Space Strategy Fund(Second Phase) PR Sheets

Space Strategy Fund Department

Japan Aerospace Exploration Agency (JAXA)

July 2026

Overview

The Space Strategy Fund Program sets technology development themes in three fields: transportation, satellites and related systems, and exploration. The program aims to support bold technology development by startups, universities, and other entities, with the fund established at JAXA aiming at 1 trillion yen to provide sustained support over a period of up to ten years.

For Phase 2, for which calls for proposals began in 2025, 112 Representative Organizations were selected across all 24 themes, based on the implementation policy defined by the relevant ministries. Technology development has already commenced at each Representative Organization.

This booklet was compiled by JAXA based on summaries prepared by each Representative Organization, outlining the content and intended outcomes of each Technology Development project. Each PR sheet is the responsibility of the respective Representative Organization.

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* Publicly announced after contract execution or grant approval

Contents【Transportation】

Development of Rocket Parts and Components to Enable High-Frequency Launch Operations

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SPACE STRATEGY FUND

Development and Demonstration of Frequency Sharing Technologies and Related Technologies toward the Realization of Integrated Operations between Satellite Communications and Terrestrial Networks

Rakuten Mobile *After contract・approval

Support for Demonstration of Innovative Satellite Mission Technologies

Sarmony *After contract・approval

Technologies to Enhance Observation Capabilities for Next-Generation Earth Observation Satellites

Axelspace *After contract・approval

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Technologies for Realizing Flexible Mobility in Space

NEC *After contract・approval

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Mitsubishi Electric *After contract・approval

Astroscale *After contract・approval

Yokohama National University *After contract・approval

Acceleration of Implementation of Satellite Data Utilization Systems

Archeda *After contract・approval

Wesco *After contract・approval

Oki Electric Industry *After contract・approval

Green Carbon *After contract・approval

Kokusai Kogyo *After contract・approval

Space Tech Accelerator *After contract・approval

Sumitomo Forestry *After contract・approval

Tokio Marine Resilience *After contract・approval

Remote Sensing Technology Center of Japan *After contract・approval

LocationMind *After contract・approval

Advanced Satellite Systems Technology Center *After contract・approval

Cross U *After contract・approval

Deloitte Tohmatsu Space & Security *After contract・approval

Japan Space Forum *After contract・approval

Nomura Research Institute *After contract・approval

Mitsubishi Research Institute *After contract・approval

Remote Sensing Technology Center of Japan *After contract・approval

* Publicly announced after contract execution or grant approval

Contents 【Satellites】

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* Publicly announced after contract execution or grant approval

Contents【Exploration】

SPACE STRATEGY FUND

* Publicly announced after contract execution or grant approval

Contents 【Cross-cutting】

SPACE STRATEGY FUND

SX (space transformation) Advanced Research Kick-starter "SX-ARK"

Thermal and Devices Domain

Iwate University	*After contract・approval
EneCoat Technologies	*After contract・approval
Ehime University	*After contract・approval
Ookuma Diamond Device	*After contract・approval
Osaka University	*After contract・approval
Kioxia	*After contract・approval
Chemitox	*After contract・approval
National Institute of Advanced Industrial Science and Technology	*After contract・approval
Daikin Industries, Technology and Innovation Center	*After contract・approval
Nagoya Institute of Technology	*After contract・approval
Nagoya University	*After contract・approval
Nagoya University	*After contract・approval
Hokkaido University	*After contract・approval

* Publicly announced after contract execution or grant approval

Contents 【Cross-cutting】

SPACE STRATEGY FUND

SX (space transformation) Advanced Research Kick-starter "SX-ARK"

Motion and Control Domain

NEC Space Technologies	*After contract・approval	The University of Tokyo	*After contract・approval
Kyushu University	*After contract・approval	Tokyo University of Science	*After contract・approval
Kyoto University	*After contract・approval	Tohoku University	*After contract・approval
Kobe University	*After contract・approval	Nagoya University	*After contract・approval
National Institute of Advanced Industrial Science and Technology	*After contract・approval	Nippon Kayaku	*After contract・approval
Sanyo Chemical Industries	*After contract・approval	Hatta–Yamamoto Space Propulsion Systems	*After contract・approval
National Astronomical Observatory of Japan, National Institutes of Natural Sciences	*After contract・approval	Patched Conics	*After contract・approval
Shimane University	*After contract・approval	Fukoku	*After contract・approval
SteraVision	*After contract・approval	Yokohama National University	*After contract・approval

* Publicly announced after contract execution or grant approval

Contents 【Cross-cutting】

Solutions for Spacecraft Environmental Testing Challenges

SX (space transformation) Center of Research ANd Engineering“SX-CRANE”

＊ Publicly announced after contract execution or grant approval

Development of a Manufacturing Process for Cylinder Components of Rocket Propellant Tanks

SPACE STRATEGY FUND

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

AKAHOSHI Inc.

Overview

Providing high-quality, low-cost cylinder components for rocket propellant tanks with short lead times.

We develop roll forming and joining technologies for the high-strength aluminum alloy A2219 used in rocked propellant tanks.

Since this material is not widely used in the Japanese general industry, there are extremely few suppliers with the necessary processing technology.

Our company aims to be the supplier that can provide the widest range of propellant tanks in various shapes for the aerospace industry, and plan is as follows:

1) The development to bending **roll processing** technology with a view to automation for the A2219 with an **isogrid structure**;
2) The development to **GTAW** technology aimed at improving quality stability through high-precision control systems; and
3) The development to **FSW** technology that produces weld with quality consistency, high strength, and few defects.

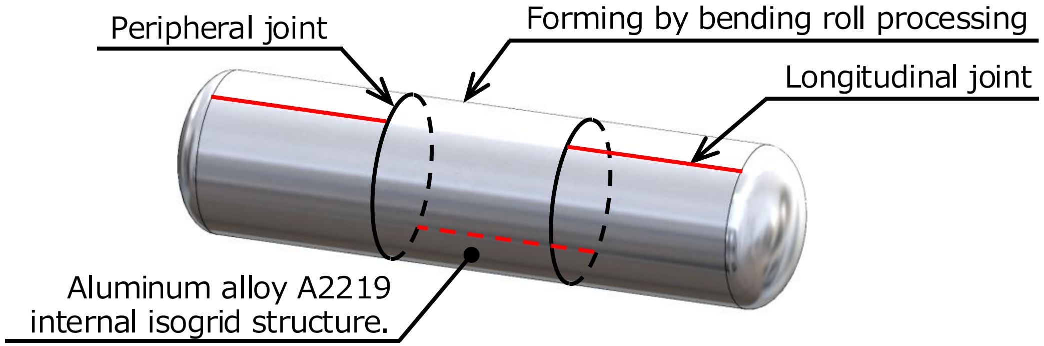
Implementation period (planned)

※Varies depending on stage gate evaluation, etc.

April 2026 to March 2030 (4 years)

Point of Contact for international communication

PR Manager : Tsuruoka　E-mail : turuoka@akahoshi.co.jp



Example of propellant tank.　　**©AKAHOSHI Inc.**

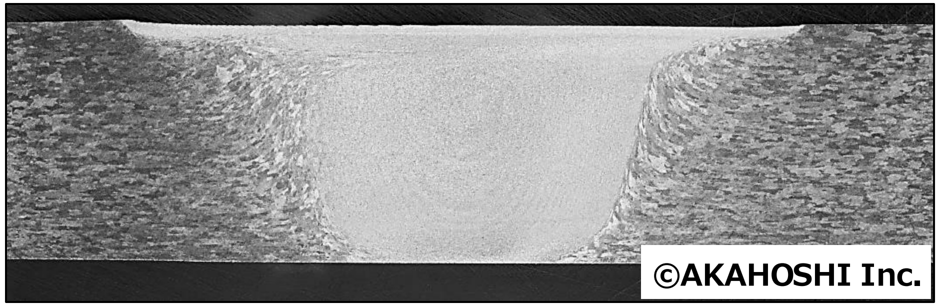
Findings and core technology

- Roll processing technology.
- High-quality joining technology.
- NDI, quality assurance.

Future prospects

- Applying to general structures.
- Expanding the application to peripheral joints.
  …For the assembly of cylinder components.

Example propellant tank and future prospects following the conclusion of the project.



Joining of A2219 by FSW.

Advancing Solid Rocket Motor Manufacturing with Robotics-Based Process Innovation

SPACE STRATEGY FUND

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

SPACE ONE Co., Ltd.,

Overview

Increasing the Frequency of Rocket Launches in Japan by Advancing Solid Rocket Motor Manufacturing Process

By expanding production capacity and reducing costs—particularly in **casting of solid rocket motor propellant**—the initiative aims to support the national target of 30 launches per year and enhance international competitiveness.

The project leverages **robotics** and **digital transformation (DX)** to modernize manufacturing processes through **automation**, **parallelization**, and **data-driven control**.

It also introduces **robotic operations for labor efficiency** and advanced **non-destructive inspection technologies** to significantly reduce inspection time and preparation work.

Moreover, the developed technologies are broadly applicable beyond proprietary designs, contributing to a more resilient supply chain across Japan's space and related industries.

Implementation period (planned)

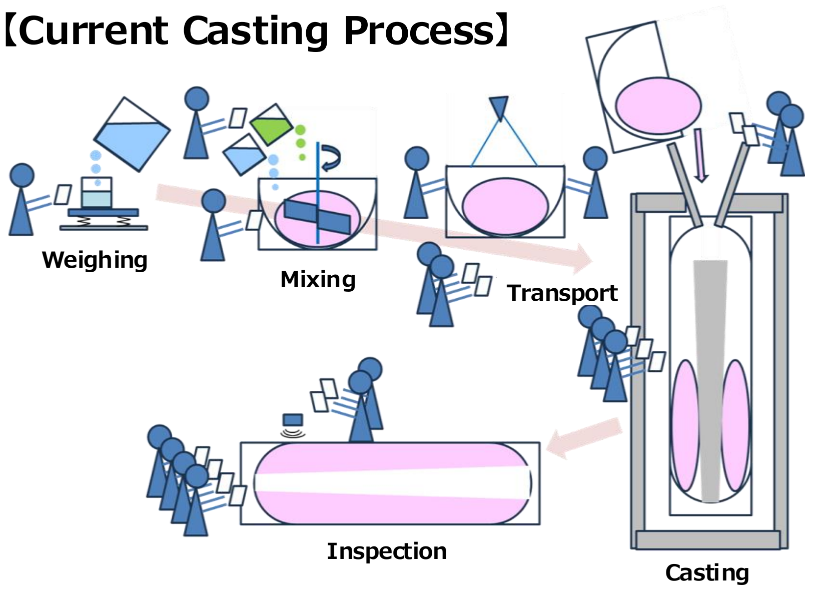
※Varies depending on stage gate evaluation, etc.

April 2026 – March 2030 (4 years)

Point of Contact for international communication

PR Team E-mail : info@space-one.co.jp

【Current Casting Process】

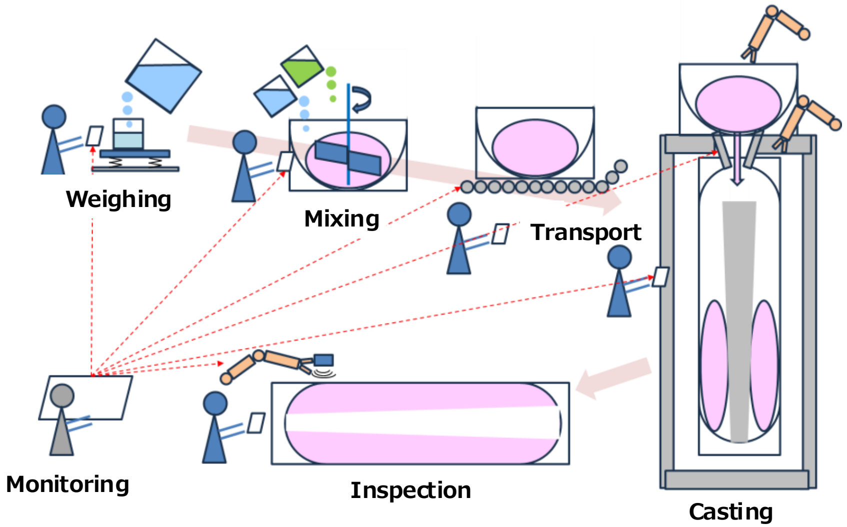


Dependence on Skilled Workers
Casting and inspection rely heavily on the experience and intuition of skilled technicians

Sequential Process
Production in a single, sequential line due to shared equipment.

→Limited Scalability

【Advanced Casting Process】



Data-Driven
Transition from experience-based operations to data-driven automated control

Robotics and Automation
Enables automated operation by a small number of non-specialists

Inspection Efficiency
Significantly reduces inspection preparation effort and time

Before-and-After Images of the Manufacturing Process ©SPACE ONE

Automated Lamination Technology for Large-Diameter Cylindrical and Large-Scale 3D Components

SPACE STRATEGY FUND

Implementing agency name
※Bold: Representative organization, Regular: Collaborative organization

Toray Carbon Magic Co., Ltd.

Overview

Automation-driven CFRP manufacturing enabling fast, low-cost, and scalable production for small rockets.

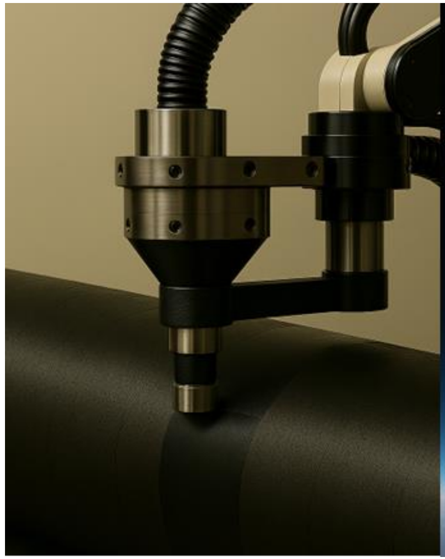
- CFRP expertise from racing, aviation, and aerospace provides a strong foundation for quality and reliability.
- The labor-intensive layup process is automated using AFP(Automatic Fiber Placement) and ATP (Automatic Tape Lay-up) technology to improve productivity.
- Automation reduces lead times and costs while ensuring consistent quality, even for complex geometries.
- Prototyping and validation define optimal conditions and enable mass production processes.
- This creates a foundation for stable mass production of small rocket components while enhancing launch capability, reducing costs, and strengthening Japan’s competitiveness.

