2018 Medium-Term Business Plan
(FY2018—FY2020)

May 8, 2018
Mitsubishi Heavy Industries, Ltd.
Shunichi Miyanaga, President and CEO
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### Reference Materials
30

- *Numerical Number by Segment, Each Business Strategy, etc*
I. Review of 2015 Medium-Term Business Plan
I-1. Key Business and Financial Results (1/2)

- **Slow business scale growth, missed operating income target**
  - Responded to unanticipated changes in external environment, but effect of improvement measures were limited during period of 2015 Business Plan
  - MRJ development delays and cost increases

- **200 billion yen FCF target achieved**
  - Burden from South Africa, MRJ, etc. absorbed through CCC improvement and other measures

- **Continued 120 yen per share dividend and built up shareholders’ equity, but original target missed**
  - Main reasons: missed operating income targets, extraordinary losses from cruise ship business

* * * Consolidated shares as of October 1, 2017 (10shares→1share). Showing dividend after consolidation of shares for comparison

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**FCF**
- Free Cash Flow

**CCC**
- Cash Conversion Cycle

**Net sales (trillion yen)**
- 2.82
- 3.16
  - FY2008 Business Plan Avg.
- 2.86
  - FY2009 Business Plan Avg.
- 3.39
  - FY2010 Business Plan Avg.
- 4.05
  - FY2011 Actual
- 3.91
  - FY2012 Actual
- 4.11
  - FY2013 Actual
- 5.00
  - FY2014 Actual
- 207.9
  - FY2015 Actual
- 200.0
  - FY2016 Actual
- 176.9
  - FY2017 Actual

**Operating income (billion yen)**
- 83.2
- 85.7
  - FY2008 Business Plan Avg.
- 106.6
  - FY2009 Business Plan Avg.
- 221.9
  - FY2010 Business Plan Avg.
- 309.5
  - FY2011 Actual
- 150.5
  - FY2012 Actual
- 126.5
  - FY2013 Actual
- 450.0
  - FY2014 Actual

**Dividend (yen per share)**
- 5.0
- 5.0
  - FY2008 Business Plan Avg.
- 5.0
  - FY2009 Business Plan Avg.
- 9.0
  - FY2010 Business Plan Avg.
- 12.0
  - FY2011 Actual
- 12.0
  - FY2012 Actual
- 2.0
  - FY2013 Actual
- 8.0
  - FY2014 Actual

**Shareholders’ equity (billion yen)**
- 1,215.7
- 1,259.1
  - FY2008 Business Plan Avg.
- 1,282.9
  - FY2009 Business Plan Avg.
- 1,491.3
  - FY2010 Business Plan Avg.
- 1,637.8
  - FY2011 Actual
- 1,679.4
  - FY2012 Actual
- 1,719.9
  - FY2013 Actual
- 2,050.0
  - FY2014 Actual

**MRJ/R&D**
- 83.2
- 85.7
  - FY2008 Business Plan Avg.
- 106.6
  - FY2009 Business Plan Avg.
- 221.9
  - FY2010 Business Plan Avg.
- 309.5
  - FY2011 Actual
- 150.5
  - FY2012 Actual
- 126.5
  - FY2013 Actual
- 450.0
  - FY2014 Actual

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>MRJ</td>
<td>200 billion yen</td>
<td>FCF (excluding *1)</td>
<td>FCF</td>
<td>Shareholders’ equity</td>
<td>DFC</td>
<td>DFC</td>
<td>DFC</td>
<td>DFC</td>
<td>DFC</td>
<td>DFC</td>
<td>DFC</td>
<td>DFC</td>
</tr>
</tbody>
</table>

*1 South Africa projects, MRJ, cruise ships, asset management

*2Deduct accumulated other comprehensive income from shareholders’ equity

*3Consolidated shares as of October 1, 2017 (10shares→1share). Showing dividend after consolidation of shares for comparison
I-1. Key Business and Financial Results (2/2)

- Financial foundation strengthened beyond target, reaching a healthy level through measures including cash flow management, asset management, etc.

- Interest-bearing debt reduced beyond original target
- Debt/equity ratio reached lowest level in history
- FCF target achieved (see p.4)

<table>
<thead>
<tr>
<th>Year</th>
<th>Interest-bearing debt (billion yen)</th>
<th>Debt/equity ratio</th>
<th>FCF (billion yen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2010</td>
<td>1,325.6</td>
<td>1.01</td>
<td>200.5</td>
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<tr>
<td>FY2011</td>
<td>1,157.1</td>
<td>0.89</td>
<td>153.3</td>
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<tr>
<td>FY2012</td>
<td>1,031.2</td>
<td>0.72</td>
<td>211.6</td>
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<td>FY2013</td>
<td>957.4</td>
<td>0.54</td>
<td>144.6</td>
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<tr>
<td>FY2014</td>
<td>975.5</td>
<td>0.46</td>
<td>38.6</td>
</tr>
<tr>
<td>FY2015</td>
<td>1,052.1</td>
<td>0.53</td>
<td>7.5</td>
</tr>
<tr>
<td>FY2016</td>
<td>925.5</td>
<td>0.44</td>
<td>104.6</td>
</tr>
<tr>
<td>FY2017</td>
<td>813.1</td>
<td>0.38</td>
<td>207.9</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>200.0</td>
</tr>
</tbody>
</table>

- Working capital improvement and squeezing (CCC improvement)
- Asset management

FCF: Free Cash Flow  CCC: Cash Conversion Cycle

- Completed organizational/structural reforms over 8 years, starting from 2010 Business Plan.
- Almost completed corporate governance reforms launched in 2012 Medium-Term Business Plan.

