

# Business Strategy of the Functional Components Company

Hitachi Metals IR Day 2017

May 31, 2017

Hitachi Metals, Ltd.

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President of the Functional Components Company

# Business Strategy of the Functional Components Company

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1. Business Overview
2. Heat-Resistant Cast Steel (HERCUNITE™) Business
3. Cast Iron Business
4. Aluminum Business
5. Investment Plans
6. Revenues by Region
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# 1. Business Overview

## 1-1. Business Composition

### Addressing Society's Needs with Functional Components

#### Cast Iron Business



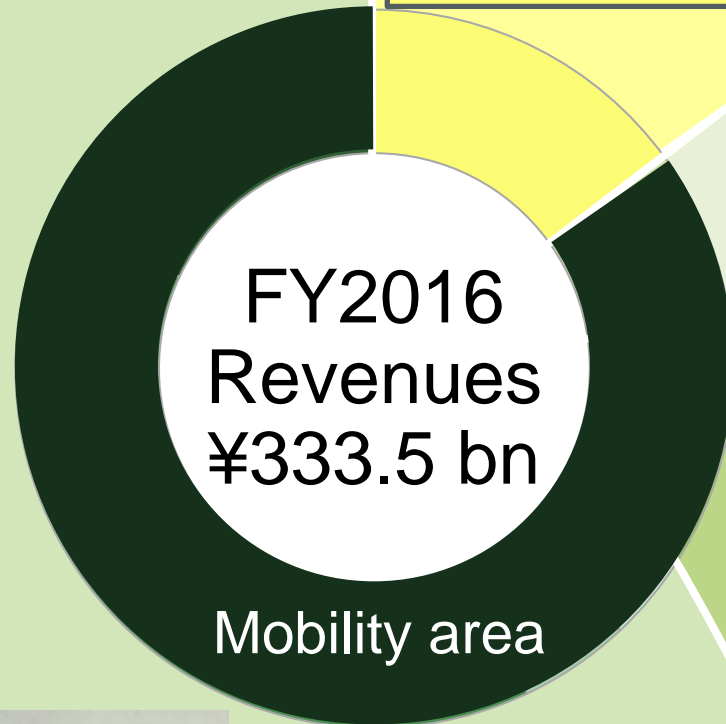
#### Piping Components Business



#### Heat-Resistant Cast Steel Business



#### Aluminum Business



# 1. Business Overview

## 1-1. Business Composition

### Addressing Society's Needs with Functional Components

#### Cast Iron Business



#### Piping Components Business



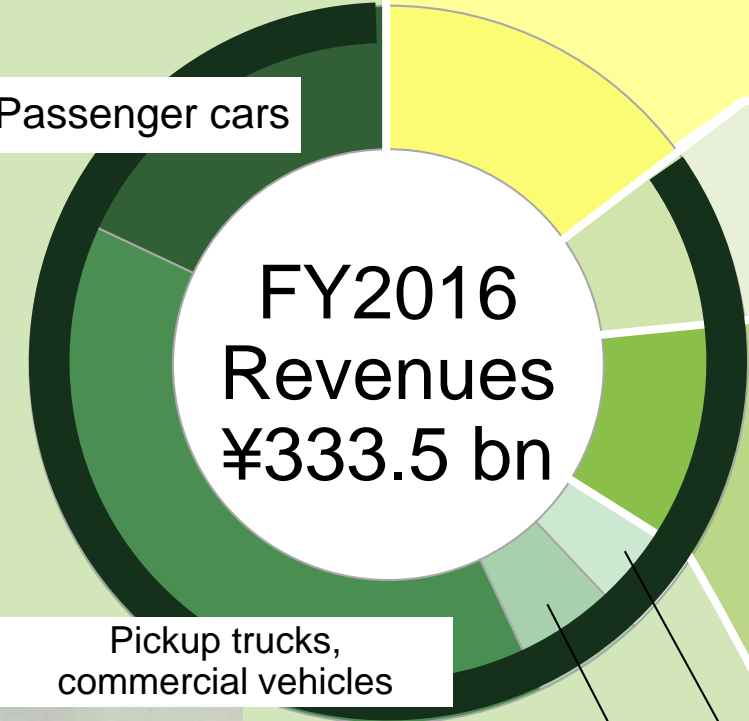
#### Heat-Resistant Cast Steel Business



#### Aluminum Business



Passenger cars



Pickup trucks, commercial vehicles

Construction and agricultural machinery

Industrial machinery and others

# 1-2. Market Trends and Strategy (Mobility Area)

Existing business

Enhancement domain

New area

