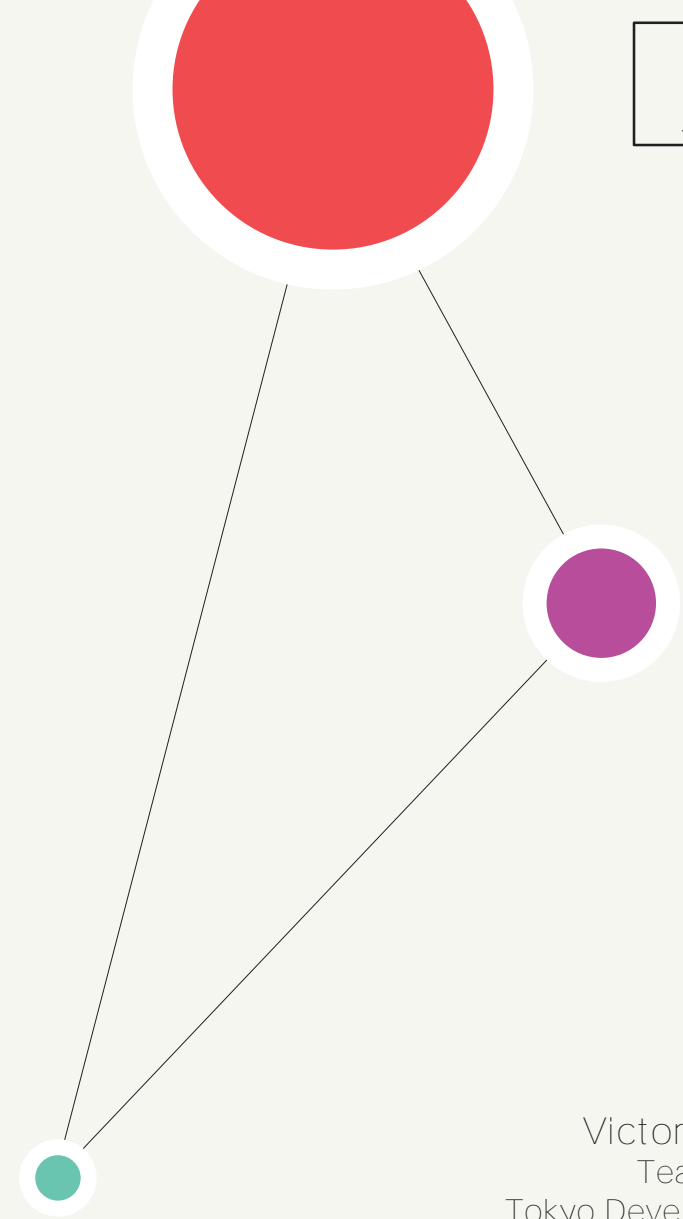


Boosting Japan's Startup Ecosystem

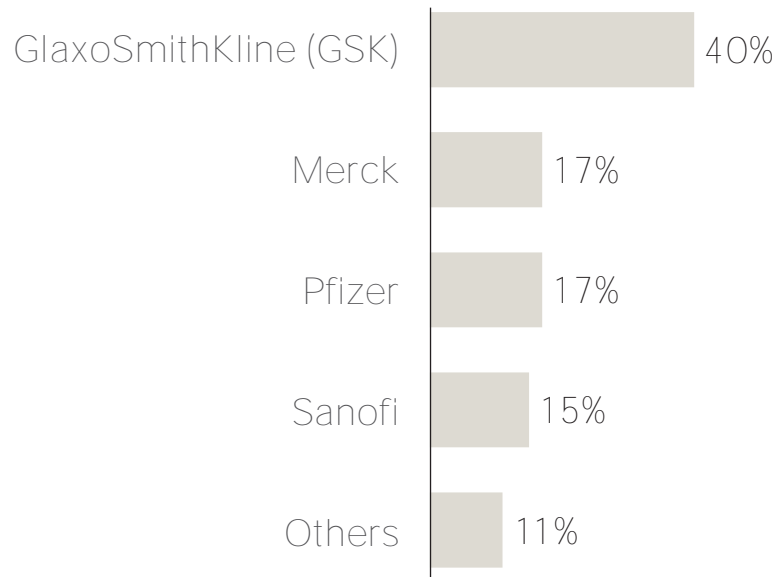
The great potential
for Japanese innovation rebound

Tokyo
Development
Learning
Center

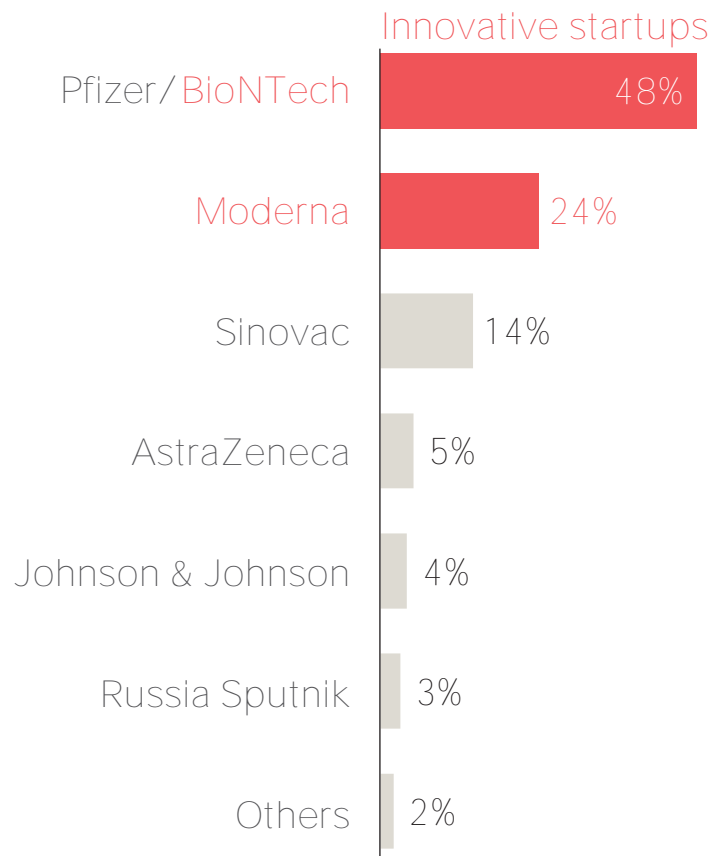


Victor Mulas
Team Lead
Tokyo Development
Learning Center

Vaccine Manufacture Share by Global Value (2019)



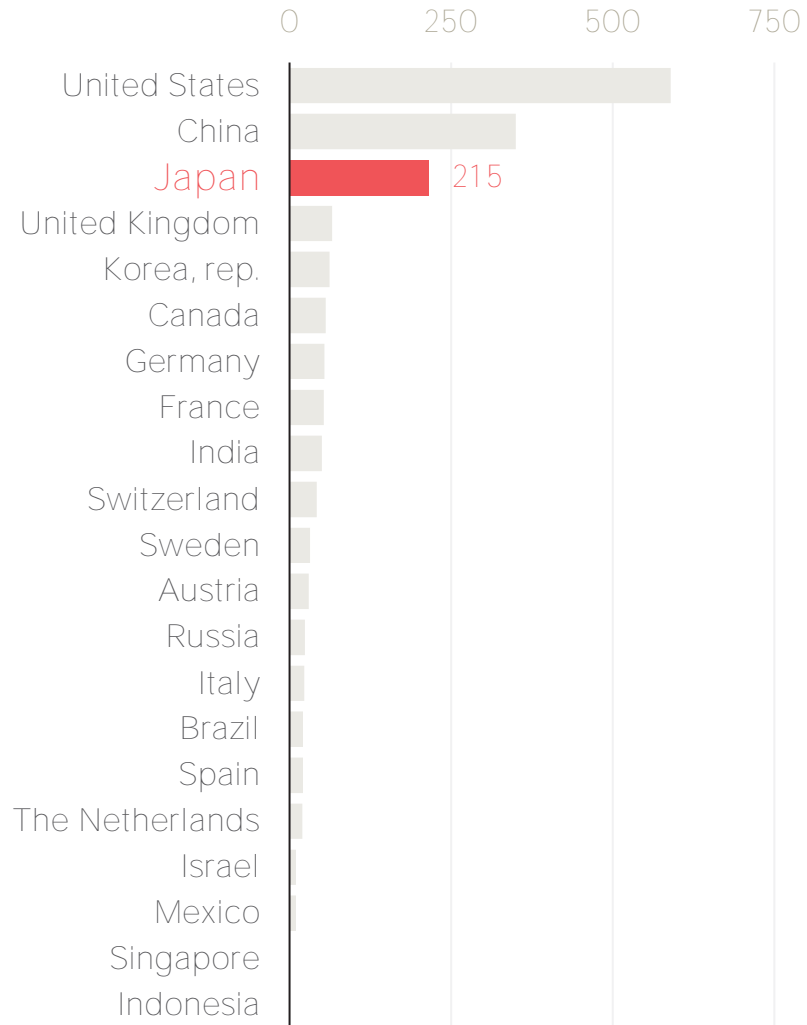
Global COVID-19 Vaccine Market (Q1,2021)



