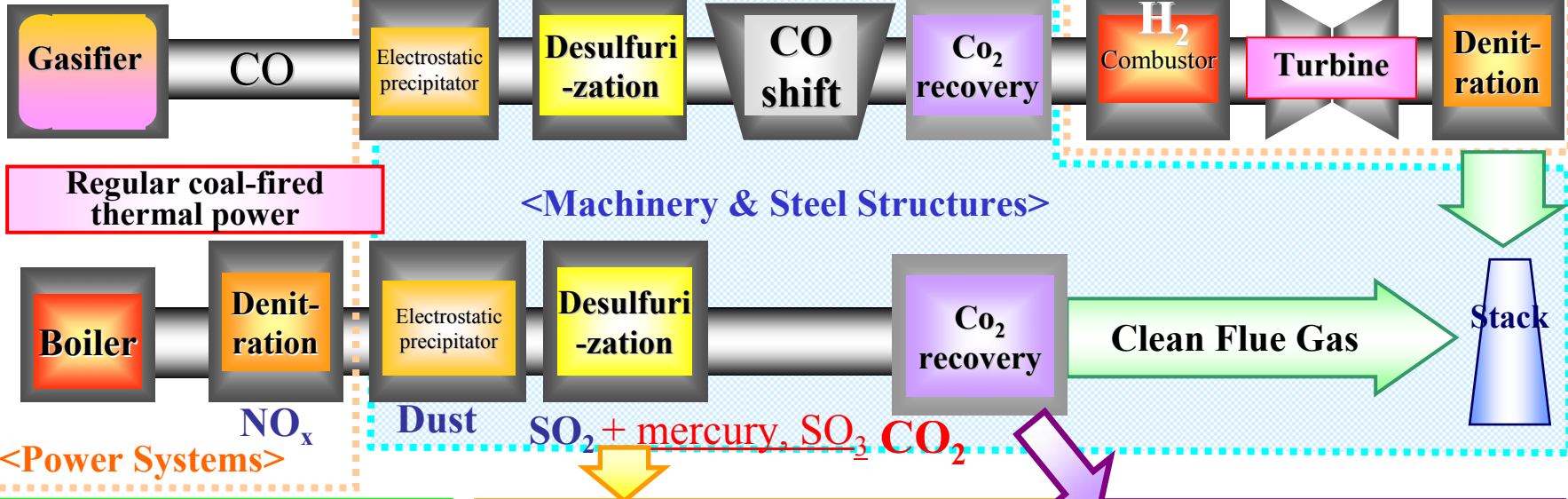
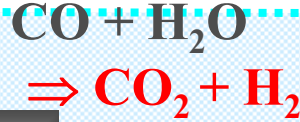


# 4. Growth Strategy for Core Product Operations

## (2) Environment, Chemical Plants

[Increasing focus on air quality preservation market]

**Integrated Coal Gasification Combined Cycle (IGCC)**



**Creating integrated value chains**  
 (Power Systems + Machinery & Steel Structures)  
**IGCC + CO<sub>2</sub> recovery**  
 ↓  
**Underground storage**  
 (To be proved by National Project)

**Expanding desulfurization business**

- **Tightening of environmental regulations**
  - ⇒ US: Mercury/SO<sub>3</sub> regulations
  - ⇒ Europe, China & India: General tightening of regulations
- **Bolstering alliances**
  - ⇒ US: ADVATECH (joint venture with URS)
  - Europe: Partnership with DF (Spain), etc.

