

# Group Management Policies 2019

**IHI**

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**IHI Corporation**

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# Review of Group Management Policies 2016

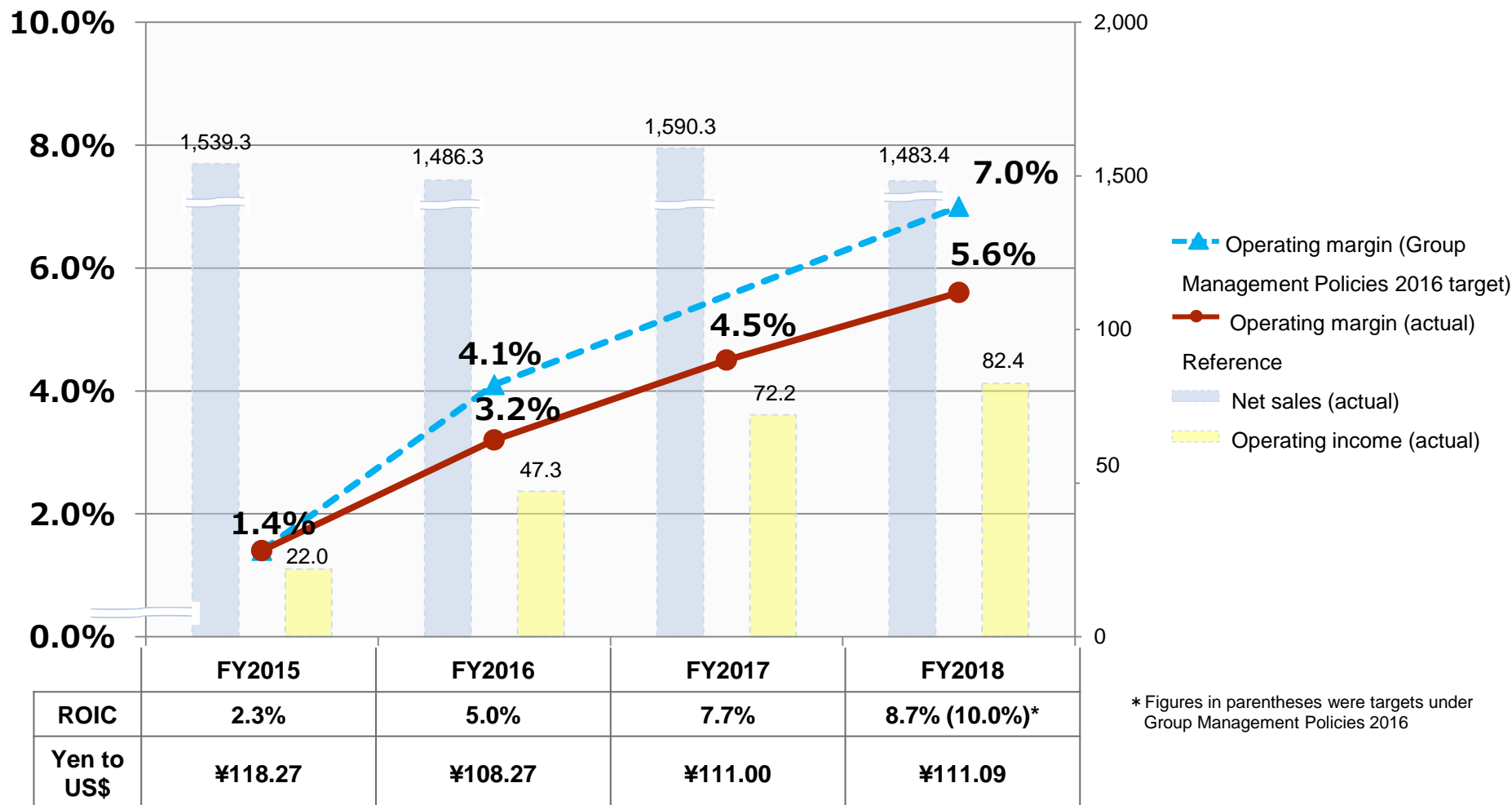


## Review of management targets under Group Management Policies 2016

- While we were unable to reach our targets owing to worse than expected market conditions, ongoing downturns in certain projects, and foreign exchange fluctuations, we improved our operating margin and ROIC on efforts to strengthen risk management and progress with concentration and selection

