

Hello, everyone. This is Eguchi, Head of Integrated Defense & Space Systems. Today, I will make a presentation on MHI's Defense Business.

- 1. Overview of Defense Business**
- 2. New Japan Defense Buildup Program and MHI Initiatives**
- 3. Main Program Initiatives**
 - **Stand-off Defense Program**
 - **Integrated Air and Missile Defense Program**
 - **Unmanned Defense Program**
 - **Global Combat Air Programme**
 - **Space Domain Program**
- 4. Impact of New Defense Industry Policies**
- 5. Business Plan**

This is the table of contents for today's briefing.

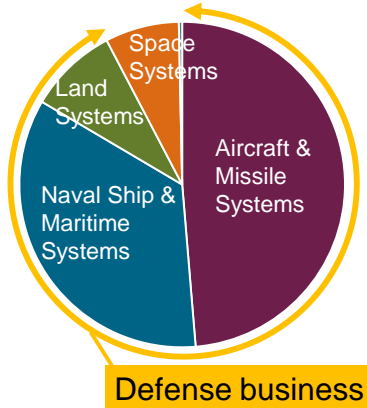
The first section of my presentation will be an Overview of Defense Business. The second section will be on the New Japan Defense Buildup Program and MHI Initiatives. The third section, Main Program Initiatives, will explain a few programs within the Defense Buildup Program. The fourth section will be on the Impact of New Defense Industry Policies, and the fifth section will be on our Business Plan.

1. Overview of Defense Business: Revenue

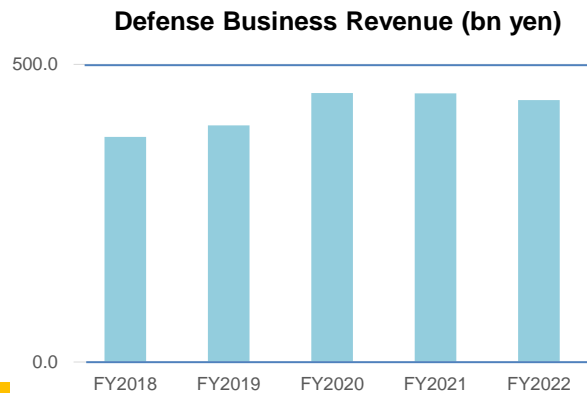


- MHI Defense business revenue has historically trended around just under ¥500 bn

**FY2022 Defense & Space
Revenue ¥474.9 bn**



Defense business



© Mitsubishi Heavy Industries, Ltd. All Rights Reserved.

2

In the first section, I will provide an overview of our Defense business.

This page shows Defense business revenues.

One characteristic of our Defense business is a close relationship with the Japanese government. This slide shows revenue levels during the five years beginning in FY2018. Revenues have not changed much over the last 20 years, staying generally around ¥500 billion.

Around half of revenue is comprised of Aircraft & Missile Systems, around 30% is from Naval Ship & Maritime Systems, and the remaining approximately 20% is Land and Space Systems.

1. Overview of Defense Business: Organization and Manufacturing Bases

Integrated Defense & Space Systems	
	Planning & Administration Department
	Advanced System Programs Department
Aircraft & Missile Systems Division	(Nagoya)
Space Systems Division	(Nagoya)
Land Systems Division	(Sagami-hara)
Naval Ship & Maritime Systems Division	(Nagasaki, Kobe, Yokohama, Tamano)

© Mitsubishi Heavy Industries, Ltd. All Rights Reserved. 3

The next page shows our organization and manufacturing bases.

Our headquarters functions are in Tokyo. The location closest to our HQ is the Honmoku Plant in Yokohama, where we our ship repair business is based. Our Land Systems business, which includes tanks, is located in Sagami-hara, Kanagawa Prefecture. Our Aircraft & Missile Systems and Space Systems businesses are based in Nagoya, where we produce fighter jets, helicopters, and missiles. In Kobe, which is located in the Kansai region in Western Japan, we have our submarines business. In Tamano City, Okayama Prefecture, we manufacture ships at our subsidiary, Mitsubishi Heavy Industries Maritime Systems, which we originally acquired from Mitsui E&S. Our manufacturing base located furthest to the West is Nagasaki, where MHI was originally founded, and where we manufacture surface ships and torpedoes.

