

# BUILDING DESIGN + CONSTRUCTION®

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Inspiring the Building Team

## INNOVATION DISTRICTS + TECH CLUSTERS

How the 'Open Innovation' Era Is Revitalizing Urban Cores

24

6 WAYS TO KEEP NOISE DOWN IN HOSPITALS

34

AIA CES DISCOVERY COURSE  
ADVANCES IN STRUCTURAL STEEL

47

Playa Jefferson  
Playa Vista, Calif.

SCRANTON GILLETTE COMMUNICATIONS  
SGC HORIZON



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# innovation districts + tech clusters

HOW THE 'OPEN  
INNOVATION' ERA  
IS REVITALIZING  
URBAN CORES

In the race for highly coveted tech companies and startups, cities, institutions, and developers are teaming to form innovation hot pockets.

BY DAVID BARISTA, EDITORIAL DIRECTOR

If you live in the Philadelphia area and work in a newly constructed or recently renovated office space, chances are your place of employment is located in a burgeoning neighborhood on the west side of the city, called University City. The district represents just 0.02% of the region's office market landmass, yet it is where 82% of all office construction work occurred in 2014.

During the past five years alone, University City has attracted 10 million sf of real estate projects, worth an estimated \$4.5 billion. Even with the district's recent office construction boom, the neighborhood has the highest occupancy rate (96%) of the 27 regional real estate submarkets in the Philadelphia metro area. Its 72,997 jobs represent 10.8% of all jobs in the metro region, and the district has added nearly 20,000 jobs since 2007, according to the December 2014 "The State of University City" report (<http://bit.ly/1e4TAKI>).

It's a venerable boom city within a city, with some 750 retail stores and restaurants (another 80,000 sf of retail is under construction), nearly 23,800 new or planned multifamily units since 2002, and more than \$1.1 billion in private development since the start of 2014 alone.

"As soon as space comes online in University City, people grab it," says Thomas Osha, Managing Director, Innovation and Economic Development, with Wexford Science + Technology. The university innovation real estate development firm has developed four lab/research/office incubator buildings on University City's Science Center campus, totaling 1.3 million sf. Osha says that demand for space at Wexford's newest project—a 13-story laboratory and office building at 3737 Market Street, completed in 2014—was so voracious, the developer added three stories to the project *during* construction, "and the building *still* opened at 100% occupancy."

The explosive growth occurring at University City shows no signs of slowing. In June, the University City Science Center tapped Wexford to add as much as four million sf of office, laboratory, residential, retail, and parking space over the next decade.

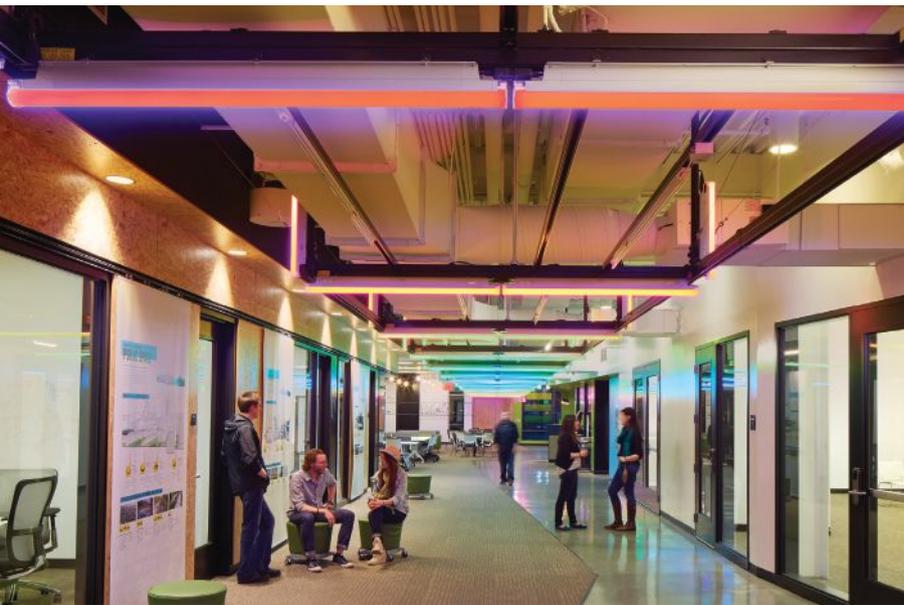
**University City is one of a dozen or so "innovation districts" throughout the country that have become the envy of city officials, real estate developers, tech/pharmaceutical companies, and academic and medical institutions.** From Cortex in St Louis, Mo., to South Lake Union in Seattle to University Circle in Cleveland to Kendall Square in Cambridge, Mass., these tech hot pockets are the modern-day version of the mid-20th century suburban science-technology parks and corporate campuses—yet they share little in common with their outmoded suburban counterparts.

