

# Results for the Six Months Ended September 30, 2017 Management Review

**IHI**

November 1, 2017

**IHI Corporation**

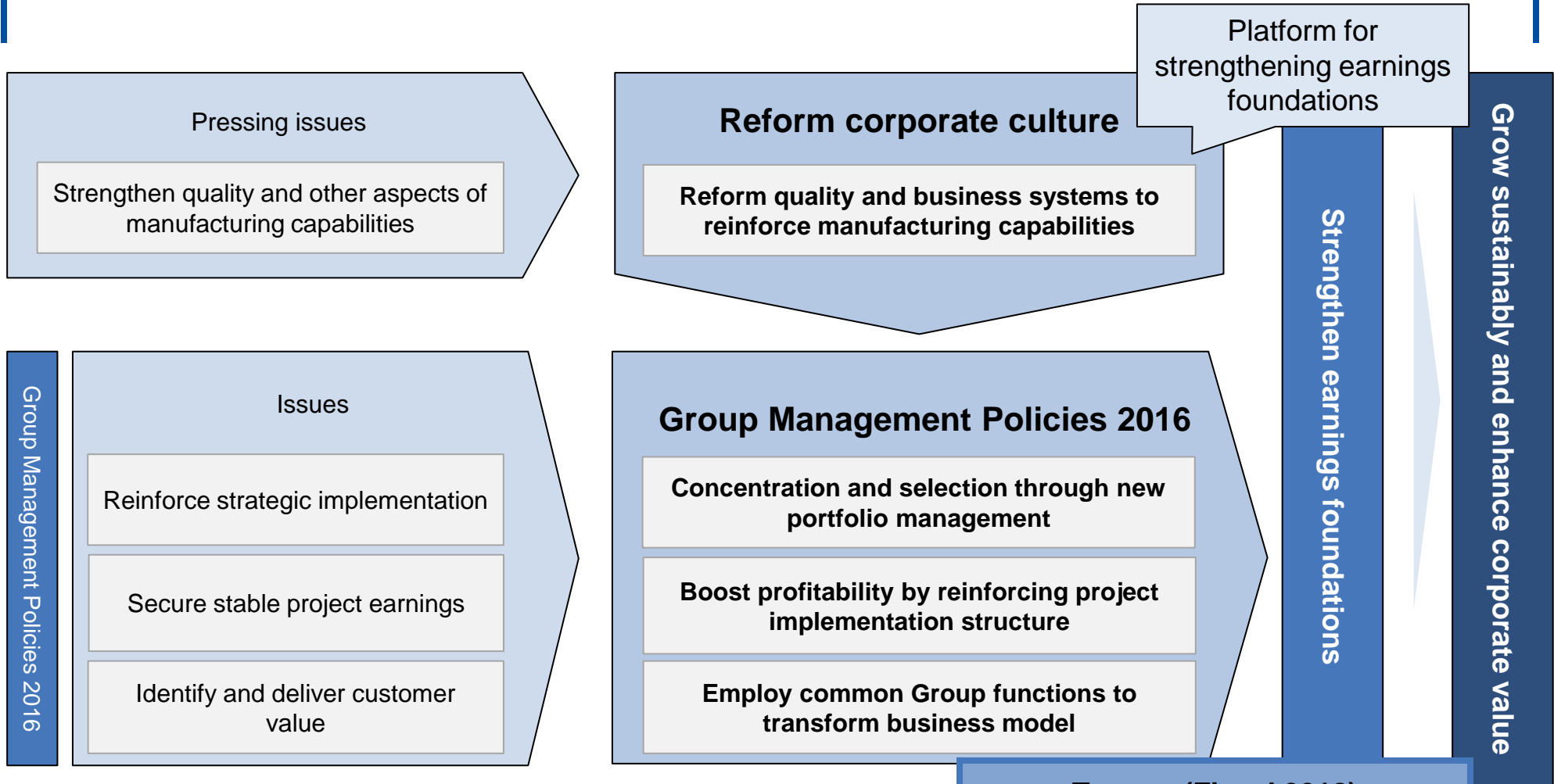
Tsugio Mitsuoka, President and Chief Executive Officer