	Mechanism	Required needs	Response		Our product
Passenger cars	Combustion system	High mileage Low cost	Conformity to heat-resistance requirements	Diverse heat-resistant components technology	Heat-resistant cast steel
		Small gasoline turbo	Design, casting, machining Response ability of locations	Strengthen design & evaluation, machining	Heat-resistant cast iron
	EV	Diversified specifications	Form, size, material	Accommodate gravity casting, LPD* <sup>1</sup> , HPD* <sup>2</sup> methods	Battery case Aluminum-based composite material
		Multi-functional	Combine light-weight and heat dissipation	Develop new materials and methods	CFRP* <sup>3</sup> / Composite material
	Chassis (Structural components) (Suspension components)	Low cost	Optimization of materials x strength design	Aluminum-based composite material Develop new material	Suspension components Aluminum wheels
		Light weight Quantitative response ability	Response ability of regional supply	Japan, U.S., S. Korea, India	CFRP/ Composite material
Non-passenger cars	Load bearing Low cost Accommodate large size	Stable supply	Waupaca	Ductile, Gray	
		Large casting	Horizontal casting technology	Large ductile	

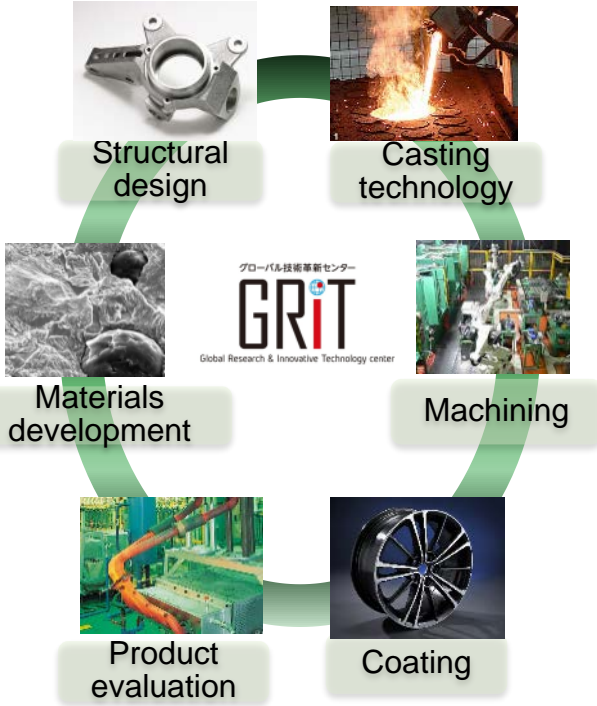
\*1 LPD: Low-pressure die-cast; \*2 HPD: High-pressure die-cast; \*3 CFRP: Carbon fiber reinforced plastic © Hitachi Metals, Ltd. 2017. All rights reserved.

