

# Business Strategy of the Functional Components Company

May 25, 2018

Hitachi Metals, Ltd.

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President of the Functional Components Company

# Business Strategy of the Functional Components Company

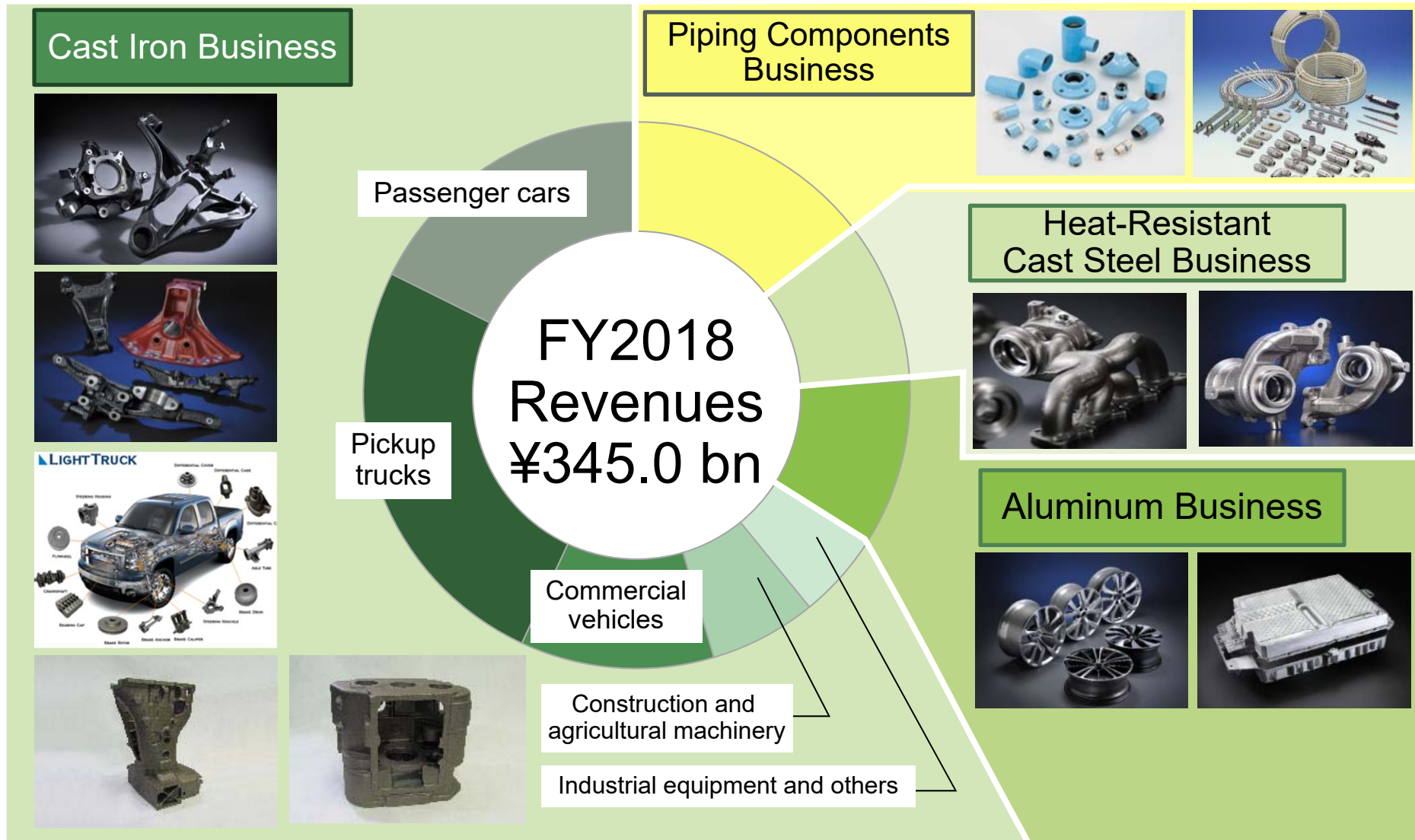
## [Table of Contents]

1. Business Overview
2. Heat-Resistant Cast Steel (HERCUNITE™) Business
3. Aluminum Business
4. Integration of Cast Iron and Aluminum to Become No.1 Supplier
5. Piping Components Business
6. Summary

