

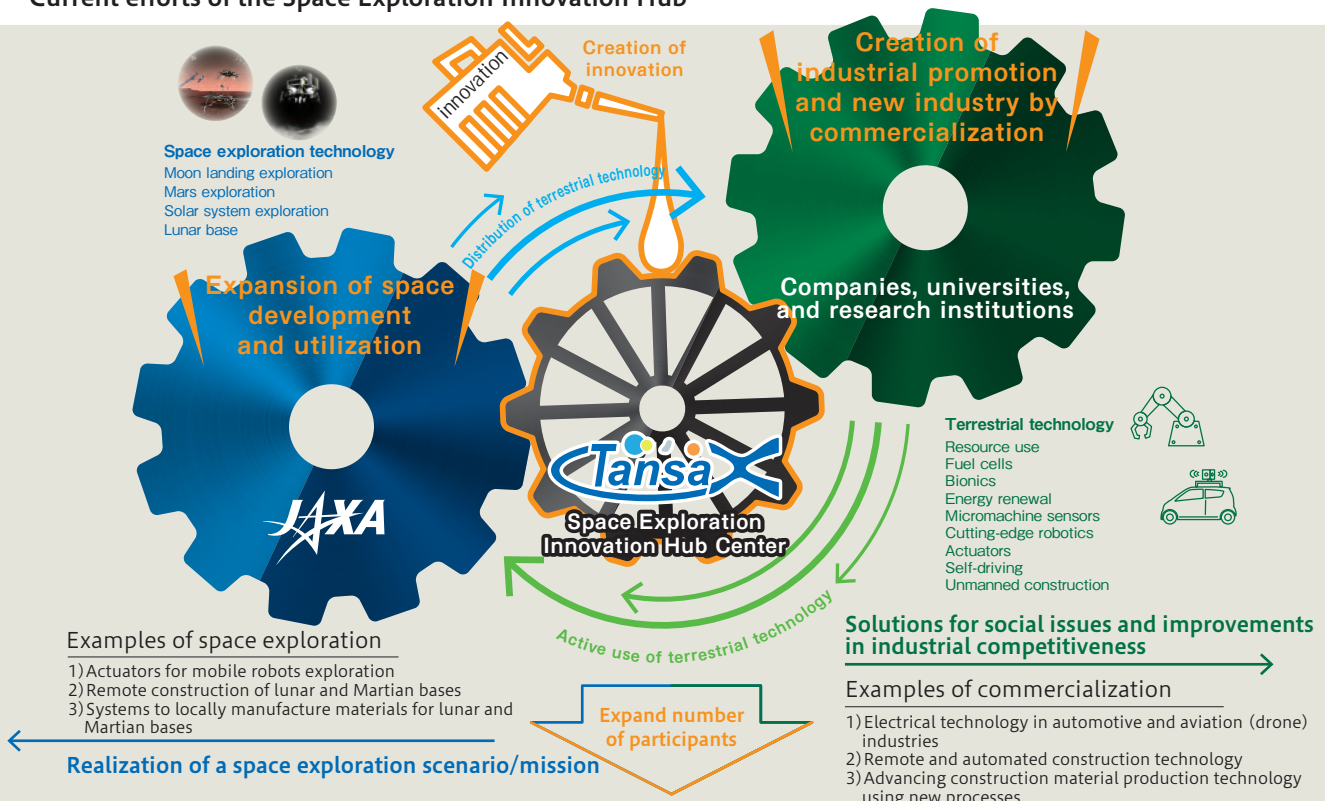
About “Open Innovation Hub for Expanding Humanosphere and Domain of Human Activity through Solar System Frontier Development”

Since the Japanese government announced their policy titled “Comprehensive Strategy on Science, Technology, and Innovation 2014 – Bridge of Innovation toward Creating the Future – (approved by the Cabinet on June 24, 2014)”, public research institutions and agencies have been expected to perform strongly and contribute to innovation. Based on this strategy, the Japan Aerospace Exploration Agency (JAXA) was re-organized in April 2015 and the Space Exploration Innovation Hub Center was established. Through this innovation hub center, we will develop more research projects and establish them within JAXA as a whole. To accomplish this, we have gathered knowledge and specialists from various fields and created new research teams for their activities. The center is located on the JAXA Sagami-hara Campus. The overall climate indicates that we can expect innovations through space exploration.

