

Accelerating Innovation on Earth and Beyond

September, 2025

Shintaro Kubota
Mitsubishi Corporation (Americas)

1

Corporate Overview

2

Efforts for Microgravity Utilization

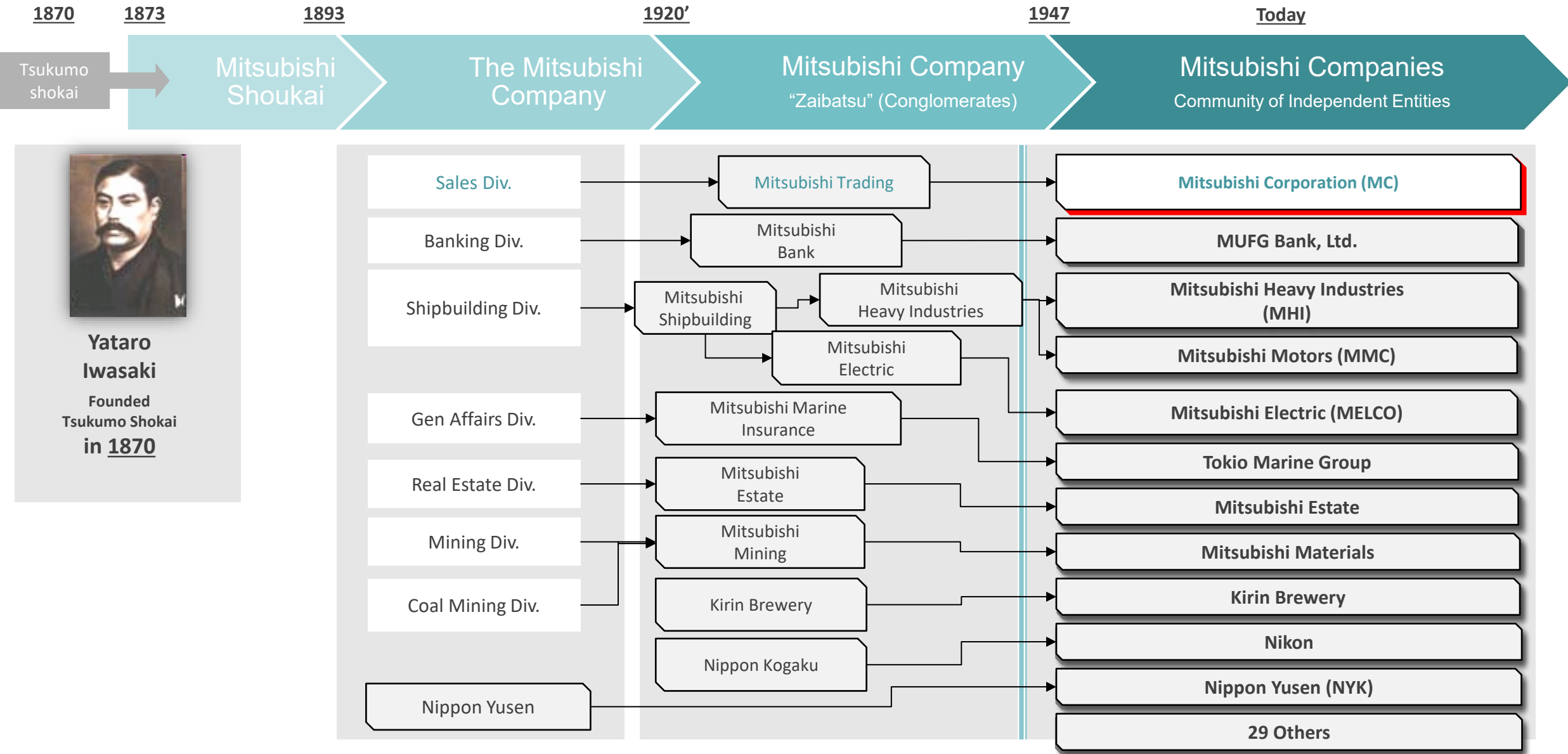
1

Corporate Overview

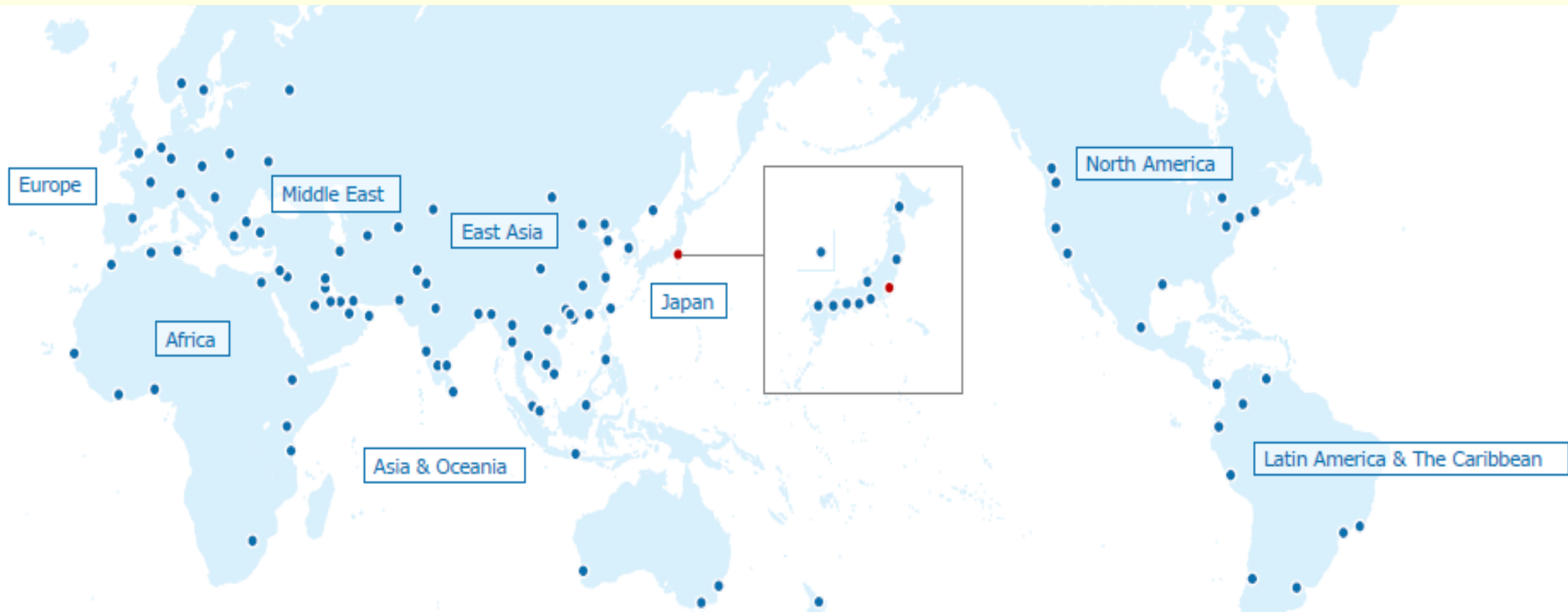
2

Efforts for Microgravity Utilization

Corporate Overview



Throughout a 70 years history, MC has developed a global integrated business across a wide array of industries; including the mineral resources, natural gas, automotive, power solutions, food and consumer product.



Global Network	90+	Group Companies	1,300+	Employees	80,000+
Net Profit	\$ 6.4 bn	Total Assets	\$ 155bn	Equity	\$60 bn

Corporate Overview

	Division in the Group		Net Profit (FY2024 forecast, Billion JPY)
 Environmental Energy Group	■ Next- Gen Energy Div. ■ Petroleum Solutions Div. ■ LNG Asia Pacific Div. ■ LNG America & New Ventures Div.	 	151
 Materials Solution Group	■ Carbon & Ceramics Div. ■ Steel Products Div. ■ Performance Materials Div. ■ Biz Development Div. ■ Global Marketing Div.	 	74
 Mineral Resources Group	■ Ferrous Raw Materials Div. ■ Critical Minerals Div. ■ Mineral Resources Trading Div.	 	286
 Urban Development & Infrastructure Group	■ Infrastructure, Ship & Aerospace Div. ■ Industrial Machinery Div. ■ Domestic Urban Devlpmt & Digital Infrastructure Div. ■ Global Urban Devlpmt Div.	 	41
 Mobility Group	■ Automotive Business Div. ■ Isuzu Business Div. ■ Mobility Service Div. ■ e-Mobility Solution Div.	 	112