# 1. Business Overview

## 1-1. Business Composition

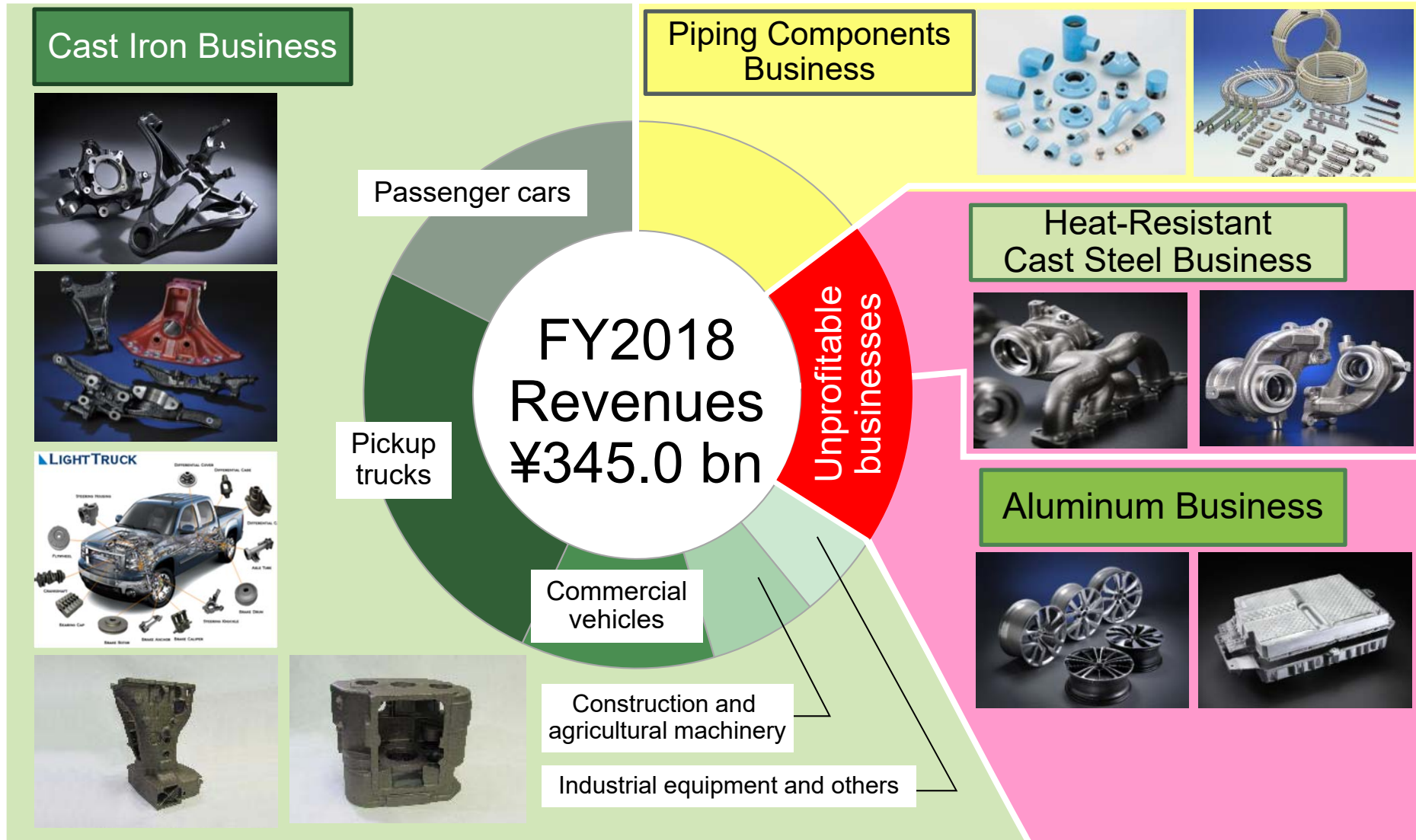
### Addressing Society's Needs with Functional Components



# 1. Business Overview

## 1-1. Business Composition

### Addressing Society's Needs with Functional Components



# 1-2. FY2018 Medium-Term Management Plan: Basic Policy and Goals



## ■ Basic Policy of the Functional Components Company

Accept the challenge of creating new value by improving the foundation of *monozukuri* to achieve global growth

## ■ FY2018 Medium-Term Management Plan: Goals

|                           | FY2016<br>Actual<br>(¥108 = US\$1) | FY2017<br>Actual<br>(¥111 = US\$1) | FY2018<br>Forecast<br>(¥105 = US\$1) | Change vs.<br>FY2017 |
|---------------------------|------------------------------------|------------------------------------|--------------------------------------|----------------------|
| Revenues                  | ¥333.5 bn                          | ¥360.1 bn                          | ¥345.0 bn                            | - ¥15.1 bn           |
| Adjusted operating income | ¥17.5 bn                           | ¥11.8 bn                           | ¥17.0 bn                             | + ¥5.2 bn            |
| Adjusted operating margin | 5.2%                               | 3.3%                               | 4.9%                                 | +1.6%                |
| Overseas sales ratio      | 79%                                | 80%                                | 79%                                  | -1%                  |

**Overriding theme of FY2018: Turn around unprofitable businesses**

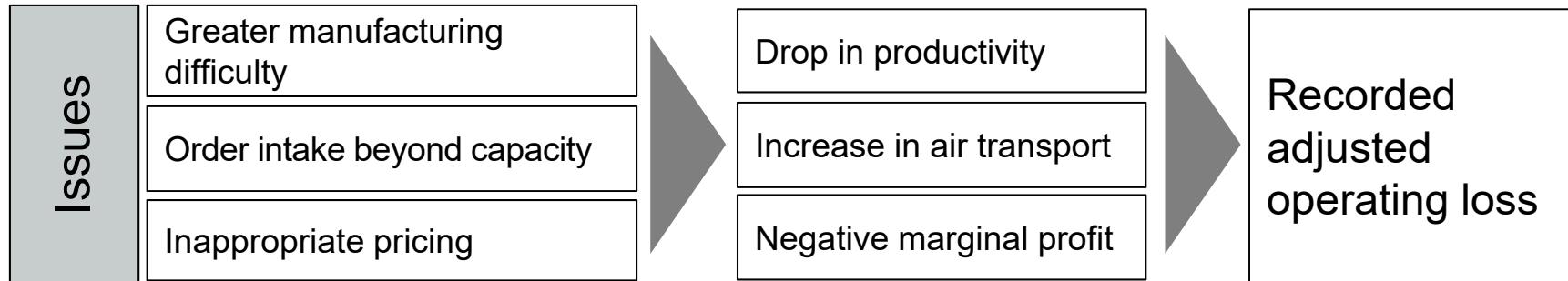
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# 2. Heat-Resistant Cast Steel (HERCUNITE™) Business

