The next generation of tech ecosystems.

Actionable benchmarks from **201 tech ecosystems** based on investment, innovation, talent, and outcome.

December, 2022
Our mission: bringing data transparency to every tech ecosystem.

**Investors**
Source deals & raise capital

**Investors**
SEQUOIA
NORTHEAST
ACCEL

**Providers**
Provide services to startups & scaleups

**Providers**
UK Trade & Investment
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Microsoft
SAP

**Strategists & researchers**
Stay at forefront of innovation

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**Enablers & public bodies**
Build & foster the ecosystem

**Enablers & public bodies**
Tech Nation
Technology.org

**Builders**
Raise capital, recruit, be visible in ecosystem

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dealroom.co
We empower over 75 governments with innovation data and insights, enabling them to monitor & build their tech ecosystem.
Providing a 360-degree view on tech ecosystems.

Talent
- Job openings
- Founders
- Employment data

Capital
- VC firms
- Family offices
- Valuations
- Funding rounds
- Exits

Innovation
- Tech stack
- Patents
- Startups
- Scaleups
- R&D projects
- Unicorns

Enablers
- Accelerators
- Universities
- Grants
- Governments
- Trade registers
- Workspace

Provisioning a 360-degree view on tech ecosystems.
Get real-time insights on any location.

Top investors »
1 The next chapter in tech
2 Capital & investment
3 Innovation & talent
4 Economic outcomes
5 Regional lens
6 Methodology & about us
During the past three decades, technology has eclipsed all sectors, driven by a series of technological inflection points. VC-backed companies have seized on this opportunity the most. Of the world’s 20 most valuable companies, 17 of them are VC backed tech companies. Many of them originated from the Bay Area.
Inspired by the Bay Area, dozens of tech ecosystems have sprung up globally. Over 40 of them have created over $100B in value.
There are now 168 cities with at least one unicorn or $1B+ exit. Back in 2010, this number was just 12.

Knowledge about building startups has become much more widespread in the last decade. These cities have acted as platforms that facilitate talent, capital, infrastructure and enablers.

The fact that there are now 168 unicorn cities bodes well for the future, as unicorns can be excellent founder factories, creating a positive flywheel effect. But the next ten years are unlikely to be similar to the last.

Source: Dealroom.co
New breakthroughs in frontier technologies are driving a new phase of radical innovation.

Examples of novel domains in tech from upcoming Deep Tech report created with Lakestar and Walden Catalyst.

**Artificial Intelligence**
- 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 computing, Brain-computer interfaces

**Future of Energy**
- Nuclear fusion, Next-gen battery chemistries, Large-scale storage, Green hydrogen, Supercapacitors, Waste heat recovery

**Space Tech**
- Reusable and next-gen rockets, Satellites, In-space transportation, In-space manufacturing, Debris removal

**Synthetic Biology**
- FoodTech & Agritech (cultivated meat, modified crops), Bio-fuels & bio-chemicals, DNA synthesis, Health

**Advanced Materials**
- CO2 negative materials, Bio-plastics, Synthetic diamonds, Graphene

Startups and frontier R&D do not naturally overlap, but the intersection is also where cutting-edge innovation is happening.

**Startups**
- Designed to grow fast
- Exploit existing technologies
- Go-to-market in search for product-market fit from day one
- Lean approach, can be initially bootstrapped

**R&D**
- Scalable product
- Product-market fit
- Software/AI-enabled
- Hyper incentivized teams
- Access to large pools of capital
- Rapid iteration

- Novel technology
- Long cash burn pre revenue
- Long feedback cycle
- Led by scientific team

Source: Dealroom.co.
The coming decade will require tech ecosystems to bring together capital, entrepreneurship, knowledge, frontier R&D, and science on one platform.

**Capital & Investment**
- Ability to attract venture capital across stages (early, breakout, late)

**Innovation & Talent**
- Development of intellectual property (patents)
- Linkage between universities and entrepreneurship

**Economic upside**
- Performance relative to economic stage of development
- Affordability of living

**Entrepreneurialism**
- Conversion from startup to $1B+ company
- Ability to produce flywheel effect of multiple unicorns

*Source: Dealroom.co. See Methodology (chapter 6) for more.*
How prepared are cities for the next decade?
201 cities in 65 countries were analyzed for this report.

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of Cities</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global</td>
<td>207158</td>
<td></td>
</tr>
<tr>
<td>EMEA</td>
<td>67946</td>
<td>33%</td>
</tr>
<tr>
<td>North America</td>
<td>84458</td>
<td>41%</td>
</tr>
<tr>
<td>ROW</td>
<td>54754</td>
<td>26%</td>
</tr>
</tbody>
</table>

84,000+ view data »
67,000+ view data »
54,000+ view data »

Selection criteria
The dataset starts with 168 cities that have at least one unicorn. An additional 33 cities have at least >$100M in funding and min 50 VC rounds since 2017.

In this report, each “city” is actually a metro area consisting of multiple cities, suburbs and nearby towns.

In forthcoming editions of this report we expect to add more cities and we welcome suggestions from readers.

Number of qualified cities per country (top 10)

<table>
<thead>
<tr>
<th>Country</th>
<th>Cities</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>49</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>16</td>
</tr>
<tr>
<td>China</td>
<td>10</td>
</tr>
<tr>
<td>France</td>
<td>9</td>
</tr>
<tr>
<td>India</td>
<td>8</td>
</tr>
<tr>
<td>Canada</td>
<td>7</td>
</tr>
<tr>
<td>Germany</td>
<td>6</td>
</tr>
<tr>
<td>Netherlands</td>
<td>5</td>
</tr>
<tr>
<td>Belgium</td>
<td>5</td>
</tr>
<tr>
<td>Brazil</td>
<td>4</td>
</tr>
</tbody>
</table>
Not all tech ecosystems are created equal. For instance, New York cannot be compared with Oxford. We created three lenses by which to benchmark ecosystems.

**Scale lens**

**Trailblazers**

Leading by metrics such as venture capital and creation of successful startups and scaleups.

Presence of established local venture capital sector and capital markets to support life cycle from seed to IPO.

$1 trillion companies are most likely to get built here. The success of these ecosystems paves the way for others. A facilitator for other ecosystems globally.

**Per capita lens**

**Science Hubs**

High output per inhabitant, driven by academic/research footprint. Strong universities-to-startups linkage.


Key for development of novel and cutting edge technology (Deep Tech). Often some specialisation in specific domains, such as semiconductors or life sciences.

**Growth lens**

**Rising Stars**

Benefiting from globalization of venture capital and distributed teams. Ignited by the rise of a few local hero startups.

Often emerging economies with lower cost of living.

Presence of local early-stage VCs, but lacking depth of follow-on investors.

