

2023 Global Startup Campus Initiative Research

International comparative research on startup ecosystems - Overview of current ecosystems and international comparisons

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This comparative research and analyses on international startup ecosystems were conducted to facilitate the Global Startup Campus Initiative

Objective

- Support for universities and startups enhances the two fundamental driving forces of innovation, and there exists a need to leverage the latent capabilities of new technology generated through high-quality basic research by incorporating that technology into businesses with the potential to dominate global markets.
- This initiative is aimed at establishing a flagship institution for Deep Tech research and business incubation facilitated through collaboration with overseas universities and other partner institutions as well as by extending invitations to highly skilled researchers for visits, fellowships and other programs. The expectation is to grow the institution into the central hub for international academic collaborations spanning from basic research to the incubation of startups.
- The international comparison of startup ecosystems conducted herein constitutes the research and analyses required to facilitate further discussion of the institution.

Methodology

• The research was carried out using proprietary databases and publicly available information to conduct three respective city-level and country-level comparisons of startups, universities and investors.

Research Sources	 PitchBook AUTM (Association of University Technology Managers) STATT Database Other public information 			
Countries and cities of this research	Countries• US• India• UK• Singapore• France• China• Germany• South Korea• Israel• Japan and others	Cities• Silicon Valley• London• New York• Paris• Boston• Berlin• Texas• Greater Tokyo Area and others		
Objectives	Startups• To understand startup ecosystems through the lenses of funding, employee compensations, exits, human resources, and other factorsUniversities• To understand the circumstances governing intellectual property owned by universities (research expenses, patents and licensing) and startup investments by universitiesInvestors• To understand the total population and investments made by four types of investors (LP, VC, angel and accelerator)			

* Refer to Appendix for a detailed overview of research methods utilized.

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Corporations

Term	Definition	Reference
Startup	A company that has received venture capital (VC) funding. Companies that have obtained venture capital funding only through grants, debt, IPOs and M&As are excluded from the scope of startups	• PitchBook
VC funding	The receipt of funds from a VC	• PitchBook
Deep Tech	PitchBook industrial categories equivalent to the industry and technology sectors defined as Deep Tech in published reports and other media, including AI, computers, energy and environment, biotechnology and healthcare, materials and manufacturing, aerospace, food and agriculture	 PitchBook 2022 Global Startup Campus Initiative preliminary analysis report (Cabinet Office, Japan) Deep-tech Startups Support Project (Ministry of Economy, Trade and Industry, Japan) MIT reports (US) International Finance Corporation (IFC) reports The European Deep Tech Report Hello Tomorrow (France)
Deep Tech startup	A startup associated with Deep Tech	-
Unicorn company	An unlisted (private) startup with a valuation of at least USD1 billion. Companies that have received funding from investors with a PitchBook-defined growth/expansion type are also included in this definition regardless of their VC funding history.	PitchBookCB Insights
University spin-out company	A company newly established for the purpose of commercializing intellectual property (patents), new technology or business methods created through university research activities	 AUTM databases (US, Canada) Beauhurst reports (UK) University spin-out venture database (Ministry of Economy, Trade and Industry, Japan) Annual report of National University of Singapore and Nanyang Technological University (Singapore)

Country	Term	Definition	Reference
US	Silicon Valley	San Francisco County and San Jose City, State of California, US	-
US	New York	State of New York	-
US	Boston	Cities of Boston and Cambridge, Commonwealth of Massachusetts, US	-
US	Texas	State of Texas	-
UK	London	Greater London	-
France	Paris	City of Paris	-
Germany	Berlin	City-state of Berlin	-
Israel	Tel Aviv	The Tel Aviv District	-
Singapore	Singapore	Republic of Singapore	-
South Korea	Seoul	Seoul Special City	-
Japan	Greater Tokyo Area	Tokyo, Kanagawa, Saitama and Chiba prefectures	-
Japan	Kansai Area	Osaka, Kyoto and Hyogo prefectures	-
Japan	Aichi Prefecture	Aichi Prefecture	-
Japan	Fukuoka Prefecture	Fukuoka Prefecture	-

Cities

Term	Definition	Reference
Gender (male/female/other)	PitchBook categories	• PitchBook
STEM degree holder	STEM (science, technology, engineering, and mathematics): Individuals with degrees in natural science, mathematics, statistics, engineering, information science or similar disciplines Degree holder: Individuals who received a bachelor's, master's or doctoral degree between	 OECD reports Ministry of Education website (Singapore) Ministry of Education, Culture, Sports, Science and Technology's School Basic Survey (Japan)

Person

Universities

Term	Definition	Reference
University	An academic institution authorized by the laws of a given country to conduct education and research For the purposes of this research, the term also includes dedicated research facilities without educational functions.	-
Licensing revenue	Cash revenue attributable to a university and generated through the licensing of patents	 AUTM (US) Status of Industry-Academia Collaboration at Universities (Ministry of Education, Culture, Sports, Science and Technology, Japan)

Investors

Term	Definition	Reference
LP investor	An investor whose investor type on PitchBook is "Limited Partners"	• PitchBook
VC investor	An investor whose investor type on PitchBook is "Venture Capital" or "Angel (Group)"	• PitchBook
Angel investor	An investor whose investor type on PitchBook is "Angel (individual)"	• PitchBook
Accelerator/Incubator	An investor whose investor type on PitchBook is "Accelerator/Incubator"	• PitchBook

Chapter 1 Startups

Chapter 2 Universities

Chapter 3 Investors

Chapter 1 Startups

1.1 Number of companies

1.1.1 Number of startups

- 1.2 Business growth
- 1.3 Human resources

The US outstrips other countries in number of startups, holding 20-fold that of Japan. Sequentially, the next largest after the US are China, the UK and France



Number of startups by country

Source: PitchBook (Retrieved January 2024) 1) The number of startups includes that of Deep Tech startups

High concentration of startups in Silicon Valley, New York and London. As of 2022, Silicon Valley startups outnumber those in the Greater Tokyo Area by a factor of three



High concentration of Deep Tech startups in Silicon Valley, New York and London. As of 2022, the number of Deep Tech startups in Silicon Valley is approximately triple that of the Greater Tokyo Area, an amount similar to the gap in overall startup numbers

Number of Deep Tech startups by city



The US outstrips other countries in number of university spin-out companies, holding 9.3 times that of Japan



Number of university spin-out companies (as of 2023)

Source: AUTM (US, Canada), Beauhurst (UK), University spin-out venture database of Ministry of Economy, Trade and Industry (Japan), Annual report of National University of Singapore and Nanyang Technological University (Singapore)

Chapter 1 Startups

- 1.1 Number of companies
- **1.2** Business growth

1.2.1 Funding

1.2.2 Number of startups by funding size

1.2.3 Employee compensation

1.2.4 Exit

1.3 Human resources

1.2 Business growth - 1.2.1 Funding

Silicon Valley is the location with the largest total amount of funds raised by startups. Startup investments in the US peaked in 2021



Total amount of funds raised by startups

Silicon Valley is the location with the largest total amount of funds raised by Deep Tech startups



Total amount of funds raised by Deep Tech startups

Major US and UK cities stand prominent in rankings of the number of funding deals by startups. The Greater Tokyo Area ranks highest among Asian cities, but Singapore and Seoul have gained ground in recent years



Silicon Valley is the location with the largest number of funding deals by Deep Tech startups. In Asia, Singapore overtook the Greater Tokyo Area in 2021



The average amount of funds raised by startups located in the Greater Tokyo Area is smaller than that recorded in other overseas cities and remained flat in 2021 despite the significant increases seen elsewhere during that year



Average amount of funds raised by startups

■ 2018 ■ 2019 ■ 2020 **■** 2021 **■** 2022

Source: PitchBook (Retrieved December 2023)

1) Aichi Prefecture had a high amount of funds in 2022 because of a startup which raised over JPY10 billion despite a small number of funding startups in the prefecture

Since 2020, Boston has outpaced Silicon Valley in the average amount of funds raised by Deep Tech startups. The Greater Tokyo Area trends at lower levels than cities in other countries



Average amount of funds raised by Deep Tech startups

■ 2018 ■ 2019 ■ 2020 ■ 2021 ■ 2022

Source: PitchBook (Retrieved December 2023)

1) Aichi Prefecture had a high amount of funds in 2022 because of a startup which raised over JPY10 billion despite a small number of funding startups in the prefecture

The median value of funds raised by startups is high in Silicon Valley, Boston and Tel Aviv. Overall, the median is increasing yearly, but the Greater Tokyo Area shows a smaller growth rate than the others



Median value of funds raised by startups

Silicon Valley, Boston and Tel Aviv rank high in a city-level comparison of the median value of funds raised by Deep Tech startups



Median value of funds raised by Deep Tech startups

1.2 Business growth - 1.2.1 Funding

In a city-level comparison of total startup funding per capita, Silicon Valley stands out by a large margin. Japanese cities rank lower than other cities



Source: PitchBook (Retrieved October 2023), Silicon Valley Indicator, and local government websites etc 1) Total funding is the accumulated amount of startup funding by startups between 2018 and 2022 2) Population is based on the data as of 2023 or the latest year in public statistics by city

Chapter 1 Startups

- 1.1 Number of companies
- **1.2** Business growth
 - 1.2.1 Funding

1.2.2 Number of startups by funding size

1.2.3 Employee compensation

1.2.4 Exit

1.3 Human resources

Silicon Valley has the most startups that raised over JPY1 billion. In the Greater Tokyo Area, the rate of decrease in the total number of startups in a given funding category is higher than in other areas, growing sharply as the funding level increases



Number of startups that raised at least JPY1 billion

Silicon Valley has the greatest number of Deep Tech startups that raised over JPY1 billion. In the Greater Tokyo Area, the rate of decrease in the total number of startups in a given funding category is higher than in other areas, growing sharply as the funding level increases



Number of startups that raised over JPY1 billion (Deep Tech)

Boston beats Silicon Valley in a ranking of the ratio of startups that raised over JPY1 billion



Ratio of startups with at least JPY1 billion in raised funds among all startups

Boston remains highest in a ranking of the ratio of startups that raised over JPY1 billion even when the analysis is limited solely to Deep Tech startups



Ratio of startups with at least JPY1 billion in raised funds among all startups (Deep Tech)

The US boasts the greatest number of unicorn companies. Japan ranks 15th globally, surpassed by Asian countries including China, India, South Korea and Singapore



Number of unicorn companies

Source: PitchBook (Retrieved December 2023), Company websites

*1) Those written in bold letters are Deep Tech unicorn companies

2) The graph indicates the detailed data of countries which have more unicorn companies than Japan

The US has the greatest number of Deep Tech unicorn companies. Japan ranks 15th globally, surpassed by Asian countries including China, India, South Korea and Singapore



Number of unicorn companies (Deep Tech)

Source: PitchBook (Retrieved October 2023), Company websites 1) The graph indicates the detailed data of countries which have more unicorn companies than Japan
China and India boast the highest ratios of unicorn companies as a proportion of startups. Japan ranks lowest among all countries researched



Ratio of unicorn companies to total number of startups

Source: PitchBook (Retrieved January 2024)

1) The graph indicates the detailed data of countries which have more unicorn companies than Japan

The ratio of Deep Tech unicorn companies to total number of Deep Tech startups is highest in the US, China and India. Japan ranks lowest among all countries researched



Ratio of unicorn companies to total number of startups (Deep Tech)

Source: PitchBook (Retrieved January 2024) 1) The graph indicates the detailed data of countries which have more unicorn companies than Japan

Chapter 1 Startups

- 1.1 Number of companies
- **1.2** Business growth
 - 1.2.1 Funding

1.2.2 Number of startups by funding size

1.2.3 Employee compensation

1.2.4 Exit

1.3 Human resources

The incentive rate provided to employees of Japanese startups is lower than that in their US and European equivalents. In Japan and the US, the incentive rate shows a positive correlation with the number of startup funding rounds, while it remains flat throughout in Europe



Comparison of incentive rates in Japan, the US and Europe

Source: Stock option records in the certificate of full open and closed registry records of 100 Japanese startups (Japan), State of European Tech 2022 (US, Europe)

1) Target employees for incentives in this research are all company members, including executives

2) Overseas startups do not disclose their stock options records; thus, employee ownership data is adopted to compare with Japanese stock option data in the light of employee incentives

Chapter 1 Startups

- 1.1 Number of companies
- **1.2** Business growth
 - 1.2.1 Funding

1.2.2 Number of startups by funding size

1.2.3 Employee compensation

1.2.4 Exit

1.3 Human resources

As an exit strategy, Japanese startups tend to use IPOs, while overseas startups favor M&As



Number of startup exits since 2010

Source: PitchBook (Retrieved October 2023)

1) Startups which conducted IPO or were acquired through M&A from 2010 are the subject of this research

In a city-level comparison of the number of IPOs completed by startups, the Greater Tokyo Area outranks other cities



Number of startup IPOs since 2010

Source: PitchBook (Retrieved October 2023)

1) Startups which conducted IPO from 2010 are the subject of this research

Startups in Japanese cities conduct IPOs at higher rates than in other countries



Proportion of startups conducting IPOs since 2010

Source: PitchBook (Retrieved October 2023) 1) Startups which conducted IPO from 2010 are the subject of this research In a city-level comparison of average market capitalization at the time of the IPO, Silicon Valley outranks its peers. Both average and median values in Japanese cities are lower than in peer cities



Startup market capitalization value at the time of IPO since 2010

Source: Company information database and other published information

1) Startups which conducted IPO from 2010 are the subject of this research

2) Non-Japanese currencies are converted to JPY by referring to the exchange rate list of the International Monetary Fund (Retrieved November 7, 2023)

Startups may launch IPOs on stock exchanges located outside their home countries. For example, there are non-US startups that are listed on US NASDAQ



Non-US startups listed on NASDAQ

Some founders of non-US startups listed on NASDAQ contribute to the development of startup ecosystems in their home countries (1/2)



Source: Mr. Sumant Sinha's official website etc

Some founders of non-US startups listed on NASDAQ contribute to the development of startup ecosystems in their home countries (2/2)



In a city-level comparison of startups acquired through M&A, a notably higher volume of startups in Silicon Valley and New York have been acquired through such means. In Japanese cities, M&As are less frequent than in peer cities



Number of startups merged or acquired in or after 2010

Source: PitchBook (Retrieved October 2023)

1) Startups which were acquired through M&A from 2010 are the subject of this research

Acquisition rates of startups are highest in Silicon Valley and Boston. With the exception of the Greater Tokyo Area, Japanese cities record lower rates than peer cities



Ratio of startups acquired through M&A since 2010

Source: PitchBook (Retrieved October 2023

1) Startups which were acquired through M&A from 2010 are the subject of this research

In a city-level comparison of startups acquired through M&A, the total values of M&A is largest in Silicon Valley. The total value of M&A deals conducted in the Greater Tokyo Area is low

Total M&A deal value



Source: PitchBook, Company information database and other published information (Retrieved December 2023)

1) Startups which were acquired through M&A from 2010 and revealed their M&A value are the subject of this research

2) The graph does not include the data of Kansai Area, Aichi Prefecture and Fukuoka Prefecture due to their small amount of samples

M&A deal value per startup is largest in Silicon Valley and Texas. The figure for the Greater Tokyo Area is about one-fourth of that of the highest value, found in Silicon Valley



M&A deal value per startup

Source: PitchBook, Company information database and other published information (Retrieved December 2023)

1) Startups which were acquired through M&A from 2010 and revealed their M&A value are the subject of this research

2) The graph does not include the data of Kansai Area, Aichi Prefecture and Fukuoka Prefecture due to their small amount of samples

[Silicon Valley] When looking at the buy side, no particular company dominates the majority of M&As completed in each city

M&A top 15 companies in number of acquisitions			
#	Company name	Industry	Number of M&As
1	Alphabet	Software	10
2	Cisco	Commercial Services	9
3	Yahoo	Media	7
4	Microsoft	Software	5
5	Intel	Semiconductors	5
6	Red Hat	IT Services	5
7	Roche	Pharmaceuticals and Biotechnology	5
8	Salesforce	Software	4
9	Lumentum	Communications and Networking	4
10	NortonLifeLock	Other Business Products and Services	4
11	Palo Alto Networks	Software	4
12	Boston Scientific	Healthcare Devices and Supplies	4
13	INPHI	Semiconductors	4
14	Medtronic	Healthcare Devices and Supplies	4
15	TIBCO Software	Software	4

Companies that merged or acquired startups based in Silicon Valley

	M&A top 15 companies in values (unit: USD1 million)			
-	Company name	Industry	M&A value	
1	Advanced Micro Devices	Semiconductors	70,000	
2	Microsoft	Software	61,600	
3	AbbVie	Pharmaceuticals and Biotechnology	42,000	
4	Teladoc Health	Healthcare Services	37,000	
5	Salesforce	Software	36,280	
6	Intel	Semiconductors	34,800	
7	Infineon Technologies	Semiconductors	20,000	
8	Western Digital	Computer Hardware	19,000	
9	Pfizer	Pharmaceuticals and Biotechnology	14,000	
10	Marvell	Semiconductors	12,200	
11	Apollo	Software	10,000	
12	Cisco	Commercial Services	8,520	
13	Microchip Technology	Semiconductors	7,200	
14	Lam Research	Commercial Services	6,600	
15	Edelman Financial Engines	Finance	6,400	

Source: PitchBook, Company information database and other published information (Retrieved December 2023)

1) Industry information is cited from PitchBook

2) Startups which were acquired through M&A from 2010 and revealed their M&A value are the subject of this research (Silicon Valley: 475 deals)

[New York] When looking at the buy side, no particular company dominates the majority of M&As completed in each city

M&A top 15 companies in number of acquisitions			
#	Company name	Industry	Number of M&As
1	Alphabet	Software	4
2	Adobe	Software	3
3	Flutter Entertainment	Restaurant, Hotels and Leisure	2
4	Salesforce	Software	2
5	Adecco Group	Commercial Services	2
6	Bustle Digital Group	Media	2
7	Yahoo	Media	2
8	Sanofi	Pharmaceuticals and Biotechnology	1
9	Prosus	Finance	1
10	Amadeus IT Group	Software	1
11	Apple	Consumer Durables	1
12	Eli Lilly	Pharmaceuticals and Biotechnology	1
13	Oracle	Software	1
14	Deutsche Börse	Finance	1
15	2U	Software	1

