Global Innovation Index 2025

Ranking of World's Top 100 Innovation Clusters

WIPO

The GII reveals the top innovation clusters world-wide, by size and intensity.

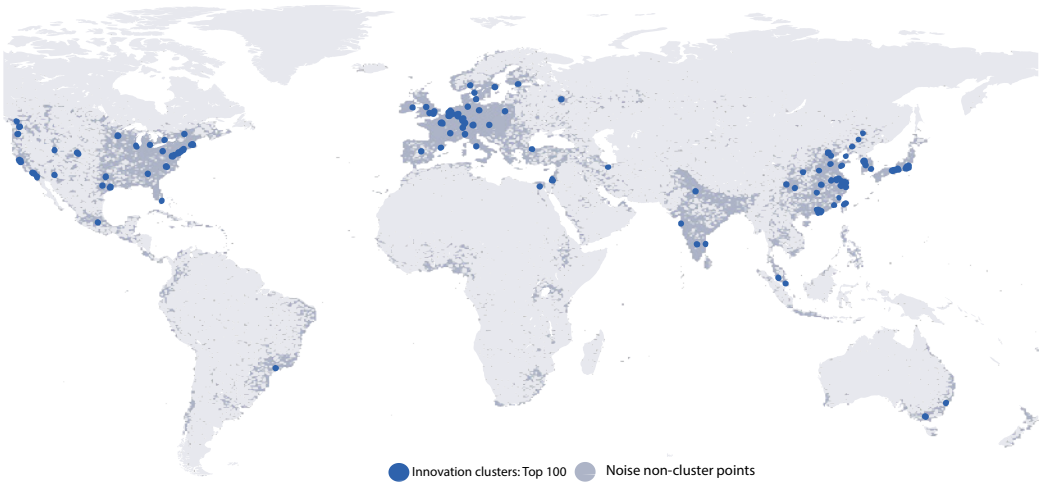
2025 GII Ranking of World's Top 100 Innovation Clusters

Innovation clusters – whether innovation-driven cities or regions – form the beating heart of national innovation systems. These hubs unite top universities, researchers, inventors, venture capitalists and R&D firms in driving forward breakthrough ideas.

From Bengaluru to Berlin, Boston to São Paulo, Shenzhen or Seoul, global cities blend research, start-ups and R&D firms to power innovation.

Each year, the Global Innovation Index (GII) ranks the top 100 innovation clusters worldwide (Map 1). The GII uses a bottom-up, data-driven methodology that disregards administrative or political borders and instead pinpoints those geographical areas where there is a high density of inventors and scientific authors. The clusters identified in this way often span several municipal districts, sub-federal states, and sometimes even two or more countries.

Map 1 Top 100 innovation clusters worldwide, 2025



Note: Gray points (noise) refer to all inventor/author locations not classified as being within a cluster.
Source: WIPO Statistics Database, May 2025.

New methodology incorporates venture capital data

In 2025, three metrics define the top 100 clusters globally (see Appendix IV for details and a comparison to earlier methods, in particular Appendix IV - Table 2 which ranks clusters in accordance with last year's methodology).

- The first metric focuses on the location of inventors listed in published patent applications under the WIPO Patent Cooperation Treaty (PCT).[1]
- The second metric considers the authors listed on published scientific articles.

These two metrics have served as the foundation for cluster identification across previous GII editions. This year, however, the GII is able to introduce a third metric, namely:

- Venture capital (VC) deal locations.

1 The WIPO Patent Cooperation Treaty (PCT) assists applicants in seeking patent protection for their inventions internationally, helps patent offices with making patent granting decisions, and facilitates public access to a wealth of technical information relating to these inventions. By filing one international patent application under the PCT System, applicants can simultaneously seek protection for an invention in a large number of countries (www.wipo.int/pct/en).

This new approach for 2025 allows the GII to capture entrepreneurial activity and innovation finance, emphasizing start-ups and spin-offs. Together, these three metrics reveal those areas where there is a high concentration of inventors, scientific authors, and/or VC activity.

The innovation ecosystems identified in this way frequently transcend administrative boundaries, encompassing metropolitan areas, multi-regional networks, and cross-border corridors. The resulting top 100 innovation clusters demonstrate a remarkable concentration, collectively accounting for roughly 70 percent of global PCT filings and VC deal activity, and around half of all scientific publications. This concentration becomes even more striking at the highest tier, with the leading 10 clusters alone generating around 40 percent of PCT filings, 35 percent of VC deal activity, and contributing over 15 percent of global scientific publications.

The GII 2025 is also able to identify emerging clusters beyond the top 100 that have an appreciably high level of science, technology and innovation finance. Added to this, the GII also releases a series of Cluster Briefs (available online) that provides further details on the top 100 ranking innovation hotspots.

Shenzhen–Hong Kong–Guangzhou, Tokyo–Yokohama, and San Jose–San Francisco lead the global innovation cluster ranking

Shenzhen–Hong Kong–Guangzhou (China and Hong Kong, China) tops the global rankings, followed by Tokyo–Yokohama (Japan) (see Figure 1). The methodology change has contributed to having a new top-ranked cluster for 2025, reflecting that Shenzhen–Hong Kong–Guangzhou performs more strongly on VC deals compared to Tokyo–Yokohama. However, both clusters continue to make a massive contribution to global scientific publications and patenting outputs, together accounting for nearly one in every five PCT applications filed globally.

San Jose–San Francisco in the United States of America, Beijing in China and Seoul in the Republic of Korea follow in third, fourth, and fifth place, respectively.

Figure 1 Top 10 innovation clusters, and their footprint, 2025

Rank	Cluster name	Global share of publications	Global share of PCT filings	Global share of VC deals
1	Shenzhen–Hong Kong–Guangzhou	2.4%	9.0%	2.9%
2	Tokyo–Yokohama	1.4%	10.3%	2.2%
3	San Jose–San Francisco	0.7%	3.9%	6.9%
4	Beijing	4.0%	3.8%	2.9%
5	Seoul	1.7%	5.4%	3.1%
6	Shanghai–Suzhou	2.5%	3.3%	3.7%
7	New York City	0.9%	1.0%	4.8%
8	London	0.7%	0.5%	4.4%
9	Boston–Cambridge	0.9%	1.5%	2.0%
10	Los Angeles	0.5%	0.9%	2.5%

Global share range

0.5% 10.3%

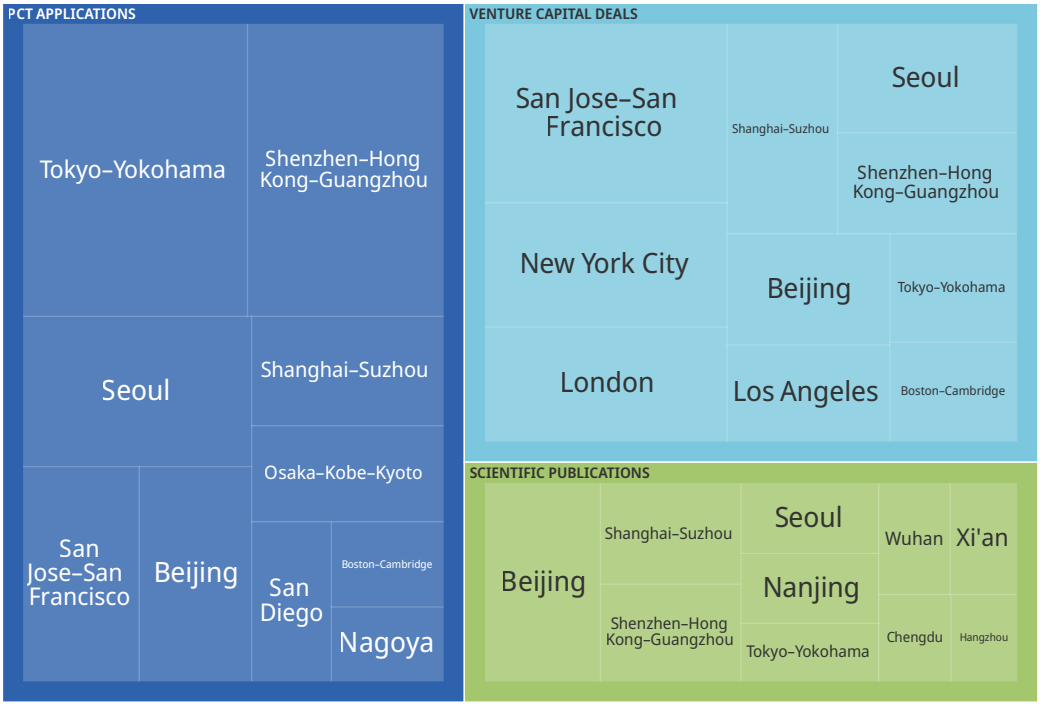
Source: WIPO Statistics Database, May 2025.

In the United States (US), New York City (7th) and Los Angeles (10th), along with London in the United Kingdom (8th), now join the top 10, compared to last year's methodology without VC data included. In turn, Osaka–Kobe–Kyoto (11th, Japan), San Diego (14th, United States) and Nanjing (15th, China) drop out of the top 10. Box 1 examines the top 10 global clusters on each of the three indicators, with Asia leading on scientific publications, Asian and US clusters leading on PCT filings, and US, UK and Asian clusters leading in VC.

Box 1 Top 10 innovation clusters by publications, patents or VC deals

The top 10 clusters by patents, publications or VC deals reveal distinct patterns (see Figure 2). Those clusters with the most publications are fully Asian, with the majority in China — with Beijing and Shanghai–Suzhou leading — but with Seoul (Republic of Korea) and Tokyo–Yokohama (Japan) also featuring. PCT applications show a more mixed picture. Three US clusters make the cut, but many Japanese and Chinese clusters feature too. For VC deals, the United States has the most clusters (four) among the top 10, with San Jose–San Francisco and New York City leading. The United Kingdom features among the top 10 for VC deals, with London third — but no other European cluster appears in any top 10 by variable.

Figure 2 Top 10 innovation clusters by metric, share of global total, 2025



Source: WIPO Statistics Database, May 2025.

Compared to last year, Singapore (16th, Singapore–Malaysia), Tel Aviv–Jerusalem (19th, Israel), Seattle (20th, United States) enter the top 20 in 2025. Two clusters in India enter the global top 30: Bengaluru (21st) and Delhi (26th), along with Philadelphia (23rd, United States) and Berlin (30th, Germany). Newcomers to the top 40 are Toronto (33rd, Canada), two clusters in the United States, Denver (35th) and Austin (37th), and Zürich (Switzerland) is ranked 40th. New to the top 50 are Copenhagen (42nd, Denmark), Mumbai (46th, India) , while São Paulo (Brazil) ranks 49th.

This year, 10 clusters entered the top 100 for the first time: three clusters in the United States, namely, Miami (67th), Phoenix (78th) and Salt Lake City (92nd), two clusters in China, namely, Ningbo (93rd) and Ningde (99th), Dublin (71st, Ireland), Mexico City (79th, Mexico), Oslo (85th, bringing Norway into the top 100), Hamburg (91st, Germany), and Manchester (94th, United Kingdom). The entry of Mexico City (79th) adds a second cluster in Latin America – next to São Paulo (49th) in Brazil – to the top 100.

A combination of performance shifts and the implementation of this year's new methodology has resulted in the exclusion of 10 clusters from the top 100: Nuremberg–Erlangen (Germany), Lanzhou (China), Fuzhou (China), Ankara (Turkey), Cincinnati (United States), Daegu (Republic of Korea), Nanchang (China), Basel (Switzerland–Germany–France), Brisbane (Australia) and Kunming (China).