The explosive demand for tech office space in and around metropolitan areas has led to creative redevelopment opportunities for Building Teams. The Playa Jefferson complex in Playa Vista, Calif., remade a series of non-descript, low-rise office buildings into state-of-the-art tech space for mature and startup companies. Designed by Gensler for developer Vantage Property Investors, the scheme involved erecting a massive space frame between two of the office buildings to create inviting community spaces for tenants.

BENNY CHAN FOTOWORKS, COURTESY GENSLER



GUSTAV HOILAND (EXTERIOR); BRUCE MAREIN (INTERIOR)



A growing number of innovation districts are looking to create a “spiritual center”—an iconic building, public park, creative remake of a historic structure—with spaces and amenities for all tenants and stakeholders, even the surrounding neighborhood. Case in point: District Hall, in the South Boston Waterfront district. The nation’s first freestanding, city-sponsored public innovation center, the 12,000-sf structure, designed by Hacin + Associates, serves as the anchor and innovation hub of the district. In its first year of operation the facility hosted more than 500 events for startups, entrepreneurs, and community groups.

## DEFINING INNOVATION DISTRICTS: 3 DISTINCT TYPOLOGIES

- 1. Anchor-plus model.** Primarily found in the downtowns and midtowns of central cities, where large-scale mixed-use development is centered around major anchor institutions and a rich base of related firms, entrepreneurs, and spin-off companies involved in the commercialization of innovation. Examples: Cortex, St. Louis, Mo.; Greater Oakland, Pittsburgh; Kendall Square, Cambridge, Mass.; Midtown, Atlanta; University City, Philadelphia.
- 2. Re-imagined urban area.** Often found near or along historic waterfronts, where industrial or warehouse districts are undergoing a physical and economic transformation. These districts are powered, in part, by transit access and proximity to downtowns in high-rent cities, and are supplemented with advanced research institutions and anchor companies. Examples: Brooklyn Navy Yard; Mission Bay, San Francisco; South Lake Union, Seattle; South Waterfront, Boston.
- 3. Urbanized science park.** Commonly found in suburban and exurban areas, these traditionally isolated, sprawling areas of innovation are urbanizing through increased density and an infusion of new activities, including retail and restaurants, that are mixed as opposed to separated. Examples: Research Triangle Park, N.C.; University Research Park, Madison, Wis.; UVA Research Park, Charlottesville, Va.

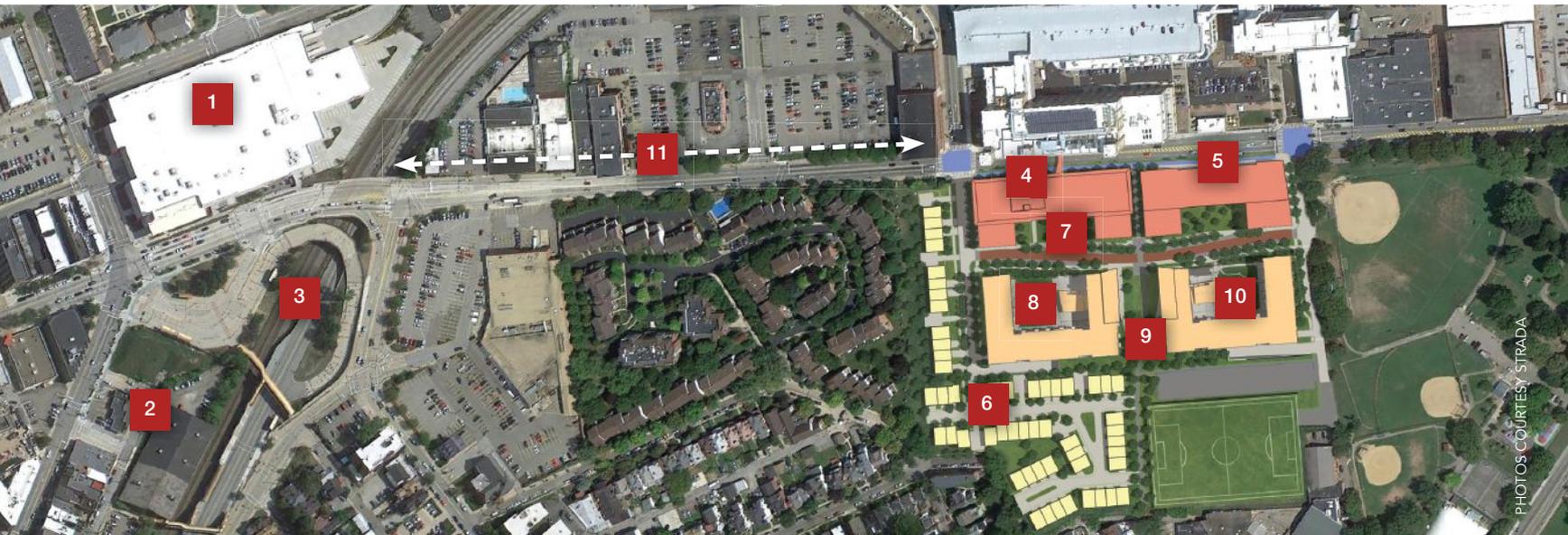
Source: “The Rise of Innovation Districts: A New Geography of Innovation in America,” Brookings Institution, <http://brook.gs/1hJsomp>