## 2-1. Issues and Countermeasures

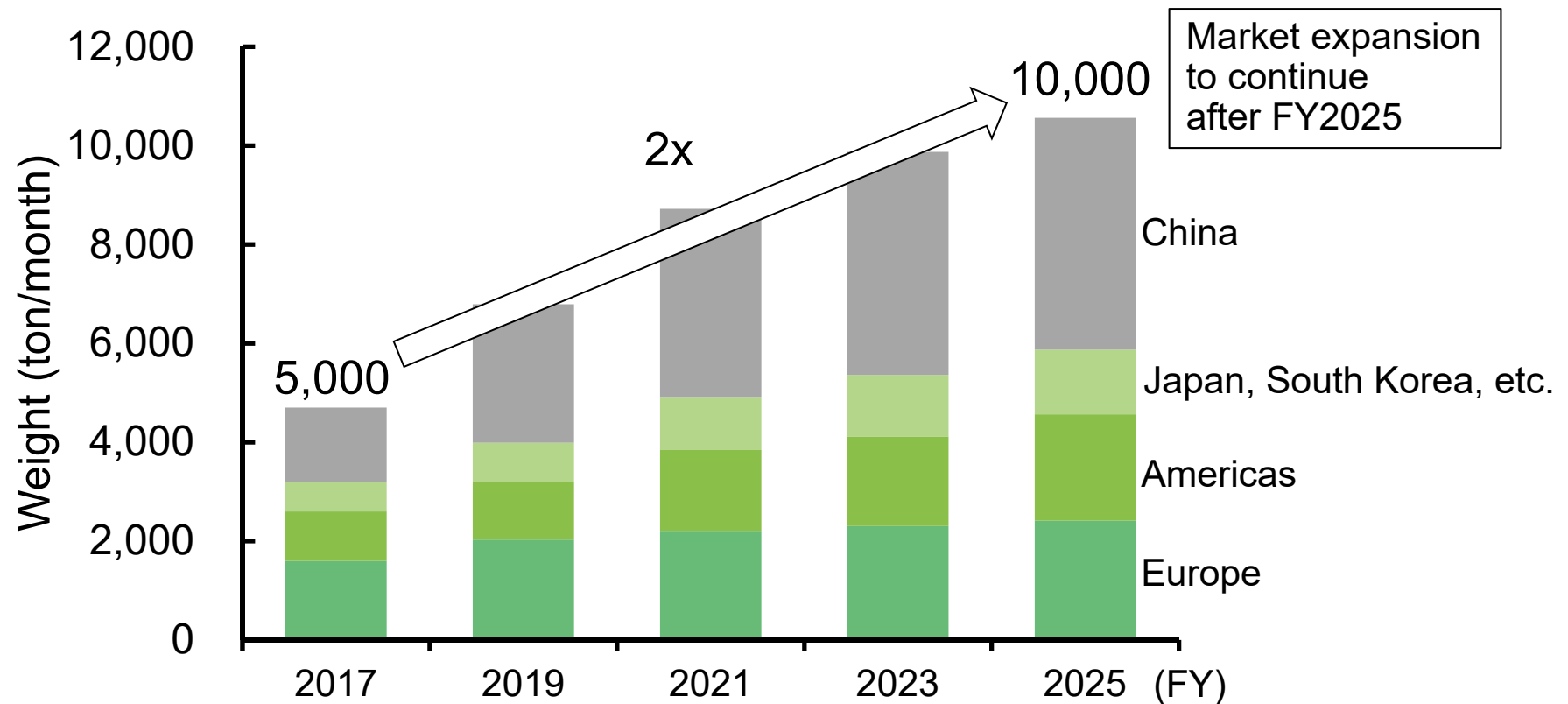


|                        |  |  |
|------------------------|--|--|
| <b>Countermeasures</b> | <ul style="list-style-type: none"> <li>■ Productivity “+15%” vs. FY2016                             <ul style="list-style-type: none"> <li>▪ Optimization of casting conditions</li> <li>▪ Quality improvement</li> <li>▪ Processing efficiency improvement</li> </ul> </li> <li>■ Full utilization of invested equipment                             <ul style="list-style-type: none"> <li>▪ Casting line (Launched Oct. 2016)</li> <li>▪ New concept machine processing line (Launched Mar. 2017)</li> <li>▪ Machine processing line in the Americas (Launched Jul. 2017)</li> </ul> </li> <li>■ <u>Price correction</u></li> </ul> |  <p>New concept machine processing line</p> |
|------------------------|--|--|

Became profitable at end of FY2017; achieve profitable structure in FY2018

## 2-2. Market Environment

Continued expansion trend of downsized turbo gasoline engine market



Heat-resistant cast steel market forecast

Hitachi Metals' estimate based on various research materials

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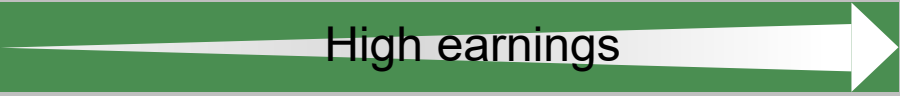


## 2-3. Roadmap

Transform into a business that can secure profits while addressing increasing demand

|           |                          |   |
|-----------|--------------------------|---|
| Strengths | Components technology    | ● Proposal of optimal components  |
|           | Manufacturing technology | ● Lighter weight and thinner design by CAE<br>● Processing technology for hard-to-cut materials |
|           | Production capacity      | ● One of world's largest mass production, integrated manufacturing lines                        |
| Issues    | Productivity (Cost)      | ● Promote technology development toward productivity improvement                                |