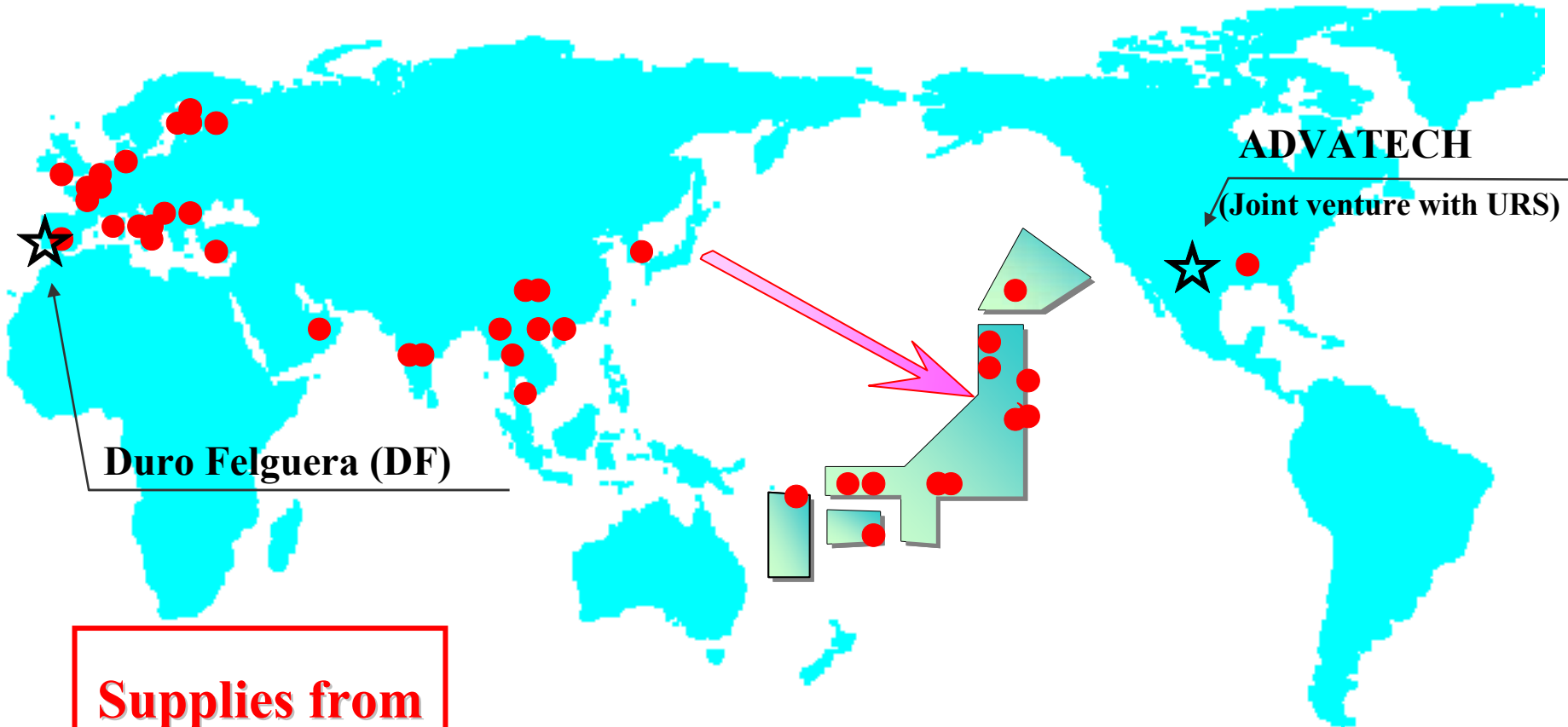
**Developing CO<sub>2</sub> recovery business**

- **Targeting fertilizer plants**
  - ⇒ 6 orders
- **EOR (increasing crude oil production)**
  - ⇒ 5 projects under negotiation
- **CCS (underground storage)**
  - ⇒ 5 projects under negotiation

# 4. Growth Strategy for Core Product Operations (2) Environment, Chemical Plants

Air quality preservation  
<Global operations>

● Desulfurization/CO<sub>2</sub> recovery



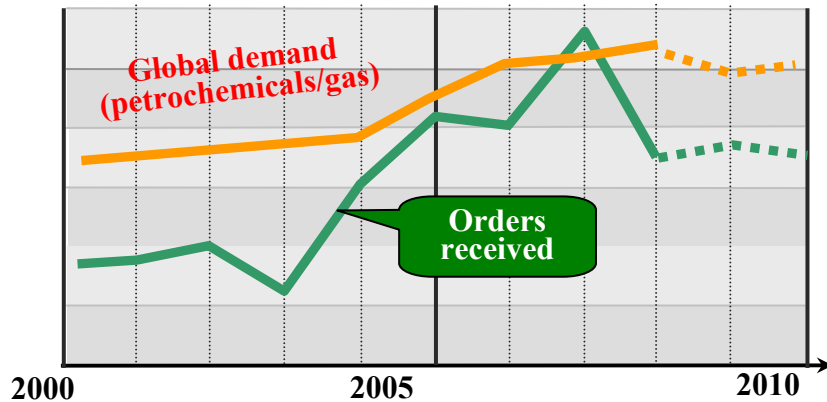
Supplies from  
194 plants

# 4. Growth Strategy for Core Product Operations

## (2) Environment, Chemical Plants

### Reinforcing operations at chemical plants

#### <Market trends>



- Socioeconomic development in BRICs and other countries  
⇒ Long-term increase in demand for petrochemical products
- Food shortages due to increased population  
⇒ Demand for fertilizer
- Long-term increase in crude oil prices  
⇒ Demand for alternative energy