The advancement of space exploration, and resulting expansion of potential habitats to support human life and activity can potentially create new value for space development and use. Over the next 10–20 years we expect space exploration to gather support from various players, including private companies, primarily advancing lunar and Mars exploration through international collaboration and competition. By the 2020s, we expect major countries will have developed plans to expand activity on the moon and Mars, intensifying international competition for outer space use.

To lead and cooperate efforts in space exploration, it is important to modify our design philosophy and development objectives, and establish innovative technology through a consolidated national effort. Various players in the space exploration hub, including private companies, will conceptualize their participation for lunar and Martian resource utilization. Together with strengths in technologies, such as “Hayabusa” and “Hayabusa2”, we will advance system reform beyond existing concepts, such as developing discontinuous and bold distributed coordination methodologies or implementing existing terrestrial aerospace technologies. Furthermore, to clarify R&D goals that can contribute to the national economy, we incorporate private company requests when selecting research topics.

Current efforts of the Space Exploration Innovation Hub





Innovations from the union of space and terrestrial technologies



Construction

- Remote unmanned construction
- Large and light-weight construction machinery

Exploration

- Wide-area exploration by insectoid robots
- Small but powerful motors
- Sensors that detect even small traces of water

Production

- “Waterless” concrete
- Resource extraction from soil, e.g., water and minerals

Habitation

- Regenerative fuel cells
- Thermally insulated tanks for fuel storage
- Plant production
- Protection from radiation

Support

- Technology that people work efficiently
- Technology that people work safely

Apply Japan's specialized, cutting-edge terrestrial technology

Locally-produced materials

Remote operation of construction machinery



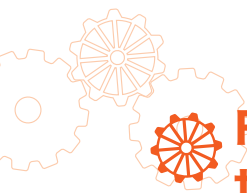
Enhance competitiveness of terrestrial industries