Clusters by economy

The top innovation clusters for each country or cross-border region are shown in Table 1. The leading clusters per country remain unchanged from last year, except for Barcelona overtaking Madrid to become the leading Spanish cluster. Additionally, the top 100 ranking now includes new entrants from previously unrepresented countries: Dublin emerges as the foremost innovation cluster for Ireland, Mexico City for Mexico, and Oslo for Norway.[2]

Table 1 Top innovation cluster by economy or cross-border region ranked among the top 100, 2025

Rank	Cluster name	Economy	Top applicant	Top organization
1	Shenzhen–Hong Kong–Guangzhou	CN / HK	Huawei	Sun Yat Sen University
2	Tokyo–Yokohama	JP	Mitsubishi Electric	University of Tokyo
3	San Jose–San Francisco	US	Google	Stanford University
4	Beijing	CN	BOE Technology	Tsinghua University
5	Seoul	KR	Samsung Electronics	Seoul National University
8	London	GB	Nicoventures Trading	University College London
12	Paris	FR	Safran Aircraft Engines	Sorbonne Université
16	Singapore	SG / MY	National University of Singapore	National University of Singapore
19	Tel Aviv–Jerusalem	IL	Tel Aviv University	Hebrew University Of Jerusalem
21	Bengaluru	IN	Samsung Electronics	IISC - Bangalore
22	Amsterdam–Rotterdam	NL	TNO	Utrecht University
27	Munich	DE	BMW	Technical University of Munich
32	Stockholm	SE	LM Ericsson	Karolinska Institutet
33	Toronto	CA	DH Technologies Development	University of Toronto
36	Sydney	AU	Cochlear	University of Sydney
40	Zürich	CH	ETH Zürich	ETH Zürich
41	Taipei–Hsinchu	TW*	MediaTek	National Taiwan University
42	Copenhagen	DK	Novozymes	University of Copenhagen
45	Barcelona	ES	Hewlett-Packard	University of Barcelona
48	Moscow	RU	Samsung Electronics	Lomonosov Moscow State University
49	São Paulo	BR	Braskem	Universidade de São Paulo
55	Brussels–Antwerp	BE	Agfa	KU Leuven
56	Milan	IT	Pirelli Tyre	University of Milan
58	Istanbul	TR	Arcelik	Istanbul Technical University
60	Helsinki	FI	Nokia	University of Helsinki
63	Tehran	IR	Abdolahad Mohammad	University of Tehran
71	Dublin	IE	Eaton Intelligent Power	University College Dublin
74	Vienna	AT	JT International	Medical University of Vienna
79	Mexico City	MX	Colgate-Palmolive	Universidad Nacional Autonoma de Mexico
83	Cairo	EG	Si-Ware Systems	Cairo University
85	Oslo	NO	Oslo University Hospital	University of Oslo
86	Kuala Lumpur	MY	MIMOS Berhad	Universiti Malaya
89	Warsaw	PL	Samsung Electronics	Warsaw University of Technology

Notes: Economy refers to ISO alpha-2 country codes. TW* = Taiwan Province of China. Economy labels were assigned to a cluster, when at least 1 percent of a cluster's output occurred in a given economy. Abbreviations are IISC – Bangalore = Indian Institute of Science – Bangalore, and BOE Technology = Beijing Oriental Electronics Group.

Source: WIPO Statistics Database, May 2025.

2 It is also worth noting that Safran Aircraft Engines becomes the top PCT applicant for the Paris (France) cluster instead of L'Oréal, while MediaTek overtakes Hewlett-Packard in the Taipei–Hsinchu (Taiwan Province of China) cluster, and JT International surpasses the Technische Universität Wien in the Vienna (Austria) cluster.

China and the United States lead on number of top innovation clusters

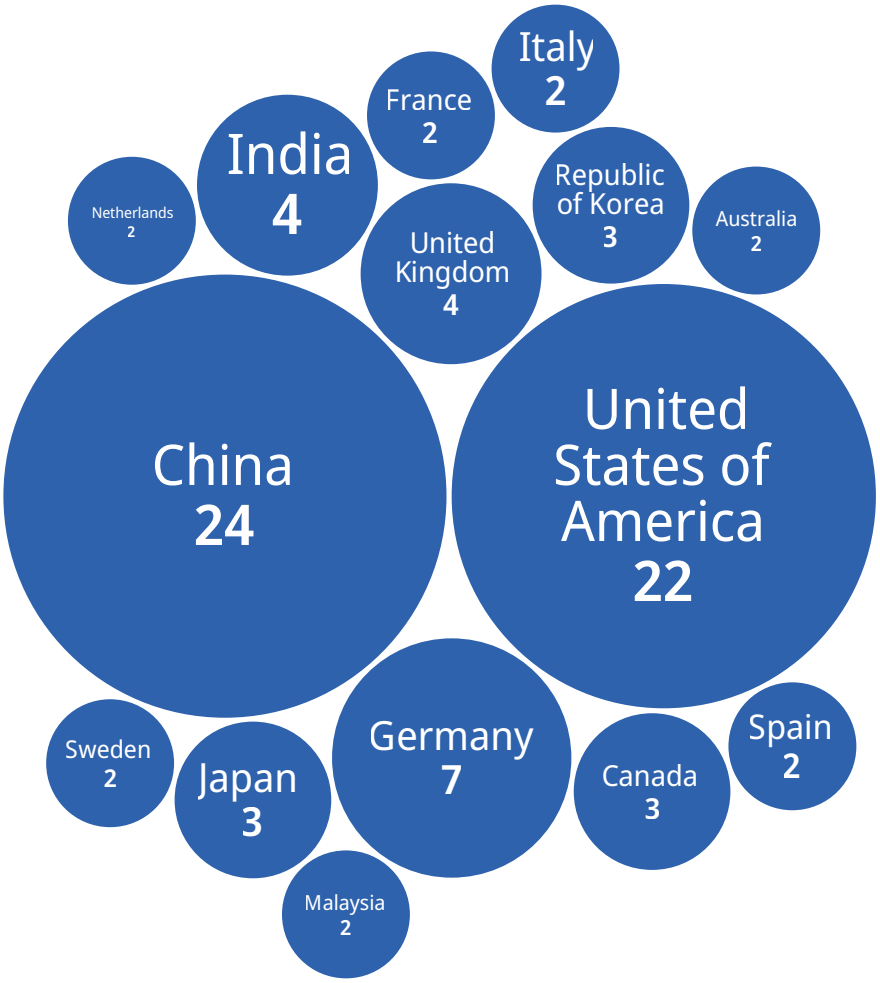
China, for the third consecutive year, leads with the most clusters (24, two fewer than last year) in the top 100 (see Figure 3 and Maps 2 a-e). The United States follows closely behind with 22 clusters (+2 compared to last year). The introduction of VC deal counts as a variable in this year's methodology has thus narrowed the gap between China and the United States.

Germany continues to rank third with seven clusters (one fewer than last year) in the top 100, with Munich (27th), Berlin (30th) and Cologne (43rd) in the lead. The United Kingdom now has four clusters among the top 100 (up from three last year, without VC), with London (8th), Cambridge (69th), Oxford (77th) and new entrant Manchester (94th). France has two clusters in the top 100 (down from three), with Paris still first at rank 12, followed by Lyon (90th), but Basel – a cross-border cluster previously shared with Germany, France and Switzerland – drops out of the top 100 ranking.

India still has four clusters in the top 100: Bengaluru (21st), Delhi (26th), Mumbai (46th) and Chennai (84th), with most clusters boosted significantly by the inclusion of VC deal counts. Japan maintains three clusters among the top 100: Tokyo–Yokohama (2nd), Osaka–Kobe–Kyoto (11th) and Nagoya (28th), whereas the number drops from four to three for the Republic of Korea—Seoul (5th), Daejeon (25th) and Busan (95th), with Daegu dropping out from the top 100.

Canada still has three clusters, with Toronto (33rd) retaining its position as the country's leading innovation cluster, followed by Montreal (62nd) and Vancouver (66th). Australia now has two clusters in the top 100, down from three in 2024, with Sydney (36th) and Melbourne (52nd).

Figure 3 Economies with two or more top 100 innovation clusters, 2025



Source: WIPO Statistics Database, May 2025.

In addition to China and India, – with Mexico entering in 2025 – six other middle-income economies have clusters among the top 100. They are as follows:

- Brazil (1 cluster), with São Paulo (49th)
- Egypt (1), with Cairo (83rd), the sole top 100 innovation cluster within Africa
- Islamic Republic of Iran (1), with Tehran (63rd)
- Malaysia (2), with Kuala Lumpur (86th), and its cluster shared with Singapore (16th)
- Mexico (1) enters the top 100 with Mexico City (79th), now the second cluster within Latin America
- Türkiye (1), with Istanbul in at 58th.

Note that the Russian Federation, with one cluster in 2025 (Moscow, ranking 48th), no longer features here as it now classifies as a high-income economy.

Regarding those African innovation clusters not yet covered by the top 100 a separate analysis was conducted last year (see "GII 2024: Sustaining the rise of top-notch African innovation clusters", GII Innovation Insights, November 20, 2024 www.wipo.int/en/web/global-innovation-index/w/blogs/2024/gii-2024-african-innovation-clusters).

Regional distribution

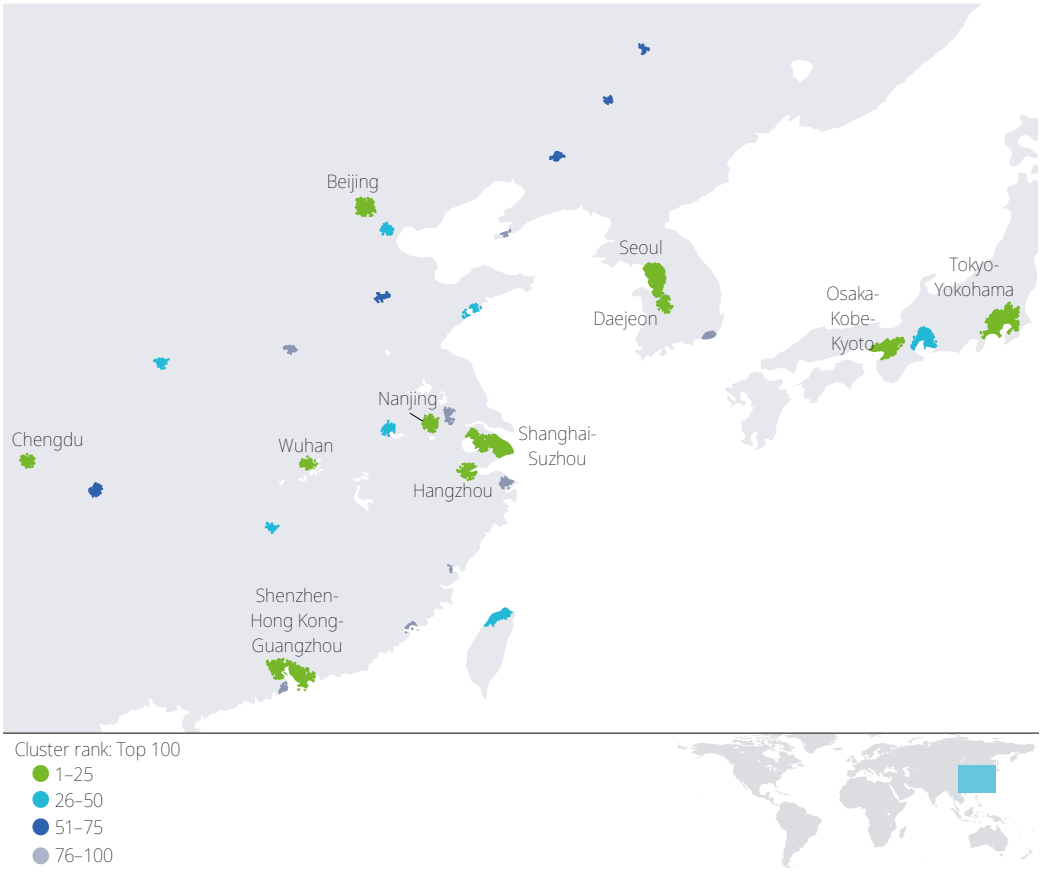
In general, when comparing the latest results of the top 100 clusters between the new and old methodologies, there is a slight downward trend observable in the rankings with respect to Asian clusters, whereas many clusters in the United States have made gains (see Appendix IV - Table 2). On average – and with notable exceptions such as Shenzhen–Hong Kong–Guangzhou, which now ranks first globally – Chinese clusters have declined in rank. A similar pattern is observed for clusters in Japan and the Republic of Korea, in part a reflection of the lesser but growing role played by VC, but also of the type and structure of innovation finance within these two economies – large industry conglomerates favoring in-house innovation.

