Innovation Geographies 2024

Which cities are benefitting most from the rise of the knowledge economy?

The convergence of the technology sector, knowledge-based industries and research institutions is more critical than ever in driving commercial real estate demand and reshaping the built environment.

- Migration of innovation and talent to affordable and lifestyle-centric cities continues apace, leading to sustained growth in secondary and tertiary real estate markets.
- Real estate occupiers and investors alike are diversifying and optimizing their footprints and portfolios in response to talent availability, maturing markets and greater business and research specialization.
- Exposure to AI and other emerging sectors will be critical for occupiers and investors looking to harness this growth as new technologies are deployed and the digitization of traditional sectors accelerates.
- Geopolitics and onshoring are reshaping the global business landscape at a profound pace and opening up opportunities for new clusters of advanced manufacturing and R&D.
- Institutions and companies in highly knowledge-intensive sectors are anchoring sustainability-focused regeneration and bolder public-private partnerships.

Innovation is solidifying its dominance as an economic engine

Despite the widespread changes to how we work and live, the importance of innovation to economic growth is only intensifying. Digital segments of the economy – already comprising 15% of global economic output and rising rapidly – are upending sectors and society more broadly. From traditional areas such as software development and hardware manufacturing to genomics, challenger banks and space tech, the scope of the digital economy is expanding at breath-taking speed. This will require a proactive response from companies looking at their location strategies with a need to balance talent, operating environment, risk and cost requirements. Location strategy will also be key for owners seeking to attract high-growth occupiers.

The ubiquity of innovation has similarly profound effects on the built environment and demand for commercial real estate. After the most severe correction on record during the pandemic, shifting demands from innovation-focused users across the office, industrial, lab and data center classes pose further questions but also opportunities for occupiers, investors and public bodies alike.

JLL's third edition of Innovation Geographies covers the dynamics of 108 cities globally, spanning more than 720 million residents, US$40 trillion in annual output, nearly 900 million square metres of office product and 37 million high-tech employees. These cities have been ranked and clustered on a range of output, funding and talent indicators to provide an up-to-date perspective into the rapidly evolving innovation landscape at the global, regional and local levels.

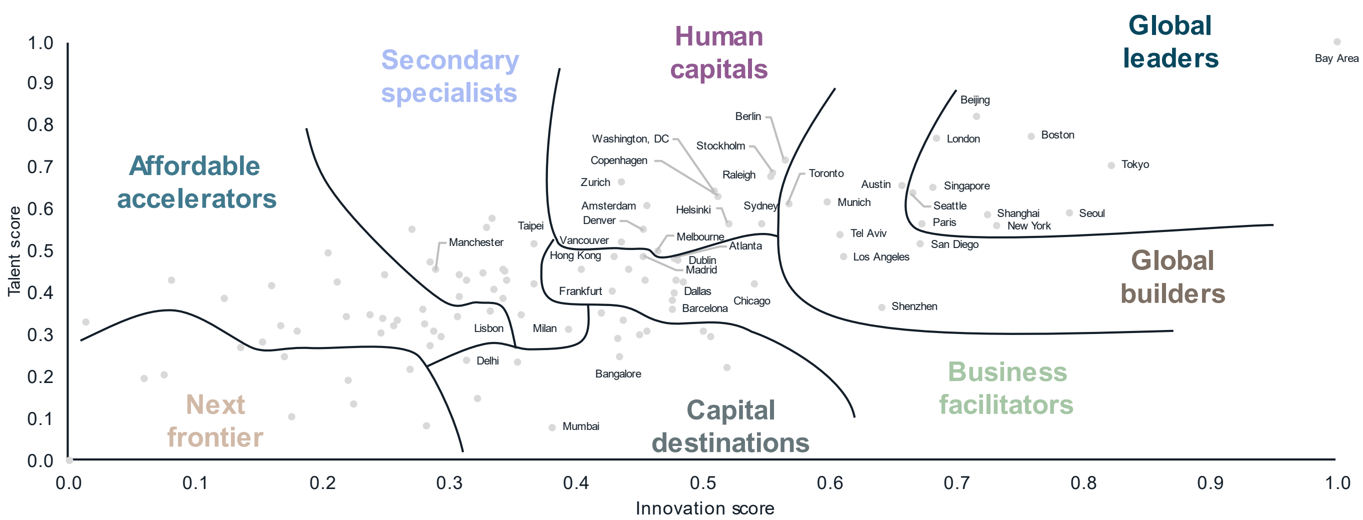
What does Innovation Geographies 2024 reveal?

Movement to affordable and lifestyle-centric locations

In recent years, talent shortages, rising home prices and regulatory pressures have catalyzed expansion into lower-cost markets, aided by more flexible working patterns and technology. As a result, cities such as Austin have moved into the global tier of innovation hubs, while secondary and tertiary cities including Brisbane, Hangzhou, Lisbon, Manchester and Raleigh all registered marked improvements in both innovation and talent.

