Global Research

Innovation Geographies

Resilience and recovery

January, 2022
As the global economy recovers from the pandemic despite ongoing challenges, innovation-oriented industries and talent will be key to the next cycle of urban renewal and in creating new growth drivers. Innovation will underpin resilient and successful urban ecosystems that reap benefits for the wider population.

The pandemic has accelerated and provided new impetus to many of the themes that were already reshaping our cities, from changing work and lifestyle preferences to the core role of the digital economy and the need for more sustainable, resilient and inclusive communities.

Cities with robust innovation ecosystems will be best placed to respond to these changes and propel the next phase of urban regeneration.

In this latest global research from JLL, we have refreshed and updated our 2019 work on Innovation Geographies, exploring the innovation and talent attributes of over 100 cities around the world. Our research shows that cities which outperform on these measures are best positioned to record the strongest economic recoveries in the coming years, and it also demonstrates a powerful link between innovation and talent ecosystems and real estate performance.
Innovation Geographies

The rise of smaller, talent-rich cities
Smaller, more affordable cities with a high quality of life were already increasingly attractive to people and companies before the pandemic and this trend has accelerated as people look for appealing urban areas in which to live, work and play. Cities that combine these factors with a robust and diversified innovation ecosystem – like Denver, Stockholm and Melbourne – are also outperforming from a real estate perspective, pulling in new companies and capital.

Poised for renewed growth
City centers – including the associated office, retail and leisure sectors – have taken a significant hit during the pandemic, with empty streets in many urban cores around the world. However, a resurgence will take place as people continue to be drawn to the opportunities, amenities and lifestyle offered in these locations, and cities with the strongest innovation and talent credentials are best placed to support a solid recovery. City centers that can pivot toward supporting these sectors through amenities, mixed-use development and liveability will be well positioned for growth.

Innovative cities will be key to combating climate change
As the focus on climate change continues to intensify, innovative cities will play a vital role in finding solutions to the climate emergency and tackling climate risk. With the built environment contributing 40% of global emissions, and typically over 60% in cities, urban technology is likely to be among the largest catalysts for green progress. Cities which can leverage their strengths in technology will be able to revolutionize urban digital ecosystems and harvest vast amounts of real-time data on energy efficiency, waste management, health, mobility and space usage as buildings gradually become smarter. The real estate industry and technology sectors working together hold the key to creating scalable smart-city solutions to drive city-wide energy and resource efficiency.

Global gateways maintain lead
Despite concerns raised about their long-term prospects during the early stages of the pandemic, the ‘Global leaders’ - such as San Francisco, Tokyo and London - remain integral to the innovation ecosystem and will continue to draw talent. A critical mass of people, a broad mix of industries, sought-after amenities, and anchor universities will continue to attract talent and companies to these established gateways.

Innovation spreads across the globe
Although the U.S. dominance of the top innovation rankings endures, there are changes underway. The Asia Pacific powerhouses of Seoul and Beijing join the elite group of ‘Global leaders’ in 2022. Europe fares particularly well for talent, displaying potential for greater innovation across a wide range of cities, while several Indian and Chinese cities - such as Bengaluru and Guangzhou - are also moving up the value chain and developing more sophisticated innovation ecosystems.

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Key takeaways
The U.S. continues to dominate the global innovation scene. **Silicon Valley (San Jose)** and **San Francisco** are the global epicenters of innovation. However, it is also clear to see that there are rising stars across other parts of the world.

In Asia Pacific, **Tokyo** is joined by **Seoul** and **Beijing** in the top 10, highlighting the importance of innovation in the region. **Seoul**, well known for enterprise innovation centered around the established Korean conglomerates, is now also becoming a growing hotspot for start-up activity in the region. **Singapore** remains a key destination for foreign direct investment (FDI).

Unsurprisingly, **London** and **Paris** are the two standout cities in EMEA, but other smaller contenders such as **Tel Aviv** and **Berlin** are fast becoming embedded in the global innovation ecosystem. Smaller cities in the U.S. like **Austin** and **Raleigh-Durham** are quickly gaining traction in specialisms such as advanced manufacturing and life sciences.
Silicon Valley (San Jose), Boston, San Francisco and London top the talent concentration league, emphasizing the importance of proximity to anchor universities and major tech employers. Smaller cities, particularly those in Europe, make a more prominent appearance in the top rankings for talent concentration. Berlin, Stockholm and Zurich all boast a well-educated workforce, good universities, and industries skewed toward innovation.