- Increase in plant negotiations relating to ethylene, fertilizer, LNG, etc.  
⇒ Shortage of construction workers and other issues
- Larger plants  
⇒ Greater risk involved in construction

#### <Basic medium- to long-term strategy>

	Focusing on added value	Making effective use of management resources	Reinforcing risk management
(1) Focusing on specialist models and markets	—	◎	◎
(2) Shifting from EPC to EPCm-oriented* operations	○	○	◎
(3) Project implementation capabilities (Reinforcing design and procurement capabilities)	—	○	◎
(4) Stepping up development of independent technology	◎	—	○

#### [Examples of specialist models]

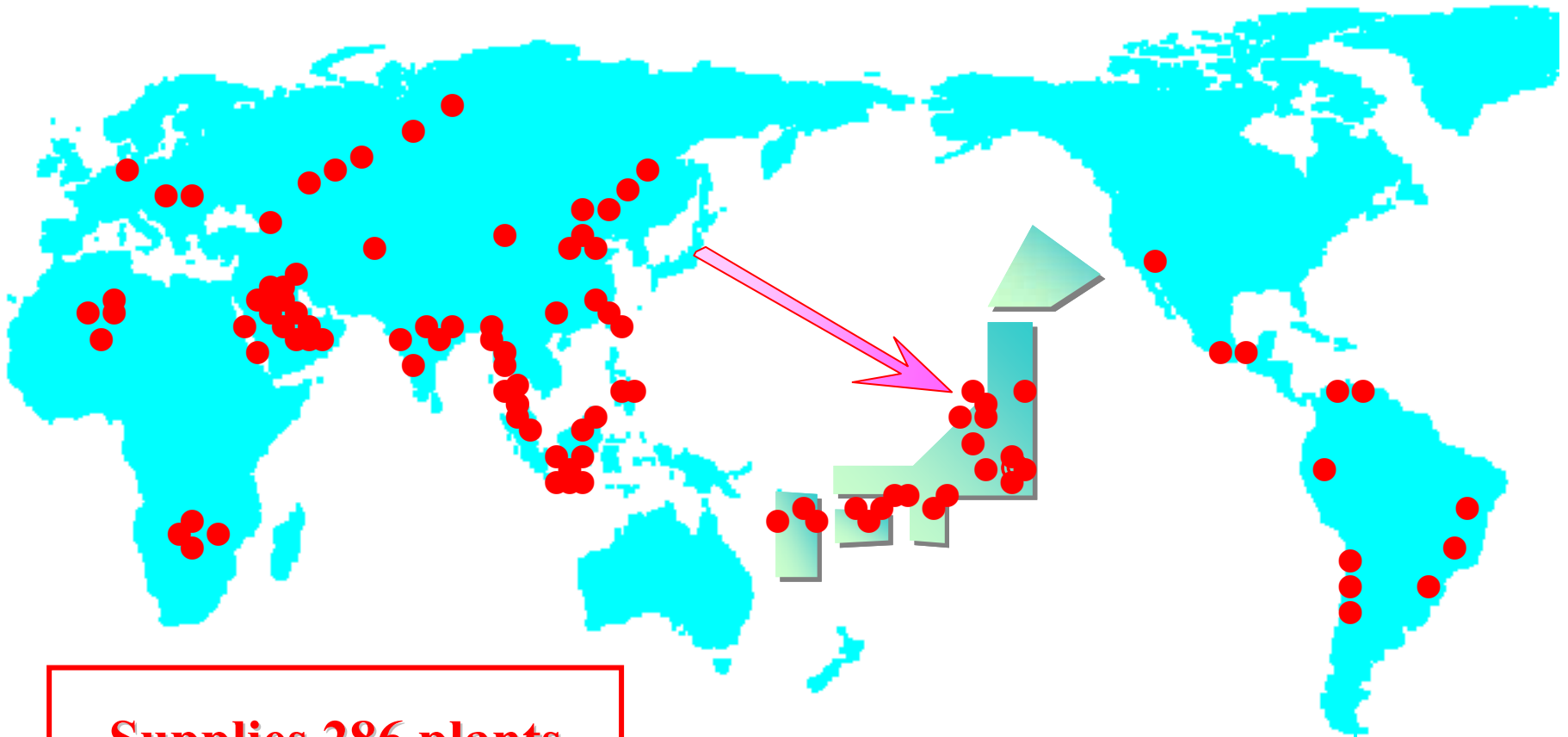


\* EPCm: E+P+Construction management