2010 Medium-Term Business Plan (FY2010-FY2011)
- Effective use of management resources
- Removal of siloes between businesses
- Business works structure

2012 Medium-Term Business Plan (FY2012-FY2014)
- Integration and reorganization of business headquarters
- Business headquarters structure (9 business headquarters)
- Domain structure (4 domains)
- Review of business portfolio (concentration into core competencies)

2015 Medium-Term Business Plan (FY2015-FY2017)
- Reinforced risk management structure
- 3 domains
- Acceleration of M&A and business spin-offs

Strategic business evaluation system (SBUs)
- Strategic Business Unit (SBU)
- Chief officers system, increased ratio of outside directors

- Completed organizational/structural reforms over 8 years, starting from 2010 Business Plan.
- Almost completed corporate governance reforms launched in 2012 Medium-Term Business Plan.

- Effective use of management resources
- Removal of siloes between businesses

- Domain structure (4 domains)
- Review of business portfolio (concentration into core competencies)

- Reinforced risk management structure
- 3 domains
- Acceleration of M&A and business spin-offs

- Synergies of Domain structure
- Response to Globalization

- Company with Audit and Supervisory Committee
- Chief officers system, increased ratio of outside directors

- Strengthening of cross-domain functions (ST framework)
- Efficiency enhancement and strengthening of corporate functions (BPO, etc.)
## Structural and directional improvements / activities

<table>
<thead>
<tr>
<th>Business Area</th>
<th>Achievements</th>
<th>Globalization, outside collaboration</th>
<th>Increased productivity IoT / AI</th>
<th>Future Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marketing</td>
<td>Development of cross-SBU projects overseas</td>
<td></td>
<td></td>
<td>• Operationalize and enhance process improvement outcomes</td>
</tr>
<tr>
<td></td>
<td>Achievement of advanced customer services (O&amp;M support system, etc.)</td>
<td></td>
<td></td>
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<td></td>
<td>Long-Term Growth Vision (future stream) activities (p.27)</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Improvement of companywide sales and service education systems</td>
<td></td>
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</tr>
<tr>
<td>Technology</td>
<td>Expanded open innovation with global CoEs</td>
<td></td>
<td></td>
<td>• Nurture global managers</td>
</tr>
<tr>
<td></td>
<td>Engineering talent management system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Digitalization of production processes</td>
<td></td>
<td></td>
<td>• Strengthen new business creativity and integrate state-of-the-art technologies</td>
</tr>
<tr>
<td></td>
<td>Configuration of common component code system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td>Introduction of global financial and accounting policies</td>
<td></td>
<td></td>
<td>• Broad application of digitalization</td>
</tr>
<tr>
<td></td>
<td>Expanded operation of global cash management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Introduction of IT/automation of monitoring of business status,</td>
<td></td>
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<tr>
<td></td>
<td>enhanced business process efficiency through RPA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HR</td>
<td>Configuration of HR data base and use in planning successors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HR: Human Resources</td>
<td>Unification of business processes and systems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procurement</td>
<td>Consolidation of suppliers, introduction of management tools</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reconfiguration of commercial aircraft SCM, Reform of procurement processes</td>
<td></td>
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</tr>
</tbody>
</table>

- Responded to new challenges and reinforced the risk management structure

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**2010 Medium-Term Business Plan (FY2010-FY2011)**

- USA / SONGS equipment
- SONGS: San Onofre Nuclear Generating Station

**2012 Medium-Term Business Plan (FY2012-FY2014)**

- AIDA cruise ships

**2015 Medium-Term Business Plan (FY2015-FY2017)**

- MRJ development
  - MRJ: Mitsubishi Regional Jet
  - Program launch: 2009/09
  - Delivery of 1st aircraft (original schedule): 2013
- Business Risk Management Division (established Apr 2016)
- Business Risk Management Charter (enacted Nov 2016)

**Strengthening of risk deliberation and management**

- Monitoring and clarification of lessons
- Risk identification
- Risk analysis and assessment
- Execution (professional team support)

**Cultivation of risk management culture, human resources development**

- Education of next business general managers and SBU leaders (with participation of CEO, CFO, CTO)
- Business Strategy risk
- Corporate culture risk
- Business Execution risk

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Diversified and complicated risk by globalization and regulations

Reinforcement of organization and system + Foster response culture
II. 2018 Medium-Term Business Plan
II-1. Plan Context