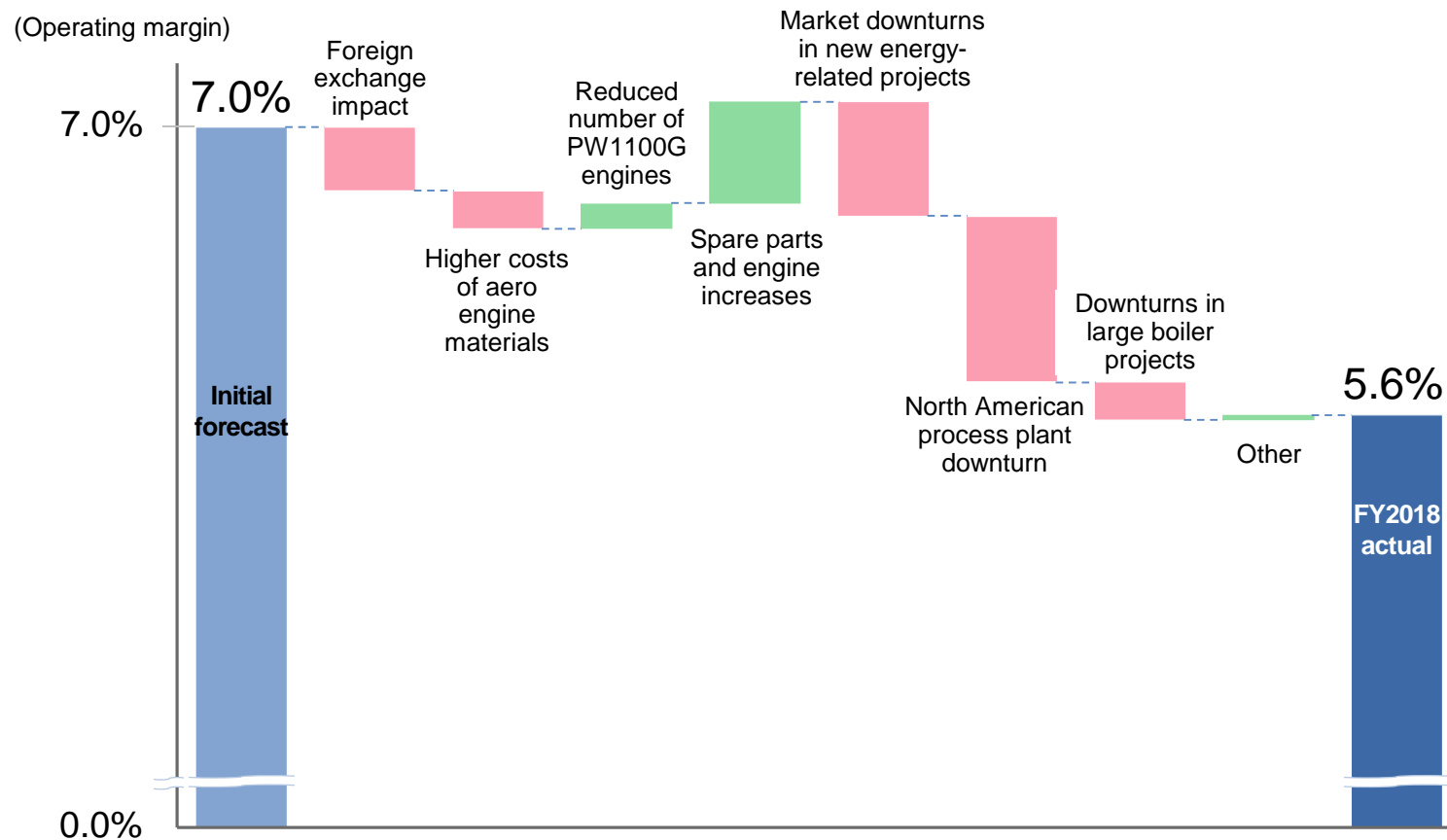
(Operating margin)

(Billions of yen)



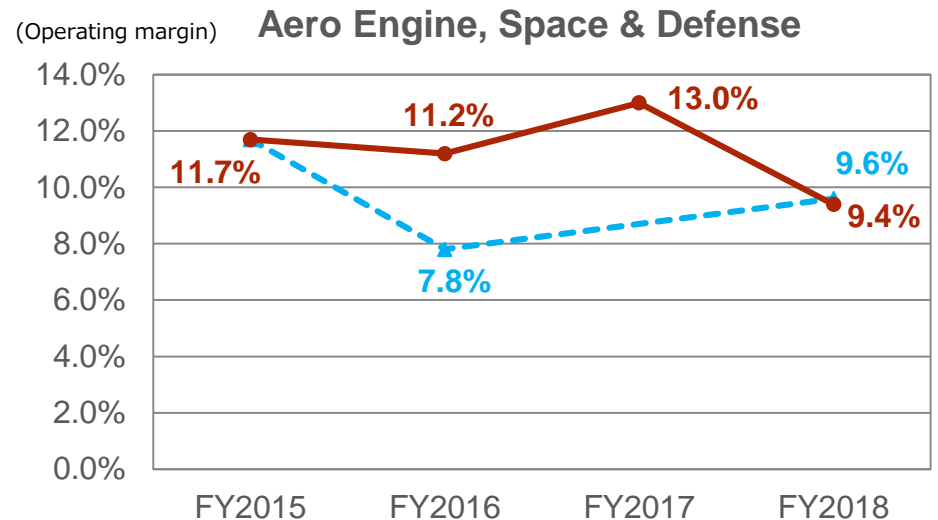
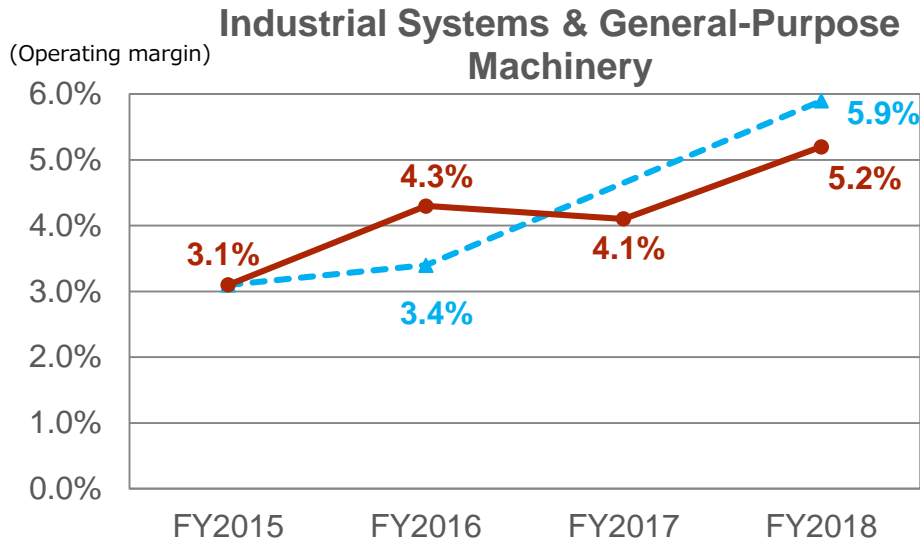
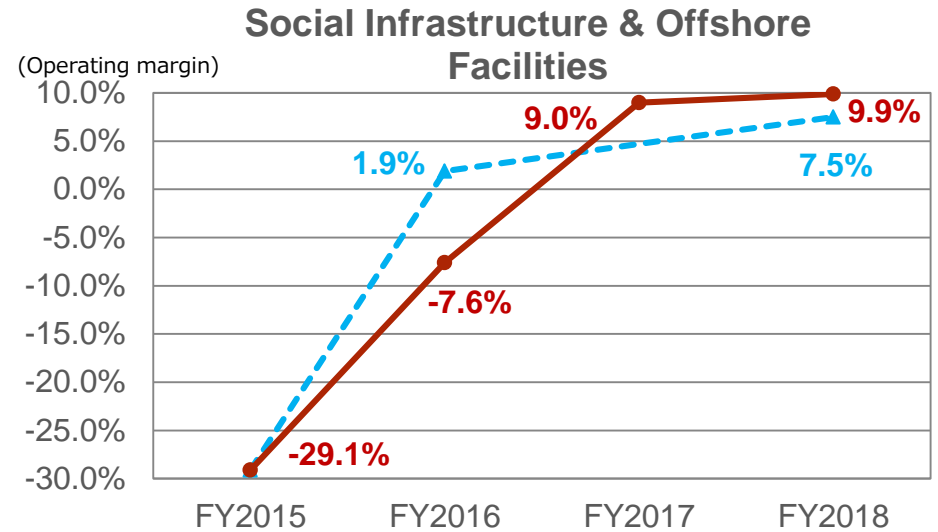
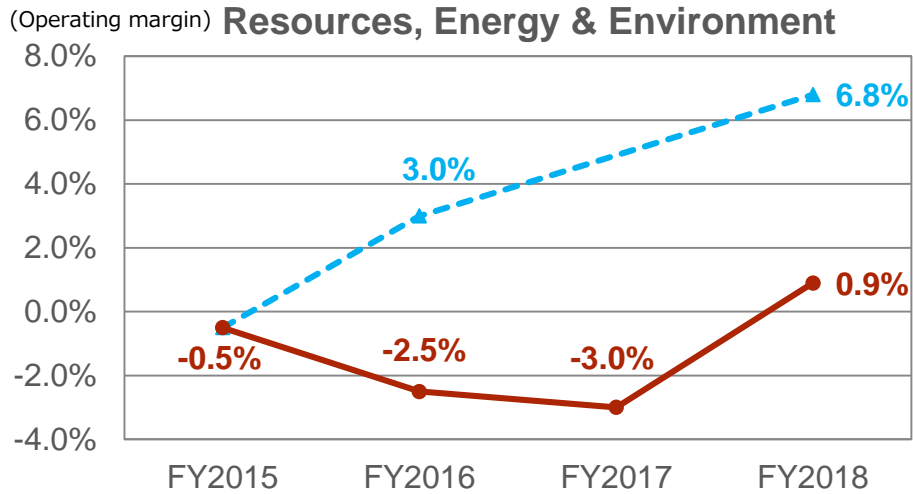
\* Figures in parentheses were targets under Group Management Policies 2016