**1. Overview of Defense Business:
Main Products in Aircraft & Missile Systems**



Fighter Jets		Helicopters	
F-15J 	F-2 	UH-60JA Multi-Mission Helicopter 	SH-60K Patrol Helicopter 
Next-Generation Fighter Aircraft  <small>Next-Generation Fighter Aircraft concept art (Source: Japan Ministry of Defense)</small>		UH-60J Rescue Helicopter 	Next-Generation Patrol Helicopter  <small>Photo shows airframe under development</small>
Missiles		New Areas	
PATRIOT  <small>Source: Lockheed Martin</small>	Type-12 Surface-to-Ship Missile (12SSM) 	Upgraded 12SSM  <small>Concept art by MHI based on "DEFENSE OF JAPAN 2023" (Japan Ministry of Defense)</small>	Hyper Velocity Gliding Projectile  <small>Source: "Overview of FY2023 Defense Budget" (Japan Ministry of Defense)</small>
SM-3  <small>Source: Japan Ministry of Defense</small>	Hypersonic Missile  <small>Source: Same as above</small>	Laser Systems  <small>Multi Target Mode High Energy Laser System</small>	Unmanned Aerial Vehicles 
		■ In production ■ Under R&D	

© Mitsubishi Heavy Industries, Ltd. All Rights Reserved. 4

Next, I will introduce the main products in each business.

This page shows products in our Aircraft & Missile Systems business.


There are four major product groups, the first of which is fighter jets, which includes the F-15 and the F-2. It also includes the Next-Generation Fighter Aircraft, the development of which is underway.












The second category is helicopters. This includes the 60 Series, which we manufacture under license from Sikorsky Aircraft. We produce the UH-60 Multi-Mission Helicopter, the SH-60 Patrol Helicopter, and other helicopters.

The third category is missiles. We produce missile systems from the surface-to-air PATRIOT Missile and the SM-3 Missile for ballistic missile defense, to stand-off missiles, which have recently received a lot of attention. These stand-off missiles used to be called the Type-12 Surface-to-Ship Missile, which we are developing into the range-extended Upgraded 12SSM, Hyper Velocity Gliding Projectiles, and Hypersonic Missiles.

Finally, in the new defense areas category are laser systems to shoot down drones, and unmanned aerial vehicles (UAVs) for surveillance. These systems are in the research phase.

**1. Overview of Defense Business:
Main Products in Naval Ship & Maritime Systems**



Surface Ships		Logistics Support	
Frigates 	Naval Ship Technology Development Center 	Naval Ship Support Center 	Technical Logistics Support Center 
Auxiliary Ships 	Governmental Ships 	Torpedoes & Shipboard Systems	
		Torpedoes 	Vertical Launching Systems 
Submarines		Unmanned Underwater Vehicles 	
Submarines 	Submarine Technology Center 		

© Mitsubishi Heavy Industries, Ltd. All Rights Reserved. 5

The next page shows the main products in our Naval Ship & Maritime Systems business.

In the surface ships category are frigates. We manufacture a stealth frigate called the FFM, auxiliary ships for acoustic measurement and other special missions, and Japan Coast Guard patrol vessels.

We build submarines in Kobe.

In the logistics support category shown in the upper right-hand corner, because ships are increasingly powered by digital technologies, we have a center that records operations data and uses it to support maintenance activities.

Torpedoes are launched from ships and submarines. We also produce unmanned underwater vehicles (UUVs) for minesweeping. We also manufacture systems to launch missiles vertically from ships. These systems are also installed on Aegis System Enabled Vessels (ASEVs).