### 2015 Medium-Term Business Plan
- Reforms and crisis response

#### Sluggish growth in business scale
- Earnings targets unachieved

#### Business structure reforms completed

#### Renovation and strengthening of risk management structure

#### Strengthening of financial foundation

#### Preparation for shift to global management structure

### 2018 Medium-Term Business Plan
- The first step to sustainable growth trajectory

#### Drive earnings recovery (productivity improvement, etc)

#### Growth strategy and investment in business expansion that matches the changing needs of society

#### Radical strengthening of business structure of MRJ and restructuring of thermal power business

#### Embed reforms throughout the Group

#### Strengthen response capabilities to diverse risks
- Controlled risk taking

#### Balance business growth with financial stability

#### Shift to global management structure
- Streamline organization and human resources development

#### Develop a culture focused on earnings and efficiency

#### Build strong resilience against uncertainties

#### Creative expansion of added value
II-2. Basic Policies and Strategies (1/3)

1. Corporate structure to achieve global-standard sustainability and growth potential

<table>
<thead>
<tr>
<th>2015 Business Plan (actual)</th>
<th>2018 Business Plan</th>
<th>2021 Business Plan (subject to change)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business scale</td>
<td>¥ 4.1 trillion</td>
<td>¥ 5 trillion</td>
</tr>
<tr>
<td>Total assets</td>
<td>¥ 5.5 trillion</td>
<td>¥ 5.3 trillion or less</td>
</tr>
<tr>
<td>ROE</td>
<td>3.9%</td>
<td>11%</td>
</tr>
<tr>
<td>TOP*1</td>
<td>1 : 1.3 : 0.3</td>
<td>1 : 1.1 : 0.6</td>
</tr>
</tbody>
</table>

*1 See p.12

2. Embed business structure reforms

- Evolve domain system
  → continuous portfolio shuffling, etc
- Strengthen and embed risk management
- Strengthen global management (p.25)
- Nurture a corporate culture and develop human resources (p.28)

3. Implement growth strategies based on long-term vision

- Strong resilience to uncertainties
- Global-ready organization
- Adaptability to change
II-2. Basic Policies and Strategies (2/3)

TOP (Triple One Proportion) Concept
Serving the needs of stakeholders and society in a sustainable and harmonious way
Managerial goal (proportion) Net sales : Total assets : Market value = 1 : 1 : 1*

Prioritize efficiency and quality
Balance of maintaining sound financial base and growth investment over the medium term
Seek long-term and stable improvement in corporate value

TOP (Triple One Proportion) Concept

Managerial goal (proportion) Net sales : Total assets : Market value = 1 : 1 : 1*
* Future orientation: Total assets ≤ 1, Market value ≥ 1

Serving the needs of stakeholders and society in a sustainable and harmonious way

Optimal portfolio (shuffle / maintain)
Long-term growth investment (including HR)
Maintain sound financial structure

Earnings base
Quality and efficiency
Investment base

ESG: Environment, Social, Governance
SDGs: Sustainable Development Goals
ROE: Return On Equity
II-2. Basic Policies and Strategies (3) – Long-term vision

MHI FUTURE STREAM  In step with social evolution

Under “MHI FUTURE STREAM,” MHI aims to:
- Resolve complex and difficult social issues of today and the near future
- Take on challenges of the distant future
- Carry out continuous reforms to make MHI a company always in demand by humanity and society

SDGs
Realization of a sustainable world

SUSTAINABLE DEVELOPMENT GOALS

New market needs
Social values
Existing market needs

GTCC: Gas Turbine Combined Cycle Power Plant
IGCC: Integrated coal Gasification Combined Cycle Power Plant
SOF: Solid oxide fuel cell
## II-3. Overall Numerical Targets (1/3): After Application of IFRS

<table>
<thead>
<tr>
<th></th>
<th>2015 Medium-Term Business Plan</th>
<th>2018 Medium-Term Business Plan</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>J-GAAP</td>
<td>IFRS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2015 Business Plan 3-year average</td>
<td>FY2017</td>
<td>FY2018</td>
</tr>
<tr>
<td>Orders received</td>
<td>111.1yen/$ 129.9yen/€ 110yen/$ 130yen/€</td>
<td>4,212.3</td>
<td>3,875.7</td>
</tr>
<tr>
<td>Net sales</td>
<td>110yen/$ 130yen/€</td>
<td>4,023.9</td>
<td>4,110.8</td>
</tr>
<tr>
<td>Operating income (EBIT)</td>
<td>*(4.9%)(3.1%)</td>
<td>195.5</td>
<td>126.5</td>
</tr>
<tr>
<td>Net income</td>
<td></td>
<td>74.0</td>
<td>70.4</td>
</tr>
<tr>
<td>ROE</td>
<td></td>
<td>4.2%</td>
<td>3.9%</td>
</tr>
<tr>
<td>FCF</td>
<td></td>
<td>106.6</td>
<td>207.9</td>
</tr>
<tr>
<td>Debt/equity ratio</td>
<td></td>
<td>0.45</td>
<td>0.38</td>
</tr>
<tr>
<td>Equity ratio</td>
<td></td>
<td>32.1%</td>
<td>33.3%</td>
</tr>
<tr>
<td>Interest-bearing debt</td>
<td></td>
<td>930.2</td>
<td>813.1</td>
</tr>
<tr>
<td>Total assets</td>
<td></td>
<td>5,490.1</td>
<td>5,487.6</td>
</tr>
<tr>
<td>Dividend per share</td>
<td></td>
<td>120yen</td>
<td>120yen</td>
</tr>
</tbody>
</table>