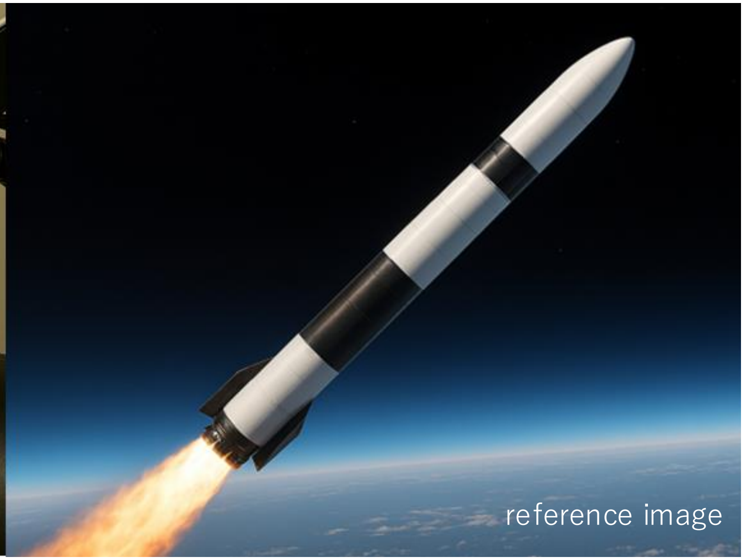
Implementation period (planned)
※Varies depending on stage gate evaluation, etc.

April 2026 to March 2028 (2 years)

Point of Contact for international communication

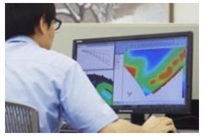
[Aki Matsuyama/Ms.]　E-mail : aki.matsuyama.b6@carbonmagic.toray



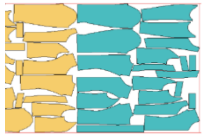


Typical CFRP manufacturing for rockets

Design & Analysis



Laminate pattern

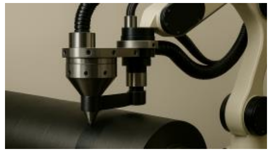


Cutting

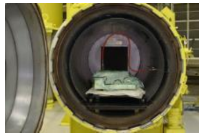
Lay-up

Target CFRP manufacturing for rockets

Automated Lamination



AutoClave



Challenges for Expanding Production of Large, High-Precision Thin-Walled Structures

SPACE STRATEGY FUND

Implementing agency name
※Bold: Representative organization, Regular: Collaborative organization

TOKUDA INDUSTRIES CO., LTD.

Overview

Enabling High-Rate Launches through Advanced Manufacturing of Large, High-Precision Aerospace Structures

1) **Advanced Manufacturing Automation**;Develop automated manufacturing technologies that reduce manual work, shorten production lead times, and improve operational efficiency.
2) **Increased Production Capacity and Cost Reduction**; Establish a scalable production process capable of significantly increasing manufacturing capacity while reducing production costs.
3) **Broader Application Across the Aerospace Industry**; Expand the developed manufacturing technologies beyond launch vehicles to support large, high-precision structures used in the space and commercial aerospace sectors.

Implementation period (planned)
※Varies depending on stage gate evaluation, etc.

February 2026 to September 2027 (1.5 years)

Point of Contact for international communication

[Tokuda Kentaro]　E-mail : k-tokuda@tokuda.co.jp

Figure1. Machining of a Large-Scale Component

Table 1. Technology Development Approach

Current challenges	Technology development
Time-Consuming Chip Removal	Automated Chip Collection Technology
Manual Measurement and Adjustment	Automated Measurement and Adjustment Technology
Reliance on Skilled Workers' Judgment	Standardized Quality Inspection Technology

Development of a Flexible Assembly System for Rocket Structures

Implementing agency name

HOKUTO Corporation

Overview

Establishment of Automation Technology for Rocket Manufacturing and Its Deployment Across the Manufacturing Industry

✓ This project aims to develop an automated system for the drilling and riveting processes of rocket structures, which currently rely heavily on manual operations. The objective is to mitigate the increase in labor workload associated with production scale-up while further reducing manufacturing lead times.

✓ The project will promote the standardization and modularization of the automated system, thereby expanding its applicability to various rocket models and other space-related products. Through these efforts, we aim to facilitate deployment across manufacturing sites both in Japan and overseas.

✓ The technologies developed through this project can also address the needs of the aerospace and general industrial machinery sectors. As such, they will contribute to the advancement of automation and labor-saving technologies across the manufacturing industry.

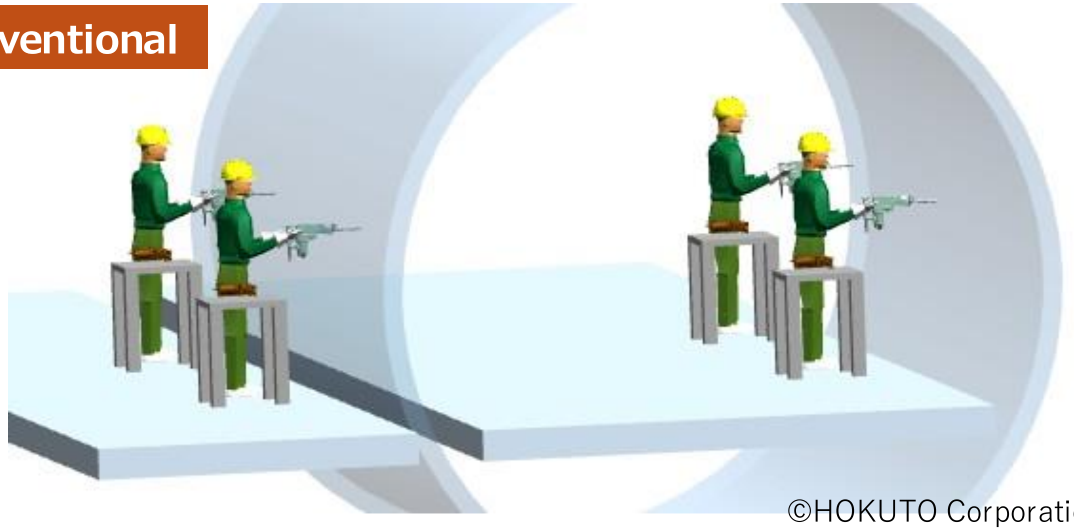
Implementation period (planned)

- April 2026 – January 2028 (2 years)

Point of Contact for international communication

- Hokuto Corporation Website (https://www.hkt.co.jp/)

Conventional



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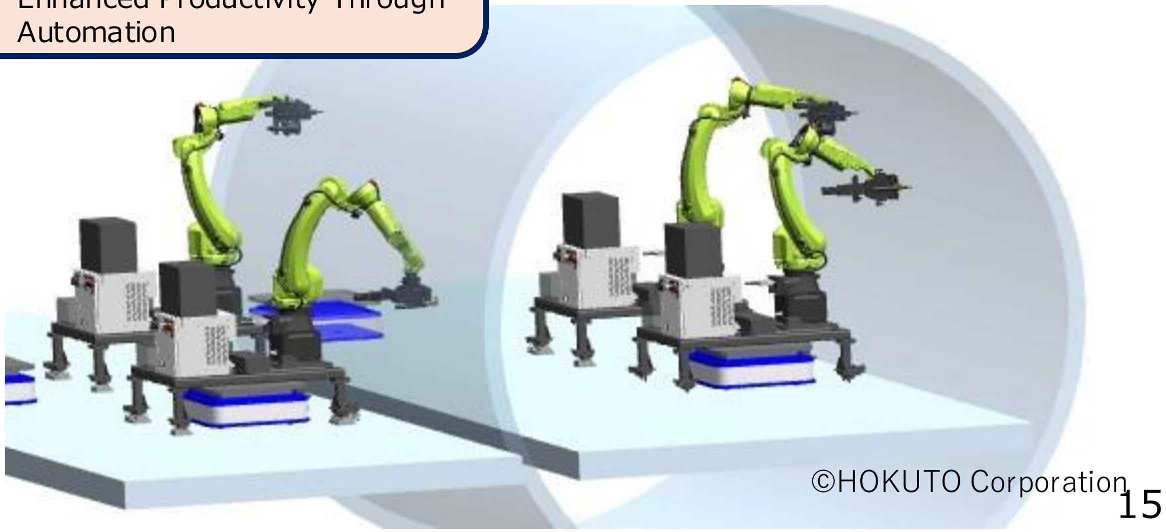
- Flexible Adaptation to Production Requirements
- Flexible Installation Layout
- Enhanced Productivity Through Automation

Proposed



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Development of Technologies for the Mass Production of Rocket Turbopump Seals

SPACE STRATEGY FUND

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

Eagle Industry Co., Ltd.

Overview

Development of Mass Production Technologies for Seals Enabling High-Frequency Global Launch Operations

Our goal

A) We are developing technologies aimed at improving the productivity of highly reliable seals for rocket turbopumps.

B) We provide highly reliable seals for rocket turbopumps to the international market in terms of supply and cost.

Implementation period (planned)

※Varies depending on stage gate evaluation, etc.

April 2026 to March 2030 (4 years)

Point of Contact for international communication

[Hidetoshi Kasahara)] E-mail : hidetoshi.kasahara@ekkeagle.com

High-Efficiency Liquified Bio-Methane(LBM) Production Technology for Rocket Fuel

SPACE STRATEGY FUND

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

AIR WATER INC.

Overview

High-Efficiency, High-Quality LBM for Rocket Fuel

- We will develop technology to efficiently and reliably produce high purity liquid methane to meet the growing demand for frequent rocket launches
- We will construct a new plant in Shikaoi to expand production capacity and reduce costs by over 30%
- We aim to contribute to the growth of the space industry, local decarbonization, and enhanced energy self-sufficiency

Key Development Outcomes:

1. Development of a high-efficiency LBM production system:
   Annual LBM production capacity of **1,000 tons**
2. Development of LBM storage and filling systems:
   LBM storage capacity of **50 tons per day**
3. Development of Bio-CNG production and supply systems:
   Establishment of **a compressed biomethane production** process

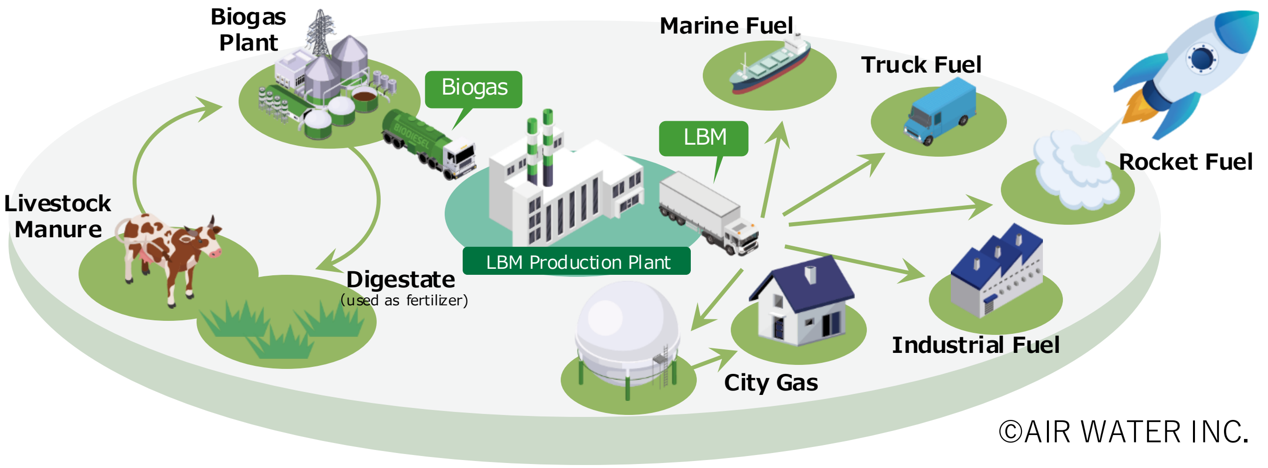
Implementation period (planned)

※Varies depending on stage gate evaluation, etc.