 Food Industry Group	■ Global Markets Dept. ■ Food Ingredients Dept. ■ Food Resources Dept. ■ Marine Products Div. ■ Farm, Dairy & Meat Produce Div.	 	66
 Smart-Life Creation Group	■ Digital Solutions Div. ■ Retail Div. ■ Apparel & S.P.A. Div. ■ Healthcare Div. ■ Logi & Food Distribution Div. ■ Financial Business Div.	 	185
 Power Solution Group	■ International Power Div. ■ Utility Retail Div. ■ Power Business Development Div. ■ Domestic Power Business Office	 	30



Global Conglomerate



1

Corporate Overview

2

Efforts for Microgravity Utilization

- ❑ Contributing to society and national security through Defense and Aerospace business
- ❑ In the space business, we are committed to business development with the purpose of solving industrial challenges on Earth through the provision of valuable space outputs for the planet.

Defense Business



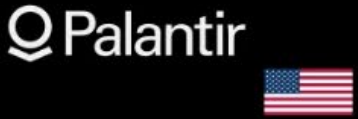
Space Business



Dual-use Business (Robotics/AI)



Joined Starlab in April 2024 as a strategic partner



Commercialization is the key for space utilization, based on **pain point driven approach**

Space Infrastructure

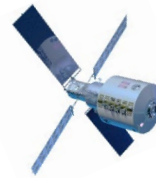
Output through Space

Solution

Societal Benefit
(Our Goal)

【Commercial LEO Destination】

R&D in microgravity



(R&D results by space environment)

High-performance materials, better structure information for drug screening, etc.

High-value product derived by in-space R&D



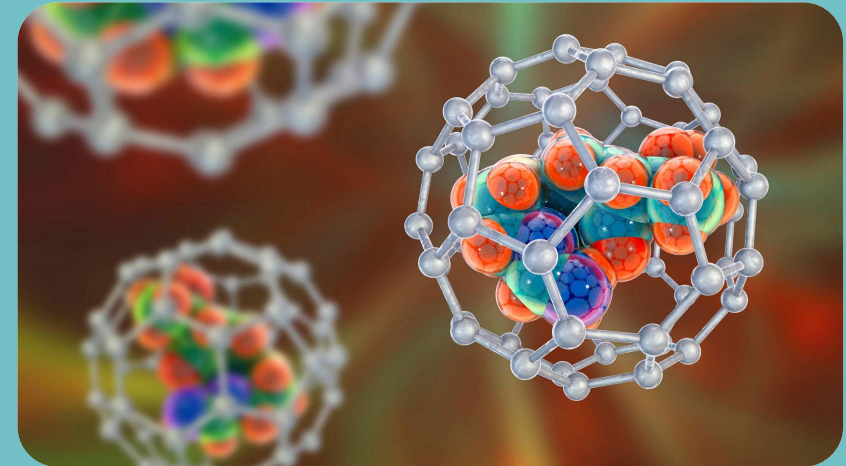
- ✓ Robust satellite service by edge-computing in space.
- ✓ Improved longevity by better drugs or regenerative medicine