- Analysis of operating margin fluctuations in FY2018 (compared with Group Management Policies 2016 targets)



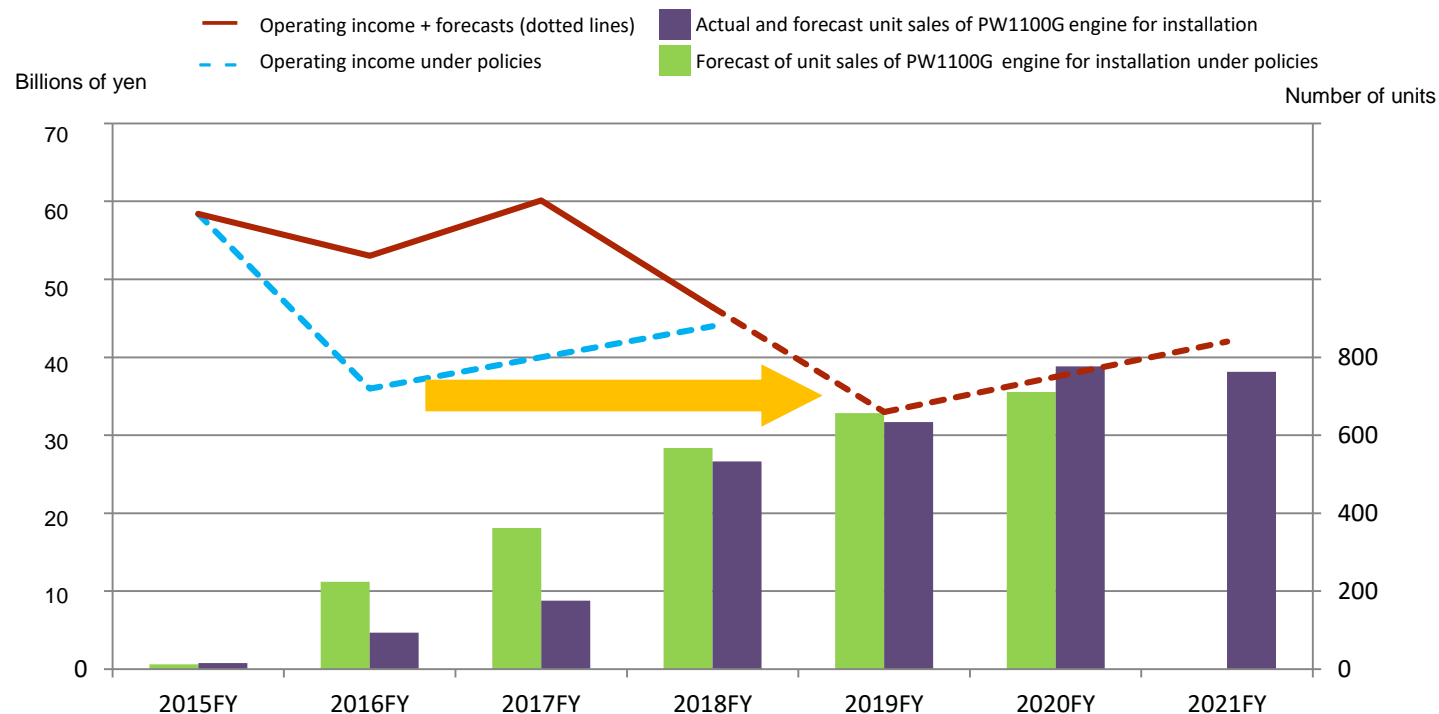
- Initial target: Using official announcement of May 10, 2016 (assumed exchange rate of ¥115/US\$)
- Average foreign exchange rate for net sales in FY2018: ¥111.09/US\$

## Business area operating margins



-▲- Under Management Policies 2016  
-●- Actual

- Operating income in Aero Engine, Space & Defense business (compared with Group Management Policies 2016 targets)



## Situation with PW1100G engine

- When we formulated Group Management Policies 2016  
We expected performance to bottom out in FY2016 and FY2017 after sales surged while cost-cutting efforts had made little progress following the launch of mass production.
- Now  
Sales failed to rise owing to initial issues in FY2016 and FY2017, so results improved. We now expect performance to bottom out in FY2019 instead of earlier because of recent materials cost hikes and productivity improvement shortfalls.