# 4. Growth Strategy for Core Product Operations (2) Environment, Chemical Plants

## Global operations

● Oil, gas or petrochemicals

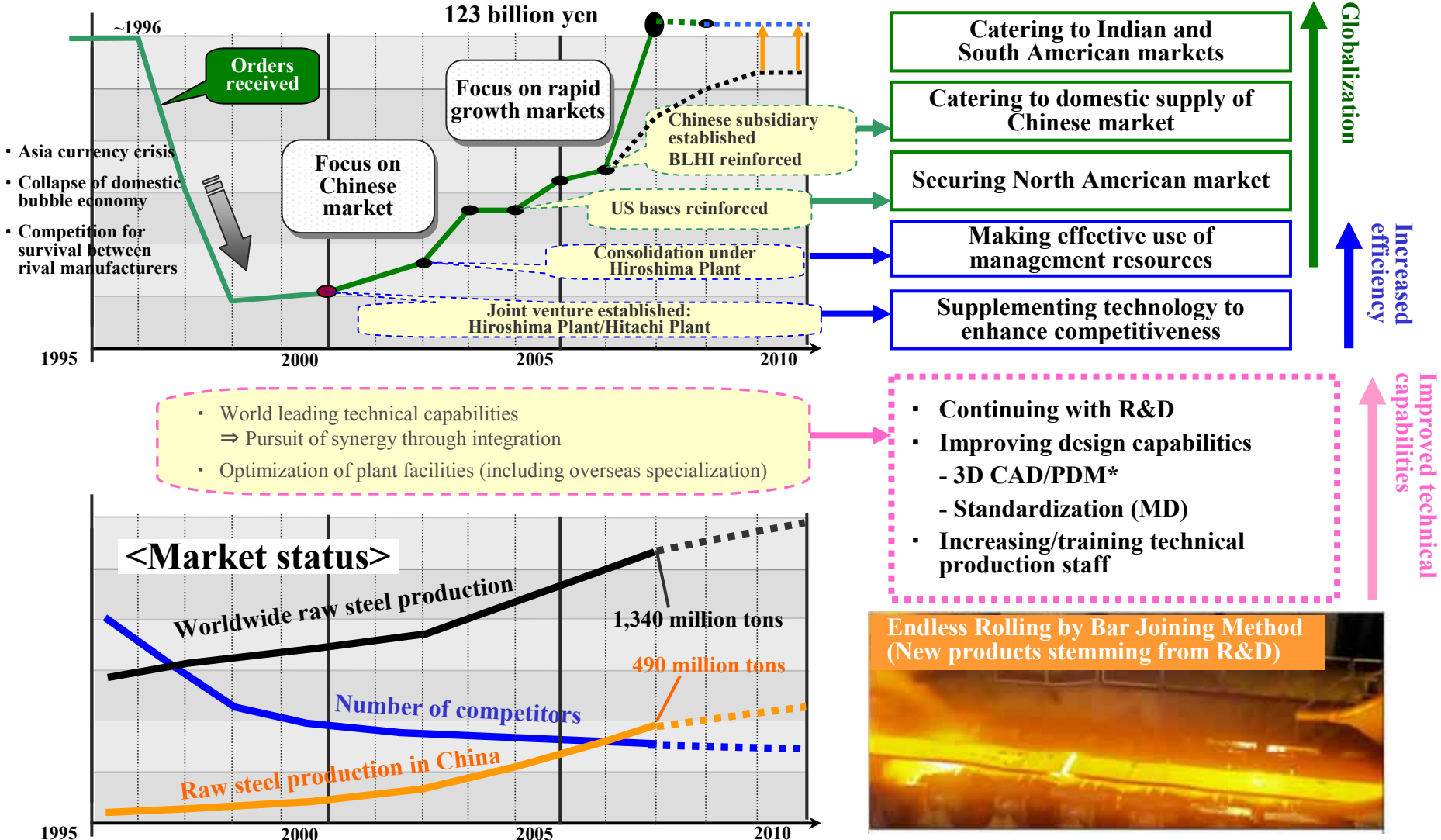


**Supplies 286 plants**

# 4. Growth Strategy for Core Product Operations

## (3) Metals Machinery

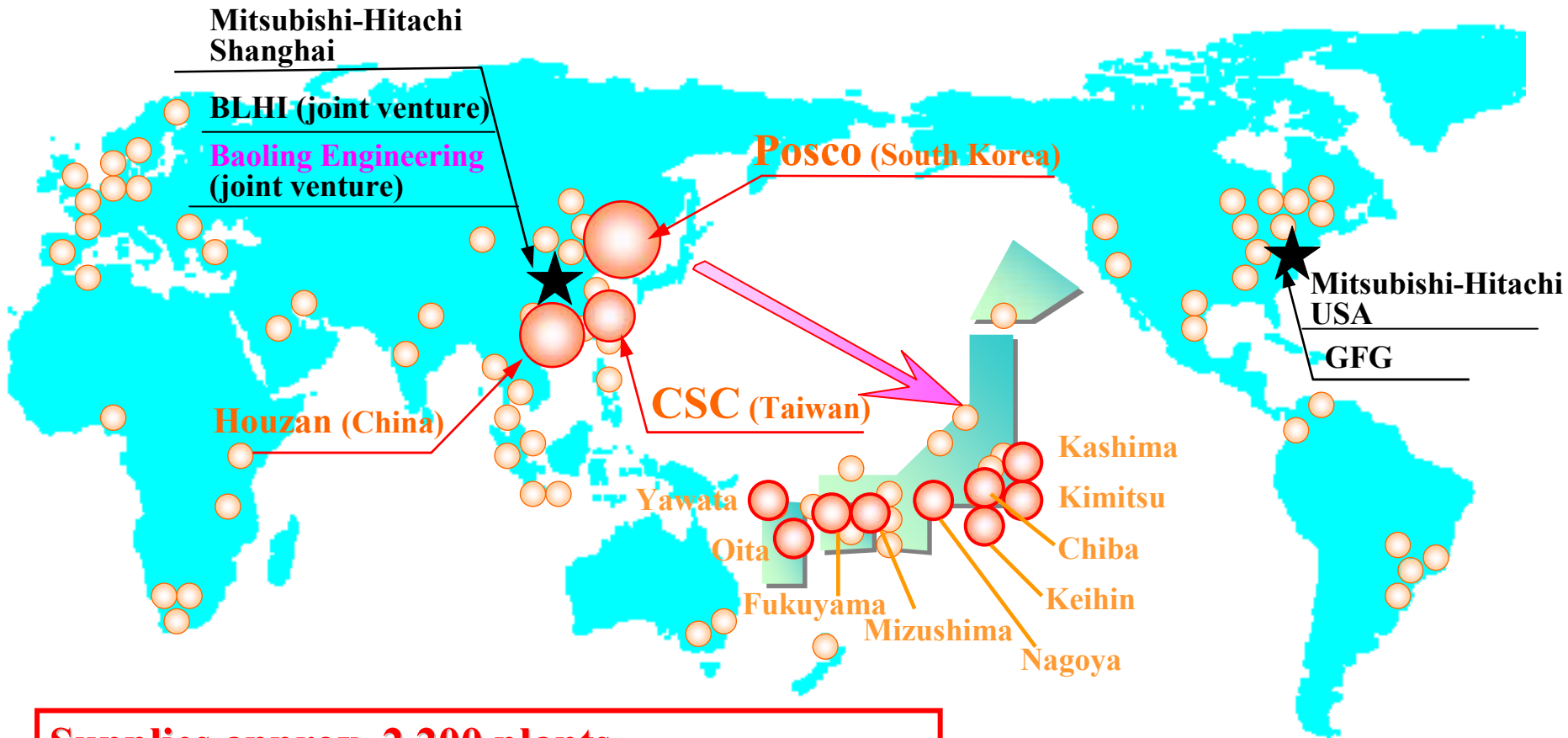
### <Establishment and development of Mitsubishi-Hitachi joint venture>



