

Advancing a new wave of urban competitiveness:

The role of mayors in the rise of innovation districts

June 2017

BROOKINGS



The Anne T. and Robert M. Bass Initiative
on Innovation and Placemaking

Advancing a new wave of urban competitiveness: The role of mayors in the rise of innovation districts

Project background

The U.S. Conference of Mayors convened the Council on Metro Economies and the New America City: Working Group on Innovation and Placemaking in 2016. The working group agreed to explore the recent rise of innovation districts—the small geographic areas within cities where research universities, medical institutions, and companies cluster and connect with start-ups, accelerators, and incubators. These centers represent a new geography of economic development, indicating a radical shift from previously isolated suburban research parks toward amenity-rich, hyper-connected areas in our city cores.

In October 2016, the working group met in Pittsburgh to observe how the fast-growing innovation economy is emerging in several small geographies. The working group visited the Robotics Institute at Carnegie Mellon University, the Human Engineering Research



The working group experienced first-hand how Pittsburgh is cultivating areas of innovation. Photo credit: Scott Goldsmith.



The working group also traveled to St. Louis to learn how they are developing innovation districts. Photo credit: Katherine Bish.

Laboratories at the University of Pittsburgh, and Carnegie Robotics in the city’s Lawrenceville neighborhood. The group also participated in structured conversations around three themes—innovation, inclusion, and the intersection between place and innovation.

In April 2017, the working group traveled to St. Louis to learn more about the Cortex Innovation Community, an innovation district in the city’s heart. St. Louis leaders shared details on the multipronged strategy underpinning this innovation district, and, as one example, showcased a city block that includes six innovation centers. The working group gained new insights into a range of programming strategies aimed at strengthening innovation and entrepreneurial development in the downtown quarter of St. Louis and in Cortex.

Table of Contents

Section 1: Introduction	5
Section 2: An overview on innovation districts	9
Section 3: 12 principles guiding innovation districts	15
Section 4: An audit of city assets —Identifying the potential for an innovation district	19
Section 5: Mayors as conveners—Engaging local leaders to consider a district strategy	25
Section 6: Mayors as champions—Playing a visible role to advance an innovation district	32
Section 7: Mayors as catalysts—Using city powers to strengthen an innovation district	39
Section 8: Conclusion	50
References	52
Appendix 1: Employing strategies to create great public spaces	57
Appendix 2: Paying for it all—financial incentives and sources to help districts succeed	64
About Brookings and Project for Public Spaces	70
Acknowledgements	71
Endnotes	73

Section 1: Introduction

This is an extraordinary moment to be mayor of an American city.

A confluence of demographic and market trends is giving cities a renewed chance to leverage their economic strengths to create broad-based economic opportunity for all their citizens. These strengths are manifold: Cities are home to valuable assets—clusters of urban institutions and companies that both foster and benefit from the growing collaborative nature of innovation. Urban hubs throughout cities possess the natural *attributes* of walkability and culturally

This handbook offers a guide for how American cities can become stronger and more competitive by identifying and leveraging innovation districts.

rich areas that talented workers value as places to live, work, and play. And cities provide better geographic access to job centers than their more sprawling suburban counterparts. In addition, the geographic proximity of many innovation districts to low-income communities creates opportunities to include residents in employment and business growth. Innovation districts also grow tax revenues, which cities desperately need for a range of urban services.

At the same time, a major shift in our American governance structure means that cities are facing an abdication of federal and state engagement—and an unreliability of funding that had for decades helped cities overcome cyclical fiscal hurdles and nurture local growth. This abdication is leaving cities, both large and small, largely on their own, requiring city leaders to design, finance, and deliver multisector economic development initiatives that were once seen as the responsibility of higher levels of government.

In the context of this shift in power, cities will be pressed to act with greater deliberation and ingenuity to identify and unlock the economic assets, physical attributes, and accessibility advantages that will drive growth in years to come. City leaders need to support the new spatial geography of their economies—how changing needs are pushing innovative workers and firms to cluster in dense urban hubs. Shaped by a range of forces, these hubs sit at the intersection of innovation, placemaking, and economic inclusion, and increasingly play vital—though varying—roles in driving local economic growth.

In some cities, at the advanced research-led end of the economy, **innovation districts** are developing around anchors such as universities, medical centers, or large firms. Many situate along waterfronts. Some are redeveloping science parks to be more compact and walkable. Strong in sectors such as biosciences, information technology, and creative industries, these districts cluster cutting-edge research institutions and R&D-intensive companies with start-ups, scale-ups, and business incubators. They are physically compact, transit-accessible, and offer mixed-use housing, office, and retail spaces.



Oklahoma City's innovation district has a density of economic assets concentrated in a 1.3 square mile area. Photo credit: Google Earth.

In other cities, creative hubs and cultural clusters are spurring remarkable artistic collaborations and making the arts an anchor for community development. Main streets have become places where local entrepreneurs and the maker community are rebuilding communities by invigorating commercial corridors and the neighborhoods that surround them. And public markets—one of the earliest clustering of entrepreneurs—are creating new avenues of regional food production using local ingredients to inspire world-renowned culinary scenes. The markets also advance access to fresh food in underserved areas and improve public health outcomes.

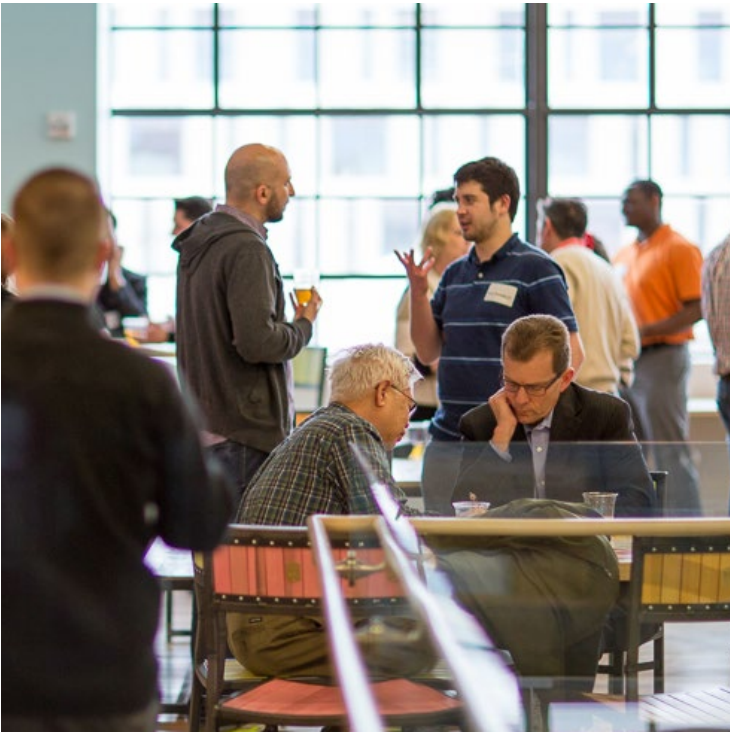
To be clear, a district strategy is hyper-local—where leaders at that scale are at the helm. In most cities, mayors will play a supportive role, albeit a powerful one.

This handbook offers a guide for how American cities can become stronger and more competitive by identifying and leveraging these hubs, with a specific focus on innovation districts, defined as geographic areas where leading-edge anchor institutions and companies cluster and connect with start-ups, business incubators, and accelerators.

Districts are also physically compact, transit-accessible, and offer mixed-use housing, office, and retail.¹

Innovation districts are emerging in the downtowns and midtowns of cities like Atlanta, Cambridge, Indianapolis, Philadelphia, Phoenix, Pittsburgh, and St. Louis, where advanced research universities, medical complexes, and clusters of tech and creative firms are sparking business expansion as well as residential and commercial growth. They can be found in cities like Little Rock, Ark., New Bedford, Mass., and Chattanooga, Tenn., where other types of anchors, such as utilities and cultural institutions, are collaborating with universities to stimulate innovation activity. They can also take the shape of emerging tech hubs, which are growing in older city cores and along waterfronts in Boston, Detroit, Los Angeles, and Providence, R.I., to take advantage of lower land prices or authentically “gritty” building stocks.