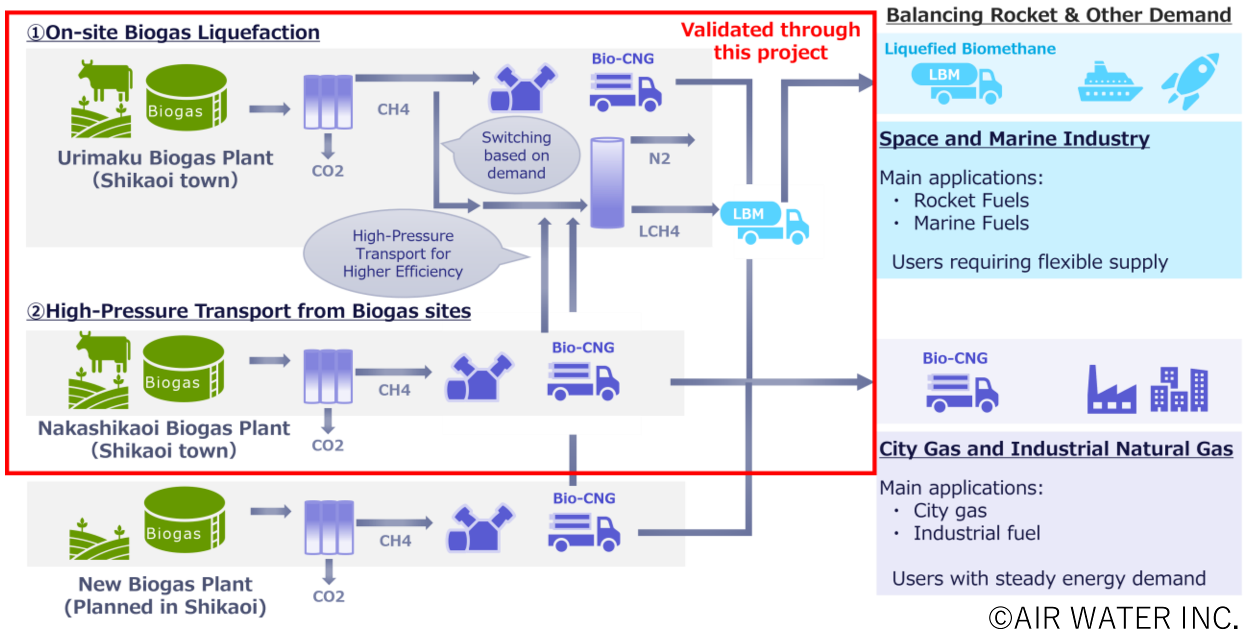
March 2026 to March 2028 (2 years)

Point of Contact for international communication

[Contact: Matsuda] E-mail : matsuda-hik@awi.co.jp



Current Biomethane Production Supply Chain in the Tokachi Region



Production Supply Chain Planned in this Development

Enhanced functionality of SDR for launch vehicles and LEO constellation satellites

SPACE STRATEGY FUND

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

NEC Space Technologies, LTD.

Overview

To support high-frequency rocket launches, we will implement software-defined radio (SDR) technology in rocket transponders to enhance functionality while establishing a mass production system. Software reconfiguration enables flexible response to customer requirements, and design commonality combined with a build-to-stock approach eliminates long lead times.

By leveraging mass production benefits through design standardization with LEO constellation satellites, we target 60% cost reduction and 40% lead time reduction. This will fundamentally lower the procurement costs that remain high due to made-to-order and low-volume production. Following development, we will reliably verify communication performance in orbit.

- ✓ **Common transponder** for rockets & LEO constellation satellites
- ✓ **60% cost reduction, 40% faster delivery** via SDR technology
- ✓ **Flexible support** for advanced encryption & encoding
- ✓ **Mass production**: Several dozen units per month
- ✓ **Flight demonstration validation**

Implementation period (planned)

※Varies depending on stage gate evaluation, etc.

- March 2026 to February 2028 (2 years)

Point of Contact for international communication

- https://contact.nec.com/http-www.necspace.co.jp_tb_root_contact/

1. Compliant to various requirement

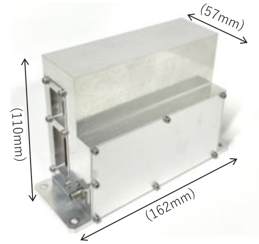
Flexibility by Software-Defined

Requirement	Target Spec.
Modulation	BPSK/QPSK/16QAM/ PM/FM/CDMA
Data rate	Few kbps～10Mbps
Coding	Convolutional, RS, BCH, LDPC, e.t.c.
Encryption	AES-256, e.t.c

- **No need to change hardware**
- **Future scalability** by using high-capacity FPGAs

2. Small sizing/Light weight

Palm-sized integrated transceiver

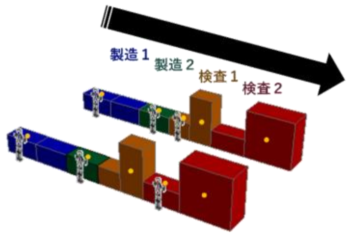


Comparison	Previous one	This works
Mass	～5.0 kg	**0.6 kg**
Volume	～10 L	**～1 L**

- **Small sizing/Light weight** by using transceiver IC
- Enhanced **design flexibility** for satellite accommodation

3. Short delivery/Low cost

Achieving mass production



Comparison	Previous one	This works
Leed-time	～10 months	**～6 months**
Cost	1 (baseline)	**～0.4 times**

- **High performance/low cost** by using **COTS parts**
- **60% cost reduction and 40% lead time reduction**

Value provided to customers

Theme 1
Enhancement of functionality and performance

Theme 2
Establishment of a mass production

Theme 3
flight demonstration

Themes to be addressed in this technology development

Development of Electrically Operated Valves and Preburners for Reusable Propulsion

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

SUIHO SPACE INNOVATIONS Co., Ltd.

Overview

We aim to increase launch frequency, improve reusability, and reduce costs in space transportation.

We will develop key propulsion-system components and establish a stable supply chain, helping strengthen Japan's competitiveness in space transportation. By standardizing and commercializing these components, we will provide affordable, easy-to-use products that support more frequent launches and lower operational costs.

- This project develops **electric valves** and **preburner injectors** for high-performance reusable propulsion systems, targeting liquid methane engines in **the 10-ton-thrust class and above**.
- Electric valves will be validated through pressure, leak, and durability tests, while control algorithms for thrust regulation will also be developed.
- Preburner injectors with a proprietary cooling design will be tested to verify stable combustion and thrust control.
- Integrated subsystem tests will support commercialization and maintenance services within the 2020s.

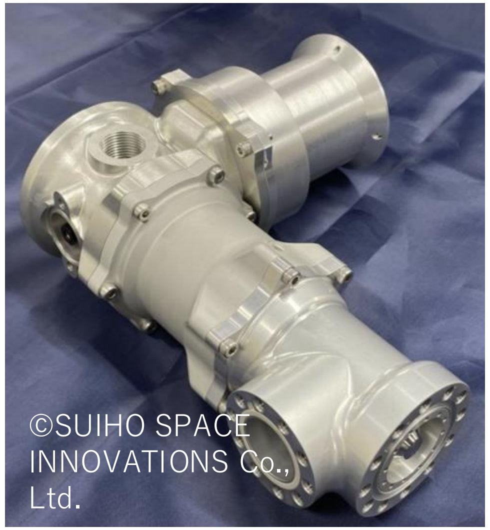
Implementation period (planned)

※Varies depending on stage gate evaluation, etc.

From March 2026 to February 2028 (2 years)

Point of Contact for international communication

- E-mail : contact@suiho-space.co.jp



Flow Control

Technical Objectives

Electric Valves (Flow Control Valve and Main Valve)	Enhanced Functionality	• **Enhanced Responsiveness & Pressure Resistance** • **>30% Weight Reduction**
	Cost Reduction	• **>60% Cost Reduction**
	Enhanced Supply Capacity	• **>70% Lead Time Reduction** • **Supply Capacity of Over 100 Units per Year**
Preburner Injector	Enhanced Functionality	• **Enhanced Thrust Control Performance** • **Increased Maximum Combustion Pressure** • **>80% Weight Reduction**
	Cost Reduction	• **>90% Cost Reduction**
	Enhanced Supply Capacity	• **>80% Lead Time Reduction** • **Supply Capacity of Over 50 Units per Year**

Development of "TOHRO", an inter-rocket compatible multi-satellite payload system

SPACE STRATEGY FUND

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

Space BD Inc., Kawasaki Heavy Industries, Ltd.

Overview

Maximize Japanese domestic rocket payload capacity and realize high-frequency space transportation.

- We will significantly increase the small satellite payload capacity of domestic rockets such as H3 and EpsilonS by making the most of limited launch opportunities.
  (**Improvement of available payload capacity**)
- By standardizing the satellite payload support system, which previously required development for each launch, we will reduce system development costs and contribute to strengthening the international price competitiveness of domestic rockets.
  (**Cost Reduction**)
- Through significant cost reductions and improved payload capacity, we will create an environment where domestic small satellite operators can access space affordably and frequently. This will drive the transition away from reliance on foreign rockets and foster the self-sustaining development of the domestic space industry.

Implementation period (planned)

※Varies depending on stage gate evaluation, etc.

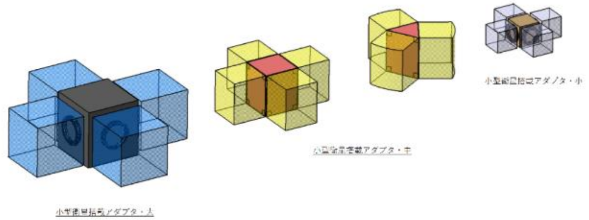
Jan-2026 to Mar-2029 (Approx. 3 years)

Point of Contact for international communication

[Mia Lee] E-mail : m.lee@space-bd.com

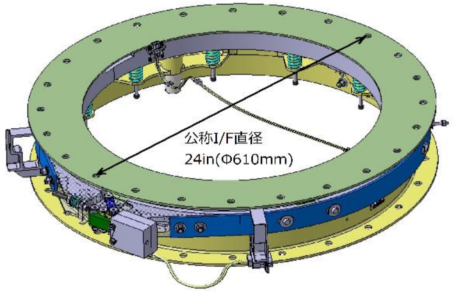
Small Satellite Payload Adapter

Develop three types (large, medium, and small) to correspond with the sizes of domestic rockets.



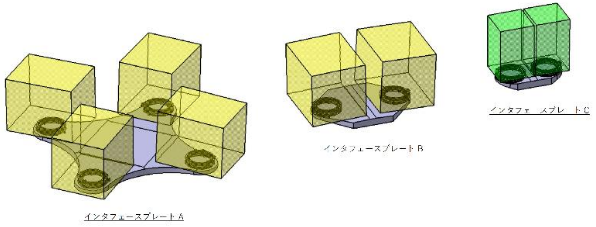
Simple PAF 24M

Develop a separation unit for small satellites capable of accommodating small satellites up to 500kg class.



Interface Plate

Develop a plate that enables multi-satellite payload and improves payload efficiency inside the fairing by attaching it to a single port of the small satellite payload adapter.



SSF 2nd Phase： Development of Rocket Parts and Components to Enable High-Frequency Launch Operations

Development of system design technologies and manufacturing processes for ultra-lightweight pressurant tank system

SPACE STRATEGY FUND

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

MJOLNIR SPACEWORKS Co., Ltd.
SAMTECH Corporation

Overview

Realize a domestically produced ultra-lightweight pressurant tank system with short lead times and low cost.

1. Establish a **domestic manufacturing process** for ultra-lightweight pressurant tanks that enables mass production, combines the efficiency of **plastic forming** with machining-level weight reduction.
2. Establish **standardized design and evaluation methodologies** for pressurant tank systems, including mounts and interfaces, enabling optimal system design while significantly **reducing development time and cost.**
3. **2028** : Complete development of ultra-lightweight pressurant tank systems in the **100 L class and above**.
4. **2030**: Complete development of lightweight pressurant tank systems for **smaller-capacity classes**.

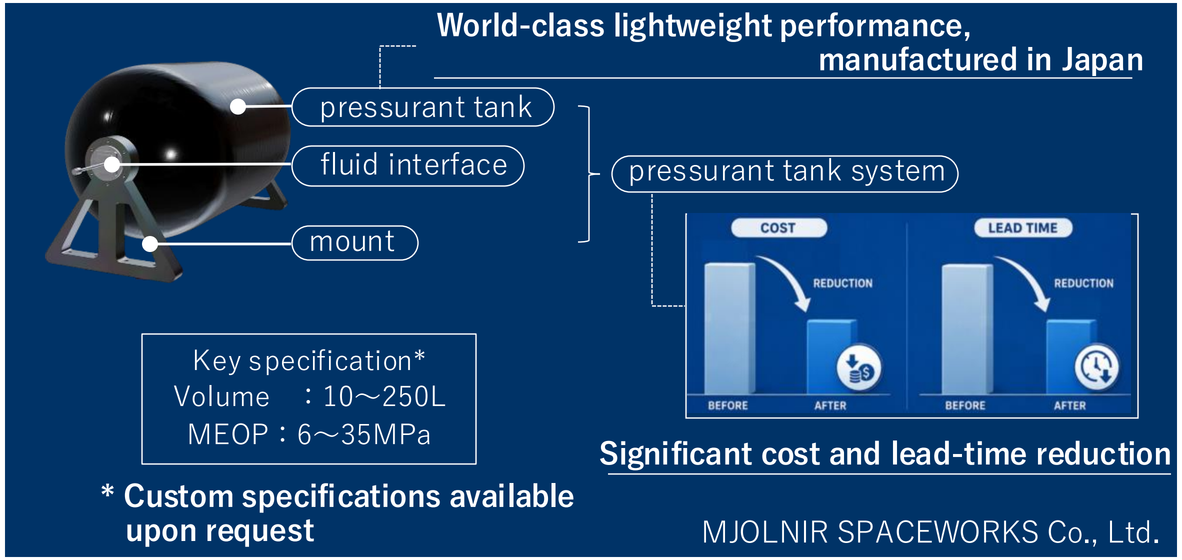
Implementation period (planned)

※Varies depending on stage gate evaluation, etc.