\* Product Data Management

# 4. Growth Strategy for Core Product Operations (3) Metals Machinery

## Global business development

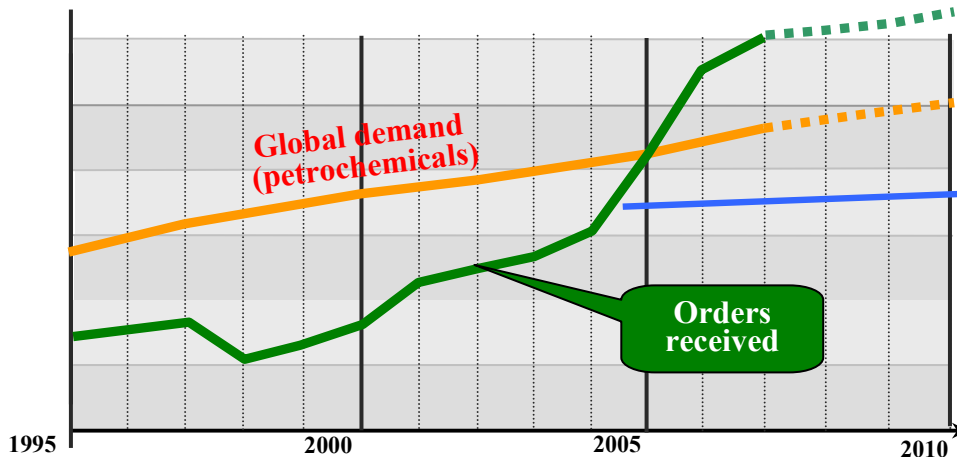


**Supplies approx. 2,200 plants  
+ plants under construction/manufacturing  
= approx. 80 plants**



# 4. Growth Strategy for Core Product Operations

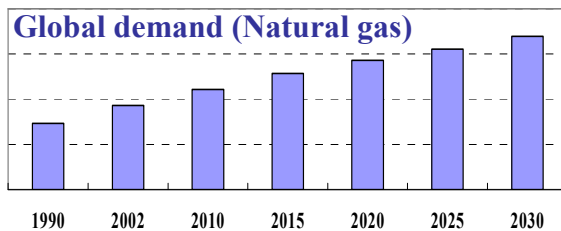
## (4) Compressors



- <Business growth to date>
- Shifted focus to world market in 1990s
  - Established independent technology and penetrated markets
  - Secured top global share of ethylene market  
 ⇒ Increased orders from larger ethylene plants and increase in projects

### <Strategy for further growth>

#### ▪ Moving into growing gas market



#### ▪ Proceeding with standardization

- Enhancing cost competitiveness
- Rectifying processes
- Reducing delivery times

#### ▪ Sustained investment of resources

- Increasing scale of operations and offering excellent reliability\*
- Improving in-house production capabilities (personnel and equipment)



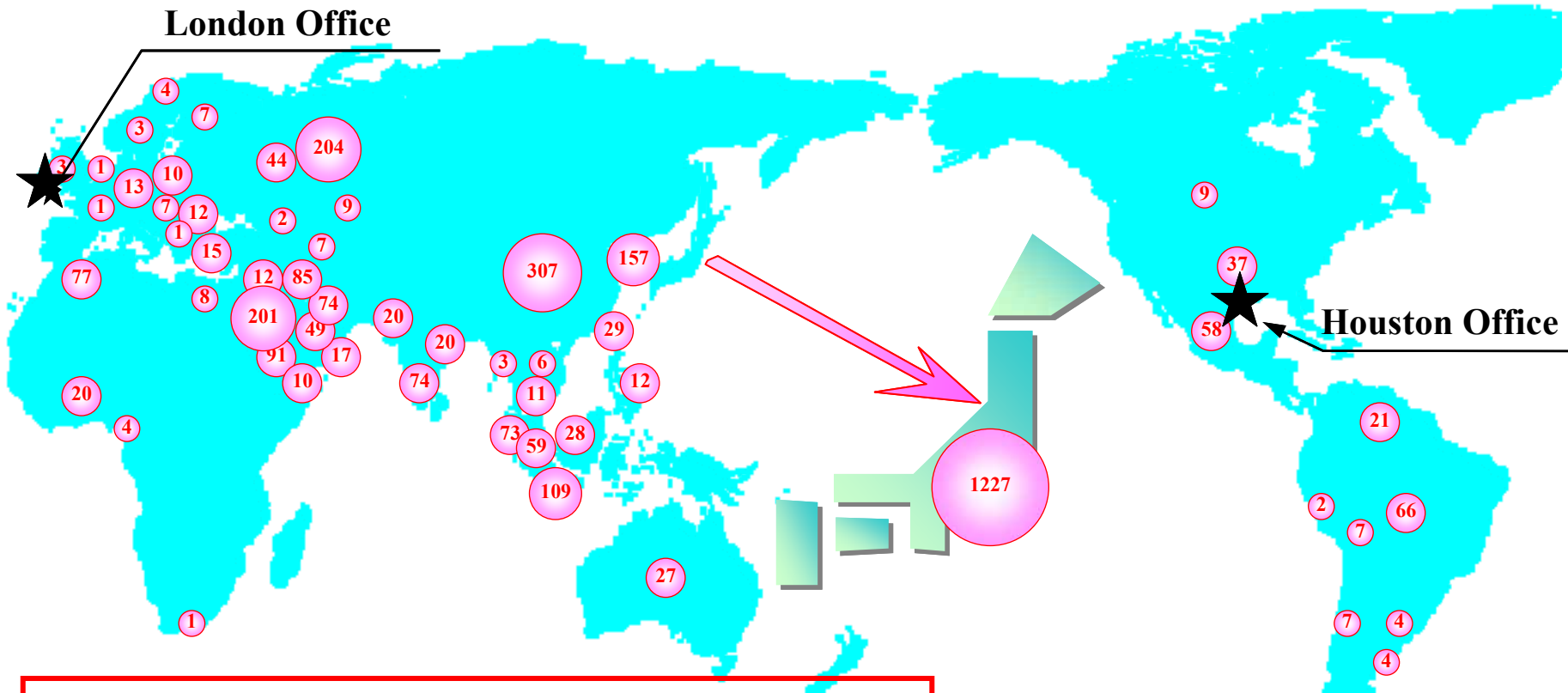
\* E.g. Installing extra large testing facilities