Pain point driven approach is the key for commercialization

Semiconductor



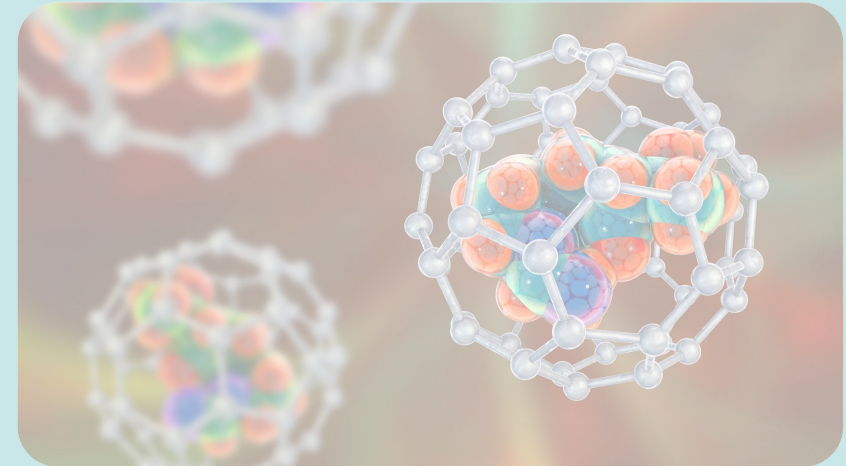
Life Science



Semiconductor



Life Science



Space Semiconductor Workshop

Device



Equipment

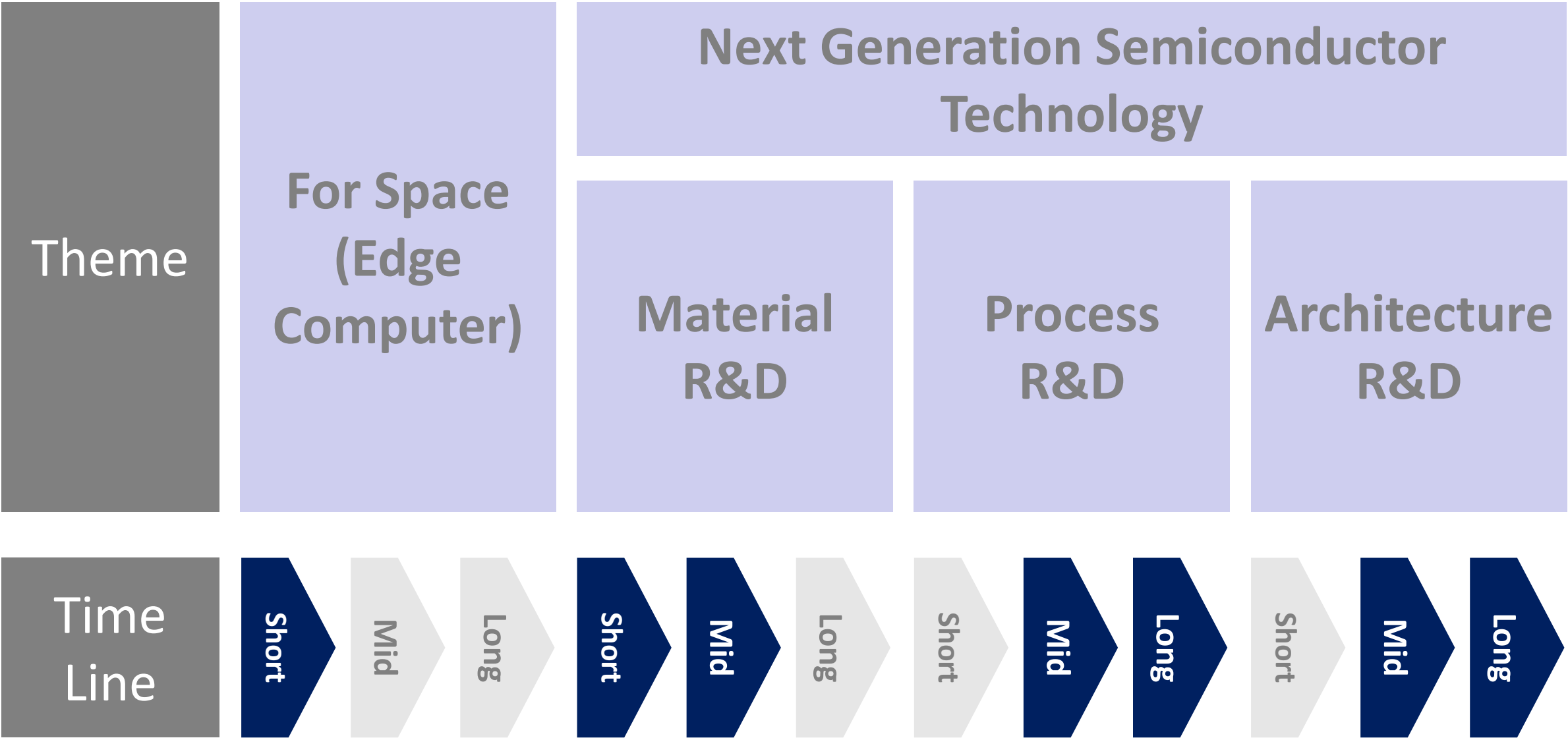


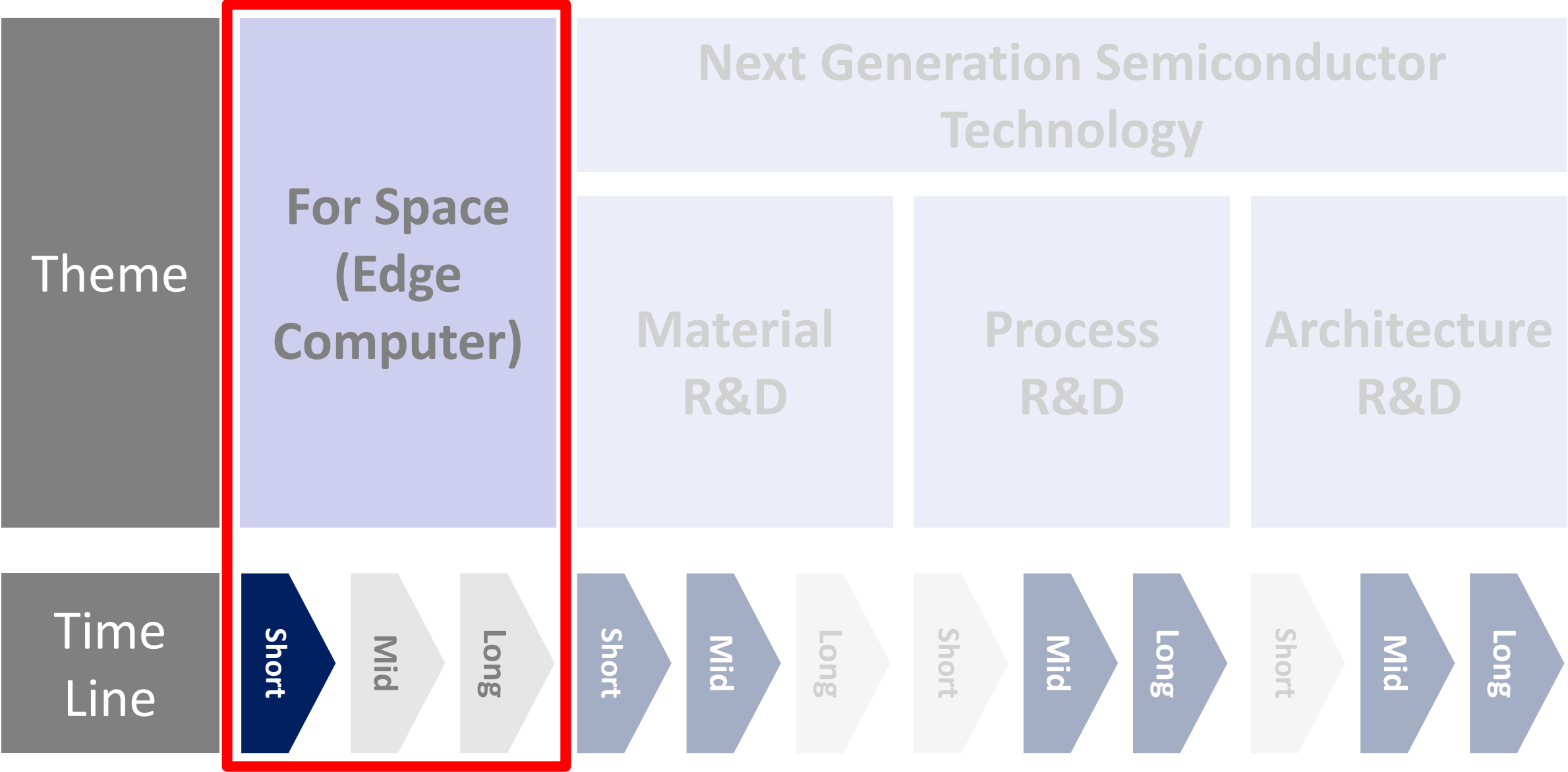
Material



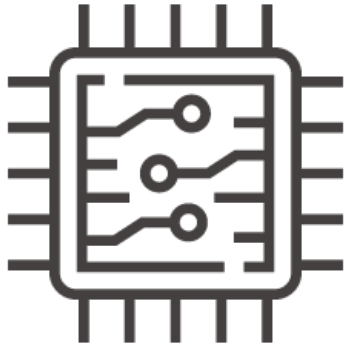
