



There is greater convergence of innovation resources in top ranked global innovation hubs, according to the results of GIHI 2022.

CHARTING THE GLOBAL INNOVATION LANDSCAPE

THE GLOBAL INNOVATION HUBS INDEX has doubled the number of cities in its rankings to 100, extending its reach to many more policymakers and entrepreneurs.

Innovation is a key engine of economic development in this era of uncertainty. Since 2020, the Global Innovation Hubs Index (GIHI) has tracked trends in innovation across the world.



Ling Chen
GIHI's chief scientist and director at the Center for Industrial Development and Environmental Governance, Tsinghua University.

Now in its third year, GIHI has further refined its approach, expanding the ranking list to include 100 cities, and optimizing indicators, for example by adding renewable energy technology into patent-related topics.

GIHI's chief scientist, Ling Chen, leads a team at the Center for Industrial Development and Environmental Governance, Tsinghua University in Beijing, China. Here she discusses this year's report and hopes it will be insightful for policymakers seeking to transform cities and entrepreneurs pursuing new opportunities.

How do you evaluate cities, and which have done well in the 2022 ranking?

The GIHI ranking is calculated on three main indicators: research innovation, the innovation economy, and the innovation ecosystem. In addition, there are 31 detailed indicators covering talent, infrastructure, research institutions, innovation enterprises, published papers, patents and investment.

As it has been for the previous two years, San Francisco-San Jose is once again the highest ranking global innovation hub (GIH), followed by the New York metropolitan

area (MA). Among the top 20, the United States and Europe both sweep up seven spots, while Asia takes six. Beijing moves up to the third place, the clear winner within Asia, while Shanghai enters the top 10 for the first time, showing what policy support for innovation at the national and regional level can achieve.

What are some of the major shifts in the global innovation landscape over the past year?

2022 has been a year of increasing uncertainty in the context of the COVID-19 pandemic, extreme weather events and global conflicts. This

has had varying impacts across countries and regions in terms of innovation.

For example, Asia emerges as a new centre of innovation, taking 37 spots on the list. Meanwhile, many Asian cities are moving up in the ranking, such as Beijing, Seoul MA, Singapore and the Guangdong-Hong Kong-Macao Greater Bay Area. These regions continue to grow their innovation economies, performing especially well in terms of renewable energy technologies.

A STRONG CAPACITY FOR GREEN INNOVATION CAN AID A CITY'S COMPETITIVENESS.

We also see research activities are clustering in GIHs, such as New York MA, Beijing and San Francisco-San Jose. They are attracting increasing science-and-technology talent and funding, compared with other cities.

What changes did you make to the GIHI in 2022?

One of the biggest changes we made in GIHI2022 is the expansion of evaluated GIHs from 50 to 100. These 100 cities and metropolitan areas account for less than 11% of the world's population, but are home to 125 of the world's top 200 universities, 133 of the world's top 200 research institutions, and 1,870 leading innovation companies. By evaluating more of these, we have mapped out a more comprehensive and accurate picture of the global innovation landscape, which we hope will inspire people in many more cities around the world.

We also added mini-hubs — cities with a population of less than one million. Seven mini-hubs from the US and Europe make the list of the 100 GIHs.

Another important change is the addition of renewable energy technology into patent-related indicators. With the world striving for carbon neutrality, we believe that joint efforts from academia and industry are essential. We want to highlight that tackling this global challenge brings opportunities for innovation, rather than being merely a responsibility and burden.

Did anything surprise you in this year's results?

One of the more unexpected findings is that most mini-hubs rank in the top 30, indicating that the size of a city isn't the key to its competitiveness. Impactful scientific research and a great innovation ecosystem are more important.

Secondly, we used to think of European cities as being greener, but we were surprised to find that Asian cities now have a significant advantage in terms of renewable energy technologies. Asia accounts for seven of the top 10 regions in this category, and we can see that those cities are marching up the ranking. This shows that a strong capacity for green innovation can boost a city's competitiveness.

The GIHI's creative talent indicator reflects a city's attractiveness to innovative talent and enterprises. We discovered that cities known for arts — such as London, Paris, Munich, Stockholm and Geneva — and cities with more unique cultures — such as Abu Dhabi, Warsaw and Kuala Lumpur — have high densities of creative talent. This suggests that culture and arts are also important drivers of innovation.

What insights will policymakers and entrepreneurs find most useful from GIHI 2022?

The results offer policymakers a glimpse into how their peers are performing, especially when they look at the results

GLOBAL INNOVATION HUBS INDEX TOP 20

| City/Metropolitan Area | Rank 2022 | Rank 2021 | Rank 2020 |
|--|-----------|-----------|-----------|
| San Francisco-San Jose | 1 | 1 | 1 |
| New York MA | 2 | 2 | 2 |
| Beijing | 3 | 4 | 5 |
| London MA | 4 | 3 | 6 |
| Boston MA | 5 | 5 | 3 |
| Guangdong-Hong Kong-Macao Greater Bay Area | 6 | 7 | N/A |
| Tokyo MA | 7 | 6 | 4 |
| Geneva | 8 | N/A | N/A |
| Paris MA | 9 | 8 | 11 |
| Shanghai | 10 | 14 | 17 |
| Seattle-Tacoma-Bellevue | 11 | 9 | 7 |
| Seoul MA | 12 | 21 | 16 |
| Singapore | 13 | 13 | 14 |
| Munich | 14 | 11 | 19 |
| Baltimore-Washington | 15 | 10 | 9 |
| Los Angeles-Long Beach-Anaheim | 16 | 12 | 8 |
| Amsterdam MA | 17 | 16 | 12 |
| San Diego MA | 18 | 15 | N/A |
| Cambridge | 19 | N/A | N/A |
| Zurich | 20 | N/A | N/A |

according to detailed indicators. This might help them gain perspective on how to improve and make decisions on public policies.

They will also see a further convergence of innovation resources in top GIHs. For cities not on the list, it's important for them to strengthen open collaboration with others to share resources to fuel their growth. Entrepreneurs and industries can also see whether their cities are moving up or down in the rankings as innovation hubs, which will help investment decisions.

What are your plans for future GIHI reports?

In future, we will invite more international experts to further optimize our annual offering, hoping to conduct more in-depth research on the reasons and mechanisms behind

the changes in the global innovation landscape.

We are also planning to build a public database for policymakers, entrepreneurs, and other researchers. International exchange and cooperation are important, so we are thinking about organizing a forum for experts and policymakers to share and exchange ideas. ■

To read the full 2022 Global Innovation Hubs Index report, please visit: www.nature.com/collections/cideg2022



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