Needs connectivity with bigger ecosystems to thrive.
Transparent & actionable benchmarks to prepare for the next decade.

Trailblazers Scale lens

Science Hubs Per capita lens

Rising Stars Growth lens
When looking at the raw scale, the top spots are snagged by the usual suspects (Bay Area, New York, Boston), with noteworthy individual performances.

One new name makes the list: New Palo Alto, a cluster of European cities of close proximity, similar to the Bay Area. Within a four-hour train ride connecting London, Paris, and Amsterdam, lie some of the world’s best universities, diverse talent pools, innovative tech companies, and globally the highest concentration of cities that have produced unicorns.

The Bay Area being the clear #1 won’t surprise anyone. The chart on the left shows it does so by a wide margin. It leads by nearly every metric, but not all.

Tokyo is the frontrunner in Asia. It has a smaller startup ecosystem yet over-indexes on international patent registrations. The total number of active patents is perhaps a crude metric, but adding this quantifies Tokyo’s massive innovative capacity from an industrial point of view.

The positions of Beijing and Shanghai are lower than they might have been a few years ago. China-only patents are not counted and the methodology puts emphasis on what happened since 2019 when China’s tech sector was starting to decline relative to the rest of the world.
The Science hub lens places more emphasis on the development of deep tech, university talent, and patents on a per capita basis. Why? When it comes to science hubs, small can sometimes be a good thing, especially when there is specialization happening. The result is a mix of big generalist and small specialist science hubs.

The Bay Area still tops the list, despite being a large ecosystem. Due to its sheer scale, it is still relatively dense despite being a much larger metro area. It also has a massive patent and deep tech footprint. It is, however, closely followed by Cambridge (UK) and Boston. Both score better on university talent.

Patent data combined with venture capital data helps create a powerful holistic picture of innovation. It helps us identify innovation hubs that would have been far less visible if we were looking only through a venture capital lens.

For instance, San Diego has a strong patent footprint, especially in telecommunications. Leuven, Zurich, and Boston excel in life sciences. Eindhoven and Cambridge are strong in semiconductors. Basel is strong in materials science, sensors & optics.
When looking at growth, many names emerge that are far less obvious. We constructed this benchmark with the explicit goal to discover ecosystems that may be relatively under the radar, but have undergone rapid transformation.

The results also show a very close call within the top 5 and again a very close call between numbers 10 to 32. But there are big differences in the way each city ended up there (their success factors).

For instance, **Bengaluru** tops this category for excelling in its high ratio of unicorns relative to GDP per capita. **Curitiba**, Brazil, does well thanks to its high conversion from series A to unicorn.

While **Bogotá**, the Columbia capital, ranks well thanks to its high conversion from series A to unicorn. **Oslo** scores well in unicorn growth; Amsterdam in terms of growth stage funding (megarounds).

This heterogeneity is visually apparent by every bar having a very different color composition – unlike the Trailblazers chart which is much more uniform.
The Bay Area is #1 in everything except patent development and university linkage. New York over-indexes on number of unicorns and $1B+ exits. New Palo Alto’s strongest suit is its highly connected university and venture capital networks.

Bay Area (#1)  New Palo Alto (#2)  New York (#3)  Boston (#4)

Paris is over-indexing on university linkage with many startup founders from local universities. Los Angeles is more allround. London over-indexes on early stage funding and Tel Aviv outperforms on number of unicorns.

London (#5)  Los Angeles (#6)  Paris (#7)  Tel Aviv (#8)
Per capita lens: the top 7 Science Hubs …

In the top 7 Science Hubs, the Bay Area is the allround leader, although it scores lower on university linkage (less academic startup founders). Science supercluster New Palo Alto is represented three times with Cambridge (UK), Oxford and Eindhoven.

- Bay Area (#1)
- Boston (#2)
- Cambridge UK (#3)
- San Diego (#4)
- Oxford (#5)
- Charlottesville (#6)
- Eindhoven (#7)

… and the next 5.

Munich scores high thanks to a life science and industrial tech focus. Zurich and Geneva are geographically close by with a similar field of specialisation. Santa Barbara has a high number of unicorns per inhabitant and strong university linkage.

- Munich (#8)
- Zurich (#9)
- Santa Barbara (#10)
- Geneva (#11)
- Stockholm (#12)
Cities in Latin America and Asia (excl. China) score highest as Rising Stars (growth lens). China scores lowest.

Many top Rising Stars are growing from a smaller base. Of the bigger Rising Stars, two are in India (Bengaluru and Delhi), one in Europe (Amsterdam).
Explore the footprint of 201 cities ...

Visit Flourish »

... or go straight to the raw data.

Open Google Sheet »
Dealroom is official data partner with Startup Genome, the world-leading policy advisory and research organization for public and private organizations committed to accelerating the success of their startup ecosystem.

"By working together, Dealroom and Startup Genome provide ecosystem leaders with actionable insights based on best-in-class data solutions and analytics. These are essential to devise proactive policy and program strategies to develop resilient tech ecosystems"

Marc Penzel
Founder & President
Startup Genome
2 Capital & investment
Every year, about 12,000 new startups receive their first investment from a VC.

There are roughly 207,000+ active VC-backed startups & scaleups globally.

<table>
<thead>
<tr>
<th>Region</th>
<th>VC-backed per region</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>84,000+</td>
<td>41%</td>
</tr>
<tr>
<td>EMEA</td>
<td>67,000+</td>
<td>33%</td>
</tr>
<tr>
<td>Rest of World</td>
<td>54,000+</td>
<td>26%</td>
</tr>
</tbody>
</table>

They are created from about 1,686 different cities.

There are about 314 known cities with at least 5 rounds in 2021. Some of these cities we have grouped into metro areas, resulting in about 200 metro areas.

When including not VC backed companies, we estimate that about 5x this number of startups is created every year. However this very much depends on the definition of VC backed.

Roughly 1-2% of seed-funded startups reach a billion dollar status.

80,900+ companies

- Early stage ( <$1M–15M)
  - 2,500+ companies

- Breakout stage ($15–40M)
  - 5,600+ companies

- Growth stage ($100M+)
  - 5,700+ companies

84,000+ companies

- Early stage
  - 81,600+ companies

- Breakout stage
  - 18,400+ companies

- Late stage
  - 5,700+ companies

67,000+ companies

- Early stage
  - 67,946 companies

- Breakout stage
  - 18,400+ companies

- Late stage
  - 4,000+ companies

54,000+ companies

- Early stage
  - 54,000+ companies

- Breakout stage
  - 5,600+ companies

- Late stage
  - 361 companies

Source: Dealroom.co
Global venture capital is back to pre-pandemic activity levels.