# 1-3. Strengths of the Functional Components Business

Propose optimal solutions to diversifying market needs

Address changes in the market with an optimal portfolio

Sales ability Planning and proposal skills	Selection of quality materials; Lightweight, slim design
Extensive product line-up	Iron, stainless steel, aluminum, plastic
Development capabilities	Global Research & Innovative Technology Center (GRIT) Casting Technology Research Laboratory
Technical capabilities	Design, casting, machining, coating, evaluating
Manufacturing efficiency	World's largest manufacturing scale, manufacturing efficiency





# 1-4. Optimization of Business Portfolio

## Cast Iron, Heat-Resistant Cast Steel Business



Heat-resistant cast steel  
(HERCUNITE™)



High-grade ductile cast iron



General-purpose ductile cast iron



Gray iron

High-performance

Launch heat-resistant cast steel business in North America (Waupaca)  
→ Establish global manufacturing structure

High added value

Plant specialized in ductile cast iron & introduce large horizontal casting

Agricultural, construction, industrial machinery needs

→ Expand business domains  
Maximize added value

## Aluminum Business



High performance aluminum components  
(EV-related products)

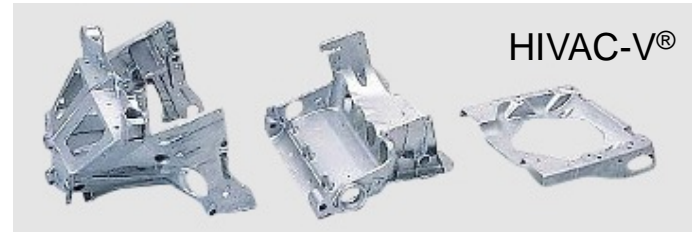


Aluminum wheels with sophisticated design

General-purpose aluminum wheels

New materials  
New methods

High-grade, thin, high-strength  
Expand die-cast business




# 1-5. 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 Results (¥108 = US\$1)		FY2018 Goals (¥110 = US\$1)
Revenues	¥333.5 bn		¥370.0 bn
Adjusted operating income	¥17.5 bn		¥30.5 bn
Adjusted operating margin	5.2%		8.2%
Overseas sales as a percentage of total sales	79%		78%



# Business Strategy of the Functional Components Company

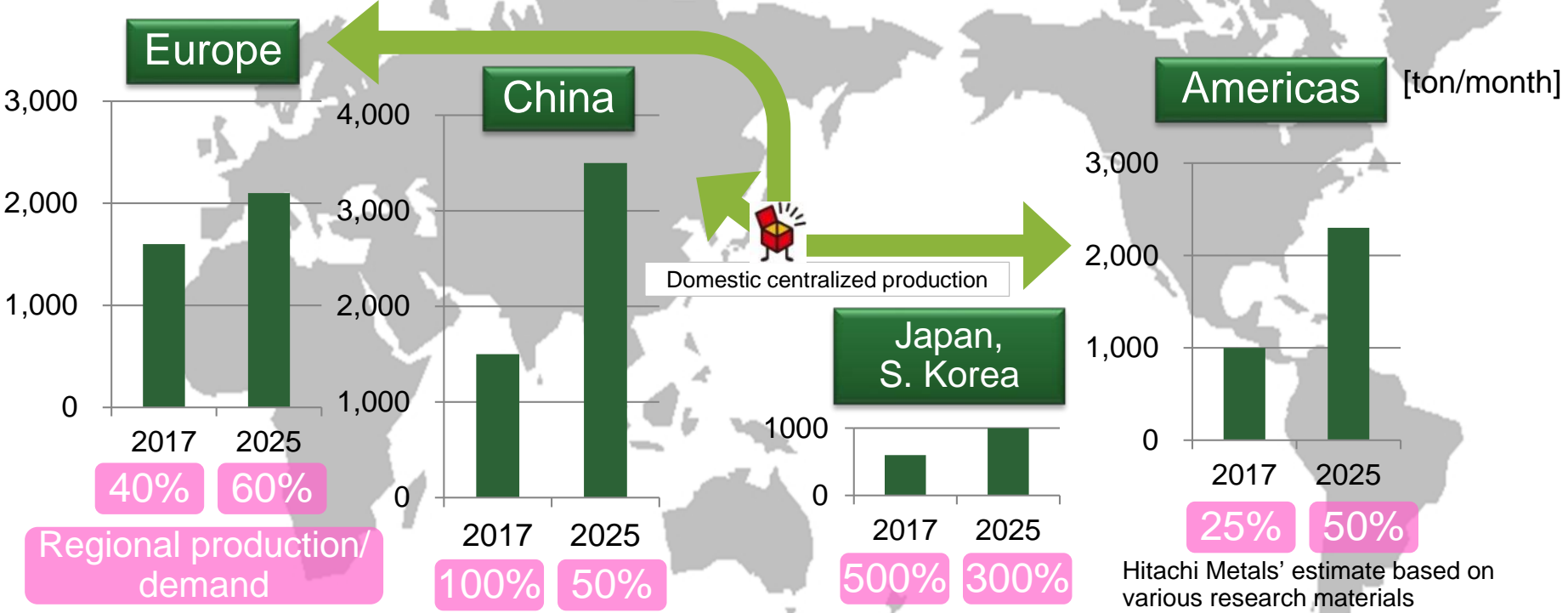
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# 2. Heat-Resistant Cast Steel (HERCUNITE™) Business