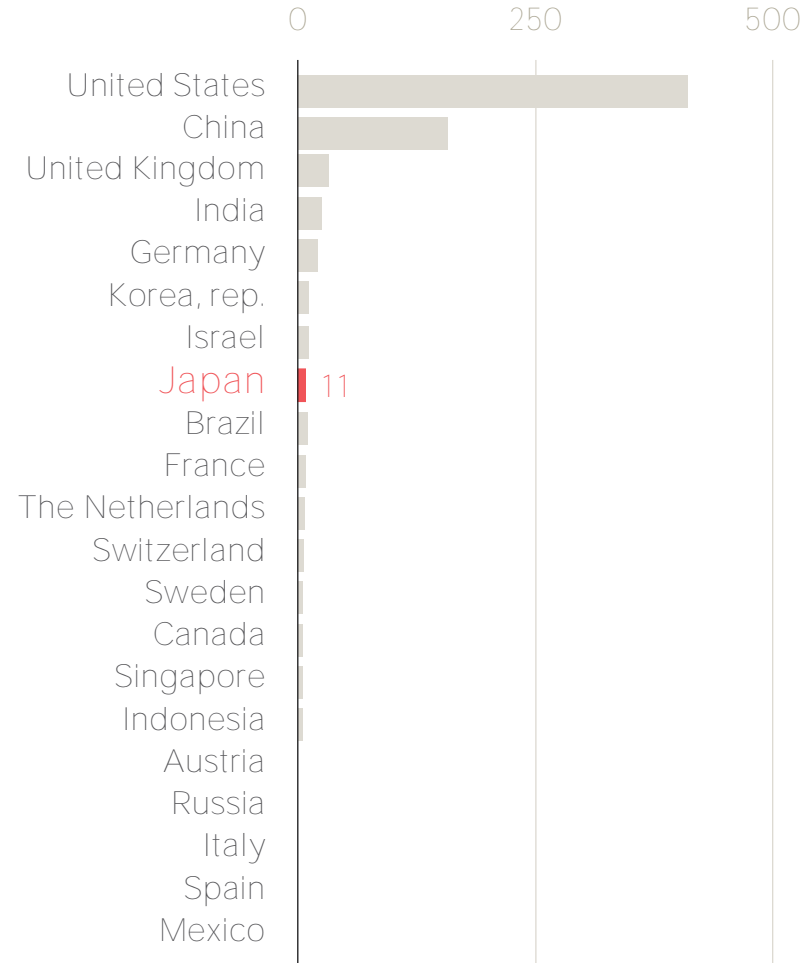
Innovation is increasingly focused on start-up development and commercialization

COVID-19 mRNA vaccinations were largely a product of startup innovation

Forbes Global 2000 Companies

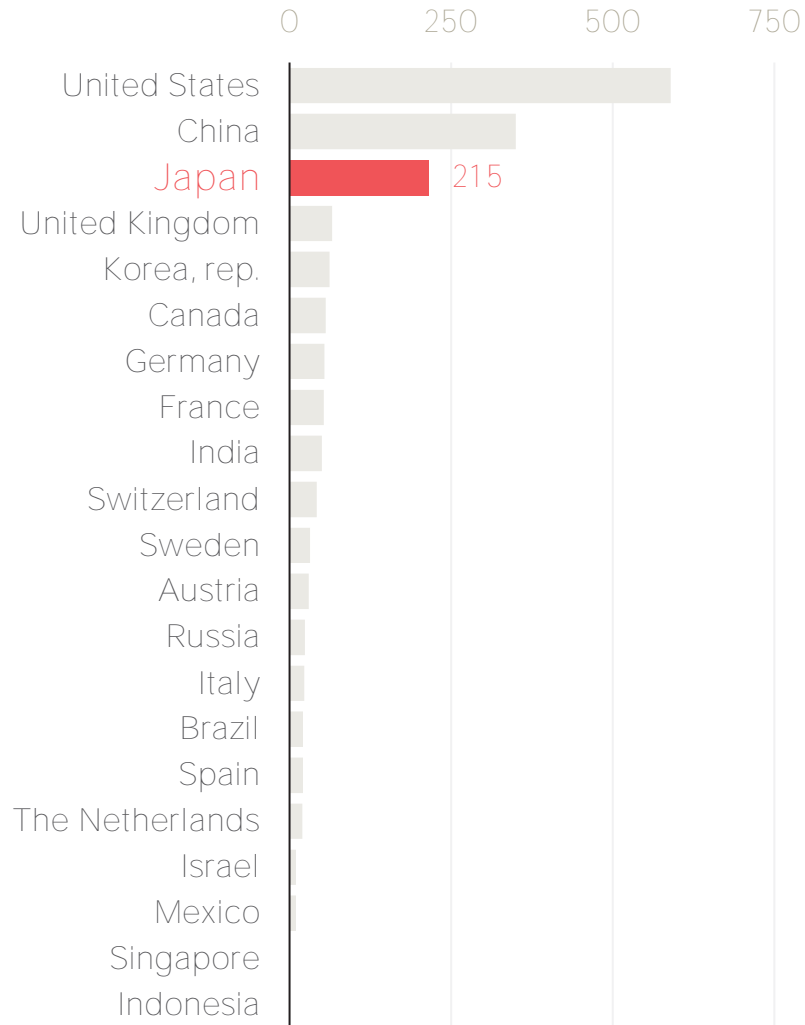


Unicorns (>USD 1 Billion)

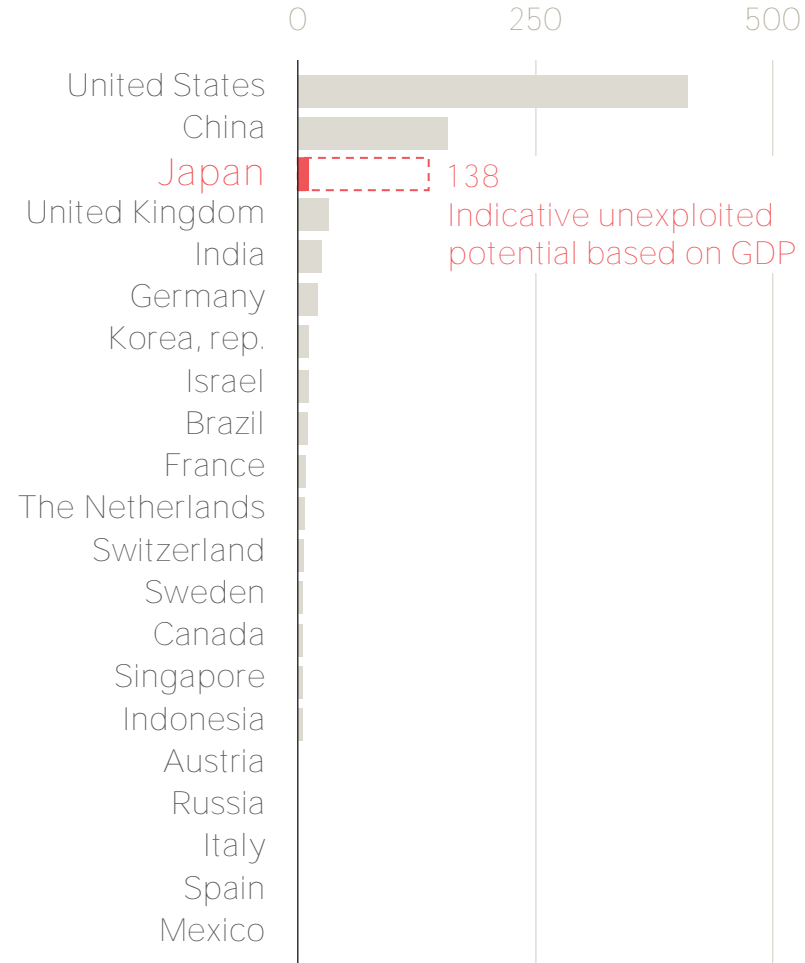


Boosting Japan's start-up ecosystem presents a great potential for its forward-looking competitiveness