VC investment in Global startups » view online

$250B

$200B

$150B

$100B

$50B

$250m+ rounds
$100–250m
$40–100m (series C)
$15–40m (series B)
$4–15m (series A)
$1–4m (seed)
$0–1m (pre-seed)

Growth
Breakout
Early

Explore the data.

North America »
Europe »
Asia »
Oceania »
Africa »
South America »
Startups have become engines for job growth. Globally, VC-backed startups employ over 300,000 people. Even during of external shocks startups have proven to be resilient. As the startup scales, typically creates more jobs. Startups that received Series A funding employ 1.4x as many people as startups at Seed stage.

Venture rounds are self-labelled without much consistency. Letters will never give a true sense of where a company is at in terms of their development whereas the amount of capital they consume is a much better reflection – by breaking down funding into phases of capital raised it gives founders a much better sense of what it takes to get from one stage to the next.

**Saul Klein**
Co-founder of LocalGlobe

If I look back to the beginning of the current tech boom which started around 2009, we often wrote a $3–5 million check and this was called an “A round” and 12 years later in an over-capitalized market this became known as a “Seed Round” but in truth what we do hasn’t changed much at all.”

**Mark Suster**
Founder of Upfront Ventures

Dealroom worked with leading VCs to develop a venture-backed scaling journey, that stands the test of time.

<table>
<thead>
<tr>
<th>Employees per startup</th>
<th>Series A ($4–15M)</th>
<th>Series B ($15–40M+)</th>
<th>Series C ($40–100M+)</th>
<th>Megaround ($100–250M)</th>
<th>Megaround+ ($250M+)</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

Source: Dealroom. Analysis includes all jobs at startups created by companies founded after 1990 as of October 2022, excluding companies with marketplaces & commerce as business model. More in the methodology section.
The Bay Area startups raise more venture capital than the next three cities combined. But when it comes to early stage investing, the gap is much narrower.
The Bay Area USA

- **Cities & towns**: San Francisco, Palo Alto, Menlo Park, Stanford
- **Universities**: University of San Francisco & University of California
- **First unicorn**: eBay in 1999
- **Iconic companies**: Salesforce, Facebook, Google, Uber and Airbnb
- **Top patents categories**: Information, Semiconductors and Telecommunications
- **Notable spinouts**: Keysight Technologies, Medable and OmniAB
- **Combined enterprise value**: $7.4 trillion
- **Cost of living**: 95% of New York

#1 Unicorns since 2019
#1 Early stage funding
#1 Breakout funding
#1 Growth funding
#3 University alumni
#2 Patents
New Palo Alto has nearly caught up with the Bay Area in early-stage investment. Asia over-indexes in super mega rounds.

Source: Dealroom.co.
Today, the Colombian ecosystem has an estimated total combined enterprise value of $12.4B. Last-mile delivery startup Rappi became Columbia’s first $1B+ valued startup in 2018, with the company founded in 2015. Since 2015, over $4.2B has been raised by Bogotá-based startups. While late-stage rounds are still rare, early-stage investment is on an upward trend. Year-to-date, over $700M in VC funding has been raised by Bogotá startups across 55 rounds.

Bogotá, Colombia

Cities & towns: Soacha, Facatativá, Mosquera, Chía

Universities: University of the Andes, National University of Colombia and the Pontifical Javeriana University

First unicorn: Rappi in 2018

Iconic companies: LINE, Nexon, Rakuten, Kakao

Notable spinouts: Rappi, Habi and Addi

Combined enterprise value: $12.5 billion

Cost of living: 27% of New York

Unicorn conversion: #5

Early stage funding growth: #1

Breakout stage funding growth: #173

Unicorn growth: #51

Unicorn to GDP ratio: #49

Affordability of living: #6
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5. Regional lens
6. Methodology & about us
Research & Development (R&D) investment is 6.5x higher than venture capital investment. Over 70% of R&D investment is done by corporates.

Global venture capital has grown 4x over the last decade (ignoring the 2021 hype year).

But there’s innovation happening beyond startups. Venture capital is still dwarfed by R&D investment, which has grown 2x over the same period.

Source: Dealroom.co analysis of OECD data for R&D. EMEA region includes the EU27 countries including the UK, Israel and South Africa. VC data from Dealroom.co
Frontier R&D is dominated by formerly venture-backed companies. Ergo, there’s an indirect link between corporate R&D and venture capital.

<table>
<thead>
<tr>
<th>Corporate R&amp;D spend ($ billions)</th>
<th>United States</th>
<th>EU-27</th>
<th>Japan</th>
<th>China</th>
<th>South Korea</th>
<th>United Kingdom</th>
<th>Germany</th>
<th>France</th>
<th>Israel</th>
<th>Taiwan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet, software, hardware</td>
<td>114</td>
<td>9</td>
<td>9</td>
<td>15</td>
<td>17</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Semiconductors</td>
<td>39</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Pharma, biotech, healthcare</td>
<td>84</td>
<td>52</td>
<td>14</td>
<td>1</td>
<td>0</td>
<td>13</td>
<td>8</td>
<td>8</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Automotive</td>
<td>19</td>
<td>46</td>
<td>39</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>34</td>
<td>8</td>
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<td>Aerospace and Defense</td>
<td>11</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Telecom</td>
<td>13</td>
<td>16</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>1</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Oil &amp; Gas</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Dealroom.co analysis of 2018 PWC data on 1,000 publicly listed companies.
Patents are an indicator of research output. Places such as Tokyo, Seoul, San Diego become more prominent when looking through this lens.

