

Business Strategy of the Functional Components Company

May 25, 2018

Hitachi Metals, Ltd.

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Executive Officer

President of the Functional Components Company

Business Strategy of the Functional Components Company

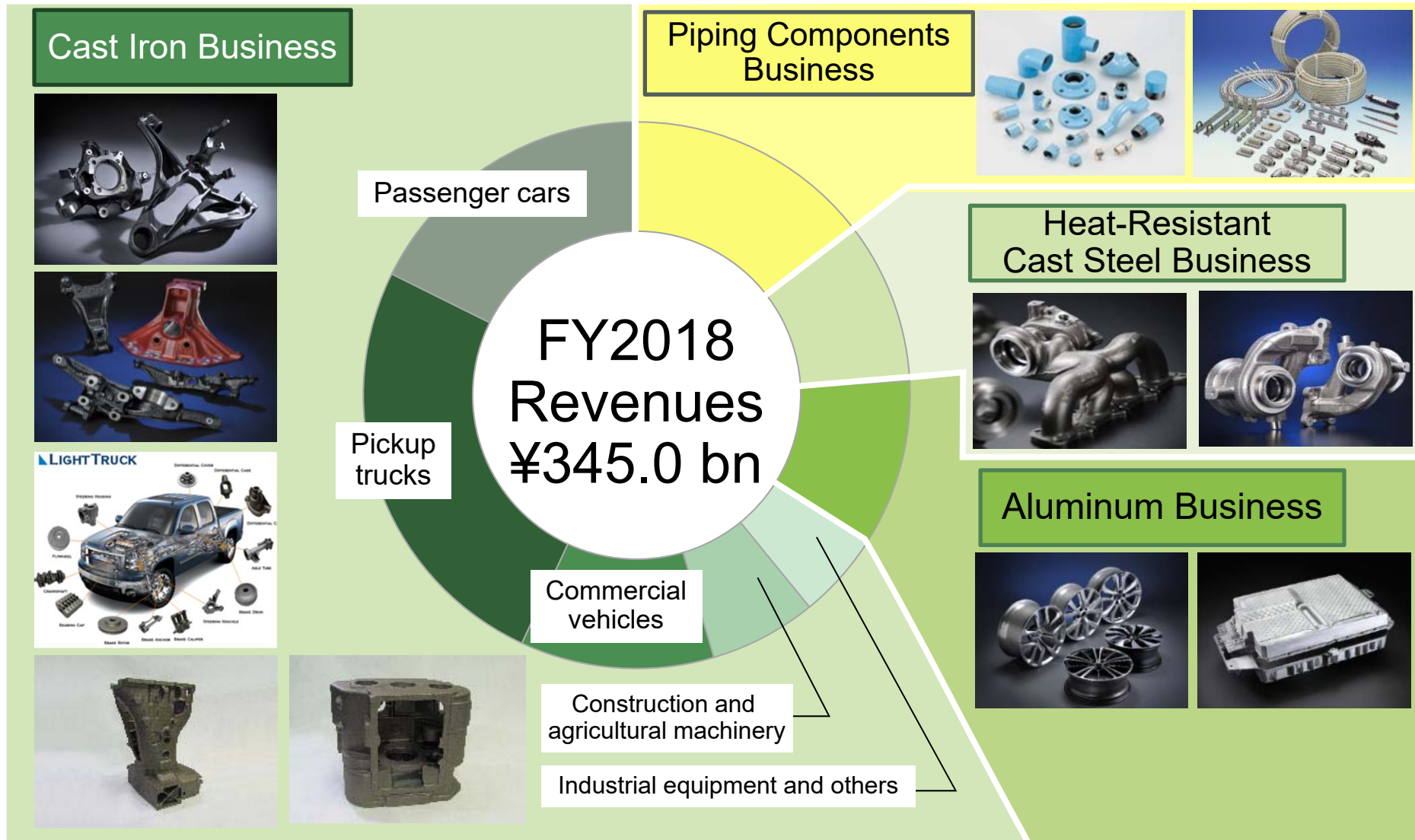
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1. Business Overview
2. Heat-Resistant Cast Steel (HERCUNITE™) Business
3. Aluminum Business
4. Integration of Cast Iron and Aluminum to Become No.1 Supplier
5. Piping Components Business
6. Summary