Companies that merged or acquired startups based in New York

	M&A top 15 companies in values (unit: USD1 million)			
	Company name	Industry	M&A value	
1	Flutter Entertainment	Restaurant, Hotels and Leisure	4,228	
2	Sanofi	Pharmaceuticals and Biotechnology	1,900	
3	Prosus	Finance	1,800	
4	Adobe	Software	1,534	
5	Amadeus IT Group	Software	1,520	
6	Salesforce	Software	1,449	
7	Alphabet	Software	1,042	
8	Apple	Consumer Durables	1,000	
9	Eli Lilly	Pharmaceuticals and Biotechnology	880	
10	Oracle	Software	850	
11	Deutsche Börse	Finance	850	
12	2U	Software	750	
13	Menarini	Pharmaceuticals and Biotechnology	677	
14	Vitol	Commercial Services	580	
15	Auction Technology Group	Commercial Services	525	

Source: PitchBook, Company information database and other published information (Retrieved December 2023)

1) Industry information is cited from PitchBook

2) Startups which were acquired through M&A from 2010 and revealed their M&A value are the subject of this research (New York: 133 deals)

[Boston] When looking at the buy side, no particular company dominates the majority of M&As completed in each city. However, many of acquiring companies in Boston are pharmaceutical and biotech companies

M&A top 15 companies in number of acquisitions				
#	Company name	Industry	Number of M&As	
1	Eli Lilly	Pharmaceuticals and Biotechnology	3	
2	Merck	Pharmaceuticals and Biotechnology	2	
3	Alexion Pharmaceuticals	Pharmaceuticals and Biotechnology	2	
4	Regeneron Pharmaceuticals	Pharmaceuticals and Biotechnology	2	
5	Millennial Media	Commercial Services	2	
6	Rapid7	Software	2	
7	Johnson & Johnson	Pharmaceuticals and Biotechnology	1	
8	Takeda Pharmaceutical Company	Pharmaceuticals and Biotechnology	1	
9	Sumitomo Pharma	Pharmaceuticals and Biotechnology	1	
10	Exact Sciences	Healthcare Devices and Supplies	1	
11	One Medical	Healthcare Services	1	
12	UCB	Pharmaceuticals and Biotechnology	1	
13	GSK	Pharmaceuticals and Biotechnology	1	
14	International Business Machines	Computer Hardware	1	
15	MorphoSys	Pharmaceuticals and Biotechnology	1	

Companies that merged or acquired startups based in Boston

	M&A top 15 companies in values (unit: USD1 million)			
	Company name	Industry	M&A value	
1	Merck	Pharmaceuticals and Biotechnology	15,350	
2	Johnson & Johnson	Pharmaceuticals and Biotechnology	6,500	
3	Takeda Pharmaceutical Company	Pharmaceuticals and Biotechnology	5,200	
4	Sumitomo Pharma	Pharmaceuticals and Biotechnology	2,630	
5	Exact Sciences	Healthcare Devices and Supplies	2,150	
6	One Medical	Healthcare Services	2,100	
7	UCB	Pharmaceuticals and Biotechnology	2,100	
8	GSK	Pharmaceuticals and Biotechnology	2,100	
9	International Business Machines	Computer Hardware	2,000	
10	MorphoSys	Pharmaceuticals and Biotechnology	1,700	
11	OpenText	Software	1,420	
12	Alexion Pharmaceuticals	Pharmaceuticals and Biotechnology	1,311	
13	Uber	Software	1,100	
14	Scopely	Software	1,000	
15	Vertex Pharmaceuticals	Pharmaceuticals and Biotechnology	950	

Source: PitchBook, Company information database and other published information (Retrieved December 2023)

1) Industry information is cited from PitchBook

2) Startups which were acquired through M&A from 2010 and revealed their M&A value are the subject of this research (Boston: 91 deals)

[Texas] When looking at the buy side, no particular company dominates the majority of M&As completed in each city

M&A top 15 companies in number of acquisitions			
#	Company name	Industry	Number of M&As
1	Amazon.com	Retail	1
2	Equinor	Exploration, Production and Refining	1
3	Expedia Group	Restaurant, Hotels and Leisure	1
4	Fortive	Computer Hardware	1
5	Smith & Nephew	Healthcare Devices and Supplies	1
6	Patient Square Capital	Other Financial Services	1
7	Zimmer Biomet	Healthcare Devices and Supplies	1
8	Rev	Software	1
9	Temenos	Software	1
10	Pitney Bowes	Commercial Services	1
11	Ziff Davis	Commercial Services	1
12	NRG Energy	Utilities	1
13	Blackbaud	Software	1
14	PMC Sierra	Semiconductors	1
15	project44	Commercial Services	1

Companies that merged or acquired startups based in Texas

	M&A top 15 companies in values (unit: USD1 million)				
:	Company name	Industry	M&A value		
1	Amazon.com	Retail	13,700		
2	Equinor	Exploration, Production and Refining	4,400		
3	Expedia Group	Restaurant, Hotels and Leisure	3,900		
4	Fortive	Computer Hardware	2,000		
5	Smith & Nephew	Healthcare Devices and Supplies	1,700		
6	Patient Square Capital	Other Financial Services	1,250		
7	Zimmer Biomet	Healthcare Devices and Supplies	1,000		
8	Rev	Software	1,000		
9	Temenos	Software	559		
10	Pitney Bowes	Commercial Services	475		
11	Ziff Davis	Commercial Services	420		
12	NRG Energy	Utilities	350		
13	Blackbaud	Software	325		
14	PMC Sierra	Semiconductors	300		
15	project44	Commercial Services	255		

Source: PitchBook, Company information database and other published information (Retrieved December 2023)

1) Industry information is cited from PitchBook

2) Startups which were acquired through M&A from 2010 and revealed their M&A value are the subject of this research (Texas: 38 deals)

[London] When looking at the buy side, no particular company dominates the majority of M&As completed in each city

M&A top 15 companies in number of acquisitions			
#	Company name	Industry	Number of M&As
1	Alphabet	Software	2
2	Just Eat Takeaway.com	Restaurant, Hotels and Leisure	2
3	Recruit Holdings	Commercial Services	2
4	Monitise	Software	2
5	Fairfax Financial Holdings	Other Financial Services	1
6	Bally's	Restaurant, Hotels and Leisure	1
7	Wipro	IT Services	1
8	Pure Health	Healthcare Services	1
9	Visa	Other Financial Services	1
10	Paysafe	Software	1
11	Kinnick	Other Financial Services	1
12	Cisco	Commercial Services	1
13	BioNTech	Pharmaceuticals and Biotechnology	1
14	Lloyds Banking Group	Finance	1
15	Coca-Cola	Consumer Non-Durables	1

Companies that merged or acquired startups based in London

	M&A top 15 companies in values (unit: USD1 million)			
ŧ	Company name	Industry	M&A value	
1	Fairfax Financial Holdings	Other Financial Services	10,900	
2	Bally's	Restaurant, Hotels and Leisure	2,765	
3	Wipro	IT Services	1,450	
4	Pure Health	Healthcare Services	1,200	
5	Visa	Other Financial Services	964	
6	Paysafe	Software	936	
7	Kinnick	Other Financial Services	859	
8	Cisco	Commercial Services	725	
9	BioNTech	Pharmaceuticals and Biotechnology	683	
10	Alphabet	Software	561	
11	Lloyds Banking Group	Finance	544	
12	Coca-Cola	Consumer Non-Durables	500	
13	Savvy Games Group	Other Financial Services	500	
14	MedImmune	Pharmaceuticals and Biotechnology	440	
15	Chegg	Services (Non-Financial)	436	

Source: PitchBook, Company information database and other published information (Retrieved December 2023)

1) Industry information is cited from PitchBook

2) Startups which were acquired through M&A from 2010 and revealed their M&A value are the subject of this research (London: 87 deals)

[Paris] When looking at the buy side, no particular company dominates the majority of M&As completed in each city

M&A top 15 companies in number of acquisitions			
#	Company name	Industry	Number of M&As
1	Concentrix	Commercial Services	1
2	Honeywell	Computer Hardware	1
3	Medtronic	Healthcare Devices and Supplies	1
4	vivendi	Media	1
5	Getaround	Transportation	1
6	AVIV Group	Services (Non-Financial)	1
7	Snap	Software	1
8	FuboTV	Media	1
9	Dassault Systemes	Software	1
10	Tripadvisor	Commercial Services	1
11	DoubleVerify	Software	1
12	Altus Group	Commercial Services	1
13	Flink	Retail	1
14	Red Hat	IT Services	1
15	Adecco	Commercial Services	1

Companies that merged or acquired startups based in Paris

	M&A top 15 companies in values (unit: USD1 million)				
	Company name	Industry	M&A value		
1	Concentrix	Commercial Services	4,800		
2	Honeywell	Computer Hardware	1,400		
3	Medtronic	Healthcare Devices and Supplies	800		
4	vivendi	Media	317		
5	Getaround	Transportation	300		
6	AVIV Group	Services (Non-Financial)	222		
7	Snap	Software	213		
8	FuboTV	Media	190		
9	Dassault Systemes	Software	162		
10	Tripadvisor	Commercial Services	140		
11	DoubleVerify	Software	125		
12	Altus Group	Commercial Services	119		
13	Flink	Retail	104		
14	Red Hat	IT Services	95		
15	Adecco	Commercial Services	77		

Source: PitchBook, Company information database and other published information (Retrieved December 2023)

1) Industry information is cited from PitchBook

2) Startups which were acquired through M&A from 2010 and revealed their M&A value are the subject of this research (Paris: 30 deals)

[Berlin] When looking at the buy side, no particular company dominates the majority of M&As completed in each city

M&A top 15 companies in number of acquisitions			
#	Company name	Industry	Number of M&As
1	Getir	Services (Non-Financial)	1
2	AppLovin	Commercial Services	1
3	Digital Turbine	Software	1
4	Recruit Holdings	Commercial Services	1
5	Zalando	Retail	1
6	NuCom Group	Finance	1
7	Hoffmann	Commercial Services	1
8	Institut Straumann	Healthcare Devices and Supplies	1
9	Nets	Software	1
10	Alibaba Group	Retail	1
11	Lightspeed POS	Software	1
12	Confluent	Software	1
13	Cellink	Commercial Services	1
14	Market Tech Holdings	Services (Non-Financial)	1
15	Klarna	Software	1

Companies that merged or acquired startups based in Berlin

M&A top 15 companies in values (unit: USD1 million)			
	Company name	Industry	M&A value
1	Getir	Services (Non-Financial)	1,160
2	AppLovin	Commercial Services	1,000
3	Digital Turbine	Software	600
4	Recruit Holdings	Commercial Services	219
5	Zalando	Retail	208
6	NuCom Group	Finance	161
7	Hoffmann	Commercial Services	145
8	Institut Straumann	Healthcare Devices and Supplies	138
9	Nets	Software	104
10	Alibaba Group	Retail	103
11	Lightspeed POS	Software	101
12	Confluent	Software	100
13	Cellink	Commercial Services	95
14	Market Tech Holdings	Services (Non-Financial)	77
15	Klarna	Software	75

Source: PitchBook, Company information database and other published information (Retrieved December 2023)

1) Industry information is cited from PitchBook

2) Startups which were acquired through M&A from 2010 and revealed their M&A value are the subject of this research (Berlin: 27 deals)

[Tel Aviv] When looking at the buy side, no particular company dominates the majority of M&As completed in each city

M&A top 15 companies in number of acquisitions			
#	Company name	Industry	Number of M&As
1	Akamai Technologies	Software	2
2	International Business Machines	Computer Hardware	2
3	Samsung Electronics	Consumer Durables	2
4	Nano Dimension	Commercial Services	2
5	Unity	Software	1
6	Check Point Software Technologies	Software	1
7	Playtika	Software	1
8	Apple	Consumer Durables	1
9	Valmont Industries	Agriculture	1
10	JFrog	Software	1
11	Gen Digital	Software	1
12	LG Electronics	Consumer Durables	1
13	Amazon.com	Retail	1
14	Augury	Computer Hardware	1
15	Asurion	Finance	1

Companies that merged or acquired startups based in Tel Aviv

M&A top 15 companies in values (unit: USD1 million)			
	Company name	Industry	M&A value
1	Unity	Software	4,400
2	Akamai Technologies	Software	620
3	Check Point Software Technologies	Software	490
4	Playtika	Software	380
5	Apple	Consumer Durables	360
6	Valmont Industries	Agriculture	300
7	JFrog	Software	300
8	Gen Digital	Software	250
9	LG Electronics	Consumer Durables	240
10	International Business Machines	Computer Hardware	210
11	Amazon.com	Retail	200
12	Samsung Electronics	Consumer Durables	185
13	Augury	Computer Hardware	140
14	Asurion	Finance	130
15	Nano Dimension	Commercial Services	129

Source: PitchBook, Company information database and other published information (Retrieved December 2023)

1) Industry information is cited from PitchBook

2) Startups which were acquired through M&A from 2010 and revealed their M&A value are the subject of this research (Tel Aviv: 36 deals)

[Singapore] When looking at the buy side, no particular company dominates the majority of M&As completed in each city

	M&A top 15 companies in number of acquisitions				
#	Company name	Industry	Number of M&As		
	1 iFashion Group	Finance	2		
	2 Alibaba Group	Retail	1		
	3 EDP Renováveis	Exploration, Production and Refining	1		
	4 eBay	Retail	1		
	5 MatchMove	Software	1		
	6 Keppel	Other Financial Services	1		
	7 Great Learning	Software	1		
	8 Xurpas	Software	1		
	9 Appen	Commercial Services	1		
1	0 Thunes	Software	1		
1	1 OxPay	Software	1		
1	2 BrightChamps	Software	1		
1	3 Coats Group	Textiles	1		
1	4 Shippit	Commercial Services	1		
1	5 Invigor Group	IT Services	1		

Companies that merged or acquired startups based in Singapore

	M&A top 15 companies in values (unit: USD1 million)				
:	Company name	Industry	M&A value		
1	Alibaba Group	Retail	1,000		
2	EDP Renováveis	Exploration, Production and Refining	816		
3	еВау	Retail	573		
4	MatchMove	Software	200		
5	Керреі	Other Financial Services	150		
6	Great Learning	Software	100		
7	Xurpas	Software	45		
8	Appen	Commercial Services	25		
9	Thunes	Software	20		
10	ОхРау	Software	19		
11	BrightChamps	Software	15		
12	Coats Group	Textiles	12		
13	Shippit	Commercial Services	11		
14	Invigor Group	IT Services	10		
15	iFashion Group	Finance	8		

Source: PitchBook, Company information database and other published information (Retrieved December 2023)

1) Industry information is cited from PitchBook

2) Startups which were acquired through M&A from 2010 and revealed their M&A value are the subject of this research (Singapore: 19 deals)

[Greater Tokyo Area] When looking at the buy side, no particular company dominates the majority of M&As completed in each city

M&A top 13 companies in number of acquisitions			
#	Company name	Industry	Number of M&As
1	UNITED	Commercial Services	2
2	Micron Technology	Computer Hardware	1
3	Funimation Productions	Media	1
4	KDDI	Communications and Networking	1
5	Monex Group	Finance	1
6	Mediba	Software	1
7	Money Forward	Software	1
8	Akatsuki	Software	1
9	Crooz	Retail	1
10	ItoKuro	Media	1
11	SoftBank Technology	IT Services	1
12	Marimedia	Software	1
13	i-mobile	Commercial Services	1

Companies that merged or acquired startups based in Greater Tokyo Area

M&A top 13 companies in values (unit: USD1 million)			
ł	Company name	Industry	M&A value
1	Micron Technology	Computer Hardware	2,500
2	Funimation Productions	Media	1,175
3	KDDI	Communications and Networking	181
4	Monex Group	Finance	34
5	Mediba	Software	19
6	Money Forward	Software	18
7	UNITED	Commercial Services	13
8	Akatsuki	Software	13
9	Crooz	Retail	12
10	ItoKuro	Media	7
11	SoftBank Technology	IT Services	6
12	Marimedia	Software	6
13	i-mobile	Commercial Services	3

Source: PitchBook, Company information database and other published information (Retrieved December 2023)

1) Industry information is cited from PitchBook

2) Startups which were acquired through M&A from 2010 and revealed their M&A value are the subject of this research (Greater Tokyo Area: 14 deals)

3) 13 of 14 M&A deals in the Greater Tokyo Area can be verified by published sources

Chapter 1 Startups

- 1.1 Number of companies
- 1.2 Business growth
- **1.3** Human resources

1.3.1 Number of human resources by country

- 1.3.2 Background of Deep Tech startup founders
- 1.3.3 Gender ratio of Deep Tech startup members

The US has the most STEM degree holders but falls behind South Korea and Singapore in a per capita comparison of STEM degree holders. Japan's per capita ratio is relatively low among the countries researched



Number of STEM degree holders and per capita rate by country

Source: OECD.Stat, Ministry of Education website (Singapore), Ministry of Education, Culture, Sports, Science and Technology's School Basic Survey (Japan) 1) Population is based on the data as of 2021 in OECD.Stat

Chapter 1 Startups

- 1.1 Number of companies
- 1.2 Business growth
- **1.3** Human resources

1.3.1 Number of human resources by country

1.3.2 Background of Deep Tech startup founders

1.3.3 Gender ratio of Deep Tech startup members

In a country-level comparison, Deep Tech startup founders in China boast the greatest proportion of PhD holders . In general, there is no correlation between the number of founders and the PhD holder ratio



Ph.D holder ratio among Deep Tech startup founders

Deep Tech

Startups

Chapter 1 Startups

- 1.1 Number of companies
- 1.2 Business growth
- **1.3** Human resources
 - 1.3.1 Number of human resources by country
 - **1.3.2 Background of Deep Tech startup founders**

1.3.3 Gender ratio of Deep Tech startup members

In the US, the UK and Canada, the ratio of women among Deep Tech startup founders is higher than that of the other countries researched. India and other Asian countries follow. Japan ranks lowest among all the countries researched



Ratio of women among Deep Tech startup founders

Deep Tech

Startups

The ratio of female Deep Tech startup CxOs in China, South Korea and Japan is lower than that of the other countries researched



Ratio of female Deep Tech startup CxOs

In Japan, the ratio of female CxO is higher in listed companies than in startups



Source: PitchBook and Statistics of Cabinet Office of Japan regarding female executives at Japanese listed companies based on their financial reports (Retrieved November 2023)