## 2-1. Market Environment

Turbo market global growth rate	2017→2021	2021→2025
		10.0%
[China] Growing; improved mileage of volume zone	12.7%	7.5%
[Americas] Growing; CAFE*1 regulations + improved mileage for long-distance drive	14.4%	8.5%
[Europe] Mature; diesel→gasoline; high-grade brands	4.1%	2.3%



Global market scale: FY2017 5,000 tons/month ⇒ FY2025 10,000 tons/month

\*1 CAFE: Corporate Average Fuel Efficiency

# 2-2. Response to Growing Demand

Response to growing demand	<ul style="list-style-type: none"> <li>■ Enhanced production capacity (+80%) vs. 1H FY2016                             <ul style="list-style-type: none"> <li>▪ New casting line <span style="float: right;">Operation Oct. 2016</span></li> <li>▪ New concept machining line <span style="float: right;">Operation Mar. 2017</span></li> <li>▪ Development of Americas machining line <span style="float: right;">Under development</span></li> </ul> </li> </ul>
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Production capacity  
750 tons/month  
(1H FY2016)

↓

1,350 tons/month  
(FY2017)

Current state	<ul style="list-style-type: none"> <li>■ Insufficient preparation for production launch against surge in demand                             <ul style="list-style-type: none"> <li>▪ Drop in productivity, increase in air transport cost</li> </ul> </li> </ul>
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Responses	<ul style="list-style-type: none"> <li>■ Productivity “+15%” vs. FY2016                             <ul style="list-style-type: none"> <li>▪ Optimization of casting conditions [✓] Completed</li> <li>▪ Quality improvement [✓] Completed</li> <li>▪ Machining efficiency improvement [✓]</li> </ul> </li> <li>■ Full utilization of invested equipment [✓]</li> </ul>
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New concept machining line

Sales volume (2H FY2016 970 tons/month → FY2017 1,350 tons/month), improved operating margin