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# Progress with Group Management Policies 2016





Targets (Fiscal 2018)	
Operating margin	7%
ROIC	10%
Debt-to-equity ratio	0.7x or less

## Efforts to reach 2018 operating margin targets

- No longer remaining unprofitable large projects
- Accelerating efforts to improve business area profitability
  - Constructed optimal production system by building global network and accelerate worldwide procurement
  - Improved profitability by creating robust business structure (reduce SG&A expenses and enhance productivity)
  - Flexibly allocated human resources and reinforced collaboration between individual businesses
- Reducing profitability deterioration risks in large construction projects by reinforcing execution structure

## Initiatives to reinforce earnings foundations

- Downside prevention initiatives
  - Reinforced construction structure by deploying experts in the business area
  - Analyzed downside events for each construction phase and comprehensively implement measures to manage current projects and project estimates
- Building solutions-driven business model that encompasses customer operations

### Customer plant operations support



IHI headquarters  
Customer operations support center  
(Gas turbines)



Malaysian subsidiary  
Operations monitoring and support center  
(Boilers)

- Fostering globalization through collaboration between local affiliates, primarily in Southeast Asia

## Initiatives to reinforce earnings foundations

- Strengthening infrastructure maintenance project initiatives with collaborations among businesses in the business area
  - Provided solutions catering to various needs through bridge upgrade and repair technologies
  - Used information and communication technologies to optimize maintenance projects
- Enhancing risk management in business area and leverage resources effectively to secure earnings from large projects
- Accelerating global deployment
  - Secured orders and earnings for large overseas products (bridges and transportation systems)
  - Extensively harnessed production units in Vietnam and Myanmar



Deck replacement



Myanmar concrete products plant opened in April 2017

## Initiatives to reinforce earnings foundations

- Turbochargers for vehicles: Increase profitability by employing investments and resources effectively
  - Reinforced customer responsiveness at global sites
    - ⇒ Opened offices for China in Shanghai and for North America in Detroit
  - Optimized productivity by harnessing global network
- Heat treatment and surface engineering: Establishing business infrastructure in new areas
  - Started eco-friendly plastic chrome coating contracting business that is free of hexavalent chromium
- Pursuing business structure reforms to generate growth, globalize, and enhance profitability
  - Intensively deployed business area resources to swiftly streamline portfolio management
    - Integrated rotary machinery business with operations of subsidiary IHI Compressor and Machinery Co., Ltd., to form IHI Rotating Machinery Engineering Co., Ltd.
    - Agricultural machinery subsidiaries IHI Shibaura Machinery Corporation and IHI Star Machinery Corporation integrated to form IHI Agri-Tech Corporation

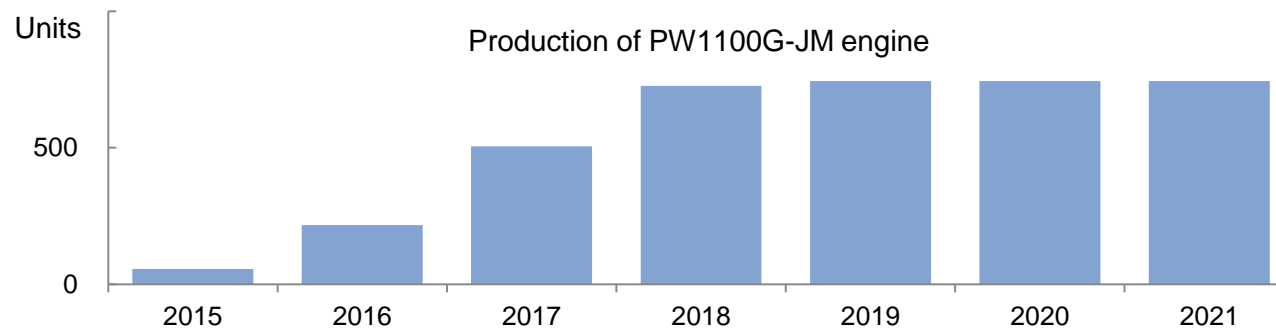


Electromotive turbocharger for mild hybrid electric vehicle



## Initiatives to reinforce earnings foundations

- Aftermarket revenues from existing programs rising on solid passenger demand
- Steadily catering to surging demand for PW1100G-JM engine and boosting profitability
  - Continuing to invest in additional production lines, expand unit production, and accelerate cost reduction efforts early in mass production stage



