



Growth Businesses

Aero Engines and Space has been positioned as a business field that will drive the IHI Group's growth.

The civil aero-engines, defense, and space businesses account for about 29% of the consolidated revenue in fiscal 2023 and about 55% of operating profit (excluding special factors).

With the IHI Group's core technology "Propulsion" as a base, we will aim to achieve sustainable growth through maximization of synergy effects in each of the civil aero-engines, defense, and space segments and by creating new businesses.

Value to Be Created

Through the civil aero-engine business, we will contribute to the development of a safe, secure, and carbon-neutral air transportation system. In the defense business, we will support the development of Japan's security and related industries that are drastically strengthened by the country's defense capabilities. In the space business, we will contribute to the creation of new businesses such as satellite launches and forest management that utilizes satellite data.

Roles in the "Group Management Policies 2023"

In parallel with the expansion of the civil aero-engine and defense businesses, we will also work on bolstering operating cash flows. We will expand and strengthen the existing businesses centered on the aero-engine business so that they become pillars underpinning the medium- to long-term growth of the IHI Group. Simultaneously, we will continue planting the seeds for new business field creation looking beyond the "Group Management Policies 2023" and play a role in making the IHI Group leap to a sustainable high-growth company.

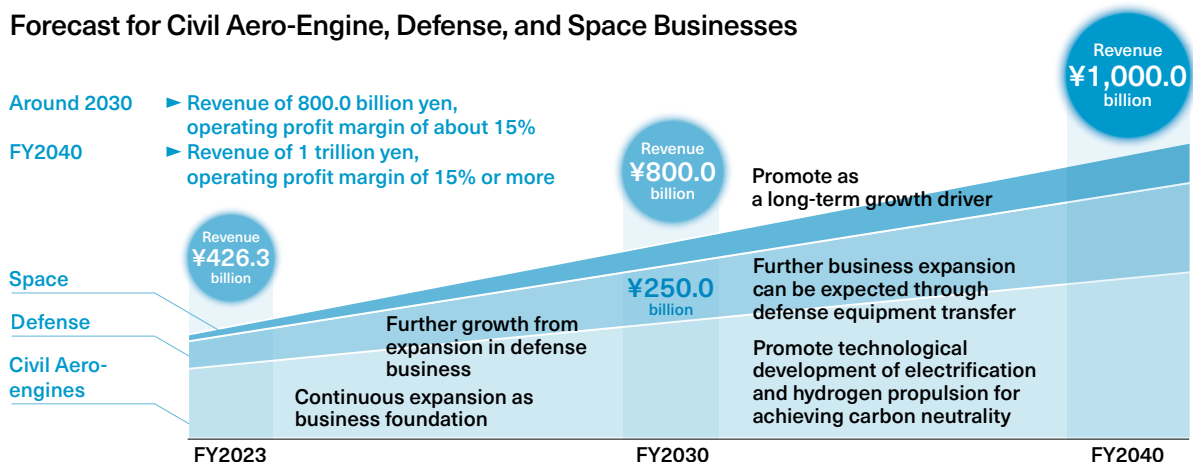
Strategies for Realization

In the civil aero-engine business, we aim for stable growth in the highly profitable spare parts business given the steady expansion in airline passenger demand. Concurrently, we will expand our performance through a profit cycle starting from development and mass production to aftermarket services of the next best-seller engine. We will drastically reform production efficiency and business structure in order to achieve world-leading production efficiency and profitability. In the defense business, we expect to see expanded revenues in accordance with the Defense Buildup Program and improvement in operating profit margin following system reforms. The space business' strength lies in solid propellant rocket technology, and we will create new businesses leveraging it that will be growth drivers in the long term.

Medium- to Long-term Future Aspirations

Revenue for the defense business is expected to be around 250.0 billion yen in fiscal 2030 (forecast for fiscal 2024 is 150.0 billion yen). The revenue target for the civil aero-engine, defense, and space businesses as a whole for around fiscal 2030 is about 800.0 billion yen (forecast for fiscal 2024 is 540.0 billion yen), and about one trillion yen around 2040, with an operating profit margin of 15% or more.

Forecast for Civil Aero-Engine, Defense, and Space Businesses



Officer Interview

Driven by the expansion in the commercial aircraft market demand and the government defense budget, we will aim to realize revenue of 1 trillion yen and an operating profit margin of 15% or above by fiscal 2040 by improving cash generating ability through implementation of bold business reforms

Atsushi Sato

Managing Executive Officer
President of the Aero Engine,
Space & Defense Business Area



Q What are the IHI Group's strengths in Aero Engines and Space?