Government etc



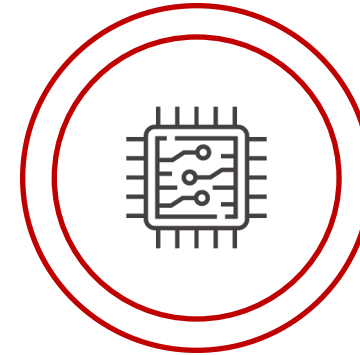




On earth



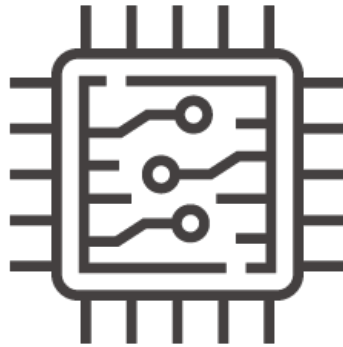
In space



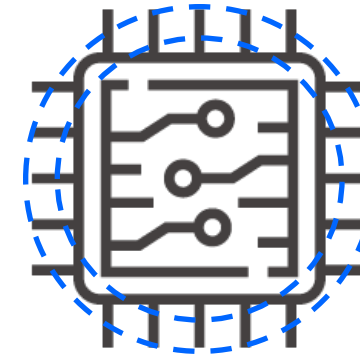
**HW Protection from severe
environment**

Space chips are designed for harsh environments, resulting in significantly **lower performance** than cutting-edge terrestrial chips.