March, 2026 to March, 2030 (Four years)

Point of Contact for international communication

- [Ryota KOTABE] ・E-mail : kotabe_r@mjolnir-sw.com



Outcome

Output

Development of Device Interoperability and Optical Communication Behavior Simulation Technologies for Satellite Optical Comms

SPACE STRATEGY FUND

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

Warpspace, Inc., University of Tsukuba Yoshiki Yamaguchi Lab

Overview

Bridging space beyond protocols to create a base for next-gen Space Optical Comms

1. Developing a **space multi-protocol optical communication modem** capable of processing various communication standards in a single device, featuring a **software-defined architecture** for flexible in-orbit updates;
2. Creating a **digital twin system** that highly accurately reproduces the complex behaviors of space optical communications on the ground, enabling comprehensive pre-launch evaluations and operation

Implementation period (planned)

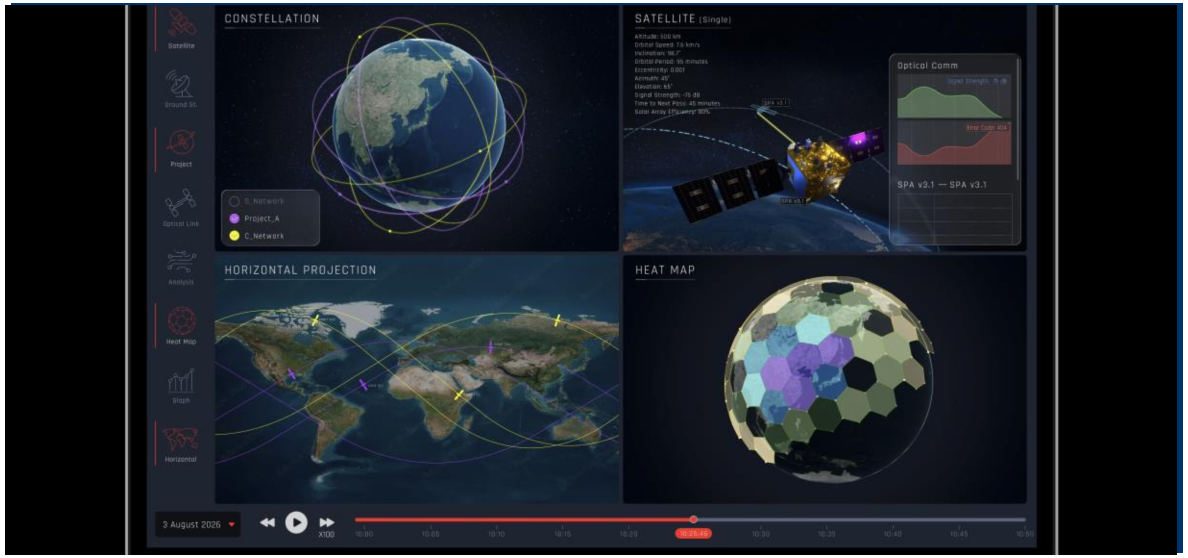
※Varies depending on stage gate evaluation, etc.

April 2026 to March 2031 (5 years)

Point of Contact for international communication

[Ryota Takahashi]　E-mail : ryota.takahashi@warpspace.jp

HOCSAI (Multi-protocol Optcomm Modem)



DTS (Digital Twin System)

Development of Internationally Competitive Full Digital Payload

SPACE STRATEGY FUND

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

Mitsubishi Electric Corporation, SKY Perfect JSAT Corporation

Overview

Enhancing international competitiveness of communication satellites with cutting-edge digital communications payload technology

1) Flexibly changes the beam irradiation area within the communication range expanded by **direct radiating array(DRA)** antenna by utilizing **digital beam forming (DBF)** technology, which forms radio waves in any desired direction within the range.
2) Equipped with **digital payload processor(DPP)** that enables the satellite to update its functions after launch by digitally processing communication signals and performing software-based communication control functions.
3) Functions that conceal communication content and protect signals from jamming will enable highly secure, stable communication that is resistant to detection and jamming by third parties.
4) Such functions were previously difficult to implement due to the complexity and high volume of processing required, but using high-performance **application-specific integrated circuits (ASIC)** enables the development of a small, low-power payload, allowing the system to be mounted on a geostationary communication satellite.

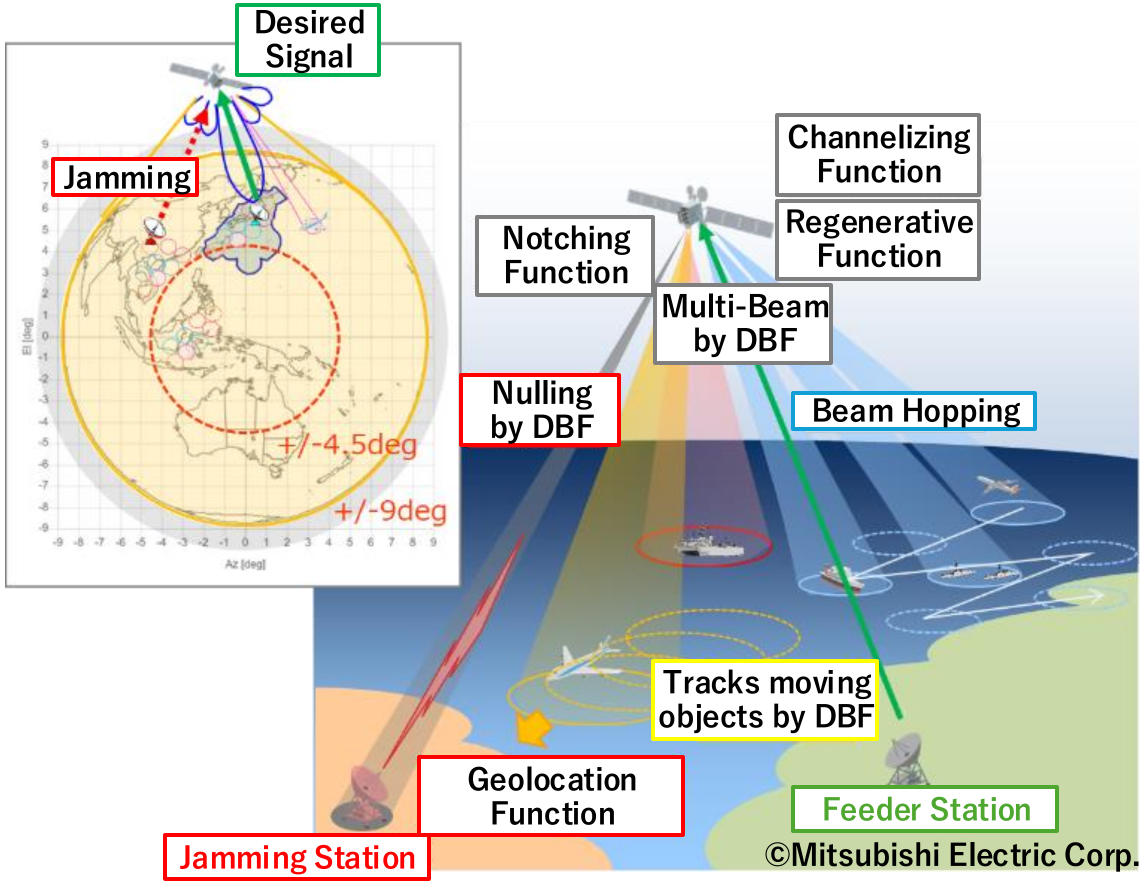
Implementation period (planned)

※Varies depending on stage gate evaluation, etc.

May 2026 to March 2030 (4years)

Point of Contact for international communication

[Mitsubishi Electric Corporation] E-mail : prd.gnews@nk.MitsubishiElectric.co.jp



Usage examples of key features

Development of Core Technologies for On-Orbit Manufacturing

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

Mitsubishi Electric, Kwansei Gakuin University, Osaka Metropolitan University, University of Fukui

Overview

Development of "On-Orbit Manufacturing Technology" to Revolutionize Space Development

1) Overcoming Payload Limits

Integrating AM (Additive Manufacturing) and robotics to manufacture large-scale structures in space, bypassing traditional rocket size constraints.

2) Global Connectivity

Producing ultra-large antennas in orbit to enable direct satellite-to-mobile communication. This ensures disaster-resilient connectivity and bridges the global digital divide.

3) Industrial Vitalization & Resilience

Fabricating diverse structures (antennas, SSPS) in orbit and enabling on-demand repairs. This revitalizes the domestic space industry and builds resilient infrastructure responsive to security needs.

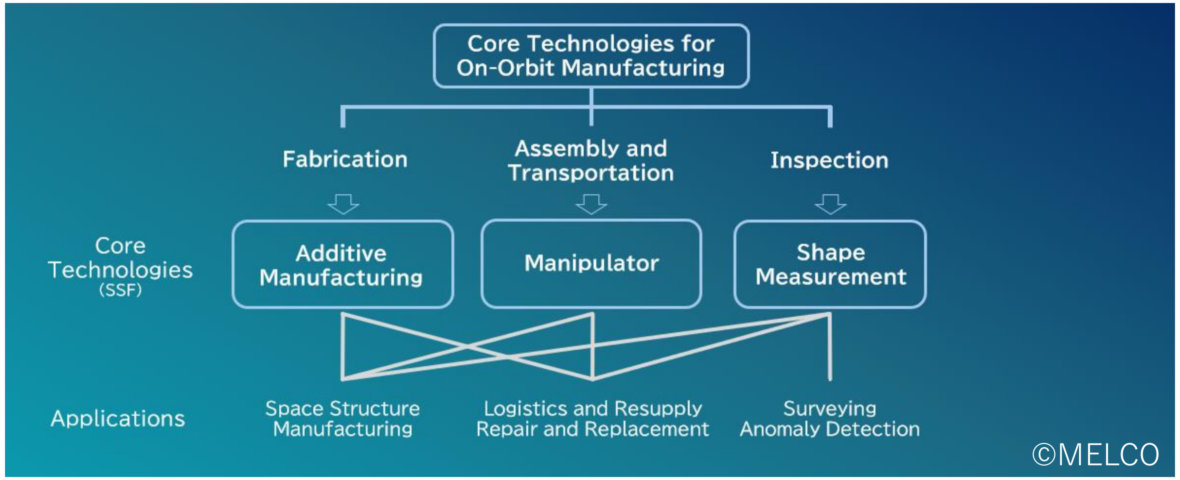
Implementation period (planned)

※Varies depending on stage gate evaluation, etc.

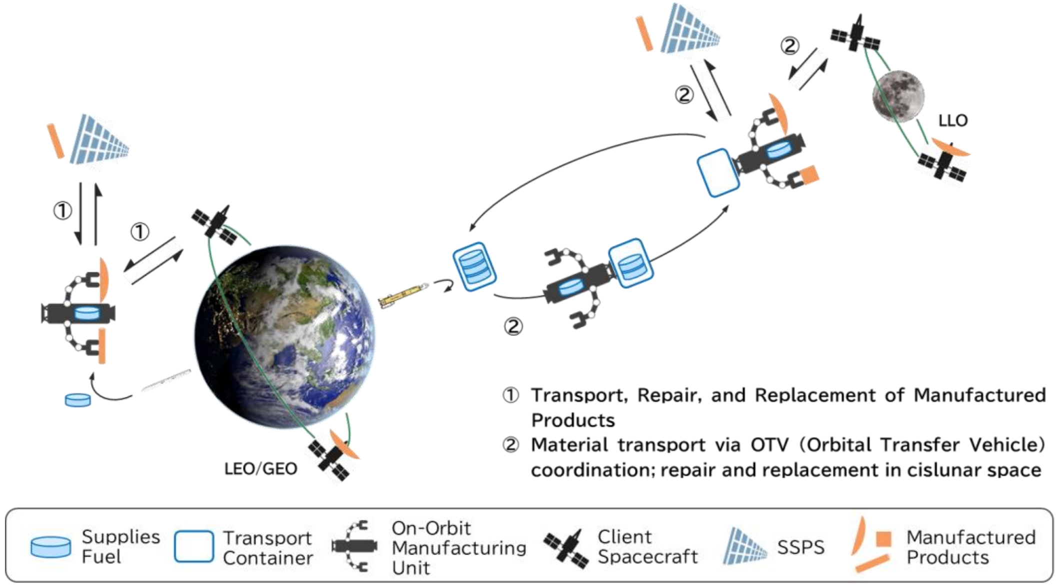
Jan. 2026 to Dec. 2031 (6 years)

Point of Contact for international communication

Mitsubishi Electric Corporation
E-mail : prd.gnews@nk.MitsubishiElectric.co.jp



Core Technologies & Future Business Applications



On-Orbit Structural Fabrication & Installation Services

SSF 2nd Phase： Technologies for Realizing Flexible Utilization of Space

Development of Adaptive Predictive-Control Technology for Space Debris Removal Using Ground-Based Lasers

SPACE STRATEGY FUND

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

Power Laser Technology Inc., Osaka University

Overview

Outcomes: Focus high-power laser beams on debris at altitudes up to approximately 1,000 km, control the orbits of debris as on-orbit objects, and contribute to the safe use of space.

Avoid invisible hazards to satellites: by combining AI with ultra-precision laser-optics technology, enable collision-avoidance services for satellites and debris.

Maintaining a sustainable space environment: protect space infrastructure through ground-based laser irradiation.

Output and Challenges; High-repetition-rate power-laser technology: establish a high-power, high-repetition-rate pulsed light source required for removing small debris.

Adaptive laser-irradiation control technology: establish tracking and control technology that compensates for atmospheric turbulence and accurately irradiates debris in space with lasers.

Detailed design of a removal-system prototype: complete the detailed design of the world's first orbital-control system prototype by integrating the two technologies above with a separately planned space-observation system.

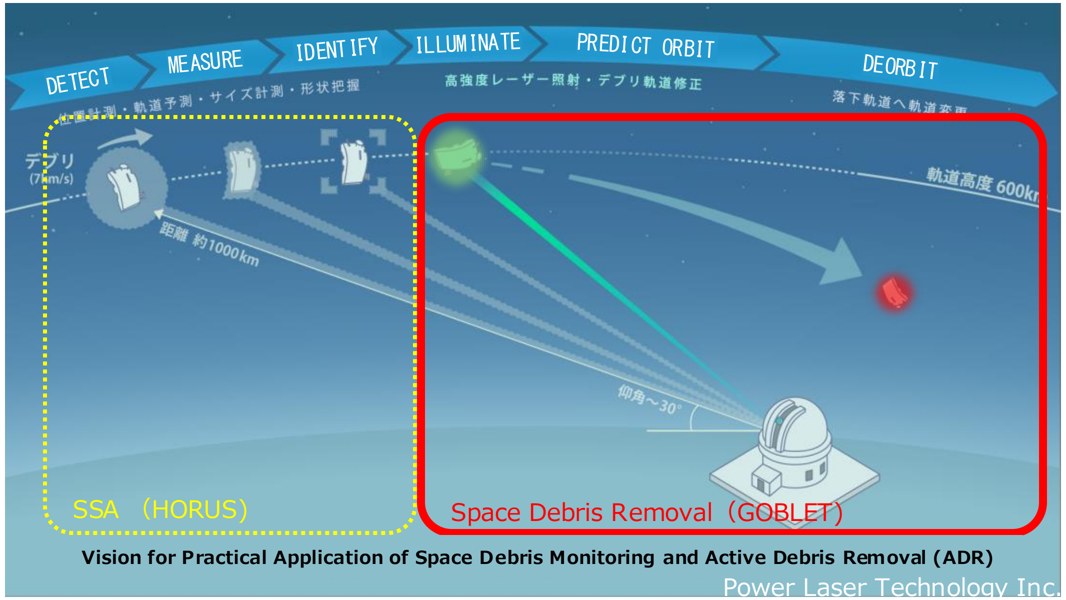
Implementation period (planned)

※Varies depending on stage gate evaluation, etc.