### Roadmap

| FY2018   | FY2019–2023  | FY2024                          |
|--|--|---------------------------------|
| Profitable structure                                   | High earnings  | Stable accumulation of earnings |
| High-productivity manufacturing technology development | Consider investment in production increase   |                                 |

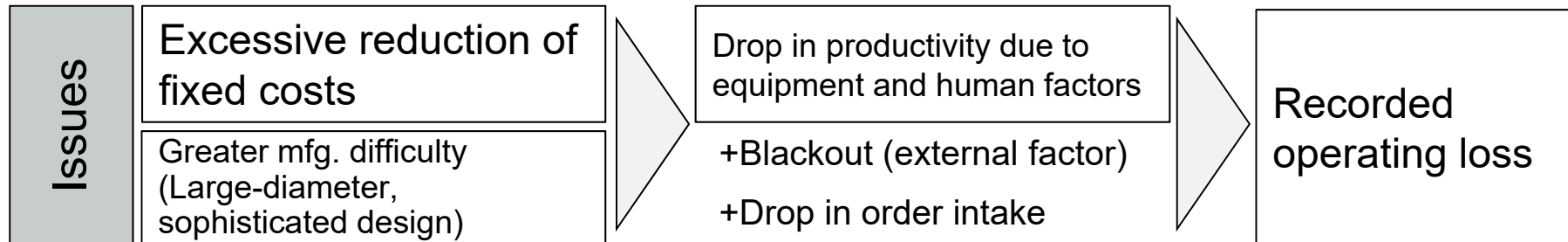
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# 3. Aluminum Business

## 3-1. Issues and Countermeasures for Aluminum Wheels



|                        |   |  |
|------------------------|---|--|
| <b>Countermeasures</b> | <ul style="list-style-type: none"> <li>■ Productivity improvement                             <ul style="list-style-type: none"> <li>▪ Improve processing (cutting) efficiency</li> <li>▪ Improve coating equipment utilization rate</li> <li>▪ Improve processing loss by changing layout</li> </ul> </li> </ul> |     |
|                        | <ul style="list-style-type: none"> <li>■ Renewal of management structure                             <ul style="list-style-type: none"> <li>▪ President of Waupaca concurrently serves as head of U.S. base</li> <li>▪ Strengthen human resources</li> </ul> </li> </ul>  |    |
|                        | <ul style="list-style-type: none"> <li>■ Recovery in order intake                             <ul style="list-style-type: none"> <li>▪ Improve productivity</li> <li>▪ Differentiate by accommodating large diameters and sophisticated design</li> </ul> </li> </ul>   |   |

**Promote business stabilization in FY2018**

## 3-2. Market Needs and Strengths

### Main Products

Aluminum wheels

Sophisticated design and large-diameter products



High-performance aluminum components

EV-related components, powertrain components



### Market Needs

Lightweight,  
thin

Low-price

Complex form

High heat  
transfer rate

### Strengths

✓ **Surge in potential of high-performance aluminum components due to spread of EV**

High-precision  
CAE

Lightweight, reduced design time

Manufacturing locations  
in Japan and U.S.

Structure to expand sales to the Asian region,  
Americas and Europe

Diverse casting  
methods

Gravity—low-pressure—high-vacuum die-cast (HIVAC-V<sup>®</sup>)

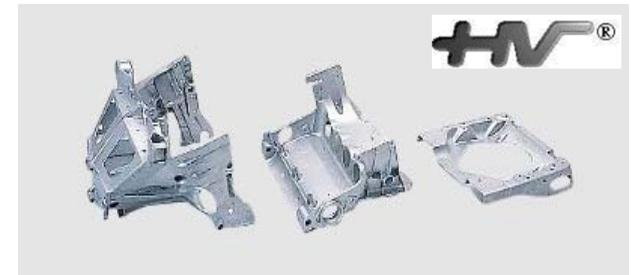


# 3-3. Action Plan

## High-Performance Aluminum Components

Increase EV components by utilizing the characteristics of aluminum materials

- Develop design, material quality, junction, processing technologies  
<Improve business value in cooperation with GRIT>
- Build integrated line, strengthen cost competitiveness
- Synergies with other Companies

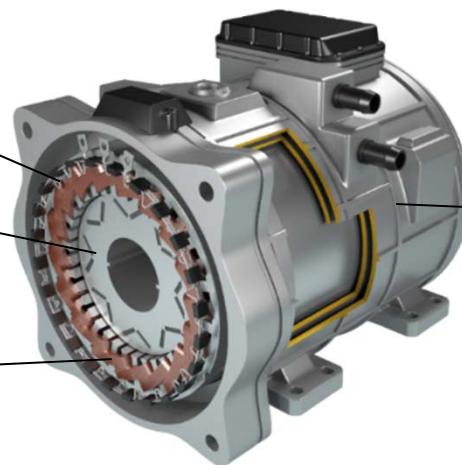


Aluminum die-cast products

Amorphous material  
(Specialty Steel Company)

Rare earth magnet  
(Magnetic Materials Company)

Magnet wire  
(Cable Materials Company)



EV drive motor



Aluminum water cooling housing

Expand business size by 2.5x by FY2025 (vs. FY2017)

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# 4. Integration of Cast Iron and Aluminum to Become No.1 Supplier