“If you look around the country and want to see where the most ferocious growth is happening right now, that, from my perspective, is high quality and sustainable, it’s happening within these innovation districts,” says Bruce Katz, VP and Director of the Metropolitan Policy Program at the Brookings Institution. Katz, who co-authored Brookings’ May 2014 report, “The Rise of Innovation Districts: A New Geography of Innovation in America” (<http://brook.gs/1hJsomp>), has spent the better part of the past decade observing both fledgling and mature tech and research clusters throughout the U.S. He says the nation’s tech and corporate business economies are in the midst of a tectonic shift away from the traditional “innovate in isolation” modus operandi to what he calls “open innovation,” where companies collaborate with other firms, inventors, and researchers to generate new ideas and bring them to market.

“This is one of the major driving forces of the economy today,” says Katz. “We clearly see this phenomenon with pharma, where major companies are clustering around advanced universities, like MIT, Georgia Tech, and Carnegie Mellon, to be near researchers and the talent pool that’s coming out of these schools.”

The same can be said for big tech, according to Colin Yasukochi, Director of Research and Analysis with CBRE Group. In contrast to past tech cycles, he says, the current tech boom has resulted in a substantial migration—primarily eastward, but also international—to secondary and tertiary metro markets, often within proximity to major sources of talent, such as universities, tech hubs, and research institutions.

“It’s definitely more intense than past tech cycles,” says Yasukochi, who led CBRE’s April 2015 research study of the top 50 tech



PHOTOS COURTESY STRADA

The Bakery Square development in Pittsburgh's East End neighborhood demonstrates the power of landing a strong anchor tenant. In this case, Google moved its regional office from nearby Carnegie Mellon University into the former Nabisco factory (phase one of the Bakery Square development). The tech giant's presence and continued growth there has attracted a number of tenants, including the University of Pittsburgh and CMU, and has sparked the development of a tech mini-city, complete with planned apartments, townhouses, additional office buildings, and public spaces. Pictured (bottom): 1. Target store 2. mixed-use development 3. BRT station 4. Google office 5. future commercial 6. townhouses 7. "living place" central spine 8. apartment building (phase 2) 9. bike path 10. apartment building (phase 1) 11. five-minute walk to amenities and transit. Pictured (top): Google offices.

real estate markets in the country ("Scoring Tech Talent," <http://bit.ly/10iRAKn>). West Coast tech giants, including Amazon, Google, and Yelp, are fanning out in search of top talent and innovation.

"Many of these major tech companies now want to be in each others' backyards," says Yasukochi. "Their ability to attract talent and innovation is the lifeblood of what they're doing."

In some cases, tech giants join an established innovation ecosystem, as was the case with Amazon's move to Seattle's South Lake Union district in 2010. In other instances, such as Google's new regional office in the Bakery Square development in Pittsburgh's East End neighborhood, they serve as the anchor of a nascent tech hub.