1. Overview of Defense Business: Main Products in Land Systems



Tracked Vehicles

Type 10 Main
Battle Tank



Type 11 Tank
Recovery Vehicle



Source: Japan Ministry of Defense

Common Platform-
Tracked/Armored
Personnel Carrier Variant



Future Amphibious
Technologies



(Concept art) Source: Japan Acquisition,
Technology & Logistics Agency website

Wheeled Vehicles

Type 16 Maneuver
Combat Vehicle



Heavy Wheeled
Recovery Vehicle (B)



Photo shows prototype

Type-12 Surface-to-Ship
Missile (carrier)



■ In production
■ Under R&D

The next page shows the main products in our Land Systems business.

There are two main product groups in Land Systems: tracked vehicles and wheeled vehicles.

Tracked vehicles are vehicles that move on crawler tracks. Currently, our main product is the Type 10 Main Battle Tank, which is the successor to the old model Type 90 and Type 70 Tanks. We also produce tank recovery vehicles, which have tracks, and other tracked armored vehicles. Moreover, we have recently been pursuing R&D on amphibious vehicles.

Next, we produce the Type 16 Maneuver Combat Vehicle, which is a wheeled vehicles outfitted with something similar to a tank turret. In the area of large wheeled vehicles, we provide heavy wheeled recovery vehicles and the carrier of the Type-12 Surface-to-Ship Missile launcher.

1. Overview of Defense Business: Comprehensive Capabilities in Land, Sea, Air, and Space



- Providing total solutions in Defense & Space, contributing to national security and space use



© Mitsubishi Heavy Industries, Ltd. All Rights Reserved.

7

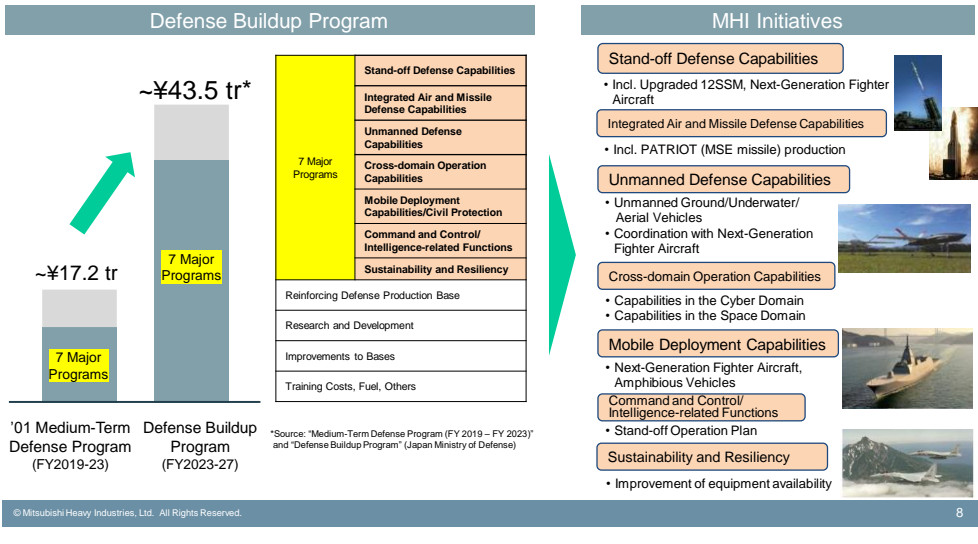
As I outlined over the last several pages, MHI manufactures essential front-line equipment – equipment that would actually fight on the front line of a conflict – for the Japan Ground, Maritime, and Air Self-Defense Forces.

In the space domain, we produce launch vehicles and satellites, the demand for which has greatly increased recently.

By providing total solutions developing and operating new products for use in the land, sea, air, and space domains, MHI is contributing to national and regional security, as well as space use.

2. New Japan Defense Buildup Program and MHI Initiatives

- In response to growing momentum toward strengthening national defense, the Japan Defense Buildup Program has been significantly expanded
- Within seven major programs, MHI is supporting Japan with comprehensive capabilities in land, sea, air, and space



On this page, I will explain the New Japan Defense Buildup Program and MHI Initiatives.

Under the latest Defense Buildup Program, which began this fiscal year, the size of defense programs has reached never-before-seen levels. Allocations for defense equipment are around ¥43.5 trillion, which is over double the approximately ¥17 trillion under the previous Defense Buildup Program. MHI is strengthening a variety of initiatives associated with this program.