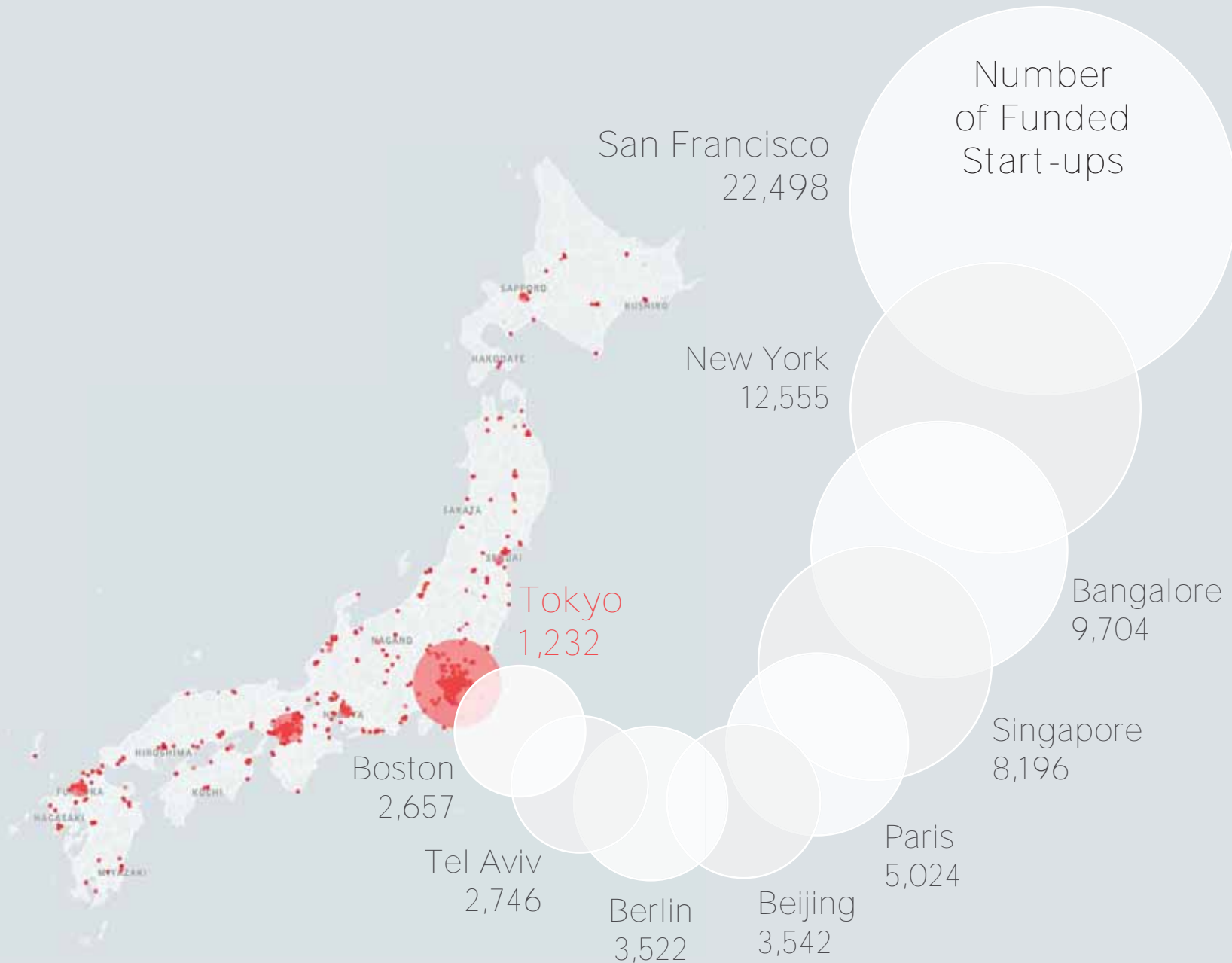
Forbes Global 2000 Companies



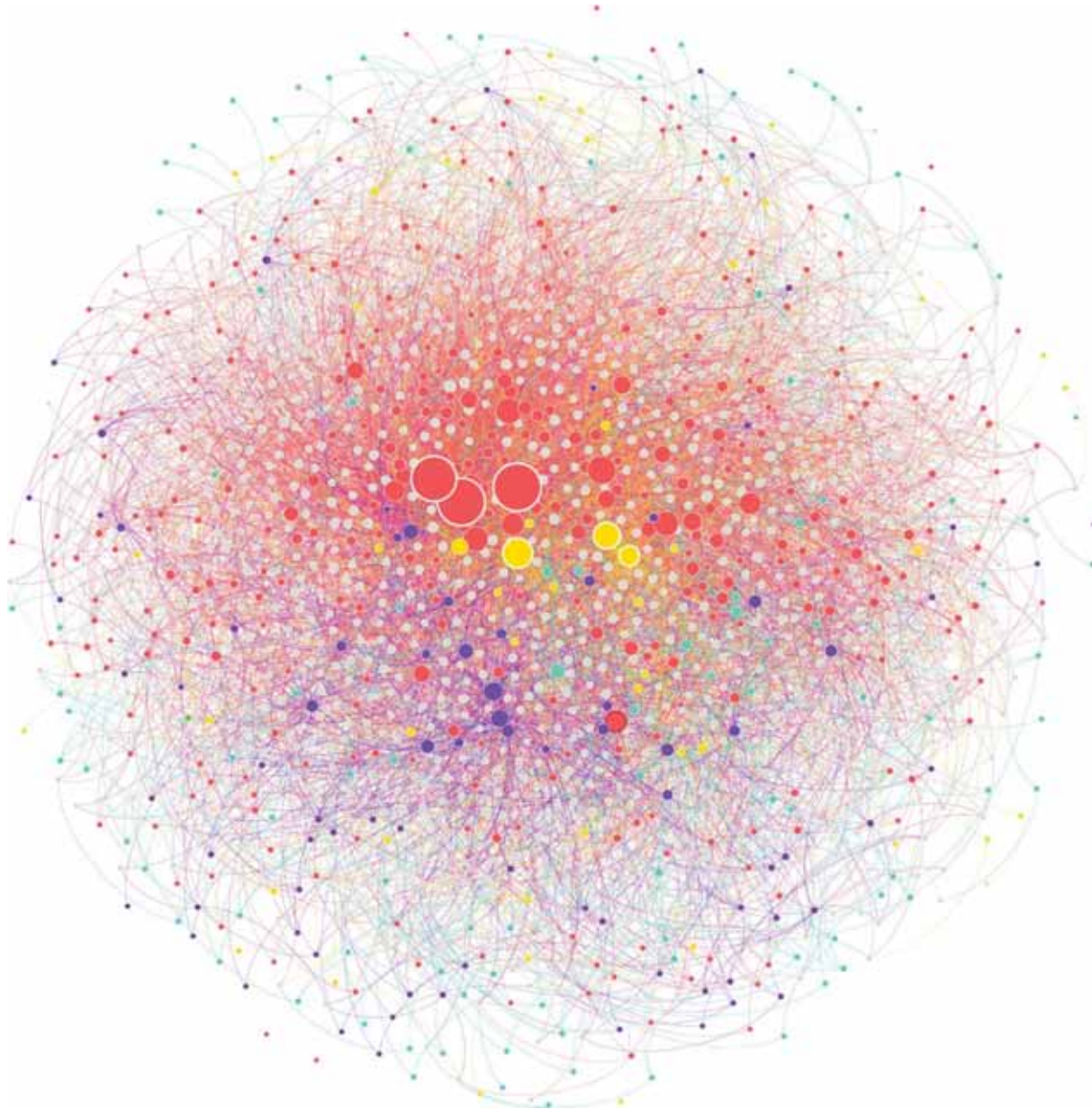
Unicorns (>USD 1 Billion)



Boosting Japan's start-up ecosystem presents a great potential for its forward-looking competitiveness



Tokyo is today the only true startup ecosystem in Japan, but it is small on global terms