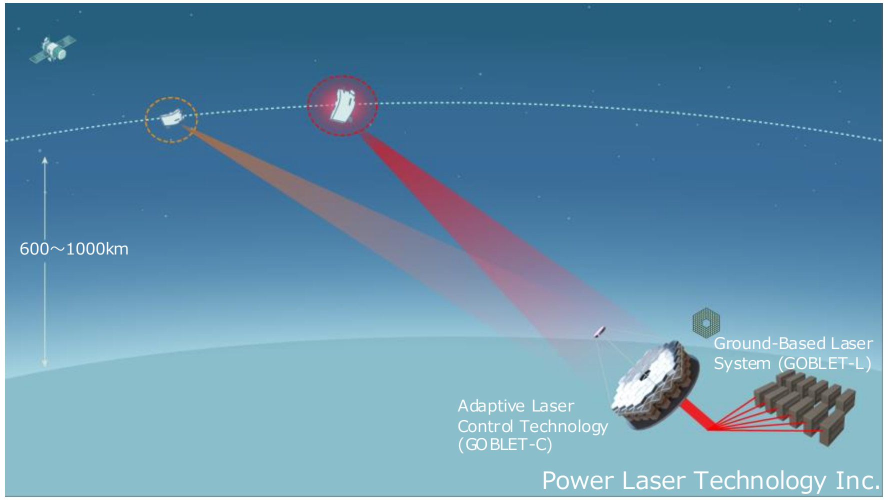
March 2026–February 2030 (4 years)

Point of Contact for international communication

E-mail : contact@powerlaser.co.jp



Vision for Practical Application of Space Debris Monitoring and Active Debris Removal (ADR)



Ground-Based Laser Technology for Space Debris Orbit Modification

SSF 2nd Phase： Technologies for Realizing Flexible Utilization of Space

Development of Inverse Synthetic Aperture Laser Radar (ISAL) for Long-Range High-Resolution Imaging

SPACE STRATEGY FUND

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

IHI Corporation, Fukuoka Institute of Technology, Kyushu University, Masehira Co., Ltd.

Overview

From unseen threats to visible risk:
High-resolution imaging of close-approaching space objects

- High-resolution satellite-borne sensor visualizing close-approaching objects and on-orbit risks
- Long-range, all-weather, day-and-night imaging with an active optical payload
- Detection and characterization of small debris for early warning and safer satellite operations

◆Developing Technologies:
- Compact laser-based ISAL payload for high-resolution imaging
- High-gain technology for long-range imaging and target detection
- In-orbit demonstration to accelerate deployment

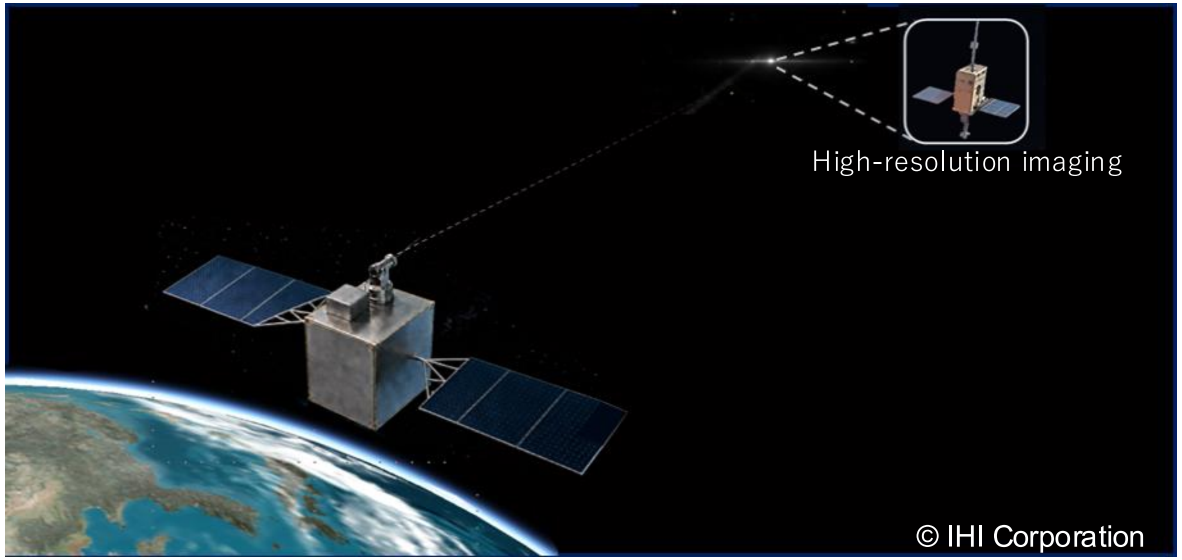
Implementation period (planned)

※Varies depending on stage gate evaluation, etc.

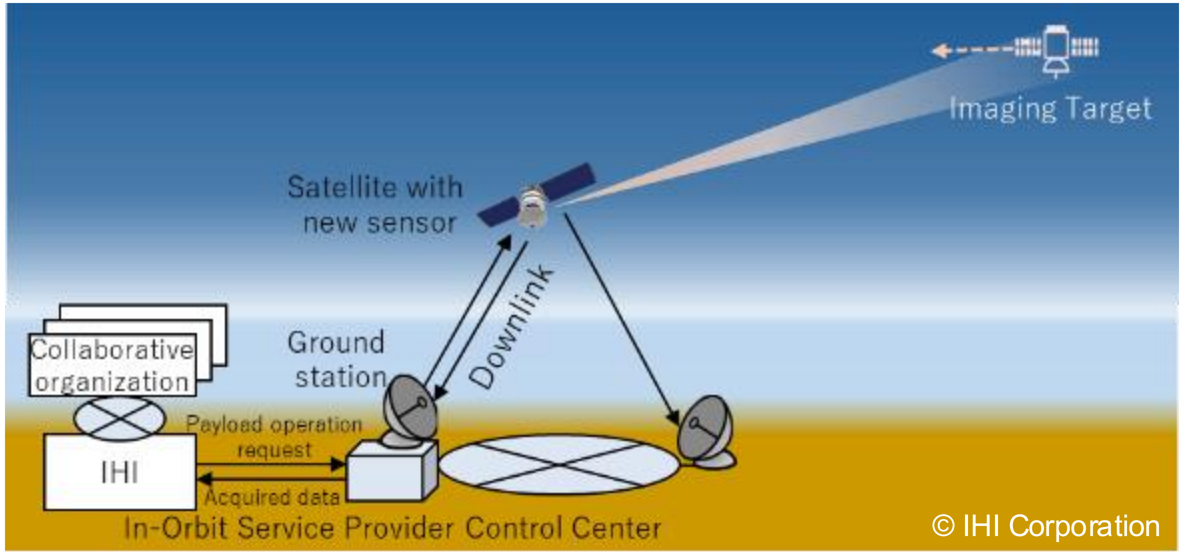
March 2026 to September 2030 (5 years)

Point of Contact for international communication

[Taku Izumiyama]　E-mail : izumiyama6491@ihi-g.com



Imaging Operational Concept with the New Sensor



Concept Image of In-orbit Demonstration

Development of Super-Resolution Monitoring Technology for Space Debris Using Tracking-Type Ground-Based Lasers

SPACE STRATEGY FUND

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

Power Laser Technology Inc., Osaka University, Institute for Laser Technology

Overview

Outcomes; Do not miss 1 cm at 1,000 km! Launching the world's first "super-resolution" space-debris observation system that combines Japan-origin ultra-high-power lasers and AI. The system will also achieve centimeter-order orbit determination and provide ultra-high-precision relative motion of on-orbit objects, including spacecraft, delivering highly accurate information on potential collision events.

Protecting space sustainability: visualize the growing threat of space debris and realize innovative infrastructure that leads to future ground-based laser systems for controlling debris orbits.

Break through the atmospheric barrier: new technology that links multiple telescopes with AI to visualize even the "shape" of space debris in real time from the ground.

Output and Challenges; Establish "Active Phased Array Laser" technology for continuously and accurately tracking debris.

Develop "super-resolution optical observation technology" to visualize objects at altitudes of around 500 km with high resolution.

Build "AI orbit-prediction technology" that predicts orbits within 1 millisecond.

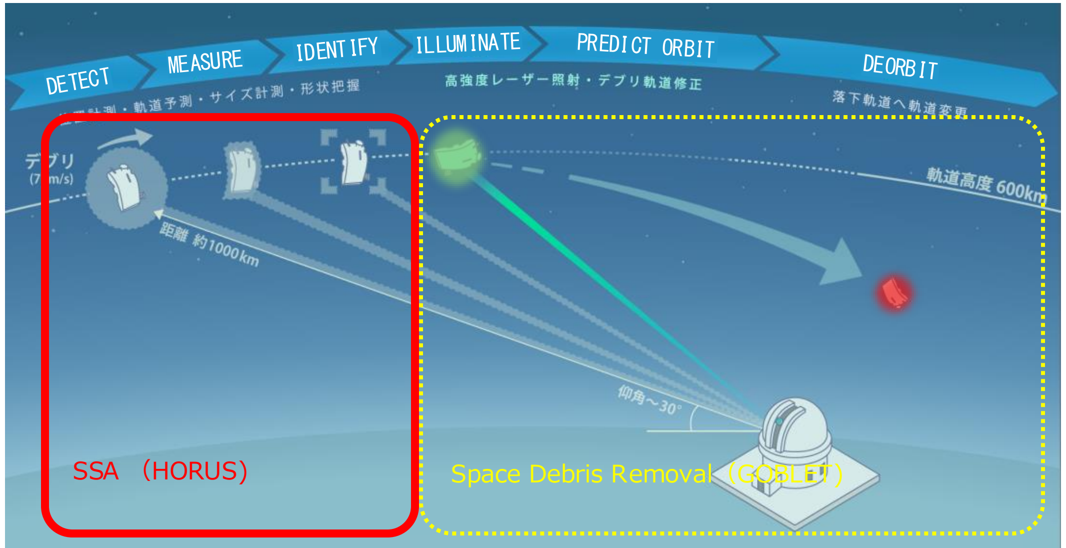
Implementation period (planned)

※Varies depending on stage gate evaluation, etc.

March 2026–February 2030 (4 years)

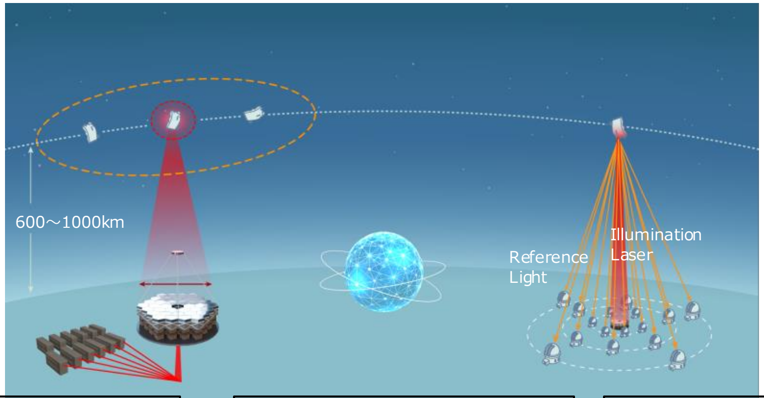
Point of Contact for international communication

E-mail : contact@powerlaser.co.jp



Vision for Practical Application of Space Debris Monitoring and Active Debris Removal (ADR)

Power Laser Technology Inc.



Ground-Based Laser Technology for Ultra-High-Speed Debris Tracking and Illumination (HORUS-R)

High-Speed Debris Orbit Prediction Technology (HORUS-AI)

Super-Resolution Technology for Debris Positioning and Shape Recognition (HORUS-L)

Integrated Operation of Three Subsystems

Power Laser Technology Inc.

Feasibility Study on Enhancing the Competitiveness of Networks and Satellite Platforms Utilizing MEO/GEO as Optical Communication Relay Nodes

SPACE STRATEGY FUND

Implementing agency name
※Bold: Representative organization, Regular: Collaborative organization

Mitsubishi Electric Corporation

Overview

Define the Requirements and Development Priorities for Japan's GEO/MEO Optical Relay Satellite

1) Space communications and TN/NTN, RF/optical comparative analysis
2) Japan's GEO/MEO optical relay use cases
3) Performance, SWaP, and integration requirements
4) Cost and functional performance targets
5) Development scope for domestic implementation

Implementation period (planned)
※Varies depending on stage gate evaluation, etc.