<p><b>Resources, Energy &amp; Environment</b></p>	<ul style="list-style-type: none"> <li>▪ Major downturn in U.S. projects</li> <li>▪ Market conditions during new projects deteriorating more than anticipated</li> <li>▪ Restructuring in earnest across business areas in line with operating climate</li> </ul> <p>Task: Strengthen risk management and step up efforts to prevent downturns while capturing upgrade and replacement demand in Japan and abroad</p>
<p><b>Social Infrastructure &amp; Offshore Facilities</b></p>	<ul style="list-style-type: none"> <li>▪ F-LNG business withdrawal</li> <li>▪ Bolster project management and reach performance targets by improving profitability in bridge, shield tunneling, and other businesses</li> </ul> <p>Task: Increase added value in maintenance businesses and steadily develop overseas operations</p>
<p><b>Industrial Systems &amp; General-Purpose Machinery</b></p>	<ul style="list-style-type: none"> <li>▪ While we did not reach our performance targets, we are managing our portfolio to improve results, and earnings are trending upward</li> </ul> <p>Task: Continue concentration and selection initiatives, supply services to propose customer-centric value, and overhaul overseas market initiatives</p>
<p><b>Aero Engine, Space &amp; Defense</b></p>	<ul style="list-style-type: none"> <li>▪ We offset the impacts of a higher yen (appreciated from ¥115 to ¥111 to the U.S. dollar) and shortfalls in cost-cutting efforts owing to materials cost hikes by boosting sales of spare parts and engines, thus generally reaching performance targets</li> <li>▪ Owing to delays with the PW1100G program and other factors, we now expect results to bottom out in FY2019, instead of the initially envisaged</li> </ul> <p>Task: Tackle quality issues and steadily reinforce competitiveness</p>



We are endeavoring to prevent inadequate practices from recurring in the aero engine business by drawing on guidance from the Ministry of Land, Infrastructure, Transport and Tourism and the Ministry of Economy, Trade and Industry while reflecting third-party analyses of causes and recurrence prevention measure recommendations, notably by:

- ✓ Reinforcing safety consciousnesses and educating about compliance
- ✓ Overhauling our safety management systems
- ✓ Reviewing our job structure

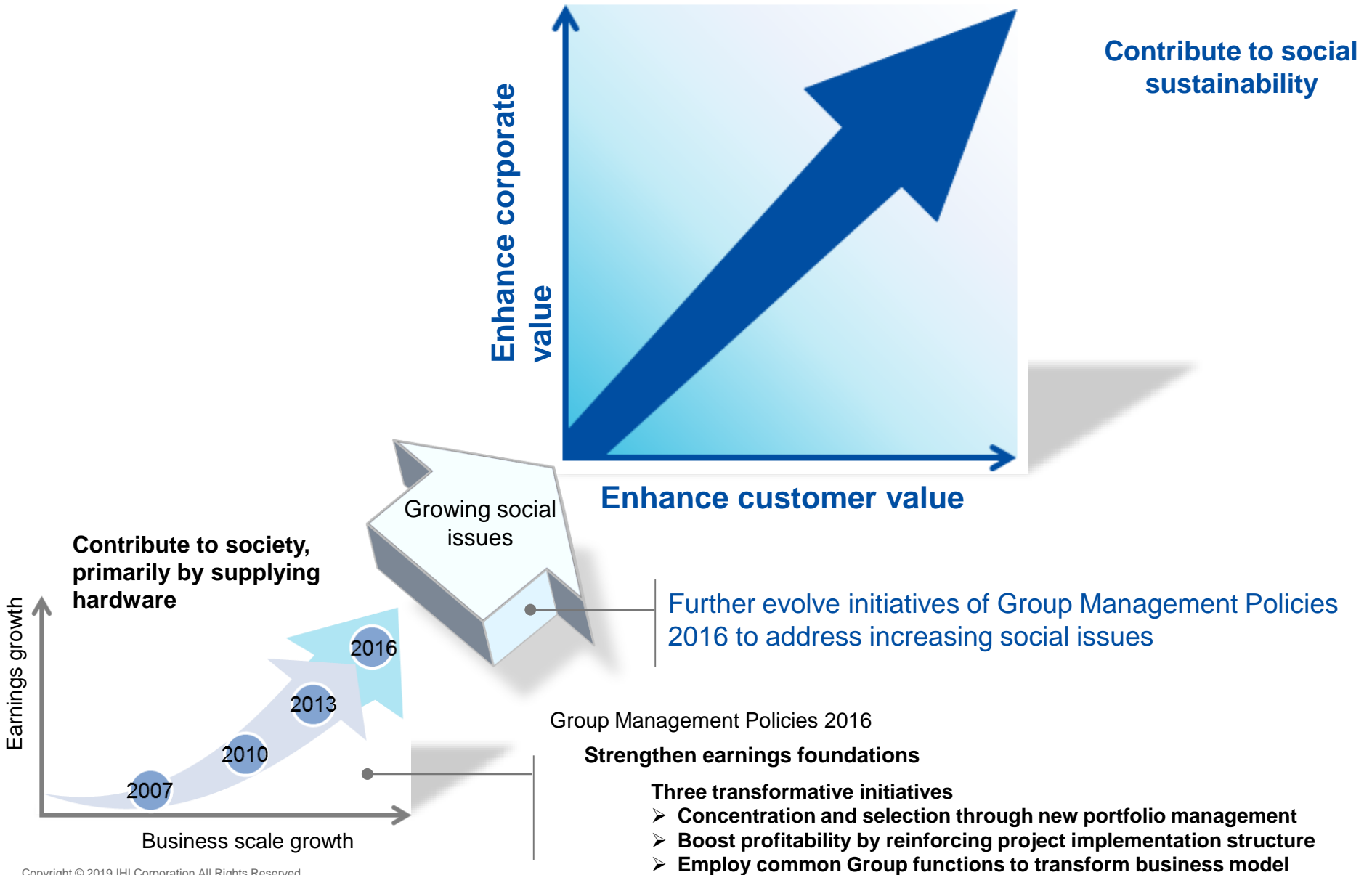
## We have initiated groupwide efforts, including overseas, to prevent a recurrence