1. Business Overview

1-1. Business Composition

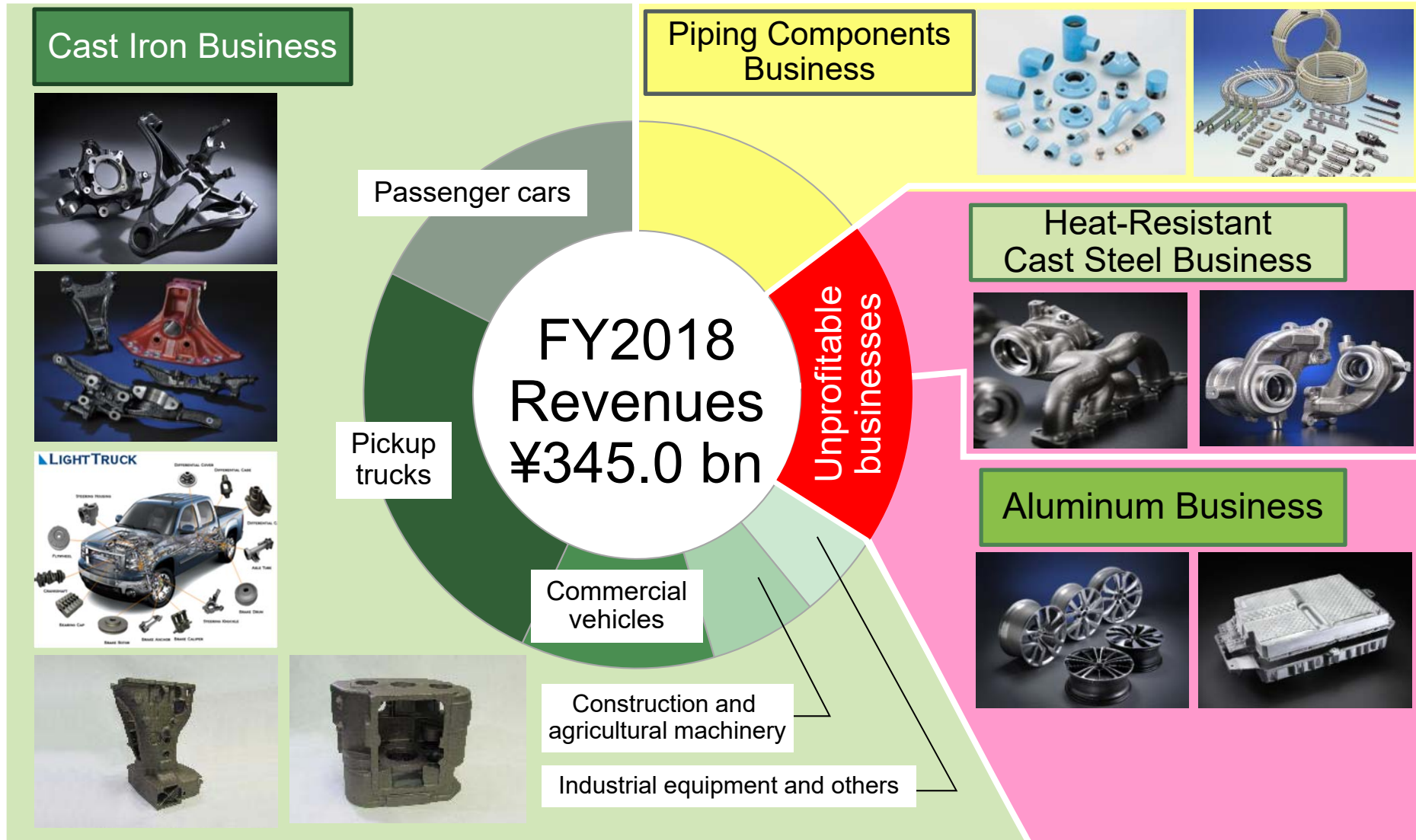
Addressing Society's Needs with Functional Components



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 Actual (¥108 = US\$1)	FY2017 Actual (¥111 = US\$1)	FY2018 Forecast (¥105 = US\$1)	Change vs. 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

