

Japan-U.S. Comparison (Launching and Developing Deep-Tech Startups)



【 U.S. Model for Launching and Developing Deep-Tech Startups 】

Scientific Founder/Advisor

+

CEO

Lab Member (PhD/Postdoc)

External Executive Talent



Startup (Pre-Funding Stage)

- Public R&D Support (STTR/SBIR) 4,000 projects / ¥600 billion per year
- Prototype Development



Acceleration

Program

Startup (Growth Stage)

- Public R&D for Companies
- Public Procurement / Collaboration with Private Enterprises

Connected to Global Ecosystems

- ⇒ Strategic development from R&D to commercialization at a global level, with themes aimed at transforming society
- ⇒ Breakthrough growth through global-level commercialization support
- ⇒ Continuous development of CEOs with technological backgrounds (PhD-CEOs)
- ⇒ Formation of networks and communities is of utmost importance

【 Current Situation and Challenges in Japan】





Startup (Pre-Funding Stage)

Limited support options



Startup (Growth Stage)

Public support through certified VC programs and similar initiatives

Disconnected from Global Ecosystems

- ⇒ Needs are not fully understood, and themes that attract talent and funding are insufficiently defined
- ⇒ Even if themes are set or startups are launched, they struggle to scale globally due to lack of global-level support from universities and institutions
- ⇒ There is a lack of development of PhD-CEOs essential for deep tech startups
- ⇒ Ecosystem-building perspectives within Japan are also weak—especially in terms of connectivity

The Vision of GSC and Its Three Pillars

Challenges to Address

Vision and the Three Core Programs

Not connected to Global Ecosystems

Establishing a Hub Connected to Global Ecosystems (Global Startup Campus)



Themes that attract talent and funding, are insufficiently defined

to attract researchers and investors Attracting global researchers, entrepreneurs, and investors through collaboration with overseas

universities and institutions

1)Thematic International Research Programs

Lack of global-level support

2 Acceleration Program for Commercialization

Providing world-class mentoring, community building, connections to overseas VCs, and gap funding for researchers and startups

Shortage of PhD-CEOs

(3) Talent Development (Fellowship Program) Offering outbound and inbound programs in Japan and

abroad for young researchers with strong entrepreneurial aspirations

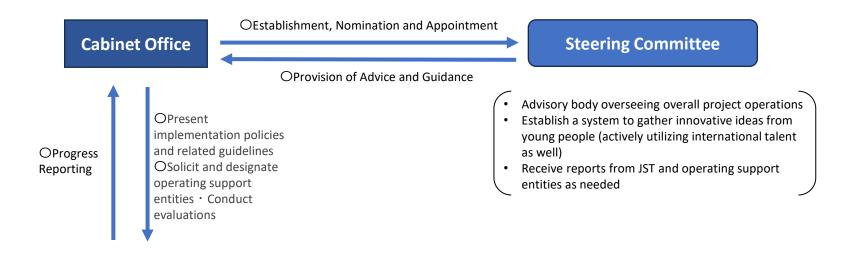
Weak perspective on ecosystem-building even within Japan (especially in terms of connectivity)

4

Implementation Scheme for Pilot Activities



- A Steering Committee composed of external experts will be established within the Cabinet Office to oversee overall operations
- Domestic and international external organizations will be engaged as operating support entities to enable flexible and agile execution



Program Model①:
International Research Programs to attract researchers and investors

JST • Operating Support Entities Program Model 2: Acceleration Program for Commercialization

JST • Operating Support Entities

Program Model 3: Talent Development (Fellowship) Program

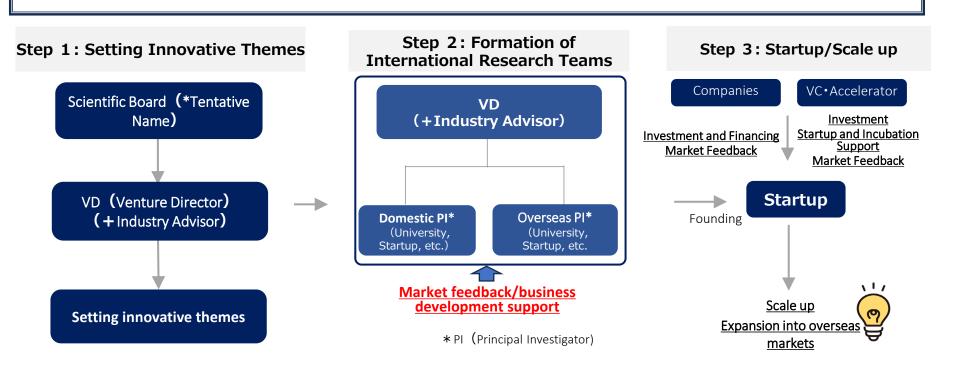
JST · Operating Support Entities

X Multiple operating support entities may be utilized under each program model

Program Model 1: International Research Programs to attract researchers and investors