U.S. mayors have an instrumental role to play in the growth and evolution of innovation districts—a role that will likely evolve over time. Mayors can serve as **conveners**, providing a venue and platform for the development of a collective vision on the 21st-century imperative:



"Everyone has real estate. This is about building an innovation community," explains Dennis Lower, president and CEO, Cortex Innovation Community in St. Louis. Photo credit: Maria Frank (L), Cortex Commons (R).

collaborate to compete. Drawing on their skills as leaders, mayors can be **champions** by offering a vision for growing a successful innovation economy. Drawing on their regulatory powers, mayors can be **catalysts** by devising new tools or streamlining old rules to incentivize district growth.

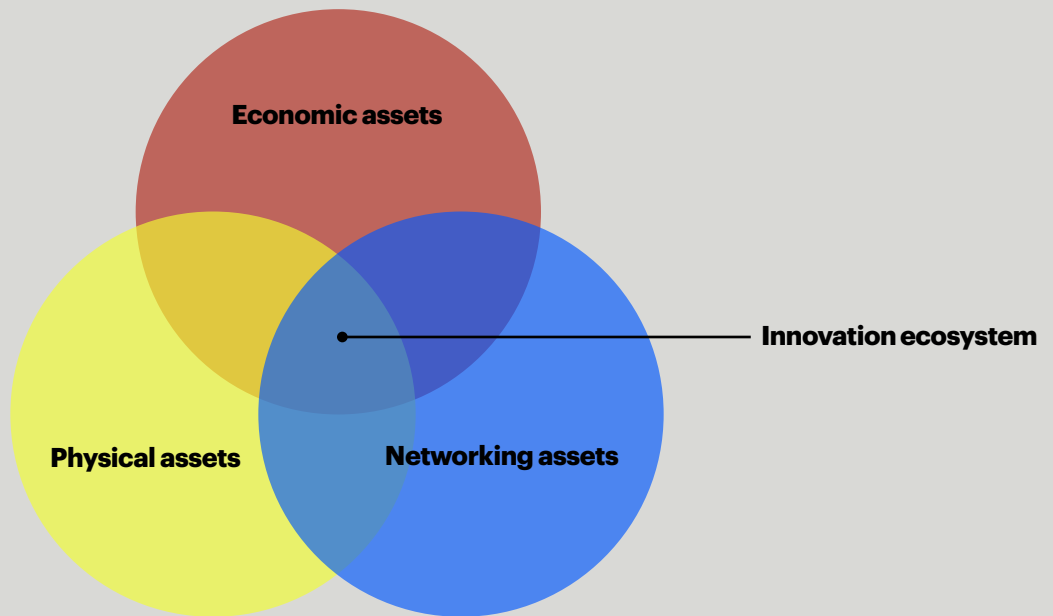
This handbook offers city leaders a way forward.

Section 2: An overview on innovation districts

Mayors and their administrations can meaningfully support the rise of innovation districts by understanding this model with some degree of specificity. While many researchers and observers have documented the trend of highly localized, place-based innovation, the 2014 Brookings Institution report *The Rise of Innovation Districts* surfaced this new geography of innovation for American audiences.² Brookings defines innovation districts as geographic areas where leading-edge anchor institutions and companies cluster and connect with start-ups, business incubators, and accelerators. Districts are also physically compact, transit-accessible, and offer mixed-use housing, office, and retail.

Unlike the hyper-segregated business parks and residential districts that have for decades populated most cities and suburbs, innovation districts include a range of distinctive traits and assets. Districts contain three categories of assets:³

- **Economic assets** are the firms, institutions, and organizations that drive, cultivate, or support an innovation-rich environment.
- **Physical assets** are the public and privately owned spaces—buildings, public spaces, streets, and other infrastructure—



All innovation districts contain economic, physical, and networking assets. Photo credit: Brookings.

designed and organized to stimulate new and higher levels of connectivity, collaboration, and innovation.

- **Networking assets** are the relationships between actors—individuals, firms, and institutions—that have the potential to generate, sharpen, and/or accelerate the advancement of ideas.

Innovation districts reach their full potential when all three asset types are fully developed in a supportive, inclusive, and risk-taking culture. The resulting ecosystem is a synergistic relationship between people, firms, and place (both the physical geography of the district and a community's common sense of it). Innovation districts, are not simply real estate developments, nor are they some new government-defined program. They are communities that value diverse leadership and talent, recognizing that a multiplicity of backgrounds and perspectives is essential for generating and producing new ideas.

The blending of economic, physical, and networking assets to create an innovation district is not easy to achieve. Brookings and PPS observations across the United States and abroad has revealed that the creation of an innovation district first requires a range of actors—institutions, companies, nonprofits, and government—willing to act

What is Innovation?

Innovation is when new or improved ideas, products, services, technologies, or processes create more market demand or cutting-edge solutions to economic, social, and environmental challenges.

As there are many types of innovations—market, social, civic, and place innovations—this handbook focuses on innovations derived from a subset of industries that benefit from co-location and proximity and where firms and workers interact and collaborate. These industries include:

- High-value, research-oriented sectors such as applied sciences—from life and material sciences to energy technology to nanotechnology
- The burgeoning “app economy” and tech start-up community
- Highly creative fields such as industrial design, graphic arts, media, architecture, and a growing hybrid of industries that merge tech with creative and applied design fields
- Highly specialized, small batch manufacturing in advanced manufacturing industries, advanced textile production, and small artisan-oriented manufacturing
- Other industries organically locating in these areas and are benefiting from interaction and collaboration. Each city should look for other industries during their own analysis—cities could be ahead of the research.

in unison. Moving forward demands a clear understanding of the district’s competitive position and how to leverage the cluster strengths of the city and region; careful thinking about how to creatively finance projects and programming to build a robust ecosystem over time; and the ability to choreograph a critical mass of economic, physical, and networking assets to elevate synergies.