Influence
based on
number of
connections

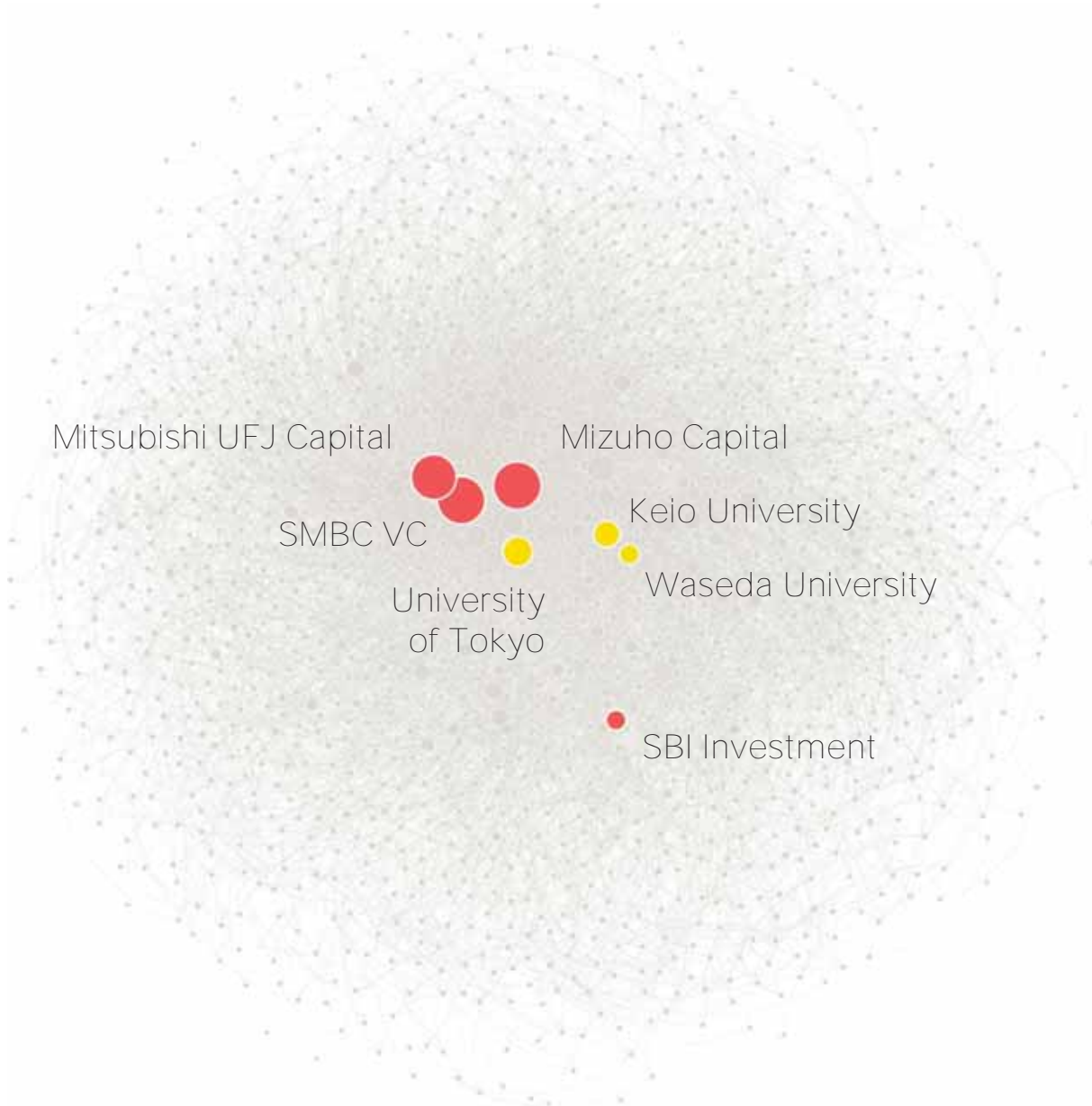
Investors

Universities

Accelerators

Start-ups

Tokyo Ecosystem
is dominated by
traditional institutions
that do not cater to
start-up needs



Influence based on number of connections

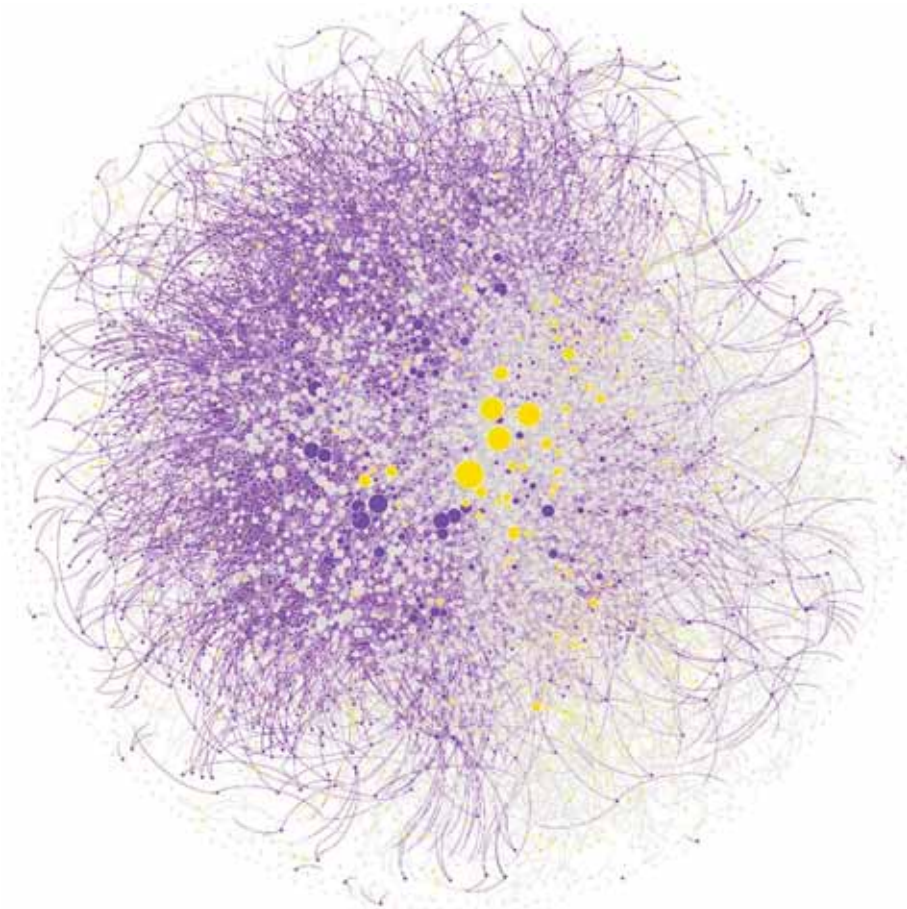
Investors

Universities

Tokyo Ecosystem is dominated by traditional institutions that do not cater to start-up needs

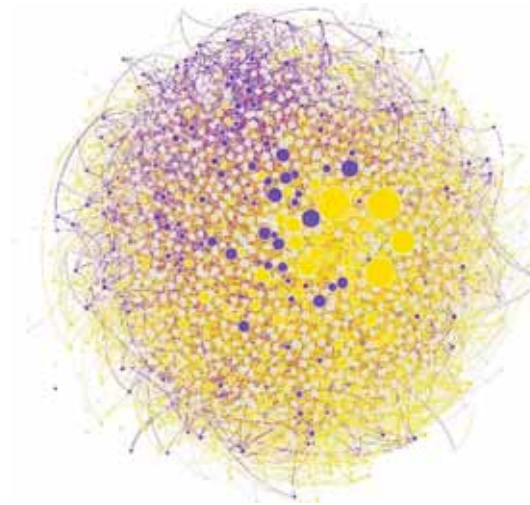
New York

70% 30%



Tokyo

24% 76%



Specialized

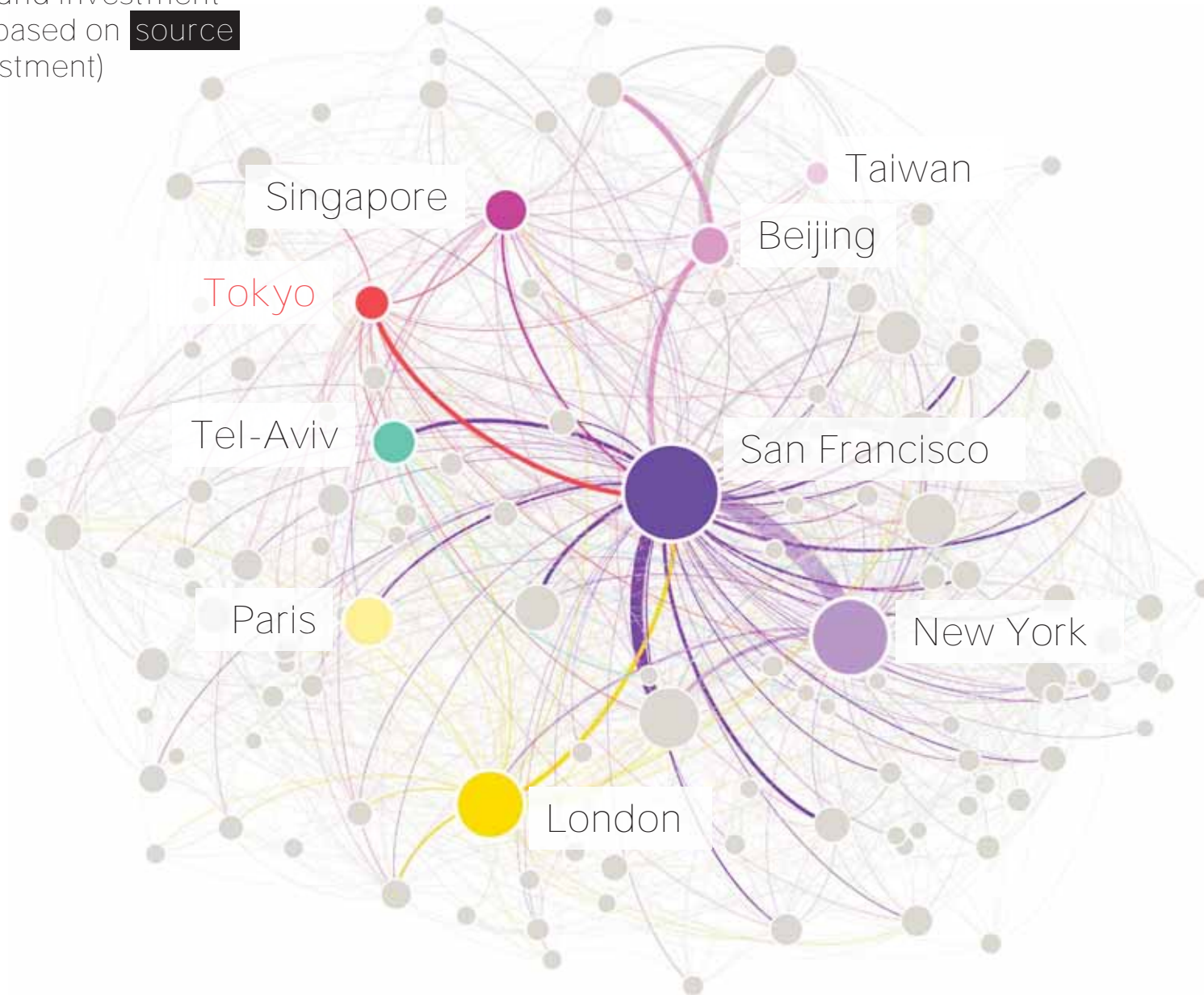
Non-specialized

Start-ups

The start-up "growth-driven" specialized ecosystem in Tokyo is small and has little influence