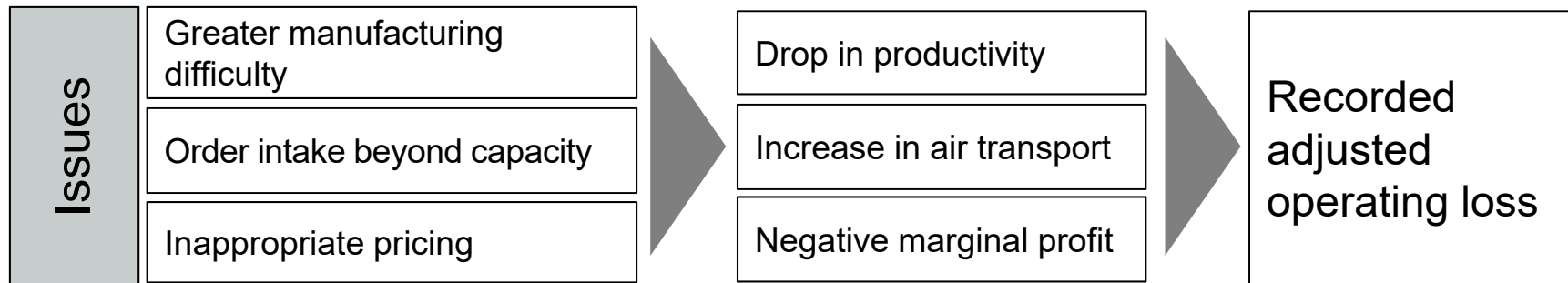
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2. Heat-Resistant Cast Steel (HERCUNITE™) Business