*1 Before Application of IFRS → Operating income, After Application of IFRS → EBIT (Including non-operating income and loss and extraordinary income and loss other than net financial revenue)

*2 Refer to the Reference 1 for the factor of increase in profit from FY2018 to FY2020

*3 Reviewed total assets and shareholder equity in accordance with change in valuation method of long term receivable assets (see p.15)
II-3. Overall Numerical Targets (2/3):
Income Comparisons before/after Application of IFRS

<table>
<thead>
<tr>
<th></th>
<th>2015 Medium-Term Business Plan</th>
<th>2018 Medium-Term Business Plan</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>2015 Business Plan 3-year average</td>
<td>FY2017</td>
</tr>
<tr>
<td></td>
<td>111.1yen/$ 129.9yen/€</td>
<td>110yen/$ 130yen/€</td>
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<td>4,023.9</td>
<td>4,110.8</td>
</tr>
<tr>
<td>Operating income</td>
<td>195.5</td>
<td>126.5</td>
</tr>
<tr>
<td>(Margin)</td>
<td>(4.9%)</td>
<td>(3.1%)</td>
</tr>
<tr>
<td>Net income</td>
<td>74.0</td>
<td>70.4</td>
</tr>
<tr>
<td>Net worth</td>
<td>1,761.3</td>
<td>1,824.7</td>
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<tr>
<td>Total assets</td>
<td>5,490.1</td>
<td>5,487.6</td>
</tr>
<tr>
<td>Equity ratio</td>
<td>32.1%</td>
<td>33.3%</td>
</tr>
<tr>
<td>ROE</td>
<td>4.2%</td>
<td>3.9%</td>
</tr>
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Before IFRS (J-GAAP)

After IFRS

EBIT
(Margin)

Net income

Net worth *1

Total assets *1

Equity ratio *1

ROE

*1 Financial soundness is maintained despite decreased shareholder equity, owing to changes in how depreciable assets (MRJ, etc.) are measured with application of IFRS.

*2 Reflects evaluation of the development costs of MRJ for each fiscal year (Refer to *1 ) ⇒ Development costs will hit a peak by FY2018 and decrease toward FY2020

*2 Reflects evaluation of the development costs of MRJ for each fiscal year (Refer to *1 ) ⇒ Development costs will hit a peak by FY2018 and decrease toward FY2020


- Invest in quick-impact scale expansion during this midterm plan based on the strengthened financial foundations of the 2015 medium term business plan.

### Regular operating CF during period 2018 Business Plan

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF income (net income + depreciation costs)</td>
<td>1,310 billion yen</td>
</tr>
<tr>
<td>BS improvement + asset management</td>
<td>10 billion yen *1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,320 billion yen</strong></td>
</tr>
</tbody>
</table>

* Not including MRJ and South Africa projects

**Actual results during 2015 Medium Term Business Plan**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF income</td>
<td>1,000 billion yen</td>
</tr>
<tr>
<td>BS improvement</td>
<td>500 billion yen</td>
</tr>
<tr>
<td>Asset</td>
<td>260 billion yen</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,760 billion yen</strong></td>
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</table>

*1: BS improvement during 2015 Business Plan. Working capital to remain at current level during 2018 Business Plan despite the increase in business scale

### Dynamic allocation

<table>
<thead>
<tr>
<th>Description</th>
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</tr>
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<tbody>
<tr>
<td><strong>Total</strong></td>
<td>960 billion yen</td>
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### Allocation to maintain status quo

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>170 billion yen</td>
</tr>
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</table>

### Shareholder returns

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>190 billion yen</td>
</tr>
</tbody>
</table>

### New businesses

- **New projects and MRJ**
  - Capital investment (productivity improvement)
    - 580 billion yen
  - Investment and lending
    - 240 billion yen
  - 140 billion yen

### Capital investment (facility replacement)

- **Total**
  - 160 billion yen

### Risk response

- **Total**
  - 50 billion yen

### Reduction in interest-bearing debt *2

- **Total**
  - 50 billion yen

### Dividends (including dividends to non-controlling shareholders)

- **Total**
  - 190 billion yen

*2 Includes appropriation (90 billion yen) of CF (cash in hand) acquired ahead of schedule in FY2017 to reduce interest-bearing debt
II-4. Overview of Domain Targets (1/4) - Megatrends

**Measures against climate change**
- From low-carbon to carbon-free
- Renewable energies
- Electrification
- Decentralization / Networks

**Digitalization**
- Connected society
- Shared economics
- Increased focus on sense of security, trust
- Big data / analytics
- Machine AI and automation
- Security diversification

**Power Systems**
- “Energy Transition”
- From low-carbon to carbon-free
- Renewable energies
- Electrification
- Decentralization / Networks

**Industry & Infrastructure**
- “Smart & Environmental”
- Innovations in mobility and logistics
- Clean, recycling-based & sustainable society
- Robotics