However, within Asia the same is not true for Indian clusters. Three out of four Indian clusters rise sharply in the ranking when accounting for VC deals. Bengaluru moves to 21st (compared to 52nd when using the old methodology), Delhi to 26th (compared to 63rd) and Mumbai to 46th (compared to 88th); the exception is Chennai, now ranked 84th (compared to 77th when using the old methodology). Beyond the top 100, Indian clusters likewise gain: Hyderabad is 102ndand Pune 112th, both clusters now knocking at the door of the top 100, while Kolkata ranks 158th.

Clusters in the European Union – where VC markets are sometimes less vigorous than in the United States and other financial centers such as London or Singapore – also tend to have seen a decline in ranking compared to last year when VC capital activity was excluded.

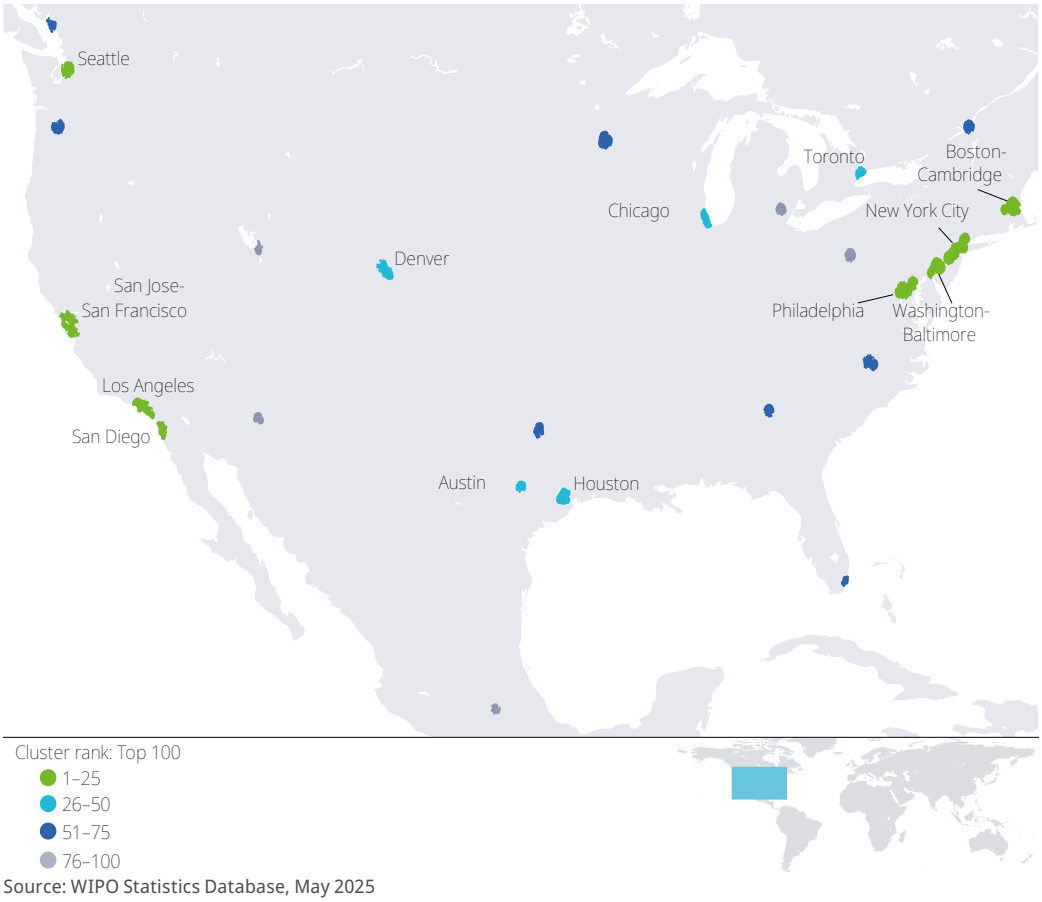
Map 2 Top innovation clusters, 2025

East Asia



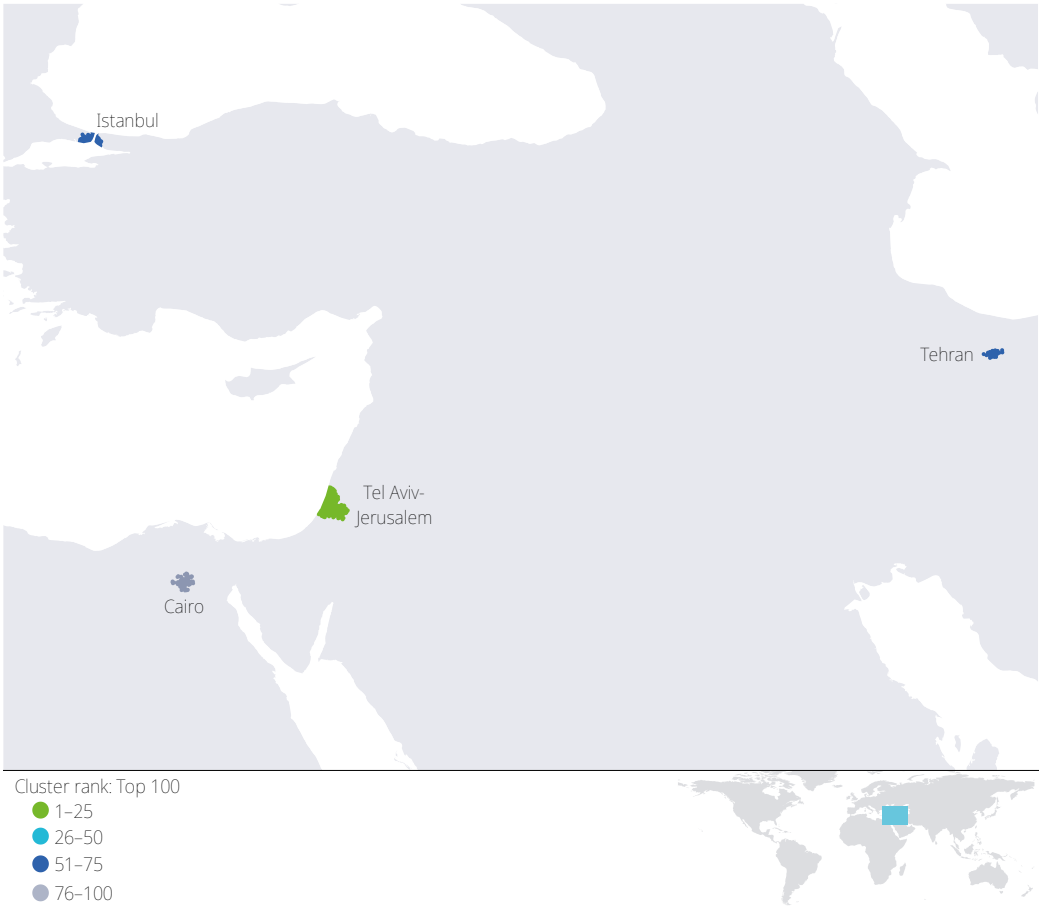
Source: WIPO Statistics Database, May 2025

North America



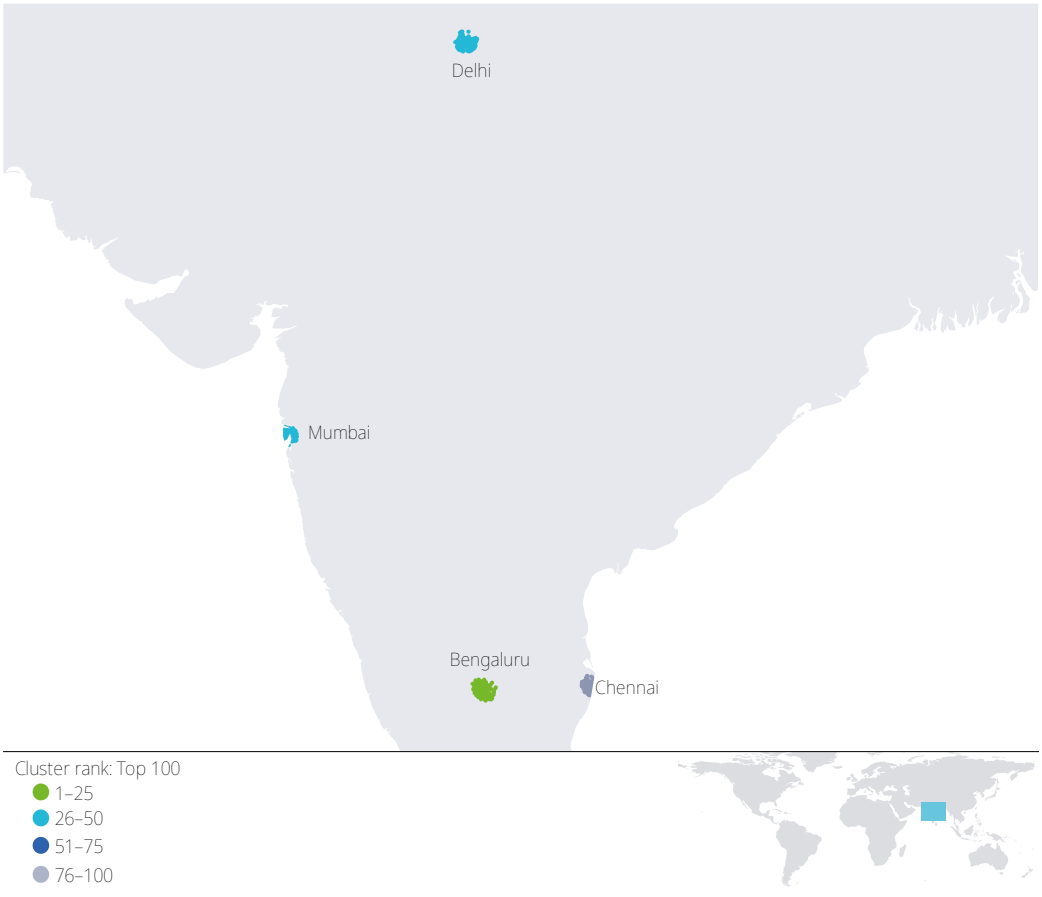
Source: WIPO Statistics Database, May 2025