2-1. Issues and Countermeasures

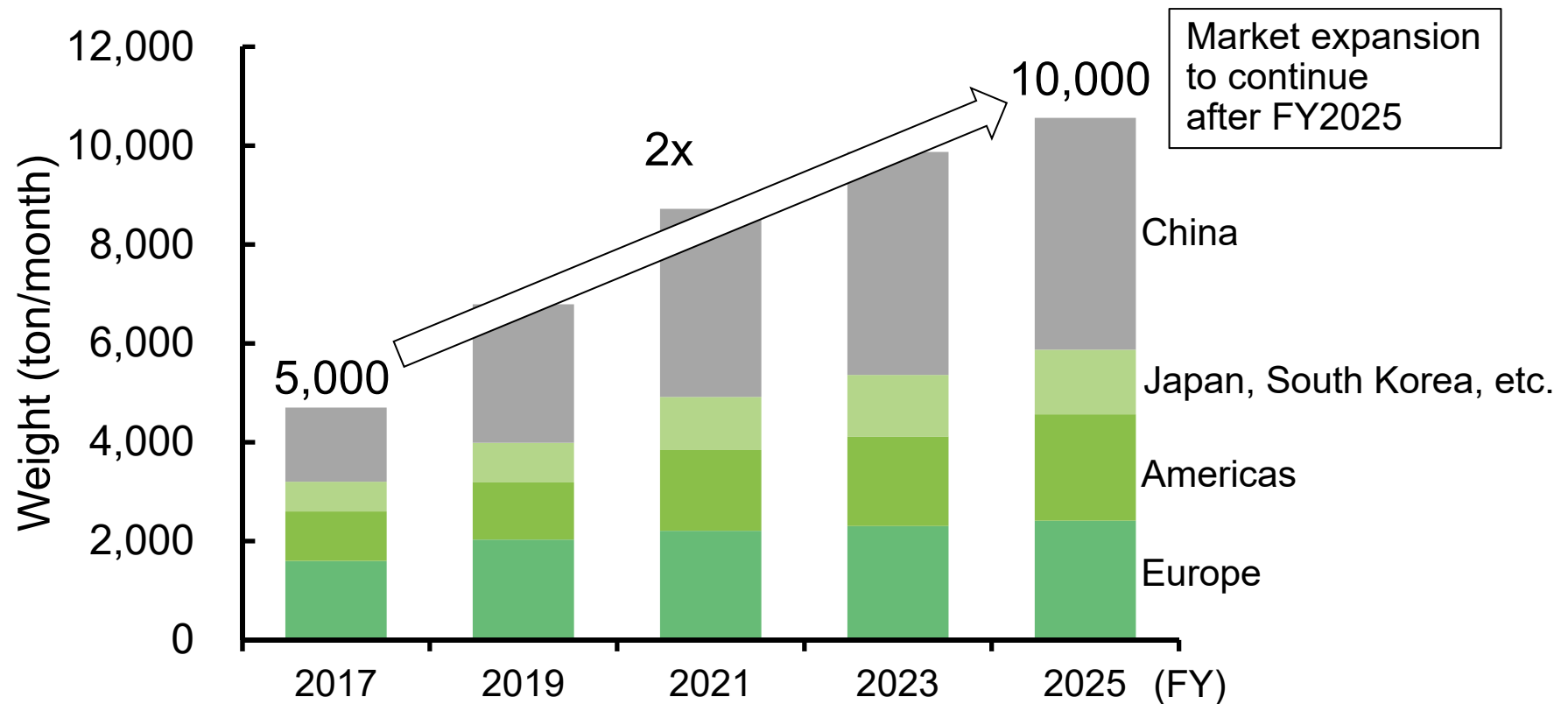


Countermeasures	<ul style="list-style-type: none"> ■ Productivity “+15%” vs. FY2016 <ul style="list-style-type: none"> ▪ Optimization of casting conditions ▪ Quality improvement ▪ Processing efficiency improvement ■ Full utilization of invested equipment <ul style="list-style-type: none"> ▪ Casting line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

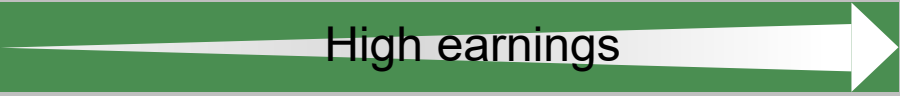
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2-3. Roadmap

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 ● 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	

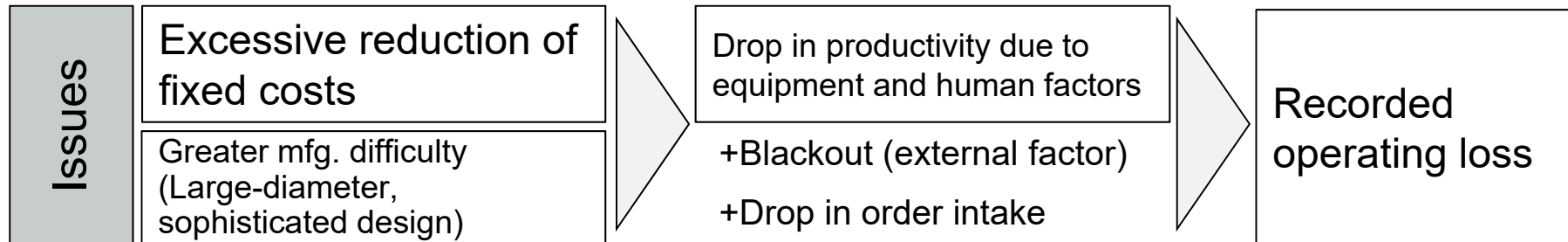
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3. Aluminum Business

3-1. Issues and Countermeasures for Aluminum Wheels



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

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[®])