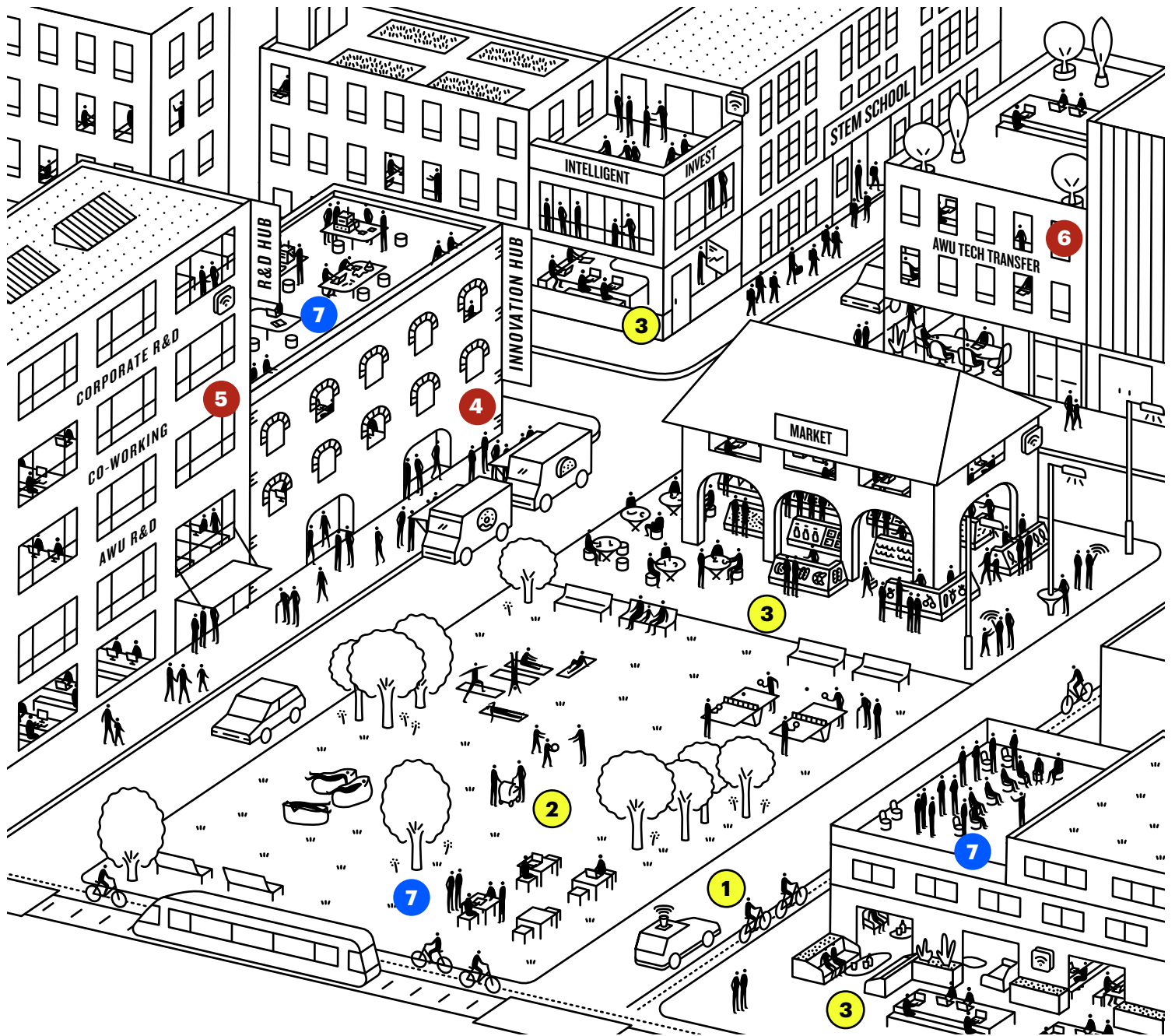
This last point is worth illustrating in detail.

A major takeaway from a review of districts in the United States and globally is that this convergence of assets is not occurring as frequently as one would imagine.

Public spaces and activities that draw the community together are often the weak link. Not enough is being done to build denser social networks, both intentionally and serendipitously, and a sense of community—important precursors to strengthening innovation.

The following illustration—depicting the concentration of economic, physical, and networking assets within one node of an innovation district—offers an example of how these assets could better meld. While an innovation district commonly ranges in size from 300 acres to 1,000 acres, creating a critical mass at specific nodes—the natural

hubs for community interaction—is proving to be essential to a smart and successful strategy that can be geographically extended over time. These hubs can take shape in many configurations: Sometimes along a key corridor; sometimes centered on a public space (such as the one illustrated below); and sometimes surrounding a magnetic innovation center or hub.



This illustration depicts the concentration of economic, physical, and networking assets within one node of an innovation district—the size of a full city block. While a district commonly ranges in size between 300 acres and 1,000 acres, creating a critical mass at specific nodes or a key corridor, which then extends over time and space, is proving to be a smart and successful strategy.

Physical Assets

- ① A walkable street grid provides the backbone of the innovation district—strengthening connections between people and firms.
- ② Public spaces are designed and managed to spur interaction, learning and networking.
- ③ Ground floors of buildings are activated with coffee shops, cafes, and gathering places—wired, comfortable, and inviting.

Economic Assets

- ④ A mix of institutional, company, and start-up spaces are concentrated in close proximity—including affordable workspaces.
- ⑤ Major research facilities of large companies are also located near firms and institutions to help “crack the code” on new innovation.
- ⑥ Tech transfer offices, to support commercialization, are located where people and firms are innovating—not tucked away on a university campus.

Networking Assets

- ⑦ Programming—to incubate new enterprises, accelerate learning, and strengthen networks between people and firms—permeates across private innovation spaces and public spaces.

Innovation District Typology: No One Size Fits All

Innovation districts are emerging in radically different ways across the United States. While *The Rise of Innovation Districts* (Brookings, 2014), emphasized three types of innovation districts, deeper investigation reveals that the phenomenon is far more nuanced. Several types of innovation districts appear to be emerging, their growth variably driven and shaped by:

- Dense concentrations of university and medical centers connecting with companies and start-ups to commercialize research
- Nontraditional “anchors,” such as government facilities or large corporations
- A critical mass of start-ups creating entrepreneurial districts of various sizes and compositions
- A reimagining of underused urban land, typically located along historic waterfronts or in industrial areas, and often catalyzed by recent investments in transit
- The redevelopment of suburban-oriented science parks to increase density, proximity, and amenities in key nodes—ideally accessible by transit
- The remaking of downtowns via new investments, innovative firms, and “satellite” campuses of universities and research institutions

In documenting the growth and evolution of districts across these various typologies, several important observations stand out:

- First, some cities intentionally cultivate an innovation district, while other districts emerge organically through market and community dynamics.

Why Innovation Districts Are Emerging

The rise of innovation districts across U.S. and global regions is a product of several powerful economic, cultural, and demographic forces:

- **Districts are catalyzed by a global economy increasingly reliant on innovation.** Today, approximately 20 percent of all U.S. jobs are in science, technology, engineering, or math (STEM) related occupations—a share that has doubled since the Industrial Revolution.⁴
- **Districts support the changing nature of innovations, which is increasingly a collaborative process.** Research—including a review of 19.9 million papers and 2 million patents—demonstrates how teams are consistently generating greater breakthroughs as compared with lone inventors.⁵ This is further precipitated by the growing adoption of “open innovation,” where companies and firms generate new ideas and bring them to market by drawing on both internal and external sources.⁶
- **Districts attract talent and companies when they are appealing places to live, work, and play.** Shifting demographic and household dynamics, including among millennials and senior citizens, are fueling demand for more walkable neighborhoods where housing, work, and amenities intermix.⁷ A density of firms, a diversity of amenities, and lively places are proving to be powerful enough to “un-anchor anchors”—that is, to entice seemingly unmovable institutions and corporate research facilities to relocate into districts.⁸

- Second, smaller clusters of innovation, though important, should not be mistaken for innovation districts. A smattering of co-working spaces, for example, does not reach the scale, the intensity, and the intentionality described in this handbook.