In other cases, such as Adelaide, Leeds, Rotterdam and Stuttgart, growth has disproportionately come from individuals moving for quality-of-life reasons and pushing up talent concentration scores. Simultaneously, destinations for investment capital and business including Dublin, Frankfurt, Las Vegas, Melbourne and Warsaw are at the top of the leaderboard for gains in innovation output, particularly patents and venture capital deployment.

Mapping out innovation and talent concentrations: eight groups of cities with varying levels of scale, maturity and business specialisation



Source: JLL Research, January 2024

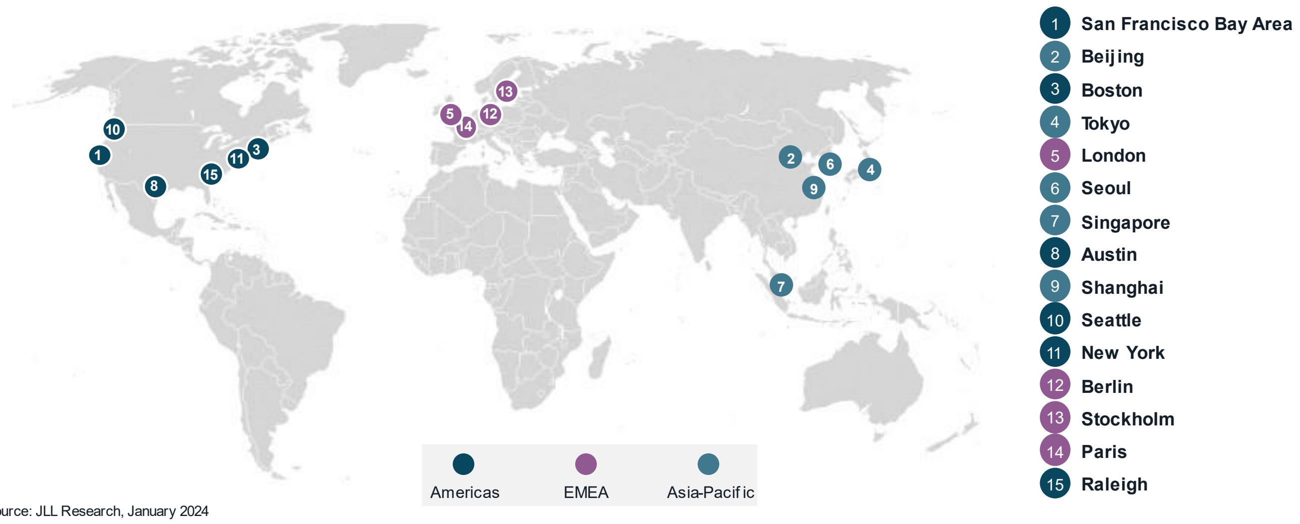
A shifting hierarchy of innovation hubs

The San Francisco Bay Area remains at the forefront of global innovation by a significant margin, outperforming most on venture capital, R&D investment, productivity and talent breadth. Beijing, Boston, Tokyo, London, Seoul, Singapore, Shanghai, New York and Paris all rounded out the pool of global leading hubs when factoring in both innovation output and talent concentration, as was the case in previous years.

Notably, Singapore and Shanghai improved even more on their already strong showings within this elite grouping. At the same time, the continued migration of talent, manufacturing and economic and corporate activity has pushed Austin into the realm of "global builders", joining Los Angeles, Munich, San Diego, Shenzhen, Tel Aviv and Toronto.

Despite the increasing competition for talent and challenges relating to costs of housing and doing business, "global leaders" remain distinguished by access to critical capital and funding as well as the breadth and depth of skilled workers. It will be critical for innovation-related firms to maintain – and in some cases expand – their footholds in these cities in order to realise the benefits of such structural advantages that are unlikely to be replicated elsewhere.

Top performing cities for innovation and talent: San Francisco Bay Area retains top position and Austin surges into the top 10