On earth



In space



Detection
×
Diagnose
×
Damage recover
×
Autonomous

SW Protection from severe
environment

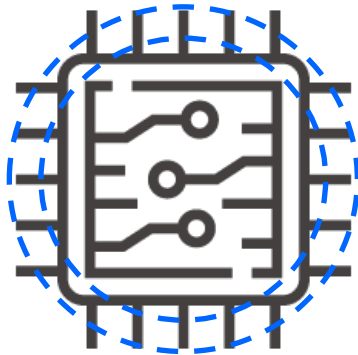
Japanese IT Electronics
Partner

×

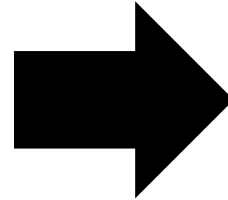


By developing **software to protect chips** from space environment, cutting-edge terrestrial chips can be used in space.

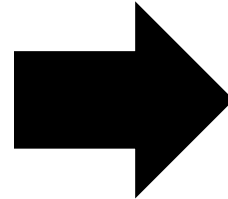
In space



SW Protection from
severe environment



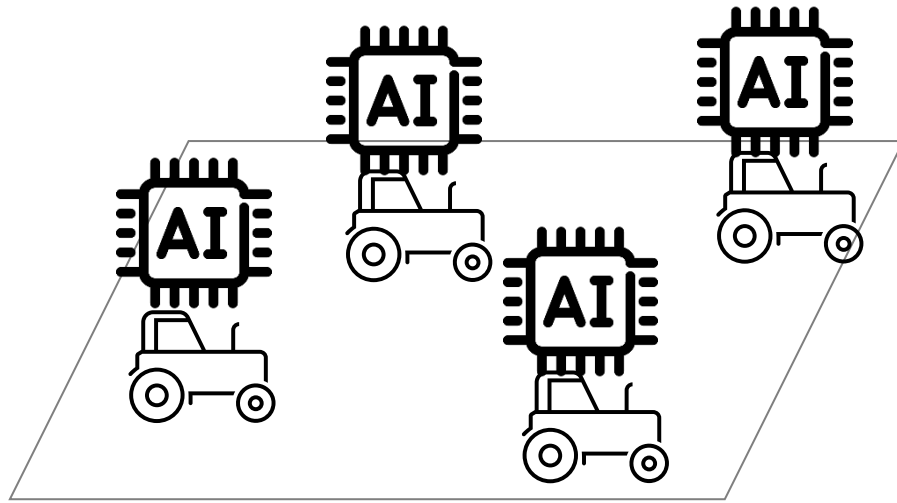
Augmentation of **terrestrial
data centers**



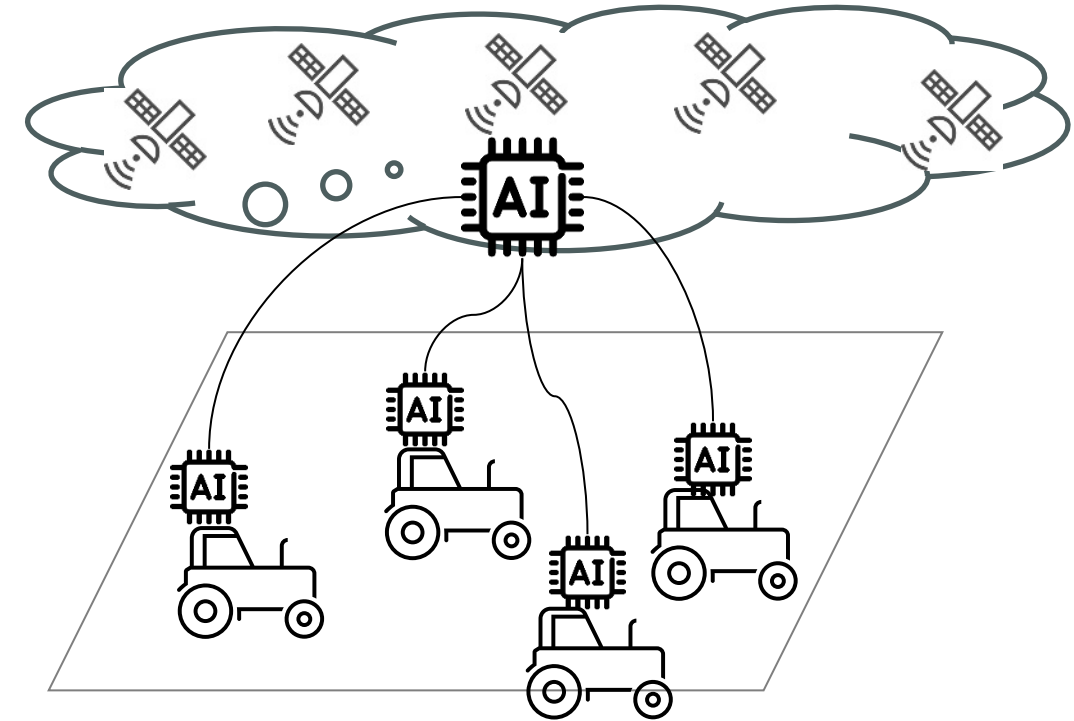
**Delivering computing power to all
space assets**