"These larger firms are market-makers," adds Yasukochi. He points to Twitter's 2012 move to the once-seedy Mid-Market neighborhood in San Francisco as an example. "Once they move into a market, firms soon follow," he says.

At Bakery Square, developers dub this phenomenon "the Google effect." With the tech firm as the centerpiece and anchor tenant, developers Walnut Capital and RCG Longview are in the second phase of a multi-phase plan to create a tech mini-city around the adaptive reuse of a 1918 Nabisco factory. Located near one of the city's most

desirable housing markets (Shadyside) and just a five-minute walk to public transportation and major retail, Bakery Square will eventually be built out with a pair of six-story office buildings (including expanded space for Google), a five-story, 175-unit apartment complex with below-grade parking, and 50 townhouses—all connected via public spaces, bike trails, and a central "living place" spine.

"Once Google moved in and was in a growth mode, it started to generate all this other development," says Michael Stern, ASLA, LEED AP, Principal with Strada, which designed Google's fitout at Bakery Square and, more recently, master planned the development's 13-acre expansion. Stern says Google moved to the hub after outgrowing its space near Carnegie Mellon University, a major source of high-level engineering talent. "Now, CMU and the University of Pittsburgh are almost following Google, in a way, by moving to the Bakery Square development. It's an interesting symbiotic relationship."

**The Brookings Institution's Katz makes the important distinction between tech hubs/clusters and true innovation districts.**

The latter have achieved a critical mass and healthy balance of the key elements necessary for creating sustainable job creation and economic growth—anchor institutions/companies, incubators, and



COURTESY GENSLE

Named after the Great Chicago Fire and the city's subsequent rebirth, 1871 has quickly become the epicenter for Chicago's emerging tech community. The 50,000-sf co-working space, incubator, and business accelerator, located on the 12th floor of Chicago's historic Merchandise Mart, is home to more than 400 entrepreneurs, and has played a role in launching 149 startups to date. Designed by Gensler, with Environmental Systems Design as MEP engineer, 1871 features a mix of workspaces, classrooms, meeting areas, and social spaces, all arranged to encourage impromptu collaborations.

business accelerators, often flush with venture capital and seed money sources—all connected in a vibrant community with a strong sense of place, multiple housing options (preferably affordable), public spaces, accessible transit, and retail options.

Unlike many of today's tech hubs and the suburban science/technology parks of the past, innovation districts incorporate an unusual mix of industries and firm sizes, and, most importantly, a shared cultural belief in the power of collaboration and risk-taking.

It's this unique mash-up that makes innovation districts incredibly powerful re-generators of urban economies—and a potential boon for developers and AEC firms. Unlike traditional urban revitalization strategies, which rely primarily on commercial real estate assets like convention centers and sports stadiums (often publically funded) to attract additional development and spark growth, innovation districts “help their city and metropolis move up the value chain of global competitiveness by growing the firms, networks, and traded sectors that drive broad-based prosperity,” wrote Katz, in the Brookings report.

Katz has identified three distinct models (see sidebar), but no two districts are the same, and there's no simple formula for creating them. Based on his observation of districts nationwide, Katz has identified several key elements common in thriving districts:

- Critical mass of economic, physical, and networking assets
- Competitive advantages, and strategies for cultivating them
- Strong sense of place, with “animated” public spaces
- Connectivity at all levels
- Diversity of tenant types and sizes

Based on these basic ingredients, Brookings, in collaboration with Mass Economics and the Project for Public Spaces, is developing an audit template and tool, to be released this fall, designed to help cities and institutions benchmark their efforts to create innovation districts against successful districts across the nation.

## FOSTERING NEW BUILDING TYPES AND MORE-COMPLEX GEOGRAPHIES

The rise of innovation districts and tech clusters is leading to the development of novel building types and advanced urban planning strategies that promote and enhance connection, collaboration, sense of place, and diversity. It's pushing developers and AEC firms to rethink traditional office, research, incubator, retail, and housing design. It's testing Building Teams with ever-more-complicated adaptive reuse and redevelopment projects, often involving landmark real estate assets. Lastly, it reinforces the importance of authenticity and placemaking as central elements of innovation acceleration zones.