- Boosting productivity and profitability by employing information and communication technology and robots to reinforce advanced manufacturing systems
  - Stabilized quality and reduced costs of PW1100G-JM engine fan blades, structural guide vanes (SGVs) and integrally bladed rotors (IBRs)



SGV composite parts



Automated SGV line



Integrally bladed rotor parts



Automated integrally bladed rotor line

Steadily investing to drive future growth and generate results recovery from fiscal 2018

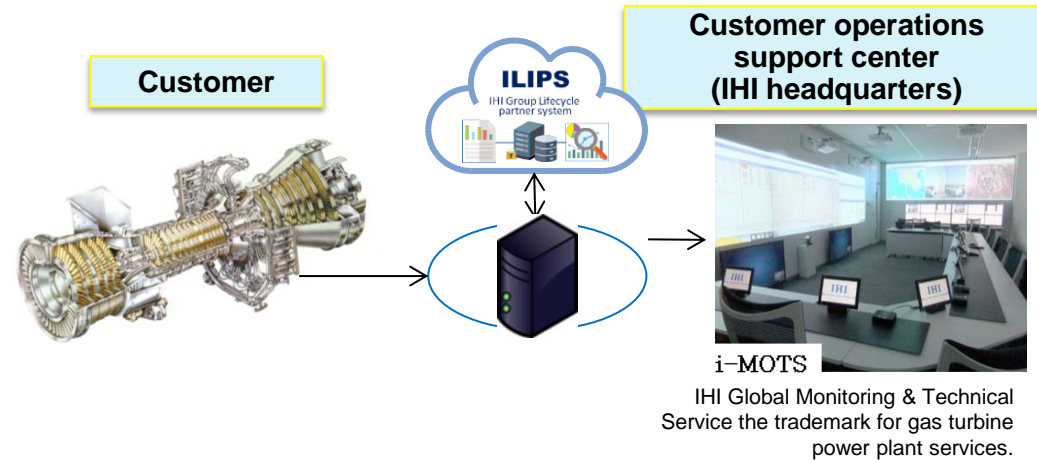
# Building New Customer Value

## Advanced Products and Services Leveraging IoT

### 1. Gas turbine power plants

- In gas turbine business, have long provided services that support swift recoveries if issues arise
- Deployed algorithms to analyze operational data, detect potential abnormalities, and avoid unplanned shutdowns
- Expert technicians assess operational data and remotely adjust control systems

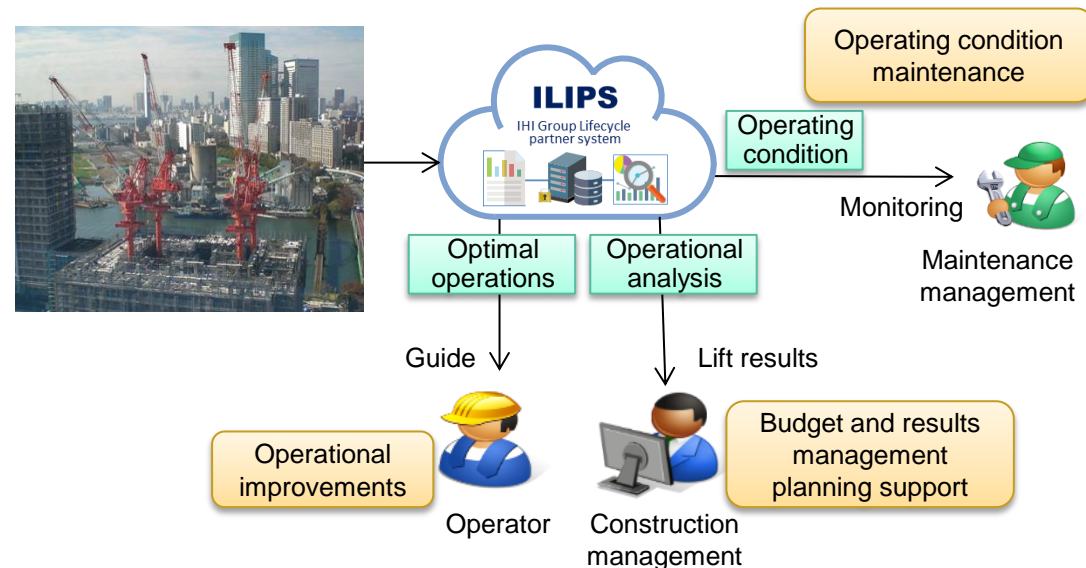
**Adding the above customer value and concluding new operational guarantee service agreements**