## 4-1. Market Trend and Strategy



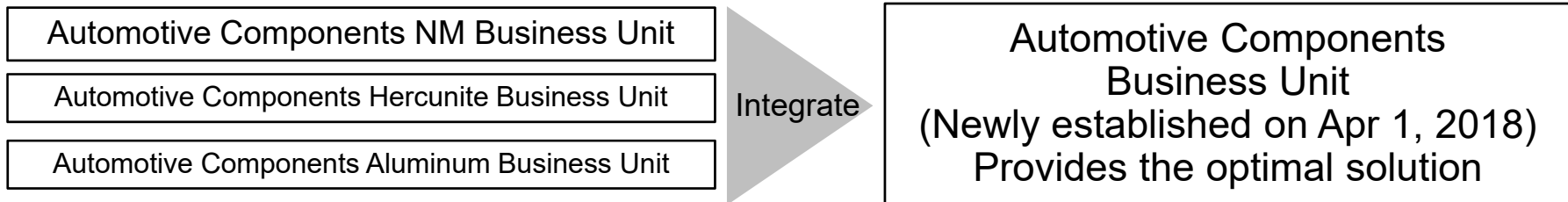
Existing business    Enhancement domain    New area

|                    | Mechanism  | Required needs                               | Response   |  | Our product  |
|--------------------|--|--|--|--|--|
| Passenger cars     | Combustion system  | High mileage<br>Low cost                     | Conformity to heat-resistance requirements                   | Diverse heat-resistant components technology                               | Heat-resistant cast steel                            |
|                    |  | Small gasoline turbo                         | Design, casting, processing<br>Response ability of locations | Strengthen design & evaluation, processing                                 | Heat-resistant cast iron                             |
|                    | EV   | Diversified specifications                   | Form, size, material   | Accommodate gravity casting, LPD <sup>*1</sup> , HPD <sup>*2</sup> methods | Battery case   |
|                    |  | Multi-functional                             | Combine light-weight and heat dissipation                    | Develop new materials and methods  | Motor/inverter case                                  |
|                    | Chassis (Structural components)<br>(Suspension components) | Low cost                                     | Optimization of materials x strength design                  | Aluminum-based composite material<br>Develop new material                  | Aluminum wheels                                      |
|                    |  | Lightweight<br>Quantitative response ability | Response ability of locations                                | Japan, U.S., S. Korea, India   | Suspension components<br>CFRP/<br>Composite material |
| Non-passenger cars | Load bearing<br>Low cost<br>Accommodate large size         | Stable supply                                | Waupaca  | Ductile, gray  |  |
|                    |  | Large casting                                | Horizontal casting technology                                | Large ductile  |  |

## 4-2. Organization Reinforcement to Address Changes

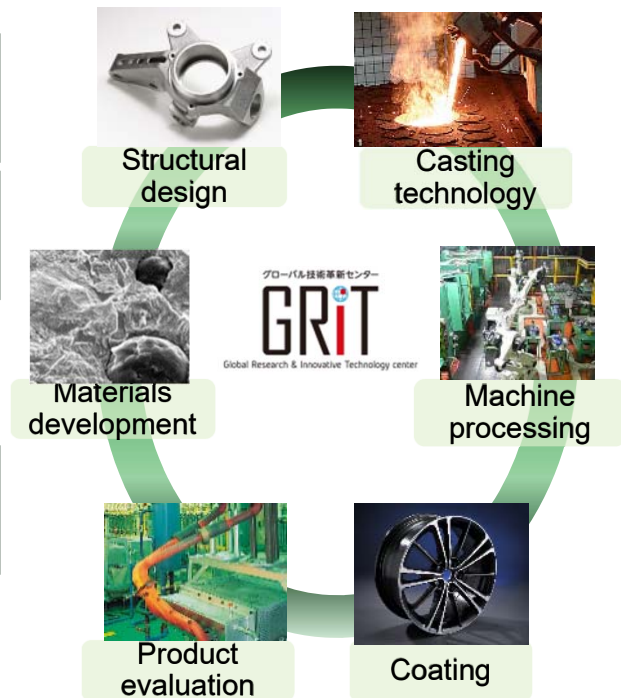
Propose optimal solutions to diversifying market needs

Address changes in the market with an optimal portfolio



### Strengths of the Functional Components Company

|   |   |
|---|---|
| Sales ability<br>Planning and proposal skills | Cooperate with Corporate and other Companies  |
| Diverse product line-up                       | Iron, stainless steel, aluminum, resin, composite materials   |
| Technical capabilities                        | Materials development, structural design, casting technology, machine processing, coating, product evaluation |
| Manufacturing efficiency                      | Add value by taking advantage of world's largest manufacturing scale and manufacturing efficiency             |
| Development capabilities                      | Global Research & Innovative Technology Center (GRIT)<br>Casting Technology Research Laboratory               |