Middle East



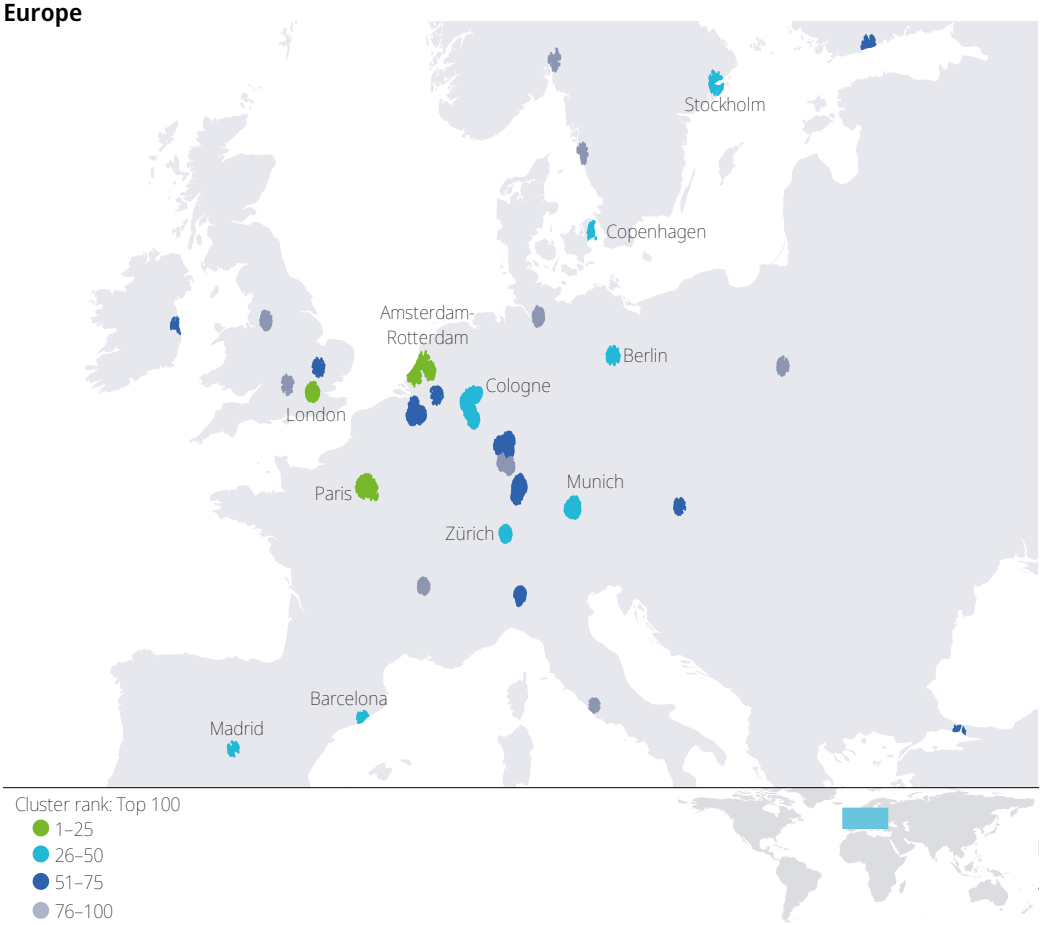
Source: WIPO Statistics Database, May 2025

India



Source: WIPO Statistics Database, May 2025

Europe



Source: WIPO Statistics Database, May 2025.

Beyond the top 100

Bangkok, Ankara, Rio De Janeiro and Buenos Aires are among top middle-income economy innovation clusters

The GII 2025 also presents innovation clusters beyond the top 100 in order to highlight additional areas around the world with an appreciably high level of science, technology and innovation finance.

Based on the same parameters applied in producing the top 100 innovation clusters ranking, and therefore including VC counts, an additional 137 clusters were identified beyond the top 100, with the following three close to entering: Riyadh (101st, Kingdom of Saudi Arabia), Hyderabad (102nd, India) and Lausanne (103rd, Switzerland).

Table 2 identifies the top innovation clusters in economies not previously represented in the top 100, including Pakistan, Portugal and Saudi Arabia. Moreover, Pakistan is effectively adding one cluster with Lahore joining Islamabad.

Table 2 Selected innovation clusters in extended ranking: economies beyond the top 100 innovation clusters, 2025

Economy	Economy name	Clusters beyond top 100	Cluster name(s)
SA	Saudi Arabia	2	Riyadh and Dammam
BR	Brazil	2	Rio De Janeiro and Porto Alegre
PT	Portugal	2	Lisbon and Porto
PK	Pakistan	2	Islamabad and Lahore
TH	Thailand	1	Bangkok
TR	Türkiye	1	Ankara
CZ	Czech Republic	1	Prague
CL	Chile	1	Santiago
HU	Hungary	1	Budapest
NZ	New Zealand	1	Auckland
PL	Poland	1	Kraków
GR	Greece	1	Athens
AR	Argentina	1	Buenos Aires
RO	Romania	1	Bucharest
RS	Serbia	1	Belgrade

Source: WIPO Statistics Database, May 2025.

Middle-income economies, Argentina, Serbia and Thailand each host a top innovation cluster in the extended list, namely, Buenos Aires, Belgrade and Bangkok, respectively.

GII 2025 adds seven new clusters to the list of innovation clusters beyond the top 100, compared to last year when VC was excluded:

- Canada (1 cluster): Québec City (228th)
- China (2): Ürümqi (218th) and Guilin (229th)
- Finland (1): Oulu (218th)
- Republic of Korea (1): Ulsan (209th)
- Pakistan (1): Lahore (191st)
- Slovenia (1): Ljubljana (225th).

Top innovation intensity clusters per capita

The most innovation-intensive clusters: Cambridge and San Jose–San Francisco lead; Ningde (China) ranks fifth in the world thanks to one company

Since 2020, the Global Innovation Index (GII) has also ranked the top 100 clusters by innovation intensity — measured as the combined global share of patents, scientific publications, and (now including) VC deals, normalized by population (see Appendix IV for methodology).

In the latest ranking, San Jose–San Francisco (United States), Cambridge (United Kingdom), Boston–Cambridge (United States), Ningde (China), and Oxford (United Kingdom) emerge as the world's foremost innovation-intensive clusters (Appendix IV - Table 2). The United States leads with five of the top 10 clusters, followed by the United Kingdom with two, and one each in China (Ningde), Finland (Helsinki) and the Kingdom of the Netherlands (Eindhoven).

Ningde's entry into the global top 5 is a standout development, driven primarily by a surge in patent activity from Contemporary Amperex Technology Co., Limited (CATL) — a global leader in energy technologies and battery innovation (Table 3).

Leading clusters typically host world-class research institutions such as Stanford, Cambridge and Harvard. Top innovation players include tech giants like Google, ARM, and Qualcomm, alongside leading universities such as the Massachusetts Institute of Technology (MIT) and the University of Michigan.

Table 3 Top innovation clusters, by intensity, 2025

Rank per-capita	Cluster name	Economy	Top applicant	Top scientific organization
1	San Jose–San Francisco	US	Google	Stanford University
2	Cambridge	GB	ARM	Cambridge University
3	Boston–Cambridge	US	MIT	Harvard Medical School
4	Ningde	CN	CATL	Ningde Normal University
5	Oxford	GB	Oxford University	Oxford University
6	Seattle	US	Microsoft	University of Washington Seattle
7	San Diego	US	Qualcomm	University of California San Diego
8	Ann Arbor	US	University of Michigan	University of Michigan
9	Helsinki	FI	Nokia	University of Helsinki
10	Eindhoven	NL	Philips Electronics	Eindhoven University of Tech.

Notes: MIT, Massachusetts Institute of Technology; CATL, Contemporary Amperex Technology Co, Limited.
Source: WIPO Statistics Database, May 2025.

Different Paths to Innovation Intensity among Top Clusters

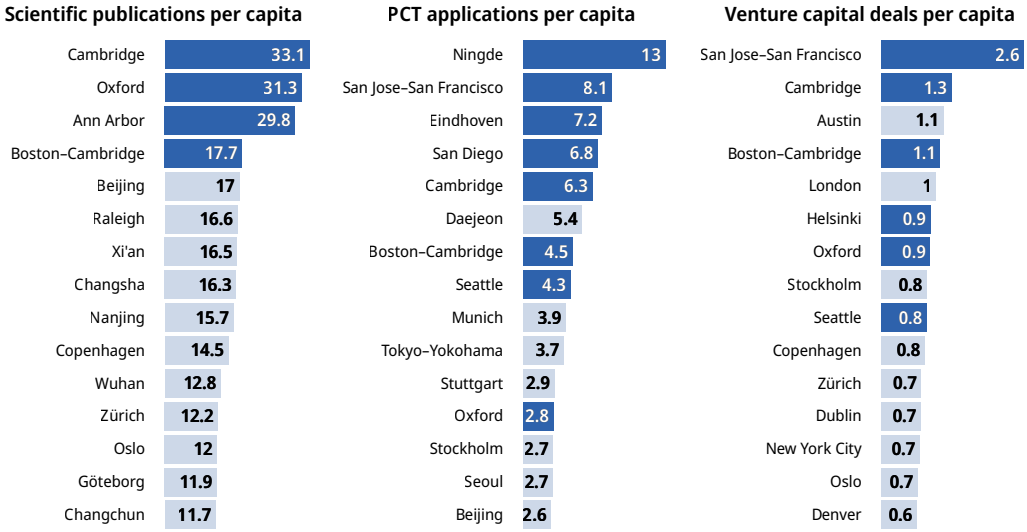
While all top 25 clusters rank highly in terms of overall innovation intensity, they have different strengths. Ningde (China), San Jose–San Francisco (United States) and Eindhoven (Kingdom of the Netherlands) lead in PCT patent applications per capita (see Figure 4). Cambridge (United Kingdom), Oxford (United Kingdom), and Ann Arbor (United States) — classic university towns — rank highest in scientific publications per capita, whereas San Jose–San Francisco (United States) Cambridge (United Kingdom) and Austin (United States) top the list for VC deals per capita.

Many clusters within the top 25 show a balanced performance across all three indicators. Others exhibit a distinct skew, for example:

- Ningde (China) leads in PCT applications per capita (over 13,000), yet has minimal scientific output and VC activity. Similar patters are also evident in Nagoya (Japan), Eindhoven (Kingdom of the Netherlands), Tokyo-Yokohama (Japan), Osaka–Kobe–Kyoto (Japan) and Stuttgart (Germany)
- Austin (United States), London (United Kingdom) and New York City (United States) all excel in VC deal activity, but are low in global publications;
- conversely, Chinese clusters Xi'an, Changsha, Changchun, Harbin, Chengdu and Jinan have solid publication activity, but are relatively low in patent and VC deal activity

These variations reflect a diversity of innovation models – ranging from science-driven ecosystems to VC-heavy start-up hubs and underscoring the different paths to innovation.

Figure 4 Top 15 innovation intensive clusters, by metric per capita (in thousands), 2025



Note: Dark blue represents a top 10 cluster.
Source: WIPO Statistics Database, May 2025.

Only two clusters rank among the global top 10 innovation clusters as well as the top 10 by intensity: San Jose–San Francisco and Boston–Cambridge, both located in the United States.

Expanding to the top 25, there are nine clusters that appear in both the global top 25 and the top 25 by intensity. In addition to San Jose–San Francisco and Boston–Cambridge, they include Seattle (United States), San Diego (United States), New York City (United States), London (United Kingdom), Beijing (China), Hangzhou (China) and Daejeon (Republic of Korea).