One of the most dramatic examples is the flourishing Brooklyn (N.Y.) Tech Triangle. There, quasi-government groups, institutions, and private-sector firms are in the early stages of planning a 21-acre greenway, called the Brooklyn Strand, that will link a series of underutilized green spaces between downtown Brooklyn and the waterfront in DUMBO, under the Manhattan Bridge overpass. The plan, developed by design firm WXY, is a key component to connecting the innovation district's three zones: app/web development firms in DUMBO, maker/manufacturing companies in the Brooklyn Navy Yard, and corporate, higher ed, research, and government stakeholders downtown. All told, the triangle is forecast to support 61,000 jobs (one-third of which will be tech-related) within the next two years.

“The goal of the Brooklyn Strand is to build the physical spine to connect all of these spaces, while also creating more space by adapting publically owned land underneath the Brooklyn-Queens Expressway and bridges,” says Adam Lubinsky, PhD, AICP, Managing Principal with WXY. “The plan is to turn these physical assets into connectors, instead of barriers.”

**In the same vein, the latest iteration of incubator and accelerator buildings reinforces the idea of connection,** through features



To help link the numerous disconnected and underutilized green spaces between downtown Brooklyn and the waterfront in DUMBO, leaders and stakeholders of the flourishing Brooklyn Tech Triangle are planning a 21-acre greenway, called the Brooklyn Strand. The plan, developed by design firm WXY, is a key component to connecting the innovation district's three zones: app/web development firms in DUMBO, maker/manufacturing companies in the Brooklyn Navy Yard, and corporate, higher ed, research, and government stakeholders downtown.

like open spaces, interior streets, multiple entry points, expanded amenities, a greater connection with the neighborhood, and an authentic environment.

"Many of these researchers and entrepreneurs who are running startups need other PhDs to help them," says William Odell, FAIA, Director of HOK's Science + Technology practice. "They have a choice. They don't want to work in the basement of some lab; they want cool space."

Odell led the design team for Wexford's @4240 redevelopment in the 240-acre Cortex district in St. Louis. The LEED Platinum project converted a 68-year-old Western Electric–Southwestern Bell distribution building into 183,000 sf of fully customizable spec lab and office space. The team went to great lengths to create a hyper-collaborative environment inside the building. The project involved cutting through the three-story structure to make way for a series of skylit corridors and a central interior "street," inserting an open communicating stair off the lobby, and making extensive use of interior glass.

At 90% occupancy, @4240 is filled with more than 65 tenants and 450 workers in a wide range of disciplines. Tenants range from tech and pharmaceutical startups to patent attorneys to accounting firms to startup accelerators like the Cambridge Innovation Center. It even houses a satellite office for Boeing.

"It has really become a one-stop shop for developing a business, simply through running into all those people," says Aimee Rowbottom, AIA, LEED AP, HOK's Director of Project Management.

**Wexford's Osha observes that a growing number of districts are looking to create a "spiritual center"**—an iconic building, public park, creative remake of a historic structure—with spaces and amenities for all tenants and stakeholders, even the surrounding neighborhoods.

In Winston-Salem, N.C., the Wake Forest Innovation Quarter is

working with Wexford to transform the 1920s Bailey Power Plant, with its iconic 14-story smoke stacks, into a mixed-use retail, co-working, and community facility. "It sits on a park that we just completed, Bailey Park, where we host movies at midnight, daily yoga, and other activities to get innovators out of the buildings," says Osha. "We're looking at creative ways to develop innovation districts in such a way that they interdigitate into the environment."

At the South Boston Waterfront district, a public-private partnership, led by the city and funded by developer Boston Global Investors, created District Hall, thought to be the nation's first freestanding, city-sponsored public innovation center. The 12,000-sf structure, with its soaring, angular roof form and boxy volumes inspired by the area's rich shipping history, serves as a "visible marquee" and innovation hub for the emerging district, says David J. Hacin, FAIA, Principal with Hacin + Associates, the project's design architect. "District Hall stands alone as a public symbol of the innovation district, rather than something that is proprietary, or belongs to a corporation, or lives inside another building," he says.

## THE FUTURE IS BRIGHT FOR INNOVATION DISTRICTS

When assessing the progress of the innovation district movement, Brookings' Katz says, "Clearly, we're still in the shallow end of the pool." Virtually every major U.S. city, he says, has an opportunity to develop innovation ecosystems, especially metros with a strong central business district, healthy midtown area, and a transit corridor connecting the two.

There's a lot of work to be done in terms of better understanding the dynamics of innovation districts and how cities and stakeholders, large and small, can adapt the models and apply the lessons from the early innovators. +