### 2. Jib climbing cranes for construction sites

- Analyzing crane operational data and supporting optimal operational plans for crane work
- Expert technicians evaluate operational data and advise on optimal maintenance plans
- Analyzing skills of experienced operators and using artificial intelligence to optimize work of less experienced personnel

**Adding the above customer value and concluding new service agreements**



ILIPS (for IHI group Lifestyle Partner System): This is a cloud service that makes it possible to amass, visualize, and analyze operational data on Group products and plant deliveries.

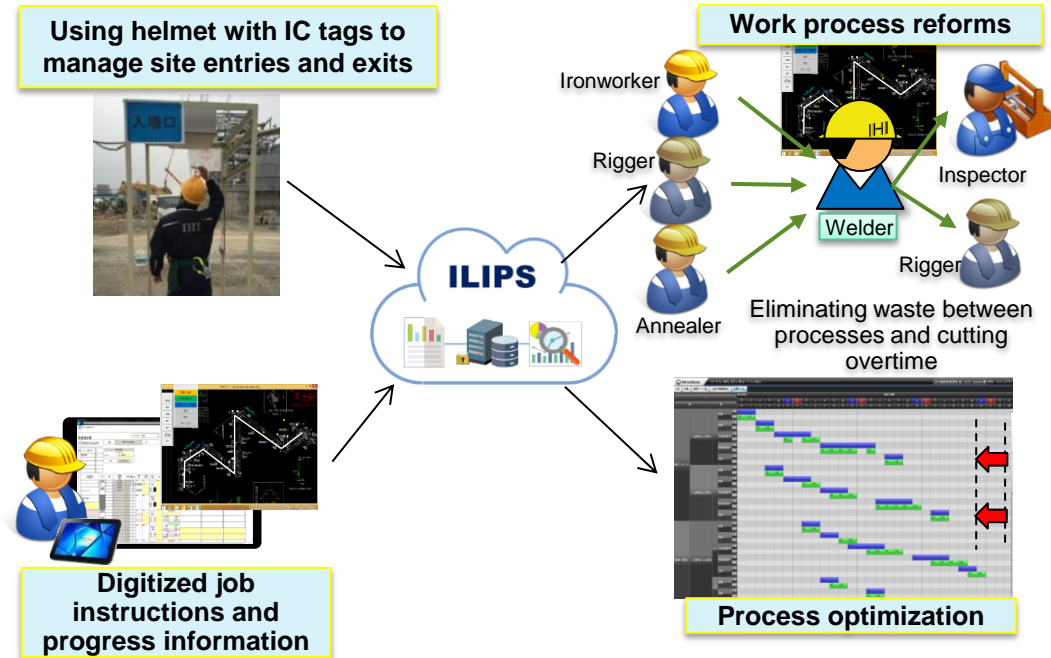
# Building New Customer Value

## Advanced Manufacturing Harnessing IoT

### 1. Improving construction site efficiency

- Digitizing information on people, objects, process progress, as well as other boiler and other construction site factors for use with sensors, tablets, and other devices
- Using digitized information to assess progress, visualize work efficiency, and eliminate waste between work processes
- Factoring in welding skills in optimizing processes