Tokyo and Beijing lead the way in Asia Pacific, with strong universities and a high concentration of people employed in the innovation economy. Although Asia Pacific cities are less well represented in the top 10, this is changing rapidly, with Sydney, Seoul and Hong Kong acting as world-class magnets for talent and corporations.
Introducing the city clusters

Combining all the innovation and talent concentration data, cities with similar characteristics have been grouped into six clusters:

- **Global leaders**
  World leaders on innovation and talent. Includes: Beijing, Paris and San Francisco.

- **Talent rich**
  Strong performance on both metrics but with a focus on talent. Includes: Stockholm, Denver and Hong Kong.

- **Innovation centric**
  Strong performance on both metrics but with a focus on innovation. Includes: Chicago, Barcelona and Singapore.

- **Emerging innovators**
  Strength in innovation but with a lower talent concentration. Includes: Mumbai, Guangzhou and Hyderabad.

- **Skilled centers**
  Strength in talent but with lower levels of world-class innovation ecosystems. Includes: Brisbane, Hamburg and Nashville.

- **Local hubs**
  Locally-focused cities with less developed or diversified innovation and talent. Includes: Leeds, Busan and Tampa.

Source: JLL, 2022
Innovation

Seoul has a well-established R&D-focused economy which has significantly boosted the innovation ecosystem – it is second only to Tokyo in terms of the number of international patent applications. The start-up scene is also growing in vibrancy; robust government support to encourage entrepreneurial behavior has helped push Seoul to 10th in the world for the number of start-ups.

Talent

The innovation economy is supported by a strong talent pool with a well-educated workforce and five top-rated universities. 12.9% of the workforce is centered on innovation – well above the regional and global averages. Looking forward, the anticipated ongoing decline in the working-age population will be a challenge for Seoul, although the government is implementing measures to try to reverse this trend.

Case study: Global leaders

**Seoul**

**Venture capital funding, 2015-2021**

Source: Crunchbase, 2022
Innovation has been key to building on Denver’s established industries of healthcare & wellness and energy. It is now fast becoming one of the most established life sciences hubs in the U.S., with further potential for growth. R&D spending in Denver, at 3.4%, lags behind the U.S. and global averages, suggesting an area for future improvement.

With a population of 3 million in the metropolitan area, Denver possesses some attractive talent credentials. 45% of the population is educated to at least bachelor’s degree level and the demographic profile and outlook are positive. A high quality of life has ensured that people want to move to Denver and it is one of the quickest growing markets in the U.S. for workers in the innovation economy.

Growth in U.S. innovation-based employment, 2019-2021

<table>
<thead>
<tr>
<th>City</th>
<th>% p.a.</th>
</tr>
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<tbody>
<tr>
<td>San Francisco</td>
<td>6%</td>
</tr>
<tr>
<td>Austin</td>
<td>5%</td>
</tr>
<tr>
<td>Salt Lake City</td>
<td>4%</td>
</tr>
<tr>
<td>Seattle</td>
<td>3%</td>
</tr>
<tr>
<td>Phoenix</td>
<td>3%</td>
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<tr>
<td>San Jose</td>
<td>3%</td>
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<tr>
<td>Denver</td>
<td>3%</td>
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<tr>
<td>Nashville</td>
<td>3%</td>
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<tr>
<td>Dallas</td>
<td>3%</td>
</tr>
<tr>
<td>Boston</td>
<td>3%</td>
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</tbody>
</table>
Case study: Innovation centric Barcelona

**Innovation**

Barcelona has a well-established reputation for being an innovation hub within Europe and is rapidly becoming a global technology center. For example, Barcelona ranks 12th globally for attracting FDI projects. Previously an industrial area, the 22@ district is the epicenter of innovation within the city – a successful example of a large-scale urban regeneration project.

**Talent**

Demographics are a relative weakness for Barcelona, with the working-age population forecast to decline slightly over the coming years. However, it does boast three world-class universities which help to support the innovation economy and also pull in young students.