Registered Patents breakdown per category

<table>
<thead>
<tr>
<th>City</th>
<th>Total</th>
<th>Information</th>
<th>Telecom</th>
<th>Electrical</th>
<th>Energy</th>
<th>Life sciences</th>
<th>Materials</th>
<th>Mechanical</th>
<th>Sensors &amp; optics</th>
<th>Semi-conductors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tokyo</td>
<td>513,182</td>
<td>131,819</td>
<td>27,575</td>
<td>73,044</td>
<td>24,681</td>
<td>54,852</td>
<td>37,923</td>
<td>41,372</td>
<td>67,690</td>
<td>53,053</td>
</tr>
<tr>
<td>Bay Area</td>
<td>287,776</td>
<td>108,709</td>
<td>35,966</td>
<td>23,066</td>
<td>5,543</td>
<td>20,905</td>
<td>6,309</td>
<td>10,151</td>
<td>21,247</td>
<td>53,546</td>
</tr>
<tr>
<td>San Diego</td>
<td>140,394</td>
<td>36,233</td>
<td>47,700</td>
<td>9,856</td>
<td>1,873</td>
<td>15,618</td>
<td>2,168</td>
<td>5,004</td>
<td>10,929</td>
<td>9,369</td>
</tr>
<tr>
<td>Boston</td>
<td>120,420</td>
<td>19,818</td>
<td>5,840</td>
<td>13,795</td>
<td>13,154</td>
<td>29,740</td>
<td>5,612</td>
<td>13,463</td>
<td>11,000</td>
<td>6,642</td>
</tr>
<tr>
<td>LA</td>
<td>114,772</td>
<td>24,807</td>
<td>11,306</td>
<td>11,268</td>
<td>2,617</td>
<td>16,698</td>
<td>3,288</td>
<td>7,869</td>
<td>8,989</td>
<td>26,750</td>
</tr>
<tr>
<td>Houston</td>
<td>72,077</td>
<td>13,074</td>
<td>3,247</td>
<td>4,398</td>
<td>1,710</td>
<td>3,818</td>
<td>9,826</td>
<td>27,872</td>
<td>4,409</td>
<td>3,657</td>
</tr>
<tr>
<td>Shenzhen</td>
<td>65,947</td>
<td>12,813</td>
<td>29,746</td>
<td>8,490</td>
<td>1,824</td>
<td>1,633</td>
<td>969</td>
<td>2,491</td>
<td>5,001</td>
<td>2,419</td>
</tr>
<tr>
<td>Chicago</td>
<td>56,769</td>
<td>6,963</td>
<td>3,687</td>
<td>6,798</td>
<td>4,025</td>
<td>8,056</td>
<td>7,349</td>
<td>14,496</td>
<td>4,034</td>
<td>1,187</td>
</tr>
<tr>
<td>Seattle</td>
<td>56,397</td>
<td>32,359</td>
<td>5,496</td>
<td>3,304</td>
<td>783</td>
<td>3,173</td>
<td>701</td>
<td>3,265</td>
<td>4,041</td>
<td>3,211</td>
</tr>
</tbody>
</table>

Source: Dealroom.co analysis of Cipher data.
Hubs such as Leuven, Eindhoven, and Basel are world-leading in their field of specialisation. Patent data helps identify such hubs.

Source: Dealroom.co analysis of Cipher data.
Fastest growing patent sub-categories (2017 vs. 2021)

Machine Learning +447%
Blockchain +409%
Robotics +331%
Lidar +257%
Liquid Processing +174%
Storage +169%
Surgical Robotics +146%
Packaging +133%
Scanning +129%
Audio Transducers +127%
Pipes +119%
Projection +102%
Pressure Sensors +102%
Wired Networks +96%
Bearings +88%
Gaze Sensors +87%
Lasers +86%
Photovoltaics +85%
Cleaning +84%
Speech Recognition +84%
Gases +78%
Cables +78%
Molding +77%
Insulation +71%
Spectrometry Sensors +69%
AR & VR +68%
Radar Sensors +61%
Location & Satellite +60%
Coatings +60%

Patent intelligence from Cipher.

Cipher is recognized as the leading provider of strategic patent intelligence to major patent-owning organizations.

Cipher’s Universal Technology Taxonomy is a novel way to map patents to technologies using supervised machine learning.

This breakthrough makes it possible to establish objective and repeatable ways to communicate both the risk and value associated with patents to IP leaders, the board, and the investor community more broadly.
Many startups have their roots in academia. And universities are a breeding ground for entrepreneurs more generally. This report measures the linkage between universities and the startup ecosystem.

Universities by number of startups

University spinouts
New Palo Alto is a Science Supercluster: three out of the top 10 science hubs within 4 hours commuting distance. A good example of an ecosystem that can combine science, entrepreneurship, capital, and frontier R&D.
**University talent**

University alumni that founded startups that raised >$10M

- **New Palo Alto**
- **Boston**
- **Bay Area**
- **Paris**
- **London**
- **New York City**
- **Chicago**
- **Los Angeles**
- **Tel Aviv**
- **Philadelphia**
- **Cambridge, UK**
- **Raleigh-Durham**
- **Barcelona**
- **Toronto-Waterloo**
- **Munich**
- **New Jersey**
- **Zurich**
- **Madrid**
- **Montréal**
- **Hàïfa**

**Percentiles:**
- 90%: 222
- 80%: 107
- 70%: 60
- 60%: 37
- 50%: 23
- 40%: 16
- 30%: 11
- 20%: 6
- 10%: 1

---

**Boston**  USA

- **Cities & towns**
  - Boston, Cambridge, Worcester, Providence, Lowell
- **Universities**
  - Harvard, MIT, Boston University
- **First unicorn**
  - Wayfair in 2011
- **Iconic companies**
  - Moderna Therapeutics, Nuance Communications
- **Top patents categories**
  - Life sciences, Information & Mechanical
- **Notable spinouts**
  - Boston Meat and Kula Bio
- **Combined enterprise value**
  - $971.6 billion
- **Cost of living**
  - 80.5% of New York

---

**Unicorns since 2019**

- #6

**Early stage funding**

- #6

**Breakout stage funding**

- #4

**Late stage funding**

- #6

**University alumni**

- #2

**Patents**

- #5

---

Explore Boston »
University talent per inhabitant
Per inhabitant number of university alumni founders who raised >$10M

Cambridge, UK

Cities & towns
- Cambridge, St Ives and Huntington

Universities
- University of Cambridge

First unicorn
- ARM in 1998

Iconic companies
- ARM and Aveva

Top patents categories
- Semiconductors, Life Sciences and Information

Notable spinouts
- CamSemi, DarkTrace and BitBio

Combined enterprise value
- $66.9 billion

Cost of living
- 63.9% of New York

Deep tech unicorns per inhabitant
- #6

Early stage VC per inhabitant
- #11

Breakout stage VC per inhabitant
- #11

Late stage VC per inhabitant
- #25

University alumni >$10M per inhabitant
- #1

Patents per inhabitant
- #14

Explore Cambridge »
Tokyo JAPAN

Number of registered patents. Excluding China-only patents

- Tokyo: #1 ecosystem in number of patents.
- The Japanese capital area leads the world in terms of patent registration supported by a large number of Information related patents.
- Over 25% of these registered patents fall within the Information category followed closely by the Electrical and Sensor categories.

Notable $1B+ startups & exits emerging from Tokyo include Rakuten, MoneyForward and SmartHR.