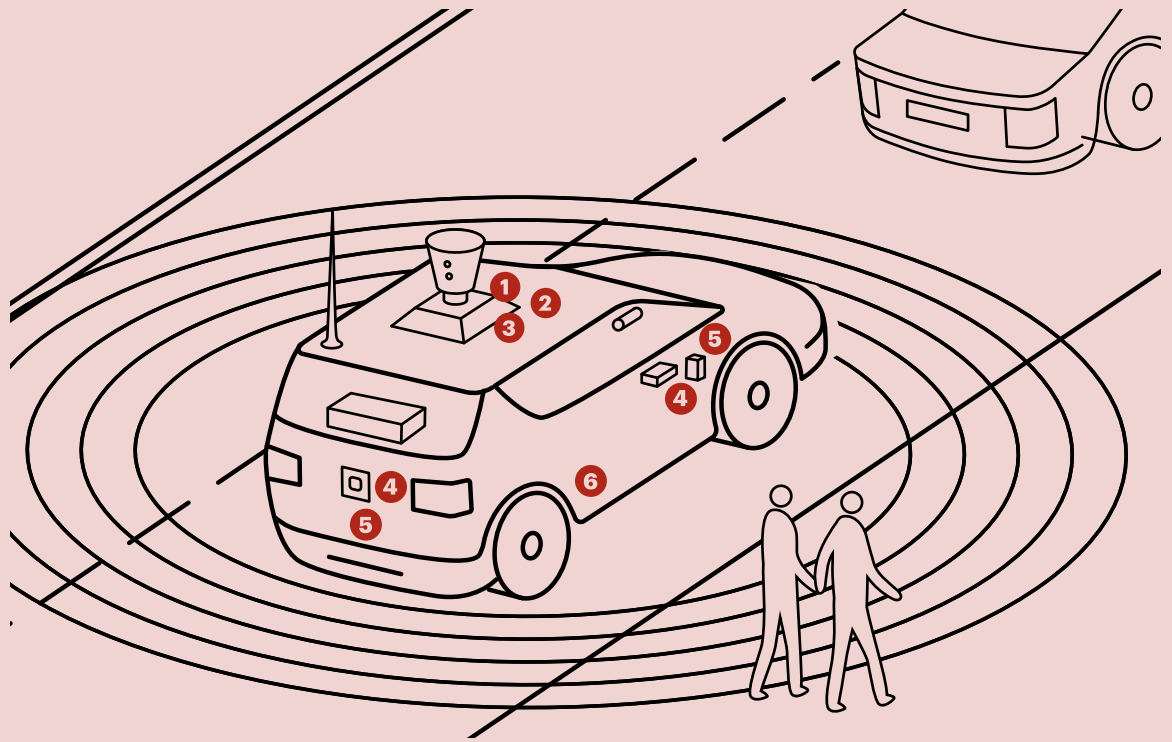
- Third, the range of actors participating in district development—civic institutions, companies, intermediaries, foundations, developers, and government—varies from place to place. Their role in advancing districts also changes quite radically. In one district, the mayor convened local anchors and companies to think through a district play; in another district, a university president played that role.

Section 3: Twelve principles guiding innovation districts

Integration is the essence of successful innovation districts. As such, intentional efforts to support or cultivate their growth require a holistic approach, applying these 12 principles in concert.

- 1. The clustering of innovative sectors and research strengths is the backbone of innovation districts.** The concentration of innovative sectors and research strengths is what drives innovation districts from the start. Rather than government attempting to pick industry winners or developers focusing on a real estate play, districts thrive by concentrating and leveraging their city or regional economic strengths. For example, Oklahoma City's strengths include health care and energy, while in Eindhoven, The Netherlands, it is precision machinery. Bottom line: Cities need to grow their own firms and, when possible, recruit from elsewhere.
- 2. For innovation districts, convergence—the melding of disparate sectors and disciplines—is king.** Many economic developers think about the world in terms of industry verticals (e.g., agriculture, aerospace, health care). But innovation platforms—IT, new materials, robotics—are technology enablers that serve many industries. As hubs of research and next-generation technologies, innovation districts are more aptly defined by these horizontal platforms than by sectorial silos. As

- 1 Electrical engineering
- 2 Mechanical engineering
- 3 Geospatial engineering
- 4 Computer science
- 5 Software engineering
- 6 Materials science



A growing number of innovations—like the autonomous vehicle—were conceived through the convergence of disparate disciplines and sectors. Illustration credit: Brookings.

such, district stakeholders need to build their capacity to connect seemingly dissimilar industries through collaborative research, conversation, and cross-cutting technologies.

3. Districts are supercharged by a diversity of institutions, companies, and start-ups. The strength of innovation districts comes, in part, from this eclectic mix. Districts that are largely comprised of large institutions often lack the accelerated innovative growth that small, nimble firms provide. And districts characterized by a density of start-ups have fewer opportunities for well-funded partnerships and alliances. The “magic in the mix” comes from aligning incentives between these and other public, private, academic, and civic institutions.

4. Connectivity and proximity are the underpinnings of strong district ecosystems. A well-connected district is paramount to its success—transit, bike paths, sidewalks, car-sharing, and high-speed fiber. Identify gaps and invest wisely. At the same time, districts should measure their success by steps not miles. The experience of proximity—or a physical concentration of firms, workers, and activities—is what differentiates a “buzzing” district from a boring one.

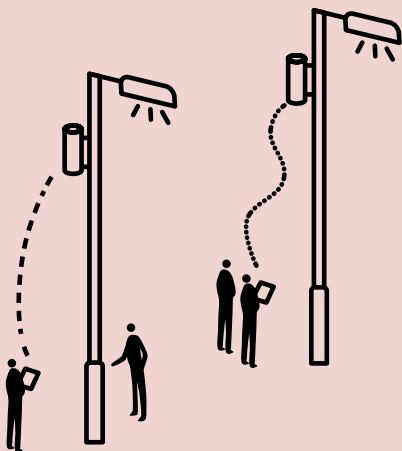
5. Innovation districts need a range of strategies—large and small moves, long-term and immediate. Innovation district development requires a mix of large investments (e.g., in transit, high-speed fiber, venture and other capital funds) and smaller strategies (e.g., reactivating a neglected park and programming spaces). These approaches are complimentary: Large-scale investments set the foundation upon which other activities can be layered, while short-term, community-led processes can inform bigger and lengthier undertakings and create crucial momentum.

6. Programming is paramount. Programming—a range of activities to grow skills, strengthen firms, and build networks—is the connective tissue of a district. A major misstep is to undervalue programming within and across the district, both indoors and out.

7. Social interactions between workers—essential to collaboration, learning, and inspiration—occur in concentrated “hot spots.” A handful of social hot spots in a district will likely punch far above their weight in terms of building community. They may be organic, like Silicon Valley’s legendary Walker’s Wagon Wheel, or designed, like Venture Café near the MIT campus. Districts should identify, analyze, protect, and support such exceptional places.

8. Make innovation visible and public. Daylighting innovation in public and private spaces helps inspire curiosity in aspiring innovators, start conversations between neighbors, and convey

the story of an innovation district to potential recruits or investors. It also transforms public spaces into “living labs” to test prototypes. To help further, activities like hackathons (a sprint-like event encouraging collaboration generally on software/hardware development), symposiums, and health clinics, which typically occur indoors, might



Some districts are testing innovations in public spaces, such as using light posts to analyze weather or traffic conditions. Illustration credit: Brookings.

accomplish more in the public realm. And finally, greater transparency at the ground level of buildings allows pedestrians to connect with the innovation activities inside.

9. Embed the values of diversity and inclusion in all visions, goals, and strategies. Innovation districts not only promote new technologies, they grow a range of new firms and new jobs with living wages. At a time of rising social inequality, innovation districts must become an avenue to economic opportunity for city residents—particularly for those in nearby neighborhoods that struggle with poverty and disinvestment. But growth alone is not enough. Only through intentional training, hiring, business development, and placemaking efforts can districts cultivate new local talent, encourage more diverse ownership structures, and help address poverty and disinvestment in surrounding communities.

10. Get ahead of affordability issues. Successful districts can, over time, drive up market pressures, impacting the ability of start-ups, maturing firms, and neighboring residents to remain in these areas. Smart districts respond early, getting ahead of the curve through a range of policy moves and strategic projects that preserve affordability and the diversity it engenders.

11. Innovative finance is fundamental to catalyzing growth. Most innovation districts require new finance streams to advance innovative and inclusive growth without straining existing and limited resources. As districts will likely receive less funding from states and the federal government to support their efforts, creative financing tools—including ways to leverage city-owned and district assets—should be explored with an eye toward sustaining financing over time.

12. Long-term success demands a collaborative approach to governance. An innovation district's work ethic and culture is "collaborate to compete." A bottom-up horizontal governance model—involving business, academic and civic institutions, government, workers, and residents—can best orchestrate what must be done collectively: Identifying assets; design, finance and strategic initiatives; public space management; and evaluating progress.

Section 4: An audit of city assets— identifying the potential for an innovation district

Most American cities—namely small to mid-size cities—will have one shot at successfully leveraging economic assets to cultivate an innovation district in today’s economy that is globally competitive, connected, and vibrant.

Mayors, who naturally possess a citywide view, should commission and oversee an “audit” process to identify geographic areas within the city where economic, physical, and leadership assets concentrate. Based on those findings, mayors and their staff should select the area with the greatest potential to grow into a thriving innovation district, and target efforts toward its development.