Our defense aero-engine business boasts the best technological capabilities and track record in Japan. A major strength of the IHI Group globally is its business base. This base can handle everything from engine design and development, production including formed and fabricated materials, MRO, to operational support. Its extensive track record and technical capabilities are highly respected, leading to the Group's participation in international civil aero engine development projects. While we do not have experience as a prime manufacturer of civil aero engines, we are involved in the development and manufacture of many aircraft engines currently operating around the world.

The next-generation fighter aircraft (same as GCAP), which will succeed the F-2 fighter, will be developed jointly by Japan, the U.K., and Italy. In

terms of our track record in fighter engine research and development, we have succeeded in the development of a prototype of the XF9-1 boasting 15-ton thrust (equivalent to that of the F-22 jet fighter's engine) in 2018. However, this is the first time for Japan that such a large-scale national project is being carried out via international joint development. We have been actively pursuing a human capital shift within the company and mid-career recruitment externally. Diverse human resources playing active roles are likely to boost our strengths and accelerate our growth.

Q What kinds of business opportunities do you expect?

We think we can significantly expand the scale of the defense business in the next five years. In December 2022, the Cabinet approved three strategic documents (National Security Strategy, National Defense

Strategy, and Defense Buildup Program), which considerably increased the required expenditure to about 43 trillion yen for the following five years (from FY2023 to 2027) compared with approx. 27.5 trillion yen in the last five years. There are some fields where the IHI Group can contribute by leveraging its strengths among the seven key capabilities for fundamental reinforcement of defense capabilities. Specifically, these include stand-off defense capabilities for launching missiles from outside the reach of radars and missiles of other countries (budget up from 200.0 billion yen to 5 trillion yen), integrated air and missile defense capabilities (budget up from 1 trillion yen to 3 trillion yen), and unmanned defense capabilities such as unmanned underwater vehicles (budget up from 100.0 billion yen to 1 trillion yen). We are expecting the revenue of the defense business to take a leap towards fiscal 2030 by expanding the IHI Group's contribution to the national security policy.

As for the space business, the Japanese government, in the Basic Plan on Space Policy announced in 2023, aims to double the market size of the country's space industry to 8 trillion yen by the early 2030s. The IHI Group aims to commercialize satellite launch service utilizing the Epsilon rocket, etc. In addition to expansion of services which use satellite data, we are also considering making contributions to national security as well as various other fields by offering more stable and high value-added satellite data through the development of a satellite data provisioning platform that operates multiple satellites in an integrated manner.

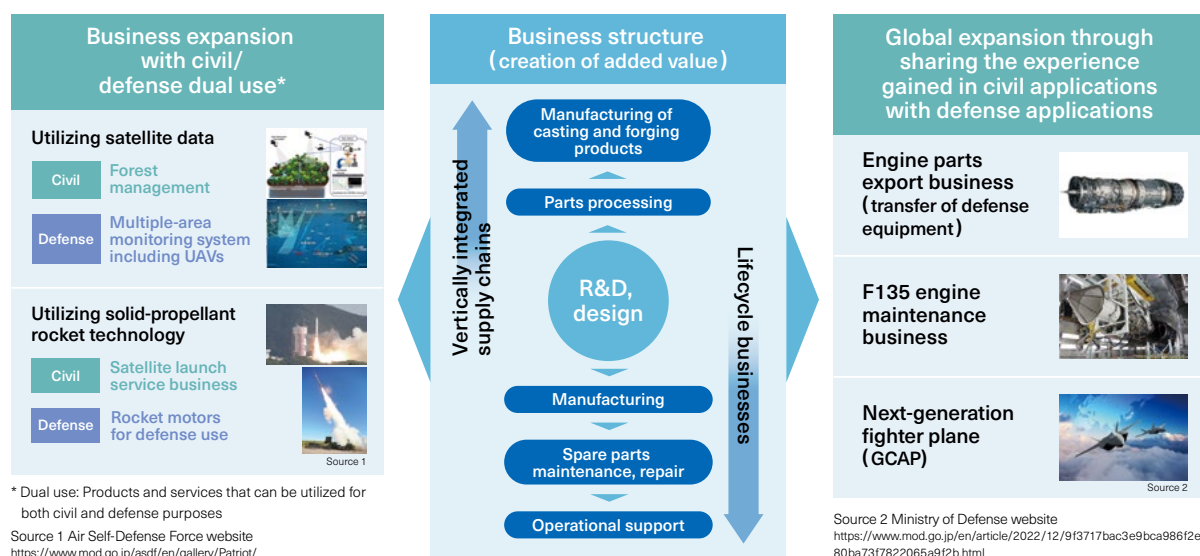
The civil aero-engines business will start shipment

of GE9X engines for Boeing 777X this year. The next generation of GENx engines for Boeing 787 as well as next-gen PW1100G-JM engines for Airbus A320 are expected to be launched in the mid-2030s. IHI's presence is expected to grow in the future in aircraft electrification, as the Group steadily advances development of an electric motor that can be mounted in the rear of an aircraft jet engine. Towards 2050, we expect commercialization of engines of the future that will have achieved carbon neutrality. Various architectures such as hydrogen engines, electrification, utilization of SAF, and hybrid engines are being considered for this purpose. We will strengthen technology development in collaboration with the government.