Deep Tech

Startups

In a country-level comparison of the ratio of female employees at Deep Tech startups, Japan ranks lowest, which is the same as the female CxO ratio ranking



Ratio of female employees at Deep Tech startups

Chapter 1 Startups

Chapter 2 Universities

Chapter 3 Investors
Chapter 2 Universities

- 2.1 Intellectual Property
 - 2.1.1 Research expenses
 - 2.1.2 Patents
 - 2.1.3 Licensing
- 2.2 Financial contribution

Total research expenses at US universities is double that of Japanese universities. The yearly growth rate of total research expenses is also higher in the US



University research expenses and its growth since 2017

Source: Survey of Research and Development in 2022 by Ministry of Internal Affairs and Communications (Japan), AUTM (US)

1) The US currency is converted to JPY by referring to the main time-series exchange rate data of the Bank of Japan

2) The field of research expenses is not limited to the natural science

Top 10 US universities account for approximately 30% of the total research expenses by all universities in the country

Ratio of amount spent by top-ranking US universities among all university research expenses in US



Top 20 US universities with largest research expenses

#	University name	Research expenses (USD)	Ratio
1	University of California System	31,148,819,000	8.2%
2	Johns Hopkins University	17,150,364,575	4.5%
3	University of Texas System	15,862,866,324	4.2%
4	Massachusetts Institution of Technology (MIT)	9,088,380,000	2.4%
5	University of Michigan	7,921,595,487	2.1%
6	Stanford University	6,224,556,139	1.6%
7	University System of Maryland	5,674,997,852	1.5%
8	The Research Foundation for The State University of New York	5,544,183,338	1.5%
9	Cornell University	5,449,145,611	1.4%
10	Duke University	5,189,280,000	1.4%
11	University of Pennsylvania	5,147,275,801	1.4%
12	University of Minnesota	5,142,071,000	1.4%
13	Texas A&M University System	5,058,322,561	1.3%
14	Ohio State University	4,874,828,003	1.3%
15	Penn State University	4,758,681,000	1.3%
16	Harvard University	4,481,100,000	1.2%
17	University of Southern California	4,462,393,295	1.2%
18	Columbia University	4,370,047,784	1.2%
19	University of Pittsburgh	4,281,103,000	1.1%
20	Washington University of St. Louis	4,170,041,000	1.1%

Chapter 2 Universities

- 2.1 Intellectual Property
 - 2.1.1 Research expenses
 - 2.1.2 Patents
 - 2.1.3 Licensing
- 2.2 Financial contribution

The number of university patent registrations in the US is double that of Japan



Number of university patent registrations

Looking at the research expenses by patent registration, Japan overtook the US in 2019 in cost efficiency, further increasing its gap each year





Source: Japan Patent Office Annual Report and Survey of Research and Development in 2022 by Ministry of Internal Affairs and Communications (Japan), AUTM (US) 1) The US currency is converted to JPY by referring to the main time-series exchange rate data of the Bank of Japan

Top 10 US universities account for approximately 30 percent of all the patents granted to universities in the country

Ratio of patents owned by top-ranking US universities among all the patents granted to US universities



Top 20 US universities with most patent registrations

#	University name	Number of patents granted	Ratio
1	University of California System	2,847	7.3%
2	Massachusetts Institution of Technology (MIT)	1,920	4.9%
3	University of Texas System	1,286	3.3%
4	California Institution of Technology	907	2.3%
5	Johns Hopkins University	895	2.3%
6	Harvard University	869	2.2%
7	University of Michigan	844	2.2%
8	Northwestern University	760	2.0%
9	Purdue Research Foundation	759	2.0%
10	Stanford University	723	1.9%
11	University of Florida	686	1.8%
12	Arizona State University	629	1.6%
13	The General Hospital dba Massachusetts General Hospital	587	1.5%
14	Cornell University	586	1.5%
15	University of Minnesota	573	1.5%
16	Columbia University	555	1.4%
17	University of Pennsylvania	541	1.4%
18	University of Wisconsin-Madison/Wisconsin Alumni Research Foundation	518	1.3%
19	University of Pittsburgh	503	1.3%
20	University System of Maryland	487	1.3%

Top 10 Japanese universities account for approximately 40 percent of all the patents granted to universities in the country

Ratio of patents owned by top ranking Japanese universities among all the patents granted to Japanese universities



Top 20 Japanese universities with most patents granted

#	University name	Number of patents granted	Ratio
1	The University of Tokyo	1,264	7.3%
2	Tohoku University	988	5.7%
3	Osaka University	937	5.4%
4	Kyoto University	840	4.9%
5	Tokyo Institute of Technology	599	3.5%
6	Kyushu University	574	3.3%
7	Hokkaido University	395	2.3%
8	Shinshu University	364	2.1%
9	Hiroshima University	331	1.9%
10	Nagoya University	308	1.8%
11	Chiba University	302	1.7%
12	University of Tsukuba	262	1.5%
13	Okayama University	235	1.4%
14	Tokyo University of Science	234	1.4%
15	Tokai National Higher Education and Research System	230	1.3%
16	Waseda University	227	1.3%
17	Tokyo University of Agriculture and Technology	225	1.3%
18	Keio University	225	1.3%
19	Yamaguchi University	223	1.3%
20	Kansai University	220	1.3%

Source: Japan Patent Office Annual Report etc

1) The percentage shows the ratio of the accumulated amount spent by 136 universities between 2017 and 2021

Chapter 2 Universities

- 2.1 Intellectual Property
 - 2.1.1 Research expenses
 - 2.1.2 Patents

2.1.3 Licensing

2.2 Financial contribution

In a comparison of licensing revenue generated by universities, the US outearns Japan by a factor greater than 90



Source: Status of Industry-Academia Collaboration at Universities by Ministry of Education, Culture, Sports, Science and Technology (Japan), AUTM (US) 1) The US currency is converted to JPY by referring to the main time-series exchange rate data of the Bank of Japan

Japan's licensing revenue per patent is overwhelmingly lower than that of the US

University licensing revenue per patent (total licensing revenue divided by number of patent registrations)



Source: Japan Patent Office Annual Report and Status of Industry-Academia Collaboration at Universities by Ministry of Education, Culture, Sports, Science and Technology (Japan), AUTM (US) 1) The US currency is converted to JPY by referring to the main time-series exchange rate data of the Bank of Japan

2.1 Intellectual Property - 2.1.3 Licensing

Japan's ratio of profitability against research expenses is also significantly lower than that of the US



Profitability against university research expenses (total licensing revenue divided by total research expenses)

Source: Survey of Research and Development in 2022 by Ministry of Internal Affairs and Communications, and Status of Industry-Academia Collaboration at Universities by Ministry of Education, Culture, Sports, Science and Technology (Japan), AUTM (US)

1) The US currency is converted to JPY by referring to the main time-series exchange rate data of the Bank of Japan

The Top 10 universities account for nearly half of total licensing revenue generated by US universities

Ratio of amount generated by top-ranking US universities to total university licensing revenue in US



Top 20 US universities by licensing revenue

#	University name	Licensing revenue (USD)	Ratio
1	City of Hope National Medical Center & Beckman Research Institution	1,060,014,624	7.6%
2	Northwestern University	887,013,693	6.4%
3	Carnegie Mellon University	817,251,242	5.9%
4	University of Texas System	741,136,129	5.3%
5	Memorial Sloan Kettering Cancer Center	705,171,833	5.1%
6	University of California System	670,656,132	4.8%
7	The General Hospital dba Massachusetts General Hospital	624,261,162	4.5%
8	University of Pennsylvania	555,116,436	4.0%
9	Stanford University	367,625,278	2.6%
10	Mayo Foundation for Medical Education and Research	365,095,381	2.6%
11	New York University	353,845,207	2.5%
12	Harvard University	352,141,525	2.5%
13	Duke University	310,039,982	2.2%
14	Massachusetts Institution of Technology (MIT)	299,230,000	2.1%
15	University of Florida	280,926,812	2.0%
16	University of Houston	267,647,986	1.9%
17	Columbia University	218,403,188	1.6%
18	Dana-Farber Cancer Institution	200,515,125	1.4%
19	Johns Hopkins University	176,456,610	1.3%
20	Nationwide Children's Hospital	174,462,269	1.3%

Top 10 universities account for approximately 70% of total licensing revenue generated by Japanese universities

Ratio of amount generated by top-ranking Japanese universities to total university licensing revenue in Japan



Top 20 Japanese universities by licensing revenue

#	University name	Licensing revenue (JPY)	Ratio
1	Kyoto University	3,385,613,000	19.7%
2	The University of Tokyo	3,362,791,000	19.6%
3	Osaka University	1,807,767,000	10.5%
4	Kyushu University	783,851,000	4.6%
5	Tohoku University	642,875,000	3.7%
6	Tokyo Institute of Technology	608,996,000	3.5%
7	Nagoya University	551,024,000	3.2%
8	Hokkaido University	321,555,000	1.9%
9	Kobe University	311,797,000	1.8%
10	Nihon University	307,106,000	1.8%
11	Shinshu University	257,300,000	1.5%
12	Mie University	251,652,000	1.5%
13	Kitasato University	219,429,000	1.3%
14	Tokyo Medical and Dental University	206,788,000	1.2%
15	Keio University	206,033,000	1.2%
16	Yokohama City University	198,145,000	1.2%
17	Tokushima University	194,369,000	1.1%
18	Sapporo Medical University	148,124,000	0.9%
19	Hiroshima University	146,658,000	0.9%
20	Nagoya City University	121,458,000	0.7%

Chapter 2 Universities

- 2.1 Intellectual Property
- **2.2** Financial contribution

2.2.1 Ratio of university spin-out company shares held by universities

The UK stands out when comparing the ratio of university spin-out company shares held by universities in Japan, the US, the UK and EU. In every country/region, median shareholding ratio is lower than the average ratio



Ratio of university spin-out company shares held by universities

Chapter 1StartupsChapter 2Universities

Chapter 3 Investors

Chapter 3 Investors

3.1 Number of investments

3.1.1 Number of investments

- 3.2 VC investments
- 3.3 Angel investors
- 3.4 Accelerators and incubators

[Silicon Valley] When looking at investors with the most investments in each city, a selection of investors rank high across all cities

Top 20 investors with most investments

#	Number of investments	Investor name	Attribute
1	1,541	Y Combinator	Accelerator/Incubator
2	664	Plug and Play Tech Center	Accelerator/Incubator
3	425	Andreessen Horowitz	VC
4	380	Alumni Ventures	VC
5	348	Sequoia Capital	VC
6	338	500 Global	VC
7	302	Soma Capital	VC
8	273	Accel	VC
9	247	Tiger Global Management	VC
10	243	Gaingels	VC
10	243	Techstars	Accelerator/Incubator
12	235	SOSV	VC
13	231	Lightspeed Venture Partners	VC
14	229	General Catalyst	VC
15	223	Kleiner Perkins	VC
16	218	Insight Partners	Growth/Expansion
17	216	Founders Fund	VC
18	203	Khosla Ventures	VC
19	192	FJ Labs	VC
20	182	Index Ventures	VC

Top 20 investors with most investments (Deep Tech)

#	Number of investments	Investor name	Attribute
1	757	Y Combinator	Accelerator/Incubator
2	486	Plug and Play Tech Center	Accelerator/Incubator
3	239	Alumni Ventures	VC
4	236	Andreessen Horowitz	VC
5	212	SOSV	VC
6	196	Sequoia Capital	VC
7	167	500 Global	VC
8	153	Soma Capital	VC
9	148	Techstars	Accelerator/Incubator
LO	145	Accel	VC
LO	145	National Science Foundation	Government
L2	142	Tiger Global Management	VC
L3	141	Lightspeed Venture Partners	VC
L4	136	Insight Partners	Growth/Expansion
15	134	Khosla Ventures	VC
16	131	General Catalyst	VC
L7	128	Gaingels	VC
18	123	National Institutes of Health	Government
19	122	Kleiner Perkins	VC
20	120	Coinbase Ventures	CVC

[New York] When looking at investors with the most investments in each city, a selection of investors rank high across all cities

Top 20 investors with most investments

#	Number of investments	Investor name	Attribute	
1	504	Y Combinator	Accelerator/Incubator	
2	467	Plug and Play Tech Center	Accelerator/Incubator	
3	386	Techstars	Accelerator/Incubator	
4	299	Gaingels	VC	
5	282	Alumni Ventures	VC	
6	236	FJ Labs	VC	
7	226	Tiger Global Management	VC	
8	208	The National Endowment for the Arts	Government	
9	207	Insight Partners	Growth/Expansion	
10	193	Andreessen Horowitz	VC	
11	181	Bessemer Venture Partners	VC	
12	175	Sequoia Capital	VC	:
13	158	BoxGroup	VC	
14	152	General Catalyst	VC	
14	152	Lightspeed Venture Partners	VC	
14	152	SOSV	VC	
17	151	Greycroft	VC	
18	150	500 Global	VC	
19	149	Accel	VC	
20	146	Pareto Holdings	VC	

Top 20 investors with most investments (Deep Tech)

#	Number of investments	Investor name	Attribute
1	311	Plug and Play Tech Center	Accelerator/Incubator
2	235	Y Combinator	Accelerator/Incubator
3	207	Techstars	Accelerator/Incubator
4	136	Alumni Ventures	VC
5	130	Gaingels	VC
6	127	Tiger Global Management	VC
7	122	SOSV	VC
8	110	Insight Partners	Growth/Expansion
9	102	Sequoia Capital	VC
10	101	Andreessen Horowitz	VC
11	92	National Science Foundation	Government
12	86	Bessemer Venture Partners	VC
13	83	FJ Labs	VC
14	81	General Catalyst	VC
15	80	Coinbase Ventures	CVC
16	78	Google Ventures	CVC
17	76	Founders Fund	VC
17	76	Greycroft	VC
19	74	Entrepreneurs Roundtable Accelerator	Accelerator/Incubator
20	72	Coatue Management	PE/Buyout

Source: PitchBook (Retrieved November 2023)

1) The number of investments accumulated between 2018 and 2022

[Boston] When looking at investors with the most investments in each city, a selection of investors rank high across all cities

Top 20 investors with most investments

#	Number of investments	Investor name	Attribute
1	182	MassChallenge	Accelerator/Incubator
2	174	Techstars	Accelerator/Incubator
3	150	Alumni Ventures	VC
3	150	Plug and Play Tech Center	Accelerator/Incubator
5	127	National Science Foundation	Government
6	126	Y Combinator	Accelerator/Incubator
7	99	U.S. Department of Health and Human Services	Government
8	95	National Institutes of Health	Government
9	83	Google Ventures	CVC
10	81	MassVentures	VC
11	80	United States Department of Defense	Government
12	76	General Catalyst	VC
13	74	F-Prime Capital	VC
14	71	RA Capital Management	VC
15	70	Insight Partners	Growth/Expansion
16	64	ARCH Venture Partners	VC
17	62	Polaris Partners	VC
18	60	Accomplice VC	VC
19	58	Harvard Innovation Launch Lab	Accelerator/Incubator
19	58	Hyperplane Venture Capital	VC

Top 20 investors with most investments (Deep Tech)

#	Number of investments	Investor name	Attribute
1	124	MassChallenge	Accelerator/Incubator
2	122	Techstars	Accelerator/Incubator
3	119	Plug and Play Tech Center	Accelerator/Incubator
4	114	National Science Foundation	Government
5	106	Alumni Ventures	VC
6	91	Y Combinator	Accelerator/Incubator
7	85	National Institutes of Health	Government
8	71	RA Capital Management	VC
9	70	Google Ventures	CVC
9	70	MassVentures	VC
11	67	U.S. Department of Health and Human Services	Government
12	64	ARCH Venture Partners	VC
13	63	United States Department of Defense	Government
14	61	F-Prime Capital	VC
15	55	Alexandria Venture Investments	CVC
15	55	Casdin Capital	VC
17	54	New Enterprise Associates	VC
18	51	Atlas Venture	VC
18	51	General Catalyst	VC
20	50	Polaris Partners	VC

[Texas] When looking at investors with the most investments in each city, a selection of investors rank high across all cities

Top 20 investors with most investments

#	Number of investments	Investor name	Attribute	
1	309	Capital Factory	VC	
2	136	Techstars	Accelerator/Incubator	
3	87	MassChallenge	Accelerator/Incubator	
4	82	Y Combinator	Accelerator/Incubator	
5	79	Plug and Play Tech Center	Accelerator/Incubator	
6	77	Alumni Ventures	VC	
7	72	Astralabs	Accelerator/Incubator	
8	65	Next Coast Ventures	VC	
9	58	LiveOak Venture Partners	VC	
10	57	Silverton Partners	VC	1
11	52	Gaingels	VC	1
12	46	8VC	VC	1
12	46	Bessemer Venture Partners	VC	1
12	46	Insight Partners	Growth/Expansion	1
15	43	Salesforce Ventures	CVC	1
16	42	Sputnik ATX	Accelerator/Incubator	1
16	42	Tiger Global Management	VC	1
18	40	ATX Venture Partners	VC	1
18	40	FJ Labs	VC	1
18	40	U.S. Department of Health and Human Services	Government	1

Top 20 investors with most investments (Deep Tech)

#	Number of investments	Investor name	Attribute
1	168	Capital Factory	VC
2	72	Techstars	Accelerator/Incubator
3	58	MassChallenge	Accelerator/Incubator
4	48	Plug and Play Tech Center	Accelerator/Incubator
5	44	Alumni Ventures	VC
6	41	Y Combinator	Accelerator/Incubator
7	29	National Science Foundation	Government
8	28	U.S. Department of Health and Human Services	Government
8	28	United States Department of Defense	Government
10	26	Next Coast Ventures	VC
10	26	Silverton Partners	VC
12	25	LiveOak Venture Partners	VC
12	25	Sputnik ATX	Accelerator/Incubator
14	24	Google Ventures	CVC
15	23	8VC	VC
15	23	Gaingels	VC
15	23	Insight Partners	Growth/Expansion
15	23	Salesforce Ventures	CVC
19	22	Austin Technology Incubator	Accelerator/Incubator
19	22	Tiger Global Management	VC

[London] When looking at investors with the most investments in each city, a selection of investors rank high across all cities