While selecting one innovation district may seem risky, or even insensitive to the economic growth potential of other city hubs, the level of effort and investment necessary to cultivate a robust innovation ecosystem demands geographic focus, especially within the context of shrinking state and federal funding. Most places, in fact, will only be able to create the necessary density of actors, amenities, and institutions in one area.

To identify the geography with the strongest set of starting assets from which to develop an innovation district, mayors and city experts in economic development and other specializations (e.g., city planning and transportation) should ask three primary questions:

Even nascent innovation districts have a clustering of firms, anchors, or other innovation intermediaries.

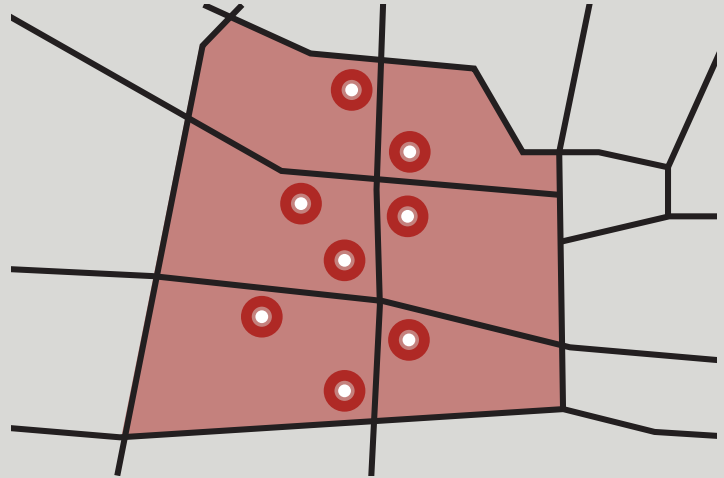


Illustration credit: Brookings.

1. Where are the city's highest concentrations of economic assets?

The goal of this first step in the analysis is to identify areas that have a density of assets needed to produce talented workers, grow and attract firms, and drive new investment activity. This analysis is also to determine if these same areas are aligning their distinctive assets in ways that make them competitive at the national and global level.

Areas with a **critical mass of assets**—high density of firms, institutions, workers, and researchers:

Data to examine

- Total employment by sector
- Real estate density
- Office, retail, and housing occupancy rates

Look for areas with a concentration of assets higher than the city average

Areas that are carving out a **competitive advantage**—economic specialty or growing set of niches developed by firms and anchors within a certain part of the city:

Data to examine

- Employment, output, and productivity by industry
- Venture capital (dollars and deals) by industry
- Degree to which start-ups are becoming job generators

Seek to understand how the area's competitive advantage links to the broader industry clusters of a region

Areas with **innovative capacity**—institutions, companies, and/or public facilities that possess specific technical capacities:

Data to examine

- Total research and development (R&D) dollars
- Number of patents filed annually by the public and private sector
- Technology transfer metrics for anchor institutions (start-ups, patents, licensing deals by academic institutions)

Look for areas with a concentration of assets higher than the city average

After compiling a short list of potential areas, actors engaged in the evaluation process should proceed to the next step, an early analysis of physical assets.

Connectivity to the city and region is essential to the long-term success of any district.

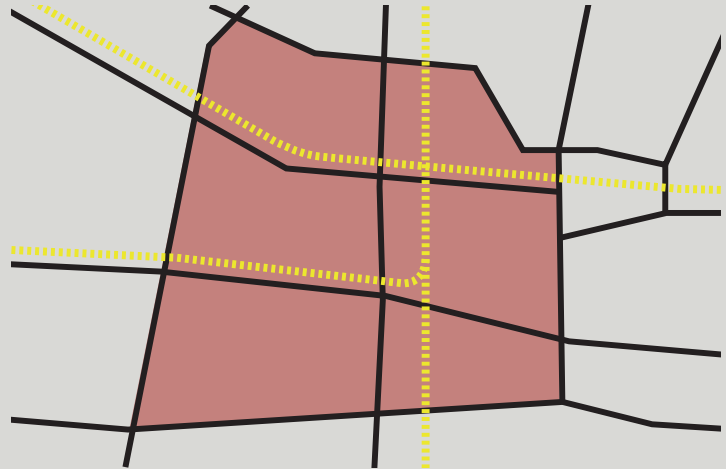


Illustration credit: Brookings.

2. Are these hubs of economic assets enhanced by quality and connected physical assets?

The goal of this second step is to determine how existing and potential physical characteristics can create the right platform for innovative growth. Ideally, it will show where people and firms are connecting and collaborating at levels far higher than in other parts of the city and where people and firms are drawn to quality, vibrant spaces.

Hubs with some degree of **connectivity with other parts of the city and/or region**. Connectivity to other parts of the city and region is essential to the long-term success of any district.

Factors to evaluate

- Whether identified economic hubs have transit access to other parts of the city or region, including regional or city rail and bus routes
- Whether there are physical barriers present that limit access to these areas, such as highways, railroads, bodies of water, or large parks that limit overall accessibility

Hubs with some degree of **internal connectivity**. Innovation districts need a high level of internal connectivity to strengthen connections between people and firms.

Factors to evaluate

- The extent to which internal streets are part of a continuous, walkable grid with frequent intersections
- Whether streets are designed for slow but continuous car traffic to promote pedestrian safety and comfort
- Whether sidewalks are wide and comfortable. Is there, for example, space allocated for multiple modes of transportation including bikes?
- The extent to which there are ample destinations to make an area walkable
- Whether discrete parts of hubs are cut off or made less accessible by gated developments, dead-end streets, railroad tracks, excessively long blocks with no active uses, or other barriers

Hubs with some degree of **density and mixing** to create a highly networked and “buzzing” innovation community. This evaluates the hub’s ability to create a mix of residential and commercial buildings, ground-floor activity, public markets, cultural amenities, public spaces, and other uses that connect people to one another (as determined by zoning and how uses are currently mixing on the ground).

Factors to evaluate

- Employment and residential densities
- The ability to mix uses
- The ability to have a range of ground floor uses (e.g., retail, restaurants, community spaces)
- The extent to which there are 'destination streets', like a walkable strip of retail or a street fronting a lively park, that make it an interesting place to walk
- The extent to which there are publicly accessible, social destinations that attract workers and residents. One way to identify these destinations is the Power of 10, as outlined in the references section.

Additional research should then be undertaken to answer a third and final question.

The ability to develop innovation districts that are competitive and collaborative ultimately rests with local leadership.



Illustration credit: Brookings.

3. Are these hubs of economic and physical assets home to a constellation of visionary, forward-thinking leaders willing to collaborate and take risks?

The goal of this third and last step is to identify the leadership potential within potential innovation districts. While mayors can play an important role in supporting innovation districts, achieving true success ultimately rests with the local leadership of anchor institutions, companies, civic organizations, and intermediaries at the district level.

Factors to evaluate

- Whether local leaders of potential innovation districts have a collective vision of success. In other words, have they demonstrated, through past or present work, the willingness or capacity to move beyond conventional thinking and devise a new vision for growth?
- Whether these leaders are inclined to be collaborative and act beyond individual interests.
- Whether local leaders have demonstrated a willingness to take new risks in projects where the outcomes were far from certain.

One final note: Ideally, a city completing this audit will identify their assets and challenges and then compare those results with similar “peer” cities to see how they perform on the national and global stage.

Section 5: Mayor as convener— engaging local leaders to consider a district strategy

A convener is a role mayors play by gathering local actors, individually or collectively, as a means to explore a new agenda or to reconcile a conflict. As a convener, mayors are not normally viewed as neutral

facilitators but as leaders and advocates driven to advance public policy goals. As such, they can—and often do—use their powers to persuade, convince, and incentivize local actors to move in a new direction.