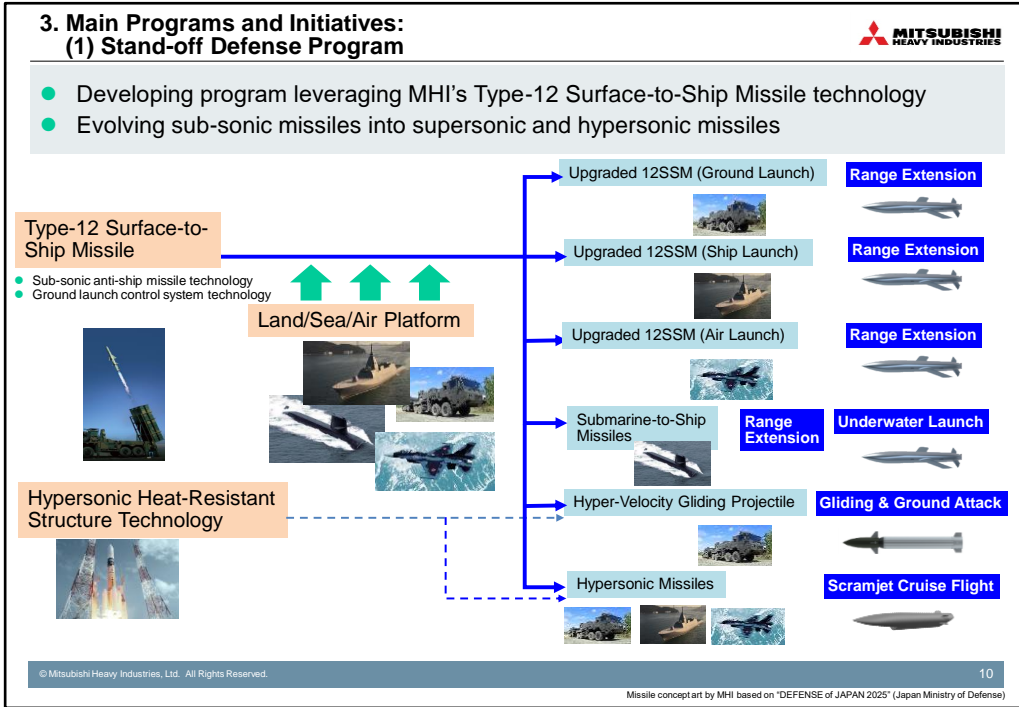
Particularly of note, the Japan Ministry of Defense has selected seven areas of focus, all of which are related to front-line equipment that we provide. The Stand-off Defense Capabilities Program directly involves missiles, and the Integrated Air and Missile Defense Capabilities Program involves the PATRIOT Missile. In the Unmanned Defense Capabilities Program, we are engaged in R&D on a variety of new land, sea, and air equipment. In the Cross-domain Operation Capabilities Program, we are engaged in activities in the electromagnetic spectrum and cyberspace, and we are active in the Space Domain Program. In the Mobile Deployment Capabilities Program, we are involved in the Next-Generation Fighter Aircraft, which will be able to operate in a wide area, and amphibious vehicles. In the Command and Control Functions Program, the Japan Ground, Maritime, and Air Self-Defense Forces will all deploy extremely long-range missiles as stand-off defense, and we are currently making a variety of proposals regarding how to coordinate among these systems. In the Sustainability and Resiliency Program, equipment availability is a very important factor, and we are working to provide spare parts in a timely and appropriate fashion.

3. Main Program Initiatives



- **Stand-off Defense Program**
- **Integrated Air and Missile Defense Program**
- **Unmanned Defense Program**
- **Global Combat Air Programme**
- **Space Domain Program**

Over the next few pages, I will describe our initiatives in five main programs.



On this page, I will discuss the Stand-off Defense Program.