Top 20 investors with most investments

#	Number of investments	Investor name	Attribute
1	1,205	Innovate UK	Government
2	427	Plug and Play Tech Center	Accelerator/Incubator
3	266	Techstars	Accelerator/Incubator
4	252	SFC Capital	VC
5	239	Y Combinator	Accelerator/Incubator
6	208	Entrepreneur First	VC-Backed Company
7	195	Seedcamp	VC
8	186	Octopus Ventures	VC
9	185	Enterprise Ireland	VC
10	182	Ascension (London)	VC
11	170	Insight Partners	Growth/Expansion
12	168	Accel	VC
13	161	Salesforce Ventures	CVC
13	161	Tiger Global Management	VC
15	151	Index Ventures	VC
15	151	Phoenix Court	VC
17	132	Founders Factory	Accelerator/Incubator
18	119	Sequoia Capital	VC
19	117	FJ Labs	VC
20	110	Fuel Ventures	VC

Top 20 investors with most investments (Deep Tech)

#	Number of investments	Investor name	Attribute
1	943	Innovate UK	Government
2	291	Plug and Play Tech Center	Accelerator/Incubator
3	158	Entrepreneur First	VC-Backed Company
4	145	Techstars	Accelerator/Incubator
5	128	SFC Capital	VC
6	122	Y Combinator	Accelerator/Incubator
7	104	Octopus Ventures	VC
8	98	Ascension (London)	VC
9	97	Seedcamp	VC
10	83	Sequoia Capital	VC
11	82	Salesforce Ventures	CVC
12	78	Tiger Global Management	VC
13	77	Phoenix Court	VC
14	76	Insight Partners	Growth/Expansion
15	75	SOSV	VC
16	71	Accel	VC
17	69	Founders Factory	Accelerator/Incubator
18	65	Enterprise Ireland	VC
19	64	Speedinvest	VC
20	63	MMC Ventures	VC

[Paris] When looking at investors with the most investments in each city, a selection of investors rank high across all cities

Top 20 investors with most investments

#	Number of investments	Investor name	Attribute
1	604	Bpifrance	Sovereign Wealth Fund
2	334	Kima Ventures	VC
3	156	Plug and Play Tech Center	Accelerator/Incubator
4	126	Paris&Co Incubateurs	Accelerator/Incubator
5	122	Idinvest Partners	PE/Buyout
6	112	Eurazeo	PE/Buyout
7	100	AngelSquare	Angel Group
8	97	Partech	VC
9	90	Alven Capital Partners	VC
10	87	Founders Future	VC
11	78	Y Combinator	Accelerator/Incubator
12	75	Financière Saint James	Family Office
13	74	Serena Capital	VC
14	72	ISAI	VC
15	70	Agoranov	Accelerator/Incubator
16	69	Elaia Partners	VC
17	65	Accel	VC
17	65	Insight Partners	Growth/Expansion
19	64	Super Capital.	VC
19	64	XAnge	VC

Top 20 investors with most investments (Deep Tech)

#	Number of investments	Investor name	Attribute
1	293	Bpifrance	Sovereign Wealth Fund
2	145	Kima Ventures	VC
3	108	Plug and Play Tech Center	Accelerator/Incubator
4	57	Paris&Co Incubateurs	Accelerator/Incubator
5	55	Agoranov	Accelerator/Incubator
6	51	Idinvest Partners	PE/Buyout
7	48	Partech	VC
8	45	Eurazeo	PE/Buyout
9	43	Entrepreneur First	VC-Backed Company
0	39	Elaia Partners	VC
.1	37	Serena Capital	VC
2	36	AngelSquare	Angel Group
2	36	European Innovation Council Fund	VC
.2	36	Y Combinator	Accelerator/Incubator
.5	35	Alven Capital Partners	VC
.6	34	EIT Health	Accelerator/Incubator
.6	34	Salesforce Ventures	CVC
.6	34	XAnge	VC
.9	32	Accel	VC
.9	32	Founders Future	VC

[Berlin] When looking at investors with the most investments in each city, a selection of investors rank high across all cities

Top 20 investors with most investments

#	Number of investments	Investor name	Attribute	#
1	120	Plug and Play Tech Center	Accelerator/Incubator	1
2	110	IBB Ventures	VC	2
3	102	HV Capital	VC	3
4	86	Speedinvest	VC	3
5	76	Atlantic Labs	VC	5
6	74	Axel Springer Porsche	VC	6
7	69	Cherry Ventures	Growth/Expansion	7
8	68	High-Tech Gründerfonds	VC	7
9	67	Techstars	Accelerator/Incubator	9
10	65	Insight Partners	Growth/Expansion	10
11	60	Global Founders Capital	Growth/Expansion	10
11	60	Project A Ventures	VC	12
13	56	Earlybird (Private Equity)	VC	13
14	55	FJ Labs	VC	13
15	52	Accel	VC	15
15	52	Entrepreneur First	VC-Backed Company	15
17	49	b2venture	VC	15
18	46	Creandum	VC	18
19	45	Target Global	VC	18
20	44	Y Combinator	Accelerator/Incubator	18

Top 20 investors with most investments (Deep Tech)

#	Number of investments	Investor name	Attribute
1	86	Plug and Play Tech Center	Accelerator/Incubator
2	56	IBB Ventures	VC
3	44	High-Tech Gründerfonds	VC
3	44	Speedinvest	VC
5	42	Techstars	Accelerator/Incubator
6	41	Atlantic Labs	VC
7	39	Entrepreneur First	VC-Backed Company
7	39	HV Capital	VC
9	36	Axel Springer Porsche	VC
10	32	Atlantic Food Labs	VC
10	32	Cherry Ventures	Growth/Expansion
12	29	Horizon 2020 SME Instrument	Government
13	27	Coparion	VC
13	27	Sequoia Capital	VC
15	25	Accel	VC
15	25	Project A Ventures	VC
15	25	Target Global	VC
18	24	Andreessen Horowitz	VC
18	24	b2venture	VC
18	24	Balderton Capital	VC

[Tel Aviv] When looking at investors with the most investments in each city, a selection of investors rank high across all cities

Top 20 investors with most investments

#	Number of investments	Investor name	Attribute
1	137	Plug and Play Tech Center	Accelerator/Incubator
2	136	Insight Partners	Growth/Expansion
3	102	OurCrowd	VC
4	97	Vertex Ventures Israel	VC
5	81	Israel Innovation Authority	Government
6	79	Bessemer Venture Partners	VC
6	79	Entrée Capital	VC
8	77	NFX	VC
9	74	Techstars	Accelerator/Incubator
10	72	Viola Ventures	VC
11	68	Sarona Ventures	VC
12	67	Aleph (Israel)	VC
12	67	Pitango Venture Capital	VC
14	65	TLV Partners	VC
15	64	iAngels	VC
15	64	Tiger Global Management	VC
17	59	Battery Ventures	VC
18	49	Vintage Investment Partners	VC
19	46	MassChallenge	Accelerator/Incubator
19	46	StageOne Ventures	VC

Top 20 investors with most investments (Deep Tech)

#	Number of investments	Investor name	Attribute
1	94	Plug and Play Tech Center	Accelerator/Incubator
2	78	OurCrowd	VC
3	71	Israel Innovation Authority	Government
4	70	Insight Partners	Growth/Expansion
5	66	Vertex Ventures Israel	VC
6	52	Viola Ventures	VC
7	50	iAngels	VC
7	50	Sarona Ventures	VC
9	49	Techstars	Accelerator/Incubator
10	47	Pitango Venture Capital	VC
11	46	Bessemer Venture Partners	VC
11	46	Entrée Capital	VC
13	45	NFX	VC
13	45	TLV Partners	VC
15	37	StageOne Ventures	VC
16	36	Tiger Global Management	VC
17	34	Battery Ventures	VC
17	34	NextGear Ventures	VC
19	31	MassChallenge	Accelerator/Incubator
20	30	Hanaco Ventures	VC

Source: PitchBook (Retrieved November 2023)

1) The number of investments accumulated between 2018 and 2022

[Singapore] When looking at investors with the most investments in each city, a selection of investors rank high across all cities

Top 20 investors with most investments

#	Number of investments	Investor name	Attribute
1	204	Plug and Play Tech Center	Accelerator/Incubator
2	175	SEEDS Capital	CVC
3	173	Entrepreneur First	VC-Backed Company
4	168	Antler	VC
5	145	Peak XV Partners	VC
6	129	500 Global	VC
7	116	Wavemaker Partners	VC
8	115	Y Combinator	Accelerator/Incubator
9	111	SOSV	VC
10	98	SGInnovate	CVC
11	94	Temasek Holdings	Sovereign Wealth Fund
12	93	SMU Institute of Innovation & Entrepreneurship	Accelerator/Incubator
13	92	Tiger Global Management	VC
14	84	East Ventures	VC
15	81	Sequoia Capital	VC
16	75	NGC Ventures	VC
17	73	500 Southeast Asia	VC
18	70	Accel	VC
19	69	EDBI	CVC
20	66	Surge (Accelerator)	Accelerator/Incubator

Top 20 investors with most investments (Deep Tech)

#	Number of investments	Investor name	Attribute
1	149	SEEDS Capital	CVC
2	146	Entrepreneur First	VC-Backed Company
3	141	Plug and Play Tech Center	Accelerator/Incubator
4	87	SGInnovate	CVC
5	84	Wavemaker Partners	VC
6	73	Antler	VC
7	70	NGC Ventures	VC
8	62	SOSV	VC
9	58	Y Combinator	Accelerator/Incubator
10	57	500 Global	VC
11	55	Tiger Global Management	VC
12	54	Peak XV Partners	VC
13	53	Signum Capital	VC
14	52	Hashkey Capital	VC
14	52	LD Capital	VC
14	52	Sequoia Capital	VC
14	52	Techstars	Accelerator/Incubator
18	47	AU21 Capital	VC
18	47	Enterprise Singapore	Corporation
20	44	Binance Labs	VC

[Greater Tokyo Area] When looking at investors with the most investments in each city, a selection of investors rank high across all cities. In Japanese cities, there are more CVCs compared to the others

Top 20 investors with most investments

#	Number of investments	Investor name	Attribute	#
1	270	Mitsubishi UFJ Capital	VC	1
2	266	SMBC Venture Capital	CVC	2
3	250	Plug and Play Tech Center	Accelerator/Incubator	3
4	228	SBI Investment	VC	4
5	214	Global Brain	VC	5
6	175	ANRI	VC	6
7	158	East Ventures	VC	7
8	151	Incubate Fund	VC	7
9	148	JAFCO	VC	9
10	134	MCP Partners	PE/Buyout	10
11	111	Nissay Capital	VC	11
12	107	DNX Ventures	VC	12
13	106	Mizuho Capital	VC	13
14	103	Z Venture Capital	CVC	14
15	101	ANOBAKA	VC	14
16	100	Nippon Venture Capital	CVC	16
17	99	Coral Capital	VC	17
18	93	Salesforce Ventures	CVC	18
19	87	Genesia Ventures	VC	19
20	85	Chiba Dojo	VC	20

Top 20 investors with most investments (Deep Tech)

#	Number of investments	Investor name	Attribute
1	189	Plug and Play Tech Center	Accelerator/Incubator
2	157	Mitsubishi UFJ Capital	VC
3	131	SMBC Venture Capital	CVC
4	128	SBI Investment	VC
5	122	Global Brain	VC
6	83	ANRI	VC
7	79	Incubate Fund	VC
7	79	JAFCO	VC
9	64	The University of Tokyo Edge Capital	VC
10	61	MCP Partners	PE/Buyout
11	58	Deepcore	VC
12	56	East Ventures	VC
13	54	SPARX Group Company	Holding Company
14	53	Real Tech Holdings	VC
14	53	UTokyo Innovation Platform	VC
16	52	Nissay Capital	VC
17	49	DNX Ventures	VC
18	48	KDDI Ventures Program	CVC
19	47	Nippon Venture Capital	CVC
20	45	DBJ Capital	CVC

Source: PitchBook (Retrieved November 2023)

1) The number of investments accumulated between 2018 and 2022

[Kansai Area] When looking at investors with the most investments in each city, a selection of investors rank high across all cities. In Japanese cities, there are more CVCs compared to the others

Top 20 investors with most investments

#	Number of investments	Investor name	Attribute	#
1	69	Mitsubishi UFJ Capital	VC	1
2	49	Future Venture Capital	VC	2
3	47	SMBC Venture Capital	CVC	3
4	37	SBI Investment	VC	4
5	36	Kyoto University Innovation Capital	VC	5
6	35	Plug and Play Tech Center	Accelerator/Incubator	6
7	27	JAFCO	VC	7
8	26	Senshu Ikeda Capital	VC	7
9	24	Nippon Venture Capital	CVC	7
10	23	Osaka University Venture Capital	VC	10
11	21	MCP Partners	PE/Buyout	10
12	19	Global Brain	VC	12
13	18	Nissay Capital	VC	12
13	18	Venture Labo Investment	VC	12
15	17	Kyogin Lease Capital	VC	15
16	16	Globis Capital Partners	VC	15
16	16	Hack Ventures	VC	15
16	16	Salesforce Ventures	CVC	18
19	15	ANRI	VC	18
19	15	Chushin Venture Capital	VC	18

Top 20 investors with most investments (Deep Tech)

#	Number of investments	Investor name	Attribute
1	34	Kyoto University Innovation Capital	VC
2	33	Mitsubishi UFJ Capital	VC
3	30	SMBC Venture Capital	CVC
4	29	Plug and Play Tech Center	Accelerator/Incubator
5	28	Future Venture Capital	VC
6	23	Osaka University Venture Capital	VC
7	17	Nippon Venture Capital	CVC
7	17	SBI Investment	VC
7	17	Senshu Ikeda Capital	VC
10	15	Chushin Venture Capital	VC
10	15	JAFCO	VC
12	13	ANRI	VC
12	13	Kyogin Lease Capital	VC
12	13	Nissay Capital	VC
15	10	Beyond Next Ventures	VC
15	10	Miyako Capital	VC
15	10	SPARX Group Company	Holding Company
18	9	Mirai Creation Capital	VC
18	9	SoftBank Investment Advisers	Growth/Expansion
18	9	Venture Labo Investment	VC

[Aichi Pref.] When looking at investors with the most investments in each city, a selection of investors rank high across all cities. In Japanese cities, there are more CVCs compared to the others

Top 20 investors with most investments

#	Number of investments	Investor name	Attribute	#
1	19	Mitsubishi UFJ Capital	VC	1
1	19	Shizuoka Capital	CVC	2
3	16	SBI Investment	VC	2
4	11	SMBC Venture Capital	CVC	Z
5	10	Global Brain	VC	
6	9	Nippon Venture Capital	CVC	5
6	9	Plug and Play Tech Center	Accelerator/Incubator	7
8	8	Beyond Next Ventures	VC	7
8	8	JAFCO	VC	7
8	8	Japan Finance Corporation	Government	7
8	8	Mirai Creation Capital	VC	7
12	7	ANRI	VC	1
12	7	BEENEXT Capital Management	VC	1
12	7	Nissay Capital	VC	1
15	6	500 Global	VC	1
15	6	Incubate Fund	VC	1
15	6	Innovation Network Corporation of Japan	VC	1
15	6	MCP Partners	PE/Buyout	1
15	6	Mizuho Capital	VC	1
15	6	Nagoya TV Ventures	VC	1

Top 20 investors with most investments (Deep Tech)

#	Number of investments	Investor name	Attribute
1	13	Shizuoka Capital	CVC
2	9	SBI Investment	VC
2	9	SMBC Venture Capital	CVC
4	8	Mitsubishi UFJ Capital	VC
5	7	ANRI	VC
5	7	Global Brain	VC
7	6	Beyond Next Ventures	VC
7	6	Innovation Network Corporation of Japan	VC
7	6	Japan Finance Corporation	Government
7	6	Nobunaga Capital Village	VC
7	6	SPARX Group Company	Holding Company
12	5	Drone Fund	VC
12	5	Mirai Creation Capital	VC
12	5	Plug and Play Tech Center	Accelerator/Incubator
15	4	Accel	VC
15	4	BEENEXT Capital Management	VC
15	4	Deepcore	VC
15	4	Dogan Beta	VC
15	4	East Ventures	VC
15	4	IVP	VC

[Fukuoka Pref.] When looking at investors with the most investments in each city, a selection of investors rank high across all cities. In Japanese cities, there are more CVCs compared to the others

Top 20 investors with most investments

#	Number of investments	Investor name	Attribute	#	
1	25	Dogan Beta	VC	1	
2	23	Mitsubishi UFJ Capital	VC	2	
3	19	FFG Venture Business Partners	VC	3	
4	15	QB Capital	VC	3	
5	14	F Ventures	VC	5	
5	14	SBI Investment	VC	6	
5	14	SMBC Venture Capital	CVC	7	
8	12	FGN ABBA Lab	VC	7	
8	12	Global Brain	VC	7	
8	12	SG Incubate	VC	10	
11	11	BEENEXT Capital Management	VC	11	
12	10	Globis Capital Partners	VC	11	
12	10	Oita Venture Capital Co.	VC	11	
14	9	DNX Ventures	VC	11	
14	9	JAFCO	VC	11	
16	8	Gx Partners	VC	11	
16	8	NCB Capital (Japan)	CVC	11	
16	8	Nissay Capital	VC	11	
16	8	World Innovation Lab	VC	11	
20	7	Energy & Environment Investment	VC	20	ſ

Top 20 investors with most investments (Deep Tech)

#	Number of investments	Investor name	Attribute
1	17	FFG Venture Business Partners	VC
2	13	QB Capital	VC
3	12	Dogan Beta	VC
3	12	Mitsubishi UFJ Capital	VC
5	9	SG Incubate	VC
6	8	Oita Venture Capital Co.	VC
7	7	F Ventures	VC
7	7	Global Brain	VC
7	7	SMBC Venture Capital	CVC
0	6	Sony Innovation Fund	CVC
.1	5	ANRI	VC
.1	5	Daiwa Corporate Investment	VC
.1	5	Energy & Environment Investment	VC
.1	5	Japan Finance Corporation	Government
1	5	JIC Venture Growth Investments	VC
.1	5	NCB Capital (Japan)	CVC
1	5	Nissay Capital	VC
.1	5	SBI Investment	VC
.1	5	Sumitomo Mitsui Marine Capital	VC
20	4	Accel	VC