Convener

noun

con·ven·er \ kən'vēnər \

1. one who assembles people for an official or public purpose
2. a person who convenes or chairs a meeting, committee, especially one who is specifically elected to do so

Within the context of innovation districts, to serve as a convener means drawing together leaders of local institutions to find a set of common interests compelling enough to take a collective approach to innovative growth. This is where mayors can be most useful, as their citywide lens allows them to

see the big picture—drawing important connections between people, places, and ideas. And it is this very perspective that will enable disparate local actors to see what's possible.

On its face, the role of convener appears to be relatively straightforward—to make a series of arguments about the changing nature of our economy and how leaders at the district level have a

central role to play. Early evidence from emerging districts suggests, however, that convening a diverse set of local actors requires more than a few private meetings. Academic anchor institutions, global companies, and even medium-size firms have long histories of advancing their own, individual agendas. Asking them to shift their method of leadership, alter how they operate, and even change their organizational culture is no small ask.

Interviews with stakeholders of innovation districts that have been under development for a decade or more reveal how critical leadership is to driving change. Why one organization drags its

feet and finds reasons to delay decisions, while another zooms into action and realigns its mission, ultimately boils down to leadership. This section of the handbook provides a five-step process for mayors and their teams to work closely with local leaders to pursue an innovation district strategy:

From my experience, this process is not as easy as one would believe. It's hard because everyone is in their own bunker.

Bruce Katz, Brookings

1. Be armed with research and basic empirics to argue for a district play.

It is important to understand where the city has the strongest district play and what other comparable cities are advancing innovation districts. Before mayors reach out to a set of actors to discuss an

Mayor as Convener: Brokering a Biomedical Campus in Downtown Phoenix

Decades of investment in Phoenix—in two sports arenas, convention centers, and cultural and performing arts centers—transformed the downtown into the region's entertainment epicenter. In the early 2000s, while business and civic leaders were clamoring for a third downtown stadium, Mayor Skip Rimsza saw an opportunity to shift the city's economic trajectory toward knowledge and innovation. Leveraging Arizona's biomedical cluster strategy, the mayor used his convening power to persuade the International Genomics Consortium and Translational Genomics Research Institute, the University of Arizona, and Arizona State University to locate in downtown Phoenix. Quietly assembling the land for the anticipated stadium and pumping in \$50 million from the city, he successfully brokered a new biomedical campus for the downtown.

While Mayor Rimsza took the critical first steps, it took the convening power of two other mayors to deliver a concentration of innovation anchors into the heart of the city. For example, Phil Gordon, Rimsza's immediate successor, led a successful city bond initiative in 2006 to advance education, research, and innovation assets in the downtown.⁹ Current Mayor Greg Stanton convened a group of entrepreneurs and university leaders in 2016 to develop an innovation district strategy—something that would have seemed implausible 15 years earlier. Today, driven largely by mayoral leadership, Phoenix's innovation district has gained traction. Anchored by the biomedical campus, it is replete with enviable innovation assets. The presence of 15,000 students has stimulated investments in housing, restaurants, and shops—creating a vibrant 24/7 neighborhood where people mix and mingle.¹⁰ Today, the biomedical campus is estimated to generate \$1.3 billion annually in economic value—more than the financial equivalent of hosting two Super Bowls.¹¹



Providence Mayor Jorge Elorza continues to play a powerful role as convener to advance the Providence Innovation and Design District depicted here. Photo credit: Lo2.

innovation district strategy, they must understand—at a very high level—where their cities have the greatest potential to cultivate a successful innovation district. (The Audit of City Assets section of this handbook outlines a streamlined approach to determine where the clustering of important assets can be found in the city.)

To supplement this empirical analysis, mayors and their teams should examine comparable cities with mature and/or emerging innovation districts. Examining cities with similar economies (e.g., a strength in life sciences or computer science) and similar economic markets (e.g., overheated employment/housing market or a slow-growing economy) is particularly useful.

2. Meet with key stakeholders individually to garner interest.

Armed with the above information, mayors should meet individually with local leaders whose organizations are located within the proposed district area. This could include a research university or learning hospital president, a company CEO, and (if possible) an intermediary for entrepreneurs. At these meetings, mayors should:

- Outline a readiness for the city to strengthen the stakeholders' competitiveness given the economic strengths and important actors located there
- Provide early evidence that the proposed geography offers real promise, referencing the high-level audit conducted across the city
- Illustrate how other comparable cities are aligning themselves in this way
- Express a desire to spur a similar effort, emphasizing how this requires local leadership at the innovation district scale

As important as it is to get these points on the table, it is of equal or even greater value to listen. Local leaders should be encouraged to talk through this concept and ask questions. Find out their first impressions of this strategy, the top reasons they might favor this approach, the barriers they foresee in realizing such a strategy, and who they believe are the other key players at the local level.

Once the mayor has met with a few key leaders, a decision should be made whether it is best to draw together a small group of local leaders

Mayor as Convener: Coalescing Providence Leaders to Conceive a District Strategy

When Providence Mayor Jorge Elorza convened a meeting with the president and provost of Brown University, the top agenda item was to explore what they could do together to strengthen the local economy. An earlier analysis, led by the State and Governor Raimondo, had determined that a promising strategy would be to reinforce the area's cluster strengths in biomedical innovation (including health, wellness, and food), "blue technologies" (otherwise known as marine-based innovations), and design.¹² The analysis also pointed toward specific geographies—innovation districts—to advance such an agenda. Early leadership by the state, driving the initial re-make of an area adjacent to Interstate 95 and successfully lobbying for resources from the legislature, set the stage for both state and city efforts to recruit new companies.

This was why the engagement of Brown's president and provost and other local leaders proved so essential. In addition to Brown, the University of Rhode Island, Rhode Island College, the Rhode Island School of Design, Providence College, Care New England and Lifespan hospitals, and Johnson & Wales University, the Innovation & Design District is now home to new knowledge economy tenants such as the Cambridge Innovation Center, Johnson & Johnson, and GE Digital. Mayor Elorza and his team structured many convenings that, over time, involved a growing number of local leaders and members of the community to shape a collective agenda.

With the mayor and his team diligently and deliberatively serving as conveners, local leaders and the city have made important advancements to their budding innovation ecosystem. One recent decision was to create an incubator to advance a cluster on aging—a shared space for Greater Providence stakeholders to collaborate and accelerate innovation.¹³

or to first gather more information about their individual interests. If there is skepticism, move to the third step below.

3. Conduct an assessment to identify where shared interests can be leveraged.

Research from public policy negotiations, where various actors actively participate to shape an optimal policy solution, argue that processes tend to be the most sound when an early assessment of interests are identified and documented prior to convening all parties together.¹⁴

While mayoral staff might possess the skill sets to play this role, there are a number of external consultants well steeped in these processes who can be helpful facilitators if not advisors. Drawing on interviews with district leaders, a short report (5–8 pages) is developed to give mayors a broad sense of specific priorities, shared interests, conflicting interests, and a facilitator’s assessment of next steps.¹⁵

4. Convene as a group to determine the viability of an innovation district strategy and outline key tasks.

The process of meeting with stakeholders as a group is uniquely tailored to local conditions. In the case of Providence, the mayor initially met with a very small group of leaders and, over time, added new actors to join the conversation and make decisions. In the case of Phoenix, the mayor met with a few key institutions privately until a deal was struck. (See the sidebar in this section.) Both cities’ experiences reveal that conversations to develop an innovation district strategy will take place over an extended period of time, often for a year or more.¹⁶

In fact, the layering of details and the incremental formulation of strategies—a process that occurs over time—is what often helps establish collective buy-in. While those dialogues are the right way forward, mayors and their administrations should also move the group toward completing specific tasks, such as:



Food trucks are an example of a Lighter, Quicker, Cheaper strategy that increases foot traffic on the streets of University City, Philadelphia. Photo credit: Project for Public Spaces.