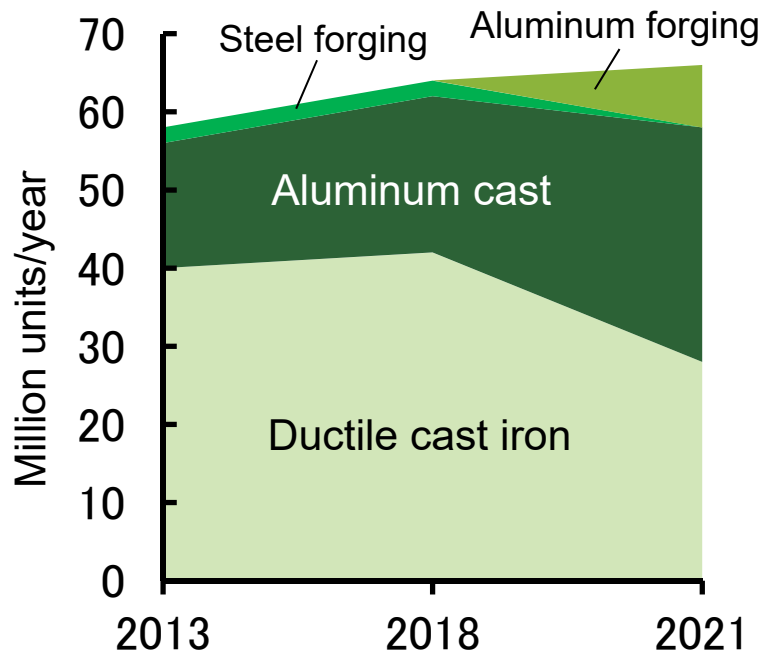




# 4-3. Example: Solutions for Suspension Components



North American market trend of suspension components (knuckles)



(Hitachi Metals' estimate based on various research materials)

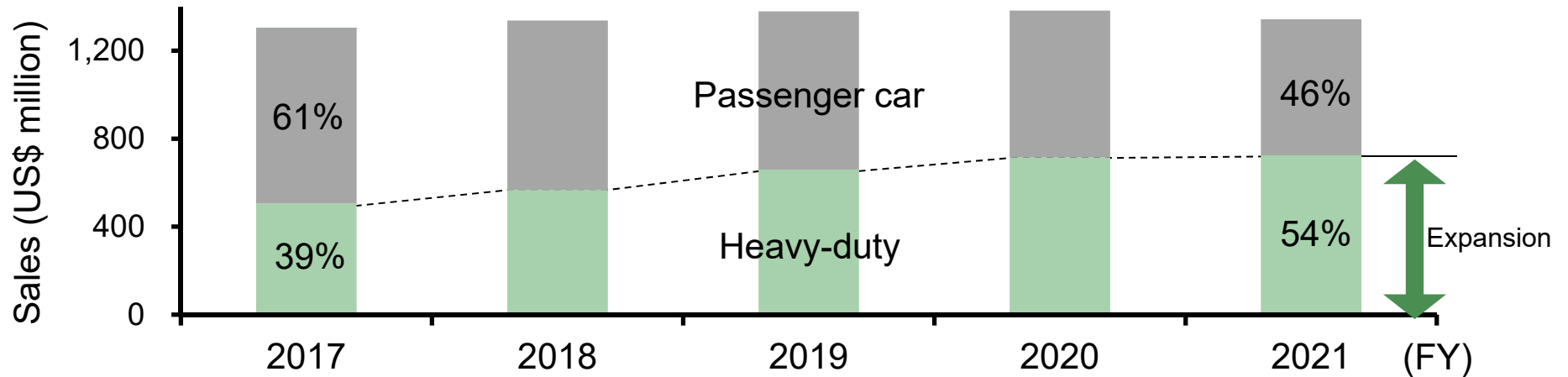
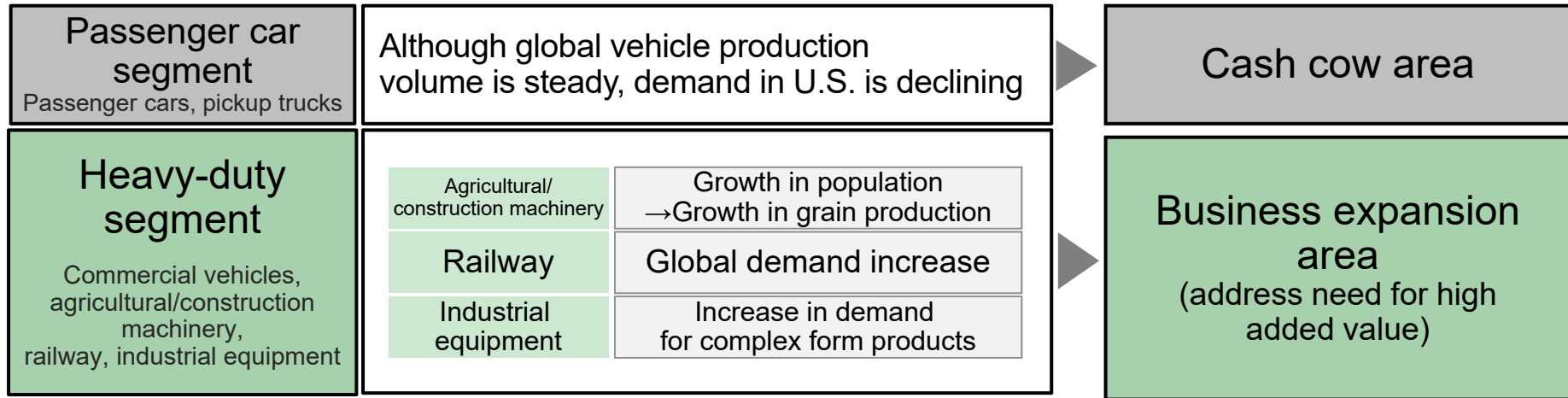
Continue cast iron through development cost reduction and stable procurement measures