Chapter 3 Investors

3.1 Number of investments

3.2 VC investments

3.2.1 Attributes

- 3.2.2 Investment amounts
- 3.3 Angel investors
- 3.4 Accelerators and incubators

In Japan, the proportion of CVCs among VCs is larger than that of the other countries. In New York, Boston, London and Paris, the proportion of private equity and buy-out funds is larger than that of Japan



① Main attributes of investors associated with VC (= main attributes of investors engaged in VC business)

■ VC ■ CVC ■ Company ■ PE/Buy-out ■ Accelerator/Incubator ■ Government

Source: PitchBook (Retrieved November 2023) 1) The percentage shows the ratio of the accumulated numbers between 2018 and 2022 When limited to the investors whose main attribute is VC, most of them are engaged in the VC investment business alone, with no significant difference seen among the cities



(2) Additional attributes of investors whose main attribute is VC

Source: PitchBook (Retrieved November 2023) 1) The percentage shows the ratio of the accumulated numbers between 2018 and 2022

Chapter 3 Investors

3.1 Number of investments

- **3.2** VC investments
 - 3.2.1 Attributes

3.2.2 Investment amounts

- 3.3 Angel investors
- 3.4 Accelerators and incubators

VC investment amounts have been increasing yearly in every industry. The growth was especially large in 2021



(1) Global VC investment trend: Changes in VC investment amounts by industry

Source: PitchBook (Retrieved October 2023)
When limited to VCs funding Deep Tech Startups, investment amounts are also on the rise. The growth was especially large in 2021



② Global VC investment trend: Changes in VC investment amounts in Deep Tech category

Source: PitchBook (Retrieved October 2023)

When looking at the trend in each Deep Tech sub-category, VC investments are also increasing annually

③ Global VC investment trend: Changes in VC investment amounts in each Deep Tech sub-category



In terms of overall VC investment amounts by country, Japan is placed lower than the US and China



Source: PitchBook (Retrieved October 2023)

1) Each country shows the total amount of companies located in the country and funded by VCs, including ones whose headquarters are outside the country

When limited to the Deep Tech category, Japan's overall VC investment amounts are smaller than those of the US and China



Source: PitchBook (Retrieved October 2023)

1) Each country shows the total amount of companies located in the country and funded by VCs, including ones whose headquarters are outside the country

While the majority of VC investments in China is over JPY1 billion, Japan has fewer largevalue VC investments



(1) Distribution of number of investments by investment size

When looking at overall investment amounts, Japan has fewer large-value VC investments than the others



(2) Distribution of combined investment amounts by investment size

#

Many major US companies have been funded by VCs within 30 years of their establishment. There is a clear contrast between US and Japanese companies in terms of the year of foundation and their VC funding records

						_
US				Japan		
Company name	Establish ed year	Number of VCs funding the company	#	Company name	Establish ed year	
Apple	1976	10	1	Тоуота	1937	
Microsoft	1975	1	2	Sony	1946	
Amazon.com	1994	6	3	Bank of Tokyo-Mitsubishi UFJ	2006	
NVIDIA	1993	4	4	NTT Data	1988	
Alphabet (Google)	1998	7	5	Keyence	1974	
Meta Platforms (Facebook)	2004	44	6	Tokyo Electron	1963	
Tesla	2003	20	7	Fast Retailing	1949	
Eli Lilly	1876	0	8	Shin-Etsu Chemical	1926	Ī
Broadcom	1961	0	9	KDDI	1984	Ī

Mitsubishi Corporation

Top 10 largest companies by market capitalization and their VC funding records

Note Companies that disclose their VC funding records

Source: NIKKEI, PitchBook (Retrieved January 2024)

JPMorgan Chase

While overseas unicorn companies are funded by VCs outside of their own countries such as the US and China, it is less frequent among Japanese unicorn companies



Nationalities of VCs funding unicorn companies in each country

US VCs China VCs Other overseas VCs Domestic VCs

Chapter 3 Investors

- 3.1 Number of investments
- 3.2 VC investments
- **3.3** Angel investors
 - 3.3.1 Number of angel investors
 - 3.3.2 Investments by angel investors
- 3.4 Accelerators and incubators

Silicon Valley, New York and London have the most investors (top three cities with highest investment amounts), while the Greater Tokyo Area has less than one fifth that of these cities



Number of angel investors

Chapter 3 Investors

- 3.1 Number of investments
- 3.2 VC investments
- **3.3** Angel investors
 - 3.3.1 Number of angel investors

3.3.2 Investments by angel investors

3.4 Accelerators and incubators

Silicon Valley, New York and London rank highest in terms of total angel investment amounts, while the figure is about one tenth of these cities for the Greater Tokyo Area



Total angel investment amounts

When limited to Deep Tech, the Greater Tokyo Area falls far behind Silicon Valley, New York or London in angel investment amounts



(1) investment amounts by angel investors

Startups Deep Tech Startups

When limited to Deep Tech, the number of angel investments in the Greater Tokyo Area is by far smaller than that of Silicon Valley, New York or London



(2) Number of investments by angel investors

Startups Deep Tech Startups

Overall, the amount of each investment in the Greater Tokyo Area is relatively high, but when limited to Deep Tech, it is the same as the average of the overseas cities



3 Amount of each investment by angel investors

Startups Deep Tech Startups

Chapter 3 Investors

- 3.1 Number of investments
- 3.2 VC investments
- 3.3 Angel investors
- **3.4** Accelerators and incubators

3.4.1 Number of accelerators and incubators

3.4.2 Investments by accelerators and incubators

Silicon Valley, New York and London have the most accelerators and incubators, while Tokyo has less than one fourth that of each of these cities



Number of accelerators and incubators

Source: PitchBook (Retrieved December 2023) 1) Each city aggregates the data of accelerators and incubators doing investments in the city

Chapter 3 Investors

- 3.1 Number of investments
- 3.2 VC investments
- 3.3 Angel investors
- **3.4** Accelerators and incubators

3.4.1 Number of accelerators and incubators

3.4.2 Investments by accelerators and incubators

When looking at investment amounts, Silicon Valley stands out and outnumbers the Greater Tokyo Area by a factor of over 40. The investment amount per accelerator and incubator in the Greater Tokyo Area is the smallest among the other overseas cities



Amount of accelerator and incubator investments

Source: PitchBook (Retrieved December 2023)

In terms of accelerator and incubator investment amounts, the Greater Tokyo Area lags behind all other overseas cities in both general and Deep Tech categories



① Comparison of accelerator and incubator investment amounts

Source: PitchBook (Retrieved December 2023)

1) Each city aggregates the data of accelerators and incubators doing investments in the city

2) The data of Aichi Prefecture does not exist

In terms of the number of accelerator and incubator investments, the Greater Tokyo Area lags behind all other overseas cities in both general and Deep Tech categories



(2) Comparison of accelerator and incubator investment numbers

Source: PitchBook (Retrieved December 2023) 1) Each city aggregates the data of accelerators and incubators doing investments in the city



③ Comparison of each accelerator/incubator investment amounts

Startups Deep Tech Startups

Source: PitchBook (Retrieved December 2023)

1) Each city aggregates the data of accelerators and incubators doing investments in the city

2) The data of Aichi Prefecture does not exist

[Silicon Valley] Top 10 investors with most investments

#	Number of investments	Name of accelerator/incubator	#	Number of investments
1	2,003	Y Combinator	1	567
2	656	Plug and Play Tech Center	2	281
3	248	Alchemist Accelerator	3	213
4	180	Berkeley SkyDeck	4	144
5	175	QB3	5	93
6	104	Start-Up Chile	6	92
7	99	MassChallenge	6	92
8	92	Google for Startups Accelerator	8	88
9	75	IndieBio	9	80
10	72	Microsoft for Startups	10	76

[New York] Top 10 investors with most investments

#	Number of investments	Name of accelerator/incubator
1	567	Y Combinator
2	281	Plug and Play Tech Center
3	213	Entrepreneurs Roundtable Accelerator
4	144	MassChallenge
5	93	Future Labs
6	92	Dreamit Ventures
6	92	Springboard Enterprises
8	88	Starta Ventures
9	80	FinTech Innovation Lab
10	76	Microsoft for Startups

[Boston] Top 10 investors with most investments

#	Number of investments	Name of accelerator/incubator	#	Number of investments	Name of accelerator/incubator
1	536	MassChallenge	1	168	Texas Venture Labs
2	129	Y Combinator	2	152	Austin Technology Incubator
3	97	Harvard Innovation Launch Lab	3	96	Y Combinator
4	87	Plug and Play Tech Center	4	94	MassChallenge
5	81	MIT Delta V	5	73	Astralabs
6	69	Northeastern University's Venture Accelerator	6	69	Longhorn Startup
7	56	Greentown Labs	7	56	Divinc
8	54	Harvard i-lab	8	48	SKU
9	41	Johnson & Johnson Innovation – JLABS	9	46	Plug and Play Tech Center
9	41	Springboard Enterprises	10	35	Sputnik ATX

[Texas] Top 10 investors with most investments

[London] Top 10 investors with most investments

[Paris] Top 10 investors with most investments

#	Number of investments	Name of accelerator/incubator	#	Number of investments	Name of accelerator/incubator
1	231	Y Combinator	1	831	Paris&Co Incubateurs
2	220	Plug and Play Tech Center	2	299	Agoranov
3	197	Startupbootcamp	3	210	Telecom Paristech
4	159	Founders Factory	4	165	HEC Incubator
5	157	MassChallenge	5	128	ESSEC Ventures
6	147	FFWD London	6	124	NUMA
7	120	FinTech Innovation Lab	7	94	Plug and Play Tech Center
8	113	Microsoft for Startups	8	88	IMT Starter
9	68	Google for Startups Accelerator	8	88	Y Combinator
10	64	Tech Nation Group	10	77	SaaS Lander

[Berlin] Top 10 investors with most investments

Number of Number of Name of accelerator/incubator Name of accelerator/incubator # # investments investments Microsoft for Starups 1 105 German Accelerator 1 89 Startupbootcamp 2 79 MassChallenge 2 67 Plug and Play Tech Center Plug and Play Tech Center 3 64 3 70 4 61 EIT Climate-KIC 4 63 The Junction Axel Springer Plug and Play Accelerator 5 60 5 58 8200 EISP Microsoft for Startups SigmaLabs Accelerator 43 6 48 6 7 42 **Y** Combinator 7 47 Fusion VC 8 35 Founder Institute 8 44 **Y** Combinator 9 30 Reaktor.Berlin 9 32 The Bridge by Coca-Cola SIBB Deep Tech Accelerator IBM Alpha Zone accelerator 9 30 10 23

[Tel Aviv] Top 10 investors with most investments

[Singapore] Top 10 investors with most investments

#	Number of investments	Name of accelerator/incubator	#	i
1	208	SMU Institute of Innovation & Entrepreneurship	1	
2	140	Plug and Play Tech Center	2	
3	109	NTUitive	3	
4	90	Y Combinator	4	
5	59	JFDI.Asia	5	
6	48	Microsoft for Startups	6	
6	48	Startupbootcamp	7	
8	46	Google for Startups Accelerator	8	
9	42	Iterative Accelerator	9	
10	38	Cyberport Hong Kong	9	

[Greater Tokyo Area] Top 10 investors with most investments

#	Number of investments	Name of accelerator/incubator
1	160	Plug and Play Tech Center
2	97	Open Network Lab
3	81	AI.Accelerator
4	43	Google for Startups Accelerator
5	36	Movida Japan
6	31	Microsoft for Startups
7	23	Tokyo XR Startups
8	22	Y Combinator
9	19	500 Kobe Pre-Accelerator
9	19	G-STARTUP

[Kansai Area] Top 10 investors with most investments

Number of nvestments	Name of accelerator/incubator	#	Number of investments	Name of accelerator/incubator
18	Plug and Play Tech Center	1	4	Open Network Lab
6	500 Kobe Pre-Accelerator	2	3	Google for Startups Accelerator
6	AI.Accelerator	3	2	500 Kobe Pre-Accelerator
5	Open Network Lab	3	2	AI.Accelerator
5	Osaka Innovation Hub	3	2	Plug and Play Tech Center
4	Google for Startups Accelerator	6	1	Aichi-Austin Innovation Kick-Start Program
4	J-Startup	6	1	b-sket
3	Startupbootcamp	6	1	FoodTrack by Maersk
2	Code Republic	6	1	J-Startup
2	impacTech	6	1	Japan External Trade Organization

[Aichi Pref.] Top 10 investors with most investments

Source: PitchBook (Retrieved December 2023)

1) PitchBook shows the number of investments of accelerators/incubators with no investment function, such as Osaka Innovation Hub, J-Startup, and Japan External Trade Organization, as the cumulated number of companies they certified

[Fukuoka Pref.] Top 10 investors with most investments

#	Number of investments	Name of accelerator/incubator
1	7	Open Network Lab
1	7	Plug and Play Tech Center
3	5	Google for Startups Accelerator
4	4	Al.Accelerator
5	3	J-Startup
6	2	500 Kobe Pre-Accelerator
6	2	ICURe
6	2	Japan External Trade Organization
9	1	AbbaLab
9	1	Aichemist Accelerator

Source: PitchBook (Retrieved December 2023)

1) PitchBook shows the number of investments of accelerators/incubators with no investment function, such as Osaka Innovation Hub, J-Startup, and Japan External Trade Organization, as the cumulated number of companies they certified

Appendix

Appendix

1 Methodology (details)

Chapter 1 Startups

Chapter 2 Universities

Chapter 3 Investors

2 Deep Tech industry

1. Startups - 1.1 Number of companies - 1.1.1 Number of startups (1/2)

Contents of research	Methodology
Number of startups by country (Startups/ Deep Tech startups)	 Source All data: PitchBook Refining method of applicable data within the source Startups Extract companies with history of fund raising from VCs under "Deal Types" in PitchBook Exclude companies that only have history of fund raising from VCs for Grants, Debts, IPOs, or M&As Countries Extract countries which are located in the US, UK, France, Germany, Israel, India, Singapore, China, South Korea, or Japan under "Location" in PitchBook Extract only companies that are headquartered in the above locations (check "Search HQ Only" in PitchBook) Cities Extract companies located in Silicon Valley, New York, Boston, Texas, London, Paris, Berlin, Tel Aviv, Singapore, Seoul,
city	 the Tokyo area, the Kansai area, Aichi prefecture, or Fukuoka prefecture under "Location" in PitchBook Extract only companies that are headquartered in the above locations (check "Search HQ Only" in PitchBook) Methods for counting/displaying data Number of startups by country Display the figure counted by filtering the number of startups in the data extracted above by "country" Number of startups by city Display the figure counted by filtering the number of startups in the data extracted above by "city"

1. Startups - 1.1 Number of companies - 1.1.1 Number of startups (2/2)

Contents of research	Methodology
Number of university spin-out companies	Source: • US/Canada: AUTM • UK: Beauhurst • Japan: Ministry of Economy, Trade, and Industry Database on University-Developed Venture Businesses • Singapore: National University of Singapore (NUS) and Nanyang Technological University (NTU) Refining method of applicable data within source • US/Canada • Extract data of number of university-spin out companies ("St-Ups Formed" in AUTM) • UK • Extract data of companies (spin-outs) established with the purpose of utilizing intellectual property at universities • Singapore • Value determined by using the annual data in annual reports from 2004 onwards • Japan • Determine with numbers in "Research-based venture" Methods for counting/displaying data • Number of university spin-out companies • Display the figure counted by filtering the number of startups in the data extracted above by "country" Note • For US, Canada, UK, and Singapore, the number of companies ever incorporated are displayed (regardless of the number of companies resulting from consolidations after incorporation). For Japan, the number of companies that currently exist are displayed. • As the number of companies for Singapore cannot be determined on a country basis, the displayed data is that of the two universities (NUS/NTU) of the nation which ranked in "THE Times Higher Education" published in the UK.