#35 Unicorns since 2019
#11 Early stage funding
#16 Breakout funding

#34 Growth funding
#142 University alumni
#1 Patents

Explore Tokyo »

Cities & towns
- Tokyo, Yokohama, Kawasaki, Saitama, Chiba, Sagamihara

Universities
- Tokyo Institute of Technology, The University of Tokyo, Keio University

First unicorn
- DeNA in 2017

Iconic companies
- LINE, Nexon, Rakuten, Kakao

Top patents categories
- Information, Electrical and Sensors & Optics

Notable spinouts
- Heptares Therapeutics and Raptuya Robotics

Combined enterprise value
- $175.5 billion

Cities & towns:
- Tokyo, Yokohama, Kawasaki, Saitama, Chiba, Sagamihara

Universities:
- Tokyo Institute of Technology, The University of Tokyo, Keio University

First unicorn:
- DeNA in 2017

Iconic companies:
- LINE, Nexon, Rakuten, Kakao

Notable spinouts:
- Heptares Therapeutics and Raptuya Robotics

Top patents categories:
- Information, Electrical and Sensors & Optics

Top companies by number of active patents:
- Canon, Toshiba, Fuji Film

Combined enterprise value:
- $165 billion

Page 41 Source: Dealroom.co analysis of Cipher data.
Oslo: #1 ecosystem for $1B+ valued startups growth rate
with 8 new unicorns in the past 5 years.
The Norwegian capital hosts an estimated total
combined enterprise value of $23B.
The web browser startup Opera became the first $1B+
valued startup in Oslo back in 2016. Since then, Oslo has produced 8
new unicorns - a 9.0x increase in the aforementioned period.
Since the start of 2022, the startups Remarkable and Dune
Analytics have reached unicorn status, making a total of 9
unicorns from the Oslo ecosystem to date.

Oslo $1B + Growth Rate over past five years.

- **Cities & towns**: Oslo, Ekeberg, Grünerløkka and Frogner
- **Universities**: University of Oslo and Norwegian University of Science and Technology (NTNU)
- **First unicorn**: Opera in 2016
- **Iconic companies**: Oda, Kahoot, Dune Analytics and Cognite
- **Notable spinouts**: Cimon Medical, Elliptic Labs, and Seram Coatings
- **Top patent categories**: Mechanical and Sensors & Optics
- **Combined enterprise value**: $24.6 billion
- **Cost of living**: 90% of New York

---

Basel, Switzerland

- **Cities & towns**: Birsfelden, Binningen, Oberwil, and Riehen
- **Universities**: University of Basel
- **First unicorn**: Roivant Sciences in 2014
- **Iconic companies**: Roivant Sciences, CRISPR Therapeutics and NBE-Therapeutics
- **Notable spinouts**: Advancience and T3 Pharma
- **Top patent categories**: Life Sciences, Materials and Information
- **Combined enterprise value**: $23 billion
- **Cost of living**: 119% of New York

---

- #11 Deep tech unicorn per inhabitant
- #65 Early stage VC per inhabitant
- #26 Breakout stage VC per inhabitant
- #37 Late stage VC per inhabitant
- #5 Patents per inhabitant
- #50 University alumni >$10M per inhabitant

Source: Dealroom.co analysis of Cipher data.
1 The next chapter in tech
2 Capital & investment
3 Innovation & talent
4 Economic outcomes
5 Regional lens
6 Methodology & about us
Tech has created giant companies, many of whom were venture backed early on.

### Top 20 most valuable companies

<table>
<thead>
<tr>
<th>Company</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple</td>
<td>$2.4T</td>
</tr>
<tr>
<td>Saudi Aramco</td>
<td>$2.0T</td>
</tr>
<tr>
<td>Microsoft</td>
<td>$1.9T</td>
</tr>
<tr>
<td>Alphabet</td>
<td>$1.3T</td>
</tr>
<tr>
<td>Amazon</td>
<td>$985B</td>
</tr>
<tr>
<td>Berkshire Hathaway</td>
<td>$702B</td>
</tr>
<tr>
<td>Tesla</td>
<td>$606B</td>
</tr>
<tr>
<td>UnitedHealth</td>
<td>$512B</td>
</tr>
<tr>
<td>Johnson &amp; Johnson</td>
<td>$465B</td>
</tr>
<tr>
<td>Visa</td>
<td>$460B</td>
</tr>
<tr>
<td>Exxon Mobil</td>
<td>$459B</td>
</tr>
<tr>
<td>TSMC</td>
<td>$430B</td>
</tr>
<tr>
<td>NVIDIA</td>
<td>$422B</td>
</tr>
<tr>
<td>Walmart</td>
<td>$414B</td>
</tr>
<tr>
<td>JPMorgan Chase</td>
<td>$405B</td>
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<tr>
<td>LVMH</td>
<td>$385B</td>
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<td>Tencent</td>
<td>$364B</td>
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<tr>
<td>Chevron</td>
<td>$354B</td>
</tr>
<tr>
<td>Procter &amp; Gamble</td>
<td>$353B</td>
</tr>
<tr>
<td>Eli Lilly</td>
<td>$353B</td>
</tr>
</tbody>
</table>

### % of jobs at VC-backed tech companies

<table>
<thead>
<tr>
<th>Region</th>
<th>% of Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bay Area</td>
<td>68%</td>
</tr>
<tr>
<td>USA</td>
<td>24%</td>
</tr>
<tr>
<td>EU-27</td>
<td>1.8%</td>
</tr>
<tr>
<td>UK</td>
<td>0.8%</td>
</tr>
<tr>
<td>Germany</td>
<td>0.3%</td>
</tr>
<tr>
<td>France</td>
<td>0.1%</td>
</tr>
<tr>
<td>Italy</td>
<td>&lt;0.01%</td>
</tr>
</tbody>
</table>

Job creation potential, as demonstrated by #1 Trailblazer: the Bay Area.
The Bay Area no longer has a monopoly on VC-backed innovation. And no Big Tech company is impervious to disruption.

The Bay Area is not in decline – far from it. However, its share of global VC-backed innovation has dropped from 40% to 20% and stabilized there.

The Tech sector is highly concentrated ("big tech") but it is not static or monopolistic. It is highly dynamic and competitive. The life expectancy of companies is shorter than ever.

Younger cohorts are able to disrupt big incumbents (e.g. Tiktok). This means there is a massive opportunity for emerging tech ecosystems.

Source: Dealroom.co.

US tech companies are worth $24 trillion (the entire S&P 500 is $32T). They contribute to 50% of all domestic R&D. About 70% of all AI experts in the USA work for Google, Facebook, Microsoft, Amazon.

However, despite the concentration of economic power, entrepreneurialism is on the rise as startups are able to scale faster than ever.
About 1.0 to 1.5% of seed-funded startups reach the $1B+ milestone – this is similar in both the US and Europe.

Startup failure, while not desirable, is normal and likely. But are startups set up for success?

Dealroom data shows that a key success factor is the quality of the investor landscape. Dealroom conducted a European study on the performance of seed-stage investors, in partnership with VC firms Atomico and LocalGlobe.