November 2025 to December 2027 (Approx. 2 years)

Point of Contact for international communication

Mitsubishi Electric Corporation (http://www.mitsubishielectric.com/bu/space/)

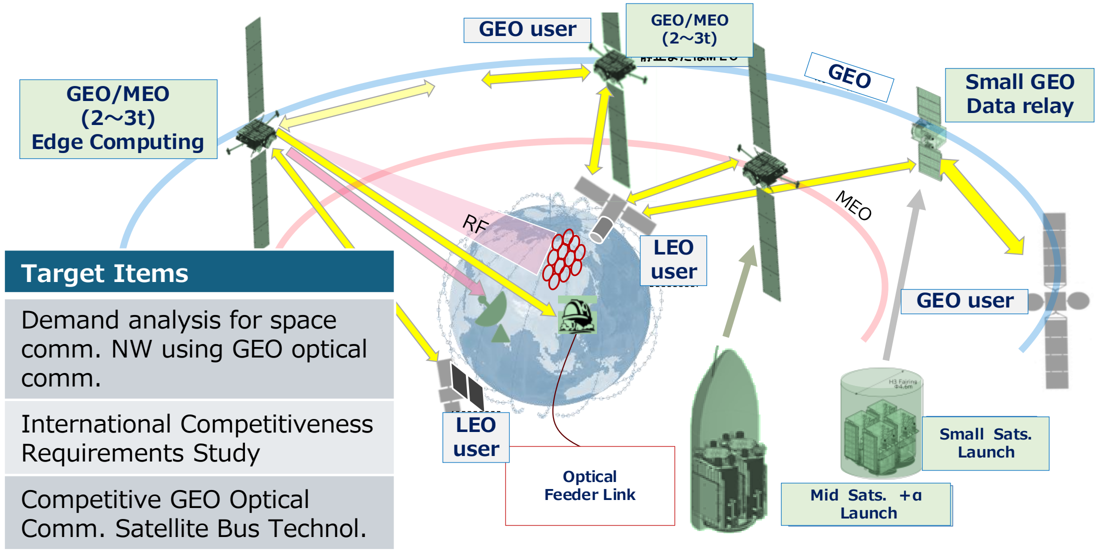


Fig.1: Target Outcomes and Examples of use cases

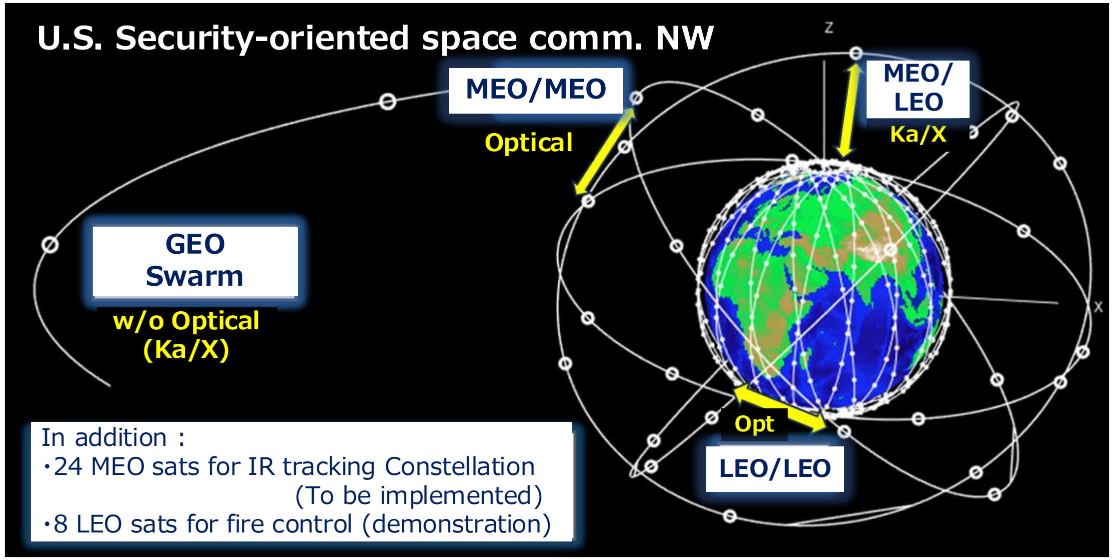


Fig.2: Space Communication Network with GEO/MEO Optical Comms

On-Orbit Data Center Construction with Highly-Dependabe Edge Computing

SPACE STRATEGY FUND

Implementing agency name

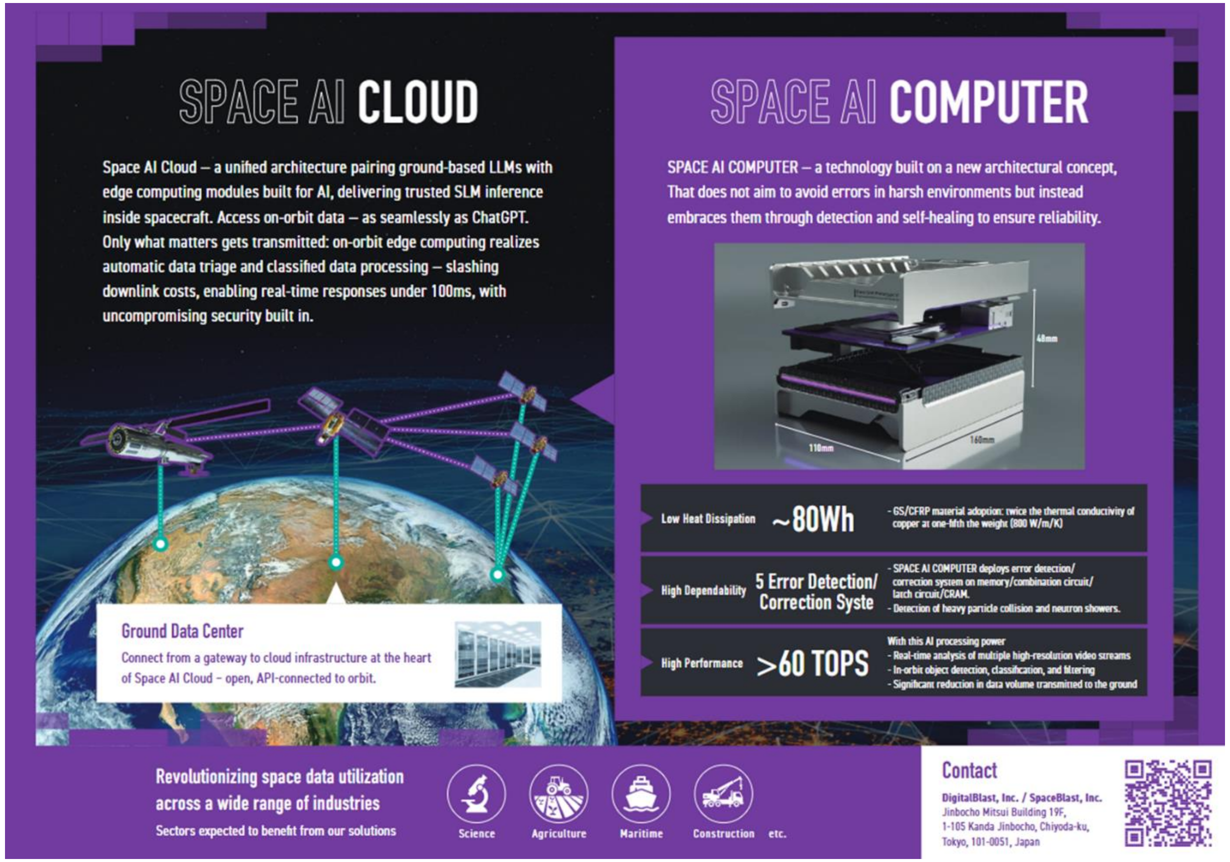
※Bold: Representative organization, Regular: Collaborative organization

SpaceBlast, Inc. / DigitalBlast, Inc. / Institute of Science Tokyo / High Energy Accelerator Research Organization(KEK) / Morgenrot Inc. / TECH-LAB Co., Ltd.

Overview

Building Next-Generation Infrastructure Through Our "Space AI Cloud" Platform — Democratizing Space Computing

1) Developing highly-dependabe computing technology centered on Core Unit, a computing module designed for on-orbit data centers.
2) Through dependability-ensuring architecture (anomaly detection, fault analysis, and automatic recovery), enabling non-Rad-Hard COTS components to operate in space environments, to develop a high-performance, high-efficiency (low-power) computer.
3) In addition to ground-based testing including radiation tolerance tests and thermal vacuum tests will conduct on-orbit demonstration utilizing ISS Kibō Japanese Experiment Module (JEM) and other facilities, validating effectiveness in operational environments.



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Implementation period (planned)

※Varies depending on stage gate evaluation, etc.

March 2026 to March 2032 (6 years)

Point of Contact for international communication

E-mail: dc_pr@spaceblast.co.jp

Development of an External Payload Platform with Standardized Interfaces

SPACE STRATEGY FUND

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

Japan LEO Shachu, Inc.

Overview

Japan LEO Shachu aims to develop an External Utilization Platform for the Post-ISS era with Commercialization Targeted through installed on the Japan Module, HTV-XC and others.

- This project aims to establish a sustainable low Earth orbit (LEO) economy in the post-ISS era by developing an external payload platform capable of accommodating a wide range of payload requirements. The platform will be deployed on orbit and will be equipped with standardized interfaces, as well as resource-provision capabilities such as power and communications for payloads.

- Designed to support robotic arm-based installation, removal, and replacement of payloads, the platform will enable standardized design, review, and operational processes, thereby reducing utilization-related constraints for users and maximizing opportunities for external utilization. Commercialization will also be pursued through installation on the platforms including the Japan Module and HTV-XC, both currently under development by Japan LEO Shachu.

- Through this development, Japan LEO Shachu aims to enhance the competitiveness of its Japan Module and space utilization services, while working to establish an external utilization infrastructure through close public–private collaboration.

Implementation period (planned) ※Varies depending on stage gate evaluation, etc.

April 2026 to March 2032 (6 years)

Point of Contact for international communication

・E-mail : contact@japan-leo-shachu.com

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System Development for a High-Frequence Cargo Return Service (ELS-RS) from LEO Station

SPACE STRATEGY FUND

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

ElevationSpace Inc.

Overview

Maximizing Space Environment Utilization and Enhancing Japan's Presence Through High-Frequency Cargo Recovery Services

- Deploying this system as a future commercial space station service will realize high-frequency cargo recovery globally, delivering unprecedented utilization speed to low Earth orbit (LEO) environment users.
- Securing an autonomous return capability from space will enhance Japan's international presence in space development.
- The technologies cultivated here will apply to ElevationSpace's other businesses, including reusable free-flyer demonstration platforms and future crewed spacecraft.

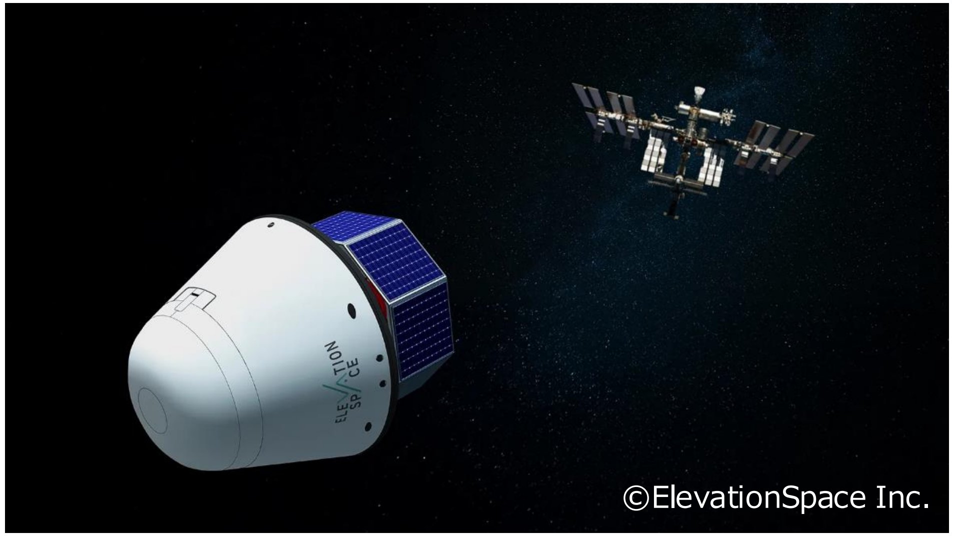
Implementation period (planned)

※Varies depending on stage gate evaluation, etc.