Tokyo presents the reverse image of New York and other leading global start-up ecosystems

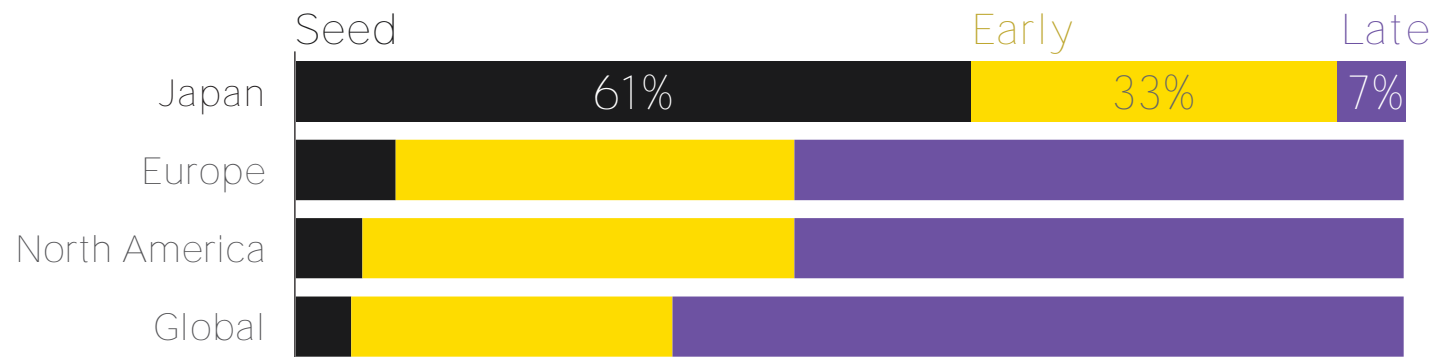
Outbound investment
(color based on **source**
of investment)



The ecosystem is predominantly domestic; it has very little international connectivity

Tokyo only relevant link is with San Francisco for accessing innovation through investment

Distribution of VC Investment Stages



Average Deal Size per Investment Stage Category, US\$ Millions



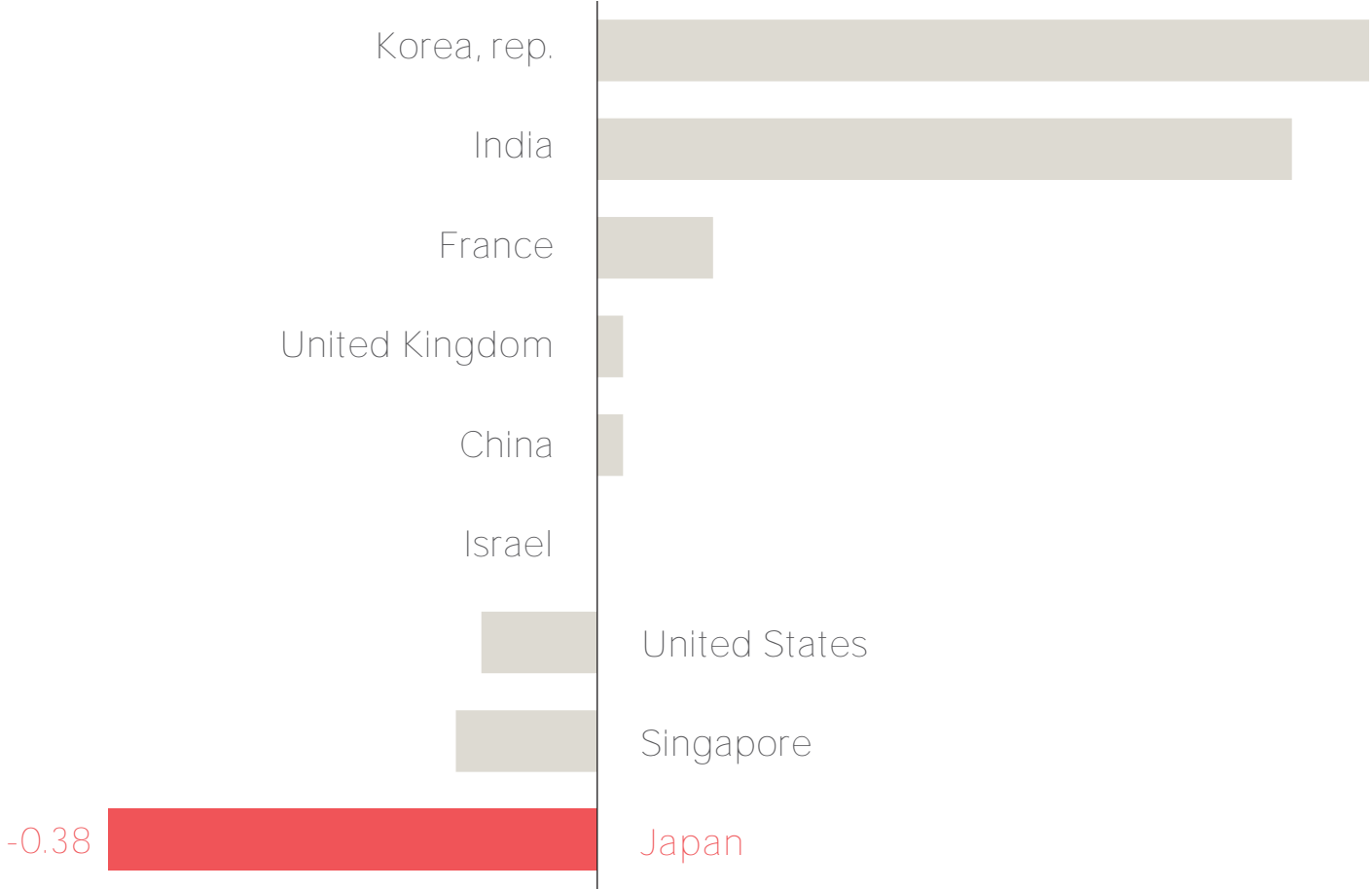
Investment

Growth-oriented capital is limited (below 25% of start-up investment), and disproportionately deployed in small stages and ticket sizes

Sources: For Europe and global—[CBInsights, 2020](#)
for North America—[CBInsights, 2019](#) for Japan—[Venture Enterprise Center \(VEC\), 2020](#)



Investment Balance Gap (received vs provided) in Unicorns

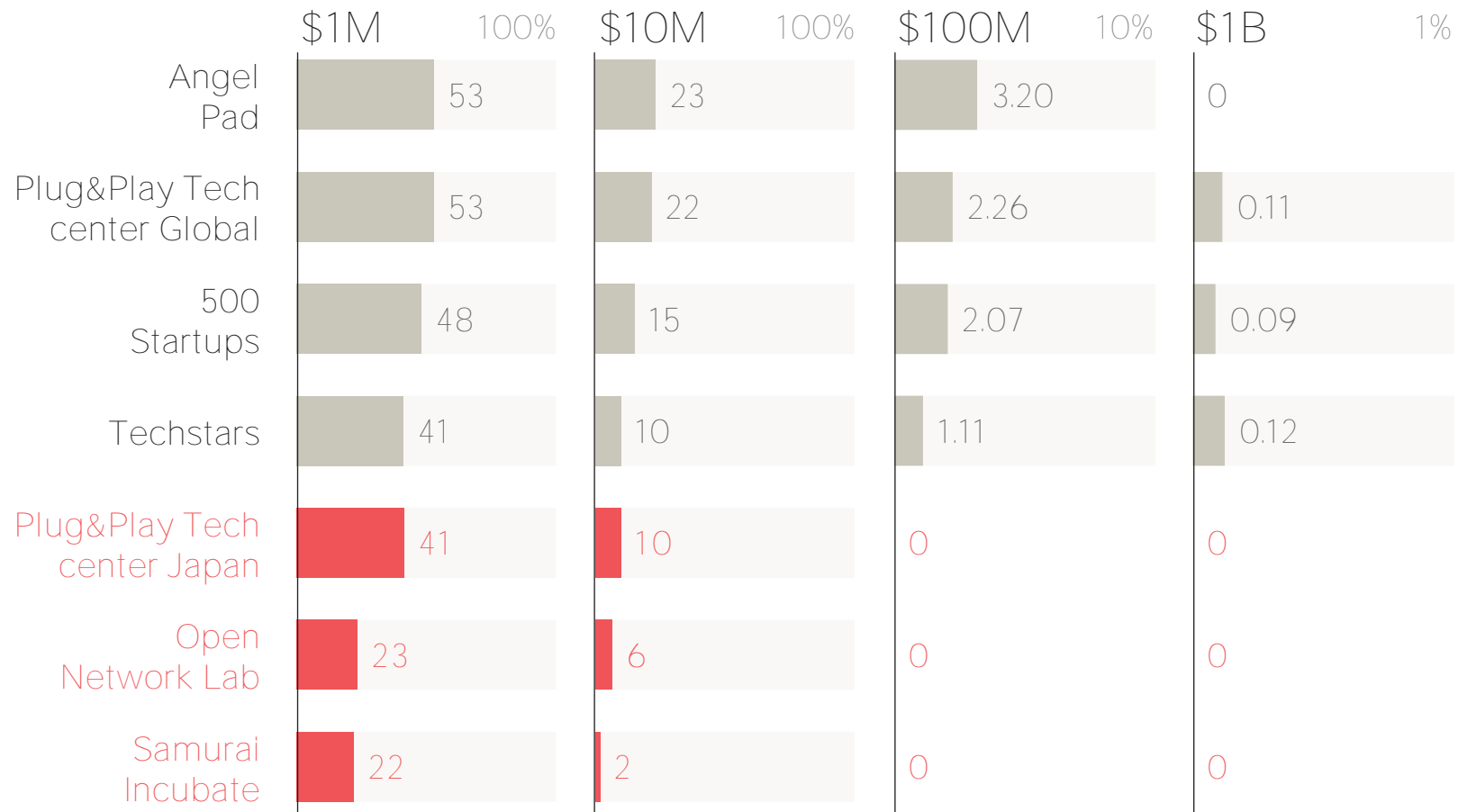


Investment

Beyond supply problems; the pipeline of start-ups is also not satisfying the needs of Japanese investors and corporations

Sources: [CBInsights, 2021](#), February data; author's analysis.

