

Integrated Defense & Space Systems

While continuing to strengthen our existing businesses, we will steadily prepare for a major expansion in our scale of operations.

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Domain CEO, Integrated Defense & Space Systems

Strengths

- Leading-edge technologies fostered through the development of defense and space products
- **Defense** Ability to make proposals for integrated defense systems. Expertise and channels cultivated through Japan-U.S. joint development of the SM-3 missile
- **Space** Development capabilities in rockets and rocket engines. World-leading levels of reliability

Weaknesses

- **Defense** Market previously limited to Japan
- **Space** Inadequate cost competitiveness

Opportunities

- **Defense** Growing overseas demand for defense equipment. Accelerated development and procurement of new products in line with the formulation of Japan's Medium-Term Defense Program
- **Space** Increase in the need for satellite launches in emerging countries. Under Japan's New Basic Plan on Space Policy, domestic market scale expected to grow to ¥5 trillion over the next 10 years

Threats

- **Defense** Severe competition with overseas manufacturers
- **Space** Concern regarding price competition, as new U.S. companies enter the market for overseas satellite launches

Net sales

FY2014 **¥483.9** billion → FY2017 (target) **¥400.0** billion

Operating income

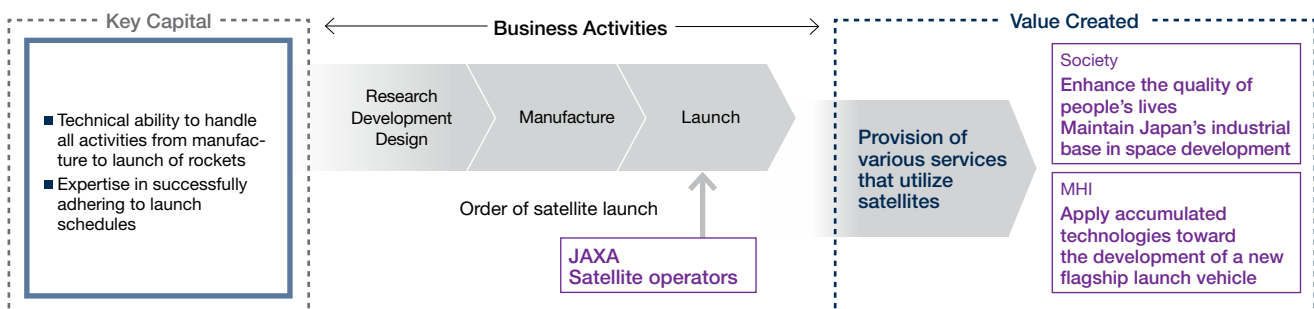
FY2014 **¥28.5** billion → FY2017 (target) **¥25.0** billion



Operating Environment

The Integrated Defense & Space Systems business has performed steadily over the past 20 years. However, our operating environment is changing. In defense, the Medium-Term Defense Program formulated in 2013 indicated the government's intent to build a "Dynamic Joint Defense Force." Furthermore, the 2014 Cabinet decision adopting the Three Principles on Transfer of Defense Equipment and Technology established clear principles for transferring defense equipment overseas. In space systems, the New Basic Plan on Space Policy formulated in 2015 clearly indicated the promotion of space utilization for national security and the maintenance and strengthening of the domestic production and technological bases. Accordingly, the scale of the domestic market is expected to grow to ¥5 trillion over the next decade. Worldwide, we also anticipate commercial satellite launch demand of 20 to 25 units per year.

■ Sample Business Model: Satellite Launch Services



Focus Strategies of the 2015 Medium-Term Business Plan

During the term of our 2015 Medium-Term Business Plan, we expect performance to remain flat. However, we plan to continue reinforcing our existing businesses, preparing the groundwork for major expansion during the period of the next business plan.