1. Startups - 1.2 Business growth - 1.2.1 Funding (1/4)

Contents of research	Methodology
Total amount of funds raised by startups (Startups/Deep Tech startups)	 Source: All data: PitchBook Refining method of applicable data within source Startups Extract companies with history of fund raising from VCs under "Deal Types" in PitchBook. Exclude companies that only have history of fund raising from VCs for Grants, Debts, IPOs, or M&As. Cities Extract companies located in Silicon Valley, New York, Boston, Texas, London, Paris, Berlin, Tel Aviv, Singapore, Seoul, the Tokyo area, the Kansai area, Aichi prefecture, or Fukuoka prefecture under "Location" in PitchBook. Extract only companies that are headquartered in the above locations (check "Search HQ Only" in PitchBook)
Number of funding deals by startups (Startups/Deep Tech startups)	 Among the companies registered in PitchBook, extract companies categorized as industrial/technical fields (AI, computers, energy/environment, bio/healthcare, materials/industry, aerospace, food and agriculture), which are defined as deep tech fields in official reports and other documents Methods for counting/displaying data Total amount of funds raised by startups Display the total amount of funds raised by startups ("Total Capital Raised") from VCs of the extracted startups Use the JPY amount displayed in PitchBook Number of funding deals by startups Display the number of fundings ("Capital Invested Count") from VCs for the extracted startups

1. Startups - 1.2 Business growth - 1.2.1 Funding (2/4)

Contents of research	Methodology
Average amount of funds raised by startups (Startups/Deep Tech startups)	 Source: All data: PitchBook Refining method of applicable data within source Startups Extract companies with history of fund raising from VCs under "Deal Types" in PitchBook. Exclude companies that only have history of fund raising from VCs for Grants, Debts, IPOs, or M&As. Cities Extract companies located in Silicon Valley, New York, Boston, Texas, London, Paris, Berlin, Tel Aviv, Singapore, Seoul, the Tokyo area, the Kansai area, Aichi prefecture, or Fukuoka prefecture under "Location" in PitchBook. Extract only companies that are headquartered in the above locations (check "Search HQ Only" in PitchBook) Deep Tech Among the companies registered in PitchBook, extract companies categorized as industrial/technical fields (AI, computers,
Median value of funds raised by startups (Startups/Deep Tech startups)	 energy/environment, bio/healthcare, materials/industry, aerospace, food and agriculture), which are defined as deep tech field in official reports and other documents Methods for counting/displaying data Average amount of funds raised by startups Display the value determined by dividing the total amount of funds raised by startups by number of fundings Use the JPY amount displayed in PitchBook Median value of funds raised by startups Display the median value of funds raised by startups Use the JPY amount displayed in PitchBook Median value of funds raised by startups Use the JPY amount displayed in PitchBook Use the JPY amount displayed in PitchBook

1.	Startups -	1.2 Business	growth -	1.2.1	Funding	(3/	4)
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Contents of research	Methodology				
Total funding per capita (1/2)	 Source: Total amount of funds raised by startups: PitchBook Population: Government websites of each country Silicon Valley: The population displayed on the Silicon Valley Indicator site (2023) New York: The population of "New York City" based on the "Quick Facts" on the US Census Bureau website (2022) Boston: The combined population of Suffolk County where Boston City is located and Middlesex county where Cambridge City is located, based on the above website (2020) Texas: The population of Travis County inclusive of Texas City, based on the above website (2020) London (2021), Paris (2023), and Berlin (2023): The population of the administrative capital district (city), based on the websites of each city Tel Aviv: The population of Tel Aviv district composed of Tel Aviv City and 12 other municipalities, based on data from Israel Central Bureau of Statistics (2022) Singapore: The country's population based on OECD.Stat (Singapore has no municipalities) (2023) Tokyo area: The population of the prefectures Tokyo, Kanagawa, Saitama, and Chiba, based on the website of each municipality (2023) Kansai area: The population of the prefectures Osaka, Kyoto, and Hyogo, based on the website of each municipality (2023) Aichi prefecture/Fukuoka prefecture: The population of each of the prefectures, based on the website of each municipality (2023) 				
1.	Startups -	1.2 Business	growth - 1.2.1	Funding	(4/4)
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Contents of research	Methodology
Total funding per capita (2/2)	 Refining method of applicable data within source Startups Extract companies with history of fund raising from VCs under "Deal Types" in PitchBook. Exclude companies that only have history of fund raising from VCs for Grants, Debts, IPOs, or M&As. Cities Extract companies located in Silicon Valley, New York, Boston, Texas, London, Paris, Berlin, Tel Aviv, Singapore, the Tokyo area, the Kansai area, Aichi prefecture, or Fukuoka prefecture under "Location" in PitchBook. Extract only companies that are headquartered in the above locations (check "Search HQ Only" in PitchBook) Methods for counting/displaying data Total funding per capita Display the value determined by dividing the total amount of funds raised by startups per city by the population of each city Use the JPY amount displayed in PitchBook

1. Startups - 1.2 Business growth - 1.2.2. Number of startups by funding size (1/2)

Contents of research	Methodology
Number of startups that raised at least JPY 1 billion (Startups/Deep Tech startups)	 Source: All data: PitchBook Refining method of applicable data within source Startups Extract companies with history of fund raising from VCs under "Deal Types" in PitchBook. Exclude companies that only have history of fund raising from VCs for Grants, Debts, IPOs, or M&As. Cities Extract companies located in Silicon Valley, New York, Boston, Texas, London, Paris, Berlin, Tel Aviv, Singapore, Seoul, the Tokyo area, the Kansai area, Aichi prefecture, or Fukuoka prefecture under "Location" in PitchBook. Extract only companies that are headquartered in the above locations (check "Search HQ Only" in PitchBook) Deep Tech Among the companies registered in PitchBook, extract companies categorized as industrial/technical fields (AI, computers, energy/environment, bio/healthcare, materials/industry, aerospace, food and agriculture), which are defined as deep tech fields in official reports and other documents Methods for counting/displaying data Number of startups that raised at least JPY 1 billion Display the number of startups extracted via the above method by the total amount of funds raised by startups (Total Capital Raised) threshold of JPY 1 billion, JPY 10 billion, and JPY 100 billion Categorize by using the JPY amount displayed in PitchBook Ratio of startups with at least JPY 1 billion in raised funds among all startups Display the value determined by dividing the number of companies extracted via the above method by the total number of startups
Ratio of startups with at least JPY 1 billion in raised funds among all startups (Startups/Deep Tech startups)	

1. Startups - 1.2 Business growth - 1.2.2. Number of startups by funding size (2/2)

Contents of research	Methodology
Number of unicorn companies (Startups/Deep Tech startups)	 Source: All data: PitchBook Refining method of applicable data within source Startups Extract companies with history of fund raising from VCs or from investors with the attributes "Growth/Expansion" in Private Equity under "Deal Types" in PitchBook Exclude companies that only have history of fund raising from VCs for Grants, Debts, IPOs, or M&As. Extract companies with an "Ownership Status" of "Privately Held" or "Acquired/Merged" (exclude public companies with IPO status), and that are also categorized as "Completed" under "Deal Status" Deep Tech Among the companies registered in PitchBook, extract companies categorized as industrial/technical fields (AI, computers, energy/environment, bio/healthcare, materials/industry, aerospace, food and agriculture), which are defined as deep tech fields in official reports and other documents Market capitalization Set "Post Valuation" to USD 1 billion or more Methods for counting/displaying data Number of unicorn companies Identify the headquarters ("HQ Country" in PitchBook) of the companies extracted via the above method, and display countries that have more unicorn companies than Japan Ratio of unicorn companies to total number of startups Display the value determined by dividing the number of companies extracted via the above method by the total number of startups in each country
Ratio of unicorn companies to total number of startups (Startups/Deep Tech startups)	

1. Startups - 1.2 Business growth - 1.2.3. Employee compensation (1/2)

Contents of research	Methodology
Comparison of incentive rates in Japan, the US and Europe (1/2)	 Source: Japan: Certificate of All Historical Matters (also the Certificate of Partial Removed Matters, if available) US/Europe: State of European Tech 2022 "Employee Ownership"
	 Definition Incentive rates Japan: Ratio of "number of dilutive shares from stock options" to "number of outstanding shares" (number of dilutive shares from stock options/number of outstanding shares) US/Europe: Ratio of the shares owned by employees per startup rounds (Seed, Series A, B, C) in "Employee Ownership" included in the source Company stage Japan: As per public data such as company databases Seed: The period from when the initial fund raising was conducted until the time of Series A Series A: When the valuation of a company after fund raising is JPY500 million or more (categorized as Series A when the valuation of a company is in the condition of Series A and onwards, it is categorized as the next Series when its valuation increases by 20% or more due to a new fund raising
	 OS/Europe: As per the data of state of European fech 2022 Note Individuals eligible for incentives in this research are all employees including business founders and managers The company stages defined in public data in Japan such as company databases may differ from that defined by US companies As State of European Tech 2022 does not include data regarding the breakdown of "Europe", the countries and regions covered by its research is unknown

1. Startups - 1.2 Business growth - 1.2.3. Employee compensation (2/2)

Contents of research	Methodology
Comparison of incentive rates in Japan, the US and Europe (2/2)	 Refining method of applicable data within source Japan: Refine data as per the below steps 1 to 4 1. Extract Japanese companies that have launched an IPO within the last 5 years (January 2018 to October 2023) and have results in fund raising from VCs in PitchBook 2. From the companies extracted in 1., extract companies for which its round data relating to fund raising (e.g. Series A) can be understood from the company database 3. From the companies extracted in 2., extract companies for which history for issuing stock options can be confirmed by referring to the company's annual securities report 4. From the companies extracted in 3., select the top 100 companies in terms of total funds raised as the companies subject to analysis (obtain and analyze the certificate of all historical matters (also the Certificate of Partial Removed Matters, if available) of each of these 100 companies) US/Europe Use data from State of European Tech 2022 "Employee Ownership" Methods for counting/displaying data Comparison of incentive rates in Japan, the US and Europe Display the incentive rates extracted via the above method by each company round

1. Startups - 1.2 Business growth - 1.2.4. Exit (1/6)

Contents of research	Methodology
Number of startup exits	 Source: Exit (IPO and M&A) startups: PitchBook Refining method of applicable data within source Startups Extract companies with history of fund raising from VCs under "Deal Types" in PitchBook. Extract companies that only have history of fund raising from VCs for Grants, Debts, IPOs, or M&As. Cities Extract companies located in Silicon Valley, New York, Boston, Texas, London, Paris, Berlin, Tel Aviv, Singapore, the Tokyo area, the Kansai area, Aichi prefecture, or Fukuoka prefecture under "Location" in PitchBook. Extract only companies that are headquartered in the above locations (check "Search HQ Only" in PitchBook) Methods for counting/displaying data Exit: Respectively count the startups which launched an IPO or M&A IPO: Count the number of companies which are categorized as "Acquired/Merged" or "Acquired/Merged (Operating Subsidiary)" under "Ownership Status" in PitchBook Note Applicable M&As include all cases, such as when a startup survives as an independent entity or is absorbed by its parent entity

1. Startups - 1.2 Business growth - 1.2.4. Exit (2/6)

Contents of research	Methodology
Number of startups IPOs	 Source: Startups: PitchBook Value at the time of IPO: As per public data such as company databases Refining method of applicable data within source Startups Extract companies with history of fund raising from VCs under "Deal Types" in PitchBook. Exclude companies that only have history of fund raising from VCs for Grants, Debts, IPOs, or M&As. Cities Extract companies located in Silicon Valley, New York, Boston, Texas, London, Paris, Berlin, Tel Aviv, Singapore, the Tokyo area, the Kansai area, Aichi prefecture, or Fukuoka prefecture under "Location" in PitchBook. Extract only companies that are headquartered in the above locations (check "Search HQ Only" in PitchBook) Methods for counting/displaying data Proportion of startups conducting IPOs Display the value determined by dividing the number of startups that have launched an IPO extracted via the above method by the total number of research to startups Startup market capitalization value at the time of IPO Limit the scope of research to startups that launched an IPO in 2010 or onwards Gather data regarding the value at the time of IPO from public data such as the company database, and display the determined value Refer to the International Monetary Fund (IMF) exchange rate as of 7 November 2023, and convert the currencies of each country into Japanese Yen. For Hong Kong dollar, the historical rate tables available on the Xe website was used for conversion into Japanese Yen, as there was no IMF data available
Proportion of startups conducting IPOs	
Startup market capitalization value at the time of IPO	

1. Startups - 1.2 Business growth - 1.2.4. Exit (3/6)

Contents of research	Methodology
Non-US startups listed on NASDAQ	 Source: Startups: PitchBook Examples Sumant Sinha website Sweden Uppsala University website AbbraTech website Olink Proteomics website NASDAQ website PitchBook (data in "4. Supporting entrepreneurs in home country") Refining method of applicable data within source Startups Extract companies with history of fund raising from VCs under "Deal Types" in PitchBook. Exclude companies that only have history of fund raising from VCs for Grants, Debts, IPOs, or M&As. Countries Extract companies that are headquartered in countries other than the US (check "Search HQ Only" in PitchBook) Extract companies that include "(NAS:" in company name (In PitchBook, companies that have launched an IPO onto NASDAQ have the stock symbol"(NAS:" at the end of its name) Methods for counting/displaying data Non-US startups listed on NASDAQ Display the number of companies extracted via the above method

1. Startups - 1.2 Business growth - 1.2.4. Exit (4/6)

Contents of research	Methodology
Number of startups merged or acquired	 Source: Startups: PitchBook Refining method of applicable data within source Startups Extract companies with history of fund raising from VCs under "Deal Types" in PitchBook. Exclude companies that only have history of fund raising from VCs for Grants, Debts, IPOs, or M&As. Cities Extract companies located in Silicon Valley, New York, Boston, Texas, London, Paris, Berlin, Tel Aviv, Singapore, the Telvio area, the Kanzai area, Aishi profecture, or Fukueka profecture under "Legation" in PitchBook.
Ratio of startups acquired through M&A	 Tokyo area, the Kansai area, Aichi prefecture, or Fukuoka prefecture under "Location" in PitchBook. Extract only companies that are headquartered in the above locations (check "Search HQ Only" in PitchBook) Methods for counting/displaying data Number of startups merged or acquired Count and display the number of companies categorized as "Acquired/Merged" or "Acquired/Merged (Operating Subsidiary)" under "Ownership Status" in PitchBook Ratio of startups acquired through M&A Display the value determined by dividing the number of startups that have launched an M&A (that have been extracted via the above method) by the total number of startups
	 Applicable M&As include all cases, such as when a startup survives as an independent entity or is absorbed by its parent entity

1. Startups - 1.2 Business growth - 1.2.4. Exit (5/6)

Contents of research	Methodology
Total M&A deal value	 Source: Startups: PitchBook M&A deal value: As per public data such as company databases Refining method of applicable data within source Startups Extract companies with history of fund raising from VCs under "Deal Types" in PitchBook. Exclude companies that only have history of fund raising from VCs for Grants, Debts, IPOs, or M&As. Cities Extract companies located in Silicon Valley, New York, Boston, Texas, London, Paris, Berlin, Tel Aviv, Singapore, the Tokyo area, the Kansai area, Aichi prefecture, or Fukuoka prefecture under "Location" in PitchBook. Extract only companies that are headquartered in the above locations (check "Search HQ Only" in PitchBook)
Total M&A deal value per startup	 Methods for counting/displaying data Total M&A deal value Display the number of startups that have launched an M&A (that have been extracted via the above method) by city of its headquarters location, by researching the M&A deal value from public data such as the company database Total M&A deal value per startup Display the value determined by dividing the total M&A deal value of each city by the number of startups acquired in M&As for cities for which there is data regarding M&A deal value Note Applicable M&As include all cases, such as when a startup survives as an independent entity or is absorbed by its parent entity

1. Startups - 1.2 Business growth - 1.2.4. Exit (6/6)

Contents of research	Methodology
Companies that merged or acquired startups based in each city	 Source: Startups: PitchBook M&A deal value: As per public data such as company databases Refining method of applicable data within source Startups Extract companies with history of fund raising from VCs under "Deal Types" in PitchBook. Exclude companies that only have history of fund raising from VCs for Grants, Debts, IPOs, or M&As. Cities Extract companies located in Silicon Valley. New York, Boston, Texas, London, Paris, Berlin, Tel Aviy, Singapore, the
	 Tokyo area, the Kansai area, Aichi prefecture, or Fukuoka prefecture under "Location" in PitchBook. Extract only companies that are headquartered in the above locations (check "Search HQ Only" in PitchBook) Methods for counting/displaying data Companies that merged or acquired startups based in each city Prepare the attributes data of the industry area of the acquiring company in the M&A, for which the M&A deal value has been identified from public data such as the company database, by referring to PitchBook ("Primary Industry Group") and databases of other companies Note Applicable M&As include all cases, such as when a startup survives as an independent entity or is absorbed by its parent entity

1. Startups - 1.3 Human resources - 1.3	L. Number of humar	resources by country (1/2)
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Contents of research	Methodology
Number of STEM degree holders and per capita rate by country (1/2)	 Source: STEM degree holders US/Canada/UK/France/Germany/Israel/South Korea/Japan (part): OECD.Stat (Graduates by field) Singapore: "Education Statistics Digest" published by the Ministry of Education Japan (part): School basic survey conducted by the Ministry of Education, Culture, Sports, Science and Technology Population: OECD.Data (Population) Refining method of applicable data within source Years Gathered data across the past five years from 2017 to 2021 Fields Gathered data of the fields defined by the OECD as STEM fields, which are natural sciences, mathematics and statistics/engineering, manufacturing and construction/information and communication technologies (ICTs) Degrees Gathered data of Bachelor's degree and above (including Master's degree and Doctor's degree)

1. Startups - 1.3 Human resources - 1.3.1. Number of human resources by country (2/2)

Contents of research	Methodology
Number of STEM degree holders and per capita rate by country (2/2)	 Methods for counting/displaying data Number of STEM degree holders and per capita rate by country Display the values determined by dividing the STEM degree holders extracted via the above method by the population of each country
	 Separate notes for particular countries Singapore Referred to the "Education Statistics Digest" published by the Singapore Ministry of Education for each year's data, as there is no data of degree holders in OECD.Stat. STEM fields are the three fields of Engineering Sciences, Information Technology, and Natural & Mathematical Sciences. This data is for undergraduates (bachelor degrees) only and data for master's and above is not available Japan Added the number of degree holders in the field of "telecommunications engineering" in the School basic survey conducted by the Ministry of Education, Culture, Sports, Science and Technology, as there is no information of degree holders of Information Technologies (ICTs) in OECD.Stat.