Edge Computing in space

e.g. Autonomous Machinery

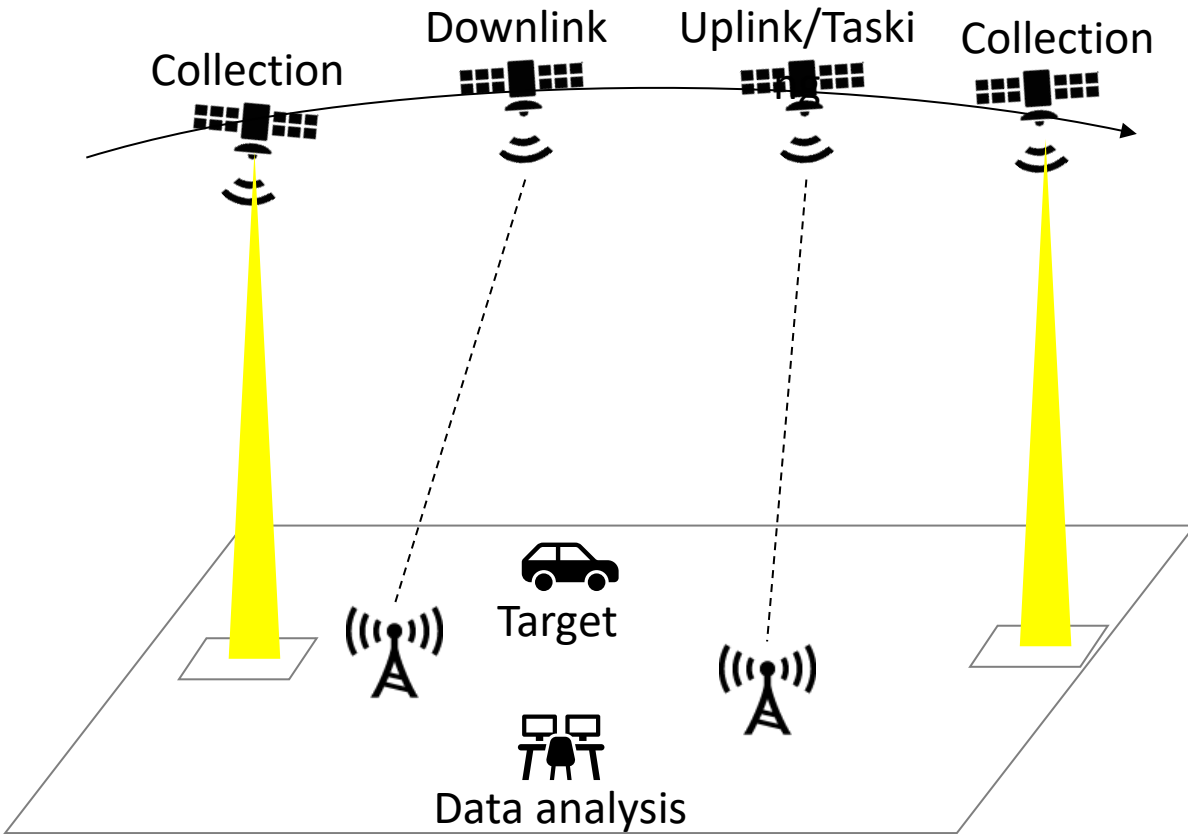


- **Every vehicle** must have more capable onboard AI with intensive capital expense.