- To attract global talent and capital, international research will be conducted under **high-impact**, **innovative themes** in collaboration with overseas universities and institutions.
- A program with the following features will be established:
 - Setting innovative deep-tech themes that are attractive to global researchers and companies
 - Appointing VDs who manage with a focus on commercialization and make swift decisions
 - Introducing Industry Advisors (such as interested VCs and corporations) to incorporate market feedback
 - Implementing a system to gather groundbreaking ideas from innovative young individuals



International Research Program aimed at attracting researchers and investors: Envisioned Implementation An example

GLOBAL STARTUP CAMPUS

Cabinet Office

Recommendation

research themes

reporting on the

of VDs and

Progress

program

OEstablishment, Nomination and Appointment

- OProvision of Advice and Guidance
- Present the Implementation
 Policy and related guidelines

 Conduct public calls, designation, and evaluation of the Operating
 Support Entity
- Decide on VDs and research themes

Steering Committee

- A mechanism will be established to gather innovative ideas from young talent, including active engagement of overseas personnel.
- The advisory body will receive reports from Japan Science and Technology Agency (JST) and the Operating Support Entity, as needed.

JST • Operating Support Entities

XIf necessary, will collaborate with overseas organizations to establish SBs, select VDs, set research themes, select PIs, etc.

The Operating Support Entity will be tasked with supporting the **selection of VDs** and the **development of research themes**. It is envisioned to be a foundation or similar organization with expertise in **research and researcher support**, and with a strong **network of overseas universities and support institutions**.

(Depending on the scale of the program, a multi-operator implementation structure may also be considered.)

OEstablished with the cooperation of



- Individuals with insights into cutting-edge global technology trends, experience in research and BD, and strong management capabilities (actively recruit overseas personnel too)
- Develop a **BD promotion model** tailored to each research theme

overseas organizations

Scientific Board

- Advisory body composed of scientists, entrepreneurs, VCs, etc. from around the world
- Actively utilizes overseas talent

OOpinion on selection and evaluation

OMarket Feedback

VD (Venture Director)

OWorkshops, etc. (Japan & overseas)

Setting Innovative Themes

OPI selection

OProgress management, advice, etc.

Industry Advisor

 Provide specialized expertise to VD and PI from the perspective of commercializing of research results.

(Domestic Univ A)

PI (Domestic Univ B)



(Overseas Univ C)



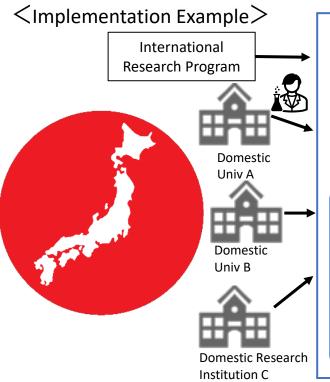
PI (Overseas Univ D)

*The Scientific Board and Industry Advisor are established within the operating support entity.

Program Model②:Acceleration Program for Commercialization



- In addition to the research outcomes of the international research program, the initiative targets deep-tech seeds and startups originating from domestic universities, research institutions, and hub cities that aim for global expansion.
- Commercialization support will be provided in collaboration with domestic and international organizations that have a
 proven track record in supporting the commercialization of university research.
 (Examples of support include providing business management know-how to researchers aiming to become entrepreneurs,
 mentorship support, community-building assistance, gap funding, opportunities for networking between overseas VCs
 and startups, establishing collaboration frameworks with domestic universities, etc.)
- The program features globally competitive execution by operation support entities who have proven domestic and international commercialization support (as commercialization support organization).





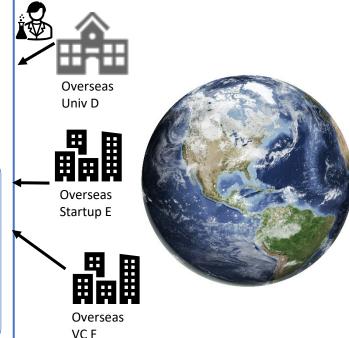
Operating Support Entity (Commercialization Support Organization)

Development and implementation of an Acceleration Program for Commercialization targeting domestic researchers, including those participating in international research programs.

 Discovery of promising domestic researchers and seeds

(Assumed to be conducted in collaboration with domestic institutions)

- Provision of management know-how
- Mentor support
- Formation of communities with overseas counterparts
- Opportunities for networking with overseas VCs



Program Model 3: Talent Development (Fellowship) Program



- Development of young researchers (Post Docs) with strong entrepreneurial spirit, aiming to develop talent (such as PhD-CEOs) essential for ecosystem enhancement
- Characterized by long-term overseas OJT-based training
 (Also includes strengthening the acceptance of excellent researchers from overseas universities)
- The program features execution by operation support entities who have proven domestic and international track records

<Program Overview>

 $\mbox{\em \%}$ ① began in December 2024, and dispatch for both ① ② is scheduled to begin around spring this year.