Source: JLL Research, January 2024

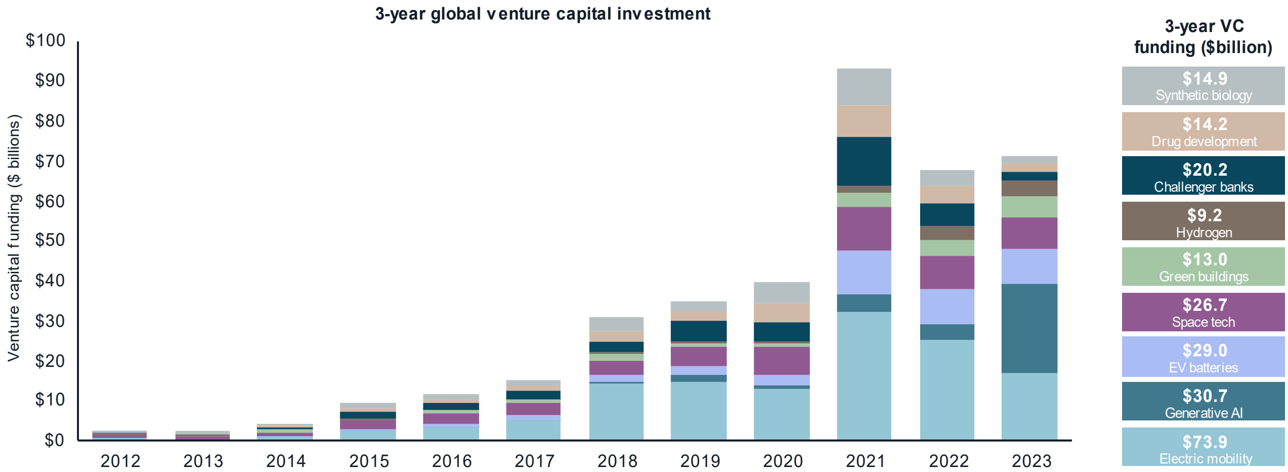
New and emerging segments such as AI are reshaping the innovation ecosystem

Driving much of this market maturation and development of increasingly specialized clusters has been an injection of capital into newer technologies, eroding the previous dominance of traditional tech segments and companies. Leading this has been generative AI, which received US$22.3 billion in venture capital funding in 2023, along with growth in electric mobility, batteries, space tech, green buildings, hydrogen, challenger banks, drug development and synthetic biology to bring new innovation funding to US$54.7 billion throughout the year, more than doubling since 2020.

Notably, the San Francisco Bay Area is dominant for AI deployment, having received nearly US$49 billion in funding for AI and related technologies over the past three years, more than Beijing and New York combined. Just as important as emerging technologies are to site selection for corporate expansion and investment, so too is the digitization of traditional industries. Most prominently seen in the venture capital sphere by the rise of challenger banks, fintech and insurance tech are radically overhauling finance and insurance and opening up new growth streams.

Alternative sectors will also be critical in enabling many of the fastest-growing innovation geographies, particularly those in Asia and the United States, to cope with the disproportionate burden of the effects of climate change on real estate investment. For instance, estimates from S&P suggest that 63% of the increase in the operational costs for data centers will come from extreme heat and a further 17% from drought. In recognition of this, venture capital funding for green building technologies rose by 32% in 2023, faster than even the alternative innovation sector average of 29%.

Global venture capital funding in alternative innovation sectors: generative AI and electric mobility lead growth sectors



Source: JLL Research, Dealroom, January 2024

Corporates and investors will be navigating a world with more barriers to trade

The geography of innovation is further being shaped by external geopolitical forces. More aggressive trade and industrial policy in the United States, the European Union and China, among other players, is incentivizing onshoring and domestic production of critical components at levels not seen in decades. Although this has been most notable in terms of semiconductor manufacturing, evidenced by the CHIPS Act in the United States, it is also coming in the form of legislation such as the European Union's Net-Zero Industry Act.

Over the long-term, this realignment will place additional emphasis on in-house research and development, as well as co-location with manufacturing firms' access to transportation and logistics nodes. Phoenix, Columbus, Fukuoka and Berlin are just some of the cities with multi-billion-dollar semiconductor or high-tech materials fabrication plants being built in or near their metropolitan areas due to these policies.

Sustainability-minded, innovation-anchored regeneration will help to improve the built environment

Cities across the globe are grappling with the challenges posed by an ever-greater share of the built environment risking obsolescence in terms of both meeting not only newer occupier and investor requirements, but also those posed by more stringent efficiency and sustainability standards. At the same time, the intensifying pace of urbanization is placing additional pressure on public authorities to increase the scale and longer-term planning to accommodate future growth in a more holistic and environmentally focused manner.

Innovation anchors are and will continue to be vital to the success of these initiatives. In recent years, they have been at the core of highly localized economies of scale with outsized prominence at the global and regional levels. Precincts such as Tech Central in Sydney, the Jurong Innovation District in Singapore, Schuylkill Yards in Philadelphia and ID in Manchester exemplify the ability of innovation to catalyze multi-faceted regeneration. Importantly, these comprize cross-sector investment in housing, office, lab space, research incubators, medical and diagnostic facilities and manufacturing and production hubs, all tied together with consideration towards improved amenitization, green space and infrastructure provisions.

Strategic implications and considerations for occupiers, investors and public authorities

- The sustained importance of innovation as an economic force and driver of real estate demand poses a number of strategic implications and considerations on both the private and public sectors if they are to harness the benefits of demographic shifts, property requirements and new technologies to drive change.