19% of Seed companies raised a Series A after 36 months. But the probability was 40% for top-quartile investors and only 7% for bottom-quartile investors.

An Angellist study showed that in the US, graduation rates are much more uniform across investors. Lower graduation rates might also point to a lack of local follow-on capital (Series A, B, and beyond).

Graduation rates between rounds
- U.S.
- Europe

Rounds after Seed round (which is considered 1st round)
- 2nd round: 25% (U.S.), 10% (Europe)
- 3rd round: 15% (U.S.), 6% (Europe)
- 4th round: 9% (U.S.), 3% (Europe)
- 5th round: 3% (U.S.), 1.2% (Europe)
- 6th round: 1.1% (U.S.)
- Unicorn: About 1-1.5% of seed-funded companies achieve $1B+ valuation

By location of startup
- Germany
- UK
- Europe
- Netherlands
- France
- Sweden
- Spain
Why VCs care about $1B+ companies.

Unicorns are basically startups that are well on their way to being (very) successful. Important in the context of this report: they also have the potential to be a “fund returner” for a seed investor. The example on the right shows how that calculation works.

The Investor Rank assigns the same number of points to unicorns, whether they are exited or unrealized unicorns. A realized unicorn is a more tangible result. But unrealized unicorns are more forward-looking. Decacorns are valued the same as unicorns (for now).

Revenue is more meaningful than the paper value from a VC round but revenue data is reported with significant delays (if at all) and therefore a lagging indicator in the real world. Valuation, while far from perfect, is a more real-time and ubiquitous datapoint about the state of individual startups.
Why ecosystems care about big outcomes: the startup ecosystem flywheel.

- Generations of experienced founders and operators.
- Local VCs with track record and adopting global standards.
- Founders & angels supporting new startups.
- Attracting global LPs and GPs.
- More quality startups, setup for success from day zero.
- More capital and bigger more ambitious companies.

Startup mafias identified

Success breeds success. Early tech ecosystem success not only creates value, but breeds a generation of operators with unique experience in starting and rapidly scaling successful businesses, who have the right network and at times the exit capital to start their next venture. It starts a snowball effect of success.

Most famously in the US, the founder and first-hire alumni of the "PayPal Mafia" went on to found Tesla, LinkedIn, Palantir, SpaceX, Square, Slide, Kiva, YouTube, Yelp, and Yammer. Then there are the European Startup Mafias. The training grounds that became the founder factories fuelling the European startup ecosystem. Check out 600+ startups (co-)founded by alumni of European unicorns:

Source: Dealroom.co.

View landscape »
New unicorn creation is back to pre-pandemic level, similar to VC investing.

Only a portion of unicorns will eventually realize a $1B+ exit. Notably, in the 2020-21 period, many new "paper unicorns" still will require more time to grow into that valuation with today’s valuation multiples. Some never will grow into it – and that’s the name of the game.

160 excess unicorns in 7 quarters
### New York City

#### #2 hub for unicorns worldwide.

DoubleClick became New York City's first unicorn in 2008 when they got acquired by Google. Other iconic companies in the area include Grubhub, MongoDB and Squarespace.

The US ecosystem has since seen 153 other startups founded in New York reach unicorn status. New York is also home to 44 unicorns founded elsewhere and currently headquartered in the city.

#### Number of $1B+ NYC startups

<table>
<thead>
<tr>
<th>Year</th>
<th>Count</th>
<th>Cumulative</th>
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</thead>
<tbody>
<tr>
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<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2013</td>
<td>4</td>
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<td>2016</td>
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<td>2021</td>
<td>65</td>
<td>128</td>
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<tr>
<td>2022</td>
<td>25</td>
<td>153</td>
</tr>
</tbody>
</table>

#### Combined enterprise value

The New York City ecosystem is worth an estimated $1.1 trillion.

New York City makes up the largest metropolitan area of the US.

---

**Source:** Dealroom.co.
New unicorn creation

Unicorns created since 2019

<table>
<thead>
<tr>
<th>City</th>
<th>Number</th>
<th>Cumulative</th>
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</thead>
<tbody>
<tr>
<td>Bay Area</td>
<td>240</td>
<td></td>
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<tr>
<td>New York City</td>
<td>113</td>
<td>240</td>
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<tr>
<td>New Palo Alto</td>
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<td>177</td>
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<tr>
<td>Tel Aviv</td>
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<td>120</td>
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<td>London</td>
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<tr>
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<td>Paris</td>
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<td>Berlin</td>
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<td>91</td>
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<tr>
<td>Chicago</td>
<td>20</td>
<td>111</td>
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<tr>
<td>Washington DC</td>
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<tr>
<td>Beijing</td>
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<tr>
<td>Percentiles:</td>
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<tr>
<td>90%</td>
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<tr>
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<td>70%</td>
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<tr>
<td>50%</td>
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<tr>
<td>30%</td>
<td>–</td>
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</tr>
<tr>
<td>20%</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>10%</td>
<td>–</td>
<td></td>
</tr>
</tbody>
</table>

Tel Aviv

ISRAEL

Cities & towns: Tel-Aviv, Yafo/Jaffa, Holon and Ramat Gan
Universities: Weizmann Institute of Science, Tel Aviv University and Hebrew University of Jerusalem
First unicorn: ironSource in 2015
Notable companies: Wix, eToro and Monday.com
Top patents categories: Life Sciences, Information and Telecommunications
Combined enterprise value: $181.1 billion
Cost of living: 82% of New York

Unicorns created since 2019

#4 Unicorns since 2019
#10 Early stage per inhabitant
#8 Breakout stage VC per inhabitant
#35 Late stage VC per inhabitant
#70 Patents per inhabitant
#4 Deep tech unicorn per inhabitant

Explore Tel Aviv »
Unicorn growth

Growth in unicorns between 2019-22

Oslo: #1 ecosystem for $1B+ valued startups growth rate with 8 new unicorns in the past 5 years. The Norwegian capital hosts an estimated total combined enterprise value of $23B. The web browser startup Opera became the first $1B+ valued startup in Oslo back in 2016. Since then, Oslo has produced 8 new unicorns - a 9.0x increase in the aforementioned period. Since the start of 2022, the startups Remarkable and Dune Analytics have reached unicorn status, making a total of 9 unicorns from the Oslo ecosystem to date.

Oslo $1B + Growth Rate over past five years.