This overlap highlights the continued dominance of the United States in terms of both cluster size and intensity, while at the same time underscoring the global presence of select high-performing clusters in Asia and Europe.

Helsinki and Eindhoven lead the EU in innovation cluster intensity

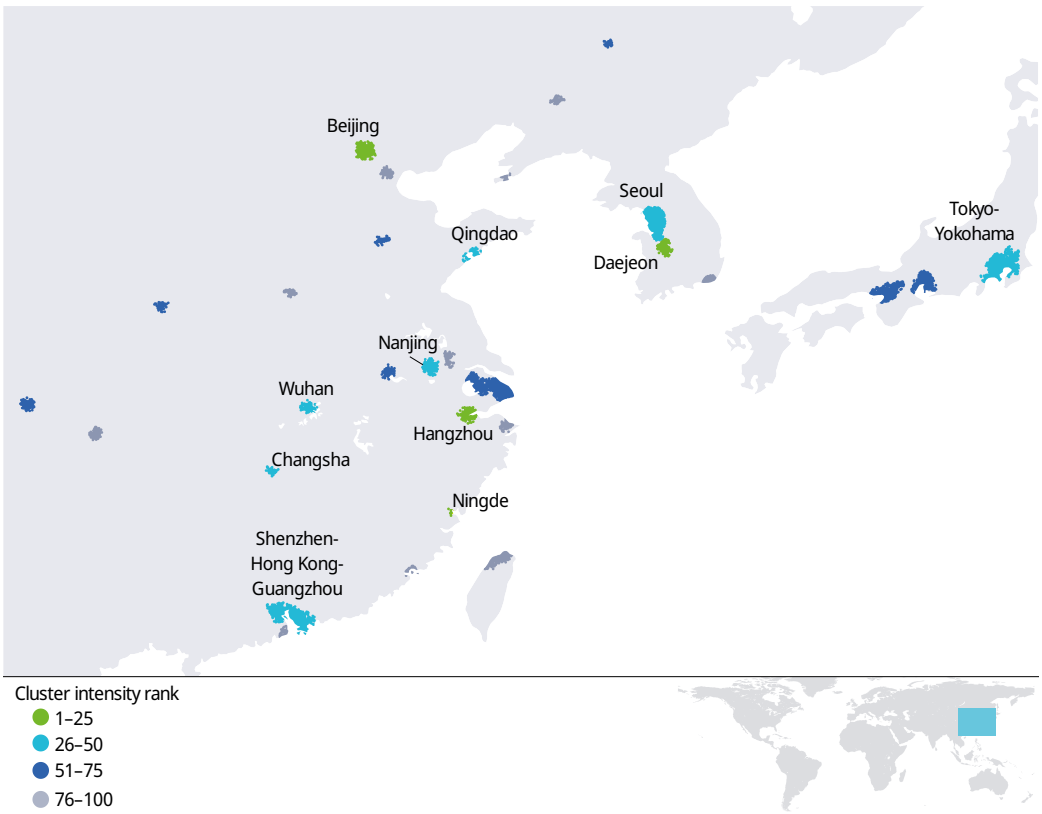
In the 2025 WIPO GII Global Innovation Cluster Intensity Ranking, Helsinki (9th, Finland) and Eindhoven (10th, Kingdom of the Netherlands) emerge as the highest-ranking clusters within the European Union (EU) (Appendix IV - Table 3). They are followed by EU clusters Stockholm (11th, Sweden), Copenhagen (12th, Denmark), Munich (16th, Germany), Göteborg (20th, Sweden) and Dublin (23rd, Ireland).

When focusing on innovation intensity — which accounts for patent filings, scientific publications and VC deals relative to population — North American clusters tend to outperform their Asian and EU counterparts, especially in respect to higher VC activity.However, the United Kingdom stands out as a strong performer in Europe, with Cambridge (2nd), Oxford (5th), and London (19th) consistently ranking among the most intense innovation hubs globally.

This contrast underscores regional differences in innovation ecosystems, with Northern America excelling in commercialization and investment, and European clusters leaning on strong research and technological foundations.

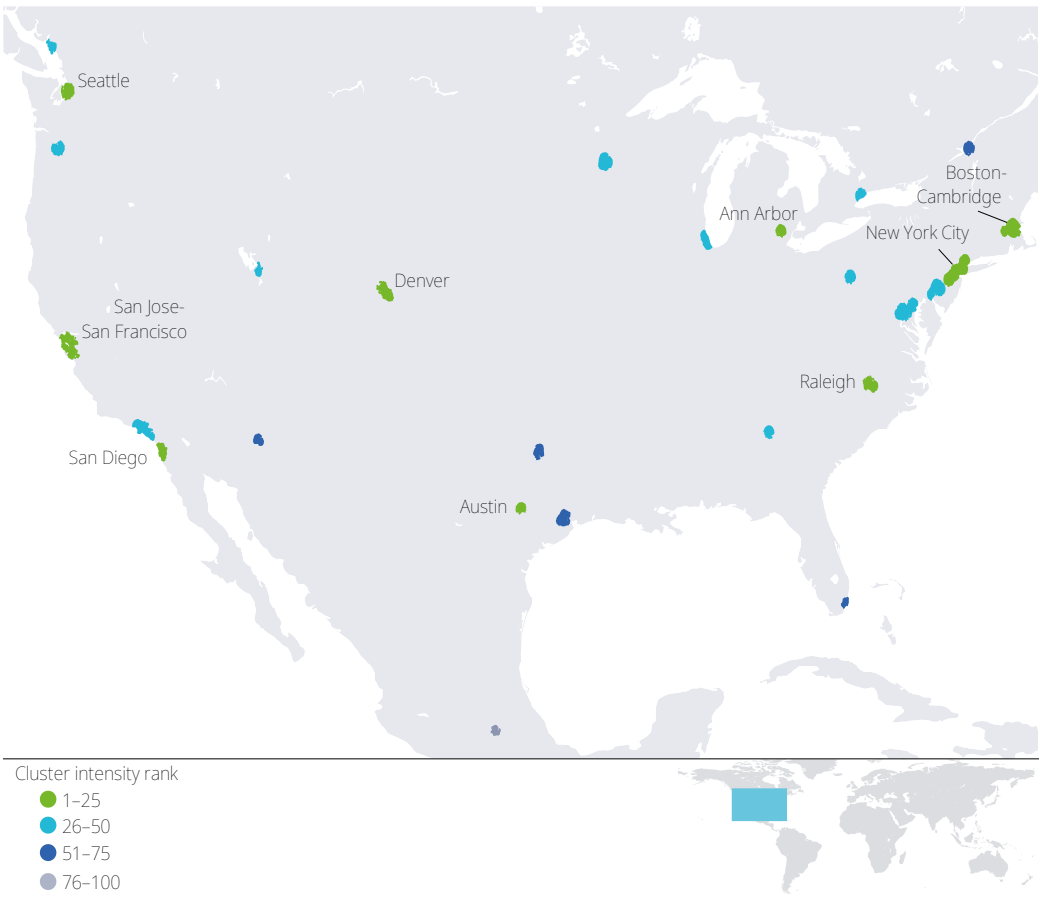
Map 3 Top 100 innovation clusters, by intensity, 2025

East Asia



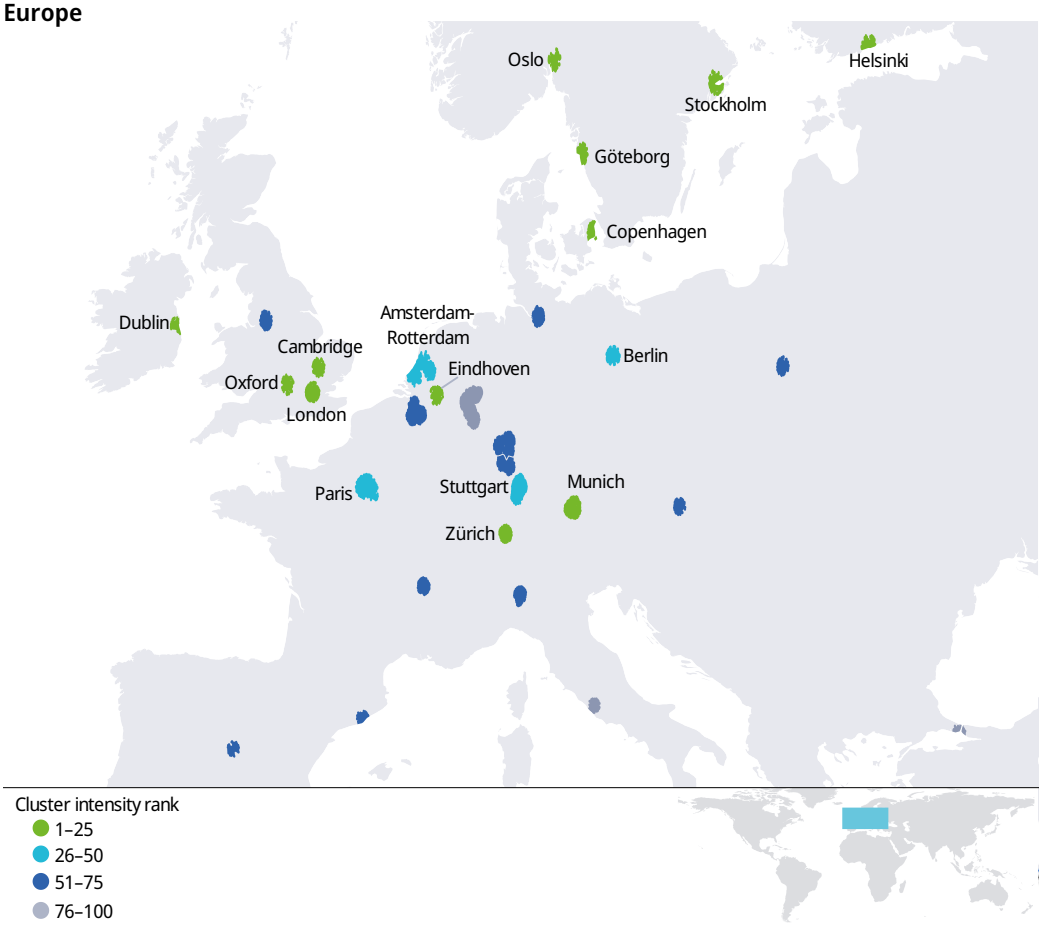
Source: WIPO Statistics Database, May 2025

North America



Source: WIPO Statistics Database, May 2025

Europe



Source: WIPO Statistics Database, May 2025.

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CATL has become the 5th biggest global PCT filer in 2024, after Huawei, Samsung, Qualcomm and LG Electronics, see (Annex 2): www.wipo.int/export/sites/www/pressroom/en/documents/pr-services2025-annexes.pdf#page=2.

Appendix IV – Global Innovation Index innovation cluster methodology

Since 2016, the Global Innovation Index (GII) has sought to identify innovation clusters using a bottom-up approach. This approach disregards administrative or political borders and instead pinpoints those geographical areas where there is a high density of inventors and scientific authors. The resulting clusters often encompass several municipal districts, sub-federal states and sometimes two or more countries.

In this 2025 edition of the GII, three innovation metrics are employed in identifying WIPO's top 100 global innovation clusters:

- location of inventors listed in published patent applications;
- location of authors listed on published scientific articles;
- and – new to this edition, location of firms in receipt of venture capital (VC) investment.