**Aircraft, Defense & Space**
- “Security & Exploration”
- Cybersecurity
- Unmanned systems
- Use satellite data

*Source: IEA ETP 2017 2°C Scenario*
Mitsubishi Hitachi Power Systems
- Efficient completion of current large-scale orders, earnings recovery
- Begin large-scale transformation of business structure

Nuclear Energy Systems Division
- Support plant restarts and mid- to long-term maintenance projects
- Expand overseas equipment exports, fuel cycle and other businesses
- Increase involvement in next-generation technologies

Mitsubishi Heavy Industries Aero Engines, Ltd.
- Respond to increasing long-term demand
  → Increase new production capacity, expand repair and servicing business

Mitsubishi Heavy Industries Compressor Corporation
- Undertake full-scale entry into recovering oil & gas business

Turboden S.p.A.
- Expand business in growing geothermal market

Mitsubishi Heavy Industries Marine Machinery & Equipment Co., Ltd.
- Expand MET turbocharger business
- Strengthen solutions business

MHI Vestas Offshore Wind A/S
- Respond to intensifying price competition, improve productivity, curb fixed costs
II-4. Overview of Domain Targets (3/4)
- Industry & Infrastructure

Mitsubishi Heavy Industries Forklift, Engine & Turbocharger Holdings, Ltd.
- Improve earnings through thorough PMI/productivity improvement
- Devote resources to growth fields/areas

Mitsubishi Heavy Industries Thermal Systems, Ltd.
- Market share expansion matching regional needs (Launch new products/Sales channel)
- Expand solution business with low environmental impact refrigerants

Mitsubishi Heavy Industries Machinery Systems, Ltd.
- Strengthen earning capacity through resource sharing and active use of HR
- Expand business in the growing market for paper converting machinery

Mitsubishi Shipbuilding Co., Ltd./Mitsubishi Heavy Industries Marine Structure Co., Ltd.
- Expand business in areas of specialty → ferries / government ships / engineering
- Improve productivity and earnings of LNG carriers, etc.

Mitsubishi Heavy Industries Engineering, Ltd.
- Make dynamic use of resources in response to market environment
- Expand added-value businesses such as EPC upstream, downstream

Primetals Technologies, Limited
- Expand market share by strengthening servicing and digital technologies, taking advantage of market recovery
- Implementation of PMI through consolidation of locations, optimization of work force scale, etc.

PMI: Post Merger Integration
LNG: liquefied natural gas
EPC: Engineering, Procurement & Construction

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II-4. Overview of Domain Targets (4/4) - Aircraft, Defense & Space

**FY2017 net sales (actual)**

- **FY2020 net sales (target)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Sales (billion yen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2017</td>
<td>722.9</td>
</tr>
<tr>
<td>FY2020</td>
<td>720.0</td>
</tr>
</tbody>
</table>

**Defense & Space segment**

- Continue strengthening existing businesses
- Expand business through acceleration of growth strategies
  - Overseas expansion, dual use, domestic MRO business
  - Expansion of overseas commercial satellite launch services by H3 launch vehicles

**Commercial Aircraft segment**

- Establish Boeing 787 business as highly stable
- Transitional period between Boeing 777 and 777X
  - Maintain earnings by improving productivity, reducing fixed costs, etc.
  - Pursue differentiation with competitors (radical improvement in production technologies, etc.)

**Notes**

- MRO: Maintenance, Repair & Operations
- MRJ: Mitsubishi Regional Jet
- H-II A #37 launch
- "SHIRANUI"
II.5. MRJ Business Restructuring: Development Status and Outlook

Establishment of MRJ Business Promotion Committee (Nov. 2016)

Delivery of first aircraft slated delayed until mid-2020 (Jan. 2017)

Latecoere Interconnection Systems selected to participate in electrical wiring design

PW1200G engine acquired type certification from U.S. Federal Aviation Administration (FAA)

Flight test aircraft shown for first time at Paris Air Show (painted with ANA livery)

Orientation flight undertaken by pilot from MLIT’s Civil Aviation Bureau

Grand opening of MRJ Museum (Nov. 2017)

Adoption of “Integrated Product Team” system; establishment of Program Management Division

2018: Demonstration flight planned for Farnborough International Airshow

Acceleration of type certification flight testing
... Additional flight test aircraft to be progressively introduced in 2019

Acquisition of TC, preparation of customer support structure

Mid-2020: Delivery of first aircraft to ANA

Cumulative hours of test flying

1,000 hours
2,000 hours

Paris Air Show (June 2017)

Cold-weather testing
Hot-weather testing
II.5. MRJ Business Restructuring: Business Structure Reinforcement

- Radically strengthen the MRJ business structure, including increasing capitalization of Mitsubishi Aircraft Corporation

<table>
<thead>
<tr>
<th>FY2018</th>
<th>FY2019</th>
<th>FY2020</th>
<th>FY2021~</th>
</tr>
</thead>
</table>

MRJ90 development and TC acquisition

- Delivery of first aircraft to ANA

Create an agile, durable new business structure

- Increase capitalization of Mitsubishi Aircraft Corporation (emerge from insolvency)

Assure long-term business continuity

- Strengthen ties with Tier-1 business
  → Integrate common business processes, improve productivity of mass-production phase, etc.