Q What is the business model and how does it work?

The burden of development is heavy in the profit model for civil aero engines, and losses will continue for about 10 years after the start of mass production. After about five years from delivery, spare parts sales and maintenance revenue will begin rising, and single-year cash flows become positive in about 15 years. While the profit model itself is presumed to remain the same in the future, we are witnessing shortened development time and reduction in backtracking of development due to advancements in tools and improvements in processes in design and development. The source of profits is spare parts, so we would like to create a mechanism for improving added value of maintenance, repair, and

Business Expansion through Synergies of Technology and Experience in Civil and Defense Applications; Creation of New Businesses



overhaul (MRO) and for expanding profits. While it is not well known, there are third-party maintenance companies and parts suppliers overseas. In order to maximize earnings, it is extremely important to conclude comprehensive, long-term contracts with airline companies who are our customers.

As for the defense business, so far we had been expecting stable earnings, but some companies have withdrawn from the defense business in recent years, and the government is also aware of the issues. For that reason, the government revised the system to set the maximum value of operating profit margin at 10%, with a provision to add a further 5% corresponding to the contract period. As for the space business, it depends on the project, and it is difficult to provide an answer at this point in time.

Q What are the measures to reinforce the mechanism for earning cash?

This business requires a large amount of working capital, so we recognize generation of operating cash flows as an issue. We established a transformation center in 2023 where we have been decisively carrying out radical productivity and business structure reforms in design, production, and procurement by taking advantage of our proprietary digital technology, against the backdrop of a sense of crisis stemming from the gap in productivity and profitability between us and foreign companies. We are promoting yield improvement involving significant quality improvement and reduction of inventory asset including work-in-progress inventory. Sales efforts play a large part in collection of trade receivables, but we are trying all possible means such as obtaining advances in defense projects. We are now in an inflationary environment, so we have been making efforts to incorporate various risks in the contract details to avoid the risks of soaring material prices and procurement after signing a contract.

Q What is the current status of the PW1100G-JM issue?

I very much regret that we could not detect the contamination beforehand in the powder metallurgy issue of PW1100G-JM. The engine was developed and is being manufactured in an international joint program by International Aero Engines LLC (IAE) established by Pratt & Whitney (P&W) of the U.S., Japanese Aero Engines Corporation (JAEC), and MTU Aero Engine AG of Germany. We have been in discussions with P&W and IAE regarding the issue on a daily basis to understand the situation, and discussing countermeasures. The expenses being shouldered by us have been within the scope we

had published earlier. The risk and revenue sharing partner (RRSP) method is the mainstream contract method for civil aero engines. It is difficult for a prime engine manufacturer to shoulder all the risks, and there remained challenges in information sharing, etc., with overseas parts manufacturers, which were beyond our reach. We will start supplying the new GE9X engine for Boeing 777X this year, and we have taken preventive measures based on our experience in this incident.

Q How do you set medium- to long-term numerical targets?

As medium-term targets, we aim for 800.0 billion yen in revenue around 2030 (revenue forecast for fiscal 2024 is 540.0 billion yen) and about 15% in operating profit margin. The breakdown is: 250.0 billion yen (revenue forecast for fiscal 2024 is 150.0 billion yen) in revenue in the defense business, given the expansion in the defense budget. Additionally, revenue in the civil aero-engine business is steadily expanding, and combined with other businesses, it is expected to be about 550.0 billion yen (revenue forecast for fiscal 2024 is 390.0 billion yen), led by PW1100G-JM engines on the assumption that the commercial aircraft market will grow at a rate of 3 to 4%.

In the long term, we set a revenue target of 1 trillion yen and operating profit margin of 15% or more around 2040. We can predict our performance through around 2030 to a certain extent, but various architectures can be considered for civil aircraft engines from 2035 onwards. While profitability changes depend on the investment burden and the participation rate, the key would be improving the capability to generate cash and transforming the way we earn through MRO.

To achieve our numerical targets, we need to add 800 employees (including more than 200 from in-house resource shifting) in the three years from fiscal 2024. At the same time, we will improve business efficiency through utilization of DX and outsourcing. While the government will shoulder the capital investment for the defense business, we are planning to make additional investment for expansion of the plant block of Tsurugashima Aero-Engine Works around fiscal 2026 along with the growth in MRO of civil aero engines.