As I explained earlier, we produce the Type-12 Surface-to-Ship Missile. In fact, we also produced its predecessor model, the Type-88, so we have been working on surface-to-ship missiles for around 30 years. From the Type-88 to the Type-12, the range was extended. Since the last fiscal year, we signed a development contract to extend the range of the Type-12 while adding the ability to be used in land, sea, and air platforms, i.e., the ability to be used on surface ships, submarines, and land vehicles.

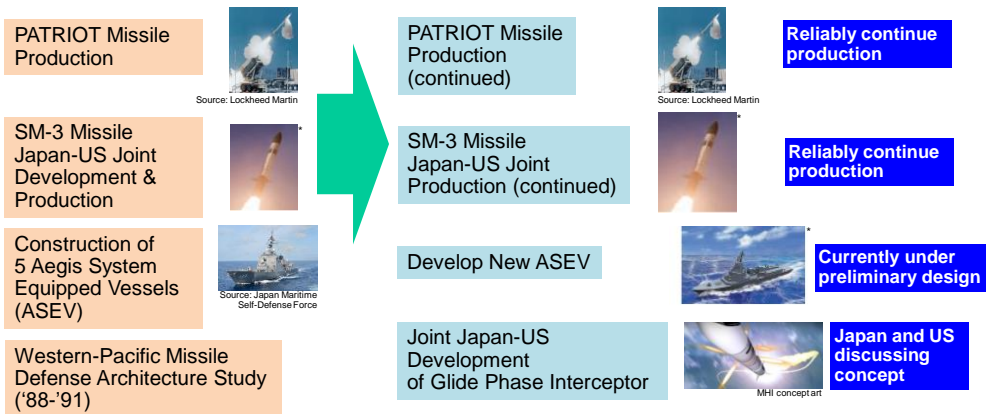
Furthermore, we are developing Hyper-Velocity Gliding Projectiles. In the event that Japan's remote islands become a combat zone, these systems will be capable of launching defensive missiles from islands far away from the battleground.

As a forward-looking program, we are developing Hypersonic Missiles. To that end, we are currently developing an engine capable of extremely high velocities called a scramjet engine, which, when installed in a traditional missile, will allow it to achieve hypersonic speeds. We are providing a variety of stand-off capabilities.

3. Main Programs and Initiatives: (2) Integrated Air and Missile Defense Program



- Developing program by advancement of MHI integrated air defense missile technologies through joint development with US
- Contributing to improvement of integrated air and missile defense capabilities



*By MHI based on "DEFENSE of JAPAN 2025" (Ministry of Defense)

© Mitsubishi Heavy Industries, Ltd. All Rights Reserved.

11

On this page, I will speak about the Integrated Air and Missile Defense Program.

In the past, we produced the Nike Missile, and we have been manufacturing its successor, the PATRIOT Missile for around 40 years. We are working to upgrade this missile including its ballistic missile defense capabilities.

Moreover, we have been involved in the joint Japan-US development of the SM-3 Missile for the past 20 years. This missile is installed on ASEVs and is used to intercept ballistic missiles. Joint development is complete, and we are now in the production phase.

We also build ASEVs.

Although this is a slightly old topic, around 40 years ago, the Western-Pacific Missile Defense Architecture Study was carried out under US President Regan's Strategic Defense Initiative (SDI). At that time, we received an order from the US Department of Defense for research, and for four years, we carried out a study on optimal missile defense in the Pacific Ocean.

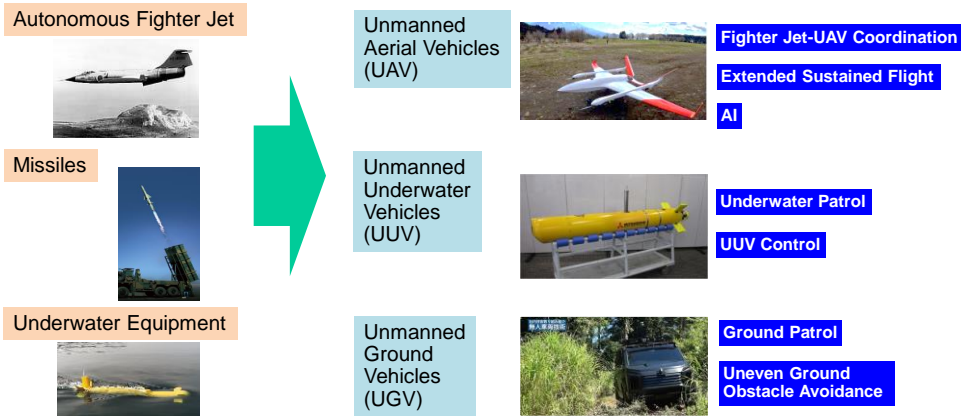
MHI has been involved in both manufacturing and missile defense analysis programs.