- Strengthen sales and customer support structures

- Pursue full-scale development and early TC acquisition of MRJ70
  → Core model for North American market

TC: Type Certificate
II-6. Restructuring of Thermal Power Systems Business (1/2)

- Focus on efficiently completing projects and improving earnings; expansion of gas-fired thermal and service business
- Promote structural shift to increase added value and to be ready for scale-down of coal-fired thermal business from 2021

### Business scale (sales)

- **Gas-fired**
  - 2017: 0
  - 2018: 5,000
  - 2019: 10,000
  - 2020: 15,000
  - After 2021: △30%

- **Coal-fired**
  - 2017: 1,500
  - 2018: 1,000
  - 2019: 500
  - 2020: 0
  - After 2021: △30%

### Efficiently complete projects / improve earnings

- Consolidate one product to one domestic factory (including coordination)

### Operating margin

- 2015: 12%
- 2016: 10%
- 2017: 8%
- 2018: 4%
- From 2021: 4%

### Worker reallocation, etc. (concept)

- **Domestic**
  - Natural attrition + hiring restraint: △5%
  - Reallocation, job changes: △15%

- **Overseas**
  - Company / works reorganization*: △10%

(* Mainly Boiler/ST)

### Business expansion for value creation

- **ICT**
- **ESCO**
- **O&M**
- **Performance enhancement**
- **Design**
- **Parts replacement**
- **EPC**

### Manufacturing

- Supply side
- Demand side
II-6. Restructuring of Thermal Power Systems Business (2/2)

Undertake medium-to long-term business restructuring to match new social needs

- Maximum use of renewable energies
- Economical, stable energy supply
- Realization of comprehensive carbon-free energy services (3E + S*)

* Energy Security, Environmental Protection, Economy + Safety

Target directions

- Efficiency improvement, Achievement of low carbon
- Evolution of hardware: IGCC / biomass, High-efficiency, large-capacity GT
- Flexibility: CO₂ recovery, Renewable energies + Aero-derivative GT
- Expanding new fuels: Hydrogen-powered GT
- Lower carbon
- Efficiency improvement
- Achieving low carbon
- AI: Artificial Intelligence
- IGCC: Integrated coal Gasification Combined Cycle Power Plant
- GT: Gas Turbine
- GT: Gas Turbine

- Equipment control
- Operation support
- Remote monitoring center
- Safe, stable operation
- Manpower saving
- Remote monitoring, manpower saving
- Demand forecast/AI•machine learning
- AI use, optimal operation

Evolving hardware
Evolving software
II-7. Reinforcement of Global Operations (1/3) - Order Targets by Region

Japanese market maturing, global market expanding

Europe, Middle East, Africa
- FY2017: 6,494
- FY2020: 8,000

China
- FY2017: 2,635
- FY2020: 3,200

Asia-Pacific
- FY2017: 3,279
- FY2020: 6,000

Japan
- FY2017: 18,713
- FY2020: 19,000

North America
- FY2017: 6,938
- FY2020: 12,000

Latin America
- FY2017: 698
- FY2020: 1,800

Legend:
- Power Systems
- Industry & Infrastructure
- Aircraft, Defense & Space
- Others

(Hundred of million yen)
II-7. Reinforcement of Global Operations (2/3)

Domains / SBUs

- Formulate business strategies based on megatrend analysis and regional strategies
- Reap synergies (cross-SBU business, resource utilization)
- Continuously shuffle the business portfolio

Share and promote medium to long-term growth strategies

Global Headquarters (Marunouchi)

- Focus exclusively on global management
  - Formulation and execution of global strategies
  - Resource allocation and results follow-up
  - Risk management functions

Secure and develop human resources to support global management (p.28)

Corporate / ST framework

- Carry out management policies globally
- Optimize global, regional and local functions (consolidate common functions, promote BPO, etc.)

Share regional business strategies + Clarify role responsibilities

Regional supervisory companies

- Manage according to specific regional traits
- Reinforce marketing power by region
  - Learn region’s needs (information gathering capability)
  - Enhance strategy planning functions and proposal ability

North America

Latin America

Europe, Middle East, Africa

Asia-Pacific

Japan
**II-7. Reinforcement of Global Operations (3/3)**

**Promotion of MHI FUTURE STREAM**
→ Creative expansion of added value and entering into new business domain

- Make active use of ST framework’s multifaceted market and technology sensing capabilities
- Introduce and actively use innovative outside knowledge and technologies (Innovation Promotion Research Institute, etc.)