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

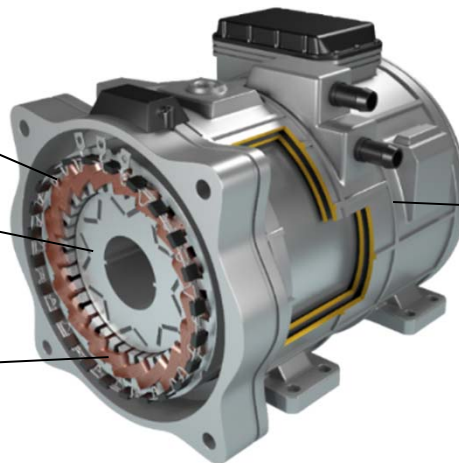


Aluminum die-cast products

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



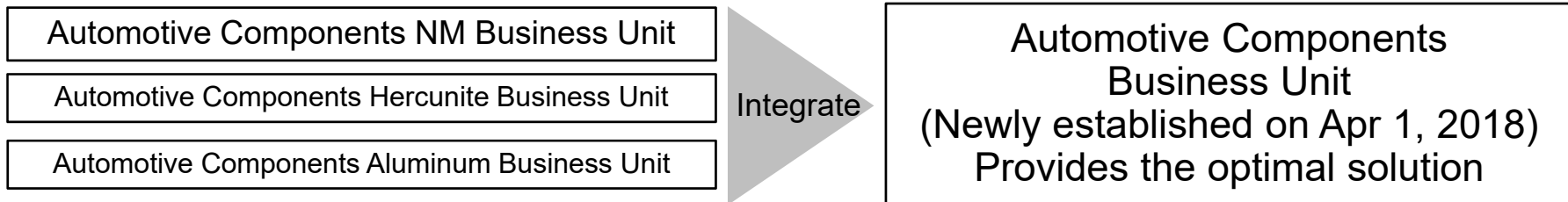
Existing business Enhancement domain New area

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

4-2. Organization Reinforcement to Address Changes

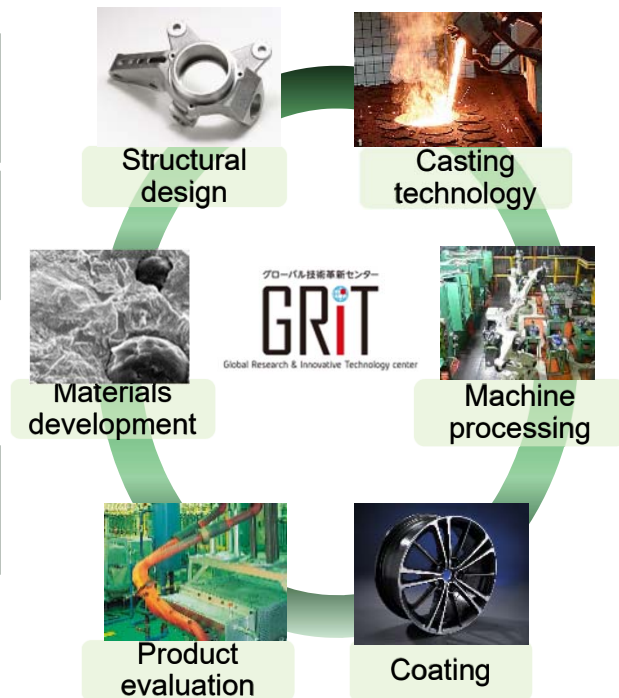
Propose optimal solutions to diversifying market needs

Address changes in the market with an optimal portfolio



Strengths of the Functional Components Company

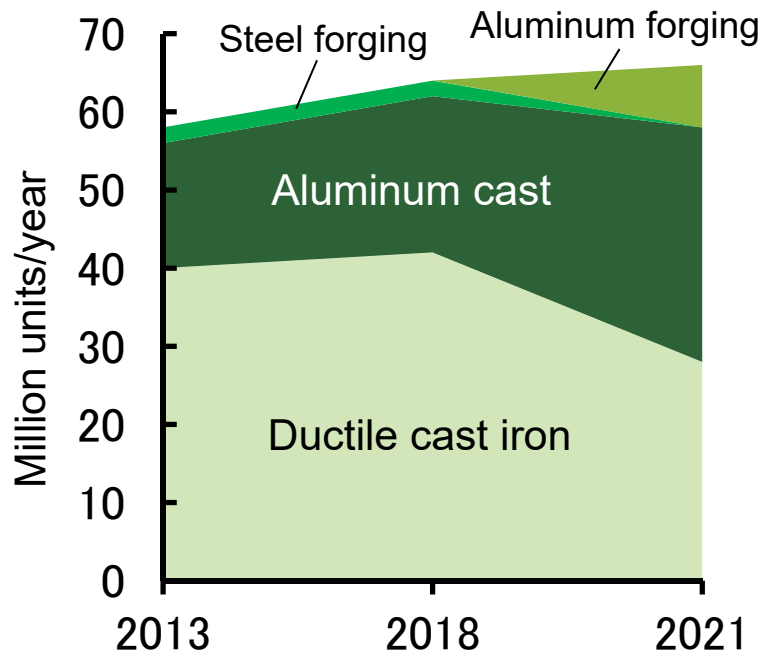
Sales ability Planning and proposal skills	Cooperate with Corporate and other Companies
Diverse product line-up	Iron, stainless steel, aluminum, resin, composite materials
Technical capabilities	Materials development, structural design, casting technology, machine processing, coating, product evaluation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