Percentage of start-ups having raised funding over...



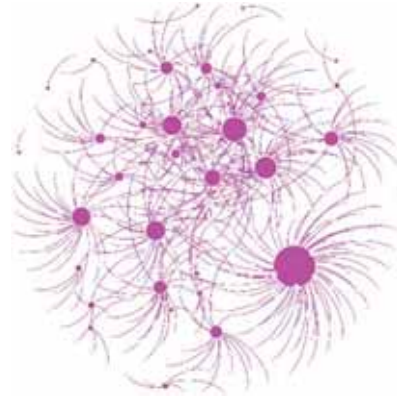
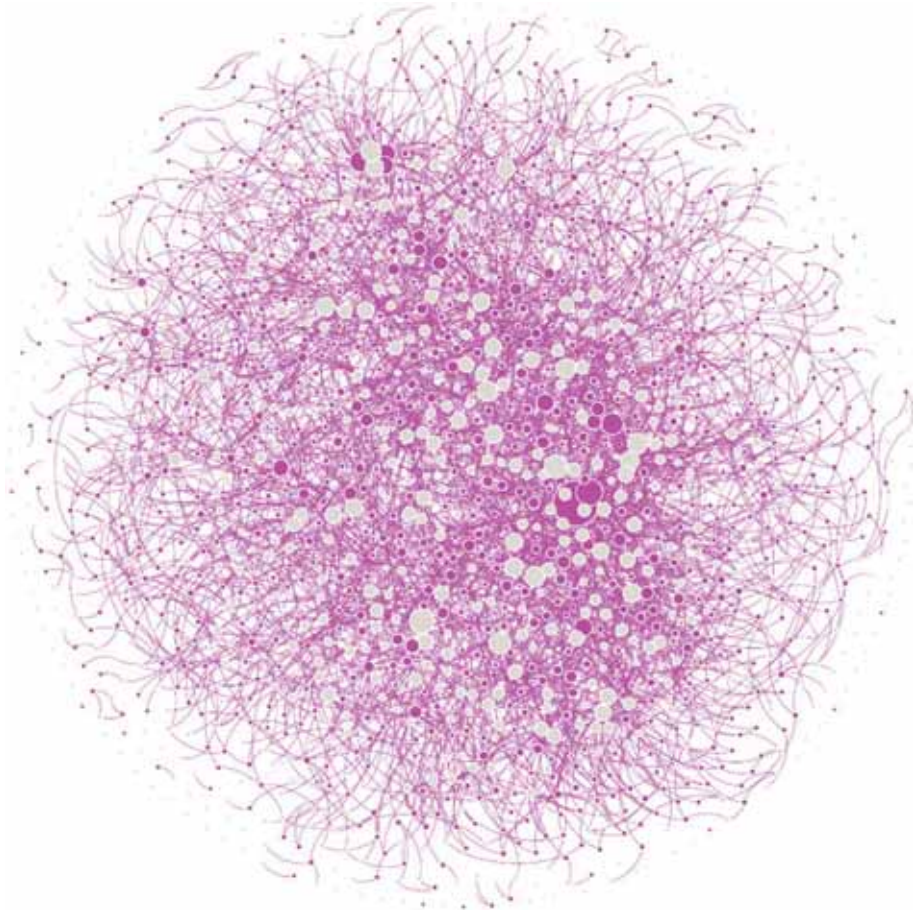
Support Infra.

There are no mature scale-up accelerators that can help start-ups to grow at global scale

Sources: Accelerator websites: [500 startups](#), [Techstars](#), [AngelPad](#), [Plug and Play Tech Center Global](#), [Plug and Play Tech Center Japan](#), [Samurai incubate](#), [Open Network Lab](#), [Pitchbook database](#) and [Tracxn database](#), Dataset #3.

New York

Tokyo

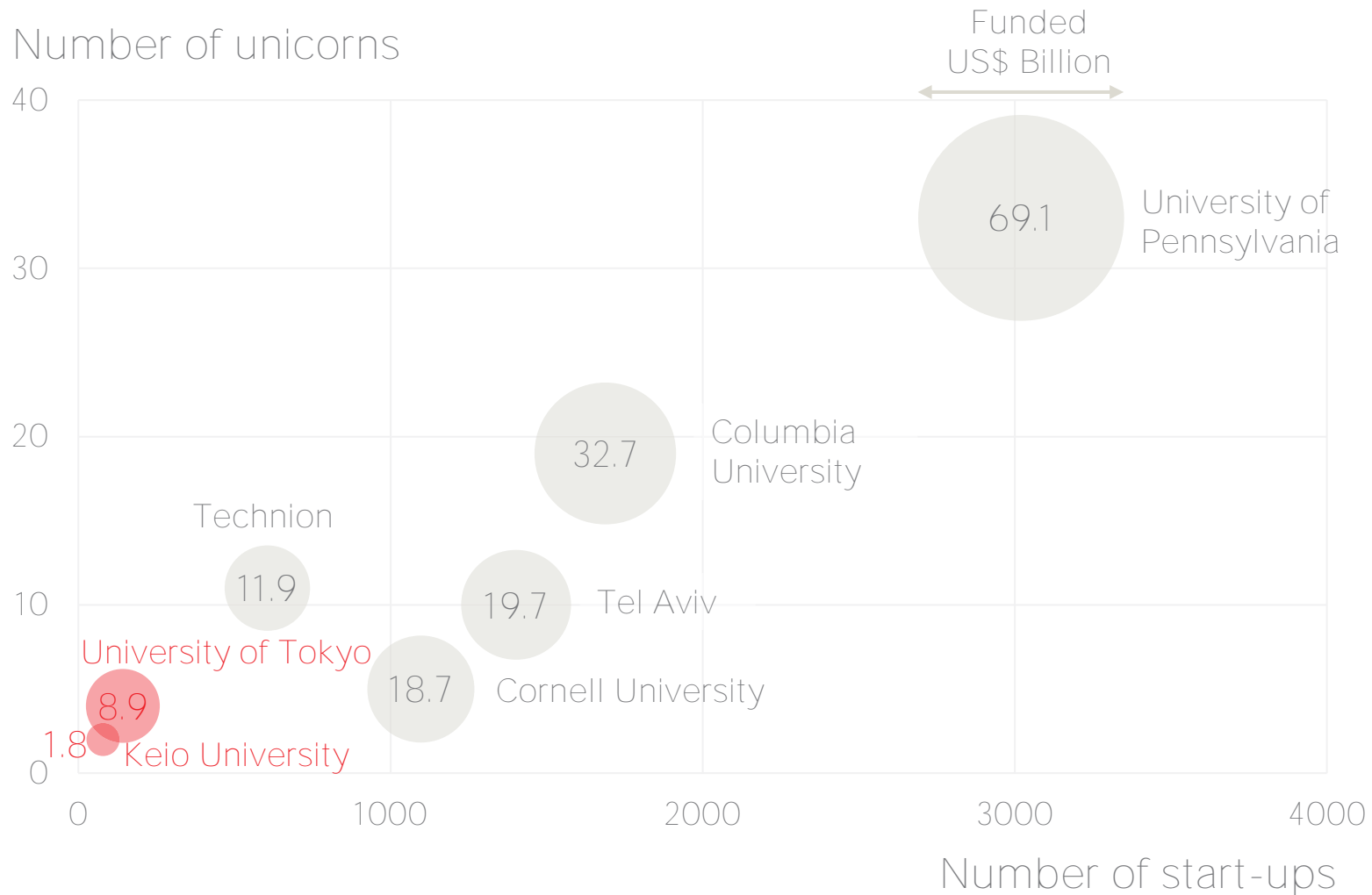


Angel investor

Start-ups

Support Infra.

Compared to global ecosystems like New York's, Tokyo lacks a population of domestic mentors and angels



Skills and Talent

When compared to leading universities from around the world, Japan's top universities lag behind in terms of startup and unicorn production, as well as startup funding

Sources: [Tracxn database](#) for U.S. universities (June-July 2021); [Crunchbase database](#) for Japanese universities (May 2021).
 Note: University of Pennsylvania and Columbia University combine data from undergraduate programs and their business schools.