1. Startups - 1.3 Human resources - 1.3.2. Background of Deep Tech startup founders

Contents of research	Methodology
Ph.D holder ratio among Deep Tech startup founders	 Source: All data: PitchBook Refining method of applicable data within source Business founders Limit job title ("Position Levels" in PitchBook) to titles that include Founder, or Founding Partner. Limit current conditions ("Position Status" in PitchBook) to "Active" Company types Limit company type ("Company Type" in PitchBook) to operating company related companies ("PE-backed", "VC-backed", and "Company-backed") Deep Tech Refers to each of the industry categories in PitchBook that fall under industrial/technical fields (AI, computers, energy/environment, bio/healthcare, materials/industry, aerospace, food and agriculture) as defined as deep tech fields in official reports and other documents. Ph.D holders Use the search filter "Prefix" in PitchBook and limit to persons with the title "Dr." in front of their name Methods for counting/displaying data Ph.D holder ratio among Deep Tech startup founders Display the value determined by dividing the number of Deep Tech startup founders and Ph.D holders by the number of Deep Tech startup founders

1. Startups - 1.3 Human resources - 1.3.3. Gender ratio of Deep Tech startup members (1/2)

Contents of research	Methodology
Ratio of women among Deep Tech startup founders	 Source: All data: PitchBook Refining method of applicable data within source Gender Count individuals under "Female" in the "Sex" column in PitchBook. Count individuals under "Male" as well as blank entries. Company types Limit company type ("Company Type" in PitchBook) to operating company related companies ("PE-backed", "VC-backed", and "Company-backed") Deep Tech Refers to each of the industry categories in PitchBook that fall under industrial/technical fields (AI, computers, energy/environment, bio/healthcare, materials/industry, aerospace, food and agriculture) as defined as deep tech fields in official reports and other documents. Methods for counting/displaying data Ratio of women among Deep Tech startup founders In addition to the above extraction method, filter the job title ("Position Levels" in PitchBook) to titles that include Founder, or Founding Partner, and current conditions ("Position Status" in PitchBook) to "Active" and display the number of extracted persons

1. Startups - 1.3 Human resources	- 1.3.3.	Gender ratio o	f Deep	Tech startup me	embers (2/	/2)
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Contents of research	Methodology
Ratio of female Deep Tech startup CxOs	 Source: Number of females at Deep Tech startups: PitchBook Number of females as directors of listed companies: Overall data of "Status of female directors of listed companies based on annual securities reports" of the Gender Equality Bureau Cabinet Office female directors information website Refining method of applicable data within source Gender Count individuals under "Female" in the "Sex" column in PitchBook. Count individuals under "Male" as well as blank entries.
Comparison of ratio of female CxO in Deep Tech startups and listed companies in Japan	 Limit company type ("Company Type" in PitchBook) to operating company related companies ("PE-backed", "VC-backed", and "Company-backed") Deep Tech Refers to each of the industry categories in PitchBook that fall under industrial/technical fields (AI, computers, energy/environment, bio/healthcare, materials/industry, aerospace, food and agriculture) as defined as deep tech fields in official reports and other documents. Methods for counting/displaying data
Ratio of female employees at Deep Tech startups	 Ratio of female Deep Tech startup CxOs In addition to the above extraction method, filter the job title ("Position Levels" in PitchBook) to CxO titles and titles that include Board, Chairman, CEO, Executive, Founder, Founding Partner, Owner, or President, and filter current conditions ("Position Status" in PitchBook) to "Active" and display the number of extracted persons Ratio of female employees at Deep Tech startups Display the number of persons extracted via the above method (without filtering with name of job title in PitchBook)

Appendix

1 Methodology (details)

Chapter 1 Startups

Chapter 2 Universities

Chapter 3 Investors

2 Deep Tech industry

2. Universities - 2.1 Intellectual Property - 2.1.1 Research expenses (1/2)

Contents of research	Methodology
University research expenses	Source: • US: AUTM • Japan: Ministry of Internal Affairs and Communications "2022 Science Technology Research" Refining method of applicable data within source • Years • Gather data for the five years from 2017 to 2021 • US • Extract data of total research expenses (refers to "Tot Res Exp" in AUTM) • Japan • Extract data of total research expenses (included in "Research expenses (universities etc.)" of the source) Methods for counting/displaying data • University research expenses • Display the research expenses extracted via above method by country

2. Universities - 2.1 Intellectual Property - 2.1.1 Research expenses (2/2)

Contents of research	Methodology
Ratio of amount spent by top-ranking US universities among all university research expenses in US	 Source: All data: AUTM Refining method of applicable data within source Equivalent to research expenses of universities Methods for counting/displaying data Ratio of amount spent by top-ranking universities among all university research expenses Among all 543 universities, define the top 20 universities in terms of total research expenses as "top universities" Determine the ratio of the total research expenses of the top universities to the total research expenses of all 543 universities For the top universities, also display the total amount of research expenses of all top universities, and the ratio of this amount to the total research expenses of all 543 universities
	 Note The University of California System, University of Texas System, and University System of Maryland do not have data of each of its institutions in AUTM Johns Hopkins University includes the Johns Hopkins University Applied Physics Laboratory which was classified as a separate institution in AUTM Inconsistencies in data within the AUTM have been aligned as necessary

2. l	Jniversities	- 2.1	Intellectual	Property -	2.1.2	Patents	(1,	/2)
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Contents of research	Methodology
Number of university patent registrations	 Source: US: AUTM Japan: Patent office Japan "Patent Office Annual Report" Refining method of applicable data within source Years Gather data for the five years from 2017 to 2021 US Extract data of number of patent registrations ("Iss US Pat" in AUTM) Japan Extract data of number of patent registrations (included in "Number of patent registrations of Japanese universities and approved TLOs")
Comparison of university research expenses per patent	 Methods for counting/displaying data Number of university patent registrations Display the number of patent registrations extracted via the above method by country Comparison of university research expenses per patent Display the value determined by dividing the number of university patent registrations by the research expenses of the university

2. Universities - 2.1 Intellectual Property - 2.1.2 Patents (2/2)

Contents of research	Methodology
Ratio of patents owned by top-ranking universities among all the patents granted to universities (US/Japan)	 Source: US: AUTM Japan: Patent office Japan "Patent Office Annual Report" Refining method of applicable data within source Equivalent to the number of university patent registrations Methods for counting/displaying data Ratio of patents owned by top-ranking universities among all the patents granted to universities US Among all 543 universities, define the top 20 universities in terms of number of patent registrations as "top universities" Determine the ratio of the patent registrations of the top universities of all 543 universities For the top universities, also display the total number of patent registrations of all 543 universities For the top universities, define the top 20 universities in terms of number of patent registrations of all 543 universities For the top universities, also display the total number of patent registrations of all 543 universities Japan Among all 136 universities, define the top 20 universities in terms of number of patent registrations as "top universities" Japan Among all 136 universities, define the top 20 universities in terms of number of patent registrations as "top universities" Determine the ratio of the patent registrations of number of patent registrations of all 126 universities For the top universities, also display the total number of patent registrations of all 136 universities For the top universities to the number of patent registrations of all 136 universities For the top universities to the number of patent registrations of all 136 universities Inconsistencies in data within the source have been aligned as necessary Note (US) The University of California System, University of Texas System, and University System of Maryland do not have data of each of its institutions in AUTM Johns Hopkins University includes the Johns Hopkins Univer

2.	Universities -	2.1	Intellectual	Property -	2.1.	3 Licen	sing ((1)	/2)
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Contents of research	Methodology
University licensing revenue	 Source: US: AUTM Japan: Ministry of Education, Culture, Sports, Science and Technology "Current status of industry-academia collaborations and universities and other institutions" Refining method of applicable data within source
	 Years Gather data for the five years from 2017 to 2021
University licensing revenue per patent	 US Determine based on the data of number of patent registrations (refers to "Gross Lic Inc" in AUTM) Japan Respectively display the total amount of "revenue from practicing patent rights etc." for data for 2017 and "licensing revenue" for data for 2018 and onwards (unlike data for 2018 onwards, there is no data available that is more detailed than "revenue from practicing patent rights" for 2017)
	Methods for counting/displaying data
Profitability against university research expenses	 Oniversity incensing revenue Display the licensing revenue extracted via the above method by country University licensing revenue per patent Display the value determined by dividing the number of university patent registrations by the university licensing revenue Profitability against university research expenses Display the value determined by dividing the university licensing revenue by the research expenses of the university

2. Universities - 2.1 Intellectual Property - 2.1.3 Licensing (2/2)

Contents of research	Methodology
Ratio of amount generated by top-ranking universities to total university licensing revenue (US/Japan)	 Source: US: AUTM Japan: Ministry of Education, Culture, Sports, Science and Technology "Current status of industry-academia collaborations and universities and other institutions" Refining method of applicable data within source Equivalent to university licensing revenue Methods for counting/displaying data US Among all 543 universities, define the top 20 universities in terms of licensing revenue as "top universities" Determine the ratio of the licensing revenue of the top universities to the licensing revenue of all 543 universities For the top universities, also display the total amount of licensing revenue of all top universities, and the ratio of this amount to the total licensing revenue of all 1,105 universities Japan Among all 1,105 universities, define the top 20 universities in terms of licensing revenue as "top universities" Japan Among all 1,105 universities, define the top 20 universities in terms of licensing revenue as "top universities" Determine the ratio of the licensing revenue of the top universities to the licensing revenue as "top universities" Determine the ratio of the licensing revenue of the top universities to the licensing revenue of all 1,105 universities For the top universities, also display the total amount of licensing revenue of all 1,105 universities For the top universities, also display the total amount of licensing revenue of all 1,105 universities For the top universities, also display the total amount of licensing revenue of all top universities, and the ratio of this amount to the total licensing revenue of all 1,105 universities Note Japan/US mutual Inconsistencies in data within the source have been aligned as necessary US Johns Hopkins University includes the Johns Hopkins University Applied Physics Laboratory which was

2. Universities - 2.2 Financial contribution - 2.2.1 Ratio of university spin-out company shares held by universities

Contents of research	Methodology
Ratio of university spin-out company shares held by universities	 Source: EU/UK/US: SPINOUT.fyi Database Japan: Ministry of Economy, Trade, and Industry Database on University-Developed Venture Businesses (research data for the three years 2020 through 2022) Refining method of applicable data within source Extract the average value of the ratio of university spin out company shares hold by universities by country/region
	 Extract the average value of the ratio of university spin-out company shares held by universities by country/region EU/UK/US: Extract the numbers noted as the answer to the question "Equity: What % of your company did your University/TTO own upon founding and before any investment was raised?" Japan Extract the number noted in the column "domestic universities" under "capital structure"
	 Methods for counting/displaying data Ratio of university spin-out company shares held by universities Display the ratio of shares held extracted via the above method by country/region
	 Note While data for EU/UK/US companies is as of the time of establishment of the company, data for Japanese companies is as of when the database for the source was created For Japanese companies that appear multiple times within the research across the three years (e.g. companies for which is data available in both investigations conducted in 2021 and 2022), the data from the older fiscal year was used for the purpose of collecting data from the time that is closer to the establishment of the company The number of startups (parameters of the companies subject to analysis) were 333 for Japan, 64 for the EU, 94 for the UK, and 18 for the US. The year the oldest company was established was in 1997 for Japan, 2007 for the EU, 1984 for the UK, and 2014 for the US.

Appendix

1 Methodology (details)

Chapter 1 Startups

Chapter 2 Universities

Chapter 3 Investors

2 Deep Tech industry

3. Investors - 3.1.1 Number of investments - 3.1.1 Number of investments

Contents of research	Methodology
Top-ranking investors with most investments	 Source: All data: PitchBook Refining method of applicable data within source Cities Extract companies with the "Deal Location" of Silicon Valley, New York, Boston, Texas, London, Paris, Berlin, Tel Aviv, Singapore, the Tokyo area, the Kansai area, Aichi prefecture, or Fukuoka prefecture under "Location" in PitchBook. Number of deals include startup investment deals conducted in locations other than the startup's headquarters location (e.g. locations only with a branch) Deep Tech Among the companies registered in PitchBook, extract companies categorized as industrial/technical fields (AI, computers, energy/environment, bio/healthcare, materials/industry, aerospace, food and agriculture), which are defined as deep tech fields in official reports and other documents Years Extract data for deals conducted on dates between 2018 and 2022 ("Deal Date" in PitchBook) Methods for counting/displaying data Top-ranking investors with most investments Display the value determined by counting the number of "investment" in PitchBook based on the data extracted above (without filtering by "Deal Type," i.e., limiting to VC-related investments and excluding grants)

3. Investors - 3.2 VC investments - 3.2.1 Attributes

Contents of research	Methodology
Attributes of VC investors	 Source: All data: PitchBook Refining method of applicable data within source Cities Extract companies located in Silicon Valley, New York, Boston, Texas, London, Paris, Berlin, Tel Aviv, Singapore, the Tokyo area, the Kansai area, Aichi prefecture, or Fukuoka prefecture under "Location" in PitchBook. Extract only investors that are headquartered in the above locations (check "Search HQ Only" in PitchBook) Investors Extract investors who are categorized as a VC or angel investor ("Angel (Group)" in PitchBook) for investor attributes ("Investor Type" in PitchBook) Methods for counting/displaying data (1) The main attributes of investors who include the phrase "VC" in their attributes (=main attributes of investors who are conducting VC business) Display the value determined by counting the data extracted above by the main attributes of the investor ("Primary Investor Type" in PitchBook) (2) Other attributes of investors who have the main attribute of a VC Among the data extracted above, display the value determined by counting the investors whose main attributes are VC ("Primary Investor Type" in PitchBook)

3. Investors - 3.2 VC investments - 3.2.2 Investment amounts (1/5)

Contents of research	Methodology	
Contents of research Global VC investment trend (by industry/ Deep Tech category)	Methodology Source: • All data: PitchBook Refining method of applicable data within source • • Deals • Select and extract companies with deal type "All VC stages" ("Deal Types" in PitchBook) • Investors • Select and extract companies with the attributes of "Venture Capital" ("Investor Type" in PitchBook) Methods for counting/displaying data • (1) VC investment amounts by industry • Among the data extracted above, respectively count and display the values for industries ("Industries, Verticals & Keywords" in PitchBook) categorized as B2B, B2C, Energy, Financial Services, Healthcare, Information Technology, Materials and Resources • Use the USD amount displayed in PitchBook • (2) VC investment amounts in the Deep Tech industry • Among the data extracted above, display the respective total value for the industries ("Industries, Verticals & Keywords" in PitchBook) categorized as industrial/technical fields (AI, computers, energy/environment, bio/healthcare, materials/industry, aerospace, food and agriculture), which are defined as deep tech fields in offici reports and other documents	al
	 (2) VC investment amounts within each of the Deep Tech fields Count and display the values for industries ("Industries, Verticals & Keywords" in PitchBook) categorized as AI & Machine Learning, Climate Tech, Cryptocurrency & Blockchain, Robotics and Drones, Space Tech, Pharma & Bio, an Life Sciences Use the USD amount displayed in PitchBook 	d 172

3. Investors - 3.2 VC investments - 3.2.2 Investment amounts (2/5)

Contents of research	Methodology
Changes in VC investment amounts by country (Startups/ Deep Tech startups)	 Source: All data: PitchBook Refining method of applicable data within source Deals Select deals with deal type "All VC Stages" ("Deal Types" in PitchBook) Investors Select investors with the attributes "Venture Capital" ("Investor Type" in PitchBook) Countries Extract data relating to the receiving investments of companies who is headquartered or has a location ("Any Office" in PitchBook) in the US, China, India, South Korea, Singapore, or Japan Methods for counting/displaying data (1) VC investment amounts by country Count the data extracted above by country Use the USD amount displayed in PitchBook (2) VC investment amounts in the Deep Tech industry by country Among the data extracted above, display the respective total value for the industries ("Industries, Verticals & Keywords" in PitchBook) categorized as industrial/technical fields (Al, computers, energy/environment, bio/healthcare, materials/industry, aerospace, food and agriculture), which are defined as deep tech fields in official reports and other documents, by country Use the USD amount displayed in PitchBook

3. Investors - 3.2 VC investments - 3.2.2 Investment amounts (3/5)

Contents of research	Methodology
Distribution of number of investments and combined investment amounts by investment size	 Source: All data: PitchBook Refining method of applicable data within source Deals Select deals with deal type "All VC Stages" ("Deal Types" in PitchBook) Extract data for deals conducted on dates between 2018 and 2023 ("Deal Date" in PitchBook) Investors Select investors with the attributes "Venture Capital" ("Investor Type" in PitchBook) Countries Extract data relating to the receiving investments of companies who is headquartered or has a location ("Any Office" in PitchBook) in the US, UK, France, Germany, Israel, India, Singapore, China, South Korea, or Japan Methods for counting/displaying data (1) Distribution of number of investments by investment size Among the data extracted above, count and display the number of investments ("Deal Count" in PitchBook) by country Categorize by using the JPY amount displayed in PitchBook (2) Distribution of combined investment amounts by investment size Among the data extracted above, count and display the combined investment amount ("Capital Invested" in PitchBook) by country Categorize by using the JPY amount displayed in PitchBook (2) Distribution of provestment amounts by investment size Among the data extracted above, count and display the combined investment amount ("Capital Invested" in PitchBook) by country Categorize by using the JPY amount displayed in PitchBook

3. Investors - 3.2 VC investments - 3.2.2 Investment amounts (4/5)

Contents of research	Methodology
Top 10 largest companies by market capitalization and their VC funding records (US/Japan)	 Source: Top 10 largest companies by market capitalization: Public data The Nikkei website (market capitalization page) VC funding records: PitchBook
	Refining method of applicable data within source Companies
	 Search and extract companies by entering the top 10 largest companies by market capitalization by name VC funding records
	 Among the data extracted above, extract the number of investors ("Investor" in PitchBook) for whose history of investments in companies are indicated, and have the attributes of VC ("Investor Type" in PitchBook)
	Methods for counting/displaying data
	 Top 10 largest companies by market capitalization and their VC funding records Respectively display the data extracted above by country and company

3. Investors - 3.2 VC investments - 3.2.2 Investment amounts (5/5)

Contents of research	Methodology
VCs funding unicorn companies in each country	 Source: All data: PitchBook Refining method of applicable data within source Startups Extract companies with history of (Deal Types of) fund raising from VCs or from investors with the attributes of "Growth/Expansion" in Private Equity Exclude companies that only have history of fund raising from VCs for Grants, Debts, IPOs, or M&As. Extract companies with an "Ownership Status" of "Privately Held" or "Acquired/Merged" (exclude public companies with IPO status), and that are also categorized as "Completed" under "Deal Status" Countries Extract unicorn companies ("HQ country" in PitchBook) of countries that have more unicorn companies than Japan Market capitalization Set "Post Valuation" to USD 1 billion or more Methods for counting/displaying data VCs funding unicorn companies in each country Among the data extracted above, count and display the number of investors ("Investor" in PitchBook) for whose history of investor Location" in PitchBook displayed when filtering by "Search HQ Only" when searching)

3. Investors - 3.3 Angel investors - 3.3.1 Number of angel investors

Contents of research	Methodology
Number of angel investors	Source: • All data: PitchBook Refining method of applicable data within source • Cities • Extract companies located in Silicon Valley, New York, Boston, Texas, London, Paris, Berlin, Tel Aviv, Singapore, the Tokyo area, the Kansai area, Aichi prefecture, or Fukuoka prefecture under "Location" in PitchBook. • Extract only investors that are headquartered in the above locations (check "Search HQ Only" in PitchBook) • Investors • Extract investors who have the main attributes ("Primary Investor Type" in PitchBook) of an angel investor ("Angel (Group)" in PitchBook) Methods for counting/displaying data • Number of angel investors • Count and display the data extracted above by the headquarters location of the angel investors

3. Investors - 3.3 Angel investors - 3.3.2 Investments by angel investors (1/2)

Contents of research	Methodology
Total angel investment amounts	 Source: All data: PitchBook Refining method of applicable data within source Cities Extract companies located in Silicon Valley, New York, Boston, Texas, London, Paris, Berlin, Tel Aviv, Singapore, the Tokyo area, the Kansai area, Aichi prefecture, or Fukuoka prefecture under "Location" in PitchBook. Extract only investors that are headquartered in the above locations (check "Search HQ Only" in PitchBook) Investors Extract investors who have the main attributes ("Primary Investor Type" in PitchBook) of an angel investor ("Angel (Group)" in PitchBook) Deep Tech (apply when conducting research relating to Deep Tech startups) Refers to the industries ("Industries, Verticals & Keywords" in PitchBook) categorized as industrial/technical fields (AI, computers, energy/environment, bio/healthcare, materials/industry, aerospace, food and agriculture), which are defined as deep tech fields in official reports and other documents Methods for counting/displaying data Total angel investment amounts Among the data extracted above, count the combined investment amount of angel investors by their headquarters location Use the JPY amount displayed in PitchBook Comparison of investment amounts by angel investors (Startups/ Deep Tech startups) Among the data extracted above, compare the combined investment amount by angel investors and their investments in the Deep Tech industry Use the JPY amount displayed in PitchBook
Comparison of investment amounts by angel investors (Startups/Deep Tech startups)	