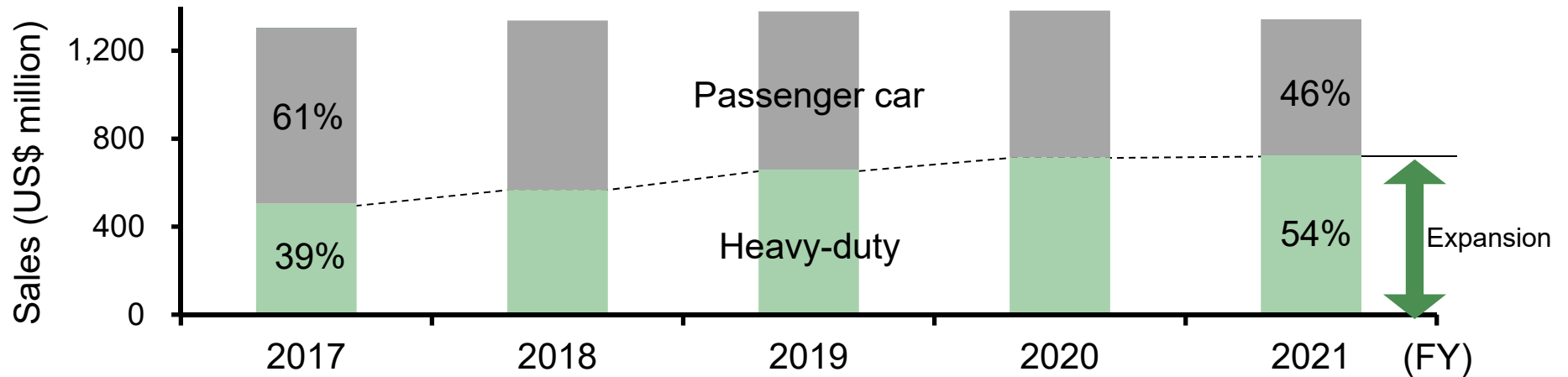
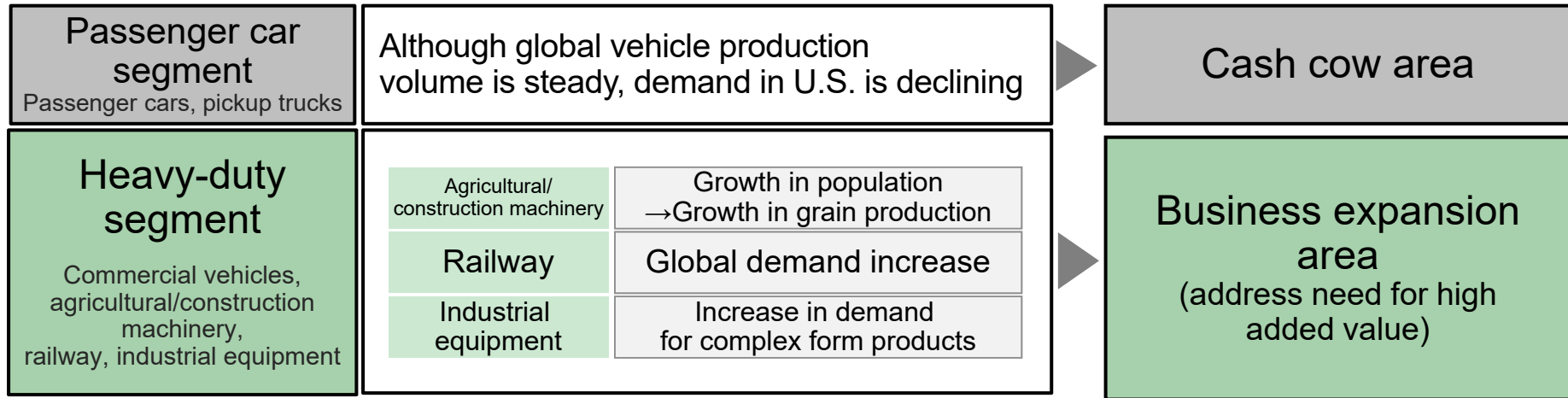
Continue cast iron through development cost reduction and stable procurement measures