Recommendations

Investment

Support Infrastructure

Skills and Talent

1

GAPS

OVERALL
SMALL VC SIZE

Action

Catalyze and attract new funds at every stage, with focus on mid-late stage

Policy

Co-invest (directly, fund of funds)* and catalyze new funding

Example

Israel (Yozma and Heznek) fund co-investment programs*
Germany co-investment growth facility*,
French seed Tech (seed co-investment*),UK Future Fund

2

LIMITED INT'L FUNDS
AND GLOBAL GROWTH
EXPERIENCE

Attract int'l funds and talent

Market regulation and transparency

Tax incentives for talent acquisition

Incentives through co-investment

US SEC and EC guidelines; secondary markets

Singapore VC tax incentives
UK and Germany's VC investment tax relief programs

Korea fund of funds and foreign VC investment fund

3

SCALE-UP

Catalyze scale-up funds (domestic and int'l) and increase the quality of investable pipeline

Co-invest*, catalyze new funding

Set up goals and partnership with Japanese scale-up funds

Pan-European Investment Fund

France late-stage VC co-investment funding*, UK Future Fund

Note*: Co-investment between government and private investors

Recommendations

Investment

Support Infrastructure

Skills and Talent

1

GAPS

SMALL SIZE AND LACK OF GLOBAL ACCELERATORS

Action

Co-investment* of international accelerators and build deep-tech vertical programs (domestic and scale-up)

Policy

Co-invest*, catalyze new funding and presence of int'l accelerators
Catalyze domestic deep tech accelerators with partnership guidance

Example

Israel, Finland, France, Korea subsidies and co-funding of accelerator programs
France vertical deep tech accelerator program

2

LIMITED NUMBER OF DOMESTIC MENTORS AND EXPERIENCED START-UP SCALE-UP TALENT

Attract int'l mentors and start-up talent through hands-on co-creation programs to develop local talent capabilities

Attraction of talent through hands-on co-creation programs to develop local talent capabilities

Tax incentives and promotion of international mentors' programs

UK Global Entrepreneurship Program (GEP)

Korea K start-up Grand Challenge, France Concours i-Lab

France early-stage tax exemptions, UK Angel co-investment fund, Korea secondary market for angels

3

CORPORATE AND PUBLIC PROGRAMS ARE NOT GROWTH-ORIENTED

Catalyze corporate and public startup growth-oriented programs

Direct and facilitate accelerators partnership with corporate and public S&T programs

Public procurement catalyization of new startup markets

Deep tech public-PPP challenges and regulatory sandboxes

Israel and Massachusetts provision of funding to MNC to build innovation hubs

NASA catalyization of space transportation market

COVID warp speed, DARPA challenges Korea regulatory sandboxes

Note*: Co-investment between government and private investors

Note: Policy examples are illustrative

Recommendations

Investment

Support Infrastructure

Skills and Talent



1

GAPS

LACK OF PRACTICAL ENTREPRENEURSHIP PROGRAMS

Action

Create practical education ecosystem programs in all university campuses

Policy

Catalyze comprehensive programs of ecosystem development through partnership funding incentives

Create new campus project to develop new practical entrepreneurship education

Example

Berkeley, MIT, Sweden Stockholm School of Entrepreneurship (SSES) university ecosystem of support programs

Korea university-entrepreneurship center, specialized incubator universities program and AI schools

2

LIMITED R&D COMMERCIALIZATION IMPACT

Expand programs reach and partner with accelerators (vertical deep tech)

Market regulation and increase funding and program size and reach

Expand partnerships with corporate and public R&D

Chicago mHUB, Massachusetts Life Science Center; Israeli Life Science Funds

Korea in-house venture development and Leading Universities for Startups

3

LIMITED INFORMAL EDUCATION AND TALENT CONVERSION FROM CORPORATES

Attract and build domestic and int'l informal educational programs and incentives to enable talent mobility

Grants and investment, direct partnership

Tax incentives and benefits platform mobility for entrepreneurship conversion

UK apprenticeship and practical education programs

Finland startup grants

Note: Policy examples are illustrative; deep-tech verticals may include Artificial Intelligence (AI), quantum computing, regenerative medicine, autonomous driving, blockchain, cybersecurity, virtual reality, lithium-ion batteries, drones and conductive polymers.

Policy in Focus

#1
Universities to extend hands-on simulation-based entrepreneurship education available for all its students

Illustrative examples of activities and comprehensive university programs

- Entrepreneurship curricular courses available for all students
- Business plans competitions and hackathons,
- Camps and Pitch competitions,
- Acceleration and incubation
- Invention
- Mentors, angels and fellows
- R&D commercialization support
- Grants, seed and VC support investment
- Alumni and post-doc VC funds

EXAMPLE IN FOCUS

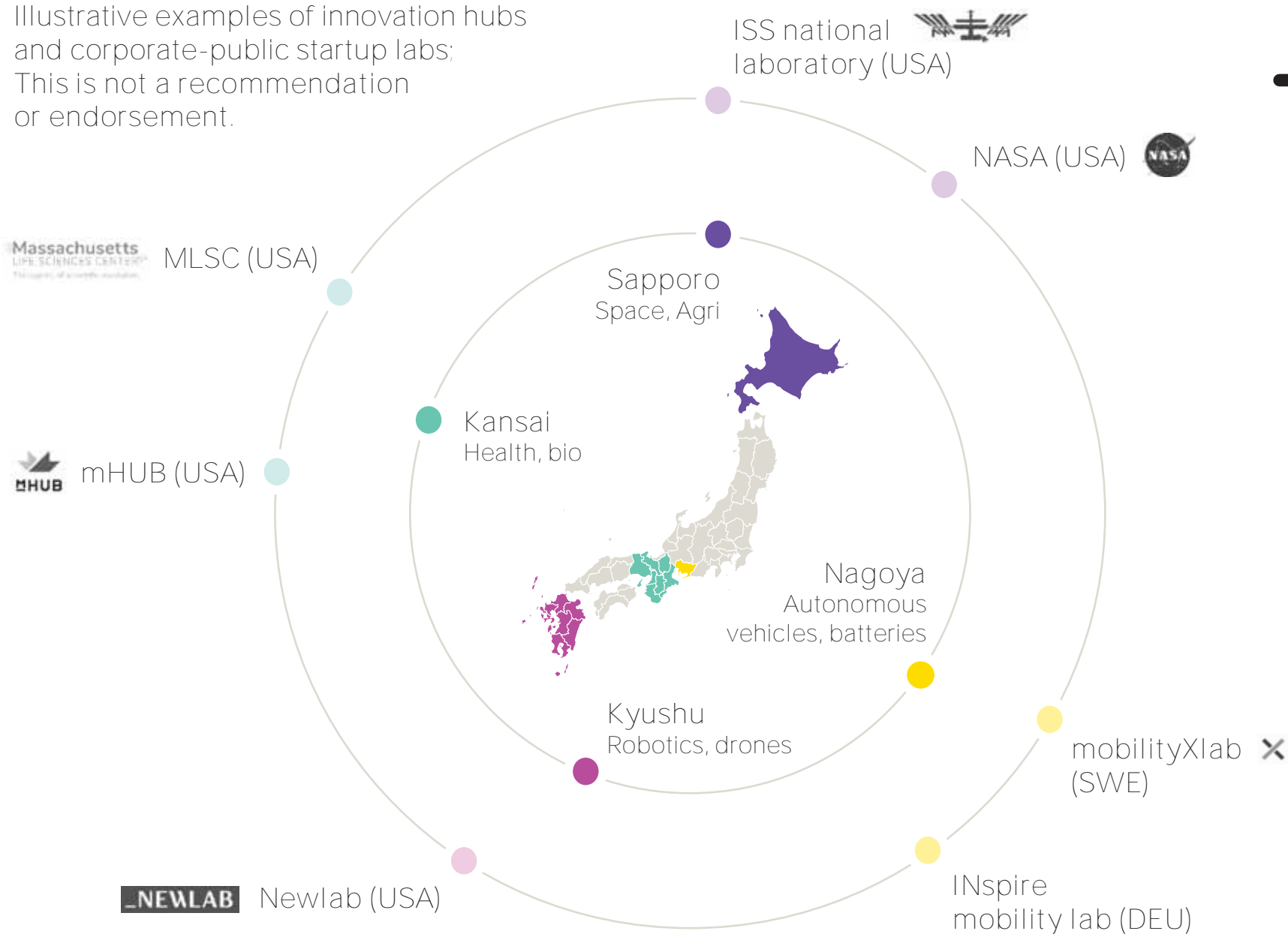


Start-up Practical Education Ecosystem

1. Startup Support: post-doc entrepreneurship, free ventures, Xaccelerator, Berkeley startup cluster, SkyDeck.

SkyDeck ->accelerator, incubator, mentoring, global innovation program and investment fund
2. New product R&D support: invention lab, fellows, Innovate Berkeley, theme programs
3. Investor funds: Grants, Seed fund, Alumni fund, Research fund, SkyDeck fund, angel network
4. University ecosystem: academic programs, product/market fit support, legal, recruiting and intellectual property support