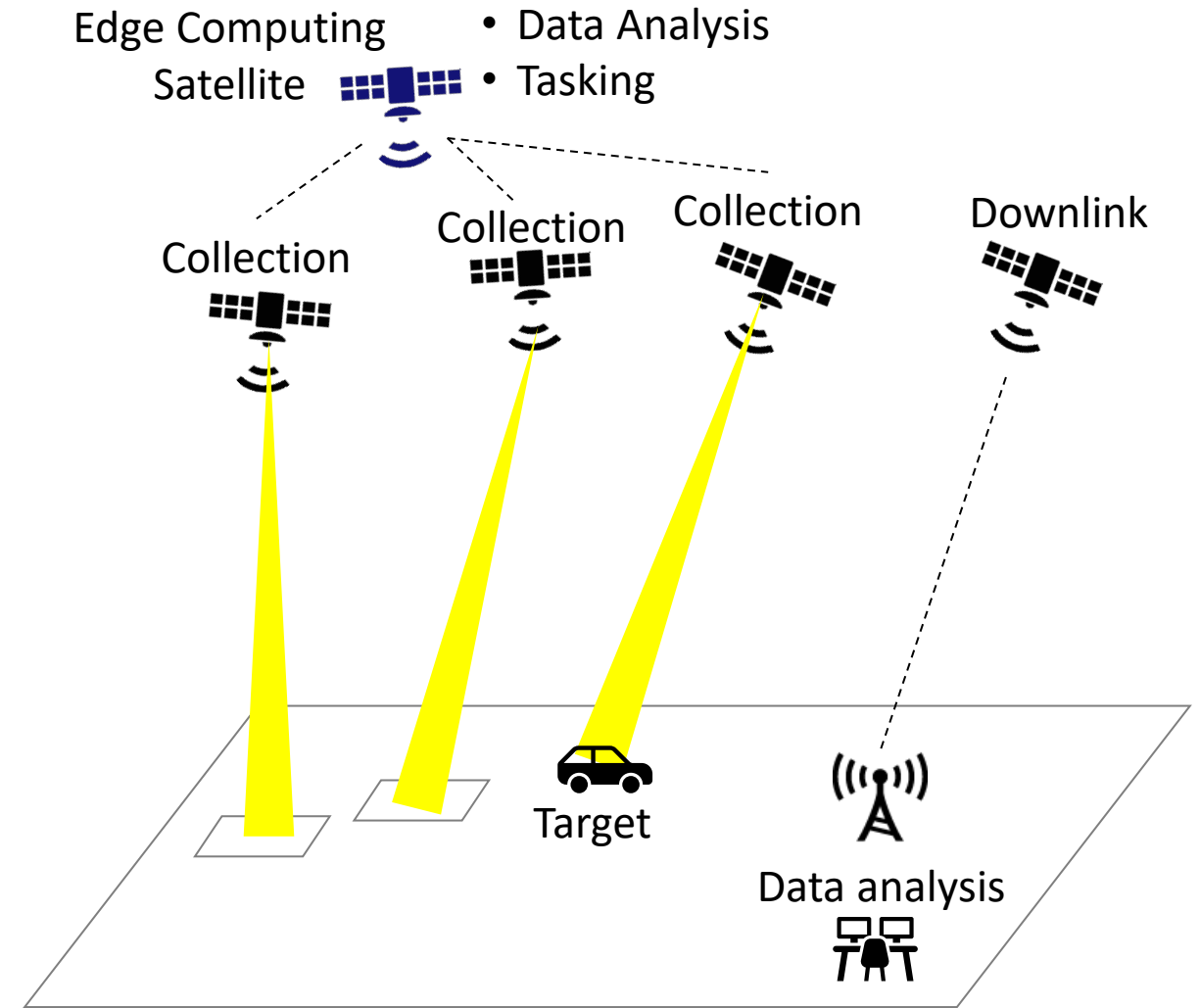


- Space-based edge computing will reduce the load on each vehicle's onboard AI by aggregating data, enabling a more **optimized autonomous driving system** as a whole.