Oslo, Norway

Municipalities: Oslo, Ekeberg, Grünerløkka and Frogner

Universities: University of Oslo and Norwegian University of Science and Technology (NTNU)

First unicorn: Opera in 2016

Iconic companies: Oda, Kahoot, Dune Analytics and Cognite

Notable spinouts: Cimon Medical, Elliptic Labs, and Seram Coatings

Top patent categories: Mechanical and Sensors & Optics

Combined enterprise value: $25.4 billion

Cost of living: 90% of New York

#30 Series A to unicorns conversion

#37 Early stage funding growth

#35 Breakout funding growth

#1 Unicorn growth

#72 Unicorn to GDP ratio

#180 Affordability of living

Explore Oslo »
1 The next chapter in tech
2 Capital & investment
3 Innovation & talent
4 Economic outcomes
5 **Regional lens**
6 Methodology & about us
Unicorn cities in USA

Trailblazers
- Austin
- Miami
- Atlanta
- Greater Boston
- New York City

Science Hubs
- Bay Area
- New York City
- Boston
- Los Angeles
- Chicago
- San Diego
- Washington DC
- Philadelphia
- Seattle
- New Jersey

Rising Stars
- Portland
- Boulder
- Bay Area
- New York City
- Philadelphia
- Columbus
- Dallas
- Miami
- Atlanta
- Houston

Source: Dealroom.co
Unicorn cities in Europe

**Trailblazers**
- London
- Paris
- Berlin
- Stockholm
- Munich
- Zurich
- Cambridge, UK
- Barcelona
- Amsterdam
- Madrid

**Science Hubs**
- Cambridge, UK
- Oxford
- Eindhoven
- Munich
- Zurich
- Geneva
- Stockholm
- Leuven
- Basel
- Ghent

**Rising Stars**
- Oslo
- Wrocław
- Istanbul
- Warsaw
- Vilnius
- Kyiv
- Tallinn
- Prague
- Porto
- Málaga

Source: Dealroom.co
Middle East and North Africa

VC investment

- $0-1M (pre-seed)
- $1-4M (seed)
- $4-15M (seed)
- $15-40M (series A)
- $40-100M (series B)
- $100-250M (series C)
- $250M+

Enterprise value (companies founded after 1990)

- $0-200M
- $200M-1B (future unicorn)
- $1-10B (unicorn)
- $10B+ (decacorn)

Source: Dealroom.co
### Trailblazers

<table>
<thead>
<tr>
<th>City</th>
<th># Unicorn Cities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tel Aviv</td>
<td>20</td>
</tr>
<tr>
<td>Tokyo</td>
<td>15</td>
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<tr>
<td>Beijing</td>
<td>14</td>
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<tr>
<td>Bengaluru</td>
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<td>Shanghai</td>
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<td>Seoul</td>
<td>6</td>
</tr>
<tr>
<td>Singapore</td>
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<td>Mumbai</td>
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<tr>
<td>Delhi</td>
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</tr>
<tr>
<td>Shenzhen</td>
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</tr>
</tbody>
</table>

### Science Hubs

<table>
<thead>
<tr>
<th>City</th>
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</tr>
</thead>
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<tr>
<td>Haifa</td>
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<tr>
<td>Singapore</td>
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<td>Kyoto</td>
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<td>Jerusalem</td>
<td>15</td>
</tr>
<tr>
<td>Seoul</td>
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<td>Beijing</td>
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</tr>
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<td>Bengaluru</td>
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<tr>
<td>Taipei</td>
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</tbody>
</table>

### Rising Stars

<table>
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</tr>
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<tr>
<td>Ho Chi Minh City</td>
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<td>Mumbai</td>
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<td>Thane</td>
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<tr>
<td>Mumbai</td>
<td>10</td>
</tr>
<tr>
<td>Thane</td>
<td>10</td>
</tr>
</tbody>
</table>

### Unicorn cities in Asia

- **100+**: Beijing, Shanghai, Shenzhen, Seoul, Tokyo
- **15+**: New Delhi, Taipei, Myanmar, Hong Kong, Manilla
- **10+**: Guangzhou, Wuhan, Zhengzhou, Changsha, Nanning
- **5+**: Guangyuan, Almaty, Almaty
- **1-4**: New Delhi, Bengaluru, Mumbai, Singapore, Kuala Lumpur, Bangkok, Jakarta, Jakarta, Jakarta, Jakarta, Jakarta, Jakarta

Source: Dealroom.co
Latin America

VC investment

- $0-1M (pre-seed)
- $1-4M (seed)
- $4-15M (seed)
- $15-40M (series A)
- $40-100M (series B)
- $100-250M (series C)
- $250M+

Enterprise value (companies founded after 1990)

- $0-200M
- $200M-1B (future unicorn)
- $1-10B (unicorn)
- $10B+ (decacorn)

Panama

Selina

Quito ECUADOR

KUSHKI

Belo Horizonte BRAZIL

Meli

hotmart

Affa

São Paulo BRAZIL

Stone

Bank Itaú

Banco Itaú

Banco do Brasil

Gympass

Buenos Aires ARGENTINA

UALá

PRISMA

Despegar

Auth0

Santiago CHILE

Betterfly

NotCo

Montevideo URUGUAY

EBANX

membershare

olist

Bogotá COLOMBIA

Bogotá / Colombia

Belo Horizonte / Brazil

Curitiba / Brazil

São Paulo / Brazil

Panama

São Paulo

Montevideo

Uruguay

Costa Rica

Chile

Peru

€0.1B

€0.3B

€0.3B

€0.4B

€0.3B

€3.5B

€2.9B

€7.7B

+5.5x

€1.4B

2011

2013

2015

2017

2019

2021

2022

$0-200M

$200M-1B (future unicorn)

$1-10B (unicorn)

$10B+ (decacorn)

$0-1M (pre-seed)

$1-4M (seed)

$4-15M (seed)

$15-40M (series A)

$40-100M (series B)

$100-250M (series C)

$250M+

$10B

$5B

$15B

$20B

$400B

$200B

$300B

$40B

$10B

$453B

$400B

$300B

$200B

$100B

$400B

$300B

$200B

$100B

$10B

$0-1M (pre-seed)

$1-4M (seed)

$4-15M (seed)

$15-40M (series A)

$40-100M (series B)

$100-250M (series C)

$250M+

$0-200M

$200M-1B (future unicorn)

$1-10B (unicorn)

$10B+ (decacorn)

Montevideo

quark

dhotel

Santiago

Buenos Aires

$400B

$300B

$200B

$100B

$400B

$300B

$200B

$100B

$10B

$0-1M (pre-seed)

$1-4M (seed)

$4-15M (seed)

$15-40M (series A)

$40-100M (series B)

$100-250M (series C)

$250M+

$0-200M

$200M-1B (future unicorn)

$1-10B (unicorn)

$10B+ (decacorn)

hill

novamontana

$453B

$400B

$300B

$200B

$100B

$400B

$300B

$200B

$100B

$10B

$0-1M (pre-seed)

$1-4M (seed)

$4-15M (seed)

$15-40M (series A)

$40-100M (series B)

$100-250M (series C)

$250M+

$0-200M

$200M-1B (future unicorn)

$1-10B (unicorn)

$10B+ (decacorn)

Source: Dealroom.co
1. The next chapter in tech
2. Capital & investment
3. Innovation & talent
4. Economic outcomes
5. Regional lens
6. Methodology & about us
A unique combination of criteria and weightings is applied to each lens.