# 4. Growth Strategy for Core Product Operations (4) Compressors

## Global operations

Figures

Performance according to country  
(compressors and turbines)



**Supplies from approx. 3,500 plants**

# 5. Reinforcing Medium-Scale Product Operations

## (1) Steel Products

### Mitsubishi Heavy Industries Bridge & Steel Structures Engineering

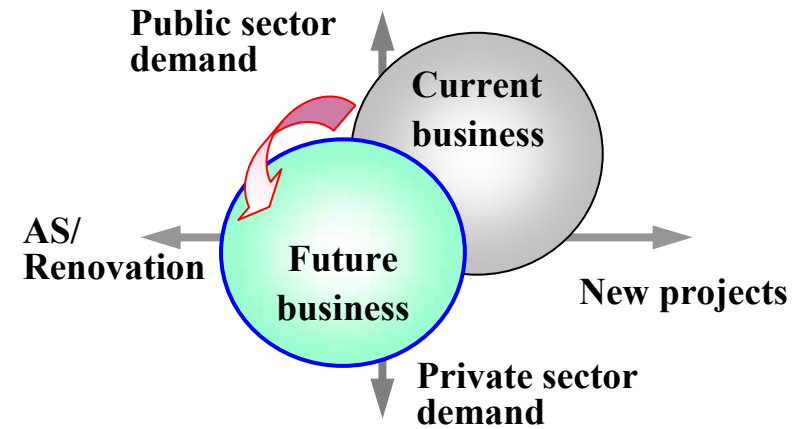
#### A shift in domestic social infrastructure business

Long-term decline in population

Fiscal reform

	New projects	Renovation of aging structures	AS
Public sector demand	None	Low-reasonable	Reasonable
Private sector demand	None-low	Reasonable	High

- **Shift towards private sector demand**  
⇒ Improving cost competitiveness
- **Trend towards multi-polar business**  
⇒ Bridges, chimneys, gas holders, etc.
- **Improving renovation/AS technology capabilities**
- **Adopting a more engineering-oriented approach**  
⇒ Applying advanced design capabilities and erection expertise know-how
- **Exploring alliances (economics of scale merit)**



### Mitsubishi Heavy Industries Parking Co., Ltd.

#### Increasing market share

(Maintaining position as top domestic group)

- **Strengthening sales and service networks**  
⇒ Increasing personnel, computerization
- **Cultivating markets through new products**
- **Improving maintenance technology capabilities**

# 5. Reinforcing Medium-Scale Product Operations (2) (3)

## (2) Environmental Equipment (Waste Disposal System Equipment etc.)

### Domestic market

- Close proximity to steel structure products
- Demand for renovation of aging structures and energy-saving technology



### Domestic

- Expanding AS based on supply track record
  - ⇒ Improving prolonging-life and energy-saving technology
  - ⇒ Improving differentiating technology as part of renovation of aging structures
- Cultivating new fields such as biomass

### Overseas

- Engineering and core component supply business  
(Operations revolving around Chinese market)

## (3) Advanced Payment Systems (ITS)

- Defending leading share of overall domestic market at all costs

⇒ Increasing ETC share



In-vehicle products



Lane instruments

- Increasing exports

⇒ Developing next generation ERP\* systems for Singapore market

⇒ Cultivation of next market to Singapore



\* Electronic Road Pricing

# 5. Reinforcing Medium-Scale Product Operations

(4) (5)

## (4) Material Handling Machinery

### Stepping up iron and steel logistics initiatives

- Maintaining position as top brand for large ladle cranes
- Increasing orders for coils and other conveying systems

### Increasing sales of fully automatic port terminals



### Handling coal and iron ore

- Renewing and improving AS among domestic suppliers
- Strengthening alliances with Chinese manufacturers

## (5) Rubber Tire Machinery

### Further reinforcing tire curing machine business

- Maintaining leading worldwide share

⇒ Shifting from a three pronged structure (Japan, Europe and the US) to a four pronged structure (Japan, Europe, the US and China)