e.g. Data Processing in Space

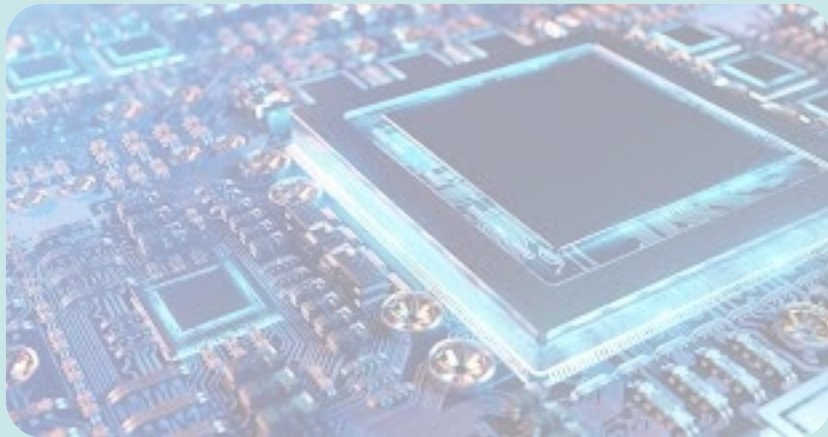


Downlink **all the data**

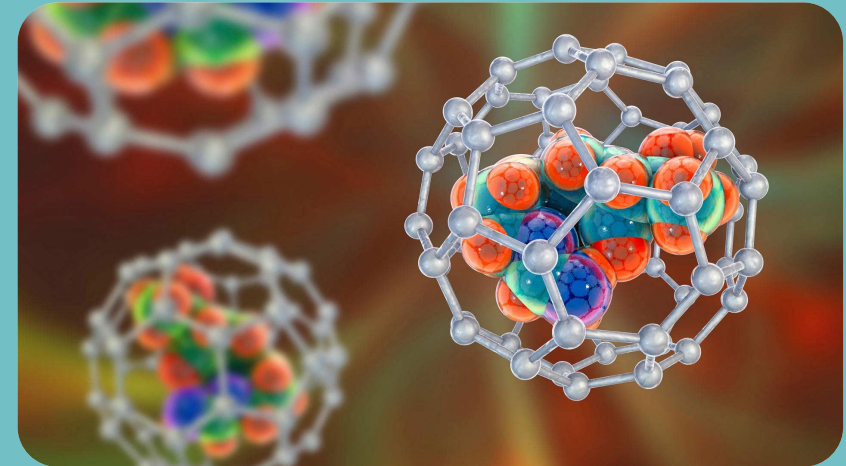


Downlink **only meaningful data**

Semiconductor

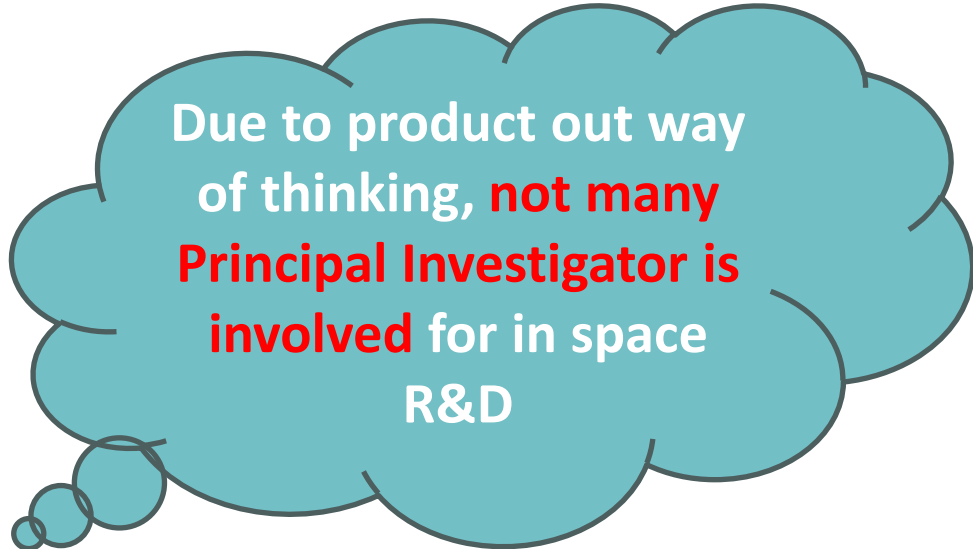


Life Science





Difficult nature for
open innovation
because R&D in drug
discovery is **highly
confidential**

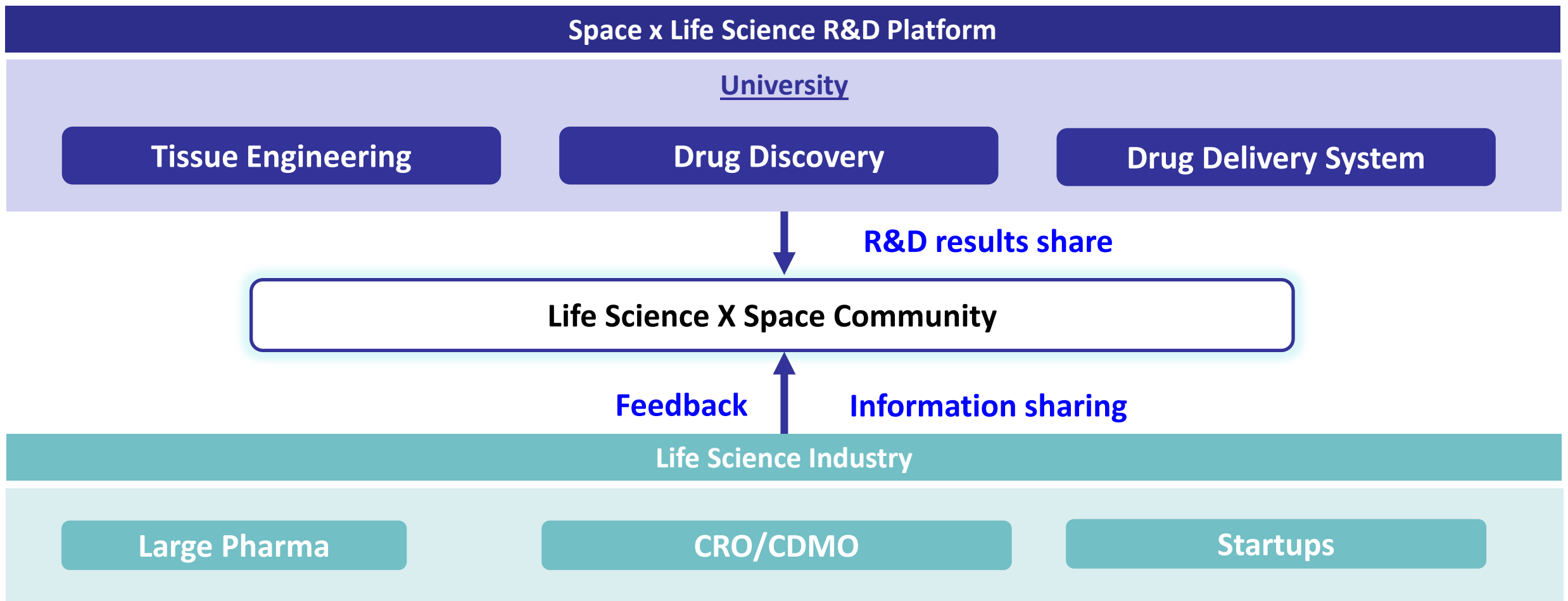


Due to product out way
of thinking, **not many
Principal Investigator is
involved** for in space
R&D

Challenges



**Academia – Industry
partnership** is
premature



Advancing academic research and involving the life sciences industry to build a space-life sciences ecosystem.

Tissue Engineering / Drug Discovery

Expectation for Microgravity:

- Formation of complex 3D cardiac tissue structures(w/ blood vessel) difficult to achieve on Earth.
- Cardiac disease model

Expectation for 3D cardiac iPS cells:

- Toxicity testing, drug discovery, regenerative therapies, and organ regeneration.



Drug Delivery System

Expectation for Microgravity:

Enhanced efficiency and efficacy of nanoparticle DDS

Expectation for nano particles:

New treatment to cancer and other specific sites



Leading Professors in the field at Top Tier University is highly interested in Microgravity R&D.

- 1. Commercialization is the key for expanding space utilization**
 - Bridge the gap between space and non-space industry

- 2. International partnership is important for accelerate the innovation**
 - Japan has some unique technologies in semiconductor and life science

Mitsubishi Corporation continue working for space utilization for the benefit to the earth