In existing domestic defense-related business, Japan's Medium-Term Defense Program specifies a "Dynamic Joint Defense Force" buildup policy, pointing to key examples of target functions and capabilities against various scenarios, including a "response to an attack on remote islands," "response to ballistic missile attacks," and "response to outer space and cyber space threats." These are areas in which we can fully deploy our strengths across all equipment domains over land, sea, air, and space. We consequently expect to maximize the benefits of consolidating SBUs handling all types of equipment into a single domain. In addition to proactively making integrated defense proposals harnessing the expertise of multiple SBUs, we will make steady inroads on developing and manufacturing new, highly sophisticated equipment.

We are implementing three strategies to grow our scale of business. The first growth strategy is to expand overseas operations leveraging the Three Principles on Transfer of Defense Equipment and Technology. We will take advantage of our know-how in international joint development projects cultivated through the Japan-U.S. joint development of

the SM-3 missile and cooperation relating to Australia's future submarine program, pushing forward with commercialization making use of our technological capabilities. We also aim to utilize our advanced technologies and channels with U.S. and European business partners to participate in new international joint development projects.

The second strategy is to make use of our state-of-the-art technologies to meet civilian requirements. We have already employed our radiation-resistant technologies cultivated for the space business to develop a radiation-shielded forklift truck. Going forward, we will pursue the development of related disaster-prevention and security products, such as disaster-response robots, through research on unmanned system technology. We will also move forward with the development and launch of small satellite constellations and make use of these to enter the information-gathering and sharing services businesses.

Our third growth strategy is to take advantage of land, sea, air, and space synergies to expand orders in existing domestic areas of business. By integrating the comprehensive capabilities of this domain, we will develop equipment in response to the new defense concepts outlined in the Medium-Term Defense Program. We will introduce H-IIA launch vehicle upgrades to meet market needs for commercial satellite launches and strengthen our price competitiveness by developing the H3 as a new flagship launch vehicle.

R&D Case Study: New Flagship Launch Vehicle

In 2014, the Japan Aerospace Exploration Agency (JAXA) designated MHI as a prime contractor for the development of a new Japanese flagship launch vehicle to replace the H-IIA/H-II B, with MHI working in cooperation with JAXA and other private-sector companies. The New Basic Plan on Space Policy states that maintaining a space transportation system with the capability to launch satellites independently is essential to ensuring autonomy. To maintain and develop a space-related industrial

base while continuing to meet the demands of government missions, it is necessary to ensure competitiveness to obtain orders for commercial satellite launch services in the global market. Consequently, in addition to the high reliability we have built up with the H-IIA/H-II B launch vehicle, in developing the H3 we plan to increase launch capabilities while reducing costs, shorten the on-site launch operation period, and lower vibration to reduce impact on the satellite payload.

ONE HIGHLIGHT


Initiatives in the Defense Aircraft Business

MHI is working on a final assembly and check out (FACO) facility for Japanese F-35 leading-edge fighter aircraft. These preparations are currently in the final stages of factory construction, and we are making steady progress on facilities, equipment, and personnel training. The Company is also scheduled to take charge of regional maintenance, repair, overhaul, and upgrade (MRO&U) capabilities for the F-35. Through its involvement in advanced fighter aircraft under the direction of the Ministry of Defense, MHI is gaining expertise in a variety of state-of-the-art technologies and manufacturing capabilities.

At the same time, we aim to take part in independent development of fighter aircraft in Japan, as well as international joint development. We will continue pursuing internal R&D to establish various elements and applied technologies for airframe production as well as conducting demonstration research under the direction of the Ministry of Defense's Technical Research & Development Institute. These efforts are intended to contribute toward the development of the domestic aircraft industry.

MHI is dedicated to a core vision of supplying cutting-edge technologies for national safety and security. As a leading supplier in the Japanese defense industry, MHI endeavors to maintain and strengthen defense production and technological bases. MHI develops and manufactures a vast array of defense equipment to meet the needs of the government of Japan, including fighter planes, helicopters, missiles, defense vessels, and tanks, and also provides operational support.

See the following website for information on maintaining and strengthening defense production and technological bases.

 <http://www.mhi-global.com/company/csr/esg/social/customers/customers04.html>