Leveraging this experience, we will continue to reliably produce PATRIOT and SM-3 Missiles. We are also designing ASEVs, which are equipped with the formerly ground-based Aegis System. The Japanese and American governments are discussing joint development of interceptor missiles capable of destroying future models of gliding projectiles, and we are currently considering an approach to this area.

3. Main Programs and Initiatives: (3) Unmanned Defense Program



- Building up autonomous operation and control technologies in aircraft, missile, and underwater equipment areas
- Developing products to meet growing need in Defense business for unmanned ground, underwater, and aerial vehicles



© Mitsubishi Heavy Industries, Ltd. All Rights Reserved.

12

This page outlines the Unmanned Defense Program.

In the past, we have converted F-104s – an old, standard fighter jet model that was previously operated by pilots – into unmanned aircraft, utilizing aging planes as targets before their eventual disposal.

Technologically speaking, missiles are themselves unmanned vehicles, although they are not called as such.

Mine-sweeping unmanned underwater vehicles (UUVs) are also operated without a human pilot.

As such, we have a lot of experience with unmanned vehicles.

Recently, need for unmanned vehicles has increased extensively. In the area of unmanned aerial vehicles (UAVs), we are proceeding with research into coordination with fighter jets, surveillance during extended, sustained flight, and the use of AI. We have received orders for some research work in this field from the Japan Ministry of Defense.

In the area of unmanned underwater vehicles, need is growing for UUVs and unmanned surface vehicles (USVs) to be coordinated with surface ships and submarines. We are doing research into these kinds of unmanned vehicles for surveillance purposes.

In the land domain, while it would be fairly difficult to develop an autonomous vehicle to drive on roads, we are doing research on unmanned vehicles that could be used on uneven ground, such as areas with dense grass or bushes over which tanks or combat vehicles would run. These vehicles would also be used for surveillance.

3. Main Programs and Initiatives: (4) Global Combat Air Programme



- Developing program with MHI proprietary fighter jet development and unmanned vehicle technologies
- Contributing to joint development among Japan, UK, and Italy leveraging many years of experience

Fighter Jet Development Technology



Experience with International Joint Development



Unmanned Vehicle Technological Capabilities



Global Combat Air Programme

Characteristics

- 6th-generation fighter
- Multirole
- Network Combat
- Unmanned Vehicle Coordination
- Stealth



Next-Generation Fighter Aircraft concept art
(Source: Japan Ministry of Defense)

Status

- Under preliminary design among Japan, UK, and Italy
- Discussing division of labor among governments
- Planning expansion of development facility in preparation for start of full-scale development (Komaki South Plant)

¹ Source: "Overview of FY2019 Defense Budget" (Japan Ministry of Defense)

² By MHI based on "DEFENSE of JAPAN 2023" (Japan Ministry of Defense)

This page shows details on the Global Combat Air Programme.