Mileage regulations → lightweight → aluminum replacement progressed

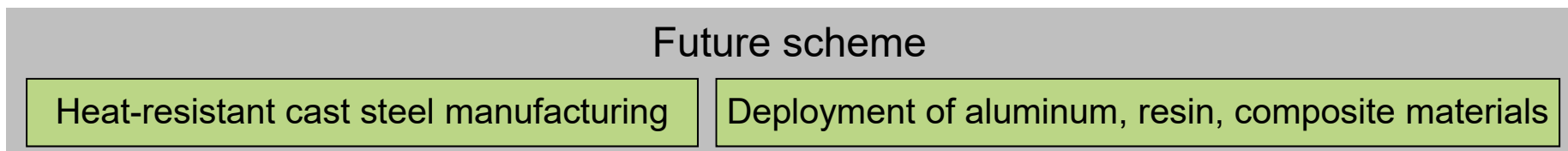
Propose cast iron, aluminum, and new materials

	Under mass production	Under mass production	Considering mass production	Considering development
Material	Ductile cast iron	High strength ductile cast iron	Aluminum cast	CFRP Composite materials
Weight	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)

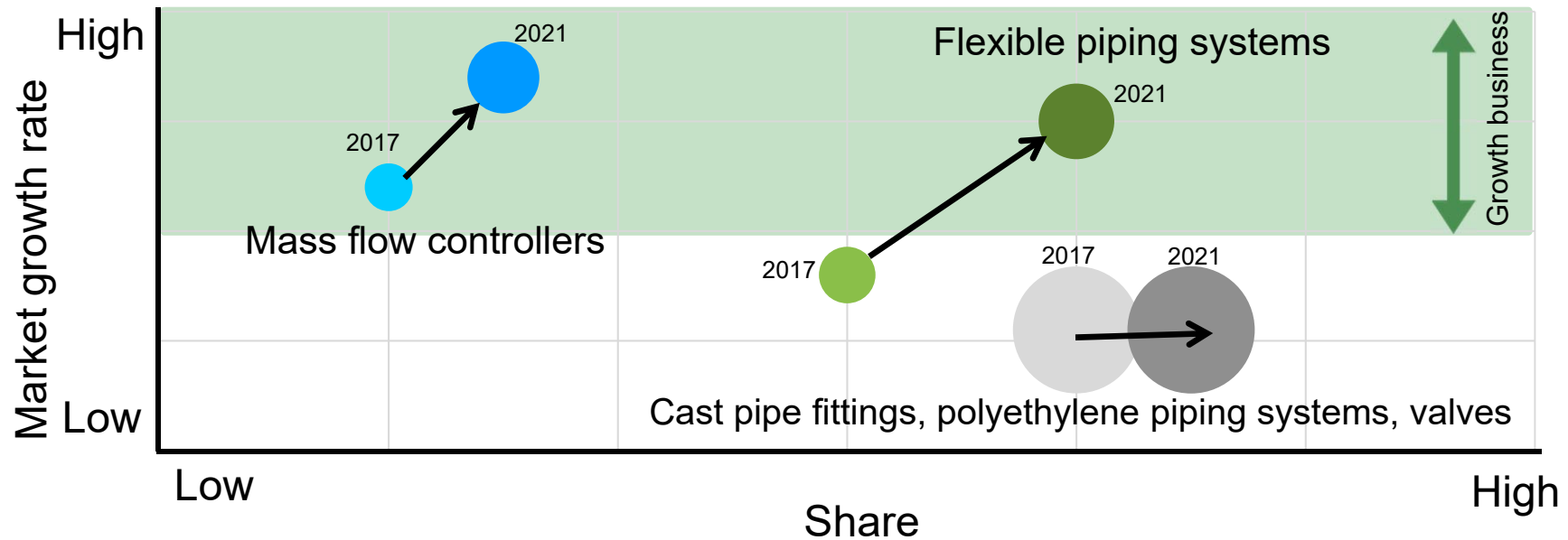
Established Piping Components Solutions Sales Dept. (Apr 2018)