Formulate further production capacity enhancement plan

# Business Strategy of the Functional Components Company

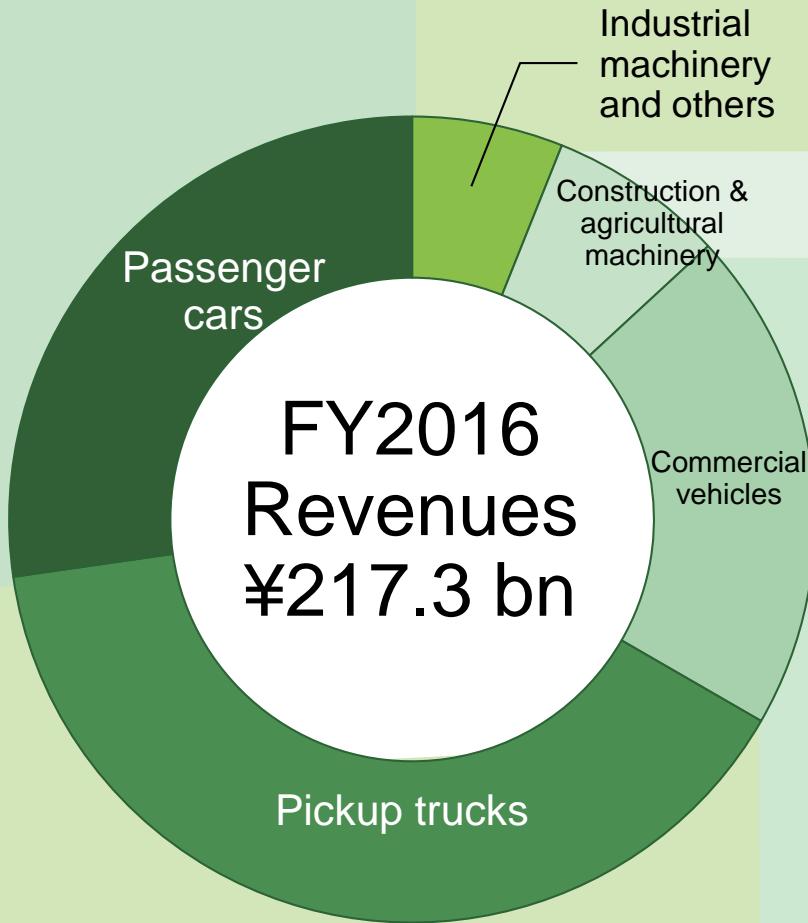
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# 3. Cast Iron Business

## 3-1. Business Composition




From heavy-duty vehicles to passenger cars, a product line-up that addresses a broad range of needs



# 3-2. Market Environment

## Heavy-duty area

- Combustion engine is mainstream due to requirement to secure power

 Agricultural/ construction machinery	Growth in population →Growth in grain production
 Rolling stock	Global demand increase
 Industrial equipment	Increase in demand for complex form products

Business expansion area;  
needs for high added value

## Passenger car area

- Global vehicle production volume steady
- Significant expansion in emerging consumption areas of India and China
- Europe/U.S. are large markets, albeit low-growth

Business platform area; cash cow



Motor housing



Yaw damper blanket



Brake blanket

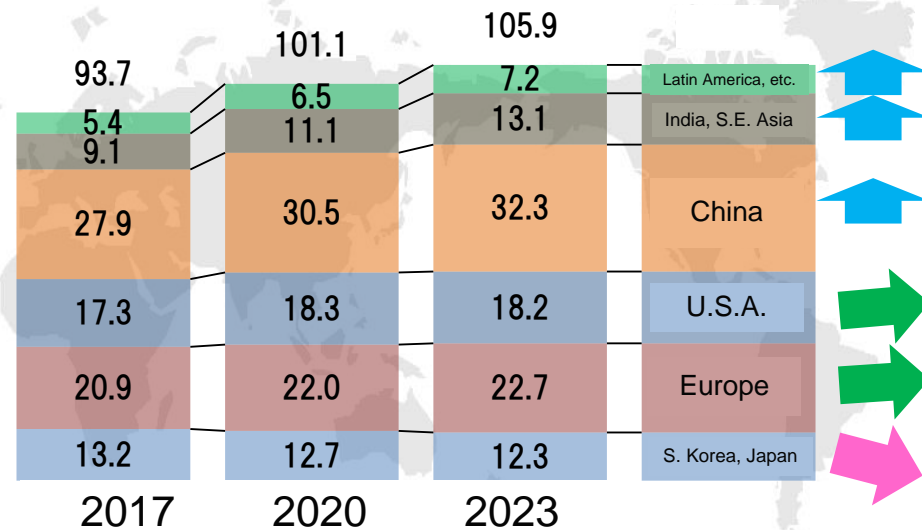


Transmission case



Clutch housing

### Vehicle production volume (million vehicles)



Hitachi Metals' estimate based on various research materials



# 3-3. Product Strengths

## High-Grade Ductile Cast Iron

- Ability to design high strength and high tensile strength materials (dialog with customers and CAE technology)