- **Identifying a district boundary.** A boundary is necessary to gather and analyze important data, develop a collective vision, and ultimately brand the district. Mayors can play a helpful role here as they possess a citywide view and can see possible connections or synergies that other stakeholders simply may not. Mayors can also advise local leaders that district boundaries will change over time in response to market forces and/or specific opportunities in surrounding communities.
- **Conducting a lengthier audit of assets.** The audit outlined in this handbook helped determine, in broad strokes, a possible location for an innovation district. Once local leaders in a particular geography have agreed to move forward, more data should be gathered about critical mass, competitive advantage, quality place, and other variables. (See the references section for more information.)
- **Setting up an informal governance structure to organize their efforts.** Brookings's work on the ground reveals that a lack of governance is a common reason why areas brimming with potential fail to "take off" and why other places with forward-thinking governance advance with alacrity and focus.

- *Implementing a Lighter, Quicker, Cheaper approach to build momentum and energy across the district.* Put simply: Cities do not need to wait for a lengthy planning process to unfold before creating excitable change. (See the Mayor as Champion section of this handbook for a discussion of Lighter, Quicker Cheaper.)
- *Developing a vision or plan.* Depending on the complexity of issues, consider encouraging actors to develop a broader vision or plan. While this can include city government, plans are also developed with local actors, engaging city government in key moments. (See the Mayor as Champion section of this handbook to learn more.)

5. Stay apprised—and continue to encourage leaders to forge a strong collective agenda.

Once local leaders are working together to create and advance a collective roadmap, mayors and their teams can shift into a different role. The next two sections describe the role of mayors as a champion and a catalyst.



Programming—such as happy hours, hack nights, and professional development opportunities—is the “connective tissue” of innovation districts. Pictured here is just one of the many events at the Edney Innovation Center in Chattanooga’s innovation district. Photo credit: Victoria Barr.

Section 6: Mayor as champion—playing a visible role to advance an innovation district

A champion is one of the most natural roles for mayors to play. It draws on the visionary and leadership skills that mayors tap in their attempt to move their cities on a path to greater prosperity.

Champion

noun

cham·pi·on \ 'cham-pē-ən \

1. a warrior or fighter
2. an advocate or defender
3. one that battle's for the rights or honor of another

To act as champion for an innovation district means to serve as the visible city leader who offers a clarion call—a vision—such that the city can become stronger and more competitive. Being a champion also means creating the right conditions for future development, either by offering a roadmap for future growth or by delegating powers so that others may lead. A champion also stands out front, celebrating success and advocating for the hard work to continue. A champion, in short, engages in a range of roles—from bold and transformative to lighter and more experimental.

This section highlights the most typical and likely activities in which mayors can engage as champions of innovation district growth.

1. Relay a vision or call of action.

A mayor is often viewed as being at his or her best when declaring a vision of future prosperity that is grounded in empirics and conveyed

Mayor Thomas M. Menino, during his 2010 inaugural address, shared this vision for an innovation district:

A new approach is called for on the waterfront—one that is both more deliberate and more experimental. Together, we should develop these thousand acres into a hub for knowledge workers and creative jobs. We'll define innovation clusters—in green, biotech and health care, web development, and other industries. And there, we'll experiment with alternative housing models. We will test new ideas that provide live/work opportunities to entrepreneurs and affordable co-housing for researchers.

Years of financial engineering left us with a sub-prime crisis in housing. It's time to get back to "engineering engineering." We'll give architects and developers the challenge to experiment with new designs, new floor plans, and new materials. Our mandate to all will be to invent a 21st-century district that meets the needs of the innovators who live and work in Boston—to create a job magnet, an urban lab on our shore, and to harvest its lessons for the city.

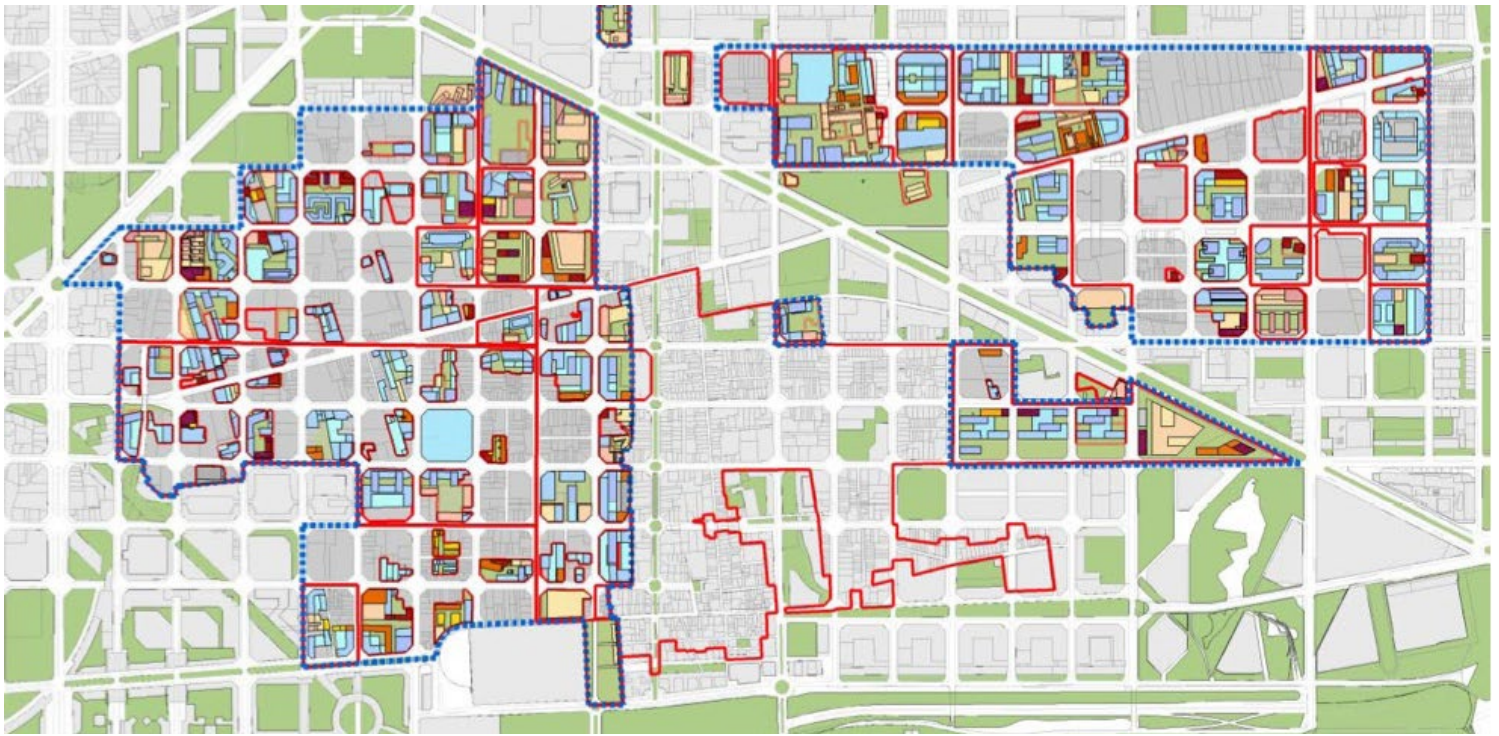
with conviction and purpose. A handful of U.S. and European mayors, in their inaugural or state of the city addresses, have shared a vision for cultivating innovation. In several cases, mayors have tied their vision of innovative growth to a specific geography—a district—for future activity and investment. In 2010, in his fifth inaugural address, then-Boston Mayor Thomas M. Menino sketched his vision for redeveloping the Seaport district into an innovation district.¹⁷ (See the sidebar in this section.) Mayor Joan Clos of Barcelona conveyed the need to leverage the changing economic landscape as a means of strengthening his city's competitive advantage.¹⁸ In his 2014 State of the City address, Mayor Andy Berke of Chattanooga, Tenn., conveyed a vision for strengthening the city's innovation potential through the development of an innovation district.¹⁹

While the idea of publicly announcing an innovation district is provocative, particularly to business and city interests and the

press, background work is a prerequisite. Ideally, this will include conducting an initial audit analysis to determine if the city has, or is growing, competitive assets (see the Audit of City Assets section); talking with local civic, corporate, community, and nonprofit leaders to assess their interests and to build consensus; and holding internal discussions regarding role the city is willing to play (e.g., staff and resource time, planning support, and leadership involvement).