- 1 Formulate IHI Group Quality Declaration and deploy Code of Conduct**
- 2 Reinforce compliance structure**
- 3 Strengthen quality assurance structure and quality management systems**
- 4 Create workplaces in which employees are more vocal**
- 5 Bolster risk management activities**

# Group Management Policies 2019



Tackle social and customer issues with customers and create new value



## Group Management Policies 2019

### Reform businesses in earnest to tackle social and customer issues

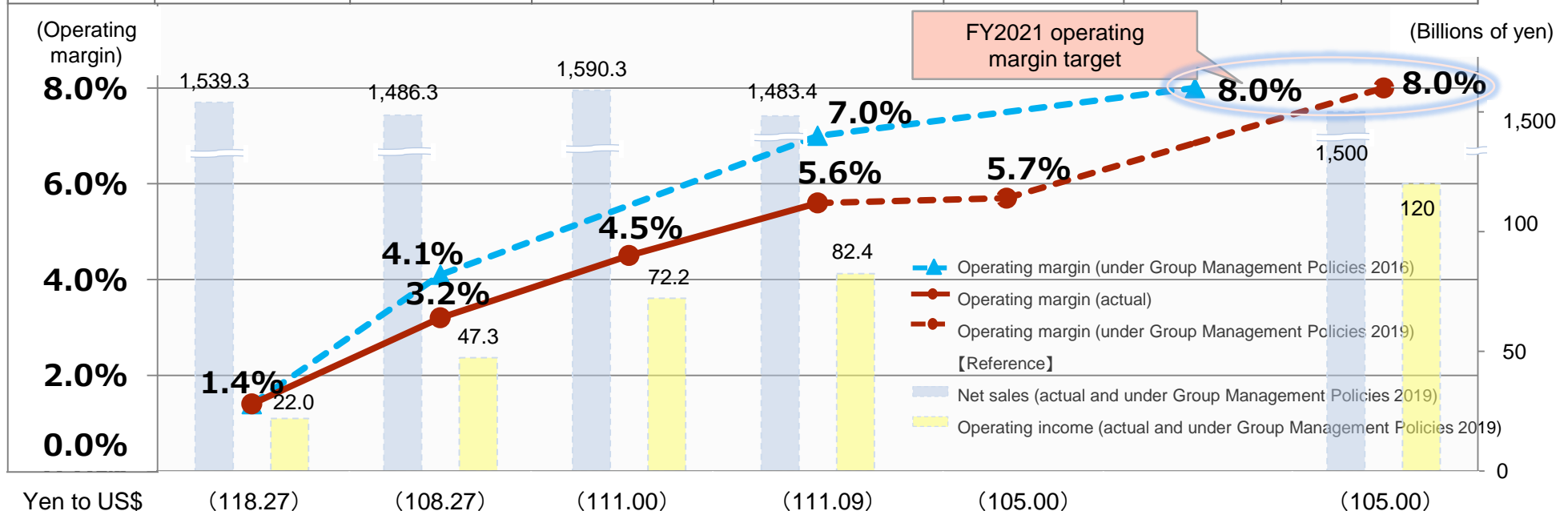
**Direction** Establish a long-term direction to help materialize social sustainability and foster the IHI Group's growth

#### Three years under Group Management Policies 2019

- Reorganize businesses in keeping with the earnings foundations put in place under Group Management Policies 2016
- Position next three years as a period for building new value and accelerating change

Year	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
ROIC	2.3%	5.0%	7.7%	8.7% (10.0%)*	8.0%	-	More than 10.0%
Cash conversion cycle	97 days	87 days	83 days	97 days	97 days	-	80 days

\* Figures in parentheses were targets under Group Management Policies 2016



## Group Management Policies 2019

### Review of Group Management Policies 2016

- ✓ Transformed hardware supply-centric businesses too slowly
- ✓ Downturns persisted in certain projects
- ✓ Continued to progress with concentration and selection

### Business climate change

- ✓ Accelerate technological innovations
- ✓ Overall demand for infrastructure to materialize social sustainability

**Reform businesses in earnest to tackle social and customer issues**

### Three initiatives

**Strengthen business foundations**

**Accelerate aftermarket business development with customers from lifecycle perspectives**

**Build a robust operational structure**

**Create a lean and flexible operational structure**

**Accelerate preparations for tomorrow**

**Transform our business model to create value**

**Cultivate human resources as change drivers**

**Safety and quality**

**Risk management**

## Create new value needed for social sustainability

### Resources, Energy & Environment

Contribute to carbon-free and recycling societies by providing optimal integrated solutions for each region and customer



### Social Infrastructure & Offshore Facilities

Contribute globally and across life cycles to materialize safe and secure social infrastructures, centered on bridges and tunnels



### Shared business goals



世界を変えるための17の目標



Contribute to industrial infrastructure progress by thoroughly optimizing operational lifecycles with customers

### Industrial Systems & General-Purpose Machinery

Leverage advanced technology to open new vistas for air transportation, defense systems, and space utilization, and help materialize social affluence and safety

### Aero Engine, Space & Defense

## Direction

**Contribute to carbon-free and recycling societies by providing optimal integrated solutions for each region and customer**