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"> Market entry based on strength of high workability Europe: Market penetration by strengthening distribution network China: Obtain certification from major gas company

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)



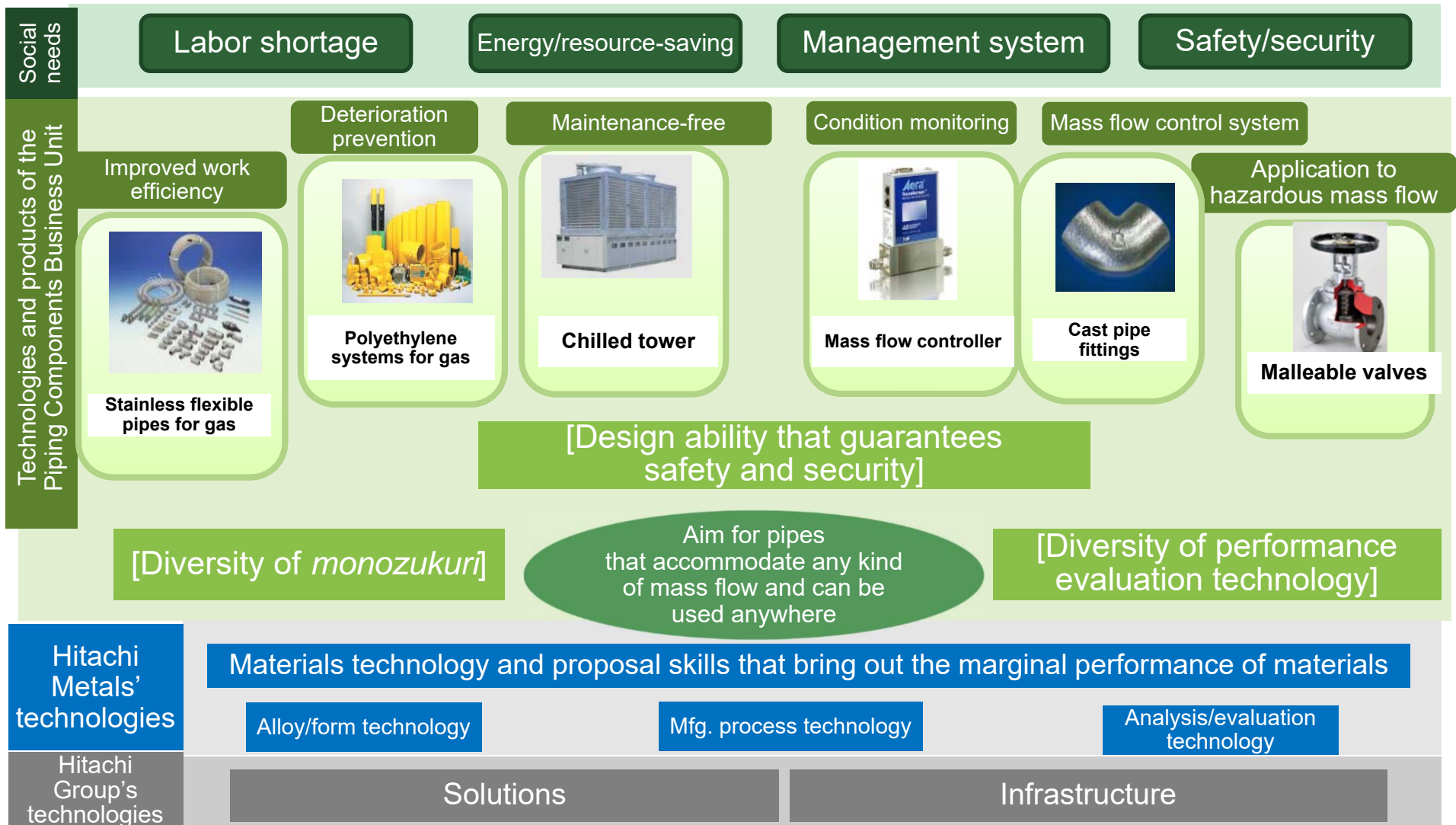
■ Amount and timing

- ◇ 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

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