Business Segment Overview

Aircraft, Defense & Space

In the Aircraft, Defense & Space, we deal in structural parts, such as fuselage panels and main wings, for commercial aircraft, which are increasing their market presence as a means of transportation. In addition, we are currently promoting the development of MRJ. These 70–90-seater regional jets are more environmentally friendly and comfortable. Furthermore, we contribute to safe and secure livelihoods through initiatives such as developing defense equipment and launching space vehicles with payloads such as observation satellites.

Operating Environment and Addressing Social Issues

The number of operating aircraft is expected to double over the next 20 years as travel intensifies due to globalization. Demand for the development of more fuel-efficient aircraft has surfaced in response to emissions regulations regarding future environmental impact and fluctuations in oil prices. Due to these conditions, the commercial aircraft business is expected to expand.

On the other hand, as values diversify, world affairs are becoming increasingly complicated. In the defense and space fields, by the request of our main customer, the Japanese government, we are doing our part to achieve and maintain societies in which people can live safely and securely.
In the commercial aircraft business, we are responsible for manufacturing main wing boxes for the Boeing 787, which uses a composite material instead of aluminum alloy. The composite material helps reduce airframe weight and improve fuel efficiency. We are also applying technologies such as cutting-edge fluid analysis in our development of MRJ airframes.

In the defense and space business, we are utilizing the most advanced technologies to offer products and services that contribute to the safety and security of society. For example, our H-IIA launch vehicle, which handles the launch of payloads such as observation and communication satellites, boasts a world-leading success rate of 97.4% (as of June 30, 2018). This success provides evidence of the high quality of the products and services that we offer.

We also use the cutting-edge technologies we have cultivated through this field in various other fields, applying them in product materials, structures, and control. With these diverse technological applications, we are able to demonstrate our strengths, even in fields where competing companies struggle.

We will continue to engage in activities aimed at preserving a society in which people can live more safely and securely while making full use of these sophisticated technology development capabilities.

**The Value We Deliver**

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We will continue to engage in activities aimed at preserving a society in which people can live more safely and securely while making full use of these sophisticated technology development capabilities.
In the commercial aircraft business, we continue to proceed with business structure reforms and work to improve productivity through measures such as introducing automated equipment. The Company is aiming to deliver its first MRJ to customers by mid-2020. This product, which is currently under development, is receiving high praise from the market and is expected to become a large pillar for the future of the Company.

Furthermore, we will strengthen the collaborative relationship between our MRJ and Tier 1 businesses and aim to advance into new lines of business, such as airplane operation support and high value-added fields, which include airframe accessories.

In the defense and space business, we are planning to expand into new business fields, such as command and control and unmanned aerial, ground, and maritime systems, while continuing to conduct stable business operations by offering world-class products. At the same time, we will utilize the technologies we have cultivated over the years to expand our overseas business and our existing fields such as MRO*. In addition, we will promote expansion into advanced security consumer products.

* MRO: Maintenance, Repair, and Overhaul

**Activities Focused on the 2018 Medium-Term Business Plan and Beyond**

- **Commercial Aviation Systems**
  - Tier 1 business: strengthening of current businesses
  - MRJ business: MRJ90 development, TC (type certificate) acquisition, first delivery by mid-2020 (Airframe OEM)
  - Promote automation (labor-saving to full automation)
  - Upskill and cross-train human resources

- **Integrated Defense & Space Systems**
  - Land, sea, and air
    - Front line combat equipment
  - Space
    - Launch vehicles

- **Collaboration between the Tier 1 business and the full-scale commercial aircraft business**
  - Advance into differentiated competitive advantage areas
    - Advanced materials (composites)
    - Advanced engineering/manufacturing processes (3D printer)
    - High value-added products (key components, etc.)

- **Land, Sea, Air, Space, and Cyberspace**
  - Dual-use business
  - Peripheral field business
MHI continually operates its special science classroom, the Tanegashima Space School, in Tanegashima, Kagoshima. This school supports the dreams of children who will lead the next generation by offering tours of launch vehicle production facilities and opportunities to view launches. In this classroom, our engineers provide education regarding aerospace science and technologies and conduct mock launches using plastic bottle rockets that the children make.

Through activities such as these, the Tanegashima Space School raises children’s curiosity and interest regarding craftsmanship and develops human resources ready to spread their wings and soar into the future.

MHI's Vision and Steps toward Its Realization
Addressing Social Issues through Our Businesses
Management Strategies
Financial and Non-Financial Data, Corporate and Stock Information

As a Member of the Local Community

Integrated Defense & Space Systems
Expand existing domestic fields and peripheral fields
- Steadily start up our next core businesses
- Expand our business fields (command and control, M&S*, etc.)

Peripheral fields
- Expand MRO business in the maintenance and repair services field
- Advance into new peripheral fields (unmanned platforms, big data utilization, etc.)

Expand overseas business
- Utilize channels shared with overseas manufacturers that were cultivated through existing partner businesses
- Collaborate with other companies while lobbying the Japanese government

International joint development projects
- Participate in joint development projects with allied nations
- Start up and promote initiatives in collaboration with the Japanese government

Establish dual-use development businesses
- Utilize core technologies from the defense business
- Expand private demand, primarily in the commercial security field

* M&S: Modeling and Simulation

Breakdown of Sales Plan

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<tr>
<th></th>
<th>FY2017 (actual)</th>
<th>FY2020 (forecast)</th>
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<tbody>
<tr>
<td>Integrated defense &amp; space systems</td>
<td>722.9</td>
<td>720.0</td>
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<tr>
<td>Commercial aviation systems</td>
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Tier 1

- Improve productivity
  - Accelerate labor savings by introducing automated equipment
  - Automate indirect work processes using AI/IoT
  - Concentrate production capacities to achieve highly efficient parts manufacturing

- Reduce fixed costs
  - Replace auxiliary/routine work with IT systems to reduce labor costs
  - Upgrade and diversify personnel skills, reallocate and equalize deployment of resources

- Control external expenses
  - Reduce working capital and generate cash flow with advanced procurement processes*
  - Internalize outsourced operations using optimal human resources

MRJ (Secure a long-term, sustainable business)

- Strengthen ties with Tier 1 businesses
  - Expand profitability through business synergy and entry into high value-added markets

- Strengthen sales and customer support structures
  - Enhance human resources and consider partnerships with outside agencies

- Pursue full-scale development and early TC acquisition of MRJ70
  - Build a business foundation by establishing a position in the largest RJ market early

*Introduce systems for acquisition of specialist skills, including information systems such as AI/IOIT/RPA, production processes, procurement operations, CAD/NC programs, etc.

As a Member of the Local Community

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