**Number of start-ups, 2018-2020**

<table>
<thead>
<tr>
<th></th>
<th>Global rank</th>
<th>Barcelona</th>
<th>EMEA average</th>
<th>Global average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source: Crunchbase, 2022</td>
<td>44th</td>
<td>59th</td>
<td>300</td>
<td>350</td>
</tr>
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</table>
Implications for real estate
Capital markets

Investors are increasingly drawing on innovation and talent metrics when making strategic decisions on which cities to invest in. This approach is verified by our findings – not only does capital target cities with stronger innovation and talent credentials, but those same cities also outperform over the longer term.

As we move into the next cycle of recovery, now is the time to revisit city choices and look to these structural factors which will highlight the cities best positioned to recover and offer long-term resilience. Understanding the innovation and talent trajectory of cities will be key to identifying growth markets, increasing industry and location diversification, and optimizing entry strategies and partnerships.

Investors also have a crucial role to play in rejuvenating city centers and helping to shape cities’ spatial dynamics. This is even more important as cities recover from the pandemic; holistic mixed-used transformational projects will support city regeneration, while new and emerging innovation districts will help to bring back people to urban cores.

‘Global leaders’ and ‘Talent rich’ cities outperform
Office rental growth, 2010-2020

Source: JLL, 2022
Corporates have long targeted innovation and talent hubs as part of their location strategies. As the global economy recovers, many cities are experiencing acute labor shortages – bringing back into focus the ‘war for talent’. Reflecting their critical mass of talent, diverse industry mix, anchor institutions and agglomeration benefits, the dominance of ‘Global leaders’ as corporate hubs will continue. Despite the pandemic, we expect to see young people moving back to the gateway cities attracted once again by opportunities, amenities and lifestyle.

However, office occupation costs tend to be higher in cities with stronger innovation and talent credentials – by virtue of their inherent attractiveness for corporate offices. Diving deeper into the data, some locations still appear to be relatively affordable given their attributes; for example, Raleigh-Durham, Melbourne and Helsinki. These small-to-mid sized ‘Talent rich’ cities offer an appealing quality of life to entice employees and lower costs to support businesses opening new functions.

‘Talent rich’ cities are relatively affordable

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Net effective office rent by cluster</th>
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<tr>
<td>Global leaders</td>
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Source: JLL, 2022
Despite ongoing challenges, 2022 will see the rejuvenation of our urban ecosystems with people eager to return to offices, traveling and socializing. ‘Global leaders’, such as San Francisco, London and Beijing, will maintain their dominance in the innovation economy; however, rising stars like Shanghai, Berlin and Toronto are rapidly transforming into global talent and innovation powerhouses. Significant changes are also underway as Indian and Chinese cities (e.g., Bengaluru and Guangzhou) continue to scale their innovation ecosystems, while smaller, ‘Talent rich’ markets (e.g., Denver and Stockholm) are diversifying and continuing to attract greater levels of capital and talent.

The fabric of our cities will continue to evolve as urban cores look to regenerate and pivot toward innovation, collaboration, amenities and habitat. This will drive opportunities to reposition urban cores and fringes, supporting the development of new innovation districts that focus on more holistic mixed-use developments combining density, diversity and quality. Our research shows that existing innovation districts have recovered quicker than surrounding areas in demand and pricing as the pandemic has progressed, and this is expected to continue as demand for these locations intensifies.

Final thoughts
Methodology

JLL’s Innovation Geographies analysis includes two key elements which have been refined and enhanced from our 2019 edition to incorporate additional structural factors reflecting post-pandemic concerns and more in-depth, targeted data coverage.

Innovation

A broad definition of the ‘innovation economy’ has been adopted that takes an all-encompassing view of the wider innovation ecosystem beyond pure technology software companies. As such, life sciences, high value-add manufacturing and scientific R&D have been incorporated. Factors included in the Innovation Index are FDI in innovative industries, start-ups and venture capital attraction, R&D expenditure and number of innovative international patents.

Talent

‘Talent’ has been defined as talent concentration – the quality of the talent and demographic trends in relation to each cities’ size as opposed to just the sheer size of the labour pool. In this respect, smaller cities can offer a high-quality workforce base regardless of their size. Factors included in the Talent Concentration Index are the quality of local higher education institutions, tertiary education rates, the demographic profile in terms of migration and working-age population trends, and employment in the innovation economy (as defined opposite).

These factors have been combined to create two global city rankings.
To find out how we can support your global real estate market strategy with research insights and strategic advice, please contact one of the members of the global research team.

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