3. Investors - 3.3 Angel investors - 3.3.2 Investments by angel investors (2/2)

Contents of research	Methodology
Comparison of number of investments by angel investors (Startups/Deep Tech startups)	 Source: All data: PitchBook Refining method of applicable data within source Cities Extract companies located in Silicon Valley, New York, Boston, Texas, London, Paris, Berlin, Tel Aviv, Singapore, the Tokyo area, the Kansai area, Aichi prefecture, or Fukuoka prefecture under "Location" in PitchBook. Extract only investors that are headquartered in the above locations (check "Search HQ Only" in PitchBook) Investors Extract investors who have the main attributes ("Primary Investor Type" in PitchBook) of an angel investor ("Angel (Group)" in PitchBook) Deep Tech (apply when conducting research relating to Deep Tech startups) Refers to the industries ("Industries, Verticals & Keywords" in PitchBook) categorized as industrial/technical fields (AI, computers, energy/environment, bio/healthcare, materials/industry, aerospace, food and agriculture), which are defined as deep tech fields in official reports and other documents Methods for counting/displaying data Comparison of number of investments by angel investors (Startups/ Deep Tech startups) Among the data extracted above, compare the number of investment amount by angel investors and their number of investments in the Deep Tech industry Comparison of amount of each investment by angel investors (Startups/ Deep Tech startups) Among the data extracted above, compare the value determined by dividing the combined investment amount from angel investors by the number of their investments, and the value determined by dividing the investment amount from angel investors by the number of their investments in the industry Use the JPY amount displayed in PitchBook
Comparison of amount of each investment by angel investors (Startups/Deep Tech startups)	

3. Investors - 3.4 Accelerators and incubators - 3.4.1 Number of accelerators and incubators

Contents of research	Methodology
Contents of research Number of accelerators and incubators	 Methodology Source: All data: PitchBook Refining method of applicable data within source Cities Select deals that are conducted ("Deal Cities" in PitchBook) in Silicon Valley, New York, Boston, Texas, London, Paris, Berlin, Tel Aviv, Singapore, the Tokyo area, the Kansai area, Aichi prefecture, or Fukuoka prefecture, and extract investors who conduct investments in these locations Investors Extract investors with the main attributes ("Primary Investor Type" in PitchBook) of an accelerator or incubator ("Accelerator/Incubator" in PitchBook) Methods for counting/displaying data Number of accelerators and incubators Count and display the data extracted above by headquarters of accelerators and incubators
Methodology of this research is as follows:

3. Investors - 3.4 Accelerators and incubators - 3.4.2 Investments by accelerators and incubators (1/3)

Contents of research	Methodology
Amount of accelerator and incubator investments	Source: • All data: PitchBook
	 Refining method of applicable data within source Cities Select deals that are conducted ("Deal Cities" in PitchBook) in Silicon Valley, New York, Boston, Texas, London, Paris, Berlin, Tel Aviv, Singapore, the Tokyo area, the Kansai area, Aichi prefecture, or Fukuoka prefecture, and extract investors who conduct investments in these locations Investors Extract investors with the main attributes ("Primary Investor Type" in PitchBook) of an accelerator or incubator ("Accelerator/Incubator" in PitchBook) Deep Tech (apply when conducting research relating to Deep Tech startups) Refers to the industries ("Industries, Verticals & Keywords" in PitchBook) categorized as industrial/technical fields (AI,
Comparison of accelerator and incubator investment amounts (Startups/Deep Tech startups)	 computers, energy/environment, bio/healthcare, materials/industry, aerospace, food and agriculture), which are defined as deep tech fields in official reports and other documents Methods for counting/displaying data Amount of accelerator and incubator investments Among the data extracted above, count the combined investment amount from accelerators/incubators by the headquarters location of the accelerators/incubators Use the JPY amount displayed in PitchBook Data for the Kansai area and Fukuoka prefecture is not displayed as investment amount data is not available Comparison of accelerator and incubator investment amounts (Startups/ Deep Tech startups) Among the data extracted above, compare the combined investment amount from accelerators/incubators and their investment amounts in relation to the Deep Tech industry Use the JPY amount displayed in PitchBook

Methodology of this research is as follows:

3. Investors - 3.4 Accelerators and incubators - 3.4.2 Investments by accelerators and incubators (2/3)

Contents of research	Methodology				
Comparison of accelerator and incubator investment numbers (Startups/Deep Tech startups)	 Source: All data: PitchBook Refining method of applicable data within source Cities Select deals that are conducted ("Deal Cities" in PitchBook) in Silicon Valley, New York, Boston, Texas, London, Paris, Berlin, Tel Aviv, Singapore, the Tokyo area, the Kansai area, Aichi prefecture, or Fukuoka prefecture, and extract investors who conduct investments in these locations Investors Extract investors with the main attributes ("Primary Investor Type" in PitchBook) of an accelerator or incubator 				
Comparison of each accelerator/incubator investment amounts	 ("Accelerator/Incubator" in PitchBook) Deep Tech (apply when conducting research relating to Deep Tech startups) Refers to the industries ("Industries, Verticals & Keywords" in PitchBook) categorized as industrial/technical fields (AI, computers, energy/environment, bio/healthcare, materials/industry, aerospace, food and agriculture), which are defined as deep tech fields in official reports and other documents 				
(Startups/Deep Tech startups)	 Comparison of accelerator and incubator investment numbers (Startups/ Deep Tech startups) Among the data extracted above, compare the number of investments from accelerators/incubators and their number of investments in relation to the Deep Tech industry Comparison of each accelerator/incubator investment amounts (Startups/ Deep Tech startups) Among the data extracted above, compare the value determined by dividing the combined investment amount from accelerators/incubators by the number of their investments, and the value determined by dividing the investment amount from accelerators/incubators in the Deep Tech industry by the number of their investments in the industry Use the JPY amount displayed in PitchBook 				

Methodology of this research is as follows:

3. Investors - 3.4 Accelerators and incubators - 3.4.2 Investments by accelerators and incubators (3/3)

Contents of research	Methodology
Contents of research Top-ranking accelerators and incubators in terms of number of investments	Methodology Source: • All data: PitchBook Refining method of applicable data within source • Cities • Cities • Select deals that are conducted ("Deal Cities" in PitchBook) in Silicon Valley, New York, Boston, Texas, London, Paris, Berlin, Tel Aviv, Singapore, the Tokyo area, the Kansai area, Aichi prefecture, or Fukuoka prefecture, and extract investors who conduct investments in these locations • Investors • Extract investors with the main attributes ("Primary Investor Type" in PitchBook) of an accelerator or incubator ("Accelerator/Incubator" in PitchBook) Methods for counting/displaying data • Top-ranking accelerators and incubators in terms of number of investments • Among the data extracted above, display the name of the accelerator/incubator who rank within the top 10 in terms of numbers of investments (investments that are categorized as "Accelerator/Incubator" under "Deal Type" in PitchBook) by their city of headquarters

Appendix

- 1 Methodology (details)
- **2** Definition of Deep Tech industry

Definition of Deep Tech industry in the precedent reports

Definition of Deep Tech industry in this research

An examination of the definition of the Deep Tech industry in existing official reports was conducted, in order to consider the breakdown of Deep Tech in this research

Definition of Deep Tech (1/3)

Source:	Explanation of definition
Cabinet Office Report on the results of preliminary research relating to the 2022 Global Startup Campus Initiative	 Advanced Manufacturing: Manufacturing (3D printing, sensor, robotics) Artificial Intelligence & machine learning (ML): Artificial Intelligence/AI (deep learning, Machine Learning, recognition, Natural language processing, NLP, computer vision) Augmented Reality: Augmented Reality, AR (headset, eye tracking, smart glass, video, mobile, training, advertising) Autonomous cars: Autonomous cars, Self driving car (radar, GPS, odometry, software, computer vision, lidar) Big Data: Big data Climate Tech: Climate (renewable energy, energy storage, electrification, agricultural innovation, industrial process improvement, mining technology) Cloud Tech: software (develop, operationalize, monitor), application, hybrid cloud DevOps: DevOps (Software development, runtime capability) Cryptocurrency: Cryptocurrency (exchange, store, pay, secure, leader, mining) Blockchain: Blockchain (mining, crowd funding, smart contract, intellectual property, supply auditing, Identity management) Internet of Things: Internet of Thing/IoT (sensor, actuator, network, device) Life Sciences: Technology (sub-atomic, material, novel property) Oncology: Oncology (cancer, pharmaceutical, device, services-based model) Robotics: Robotics/Robotis (precise, remote, operation) Virtual Reality: Virtual reality/VR (remote, wearable, avatar, communication, 3D)

An examination of the definition of the Deep Tech industry in existing official reports was conducted, in order to consider the breakdown of Deep Tech in this research

Explanation of definition Source: Ministry of Ministry of The deep tech industry includes fields of quantum computing, robotics, semiconductors, electronic equipment, energy/environment, biotechnology, new materials, healthcare equipment, and industrial technology such as aerospace Economy, Trade, and Industry "Basic policy for the FY2023 deep-startups *Excludes fields relating to nuclear power, as prescribed in the Act on the New Energy and Industrial Technology Development Organization support project" (NEDO) *Barring exceptions, excludes fields relating to drug discovery (pharmaceuticals development and regenerative medicine projects) applicable to the "Strengthening Program for Pharmaceutical Startup Ecosystem/Venture Capital Registration" by the Japan Agency for Medical Research and Development (AMED). However, the fields include combined technology between drug development and industrial technology, and development of drug development support technology Ministry of Ministry of Industrial technology in the scope of the administration of Ministry of Economy, Trade, and Industry (e.g. robotics, AI, electronics, IoT, clean technology, materials, healthcare equipment, life science, biotechnology, and aerospace. Excludes technology related nuclear power.) Economy, Trade, and Industry "application guidelines for the FY2023 deep-startups support project" Massachusetts Institute of The material approach defines deep tech based on sectoral or product criteria (Hafied, 2022)* and hence, it does not properly reveal that the deep-tech character of a sector is not immutable. Indeed, a sector that is considered as located at the technological frontier today (e.g. Technology Management materials, blockchain, drones, artificial intelligence, aerospace, robotics, biotech, quantum computing etc.) may no longer be considered as **Global Program** "What is "Deep Tech" such tomorrow, once the underlying technology matures. and what are Deep *(Source language in Spanish): Recent research lists all technology that are regarded as deep tech today, such as aerospace, AI, quantum Tech Ventures?" computing (figure 5), robotics, electronics, photonics, biotechnology and healthcare technology, blockchain, advanced materials.

Definition of Deep Tech (2/2)

An examination of the definition of the Deep Tech industry in existing official reports was conducted, in order to consider the breakdown of Deep Tech in this research

Definition of Deep Tech (3/3)

Source:	Explanation of definition
International Finance Corporation (IFC) report "FRESH IDEAS ABOUT BUSINESS IN EM Compass"	These technologies include artificial intelligence (AI) and machine learning (ML), materials, advanced manufacturing, biotechnology and nanotechnology, drones and robotics, photonics and electronics, cleantech, spacetech, and life sciences.* Deep Tech companies are research and development (R&D) intensive and multidisciplinary.
dealroom.co "The European Deep Tech Report 2023"	 Novel AI Generative AI, AI-first biology, Privacy-preserving AI, Explainable AI, AI acceleration, Autonomous systems, General purpose AI Future of Computing Quantum computing, Silicon photonics, AR/VR/MR, Neuromorphic & advanced AI chips, Decentralized & distributed computing, Brain-computer interfaces, Ambient Computing Novel Energy Nuclear fusion, Next-gen battery chemistries, Large-scale storage, Green hydrogen, Supercapacitors, Waste heat recovery Space Tech Reusable and next-gen rockets, Satellites for communication & earth observation, In-space transportation, In-space manufacturing, Debris removal
Hello Tomorrow Japan website "DEEP TECH PIONEERS"	 Advanced Computing, Healthcare Energy & Environment Food & Agriculture Industrial Biotech & New Materials Mobility & Aerospace Industry 4.0 & Construction

Appendix

- 1 Methodology (details)
- **2** Definition of Deep Tech industry

Definition of Deep Tech industry in the precedent reports

Definition of Deep Tech industry in this research

Large category set in PitchBook	Industry	V	ertical	Emerging Spaces
Middle category (1)	Middle category (2)	#	Small category	
		1	Aerospace and Defer	se
		2	Electrical Equipment	
Business Products and Services (B2B)	Commercial Products	3	Industrial Supplies ar	nd Parts
		4	Machinery (B2B)	
	Consumer Durables	5	Electronics (B2C)	
Energy	Energy Equipment	6	Alternative Energy Ed	quipment
	Healthcare Devices and Supplies	7	Diagnostic Equipmen	it
			Surgical Devices	
Healthcare	Healthcare Services	9	Clinics/Outpatient Services	
lieatticale	Healthcare Technology Systems	10	Decision/Risk Analysi	is
	Bharmacouticals and Biotochnology	11	Biotechnology	
		12	Pharmaceuticals	
		13	Computers, Parts and	d Peripherals
	Computer Hardware	14	14 Electronic Components	
		15	Electronic Equipmen	t and Instruments
Information Technology		16	Application Specific S	Semiconductors
	Somiconductors	17	General Purpose Sem	niconductors
	Semiconductors	18	Production (Semicon	ductors)
		19	Other Semiconductors	
		20	Animal Husbandry	
		21	21 Aquaculture	
	Agriculture	22	22 Cultivation	
Materials and Resources		23	B Horticulture	
		24	Other Agriculture	
	Chemicals and Gases	Gases 25 Agricultural Chemicals		ls
	Construction (Non-Wood)	26	Raw Materials (Non-	Wood)

	Large category set in PitchBook	Industry	Vertical	Emerging Spaces
#	Category			
1	3D Printing			
2	Advanced Manufacturing			
3	AgTech			
4	Artificial Intelligence & Machine Learning			
5	Augmented Reality			
6	Autonomous cars			
7	Big Data			
8	CleanTech			
9	Climate Tech			
10	CloudTech & DevOps			
11	Cryptocurrency/Blockchain			
12	Digital Health			
13	FoodTech			
14	HealthTech			
15	Internet of Things			
16	Life Sciences			
17	Mobility Tech			
18	Nanotechnology			
19	Oncology			
20	Robotics and Drones			
21	Space Technology			
22	Virtual Reality			
23	Wearables & Quantified Self			

Large category set in PitchBook	Industry		Vertical	Emerging Spaces (1/4)		
Middle category	#	Small category				
	1	3D Printed Buildings				
	2	Al in Foodtech				
Rusiness Droducts and Corvises	3	Autonomous Flight				
Business Products and Services	4	Autonomous Ship	pping			
	5	Autonomous True	cking			
	6	Blockchain Real E	state			
	7	Climate Risk Mod	eling as a Service			
	8	3D Printed Foods				
	9	Al Enhanced Learning				
Consumer Products and Services	10	Clean Meat				
	11	Electric Vehicle P	latforms			
	12	End of Life Planning				
	13	Batteryless IoT Sensors				
	14	Carbon Capture				
	15	Concentrated Solar Power				
	16	Electric Vehicle Charging Infrastructure				
	17	Fusion Energy				
Energy	18	Hydrogen Energy				
	19	Lithium Extraction Technology				
	20	Renewable Ocean Energy				
	21	Small Modular Reactors				
	22	2 Smart Grid				
	23	3 Waste to Energy				
Financial Services	24	NFTs				

Large category set in PitchBook	Industry		Vertical	Emerging Spaces (2/4)		
Middle classification	#	Small category				
	25	AI Powered I	Drug Discovery			
	26	Anti Aging				
	27	Assistive Tech				
	28	CRISDR Diagnostics				
	29	Fertility Tech				
	30	Gene Therapies				
Healthcare	31	Medical Exos	keletons and Prosthetics			
	32	Medical Rob	otics			
	33	 3 Mental Health Tech 4 Nanomedicine 				
	34					
	35					
	36	Psychedelics				
	37	Spatial Biolo	ЗУ			
	38	VR Health				
	39	4D printing				
	40	AI Powered Code Completion				
	41	AIOPs				
	42	Autonomous Delivery				
	43	Autonomous Vehicle Simulation				
Information Technology	44	Blockchain Gaming				
internation reenhology	45	Cloud Gaming				
	46	Cloud Workload Protection				
	47	Cognitive Computing				
	48	48 Computational Storage				
	49	Contract Management Automation				
	50	Crowdsource	ed Testing			

Large category set in PitchBook	Industr	γ	Vertical	Emerging Spaces (3/4)			
Middle classification	#	# Small category					
	51	DAOs					
	52	Data cente	r Cooling Tech				
	53	53 Database Sharding					
	54	DevSecOps					
	55	Digital Twir	าร				
	56	DNA Data S	itorage				
	57	Edge Comp	outing Semiconductors				
	58	FinOps					
	59	Generative	AI				
	60	Graph Databases & Analytics					
	61	IoT Security					
	62	Lidar					
Information Technology	63	Low Code / No Code					
	64	Next-gen N	etwork Security				
	65	Passwordless Authentication					
	66	6 Post-Quantum Cryptography					
	67	7 Quantum Computing					
	68	Robotic Process Automation					
	69	Security Orchestration, Automation and Response(SOAR)					
	70	Service Mesh					
	71	Silicon Photonics					
	72	Swarm Al					
	73	Synthetic Data					
	74	F TinyML					
	75	V2X					

Large category set in PitchBook	Industr	Ϋ́Υ	Vertical	Emerging Spaces (4/4)		
Middle classification	#	Small category				
	76	Cellular Agriculture				
	77	Indoor Farming				
Matarials and Descurress	78	Lithium Ion Battery Recycling				
Materials and Resources	79	Livestock Health				
	80	Reforestration				
	81	Regenerative Agriculture				