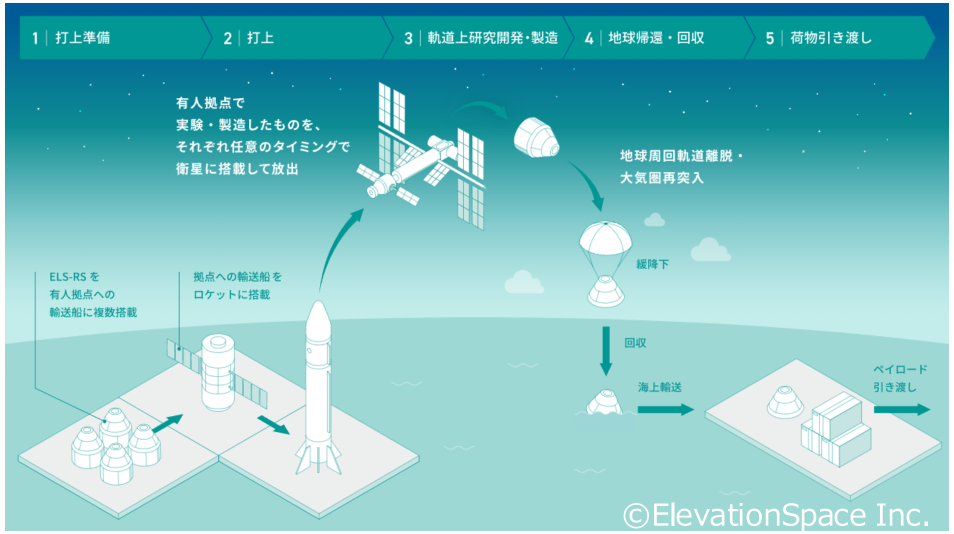
December 2025 – March 2028 (3 years)

Point of Contact for international communication

[PR Team]　E-mail : pr@elevation-space.com



ELS-RS Image



High-Frequency Cargo Recovery Service Flow

Development of Flight Models for Water and Metallic Element Prospecting Instruments and In-Situ Measurement of Lunar Resource Abundance

Implementing agency name

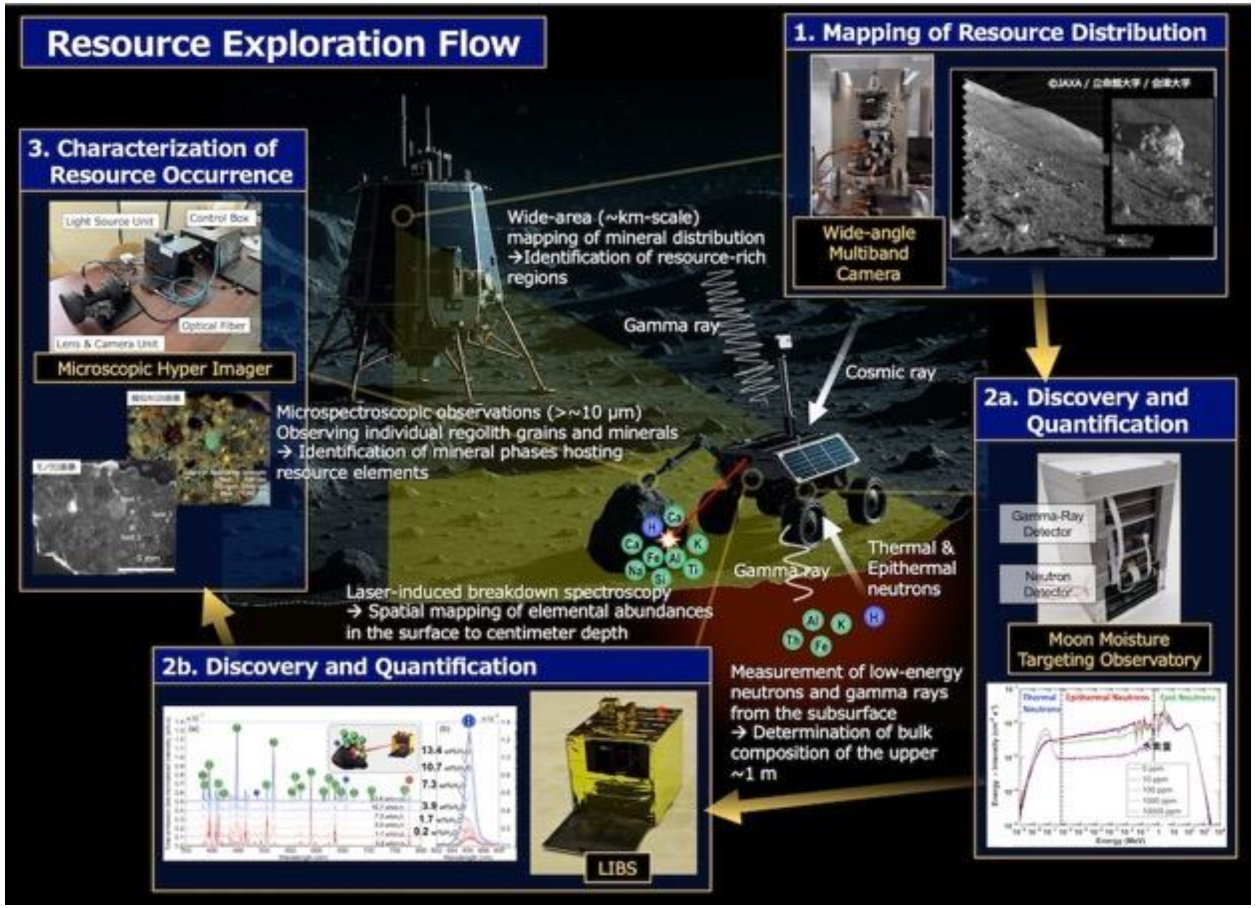
※Bold: Representative organization, Regular: Collaborative organization

The University of Tokyo, Ritsumeikan University, Kyoto University, TOPCON Corp., Vectology Inc., HyTILA Corp., Rans View Corp., SEC Co., Ltd., Okayama University of Science

Overview

Establishment of exploration technologies for revealing the three-dimensional distribution of water and metallic resources on the Moon

- By integrating four complementary instruments (a Wide-Angle Multiband Camera, a Neutron and Gamma-Ray Sensor, a Laser-Induced Breakdown Spectroscopy, and a Microscopic Hyper Imager) with different observation scales and spatial resolutions, we will establish a comprehensive resource exploration methodology capable of identifying resource-rich regions, quantifying resource concentrations and total abundance, and determining the occurrence forms of key lunar resources, including water and metallic elements.
- These four instruments can also be utilized for lunar environmental characterization, including topographic and geological investigations, radiation environment measurements, and geotechnical assessments, thereby contributing broadly to the construction of future lunar infrastructure.



Establish a lunar resource exploration workflow that leverages the complementary capabilities of the four instruments.

Implementation period (planned)

※Varies depending on stage gate evaluation, etc.

Nov. 2025 to Nov. 2030 (5 years)

Point of Contact for international communication

Tomokatsu Morota (U Tokyo) E-mail : lunar-rabbit-group@g.ecc.u-tokyo.ac.jp

Establishment of Surveying and Geotechnical Investigation Technologies to Realize Lunar Base Construction

SPACE STRATEGY FUND

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

Ritsumeikan University, Shibaura Institute of Technology, OYO Corporation, Toray Carbon Magic Co., Ltd., Keio University, Komatsu Ltd., Kajima Corporation, Port and Airport Research Institute, Pacific Consultants Co., Ltd., Kiso-Jiban Consultants Co., Ltd.

Overview

Technology Development Outputs: Development of payloads and design methods to acquire terrain and ground data required for lunar base construction.

- Surveying system for high-resolution 3D terrain data in a non-GNSS environment.
- Geotechnical investigation system for measuring regolith properties and stratigraphy.
- Robotic arm mechanism for excavation, grading, and system deployment.
- Geotechnical information platform for data integration, visualization, and management.
- Civil engineering design methods for roads, landing zones, and habitation zones.

Future Outcomes: Advancing lunar infrastructure development from concept stage to planning stage through the acquisition of surveying and geotechnical investigation technologies, and civil engineering design methods.

- Design and simulation support for landers, exploration rovers, lunar construction machinery, and other work robots.
- Selection of candidate sites for lunar base construction, facility layouts, and mobility/road routes.
- Design, construction planning, and risk management for lunar base construction.

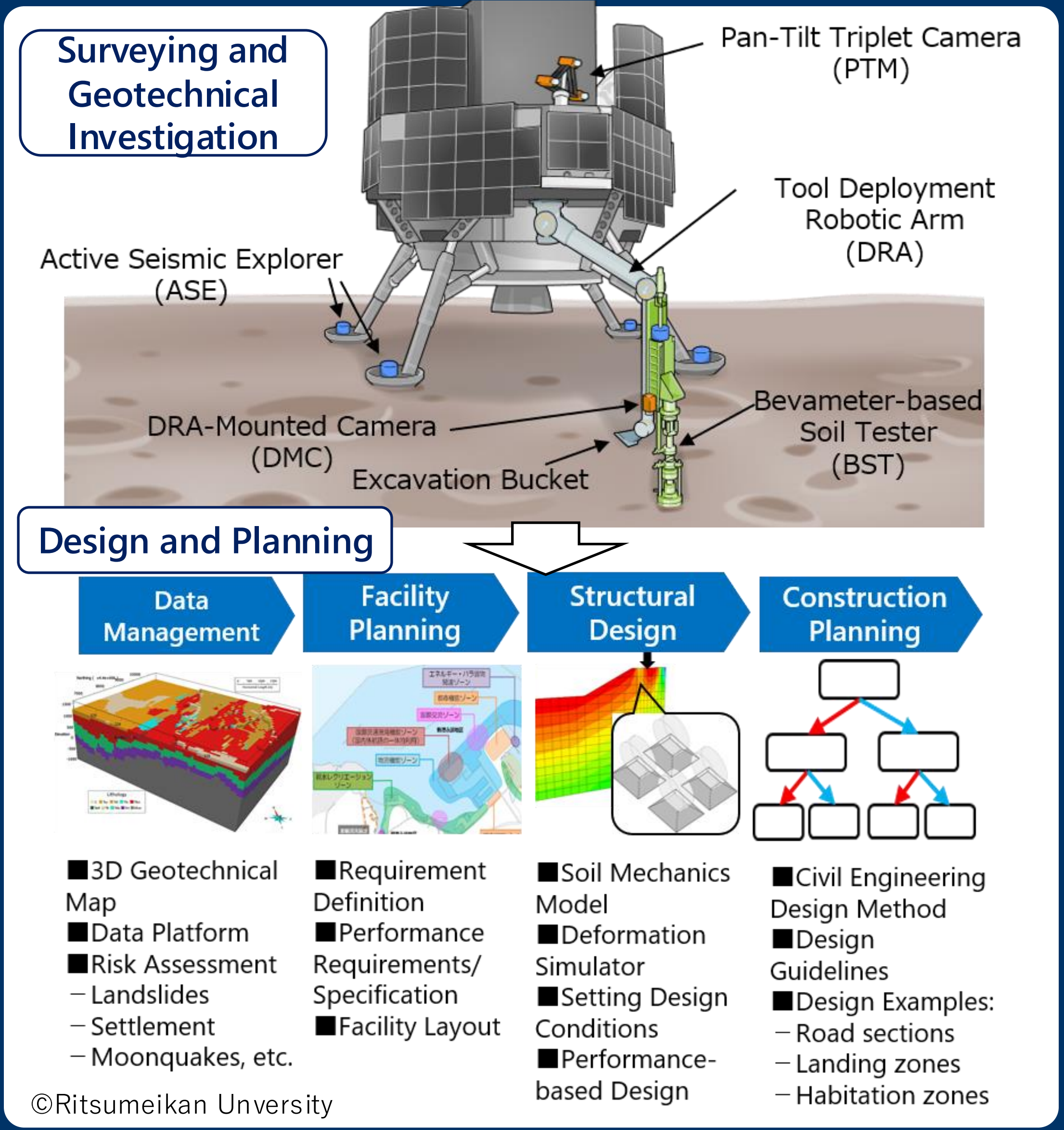
Implementation period (planned)

※Varies depending on stage gate evaluation, etc.

January 2026 to January 2031 (5 years)

Point of Contact for international communication

[Media Contact: Katsuya]　E-mail : r-koho@st.ritsumei.ac.jp



SSF 2nd Phase : SX (space transformation) Center of Research ANd Engineering“SX-CRANE”

Next-Generation PNT Technologies Supporting a Ubiquitous Autonomous Mobility Society

SPACE STRATEGY FUND

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

Tokyo University of Marine Science and Technology, Keio University, Reitaku University, Osaka Metropolitan University, Meijo University, Shibaura Institute of Technology, Kagoshima University, Chiba Institute of Technology, SoftBank Corp., LocationMind Inc., SSIL

Overview

- **PNT Center Integrating Space, Sea, and Land**
- **Supporting a Resilient Society with PNT**
- **PNT : Supporting Next-Generation Mobility**

PNT Ecosystem Design	Policy strategy formulation, International standardization, and Expansion into Asia
1. Next-Generation Satellite PNT Technologies	1-1. PNT Simulator (Core Engine) 1-2. LEO-PNT and New signals for future GNSS
2. Next-Generation Receiver Technologies	2-1. R&D for High Durability and Reliability 2-2. Software Receivers for Prototype and R&D
3. PNT Complementary System Technologies	3-1. Non-GNSS and Integration with other sensors 3-2. Maritime and Underwater Positioning 3-3. Positioning at Mountainous Areas

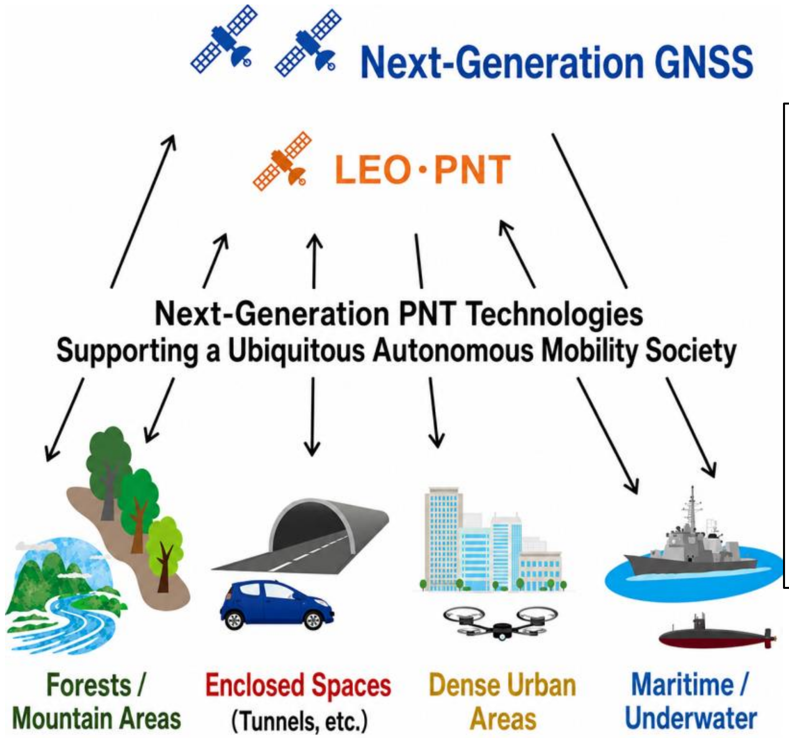
Implementation period (planned)

※Varies depending on stage gate evaluation, etc.