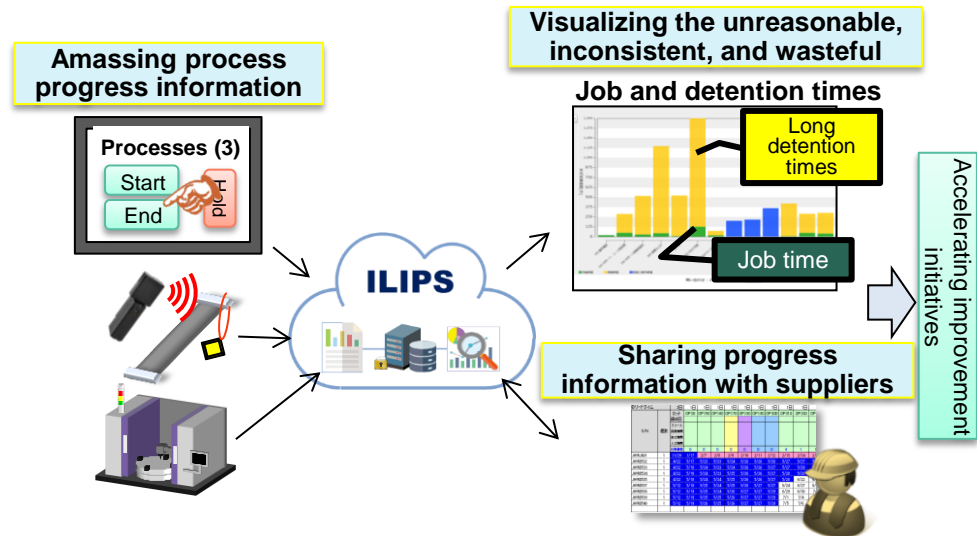
**Shortening construction periods and reforming workplaces**



### 2. Improving aircraft engine manufacturing productivity

- Digitizing information on people, objects, facilities, and other production process factors for use with sensors, tablets, and other devices
- Visualizing working hours for each process and detention times for objects goods, improving personnel work efficiency and cutting required production times, including for suppliers

**Slashing required production times**



# Appendix



# Concentration and Selection through New Portfolio Management (1) IHI

- Currently undertaking business structure reforms to bolster profitability, centered on SBUs slated for priority investments.
- For businesses with viability concerns (strategic business units designated for rehabilitation and reorganization), corporate also involved in formulating structural reform plans under implementation to rehabilitate and reorganize within two years (end-fiscal 2017).

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

Business	Category	Timing	Overview
Parking	<b>Concentration</b>	June 2016	Subsidiary IHI Transport Machinery Co., Ltd., receives a maintenance order for mechanical car parking systems from KYC Machine Industry Co., Ltd.
Shield	<b>Concentration</b>	October 2016	Subsidiary Japan Tunnel Systems Corporation and Mitsubishi Heavy Industries Mechatronics Systems, Ltd., integrate shield tunneling machine businesses to form JIM Technology Corporation.
Rolling mills (strip casters)	<b>Selection</b>	October 2016	IHI transfers ownership, patent, and other interests in strip caster company Castrup LLC, withdrawing from that business.
Logistics & industrial machinery	<b>Structural reform</b>	October 2016	IHI integrates sales units into IHI Logistics & Machinery Corporation to create a structure that can undertake business activities more responsively and flexibly.
Construction machinery	<b>Selection</b>	November 2016	IHI transfers all shares in IHI Construction Machinery Limited to Kato Works Co., Ltd.

# Concentration and Selection through New Portfolio Management (2) IHI

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

Business	Category	Timing	Overview
Rotating machinery	<b>Concentration</b>	December 2016	Joint venture established with Dalgakiran of Turkey to manufacture and sell general-purpose turbo compressors.
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 slated to be transferred to a company established by 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, forming 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 form IHI Rotating Machinery Engineering Co., Ltd.
F-LNG and offshore structures	<b>Selection</b>	Shutdown after order completion	Production at Aichi Works, a key unit for the F-LNG and offshore structure business, to be terminated after orders completed.



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.