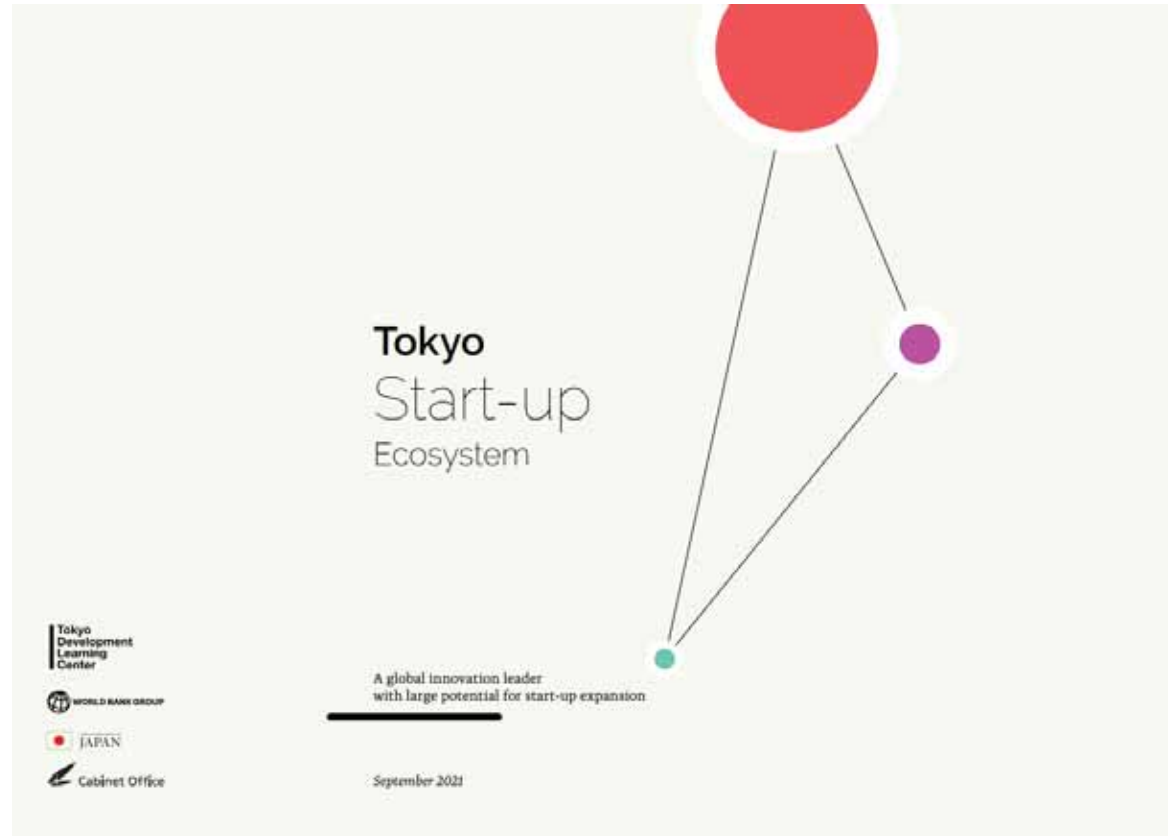
Illustrative examples of innovation hubs and corporate-public startup labs; This is not a recommendation or endorsement.



Policy in Focus

#2
Expand Beyond Tokyo to diversify and Grow Japan's deep-tech start-up ecosystem leveraging S&T Cluster Potential

Full Report

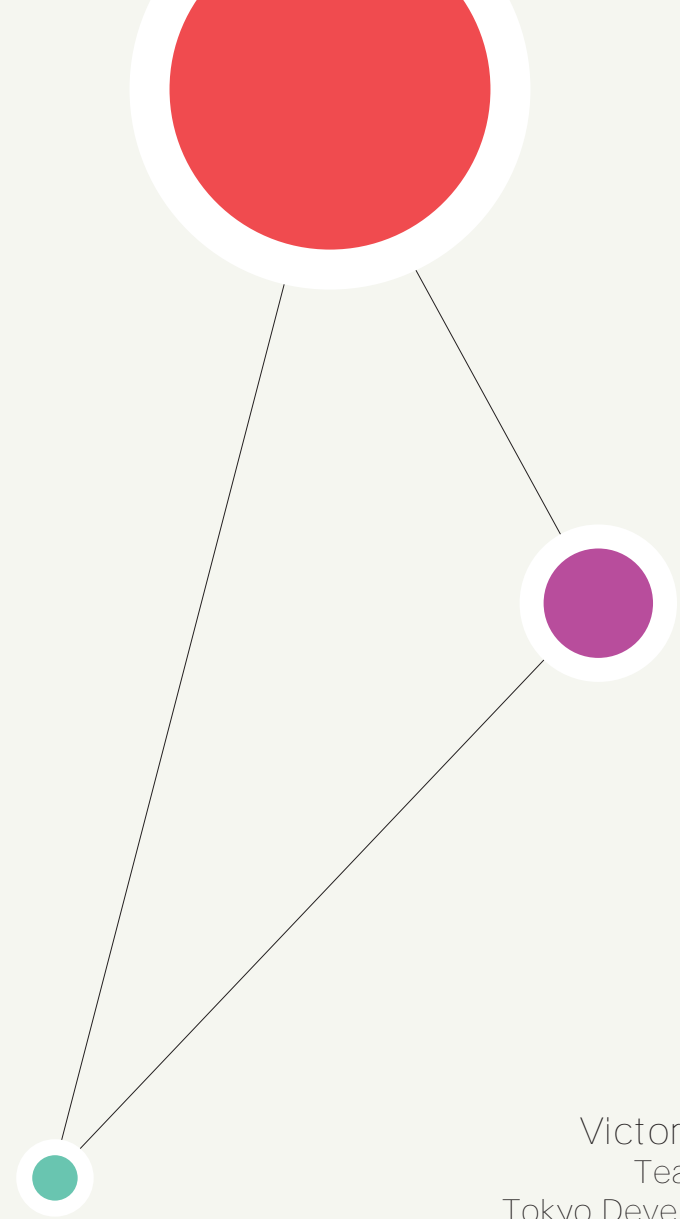
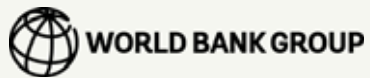


<https://documents1.worldbank.org/curated/en/977211634185509759/pdf/Tokyo-Start-Up-Ecosystem.pdf>

Boosting Japan's Startup Ecosystem

The great potential
for Japanese innovation rebound

**Tokyo
Development
Learning
Center**



Victor Mulas
Team Lead
Tokyo Development
Learning Center

Notes

The findings of this presentation is supported by the secondary data sources, complemented by some primary data.

The main data sources used for the analysis of Japan were compiled through a survey of Japanese start-up founders and ecosystem stakeholders, which was conducted by the Cabinet Office under the guidance of the World Bank team (Dataset #1).

Dataset #1

Sample size:
3,914 start-ups and an overall
6,086 ecosystem entities
(including start-ups)

Geographical location:
Tokyo, Kansai (Kobe, Kyoto,
and Osaka), and Fukuoka

Sample information:
each company's founding year,
address, type of business,
founder's information (such as
education and previous jobs),
and the associated investors and
accelerators

Data from New York ecosystem
was collected by Endeavour
Insights in 2014 and it includes an
overall of 9,168 ecosystem
entities (including start-ups)

Dataset #2

Sample size:
3,131 startups and 5,991 associated
investors in the following deep-
tech sectors: Artificial Intelligence
(AI), Robotics, Space-Tech and
Quantum Computer (QC)

Sample information:
Start-up location (global), investor
location (global), investment
relations within cluster and among
clusters (global)

Dataset #3

Sample size:
65 accelerator programs (global)

Sample information:
accelerator programs, location,
management entities, supporting
entities, type of accelerator,
associated start-ups and
mentors

Technical Notes

Slides 12, 13, 14 and 19:

Dots represent ecosystem stakeholders. Lines represent connections between stakeholders and start-ups based on stakeholder role (e.g., investor connection is an investment, accelerator connection is participation in the acceleration, school connection is education of start-up founder in such school).

Slide 15

Data here are artificial intelligence, robotics, space technology, and quantum computer. Only the frontier use of those technologies is included. The use of technologies that is accessory (e.g., a noncore use of the technology for the business model) is not included. Startups and investors are clustered by location of origin. The dots represent these clusters. The size of the dots is proportionate to the number of startups and investors in each cluster. The larger the size of a cluster the larger the number of start-ups (receiving investment) and investors (making investments) a cluster has.

Slide 16

For benchmarking purposes, stages have been unified to the international standard followed by CBInsights: seed stage for deals below US\$3M; early stage for deals between US\$3 million and US\$5 million and late stage for deals above US\$5 million, INITIAL data are based on funding received by start-ups per investment series, which have been adapted to follow the CBInsights value criteria. For Japan ticket size stages, VEC classifications may differ as the value of each state referred to is not disclosed. Instead, VEC methodology refers to the stage of the company, which may not correspond with CBInsights' classification, especially for early and late stages. For benchmarking purposes, VEC classifications of early stage and expanding stage have been merged into early stage.

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