1 Overseas dispatch and hosting of young researchers (Post Docs)

- Dispatch of young researchers to overseas university laboratories that produce startups
- Hosting excellent overseas researchers in pioneering Domestic labs to promote network formation
- Duration: up to 2 years

② Overseas dispatch of business professionals with strong interest in deep-tech commercialization

- Dispatch of business professionals with strong interest in deep-tech commercialization to overseas VCs and similar institutions, implementing an OJTbased program
- Duration: 6 months to a maximum of 2 years

<u>3 Training of Venture Directors (VDs) / operational personnel with strong interest in deep-tech commercialization (overseas dispatch)</u>

• Dispatch personnel to overseas funding agencies to cultivate future VDs and GSC operational talent by training them in high-impact innovative theme setting, research support, and management in deep-tech fields.

Timeline (Envisioned)



Basic Concept:

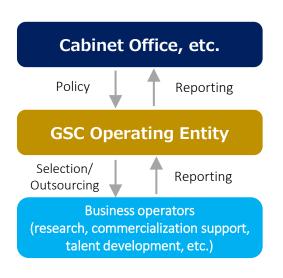
- Before and during the initial phase of establishing the operating entity, programs will be implemented with the support of external contractors.
- After the operating entity is fully established (steady-state), programs will be implemented in-house, leveraging insights gained from external contractors.
- The operating entity will ensure sustainable operations through collaboration with overseas universities and institutions.
- Before the establishment of the operating entity
 (external contractor utilization)

② After establishment (initial phase) (external contractor utilization + inhouse preparation) 3 After establishment (steady-state) (full in-house operation)

Cabinet Office/JST
Steering Committee

Selection/
Outsourcing

Business operators
(research, commercialization support, talent development, etc.)



Cabinet Office, etc.

Policy Reporting

GSC Operating Entity

Reporting

GSC Management Team

(research, commercialization support, talent development, etc.)

Utilize existing universities, private facilities, etc.

Utilize new GSC facilities (flagship campus)

Reference Materials

The Global Startup Campus Initiative (Concept)



Mission

To create a hub of the world's leading innovation ecosystem

Activities

I Research and development

- ◆ Focus on deep tech with significant social impact
- ◆ Market feedback from early stages of research
- ♦ Well-equipped research environment

II Incubation and acceleration

- ◆ Business development and intellectual property support
- ◆ Invite overseas VCs and startup support organizations
- ◆ **Spaces** for universities, research institutes, companies, startups

III Development of human resources

- Fellowship programs to train researchers, VCs, and BD/IP professionals
- ◆ Environment to learn global business management for innovation

IV Others

- Various events to facilitate global networks
- ◆ Residence and business environment support for overseas researchers
- ◆ Research and studies on global R&D trends

Operating entity and business deployment

(Operating entity)

- ◆ Formed as a private entity in which the government will be involved
- ◆ Support the entire process of R&D, startup creation, and global business development (Business deployment)
- ◆ Independent and sustainable operation utilizing diverse funding sources from investors, philanthropists, and public sectors
- ◆ Operation in an all-Japan framework by obtaining cooperation from relevant ministries and public research agencies

Land/facility

- ◆ Use government-owned land in Shibuya, Tokyo
- ◆ Design a facility that appeals to the world's leading talent, maximizing private-sector expertise and funding

Pilot projects

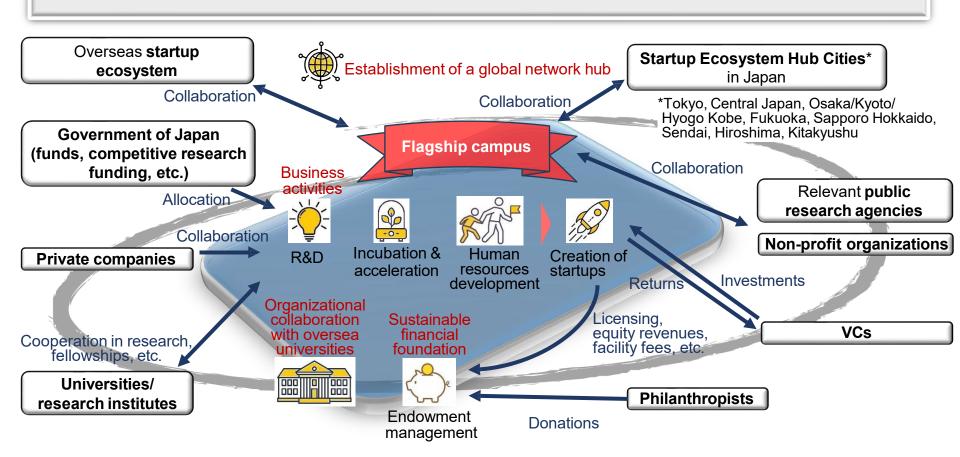
- ◆ Start leading-edge research projects on a pilot basis before the facility completion
- ◆ Start **fellowship programs** to establish global networks