**Shift the Path**
Create measures for medium to long-term shift of existing businesses based on an understanding of megatrend changes

**Mega Scan**
Scan for business opportunities and threats based on social mapping long into the future

**Technology Scouting**
Scout for technologies in cutting-edge areas that have significant uncertainty but great potential impact
Scout for technologies needed for the businesses depicted in “Mega Scan” and “Shift the Path”

- Shift to carbon-free, recycling-oriented economy
- Digitalization (IoT/AI)
- Electrification

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II-8. Corporate Culture Cultivation and Human Resources Development

Promote group member engagement and improve organizational strength

- Internal sharing of visions and strategies
- Reform work practices and workstyle
  (Make active use of employee awareness surveys)
- Promote diversity
- Review HR systems and its operation
  (Use of experts with extensive experience)

Driving force for growth

Become a company where diverse people all work with confidence

Secure (reinforce and develop) global and regional management people

- Expand diversity of management people
  ➔ Earlier appointment to officer and management positions
  ➔ Flexible selection and compensation systems

Force to lead growth

Flexible, diverse global management

Sustained growth
MOVE THE WORLD FORWARD
Reference Materials

Reference 1: Numerical Targets by Domain  31
Reference 2: Power Systems Strategy  32
Reference 3: Mass and Medium Lot Manufacturing Strategy  34
Reference 4: Commercial Ships Strategy  37
Reference 5: Commercial Aircraft Tier1 Strategy  38
Reference 6: Defense & Space Business Strategy  39
### Reference 1: Numerical Targets by Domain

<table>
<thead>
<tr>
<th>Domain</th>
<th>Orders received</th>
<th>Net sales</th>
<th>Operating income</th>
<th>EBIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Systems</td>
<td>1,437.5</td>
<td>1,500.0</td>
<td>1,800.0</td>
<td>1,493.9</td>
</tr>
<tr>
<td>Industry &amp; Infrastructure</td>
<td>1,711.3</td>
<td>1,950.0</td>
<td>2,100.0</td>
<td>1,898.9</td>
</tr>
<tr>
<td>Aircraft, Defense &amp; Space</td>
<td>721.5</td>
<td>650.0</td>
<td>700.0</td>
<td>722.9</td>
</tr>
<tr>
<td>Other (including non-organic growth)</td>
<td>113.5</td>
<td>100.0</td>
<td>500.0</td>
<td>120.8</td>
</tr>
<tr>
<td>Eliminations or Corporate</td>
<td>△108.3</td>
<td>△100.0</td>
<td>△100.0</td>
<td>△125.9</td>
</tr>
<tr>
<td>Total</td>
<td>3,875.7</td>
<td>4,100.0</td>
<td>5,000.0</td>
<td>4,110.8</td>
</tr>
</tbody>
</table>

- △: Decrease
- Sales increase in thermal power systems and cost reduction
- Expansion of aero engine business
- Restore revenue of commercial ship and metals machinery
- Expansion of medium mass-produced product
- Decrease in development cost for MRJ
- Improvement of productivity of Tier 1 business

EBIT: Earnings Before Interest and Tax
Reference 2: Power Systems Strategy (1); From selling MW to selling TWh

**Business model**

- **From MW (machinery) sales to TWh (service) sales**

**Solutions business**

+ O&M services
+ Operation optimization services
+ Equipment replacement solutions services

**PESB* Basic Strategy**

- Expand earnings by aiming to participate in energy operations business

**Existing New Processes & Systems**

- **Existing businesses**
  - Sales of power generation equipment and machinery
  - Delivery of repair parts

- **Function**
  - Risk quantification and proposing solutions by MHPS-TOMONI and ENERGY CLOUD

- **Machinery**
  - **Existing**
    - Sales of power generation equipment and machinery
    - Delivery of repair parts
  - **New**
    - O&M services
    - Operation optimization services
    - Equipment replacement solutions services

- **Market**
  - Expansion of existing businesses
    - LTMA
    - Servicing of third parties’ products
    - Repair and maintenance services

- **Processes & Systems**
  - Asset management, including financing; investment in new projects

(*)Power & Energy Solution Business

**Additional Terms**

- **MW**: Mega Watt
- **TWh**: Terra Watt Hour
- **LTMA**: Long Term Maintenance Agreement
- **AI**: Artificial Intelligence
- **IoT**: Internet of Things

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Pursue synergies integrating turbomachinery products and technologies

MHPS

Mitsubishi Heavy Industries Aero Engines, Ltd.

Mitsubishi Heavy Industries Compressor Corporation

Oil & gas related products business

Flexible power generation accommodating renewable energies

Aero-derivative GTs

LNG production solutions

H-100 GT-driven LNG compressor train

LNG to Power

Powership equipped with H-25 GTs

Reference 2: Power Systems Strategy(2) ; Turbomachinery Synergies

GT: Gas Turbine  LNG: liquefied natural gas
Reference 3: Mass and Medium Lot Manufacturing Strategy(1) ; Forklift Trucks

**Business model shift**
- Response to e-commerce
- Development into logistic solutions

<table>
<thead>
<tr>
<th>Year</th>
<th>Orders received (¥bn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>10.0</td>
</tr>
<tr>
<td>2013</td>
<td>21.5</td>
</tr>
<tr>
<td>2014</td>
<td>26.3</td>
</tr>
<tr>
<td>2015</td>
<td>23.9</td>
</tr>
<tr>
<td>2016</td>
<td>45.6</td>
</tr>
<tr>
<td>2017</td>
<td>46.6</td>
</tr>
<tr>
<td>2018</td>
<td>46.2</td>
</tr>
<tr>
<td>2019</td>
<td>45.7</td>
</tr>
<tr>
<td>2020</td>
<td>44.5</td>
</tr>
</tbody>
</table>

1. **Response to unmanned operations**
   - Laser-guided AGF (Automated Guided Forklift)