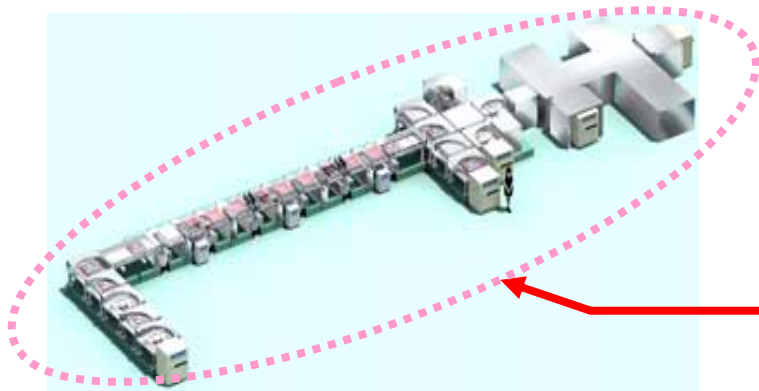
⇒ Improving differentiating technology (pressure-free tire curing systems, etc.)

# 6. Next Generation Business Initiatives

## (1) Organic EL

### Applications for proprietary MHI technology

- Precision film forming technology (linear evaporation via metal machinery)
- Large precision product manufacturing technology (various types of industrial machinery)



Successfully developing in-line film forming equipment

Business in partnership with leading manufacturers



Lighting market

Domestic: around 500 billion yen

Global: estimated at around 7-8 times the scale of domestic market

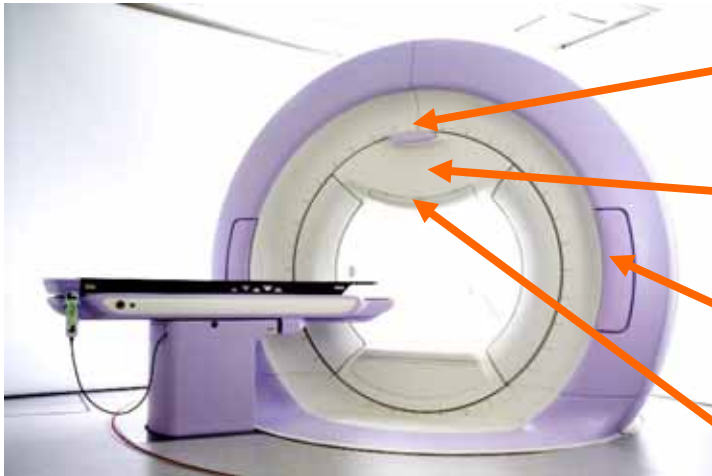
**Lumiotec** (joint venture)

- |                   |                         |
|-------------------|-------------------------|
| ▪ MHI             | Manufacturing equipment |
| ▪ ROHM            | Devices                 |
| ▪ Toppan Printing | Finishing processing    |
| ▪ Mitsui & CO.    | Marketing               |
| ▪ Professor Kido  | R&D support, IP         |

# 6. Next Generation Business Initiatives

## (2) Medical Instruments

### Radiotherapy equipment



#### Integration of proprietary technology

##### High precision positioning

- **Machine tool technology**
  - Posture and vibration control technology
  - Precision position detection technology

##### Image processing

- **Newspaper printing press technology**
  - Image processing technology
  - Precision pattern recognition technology

##### High rigidity mechatronics (ring structure)

- **Machine processing and general assembly technology**
  - Manufacturing technology for micron-level finishing of large metal machinery and other steel structures

##### High quality x-ray (compact acceleration tubes)

- **Accelerators and radiation generators**
  - Ultrahigh-vacuum, microwave and radiation technology
  - Acceleration tube manufacturing technology (manufacturing patent obtained)

▪ Precision micron-level assembly of 10-ton machinery

▪ Positioning control to one tenth of a second

January 2008: Obtained pharmaceutical approval from Japanese Gov. and commenced production and sales



May 2008: Treatment commenced using first system at the Institute of Biomedical Research and Innovation in Kobe

# 7. Summary

## 2008 Business Plan (2nd phase of reforms)

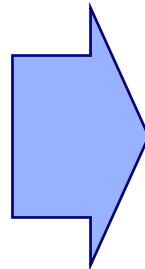
**Further improving  
profitability and establishing  
foundations for growth**

- Expanding core product operations
- Reinforcing medium-scale product operations
- Nurturing next generation businesses

**Achieving FY2010 consolidated targets  
as soon as possible**

**Net sales: 540.0 billion yen**

**Operating income: 15.0 billion yen  
(2.8%)**



**Quick transition to a highly  
profitable business entity with  
strong growth potential**

- Establishing large-scale and global core product operations
- Improving the profitability of medium-scale product operations
- Boosting revenue through next generation businesses

**Next stage (envisioned)**

**Net sales: 600.0 billion yen**