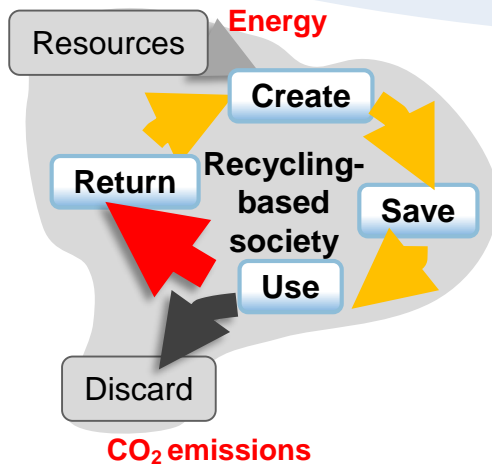
### Environment

Assess and lower carbon dioxide emissions in framework of life cycle and recycling-based society

**Renewable resources**  
Create new resources in carbon-free and recycling societies

**Renewable energy usage**  
Pursue regional and industry decentralization and renewable energy-based society

**Depleted resources usage**  
Minimize life cycle carbon dioxide emissions



### Carbon dioxide emissions reduction approaches

#### 1. Lower emission rates

Higher performance and efficiency, fuel conversion, and renewable resource usage, etc.

#### 2. Use less energy

Energy conservation and management, etc.

#### 3. Increase absorption and usage

Resources creation and chemicals conversion, absorption, and storage, etc.

**Halve carbon dioxide emissions of domestic and overseas customers by 2035**

### Solutions proposals

Use existing technologies

Develop new technologies

Collaborate with other companies

## Addressing social issues

While energy 4D+E\* megatrends initiatives are accelerating to combat climate change, lower environmental impact and cut carbon dioxide emissions

\* Decarbonization, Decentralization, Digitization, Deregulation, and Electrification

## Focuses over three years

### Strengthen business foundations

#### Reinforce core technologies and enhance customer value in lifecycles

- Fully employ such strengths as ultra-super critical pressure, biomass incineration, and fuel handling technologies
- From the perspective of globalizing the cycle value chain, supply plant systems and services that cater to diversifying social needs, notably for high efficiency, distribution, fuel diversification, and renewables stabilization, to create new energy businesses
- Conceive and materialize with partners the development of infrastructure that encompasses industrial estate development that incorporates the energy businesses created, distributed energy supply businesses, and other elements

### Build a robust operational structure

#### Create a lean and flexible organization by reforming business structure

- Digitize to establish shared business platforms and optimally allocate resources across the Group to drive business structure reforms, to build a robust business management structure that is efficient with lean and flexible business operations

### Accelerate preparations for tomorrow

#### Create new value for carbon-free and recycling societies

- Develop diverse technologies that help reduce carbon dioxide emissions while exploring an effective business model and formulating a technology portfolio that is pivotal for tomorrow's businesses



## Direction

Contribute globally and across life cycles to materialize safe and secure social infrastructures, centered on bridges and tunnels

### Reinforce lifecycle businesses

- Develop and expand life-cycle businesses encompassing everything from largely construction businesses to planning, operations, and maintenance, for long-term social infrastructure operations

### Accelerate global business development

- Run businesses in line with local characteristics and provide social infrastructure that addresses local issues

### Create social infrastructures to optimize urban environments

Seek to provide social infrastructure that helps materialize optimal urban environments for tomorrow

## Addressing social issues

### Build robust social infrastructure

- Develop infrastructure driving strong economic progress in emerging nations
- Tackle aging infrastructures in developed nations

### Sustainable cities and comfortable lifestyles

- Build infrastructure systems that underpin orderly urban development
- Establish infrastructure systems to ensure clean and comfortable living for consumers using IT

- Develop infrastructure compatible with intensifying climate change and natural disasters
- Establish controlled infrastructure development, operations, maintenances, disposal, and redevelopment cycle

## Focuses over three years

### Strengthen business foundations

#### Enhance maintenance technology, including planning and diagnostics, and improve customer value in life cycles

- Pursue strengths in large and complex social infrastructure construction and capabilities in post-construction maintenance
- Leverage new concepts matching customer needs to shorten construction periods in more economical ways and drive inspection and diagnostics advances while comprehensively undertaking post-construction and preventive maintenance (diagnostics, maintenance prioritization, and construction), and taking other steps to expand lifecycle businesses
- Collaborate with local partners to globally provide products and services based on regional characteristics and lifecycles

### Build a robust operational structure

#### Build lean and flexible structure to manage construction lead times and ensure that projects are as economical as possible

- Based on building and construction information modeling, integrate data and other information on ideal construction periods and economical results, becoming a lean and flexible organization that accelerates business process reforms, notably in engineering, factories, and construction sites, shortens lead times, and enhances productivity

### Accelerate preparations for tomorrow

#### Create social infrastructure to optimize urban environments

- Combine expertise in infrastructure life cycle businesses, centered on bridges, tunnels, and roads, and in urban development in the Toyosu district of Tokyo to build a framework for supplying social infrastructure that helps materialize optimal urban environments for the future

## Direction

**Contribute to industrial infrastructure progress by thoroughly optimizing operational lifecycles with customers**

**Optimize the people, energy, and assets of society and customers**

### Human resources

Automate processes and use less labor

### Assets

Optimize facilities operating rates and balance sheets

### Energy

Use electrical, thermal, water, and other energy efficiently

Prerequisites for maximizing efficiency

1. Enhance throughput and reduce costs by conserving labor and optimizing manufacturing and distribution processes

2. Reduce environmental impact and electricity costs by improving the efficiency of electrical, thermal, aerial, and other energy sources

3. Eliminate traffic accidents by providing a safe, secure, and convenient mobility infrastructure while helping lower environmental impact, eliminating mobility issues, and pioneering CASE\* initiatives

**Build new industrial infrastructure that optimizes operational lifecycles**

Seek to create new industrial systems that comprehensively streamline customer human resources, energy, and assets