- Occupiers and investors alike will need to further diversify their footprints and portfolios to account for the unprecedented geographic distribution of skilled talent and hotspots for innovation-led growth.
- The importance of co-location between institutions, corporates, talent and requisite infrastructure will necessitate strategy that focuses increasingly on submarket and micromarket performance rather than solely at the city level.
- A rapidly evolving innovation ecosystem is also leading to more responsive and fluctuating real estate dynamics. Tenants and owners will have to become more attuned to pricing sensitivities to avoid missing out on higher returns on investment.
- Public authorities, corporate occupiers and real estate investors will need to step up proactive collaboration so that innovation-anchored regeneration is done through an integrated, sustainable and cohesive approach.

Methodological note (grouping definitions)

JLL's third edition of Innovation Geographies covers the dynamics of 108 cities globally, spanning more than 720 million residents, US$40 trillion in annual output, nearly 900 million square metres of office product and 37 million high-tech employees. These markets fall into eight categories based on two indices: innovation output (patent generation, foreign direct investment, venture capital funding, start-ups and R&D spending) and talent concentration (educational attainment, high-tech employment, university publications, university presence, working-age population growth, net migration and GDP per capita).

- Global leaders: Global leaders boast the highest levels of connectivity, talent breadth, economies of scale, headquarters presence and access to capital among innovation geographies groups. Despite high costs, they remain the most desirable markets for skilled talent migration, with greatest level of amenitization. Robust social and physical infrastructure is complemented by presence of major institutions.
- Global builders: Global builders are defined by their mature, broad talent pools with high levels of overall output aided by extensive research and educational institutional presence. They have extensive global connectivity, infrastructure provision and sectoral appeal, while boasting lower real estate cost than global leaders, but with similar demographic factors.
- Human capitals: Human capitals markets are routinely ranked near the top globally in quality-of-life metrics such as safety, climate and urban design. They have the most educated talent pools for STEM workers globally with strong purchasing power. Extensive global connectivity, developed infrastructure and professional presence are common.
- Business facilitators: Business facilitators are highly diversified and less tech-driven than other innovation geographies groups, leading to less volatility. Widespread corporate headquarters presence and access to capital from co-located financial services firms results in expertise in functional aspects of innovation, such as regulatory compliance.
- Capital destinations: Capital destinations are the premier recipients of foreign direct investment to manufacture an array of high-tech goods at scale. Low labor costs by domestic and international standards is fuelling inbound migration and strong demand for real estate.
- Secondary specialists: Secondary specialists complement larger markets for R&D-intensive and specialized innovation, typically with specific niches of outsized importance relative to city size. Greater affordability compared to other groups is enabling a higher rate of net migration as well as real estate demand and price growth.

- Affordable accelerators: A low cost basis has led to some of the strongest supply take-up and price growth of any grouping in affordable accelerator markets. Their lifestyle focus is appealing to workers with greater locational flexibility. Three-year venture capital funding has surpassed the $1 billion mark on average.
- Next frontiers: The next frontier is characterized by lower costs for real estate and talent. Extensive connectivity to domestic peers and growing accessibility internationally, albeit with high variance. They are likely to benefit from spillover in the 2030s as secondary specialists, accelerators and capital destinations mature.

SEE A BRIGHTER WAY

Research authors

Phil Ryan
Director – City Futures
Global Insight
London

Jeremy Kelly
Head – Cities Research
Global Insight
London

Research at JLL

JLL's research team delivers intelligence, analysis and insight through market-leading reports and services that illuminate today's commercial real estate dynamics and identify tomorrow's challenges and opportunities. Our more than 550 global research professionals track and analyze economic and property trends and forecast future conditions in over 60 countries, producing unrivalled local and global perspectives. Our research and expertise, fueled by real-time information and innovative thinking around the world, creates a competitive advantage for our clients and drives successful strategies and optimal real estate decisions.

To find out more about JLL services, contact:

Kelly Hamer
Senior Director
Location Consulting
London

Ben Munn
Future of Cities Consulting Lead
London

Lukasz Dziedzic
Associate Director
Location Consulting
Amsterdam

Steve Carlos
Senior Director
Location Consulting
San Diego

Cindy Zhang
Director
Location Consulting
Guangzhou

About JLL

For over 200 years, JLL (NYSE: JLL), a leading global commercial real estate and investment management company, has helped clients buy, build, occupy, manage and invest in a variety of commercial, industrial, hotel, residential and retail properties. A Fortune 500® company with annual revenue of $20.8 billion and operations in over 80 countries around the world, our more than 106,000 employees bring the power of a global platform combined with local expertise. Driven by our purpose to shape the future of real estate for a better world, we help our clients, people and communities SEE A BRIGHTER WAY℠. JLL is the brand name, and a registered trademark, of Jones Lang LaSalle Incorporated. For further information, visit jll.com.