For patents, this method relies on published applications under WIPO's Patent Cooperation Treaty (PCT). PCT patents offer a useful basis for analyzing patents globally. The PCT system applies a single set of procedural rules and collects information based on uniform filing standards. This reduces any potential bias that might arise from using data collected from multiple national sources. The patents selected were published over the most recent five-year period available – between 2020 and 2024 – to minimize any volatility that might occur between years.

As a second step, scientific publications from the Web of Science's Science Citation Index Expanded (SCIE) were incorporated. The SCIE provides detailed coverage of the world's most impactful academic journals. Science and technology fields were the focus of the analysis, while articles from the fields of social sciences and humanities were disregarded. In addition, scientific publications are limited solely to articles of original research. This excludes other published items, such as meeting abstracts, conference summaries or paper briefs. As with PCT filings, the most recent five-year period for which data are available was also used for the SCIE – that is, publication years 2019 to 2023.

To further enrich the understanding of innovation activity at the cluster level, this edition introduces VC deal count data. By integrating information on startups, unicorns or other commercial ventures in receipt of VC funding, and counting the number of VC deals by location, we have this year been able to expand our lens to include entrepreneurial and early-stage innovation activity. This allows the cluster ranking to reflect not only scientific and inventive outputs, but also innovation finance and startup outcomes.

For VC data, we utilized PitchBook's Data Venture Capital Database[1]. This database offers detailed deal-level VC count information and was used to identify the precise geographical location of those firms in receipt of VC investment. The data reflect the total number of VC transactions based on the company's headquarters. Investors may originate from any global region. Investors included range from individual angels, angel groups, seed and venture funds, corporate venture capital (CVC) arms, and other corporate entities. Deals associated with accelerator programs were excluded unless the accelerator participated in follow-on rounds,

1 https://pitchbook.com/venture-capital-database

in which case only those subsequent rounds of financing were included. All equity transactions and mixed debt-and-equity deals were counted. Pure debt deals were excluded, because they fall under venture debt datasets rather than VC activity datasets.

The WIPO PCT patent data set consists of approximately 1.3 million patent applications published between 2020 and 2024, containing 4.2 million inventor addresses. For the SCIE, the data set comprises 8.2 million articles published between 2019 and 2023, containing 28.5 million listed author addresses. For PitchBook VC Capital Database the data set consists of 66,755 locations between 2019 and 2023, containing 236,046 deals. The geocoding process for the addresses used in this report is as follows. PCT inventor addresses were geocoded using the Environmental Systems Research Institute (ESRI) ArcGIS World Geocoder service. In cases where the ESRI results were ambiguous or insufficiently accurate, the city name was extracted from the address string and matched against entries in the GeoNames Gazetteer database – a global dataset of approximately 48,000 geocoded cities. If the extracted city did not match any record in GeoNames, we then attempted to geocode the city name directly using the World Geocoder service.

This same city-matching approach was applied to SCIE author addresses and VC deal locations. In both datasets, the addresses were already provided in a pre-parsed format, which significantly improved our ability to match them using the GeoNames database. For SCIE and VC city names that could not be matched using GeoNames, we again attempted to geocode the city name using ESRI's World Geocoder.

Overall, 98.4% of inventor addresses were geocoded at either the city level or a more accurate level, whereas 99.7% of scientific author addresses were geocoded at the city level. For VC data, 97.1% of VC deals were geocoded at the city level or better. Appendix IV - Table 1 summarizes the geocoding results for the top 20 countries, which together account for the majority of inventor, scientific author and VC deal addresses. As this table shows, the coverage of geocoded PCT inventor addresses across all 20 countries is above 99 percent. Similarly, coverage of scientific author addresses and VC deal addresses was also high, above 99%.

Addresses were clustered by applying the density-based spatial clustering of applications with noise (DBSCAN) algorithm. This algorithm requires predefined radius and density parameters. As in previous years, a radius of 15 km and a density of 4,500 listed inventors/authors was applied. Equal weight was given to inventors and authors by expressing data points as a share of total inventor and author addresses, respectively. Given that the number of scientific articles far exceeds the number of patents, cluster identification based on the raw data points would have resulted in clusters shaped predominantly by the scientific author landscape.

The locations of VC deal counts were excluded from the initial cluster formation process because of their relatively high geographical isolation, that is to say, the greater average distances between data points, compared to PCT inventors and scientific article authors. Including the VC data during clustering risked introducing noise and distorting the resultant clusters. To address this, we instead assigned VC data to clusters *post hoc* by overlaying the finalized cluster boundaries onto the VC firm locations and allocating each VC deal to the cluster into which it geographically falls.

This clustering step resulted in an initial list of 246 clusters. After review, neighboring clusters were merged if the edge of one cluster was within 3–5 km of another and where the co-author/co-inventor relationships were higher than for any other relationship with any other cluster or non-cluster points. A total of 18 clusters met these criteria, with mergers reducing the overall number of clusters identified to 237.

The remaining 237 clusters were then ranked by first counting the number of patents, scientific articles and VC deals within a given cluster. The numbers were calculated using fractional counting, and then global shares were derived for each innovation metric. These global shares were then aggregated, using equal weights, within each cluster and then used for the overall ranking (Appendix IV - Table 2).

To produce an intensity ranking, the European Commission's Global Human Settlement Layer (GHSL) population distribution data were matched geographically to the top 100 clusters

identified in the overall ranking (Appendix IV - Table 3). Just as with inventor/author geocoded locations, these population data allowed us to define the total population of a cluster using a bottom-up approach. We chose to define a cluster's area as being the space within 0.05 degrees of each inventor/author location. Overlaying the resultant cluster polygons on top of the population data and aggregating all points which lay within each polygon gave a total population estimate for each cluster. The clusters were then ranked by dividing the total innovation share by population.

To ensure consistency following the inclusion of VC data in this year's cluster rankings, we retroactively applied the same methodological change to last year's rankings. Specifically, VC deal counts from 2018 to 2022 were geographically assigned to the cluster boundaries used in the previous edition of the GII, and the rankings recalculated accordingly. These updated rankings form the basis for the "Rank Change" indicators presented in the main section. For reference, Appendix IV - Table 2 provides the top 100 cluster rankings calculated using the previous methodology (i.e., excluding VC data), allowing users to compare how individual clusters would have ranked using only PCT patents and scientific articles as input variables.

Appendix IV - Table 1: Summary of geocoding results, 2025

	Scientific publications			PCT applications			Venture Capital deals		
Country	**Number of addresses**	**City-level address accuracy (%)**	**Publications covered (%)**	**Number of addresses**	**City-level address accuracy (%)**	**Applications covered (%)**	**Number of addresses**	**City-level address accuracy (%)**	**Deals covered (%)**
China	7,835,799	100	100	1,151,574	99.9	99.9	2,555	96.9	99.9
United States of America	7,517,582	100	100	974,714	99.9	99.9	20,460	99.4	100
Japan	1,399,434	99.4	99.8	532,296	99.8	99.9	1,970	97.5	99.8
Germany	1,671,970	99.9	99.9	266,615	99.7	99.7	3,025	98.3	99.8
Republic of Korea	956,778	99.2	99.6	335,207	100	100	1,015	92.1	99.8
United Kingdom	1,668,211	99.5	99.7	90,148	99.8	99.9	4,840	94.3	99
France	1,199,360	99.3	99.6	108,885	98.8	99.2	5,170	98.6	99.8
Italy	1,500,143	99.9	100	48,023	99.4	99.5	1,295	99.2	99.9
India	1,173,303	99.3	99.5	53,820	99.7	99.8	1,570	98.7	100
Canada	1,066,440	100	100	51,086	100	99.9	1,575	96.2	99.7
Spain	1,118,462	99.6	99.8	28,643	99.2	99.6	1,180	94.1	99.4
Netherlands	602,719	99.8	99.9	46,296	99.8	99.8	1,270	97.6	99.8
Australia	1,031,680	99.9	99.9	21,617	99.9	99.9	2,330	97.4	99.4
Brazil	804,344	99.9	99.9	10,478	99.8	99.8	850	97.6	99.8
Switzerland	410,344	99.9	99.9	44,394	99.8	99.9	1,285	98.4	99.6
Sweden	351,437	99.9	99.9	45,241	99.8	99.9	960	97.4	99.8
Russian Federation	463,678	99.8	99.9	15,206	99.7	99.8	255	98	100
Türkiye	511,696	98.8	98.6	18,082	98.9	99.3	255	100	100
Israel	199,623	98.6	99.5	28,896	98.8	99.1	1,105	92.8	98.7
Poland	400,142	99.9	100	7,567	99.9	99.9	570	96.5	97.7
World Total	28,625,102	99.7	99.9	4,271,953	98.4	98.5	66,755	97.1	99.7

Notes: This table lists the top 20 countries according to combined share of patents and scientific articles. PCT inventor addresses were geocoded to the highest level of detail. Due to a much larger volume, scientific author addresses were geocoded to city level only. It was only possible to geocode VC data to city level due to data availability.

Source: WIPO Statistics Database, May 2025.