Addresses requirements for thin and lightweight products



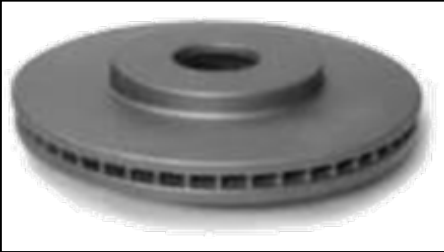
Suspension arm  
25% lighter weight

Steering knuckle  
10% lighter weight

## General-Purpose Ductile Cast Iron and Gray Iron

- Clearly superior production volume
- Proprietary casting equipment that differentiates Hitachi Metals

Addresses low-cost, large-volume needs



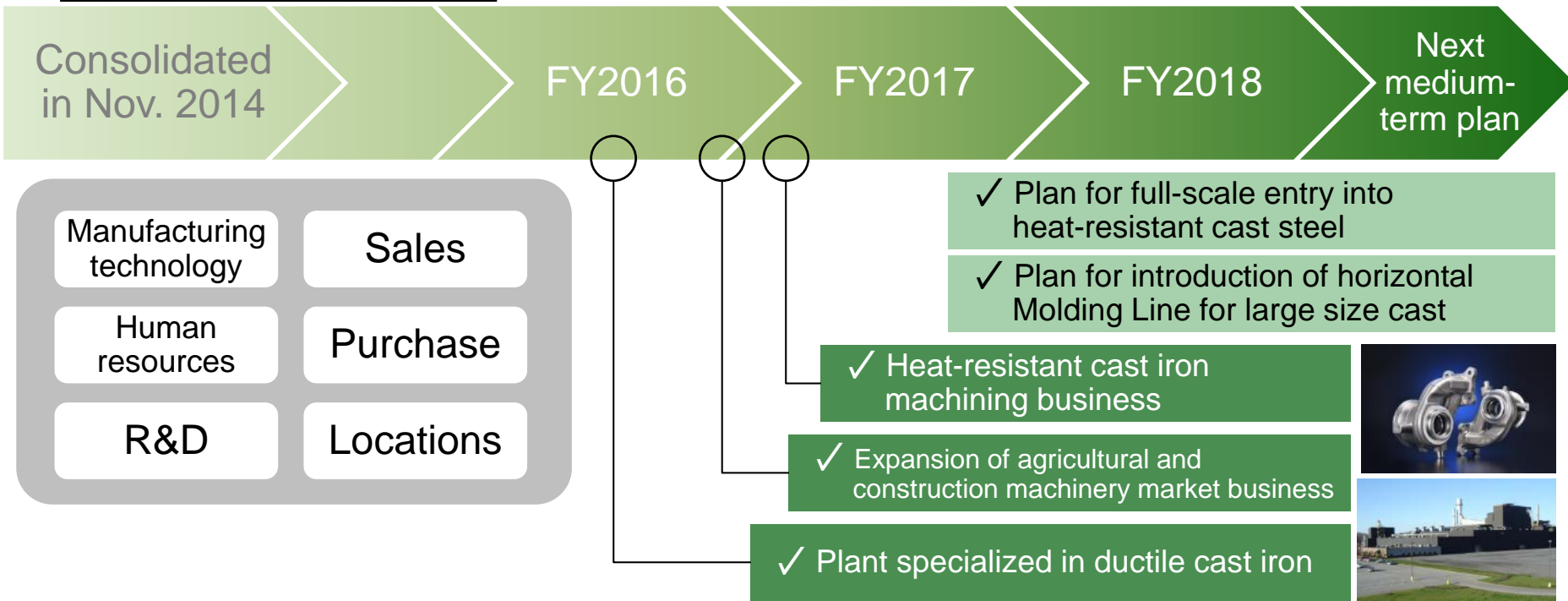
# 3-4. Action Plan

## [Waupaca] Generate Acquisition Synergies



Synergies generated (as of 2018): Estimated upon acquisition: US\$40 million

→ **Current: US\$50 million**



■ Utilize outstanding manufacturing technological skills and abundant resources

■ Reduce overall group's purchase costs using economies of scale

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# 4. Aluminum Business

## 4-1. Market Needs and Strength

### Main Products

High-performance aluminum components

EV-related components, powertrain components



Aluminum wheels

Sophisticated design, large-diameter, general-purpose products



### 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

Combines high strength/stiffness and lightweight

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®)**

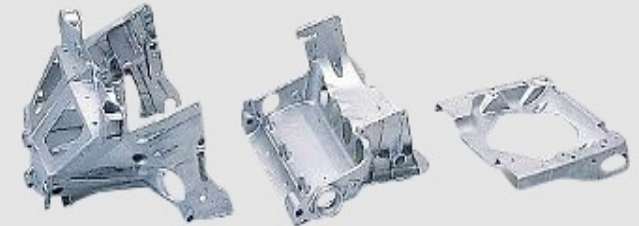


## High-Performance Aluminum Components

Increase EV components by utilizing the characteristics of aluminum materials

- Develop designing, material quality, junction, machining technologies  
Improve value of the aluminum die-cast business in cooperation with <GRIT>  
→ Roll out to composite materials and connection function components
- Build integrated line, strengthen cost competitiveness

Increase business size by 2.5 times by FY2025 (vs. FY2016)



## Aluminum Wheels

Accommodate large diameters and sophisticated design

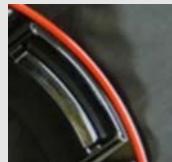
- Enhance production capacity and improve productivity of sophisticated design and large diameter products