Mileage regulations → lightweight → aluminum replacement progressed

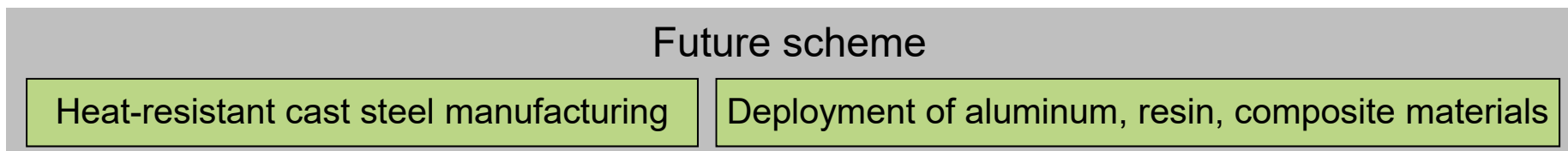
Propose cast iron, aluminum, and new materials

|                 | Under mass production | Under mass production           | Considering mass production | Considering development  |
|-----------------|-----------------------|---------------------------------|-----------------------------|--------------------------|
|                 |                       |                                 |                             |                          |
| <b>Material</b> | Ductile cast iron     | High strength ductile cast iron | Aluminum cast               | CFRP Composite materials |
| <b>Weight</b>   | 100                   | 70                              | 50                          | 50 or less               |

# 4-4. Waupaca's Portfolio Reform



Waupaca's sales portfolio



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# 5. Piping Components Business

## 5-1. Business Strategy

Three pillars for the growth of the Piping Components Business

**Expansion of existing businesses**

Inject managerial resources into growth businesses

**Strengthening of *monozukuri* capabilities**

Capital investment in Kuwana Works (Launch in FY2018)

**Commencement/strengthening of new business (solutions business)**

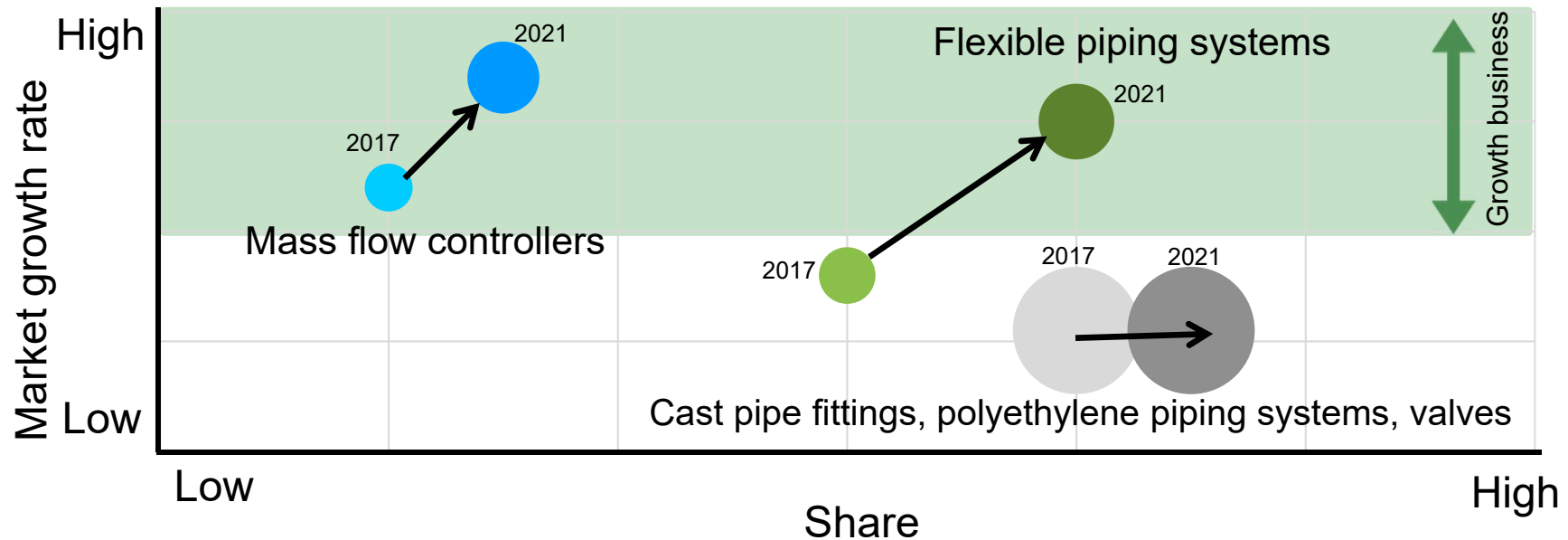
Established Piping Components Solutions Sales Dept. (Apr 2018)

**Sales target of the Piping Components Business**  
¥50.0 bn (FY2017) ⇒ ¥70.0 bn (FY2021)

## 5-2. Expansion of Existing Businesses

### ■ Product portfolio

\*Size of the circle indicates the size of sales  
\*Share is Hitachi Metals' estimate



### ■ Sales increase due to injection of managerial resources in growth businesses

| Expansion measures      |  |
|-------------------------|--|
| Mass flow controllers   | Development and sales expansion of next-generation products  |
| Flexible piping systems | <ul style="list-style-type: none"> <li>Market entry based on strength of high workability</li> <li>Europe: Market penetration by strengthening distribution network</li> <li>China: Obtain certification from major gas company</li> </ul> |

## 5-3. Strengthening of *Monozukuri* Capabilities

Capital expenditure in Kuwana Works with the Aim of Further Strengthening *Monozukuri* Capabilities of the Piping Components Business

### ■ Investment details

- ◇ Rationalization toward productivity improvement of cast pipe fittings
- ◇ Enhancement of production capacity of flexible piping systems (20% capacity enhancement)