Appendix IV - Table 2: Top 100 innovation clusters, 2025

Cluster name	Rank	Economy	PCT applications	Scientific publications	Venture Capital Deals	Share of global PCT applications	Share of global scientific publications	Share of global venture capital deals	Total	Previous rank (a)	Rank change (a)	Rank old methodology (b)
Shenzhen–Hong Kong–Guangzhou	1	CN / HK	117,542.00	193,635.00	6,916.00	8.97	2.36	2.94	14.28	1.00	0.00	2.00
Tokyo–Yokohama	2	JP	135,129.00	115,773.00	5,154.00	10.32	1.41	2.19	13.92	2.00	0.00	1.00
San Jose–San Francisco	3	US	50,812.60	56,510.30	16,296.00	3.88	0.69	6.93	11.50	3.00	0.00	6.00
Beijing	4	CN	49,792.30	331,874.00	6,727.00	3.80	4.05	2.86	10.71	4.00	0.00	3.00
Seoul	5	KR	71,318.00	142,509.00	7,376.00	5.45	1.74	3.14	10.32	5.00	0.00	4.00
Shanghai–Suzhou	6	CN	42,818.90	206,292.00	8,705.00	3.27	2.52	3.70	9.49	6.00	0.00	5.00
New York City	7	US	13,705.10	74,832.80	11,283.00	1.05	0.91	4.80	6.76	7.00	0.00	12.00
London	8	GB	6,981.28	57,151.70	10,411.00	0.53	0.70	4.43	5.66	8.00	0.00	22.00
Boston–Cambridge	9	US	19,332.60	75,168.10	4,592.00	1.48	0.92	1.95	4.35	9.00	0.00	8.00
Los Angeles	10	US	11,832.10	42,946.10	5,891.00	0.90	0.52	2.50	3.93	10.00	0.00	18.00
Osaka–Kobe–Kyoto	11	JP	38,306.50	52,226.80	546.00	2.92	0.64	0.23	3.79	11.00	0.00	7.00
Paris	12	FR	16,328.10	60,680.00	4,085.00	1.25	0.74	1.74	3.72	12.00	0.00	11.00
Hangzhou	13	CN	11,128.00	81,181.10	2,804.00	0.85	0.99	1.19	3.03	13.00	0.00	14.00
San Diego	14	US	26,713.20	19,862.50	1,705.00	2.04	0.24	0.72	3.01	14.00	0.00	10.00
Nanjing	15	CN	8,241.81	136,094.00	1,266.00	0.63	1.66	0.54	2.83	15.00	0.00	9.00
Singapore	16	SG / MY	5,410.18	34,675.50	4,033.00	0.41	0.42	1.71	2.55	16.00	0.00	35.00
Washington–Baltimore	17	US	6,263.57	71,366.70	2,152.00	0.48	0.87	0.91	2.26	17.00	0.00	19.00
Wuhan	18	CN	7,526.27	111,269.00	681.00	0.57	1.36	0.29	2.22	19.00	1.00	13.00
Tel Aviv–Jerusalem	19	IL	7,160.04	25,232.50	2,974.00	0.55	0.31	1.26	2.12	18.00	-1.00	34.00
Seattle	20	US	10,883.70	19,386.10	2,084.00	0.83	0.24	0.89	1.95	20.00	0.00	24.00
Bengaluru	21	IN	4,983.22	16,384.70	2,868.00	0.38	0.20	1.22	1.80	21.00	0.00	52.00
Amsterdam–Rotterdam	22	NL	4,362.61	51,649.00	1,965.00	0.33	0.63	0.84	1.80	22.00	0.00	26.00
Philadelphia	23	US	5,752.12	32,432.20	2,135.00	0.44	0.40	0.91	1.74	23.00	0.00	36.00
Chengdu	24	CN	2,651.69	86,766.30	1,097.00	0.20	1.06	0.47	1.73	29.00	5.00	21.00
Daejeon	25	KR	14,927.20	26,169.20	570.00	1.14	0.32	0.24	1.70	27.00	2.00	17.00
Delhi	26	IN	1,139.54	33,681.00	2,736.00	0.09	0.41	1.16	1.66	24.00	-2.00	63.00
Munich	27	DE	10,925.20	26,986.60	988.00	0.83	0.33	0.42	1.58	30.00	3.00	23.00
Nagoya	28	JP	16,724.40	20,922.80	117.00	1.28	0.26	0.05	1.58	25.00	-3.00	15.00
Xi'an	29	CN	2,278.93	108,896.00	22.00	0.17	1.33	0.01	1.51	33.00	4.00	16.00
Berlin	30	DE	3,188.21	24,527.60	2,267.00	0.24	0.30	0.96	1.51	28.00	-2.00	57.00
Chicago	31	US	4,205.14	29,337.10	1,827.00	0.32	0.36	0.78	1.46	26.00	-5.00	41.00
Stockholm	32	SE	5,932.94	19,300.60	1,794.00	0.45	0.24	0.76	1.45	31.00	-1.00	39.00
Toronto	33	CA	2,763.33	28,192.60	2,023.00	0.21	0.34	0.86	1.41	32.00	-1.00	55.00
Qingdao	34	CN	8,334.34	53,059.10	267.00	0.64	0.65	0.11	1.40	35.00	1.00	20.00
Denver	35	US	3,473.46	21,275.20	1,983.00	0.27	0.26	0.84	1.37	34.00	-1.00	61.00
Sydney	36	AU	2,771.26	34,550.60	1,527.00	0.21	0.42	0.65	1.28	37.00	1.00	46.00
Austin	37	US	2,615.40	9,466.09	2,222.00	0.20	0.12	0.94	1.26	38.00	1.00	92.00
Houston	38	US	7,795.56	23,270.10	886.00	0.60	0.28	0.38	1.26	36.00	-2.00	31.00
Hefei	39	CN	4,723.10	48,836.80	686.00	0.36	0.60	0.29	1.25	44.00	5.00	27.00
Zürich	40	CH	3,994.10	23,855.00	1,426.00	0.30	0.29	0.61	1.20	40.00	0.00	50.00
Taipei–Hsinchu	41	TW*	3,803.40	55,821.50	430.00	0.29	0.68	0.18	1.15	39.00	-2.00	25.00
Copenhagen	42	DK	3,112.37	24,603.50	1,344.00	0.24	0.30	0.57	1.11	42.00	0.00	59.00
Cologne	43	DE	6,609.38	33,031.40	456.00	0.50	0.40	0.19	1.10	41.00	-2.00	29.00
Changsha	44	CN	1,519.91	67,213.20	387.00	0.12	0.82	0.16	1.10	50.00	6.00	28.00
Barcelona	45	ES	2,195.49	30,359.30	1,306.00	0.17	0.37	0.56	1.09	43.00	-2.00	58.00
Mumbai	46	IN	1,647.81	16,290.20	1,696.00	0.13	0.20	0.72	1.05	45.00	-1.00	88.00
Madrid	47	ES	1,645.46	39,451.70	1,011.00	0.13	0.48	0.43	1.04	47.00	0.00	49.00
Moscow	48	RU	1,865.61	59,753.60	363.00	0.14	0.73	0.15	1.03	46.00	-2.00	33.00
São Paulo	49	BR	684.00	24,349.10	1,587.00	0.05	0.30	0.67	1.02	49.00	0.00	79.00
Tianjin	50	CN	1,406.52	64,029.70	299.00	0.11	0.78	0.13	1.02	52.00	2.00	30.00

Cluster name	Rank	Economy	PCT applications	Scientific publications	Venture Capital Deals	Share of global PCT applications	Share of global scientific publications	Share of global venture capital deals	Total	Previous rank (a)	Rank change (a)	Rank old methodology (b)
Minneapolis	51	US	6,655.03	14,327.10	756.00	0.51	0.17	0.32	1.00	48.00	-3.00	40.00
Melbourne	52	AU	1,902.85	38,040.10	852.00	0.15	0.46	0.36	0.97	51.00	-1.00	48.00
Raleigh	53	US	3,042.33	28,394.90	876.00	0.23	0.35	0.37	0.95	54.00	1.00	53.00
Stuttgart	54	DE	9,176.98	14,264.30	138.00	0.70	0.17	0.06	0.93	55.00	1.00	32.00
Brussels–Antwerp	55	BE	2,889.51	27,235.30	875.00	0.22	0.33	0.37	0.92	53.00	-2.00	56.00
Milan	56	IT	2,621.50	32,144.60	720.00	0.20	0.39	0.31	0.90	57.00	1.00	51.00
Chongqing	57	CN	1,545.33	53,070.30	276.00	0.12	0.65	0.12	0.88	60.00	3.00	37.00
Istanbul	58	TR	2,533.18	29,908.10	743.00	0.19	0.36	0.32	0.87	62.00	4.00	54.00
Atlanta	59	US	1,855.70	22,199.10	1,081.00	0.14	0.27	0.46	0.87	56.00	-3.00	70.00
Helsinki	60	FI	3,012.05	13,017.20	1,108.00	0.23	0.16	0.47	0.86	58.00	-2.00	73.00
Dallas	61	US	3,288.52	9,828.64	1,032.00	0.25	0.12	0.44	0.81	61.00	0.00	75.00
Montréal	62	CA	2,643.86	24,450.10	724.00	0.20	0.30	0.31	0.81	63.00	1.00	62.00
Tehran	63	IR	357.02	60,217.00	85.00	0.03	0.73	0.04	0.80	59.00	-4.00	38.00
Frankfurt am Main	64	DE	5,484.96	17,952.80	318.00	0.42	0.22	0.14	0.77	64.00	0.00	45.00
Eindhoven	65	NL	7,981.93	5,223.16	206.00	0.61	0.06	0.09	0.76	66.00	1.00	42.00
Vancouver	66	CA	1,685.39	15,478.70	1,041.00	0.13	0.19	0.44	0.76	65.00	-1.00	90.00
Miami	67	US	902.65	8,339.20	1,375.00	0.07	0.10	0.58	0.76	68.00	1.00	164.00
Jinan	68	CN	1,815.32	41,797.10	185.00	0.14	0.51	0.08	0.73	69.00	1.00	44.00
Cambridge	69	GB	3,141.69	16,442.90	636.00	0.24	0.20	0.27	0.71	67.00	-2.00	68.00
Harbin	70	CN	331.10	51,167.10	29.00	0.03	0.62	0.01	0.66	72.00	2.00	43.00
Dublin	71	IE	915.88	10,440.00	1,077.00	0.07	0.13	0.46	0.66	70.00	-1.00	153.00
Changchun	72	CN	1,474.75	42,241.60	49.00	0.11	0.52	0.02	0.65	77.00	5.00	47.00
Portland	73	US	2,980.06	6,394.24	689.00	0.23	0.08	0.29	0.60	71.00	-2.00	94.00
Vienna	74	AT	1,619.64	19,944.80	509.00	0.12	0.24	0.22	0.58	73.00	-1.00	76.00
Shenyang	75	CN	691.35	39,719.40	70.00	0.05	0.48	0.03	0.57	80.00	5.00	60.00
Pittsburgh	76	US	1,901.65	16,064.70	511.00	0.15	0.20	0.22	0.56	76.00	0.00	82.00
Oxford	77	GB	1,587.88	17,915.70	513.00	0.12	0.22	0.22	0.56	74.00	-3.00	83.00
Phoenix	78	US	2,000.21	8,884.86	695.00	0.15	0.11	0.30	0.56	75.00	-3.00	112.00
Mexico City	79	MX	251.53	20,262.70	672.00	0.02	0.25	0.29	0.55	78.00	-1.00	111.00
Zhengzhou	80	CN	690.75	36,234.40	125.00	0.05	0.44	0.05	0.55	87.00	7.00	64.00
Xiamen	81	CN	2,177.02	19,412.10	315.00	0.17	0.24	0.13	0.54	79.00	-2.00	71.00
Rome	82	IT	938.63	31,120.90	174.00	0.07	0.38	0.07	0.53	82.00	0.00	67.00
Cairo	83	EG	163.61	24,877.30	479.00	0.01	0.30	0.20	0.52	84.00	1.00	91.00
Chennai	84	IN	1,304.14	21,635.60	362.00	0.10	0.26	0.15	0.52	86.00	2.00	77.00
Oslo	85	NO	834.14	12,663.40	703.00	0.06	0.15	0.30	0.52	83.00	-2.00	135.00
Kuala Lumpur	86	MY	605.58	20,560.10	508.00	0.05	0.25	0.22	0.51	81.00	-5.00	97.00
Heidelberg–Mannheim	87	DE	3,936.72	13,149.50	103.00	0.30	0.16	0.04	0.50	85.00	-2.00	66.00
Dalian	88	CN	883.01	33,200.90	68.00	0.07	0.40	0.03	0.50	88.00	0.00	65.00
Warsaw	89	PL	488.61	22,606.20	434.00	0.04	0.28	0.18	0.50	89.00	0.00	93.00
Lyon	90	FR	1,979.95	11,793.00	416.00	0.15	0.14	0.18	0.47	91.00	1.00	98.00
Hamburg	91	DE	1,666.87	11,428.20	476.00	0.13	0.14	0.20	0.47	94.00	3.00	110.00
Salt Lake City	92	US	1,605.48	8,400.57	571.00	0.12	0.10	0.24	0.47	92.00	0.00	129.00
Ningbo	93	CN	1,276.31	14,775.10	431.00	0.10	0.18	0.18	0.46	99.00	6.00	102.00
Manchester	94	GB	909.48	11,629.80	576.00	0.07	0.14	0.24	0.46	90.00	-4.00	140.00
Busan	95	KR	2,232.37	14,206.60	248.00	0.17	0.17	0.11	0.45	95.00	0.00	81.00
Ann Arbor	96	US	1,205.87	18,947.20	295.00	0.09	0.23	0.13	0.45	93.00	-3.00	89.00
Göteborg	97	SE	2,088.11	9,978.90	361.00	0.16	0.12	0.15	0.43	96.00	-1.00	101.00
Macau–Zhuhai	98	CN	3,122.49	5,233.36	311.00	0.24	0.06	0.13	0.43	103.00	5.00	95.00
Ningde	99	CN	5,546.54	311.87	4.00	0.42	0.00	0.00	0.43	146.00	47.00	69.00
Zhenjiang	100	CN	1,150.96	24,785.20	85.00	0.09	0.30	0.04	0.43	106.00	6.00	72.00

Notes: (a) Previous rank represents last year's position recalculated using the current methodology, which includes VC deal count for consistent comparison. (b) Rank old methodology ranks all 237 clusters only using PCT applications and scientific publications. The codes given in the tables in this appendix are the ISO alpha-2 country codes, with the following addition: TW* = Taiwan, Province of China.