The Global Startup Campus Initiative (Image)



GSC operating entity

- Organizational entity/operation
- **Support the entire process** of R&D, startup creation, and global business development.
- Achieve flexible operations. (Utilize outsourcing and other means suitable for each activities).
- Business deployment
- Independent and sustainable operations utilizing diverse funding sources
- Collaborations and cooperations with relevant ministries and public research agencies (all-Japan framework)



Excerpts from Keidanren's "Science to Startup" Proposal ①



4. Creating Successful Cases by Leveraging Global Pathways

(1) Top Gun Approach

In contrast to the traditional model where startups emerge from academic research, the Top Gun Approach is a VC-led model that has shown significant success in the U.S. In this model, venture capitalists identify promising domains, recruit a small group of world-class researchers, and collaboratively form a startup. These startups are often launched in sync with scientific breakthroughs (e.g., quantum computing × cryptography, mRNA × influenza vaccines), targeting areas with high potential but low competition.

A prime example is <u>Moderna</u>, which was backed by <u>Flagship Ventures</u>. This approach is characterized by its ability to rapidly mobilize talent and capital around a compelling business vision.

Some U.S.-based VCs with a track record in this approach are now showing interest in entering the Japanese market. These initiatives have the potential to generate value on the scale of hundreds of billions to trillions of yen and could significantly reshape Japan's innovation landscape.

As a realistic first step for Japan, it is important to increase the participation of Japanese researchers in projects led by U.S. VCs experienced in the Top Gun Approach. #9

⁹One such case is <u>Century Therapeutics</u>, co-founded by Dr. Hiroaki Nakanishi (now Distinguished Professor Emeritus at Tokyo Medical and Dental University), in collaboration with FUJIFILM Cellular Dynamics and Versant Ventures.

Excerpts from Keidanren's "Science to Startup" Proposal 2

GLOBAL STARTUP CAMPUS INITIATIVE

4. Creation of successful case studies utilizing global path

(3) Fellowship Program

In addition to the Top Gun approach, advanced trial-and-error efforts are underway in various countries. #12 For example, fellowship programs specifically designed to support entrepreneurship by researchers provide practical and financial support for company formation, intellectual property, and training. These efforts represent both an exploration of optimal StoS (Science to Startup) pathways and a competition to secure promising research seeds that could lead to major ventures.

Some program organizers have expressed high regard for R&D at Japanese universities and are eager to see participation from Japanese researchers. However, even globally renowned programs remain largely unknown among Japanese researchers, and very few proactively apply.

If <u>Japanese researchers begin participating in such programs</u>, they can learn commercialization methodologies based on research seeds, understand the structure of startup ecosystems in different countries, and build human networks. These individual experiences not only raise awareness of StoS within Japanese academia but may also lead to the emergence of globally successful startups—making such participation extremely meaningful.

There are also <u>emerging private-sector initiatives</u> to send Japanese researchers to proven programs in the U.S. The government should leverage these private efforts and broadly disseminate information about such programs to Japanese researchers. Additionally, it should <u>negotiate to secure participation slots for Japanese researchers</u> in top global programs. Acting as a sponsor for established programs and encouraging their implementation in Japan would also be effective. These measures are necessary to activate opportunities for Japanese researchers to experience global startup dynamism.

The Government's Global Startup Campus (GSC) Initiative also aims to conduct business development while incorporating incubation and acceleration functions. It is hoped that this initiative will draw on advanced overseas programs to become an effective undertaking.

¹² At <u>Activate</u> (https://www.activate.org/), researchers who are considering or have just launched a startup are offered a two-year fellowship program, contingent on full commitment to their proposed business plan or startup. The program provides living expenses, R&D funding, equity fundraising opportunities, entrepreneurship training for researchers, access to research facilities that can be used while protecting intellectual property, and networking with scientists and entrepreneurs from around the world. Since its founding in 2015, the program has supported the launch of 196 startups, which have collectively raised over \$2.3 billion in funding. Other organizations such as <u>Wilbe</u> (https://www.wilbe.com/) and <u>NLC</u> (https://www.nlc.health/) also offer support to researchers interested in entrepreneurship.