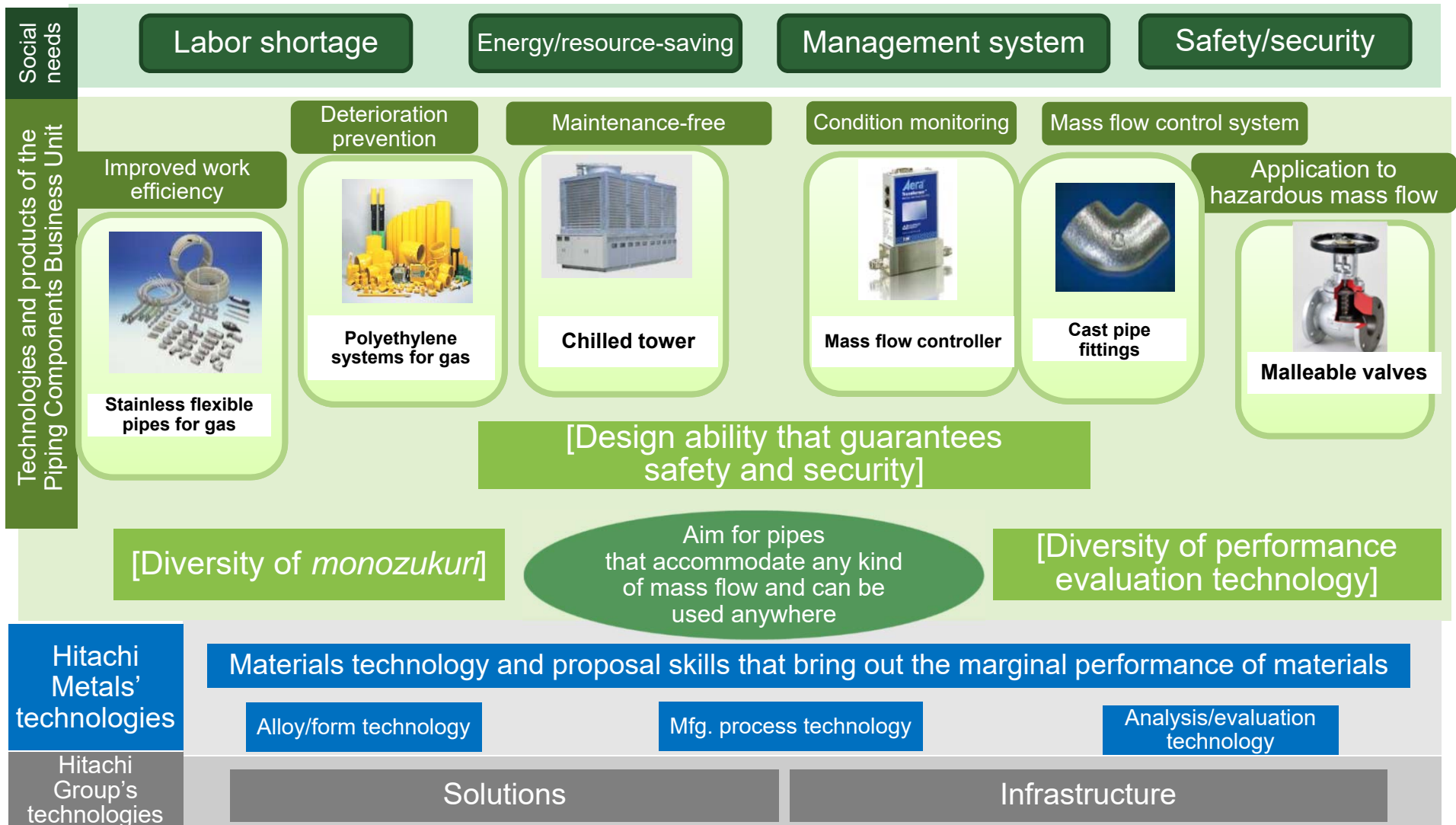
### ■ Amount and timing

- ◇ Approx. ¥3.0 bn
- ◇ Scheduled for launch in FY2018



# 5-4. Commencement/Strengthening of Solutions Business

Measures toward a ¥70.0 billion business



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## 6. Summary

Accept the challenge of creating new value by improving the foundation of *monozukuri* to achieve global growth

### FY2018 Plan

Revenues: ¥345.0 bn

Adjusted operating income: ¥17.0 bn

Adjusted operating margin: 4.9%

# Information on Risks Inherent in Future Projections

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This document contains forward-looking statements—such as results forecasts and management plans—that are not historical facts. All such forward-looking statements are based upon available information and upon assumptions and projections that were deemed reasonable at the time the Company prepared this document. Changes to the underlying assumptions or circumstances could cause the actual results to differ substantially. Factors causing such differences include, but are not limited to, the following:

- Changes in economic conditions and regulations in the main markets where the Company operates, particularly Japan, the United States, Asia and Europe
- Sudden changes in technological trends
- Changes in the competitive advantage and the capabilities of the Company and its subsidiaries and affiliates to develop and commercialize new products and businesses
- Fluctuations in the status of product markets, exchange rates and international commodity markets
- Changes in the financing environment
- The capability of the Company and its subsidiaries and affiliates to cope with fluctuations in product supply and demand, the status of product markets, exchange rates and international commodity markets
- Protection of the Company's intellectual property, and securing of licenses to use the intellectual property of other parties
- Changes in the status of alliances with other parties for product development, etc.
- Fluctuations in Japanese stock markets