Source: WIPO Statistics Database, May 2025.

Appendix IV - Table 3: Innovation intensity ranking, 2025

Cluster name	Rank per-capita	Economy	Estimated cluster population	PCT applications per capita (a)	Scientific publications per capita (a)	Venture Capital deals per capita (a)	Total innovation intensity share per capita (a)	Rank change (b)
San Jose–San Francisco	1	US	6,248,247.83	8,132.30	9,044.18	2,608.09	1.84	0
Cambridge	2	GB	496,263.81	6,330.69	33,133.39	1,281.58	1.43	0
Boston–Cambridge	3	US	4,256,509.66	4,541.89	17,659.56	1,078.82	1.02	0
Ningde	4	CN	425,620.67	13,031.65	732.74	9.40	1.01	n.a.
Oxford	5	GB	571,650.30	2,777.71	31,340.31	897.40	0.98	-1
Seattle	6	US	2,511,877.85	4,332.89	7,717.77	829.66	0.78	-1
San Diego	7	US	3,919,023.10	6,816.29	5,068.23	435.06	0.77	-1
Ann Arbor	8	US	635,676.64	1,896.99	29,806.35	464.07	0.71	1
Helsinki	9	FI	1,232,383.09	2,444.09	10,562.62	899.07	0.70	-2
Eindhoven	10	NL	1,111,011.48	7,184.38	4,701.27	185.42	0.68	-2
Stockholm	11	SE	2,160,556.25	2,746.02	8,933.16	830.34	0.67	-1
Copenhagen	12	DK	1,692,957.72	1,838.42	14,532.85	793.88	0.66	-1
Austin	13	US	1,955,797.52	1,337.25	4,840.02	1,136.11	0.64	0
Zürich	14	CH	1,953,492.70	2,044.59	12,211.46	729.97	0.62	0
Daejeon	15	KR	2,773,465.80	5,382.15	9,435.56	205.52	0.61	0
Munich	16	DE	2,800,189.73	3,901.59	9,637.42	352.83	0.57	0
Raleigh	17	US	1,709,143.68	1,780.03	16,613.52	512.54	0.56	0
Beijing	18	CN	19,486,947.46	2,555.16	17,030.58	345.21	0.55	1
London	19	GB	10,396,705.70	671.49	5,497.10	1,001.37	0.54	-1
Göteborg	20	SE	838,021.98	2,491.71	11,907.68	430.78	0.52	0
Oslo	21	NO	1,056,409.41	789.60	11,987.21	665.46	0.49	0
Denver	22	US	3,075,670.63	1,129.33	6,917.26	644.74	0.44	0
Dublin	23	IE	1,495,531.30	612.41	6,980.80	720.15	0.44	0
New York City	24	US	16,074,273.77	852.61	4,655.44	701.93	0.42	1
Hangzhou	25	CN	7,456,224.75	1,492.44	10,887.69	376.06	0.41	-1
Pittsburgh	26	US	1,384,918.85	1,373.11	11,599.74	368.97	0.40	0
Vancouver	27	CA	1,944,373.36	866.80	7,960.77	535.39	0.39	0
Seoul	28	KR	26,424,210.11	2,698.96	5,393.12	279.14	0.39	1
Tokyo–Yokohama	29	JP	36,451,951.57	3,707.04	3,176.04	141.39	0.38	-1
Minneapolis	30	US	2,752,769.79	2,417.58	5,204.61	274.63	0.36	0
Berlin	31	DE	4,229,668.35	753.77	5,798.94	535.98	0.36	0
Philadelphia	32	US	5,109,494.71	1,125.77	6,347.44	417.85	0.34	5
Singapore	33	SG / MY	7,650,616.35	707.16	4,532.38	527.15	0.33	0
Paris	34	FR	11,225,080.70	1,454.61	5,405.75	363.92	0.33	-2
Salt Lake City	35	US	1,414,163.14	1,135.29	5,940.31	403.77	0.33	-1
Nanjing	36	CN	8,690,287.55	948.39	15,660.47	145.68	0.33	5
Los Angeles	37	US	12,247,130.21	966.11	3,506.63	481.01	0.32	-1
Sydney	38	AU	4,048,792.71	684.47	8,533.56	377.15	0.32	2
Washington, DC–Baltimore	39	US	7,212,369.87	868.45	9,895.04	298.38	0.31	-1
Toronto	39	CA	4,512,246.49	612.41	6,248.02	448.34	0.31	-1
Atlanta	US	US	2,863,866.25	647.97	7,751.44	377.46	0.30	-6
Tel Aviv–Jerusalem	42	IL	7,240,817.35	988.84	3,484.76	410.73	0.29	0
Stuttgart	43	DE	3,214,479.86	2,854.89	4,437.51	42.93	0.29	0
Qingdao	44	CN	4,871,537.33	1,710.82	10,891.65	54.81	0.29	2
Shenzhen–Hong Kong–Guangzhou	45	CN / HK	51,288,932.65	2,291.76	3,775.38	134.84	0.28	0
Chicago	46	US	5,332,435.38	788.60	5,501.63	342.62	0.27	7
Portland	47	US	2,233,662.13	1,334.16	2,862.67	308.46	0.27	-3
Changsha	48	CN	4,118,018.85	369.09	16,321.73	93.98	0.27	3
Wuhan	49	CN	8,684,892.70	866.59	12,811.79	78.41	0.26	1
Amsterdam–Rotterdam	50	NL	7,044,257.27	619.31	7,332.07	278.95	0.26	-1

Cluster name	Rank per-capita	Economy	Estimated cluster population	PCT applications per capita (a)	Scientific publications per capita (a)	Venture Capital deals per capita (a)	Total innovation intensity share per capita (a)	Rank change (b)
Lyon	51	FR	1,858,873.50	1,065.13	6,344.16	223.79	0.25	-4
Heidelberg–Mannheim	52	DE	1,992,753.58	1,975.52	6,598.66	51.69	0.25	-4
Vienna	53	AT	2,407,600.96	672.72	8,284.10	211.41	0.24	1
Osaka–Kobe–Kyoto	54	JP	15,862,110.81	2,414.97	3,292.55	34.42	0.24	-2
Miami	55	US	3,171,993.11	284.57	2,629.01	433.48	0.24	3
Montréal	56	CA	3,521,489.37	750.78	6,943.11	205.59	0.23	1
Xi'an	57	CN	6,604,074.03	345.08	16,489.22	3.33	0.23	5
Hefei	58	CN	5,652,964.67	835.51	8,639.15	121.35	0.22	10
Chengdu	59	CN	7,940,147.05	333.96	10,927.54	138.16	0.22	6
Brussels–Antwerp	60	BE	4,252,729.62	679.45	6,404.19	205.75	0.22	-4
Melbourne	61	AU	4,480,432.08	424.70	8,490.27	190.16	0.22	-1
Barcelona	62	ES	5,046,828.55	435.02	6,015.52	258.78	0.22	-3
Shanghai–Suzhou	63	CN	43,830,568.78	976.92	4,706.58	198.61	0.22	0
Houston	64	US	6,134,627.65	1,270.75	3,793.24	144.43	0.20	-3
Frankfurt am Main	65	DE	3,815,260.56	1,437.64	4,705.52	83.35	0.20	-1
Milan	66	IT	4,520,264.34	579.94	7,111.22	159.28	0.20	0
Dallas	67	US	4,130,858.76	796.09	2,379.32	249.83	0.20	0
Warsaw	68	PL	2,572,714.59	189.92	8,786.91	168.69	0.19	1
Hamburg	69	DE	2,451,331.75	679.99	4,662.04	194.18	0.19	1
Phoenix	70	US	3,099,793.73	645.27	2,866.27	224.21	0.18	1
Changchun	71	CN	3,626,034.80	406.71	11,649.53	13.51	0.18	5
Nagoya	72	JP	9,211,842.03	1,815.53	2,271.29	12.70	0.17	0
Jinan	73	CN	4,292,780.29	422.88	9,736.60	43.10	0.17	2
Madrid	74	ES	6,449,334.88	255.14	6,117.17	156.76	0.16	0
Manchester	75	GB	2,905,416.09	313.03	4,002.80	198.25	0.16	-2
Rome	76	IT	3,478,659.59	269.83	8,946.23	50.02	0.15	2
Xiamen	77	CN	3,628,548.05	599.97	5,349.83	86.81	0.15	0
Harbin	78	CN	4,552,654.94	72.73	11,238.96	6.37	0.15	2
Zhenjiang	79	CN	3,047,417.01	377.68	8,133.18	27.89	0.14	n.a.
Dalian	80	CN	3,583,566.25	246.40	9,264.77	18.98	0.14	-1
Macau–Zhuhai	81	CN	3,366,722.88	927.46	1,554.44	92.37	0.13	n.a.
Tianjin	82	CN	8,272,762.68	170.02	7,739.82	36.14	0.12	0
Bengaluru	83	IN	14,833,479.23	335.94	1,104.58	193.35	0.12	-2
Cologne	84	DE	9,595,974.92	688.77	3,442.21	47.52	0.11	-1
Tehran	85	IR	7,282,051.37	49.03	8,269.24	11.67	0.11	-1
Busan	86	KR	4,179,895.22	534.07	3,398.79	59.33	0.11	-1
Ningbo	87	CN	4,360,726.21	292.68	3,388.22	98.84	0.11	1
Chongqing	88	CN	8,591,895.68	179.86	6,176.79	32.12	0.10	-1
Taipei–Hsinchu	89	TW*	11,341,154.02	335.36	4,922.03	37.92	0.10	-3
Zhengzhou	90	CN	5,398,921.38	127.94	6,711.41	23.15	0.10	-1
Shenyang	91	CN	6,239,081.75	110.81	6,366.23	11.22	0.09	-1
Moscow	92	RU	14,072,800.44	132.57	4,246.03	25.79	0.07	-1
Istanbul	93	TR	12,723,342.63	199.10	2,350.65	58.40	0.07	-1
Kuala Lumpur	94	MY	8,548,180.04	70.84	2,405.20	59.43	0.06	-1
Delhi	95	IN	28,813,871.96	39.55	1,168.92	94.95	0.06	-1
São Paulo	96	BR	18,665,880.25	36.64	1,304.47	85.02	0.05	-1
Mumbai	97	IN	21,212,338.78	77.68	767.96	79.95	0.05	-1
Chennai	98	IN	10,989,169.91	118.68	1,968.81	32.94	0.05	-1
Mexico City	99	MX	17,022,358.82	14.78	1,190.36	39.48	0.03	0
Cairo	100	EG	22,307,142.06	7.33	1,115.22	21.47	0.02	0

Note: (a) Per capita figures refer to 1,000,000 of population. (b) The rank change is based on the new methodology (i.e. incorporating VC deal count into the previous year's ranking). n.a. indicates not applicable. The codes given in the tables in this appendix are the ISO alpha-2 country codes, with the following addition: TW* = Taiwan, Province of China.

Source: WIPO Statistics Database, May 2025.

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