## Addressing social issues

- Energy storage and consumption efficiency, progress in industrial and technology innovation infrastructure, overcrowding and urban traffic congestion, rising carbon dioxide emissions, pollution, and aging populations in developed nations
- Compatibility with CASE (\*) in automotive industry, digital transformations in the industrial machinery sector, structural changes across in logistics sector, and urban development progress

## Focuses over three years

### Strengthen business foundations

#### Strengthen lifecycle businesses to boost customer value and accelerate global development

- Leverage strong ties with customers from providing industrial machinery products and services to enhance the value of customer operations by accelerating efforts to deliver more sophisticated after-service
- Starting with Southeast Asia, undertake earnest global efforts to bolster after-service capabilities

### Build a robust operational structure

#### Undertake groupwide structural reforms to create a lean and flexible structure

- Push ahead with reforms to shift away from individual business management toward Group management that makes customers the top priority
- Specifically, transition to a lean and flexible organization that generates customer value by integrating responses to customers within the Group while strengthening customer relationship management capabilities

### Accelerate preparations for tomorrow

#### Develop a new business model to drive industrial infrastructure progress

- Connect real and digital spaces for customers and society in manufacturing, logistics, mobility, and other industrial machinery fields, thereby accelerating the creation of new industrial systems that streamline overall efficiency for customers' human resources, energy, and assets

## Direction

**Leverage advanced technology to open new vistas for air transportation, defense systems, and space utilization, and help materialize social comfort and safety**

### Civil aero-engine business

- Help materialize safe, comfortable, economical, and eco-friendly air transportation by driving advances in proprietary technologies and manufacturing capabilities

### Defense business

- Contribute to national security through frontline equipment and rear support based on advanced systems technologies

### Rocket systems and space utilization business

- Build rocket lineup and deploy launch services to match social needs
- Provide space utilization solutions that harness satellite data in diverse industries and fields

Position ourselves as a key global aerospace industry player, drawing on unique technologies and manufacturing capabilities based on a robust quality assurance system

## Addressing social issues

### Environmental impact reduction

- Use resources and energy efficiently
- Broaden technological innovations

### Safe, secure, and comfortable lifestyles

- Improve safety and reliability of air transportation
- Combat climate change
- Maintain social and public peace

## Focuses over three years

### Strengthen business foundations

#### Apply advanced technologies to improve customer value in lifecycles

- Make safety and quality top priorities and build and maintain a robust quality assurance system
- In aero engines, qualitatively and quantitatively bolster aftermarket responsiveness, principally for civil aero engines, accelerating efforts to build an advanced maintenance business notably by setting up sites employing advanced Internet of Things and information and communication technology and enhancing the parts repair structure
- In the defense area, extend the scope of support and provide more advanced rear support
- In the space business, manufacture rocket systems and promote launch services

### Build a robust operational structure

#### Build a lean and flexible structure to further reinforce competitiveness

- Foster people and workplaces that can ensure excellent quality and deploy the necessary resources while strengthening our organization to swiftly recovery trust
- Further enhance our global competitiveness by stepping up smart factory efforts to accelerate productivity improvements while optimally and rapidly allocating engineering resources groupwide

### Accelerate preparations for tomorrow

#### Build a business model that can deliver outstanding value across the entire value chain

- Expand our materials forming businesses and drive advances in proprietary technologies and manufacturing capabilities for composite materials
- Develop engines for next-generation fighter jets and develop defense equipment business overseas
- Harness satellite data in developing new space utilization solutions businesses

## Cultivating human resources to support IHI Group's transformation

### Ideal human resources qualities

Honest and dependable

Committed to customers and society

Creative and innovative

Team players

World-class professionals

### Key measures

1. Champion Group human resources mobility and optimize placements

2. Build and deploy a proactive framework for relearning skills

3. Train and attract highly talented professionals

Target for 10 years hence

**Generate ¥2 trillion in net sales and an operating margin that consistently exceeds 10%**

## Targets over three years and positioning

Materialize a sustainable society and growth by accelerating our transformation during this period into an enterprise that creates new value, and achieving the following goals as we reorganize our business

Management targets (FY2021)		
Capital returns	Post-tax ROIC *	More than 10%
Profitability	Operating margin	8%
Cash generation	Cash conversion cycle **	80 days
Net sales		¥1,500 billion
Investments over three years		¥420 billion

### Return on invested capital

We will make investment efficiency an important operational element while expanding investments in we aim to achieve sustainable growth and increase in corporate value by expanding investment in change.

### Profitability and Cash generation

The operating margin and cash conversion cycle are vital results management benchmarks to enhancing the return on invested capital

\* (Operating income + interest and dividend income) after-tax ÷ (owner's equity + interest-bearing debt)

\*\*Working capital ÷ Net sales x 365 days



## Segment operating margin forecasts

(Billions of yen)

	Operating Income/Operating Margin			Net Sales		
	FY2018 (Results)	FY2019 (Outlook)	FY2021 (Target)	FY2018 (Results)	FY2019 (Outlook)	FY2021 (Outlook)
Resources, Energy & Environment	3.3 0.9%	18.0 5.5%	28.0 8.0%	377.0	330.0	350.0
Social Infrastructure & Offshore Facilities	14.2 9.9%	15.0 8.8%	18.0 10.6%	143.1	170.0	170.0
Industrial Systems & General-Purpose Machinery	23.1 5.2%	25.0 5.6%	32.0 7.3%	441.0	450.0	440.0
Aero Engine, Space & Defense	46.4 9.4%	33.0 7.2%	42.0 8.6%	492.2	460.0	490.0
Others	2.3	2.0	0	79.3	80.0	110.0
Adjustment	-7.0	-13.0	0	-49.4	-90.0	-60.0
<b>Total</b>	82.4 5.6%	80.0 5.7%	120.0 8.0%	1,483.4	1,400.0	1,500.0
Exchange rate	¥111.09/US\$	¥105/US\$	¥105/US\$	¥111.09/US\$	¥105/\$US	¥105/\$US

## Dividend policy

**We aim to continuously increase dividends in line with Group growth, in addition to continuous provision of stable dividends to shareholders. We target a consolidated payout ratio of around 30% after investments to enhance corporate value and allocations to bolster capital levels.**

## Planned FY2019 dividend

**¥70 per share (interim and year-end payments of ¥30 and ¥40 per share, respectively)**

# Reference Materials

# Concentration and Selection of Group Management Policies 2016 (1) IHI

- Reforming business structure to bolster profitability, centered on strategic business units slated for priority investments.
- For businesses with viability concerns (strategic business units designated for rehabilitation and reorganization), made progress in formulating structural reform plans under implementation to rehabilitate and reorganize within two years (end-fiscal 2017). Will continue to implement structural reform plans in third year.