Metallic



Brilliant



Special coating

Size	16 × 6JJ to 20 × 10JJ
Minimum draft	3.5 degrees
Minimum wall thickness	3 mm
Max. asperity	30 mm



Focus on high added value products and turn into a cash cow business

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# 5. Investment Plan

## Cast iron

- North America (Waupaca)
  - Horizontal Molding line for large size cast iron
  - Dedicate a plant exclusively to ductile and gray iron
- Asia (Japan, South Korea, India)
  - Global roll-out of high efficiency casting line technology



## Heat-resistant cast steel

- Japan (Kyushu Works)
  - New casting line
  - New concept machining line
- North America (Waupaca)
  - New machining line



## Aluminum

- Japan, North America
  - Accommodate sophisticated design and large components
  - Improved productivity and efficiency



## Piping

- Japan, North America
  - Enhance flexible piping system capacity
- Japan
  - High efficiency production line



Capital expenditures: ¥60.0 billion (cumulative total for FY2016–FY2018)

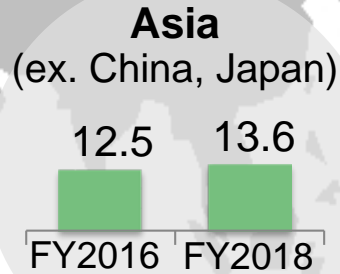
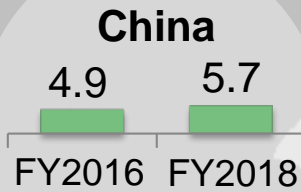
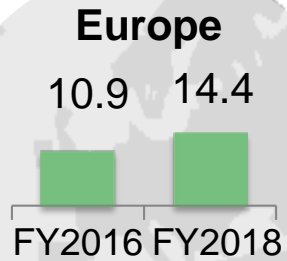
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# 6. Revenues by Region

(¥billions)



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

### FY2018 Plan

Revenues:	¥370.0 billion
Adjusted operating income:	¥30.5 billion
Adjusted operating margin:	8.2%

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 all 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. The 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 Americas, Asia and Europe
- Sudden changes in technological trends
- Changes in 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 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



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