June 2026 to March 2033 (8 years)

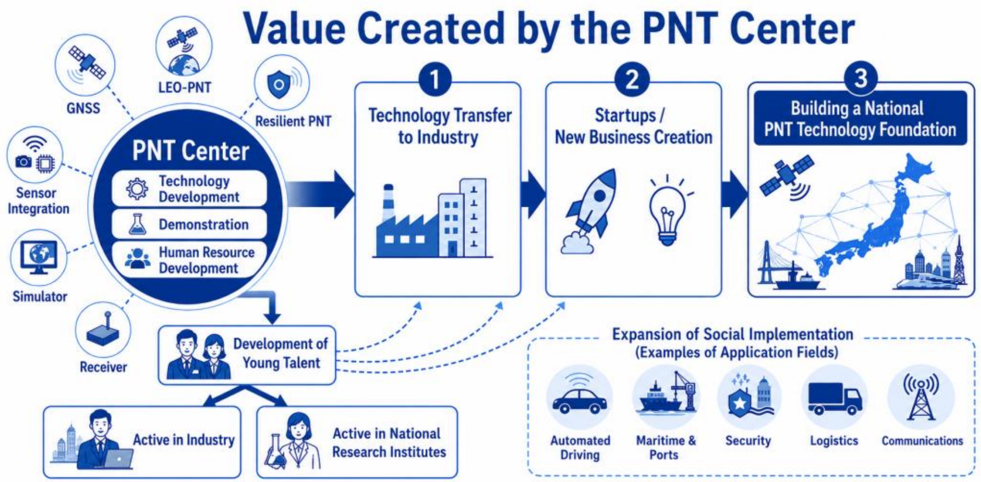
Point of Contact for international communication

E-mail : nkubo@kaiyodai.ac.jp



Global Trends in PNT
- U.S. and China lead
- The EU in third place
- Russia ?
- India is expected to grow
- Japan : strong satellite side

How to Catch Up
- Strengthen R&D
- Strengthen expert team
- Commercialize technology-driven groups
- Enhance PNT security



SSF 2nd Phase : SX (space transformation) Center of Research ANd Engineering“SX-CRANE”

Development Initiative for Environmental Sensors and Small Payloads for the Era of Human Mars Explorations

SPACE STRATEGY FUND

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

Institute of Science Tokyo, Tohoku University, The University of Tokyo, Midtown Co., Ltd., Osaka Metropolitan University, Shimadzu Corporation, Okinawa Institute of Science and Technology Graduate University, National Institute of Information and Communications Technology, Iwaya Inc.

Overview

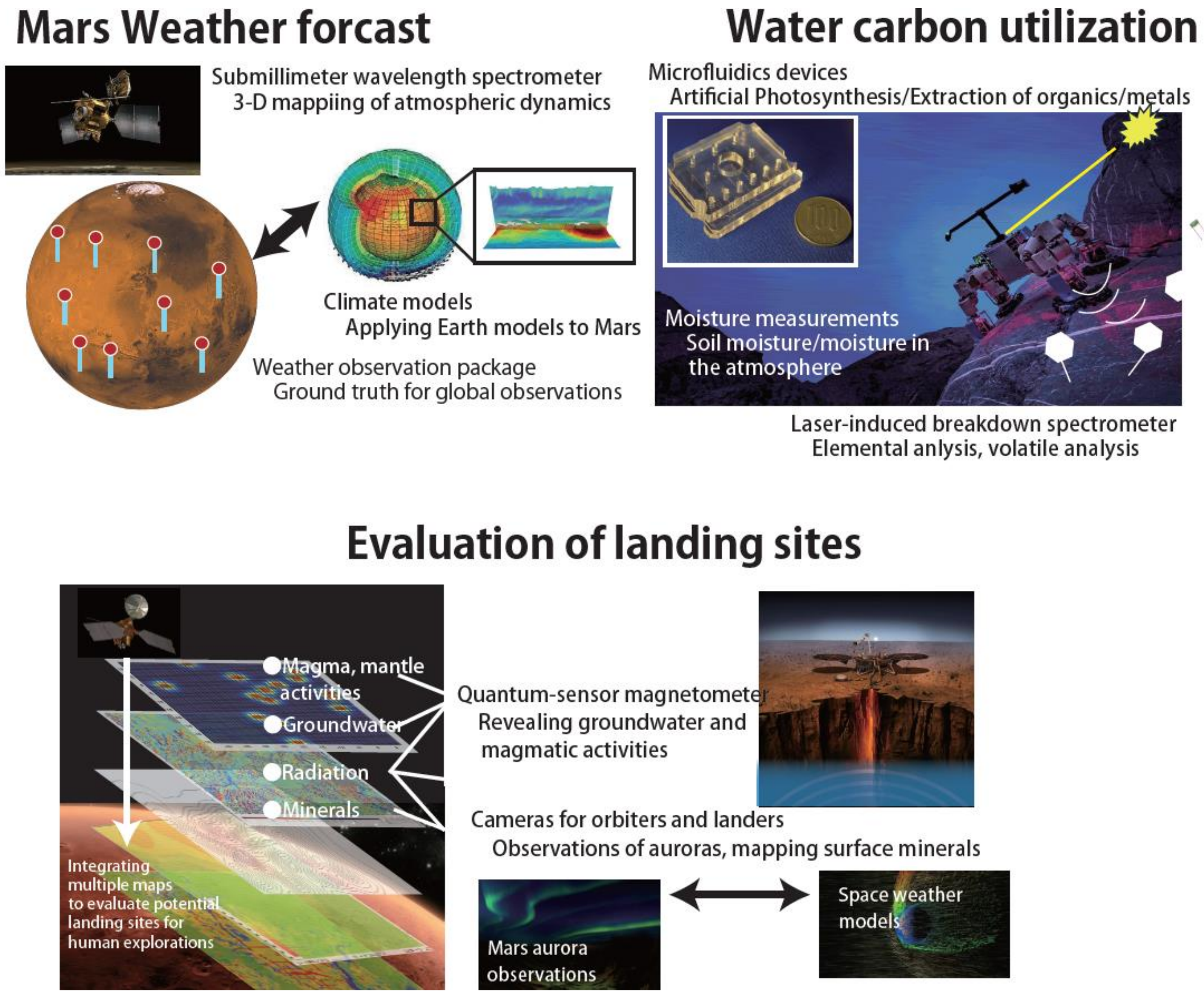
This initiative aims to develop environmental sensors and small payloads for Mars explorations through industry-academia collaboration.

・Innovative, high-performance, ultra-compact sensors are emerging in fields such as applied physics and analytical chemistry. We will adapt them for use on Mars explorations.

・This will enable us to provide Earth-like weather forecasts on Mars, utilize water and carbon for applications such as artificial photosynthesis and the detection of life, and ensure human safety and evaluating landing sites.

・We will launch a consortium to leverage commercial off-the-shelf (COTS) technologies and share expertise. This initiative also aims to contribute to global issues through dual-use applications on Earth.

1) Mars weather: Submillimeter wavelength spectrometer, Weather packag
2) In-situ research utilization: Microfluidics, Moisture sensors
3) Landing safety: Quantum Spin Sensor Magnetometer, Small cameras



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Sensors that will be developed in our initiative

Implementation period (planned)

※Varies depending on stage gate evaluation, etc.

May 2026 to March 2034 (8 years)

Point of Contact for international communication

Sayaka Higashikata (Inst. Sci. Tokyo) E-mail : s.higashikata@elsi.jp

Development Hub for Space Medicine-Integrated Living Spaces

SPACE STRATEGY FUND

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

Institute of Science Tokyo NEC, Takenaka, Tokyo University of Science, Japan Sport Council (JISS/HPSC), Midtown, QST, NIMS

Overview

From treating illness after onset to acting before it begins — pre-emptive medicine and habitats for everyone, in space and on Earth.

We continuously monitor body, mind and living environment with wearable biosensors and AI, forecasting health risks days-to-months ahead. Led by Institute of Science Tokyo, we develop:

1) **ultra-thin biosensors & a quantum-sensor imaging device (Science Tokyo), with a predictive-detection AI / virtual medical platform (NEC)**;

2) **comfortable, health-integrated living spaces optimized via digital twin (Takenaka)**; and

3) **space training (JSC/HPSC) & microgravity advanced medicine, incl. regenerative organoids (QST/NIMS)**.

Technologies proven in space are returned to Earth's preventive medicine, elderly care and disaster resilience.

Implementation period (planned)

※Varies depending on stage gate evaluation, etc.

May 2026 to March 2034 (approx. 8 years)

Point of Contact for international communication

Midtown E-mail : a-suzuki@midtown-inc.com

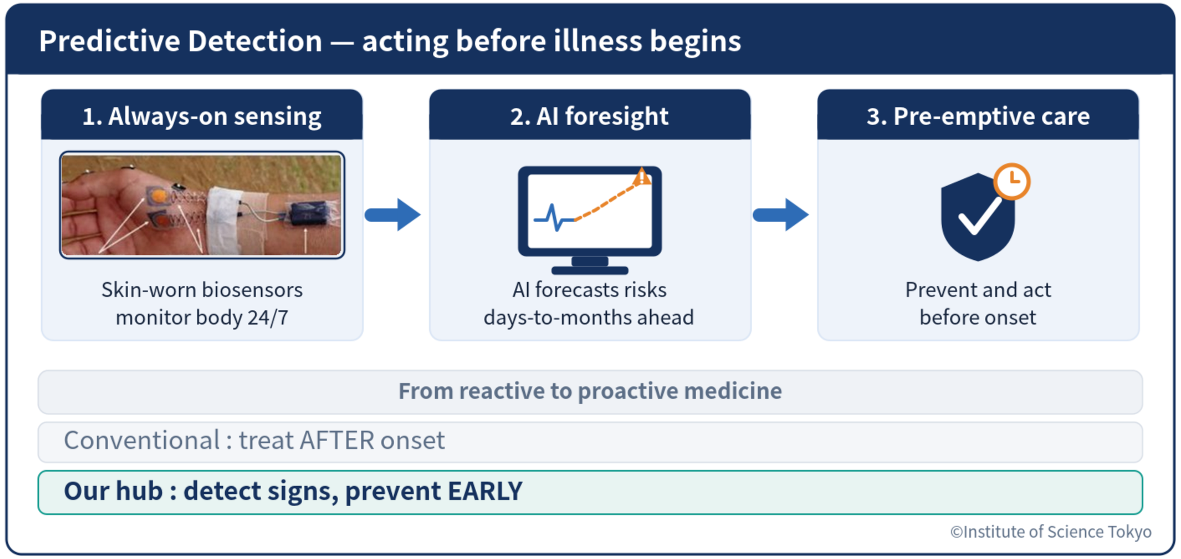

Fig.1 Predictive detection

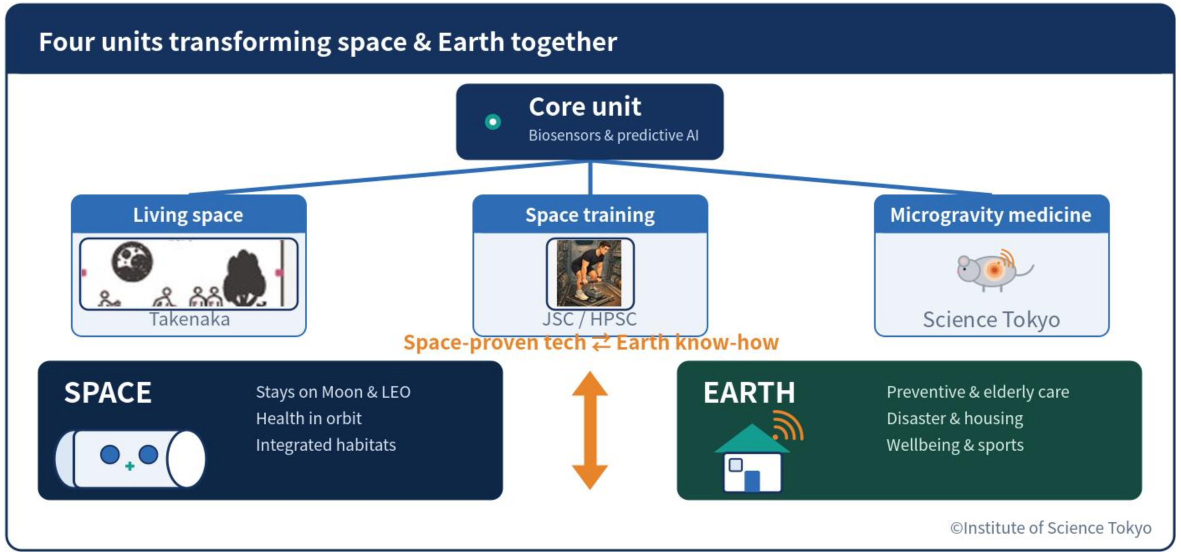

Fig.2 Four units & dual use

Innovative Space Gastronomy Technology Development Hub (STAR-MEALS)

SPACE STRATEGY FUND

Implementing agency name

※Bold: Representative organization, Regular: Collaborative organization

Yamagata University, Kyushu University, The Ritsumeikan Trust, Yamagata Research Institute of Technology, Ichimasa Kamaboko Co., Ltd., Watami Farm Co., Ltd., Fuji Oil Co., Ltd., and F-EAT Inc.

Overview

“Eating Well, in Space and on Earth”

Designing the Future of Food Culture from Space

1. For long-duration space missions, food will be positioned not merely as nutrition, but as a foundation for joy, satisfaction, and physical and mental well-being.
2. The project aims to realize new dining experiences suited to the space environment. It will establish systems for food preservation, reconstruction, preparation, serving, and evaluation in closed environments, contributing to advanced food systems for future human space activities and improved quality of life for crew members.
3. Technologies developed through this project, including food preservation, 3D/4D food printing, texture, aroma and nutrition design, and evaluation protocols, will be applied to fields on Earth such as nursing care foods, disaster foods, regional food industries, and high-value-added food services.

Implementation period (planned)

※Varies depending on stage gate evaluation, etc.

April 2026 to March 2034 (8 years)

Point of Contact for international communication

Website : https://star-meals.com/ E-mail : swel@gp.yz.yamagata-u.ac.jp