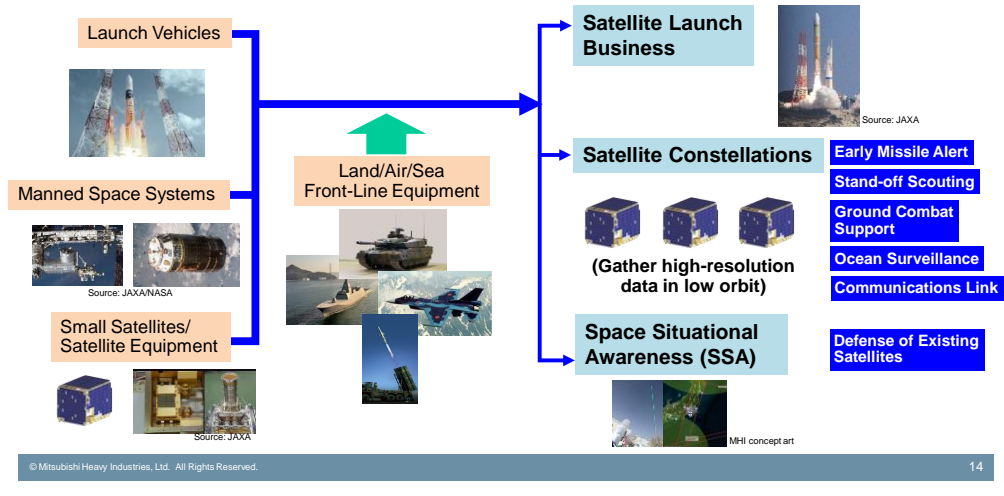
Development on the Next-Generation Fighter Aircraft began around two years ago. At the end of last year, Japan, the UK, and Italy agreed to develop the aircraft jointly, and all parties are currently preparing for the start of full-scale development work. MHI has technological capabilities originally developed within Japan and used in aircraft such as the T-2/F-1 Fighter Jet and the F-2 Fighter Jet. We also have a lot of experience with international joint development projects. Some examples include the F-2 – which we developed jointly with Lockheed Martin as MHI's subcontractor – the SM-3 Missile, and the International Space Station. We also have technological capabilities involving the coordination of unmanned vehicles. Leveraging these technologies, we will develop a new, multi-role 6th-generation fighter jet with superior network combat capabilities and the ability to coordinate with unmanned vehicles. It will also be a stealth aircraft.

Regarding the status of development, we are in the documentation phase as Japan, the UK, and Italy work on preliminary design. In parallel, the three governments are discussing the division of responsibilities among the countries.

3. Main Programs and Initiatives: (5) Space Domain Program



- Our space assets (including communications, navigation, and information gathering capabilities) are essential for operation of land, sea, and air equipment
- Contributing with satellite launches, satellite constellation building, and space situational awareness (SSA)



© Mitsubishi Heavy Industries, Ltd. All Rights Reserved.

14

On this page, I will speak about the Space Domain Program.

Currently, space assets are essential for the operation of equipment in the land, sea, and air domains. Avionics use GPS and quasi-zenith satellites, and a variety of information-gathering satellites are essential for the acquisition of important data.

Need for Space Situational Awareness (SSA) and satellite constellations to protect space assets is increasing.

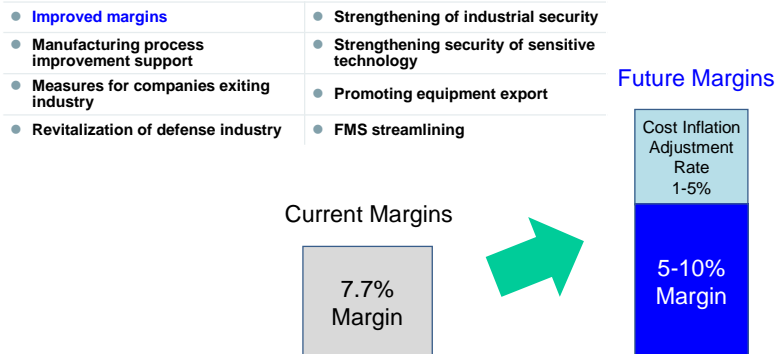
Integrated Defense & Space Systems includes our Space Business, which develops and manufactures launch vehicles as well as manned space systems and satellite equipment including small satellites. Leveraging our specialist know-how regarding front-line equipment in the land, sea, and air domains, we will continue to develop our satellite launch and SSA businesses. In the area of Stand-off Defense and Integrated Air and Missile Defense, information over an extremely wide area will be essential, so there will be need for space assets for scouting, gathering of imagery and communications information to be used in land combat, and surveillance of large areas of ocean.