Robots for natural disasters

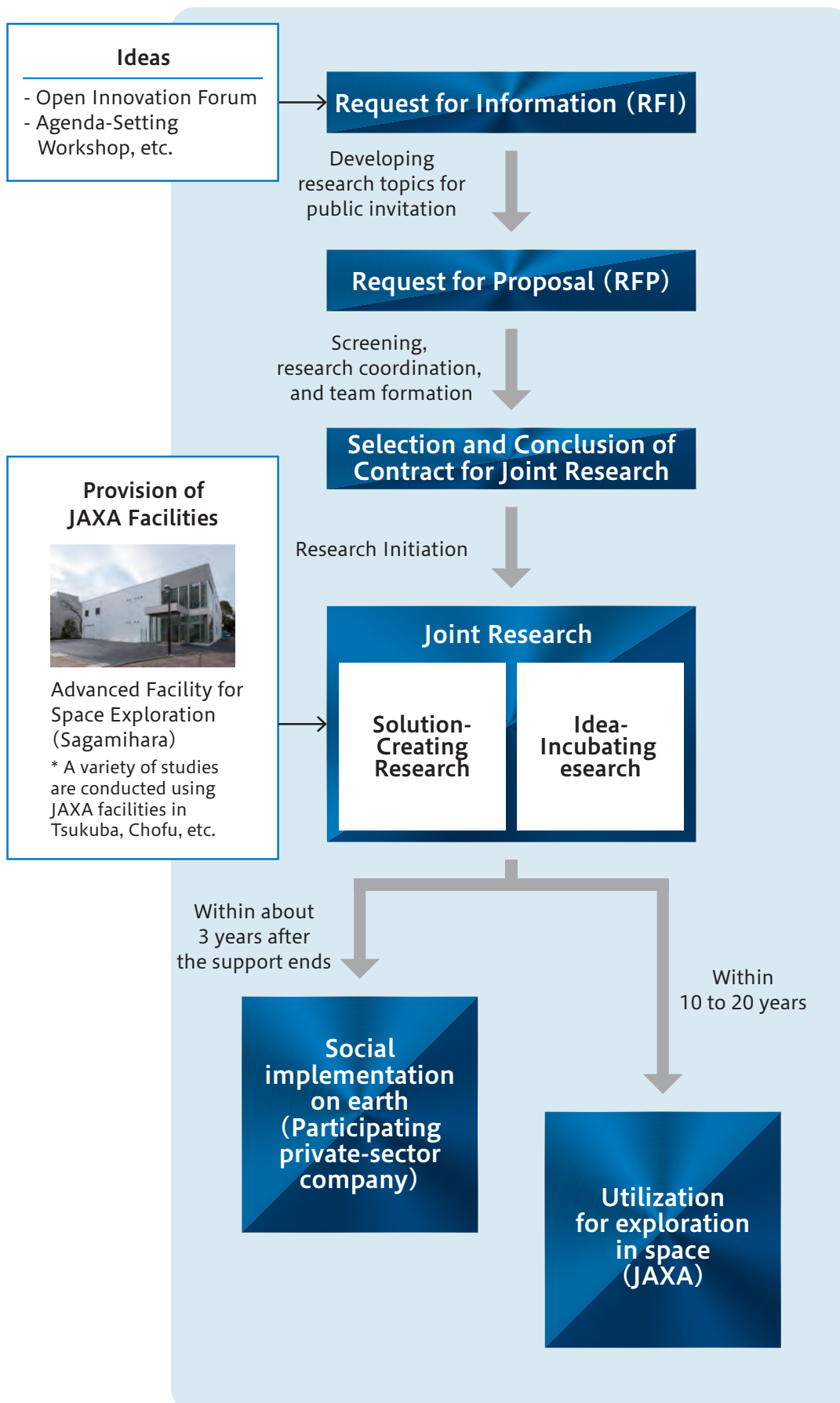
Unmanned construction technology



© TOKYU CONSTRUCTION、© Kajima Corporation、© SHIKOKU NEWS、© JAXA



Flow from the Request for Information to the Production of Research Findings



About the Request for Information (RFI)

Open Innovation Hub* Upon setting technological agendas (research themes) that should be tackled as research projects, the Japan Aerospace Exploration Agency's (JAXA) Open Innovation Hub broadly seeks the provision of relevant technological information. We welcome proposals for research themes at any time throughout the year.

Proposal to be sent to: se-forum@jaxa.jp

About the Request for Proposals (RFP):

Based on the "Request for Information (RFI)," which broadly seeks the provision of relevant technological information, JAXA's Space Exploration Innovation Hub Center sets joint research themes and invites those who would like to participate.

<Past schedules>

1st RFP Application period: November 12 to November 25, 2015
Announcement of selected projects: January 14, 2016

2nd RFP Application period: June 9 to July 6, 2016
Announcement of selected projects: October 14, 2016

3rd RFP Application period: March 30 to May 15, 2017
Announcement of selected projects: September 1, 2017

4th RFP Application period: April 20 to June 5, 2018
Announcement of selected projects: September 18, 2018

5th RFP Application period: May 31 to July 11, 2019
Announcement of selected projects: Scheduled to be in September 2019

*Open Innovation Hub is short for JAXA's "Open Innovation Hub for Expanding Humanosphere and Domain of Human Activity through Solar System Frontier Development," which was elected as the "Support Program for starting up Innovation Hub on the National Research and Development Agency" sponsored by the Japan Science and Technology Agency (JST).

About Solution-Creating Research:

Projects with a clear technological target, aiming for commercialization within three years after the research is completed

Research period: Up to three years

Total research budget: Up to 300 million yen

About Idea-Incubating Research:

Projects implemented to discover new technologies and ideas

Research period: Up to a year

Total research budget: Up to 5 million yen

About Challenging Research

(† special entries within Idea-Incubating Research):

Projects implemented to discover groundbreaking ideas based on freewheeling thinking

Research period: Up to a year

Total research budget: Up to 3 million yen