## Progress with concentration and selection and structural reform initiatives since fiscal 2016 (1)

Business	Category	Timing	Overview
Parking	Concentration	October 2016	Subsidiary IHI Transport Machinery Co., Ltd. acquired multi-storey parking machinery maintenance business from KYC Machine Industry Co., Ltd.
Shield	Concentration	October 2016	Subsidiary Japan Tunnel Systems Corporation and Mitsubishi Heavy Industries Mechatronics Systems, Ltd., integrated shield tunneling machine businesses to form JIM Technology Corporation.
Rolling mills (strip casters)	Selection	October 2016	IHI transferred ownership, patent, and other interests in strip caster company Castrup LLC, withdrawing from that business.
Logistics & industrial machinery	Structural reform	October 2016	IHI integrated sales units into IHI Logistics & Machinery Corporation to create a structure that can undertake business activities more responsively and flexibly.
Construction machinery	Selection	November 2016	IHI transferred all shares in IHI Construction Machinery Limited to Kato Works Co., Ltd.
Rotating machinery	Concentration	December 2016	Joint venture established with Dalgakiran of Turkey to manufacture and sell general-purpose turbo compressors.

# Concentration and Selection of Group Management Policies 2016 (2) IHI

## Progress with concentration and selection and structural reform initiatives since fiscal 2016 (2)

Business	Category	Timing	Overview
Influenza vaccine API manufacturing	<b>Selection</b>	January 2017	Shares in biopharma API manufacturing business UNIGEN Inc. transferred to API Co., Ltd.
Waste treatment	<b>Structural reform</b>	March 2017	Comprehensive waste treatment facilities business alliance agreement concluded with Kobelco Eco-Solutions Co., Ltd.
Machinery for ships	<b>Selection</b>	May 2017	Marine deck cranes (deck cranes and mooring machines) business transferred to Iknow Machinery Co., Ltd., a ship machinery subsidiary of Oshima Shipbuilding Co., Ltd.
Disaster prevention	<b>Selection</b>	June 2017	Firefighting equipment business of subsidiary IHI Shibaura Machinery Corporation transferred to a company established by NH-2 (New Horizon No. 2 Investment LP), a unit of New Horizon Capital.
Agricultural machinery	<b>Structural reform</b>	October 2017	Subsidiaries IHI Shibaura Machinery Corporation and IHI Star Machinery Corporation integrated to form IHI Agri-Tech Corporation.
Rotating machinery	<b>Structural reform</b>	October 2017	Rotary machinery business (including compressors and separators) integrated with operations of subsidiary IHI Compressor and Machinery Co., Ltd., to launch IHI Rotating Machinery Engineering Co., Ltd.
Parking	<b>Concentration</b>	February 2018	Subsidiary IHI Transport Machinery Co., Ltd. acquired multi-storey parking machinery maintenance business of Nabco Door, Ltd.
Parking	<b>Concentration</b>	June 2018	Subsidiary IHI Transport Machinery Co., Ltd., established mechanical parking business in China with Qingdao Huatong Energy Investment Co., Ltd., and Qingdao Huatong Science & Industry Investment Co., Ltd., two affiliates of the Qingdao Huatong State-owned Capital Operation(Group) Co., Ltd.

# Concentration and Selection of Group Management Policies 2016 (3) IHI

## Progress with concentration and selection and structural reform initiatives since fiscal 2016 (3)

Business	Category	Timing	Overview
Rocket systems	<b>Concentration</b>	June 2018	Subsidiary IHI Aerospace Co., Ltd., Canon Electronics, Inc., Shimizu Corporation, and the Development Bank of Japan Inc. jointly established Space One Co., Ltd., to launch small rockets.
F-LNG and Offshore Facilities	<b>Selection</b>	September 2018	Aichi Works, a key production site for F-LNG and Offshore Facilities production, completed project order and ends its manufacturing role.
Parking	<b>Concentration</b>	October 2018	Subsidiary IHI Transport Machinery Co., Ltd. acquired multi-storey parking machinery maintenance business of Orient Industries, Ltd.
Shield	<b>Concentration</b>	October 2018	Subsidiary JIM Technology Corporation acquired 51% of Terratec Ltd. of Hong Kong to enhance its global competitiveness in shield tunneling machinery.
Small power systems	<b>Selection</b>	December 2018	Subsidiary IHI Agri-Tech Corporation sold small engine business to Caterpillar Inc.
Environmental response systems	<b>Selection</b>	January 2019	Subsidiary IHI Enviro Corporation sold waste process facilities-related and other businesses to Kobelco Eco-Solutions Co., Ltd.
Process plants	<b>Structural reform</b>	April 2019	Process plants business and subsidiary IHI Plant Engineering Corporation merged with subsidiary IHI Plant Construction Co., Ltd., to form IHI Plant Services Corporation.
Power systems	<b>Structural reform</b>	July 2019	Power systems business and subsidiary Diesel United, Ltd., to merge with subsidiary Niigata Power Systems Co., Ltd., to form IHI Power Systems Co., Ltd.



Forward-looking figures shown in this material with respect to IHI's performance outlooks and other matters are based on management's assumptions and beliefs in light of the information currently available to it, and therefore contain risks and uncertainties. Consequently, you should not place undue reliance on these performance outlooks in making judgments. IHI cautions you that actual results could differ materially from those discussed in these performance outlooks due to a number of important factors. These important factors include political environments in areas in which IHI operates, general economic conditions, and the yen exchange rate including its rate against the US dollar.