2. **Vehicle management using IoT**
   - Vehicle management system
   - Forklift work data
   - Worker information
   - Customer management division
   - Customer bases

3. **Safety differentiation technologies**
   - 360° monitoring
   - Vibration / shock absorbing equipment

4. **Response to environmental issues**
   - Lithium-ion battery-powered vehicle
   - Fuel cell-powered vehicle

* : Affected by the change of accounting dates of part of consolidated subsidiaries (End of December → End of March), making accounting period 15 months long.
**Further reinforcement of earning capacity**

- More advanced levels of production and development
- Entry into heavy-duty market (commercial vehicles)

**More advanced production: target set on totally unmanned operation**

- Automated inspection (Image processing technology and AI)
- Automated parts supply (Robots and AI)
- Automated monitoring (IoT technologies)

**More advanced development**

- Reinforcement of European development bases
  - Focus on Europe, as largest market and with leading edge technology

**AM: Launch of data transfer using 3D printer**

- Design base (Sagamihara)
- Digital Transfer
- AM: Additive Manufacturing

---

*: Affected by the change of accounting dates of part of consolidated subsidiaries (End of December → End of March), making accounting period 15 months
Reference 3: Mass and Medium Lot Manufacturing Strategy(3) ; Air Conditioning and Refrigeration

- **Thermal solutions business**
  → Business scale expansion through low environmental impact refrigerants

- **Products for EVs**
  → Global sales expansion by strengthening technology synergies

- **Air-conditioning business**
  → Market share expansion by launching products matching regional needs and reinforcing marketing capability

---

**Thermal solutions business**

- Received many awards for energy saving from peerlessly efficient heat pump and rotor technologies

- Centrifugal Chiller adopting low environmental impact refrigerant

- Condensing unit using natural refrigerant refrigerant

- High-efficiency Air to Air Heat Pump type Hot Wind Generator

**Global sales expansion of EV products**

- Electric compressor and heat pump technology synergies

- Electric driven compressor for EV

**Air-conditioning business market share expansion**

- Expansion of global sales network

- Collaboration in marketing of commercial-use air conditioners and Air to water heat pump (UK, Ireland)

- Overseas marketing of Japan’s AirFlex air conditioners designed for maximum comfort

- Double number of shops exclusively selling MHI products (China)

- Launch of products matching regional needs (Asia, Australia)

---

*受影响的会计日期部分合并子公司的变化（12月 → 3月），使会计期间为15个月*
January 2018: spin-off of shipbuilding and marine structure businesses into 2 companies

- Mitsubishi Shipbuilding
  - Expand business in ferries, government ships, and marine engineering, responding to environmental regulations

- MHI Marine Structure
  - Reduce fixed costs and achieve solid operations

Eventually, target business scale exceeding 200 billion yen
Reference 5: Commercial Aircraft Tier1 Strategy

**During 2015 Business Plan years**
- Deterioration in earnings from insufficient response to sharp drop in sales
- Measures taken relating to HR restructuring personnel, productivity enhancement, etc.

**Further productivity improvement**
- Adoption of automated equipment, application of AI/IoT in indirect business processes

**Review of procurement processes, reduction in working capital**
- Curbing of external expenses, shortening of procurement LT, minimization of inventories

**Productivity enhancement through robotics**
- Automation of Boeing 777X assembly
- Automation using Boeing 787 paint robot

**Automation of auxiliary work processes**
- Automation of material handling, assembly kits
- Adoption of work support tools (Strengthening productivity through AI)

### Graphs and Charts


**HR restructuring measure**
- Approx. 6,000

**Working capital / CCC**
- 2021/4 (Target): 2021 (Target)

<table>
<thead>
<tr>
<th>Year</th>
<th>Fixed costs (index)</th>
<th>Orders received (index)</th>
<th>HR restructuring measure</th>
<th>Working capital / CCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>100</td>
<td>157</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>2013</td>
<td>106</td>
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<td>2014</td>
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<td>2015</td>
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<td>2016</td>
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<td>2017</td>
<td>105</td>
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<td>2018</td>
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<tr>
<td>2019</td>
<td>100</td>
<td>122</td>
<td>100</td>
<td>127</td>
</tr>
<tr>
<td>2020</td>
<td>98</td>
<td>127</td>
<td>98</td>
<td>127</td>
</tr>
</tbody>
</table>

- **Deterioration in earnings from insufficient response to sharp drop in sales**
- **Measures taken relating to HR restructuring personnel, productivity enhancement, etc.**

- **Further productivity improvement**
- **Adoption of automated equipment, application of AI/IoT in indirect business processes**

- **Review of procurement processes, reduction in working capital**
- **Curbing of external expenses, shortening of procurement LT, minimization of inventories**

- **Automation of Boeing 777X assembly**
- **Automation using Boeing 787 paint robot**

- **Automation of material handling, assembly kits**
- **Adoption of work support tools**
  (Strengthening productivity through AI)
Development of dual uses in security field

→ Develop technologies during 2018 Business Plan, and target business development during 2021 Business Plan

Unmanned systems

Unmanned command and control system

Networked coast security system using unmanned vehicles

Cybersecurity

Control system cybersecurity

Industrial infrastructure cybersecurity

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