4. Impact of New Defense Industry Policies



- The Japan Ministry of Defense has issued new policies with the goal of maintaining and strengthening Japan's defense production and technological bases
- With advent of policies increasing defense contractor profit margins, new investment has become possible, driving expectations for continued development of business activities

Japan Ministry of Defense New Defense Industry Policies



On this page, I will explain the impact of the Japan Ministry of Defense's new defense industry policies and their benefit to MHI.

The Ministry of Defense helped formulate the Act on Enhancing Defense Production and Technology Bases, which aims to maintain and strengthen Japan's defense production and technological bases.

New defense industry policies include measures to improve profit margins, support improvements in manufacturing processes, and measures for companies exiting the industry, which have increased recently.

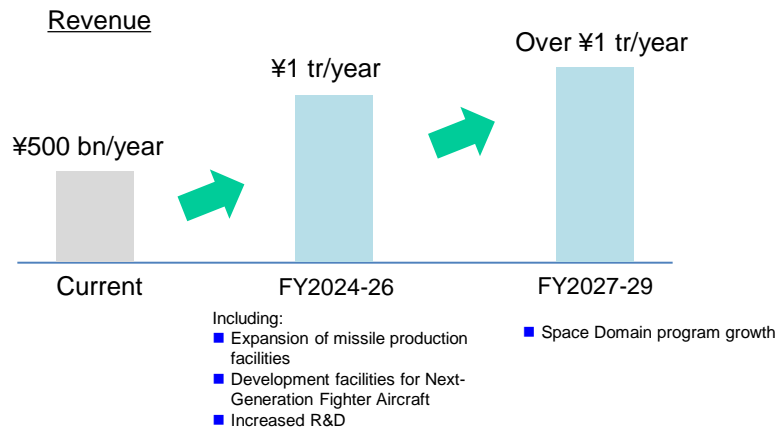
For example, profit margins, which used to be around 7%, may now potentially reach a maximum of 10% in some cases, although this is contingent on companies' ability to provide quality products. Additionally, there is now an adjustment of 1% to 5% for cost inflation such as those caused by semiconductor shortages. This means that we are now able to target a profit margin that is much higher than previous levels.

During the current phase where MHI as a whole will target a 10% profit margin going forward, we are very grateful for this guidance from the Ministry of Defense, which means that Integrated Defense & Space Systems will be able to aim for similar profit levels. In order to target a profit margin of around 10%, we will improve costs internally and diligently manufacture and deliver our products.

5. Business Plan



- For many years, revenue levels trended around just under ¥500 billion
- Forecasting revenue to more than double due to significant expansion of Japan Defense Buildup Program
- Will actively invest in facilities expansion and R&D needed for business growth



© Mitsubishi Heavy Industries, Ltd. All Rights Reserved.

16

This page shows our business plan going forward.

MHI formulates a medium-term business plan (MTBP) every three years. This fiscal year is the third year of our current MTBP, which began in FY2021. We are currently preparing a new MTBP, which will start in FY2024.

As I explained at the beginning of this briefing, Integrated Defense & Space Systems has seen almost no topline growth in the past 5, 10, and even 20 years, with revenue at slightly less than ¥500 billion. However, we intend to double annual revenues to ¥1 trillion along with the doubling of Japan's defense budget. We expect further growth in the next MTBP period as well. To that end, we will focus on expanding manufacturing facilities, executing research and development as a means to receive product orders, and increasing human resources.

- MHI's mission is to contribute to the realization of a safe and secure world through our businesses
- Forecasting strong activity in Japan's defense industry for the medium to long term due to the expansion of the Japan Defense Buildup Program
- Will steadily increase resources to enable revenue growth

This page summarizes today's presentation.

Our Defense business is closely related to Japan's national defense policies, and it is our mission to contribute to the realization of a safe and secure world through our products. With the expansion of Japan's defense capabilities, our business forecasts strong activity in the medium to long term. Finally, we are also expecting revenue expansion, and we will steadily increase our resources in order to achieve growth.

This concludes my presentation. Thank you for your attention.

MOVE THE WORLD FORWARD  MITSUBISHI
HEAVY
INDUSTRIES
GROUP