<table>
<thead>
<tr>
<th>Weightings / total possible points</th>
<th>Trailblazers Absolute values 2019-2022</th>
<th>Science Hubs Per capita values 2019-2022</th>
<th>Rising Stars Growth rates From ‘15–’18 to ‘19–’22</th>
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</thead>
<tbody>
<tr>
<td>Capital &amp; investment</td>
<td></td>
<td></td>
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<tr>
<td>Early stage venture capital</td>
<td>50</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>Investment in $1–15M rounds</td>
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<td></td>
<td></td>
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<tr>
<td>Breakout stage venture capital</td>
<td>50</td>
<td>50</td>
<td>33</td>
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<tr>
<td>Investment in $15–100M rounds</td>
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<td></td>
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</tr>
<tr>
<td>Late stage venture capital</td>
<td>50</td>
<td>50</td>
<td>33</td>
</tr>
<tr>
<td>Investment in $100M+ rounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innovation &amp; talent</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>University talent &amp; linkage</td>
<td>100</td>
<td>150</td>
<td>-</td>
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<tr>
<td>Founders from local universities that raised &gt;$10M</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of patents developed</td>
<td>50</td>
<td>150</td>
<td>-</td>
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<tr>
<td>Powered by Cipher.ai</td>
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<td></td>
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<tr>
<td>Deep tech</td>
<td>-</td>
<td>50</td>
<td>-</td>
</tr>
<tr>
<td>Number of deep tech unicorns &amp; $1B+</td>
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<td></td>
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<tr>
<td>Entrepreneurship</td>
<td>200</td>
<td>-</td>
<td>100</td>
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<tr>
<td>New unicorns and $1B+ exits</td>
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<tr>
<td>Startups that reach $1B+ valuation milestone</td>
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<tr>
<td>Conversion score</td>
<td>-</td>
<td>-</td>
<td>100</td>
</tr>
<tr>
<td>Series A to unicorn</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic upside</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjustment for GDP per capita</td>
<td>-</td>
<td>-</td>
<td>100</td>
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<tr>
<td>GDP per capita from World Bank</td>
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<tr>
<td>Affordability of living</td>
<td>-</td>
<td>-</td>
<td>33</td>
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<tr>
<td>An index by Numbeo relative to New York</td>
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<td></td>
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</tbody>
</table>

Note: Dealroom.co data unless stated otherwise.
Each of the 201 hubs is benchmarked against all three lenses.

On the right is an example calculation for Boston, Massachusetts. Boston scores 13 points for early stage investing, where it ranks #6. The #1 scores 50 points. So Boston is at 13/50 of the #1 (the Bay Area).

Boston ranks #4 in the Trailblazer lens, #2 in the Science Hubs lens, and #87 in the Rising Stars lens.

The same total quantum of points is awarded in each lens so that useful comparisons between the three lenses can be made.
There are roughly 207,000+ active VC-backed startups & scaleups globally based on data from Dealroom.co. For each location, we consolidated suburbs and peripheral towns. We also tracked companies that relocated out of their founding location.

- **Central Paris**
  - 11,500+ startups
  - $163B enterprise value
  - 26 unicorns

- **Ile-de-France**
  - 3,600+ startups
  - $53B enterprise value
  - 8 unicorns

- **Relocated**
  - Mostly to US & UK
  - $27B enterprise value
  - 11 unicorns

Source: Dealroom.co.
Definitions.

What is a startup?
Companies designed to grow fast. Such companies are VC-investable but not always VC-backed. This report focuses on VC-backed companies for consistency. When startups are successful, they develop into scaleups, and grownups and result in big companies; this is their objective by definition.

What is a unicorn or $1B+ exit?
Unicorns or $1B+ exits are (former) startups that reached a US$ 1B valuation or exited at one point in time.

Venture Capital
Investment numbers refer to rounds such as Early stage (Pre-Seed, Seed, and Series A), Breakout stage (Series B and Series C) and Late stage (Megarounds $100M+). VC investment figures exclude debt or other non-equity funding, lending capital, grants, ICOs, and SPAC Private Placement.

Valuation
The combined valuation of the tech ecosystem is based on its market cap or latest transaction value.

Transaction value is realized from an exit or implied unrealized valuation from the latest VC round, which is either announced or estimated by Dealroom based on benchmarks.

Patent data
Patent analysis based on Cipher data. Considered are all active patents per ecosystem, but excluding are China-only patents. E.g. we count patents by a Chinese company when the patent rights are located in territories outside of China, otherwise it’s excluded.

Underlying Data
Dealroom’s proprietary database and software aggregate data from multiple sources: harvesting public information, user-submitted data verified by Dealroom, data engineering. All data is verified and curated with an extensive manual process. The data on which this report builds is available via app.dealroom.co. For more info please visit dealroom.co or contact support@dealroom.co.
Predictive algorithms to detect emerging tech and promising companies.

<table>
<thead>
<tr>
<th>Name</th>
<th>Dealroom Signal</th>
<th>Market</th>
<th>Type</th>
<th>Growth 12 months growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundation Labs, Inc.</td>
<td>95</td>
<td>B2B, B2C fintech media</td>
<td>blockchain commission</td>
<td>277%</td>
</tr>
<tr>
<td>Overtone</td>
<td>95</td>
<td>B2C health medical devices</td>
<td>manufacturing</td>
<td></td>
</tr>
<tr>
<td>Skytale</td>
<td>95</td>
<td>B2B fintech</td>
<td>machine learning</td>
<td>150%</td>
</tr>
<tr>
<td>CompPair</td>
<td>87</td>
<td>B2B space</td>
<td>deep tech</td>
<td>115%</td>
</tr>
<tr>
<td>cadanapay</td>
<td>87</td>
<td>B2B fintech payments</td>
<td>saas</td>
<td></td>
</tr>
<tr>
<td>Mina</td>
<td>86</td>
<td>B2B fintech transportation</td>
<td>subscription</td>
<td></td>
</tr>
<tr>
<td>Evo Foods</td>
<td>86</td>
<td>B2B food innovative food</td>
<td>selling own inventory</td>
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</tr>
</tbody>
</table>

(Pre)seed opportunities »
Series A opportunities »
Breakout opportunities »
Unicorns »
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