2. Delegate powers to others.

In some cases, mayors may find that the strongest avenue for growth is to cede power to others who have the time and competencies to orchestrate efforts at the hyper-local scale. (Refer to the sidebar to learn how this was accomplished in St. Louis.)



To create the innovation district in Barcelona, the city combined planning with creative zoning tools to increase density, a new mix of uses, and dedicated property for new innovation spaces. Photo credit: City of Barcelona, Spain.

3. Develop a strategic, action-oriented, plan.

Under the leadership of the mayor, city administrators can play a role in planning, working in tandem with local leaders. For many, the concepts of planning and plan development can evoke stories of lengthy, cumbersome, and costly processes. For innovation districts, the ideal scenario is to strike that healthy balance: To be grounded in empirics that inform what advantages to leverage; to offer just enough specificity to excite and coalesce local actors; and, to be nimble enough to respond to healthy changes in the market.

Barcelona, St. Louis, Providence, and the Research Triangle Park (an urbanized science park model of a district in North Carolina) are all examples of innovation districts that developed a plan to strengthen their distinctive economy-shaping, placemaking, network-building, and inclusion opportunities.²⁰ While in Barcelona the city led, designed, and funded the planning process, the city played a supporting role in St. Louis. In all cases, mayors (or similar executives) served as champions.

4. Undertake short-term action and spur momentum.

Mayors and their administrations can also champion short-term, low-cost, but high-impact efforts aimed at strengthening innovation districts and the relationships between the people who live and work there. The placemaking strategy Lighter, Quicker, Cheaper (LQC) is a way for innovation district planners to think creatively about low-cost improvements to public spaces that can be implemented quickly.²¹ Practices on the ground are demonstrating that even the smallest and simplest efforts can lead to big change.

Instead of, or in concert with, more intensive planning processes, LQC can help communities celebrate innovation districts as ever-evolving works in progress. This speaks to an important advantage of LQC: The ability to create and test a project immediately with direct community involvement. The early implementation of LQC projects can help:

- Bring life and amenities to previously lifeless public spaces—a common challenge in many innovation districts
- Break down resistance to change, while empowering vulnerable or overlooked communities that may have lost faith even in the possibility of change



LQC can help communities celebrate innovation districts. Residents in Winston-Salem's Innovation Quarter enjoy an evening of music. Photo credit: Lindsey Yarborough.

- Generate the interest of potential investors, both public and private
- Establish (or reestablish) a neighborhood's or region's sense of community
- Inform best practices for later planning efforts and long-term improvements to public spaces
- Encourage community buy-in (by demonstrating, for example, how a new street design would impact traffic flows not only for cars, but also for pedestrians)
- Jump-start networking events crucial to supporting innovation²³

One example of a district applying the LQC approach—with city government playing a meaningful role—is the Wake Forest Innovation Quarter in Winston-Salem, N.C.²⁴ With health and wellness being a major focus of the Quarter, workers and neighboring residents spurred the creation of Bailey Park, a 1.5-acre public space that had once been the center of African-American life in the city. On any given week, an array of community activities, lectures, and classes take place throughout the Quarter, along with other events and activities designed to engineer interactions between tenants and the community and to foster even more innovation.²⁵

Mayor as Champion: Ceding Power for Success in St. Louis

Although home to an impressive collection of institutions engaged in plant and life sciences research, St. Louis was losing homegrown talent and start-ups in their quest to scale up elsewhere. In 2000, these institutions joined together to create an innovation community in an effort to reverse this trend. The concept was officially cemented in 2006 when Mayor Francis Slay and the Board of Alderman granted powers to a local nonprofit to oversee the creation of an innovation district.

Cortex, a tax-exempt 501(c)3 formed in 2002, was granted an astounding array of powers—a decision that its current leaders say has been vital to the district's success. Cortex was given the authority to develop a master plan for transforming a 200-acre industrial neighborhood into a technology innovation hub. In consultation with local institutions and the community, Cortex developed a master plan, which was subsequently adopted by the St. Louis Planning Commission. Cortex also received the power of master developer with the authority to issue tax abatements and exercise eminent domain. Its collective powers allowed Cortex to expedite the transformation of a blighted neighborhood into a thriving innovation district. Since 2004, \$600 million has been invested to create 4,200 tech-related jobs and to construct 1.7 million square feet of development. When fully developed, the Cortex Innovation Community is expected to encompass over \$2 billion of construction and 12,000 jobs.²²

5. Identify how districts become an avenue for inclusionary growth by applying all of the above strategies.

Mayors can use their role as champions to ensure that innovation districts grow and develop in inclusive ways that encourage diversity, access to jobs, and fiscal stability. Specifically, innovation districts offer a roadmap to strengthen the fiscal condition of cities—in growing jobs, wages, and property values—essential for cities fiscally strapped due to pension liabilities and the unreliability of funding.

This requires a multipronged approach that starts with setting a citywide vision for economic development that includes broad-based prosperity as a central goal—and which recognizes innovation district growth as a key way to realize it. There are good reasons for this approach. Advanced, technology-based industries that comprise innovation districts have a strong economic multiplier effect, driving firm and job growth across a range of sectors.³¹ Moreover, as a group these sectors employ workers with a range of education and skill levels. For example, Brookings found that over 55 percent of jobs in innovation districts in Philadelphia and Oklahoma City did not require a four-year degree.³²

Given that many urban innovation districts are adjacent to or embedded within low-income neighborhoods, a rich opportunity

Mayor as Champion: Designating a District in Chattanooga to Channel Growth

In early 2015, Mayor Andy Berke publicly announced Chattanooga's new innovation district—a 140-acre area in the city's downtown—before an assembly of local leaders and residents. "Coupled with the fastest internet in the Western Hemisphere," the mayor argued, "our innovation district will strengthen our place as leaders in the 21st-century economy."²⁶ The announcement—and all the hard work since then—has put Chattanooga on the map. Splashed across local newspapers, internet blogs, and global-reaching outlets such as the *New York Times* and *Fortune*, readers learned of how a mid-size city of the South was claiming a role for itself in the innovation economy.²⁷

The idea for Chattanooga's innovation district was built on months of research, refined through conversations with leading experts, and cemented in sessions of the Technology, Gig, and Entrepreneurship Task Force. Comprised of business and civic leaders, the 27-member mayoral task force found innovation districts to be an optimal strategy for leveraging Chattanooga's unique assets, which included a 1-gigabit fiber network, which offers speeds 200 times faster than the national average.²⁸ Today, the district is home to the new Edney Innovation Center, a 90,000 square foot hub that supports and strengthens the district's growing entrepreneurial base.²⁹ In its first 12 months, the Edney Center hosted over 1,000 events with over 25,000 participants.³⁰

exists to connect these residents to job opportunities. Still, while business and job growth is a prerequisite to economic opportunity, it is not enough. Mayors should also champion strategies and plans that integrate public workforce programming, educational initiatives, business development efforts, and neighborhood revitalization programs into emerging innovation districts—tailoring them to support inclusive district development. Evidence from nonprofits and anchor institutions in the West Philadelphia Skills Initiative and University Hospitals of Cleveland demonstrates that such place-based efforts reduce employee turnover, create a more diverse workforce, and help leverage public resources by better linking them to employer needs.³³

While creating a more inclusive innovation economy is a long-term endeavor, mayors can demonstrate short-term action and momentum using the LQC approach described above. This can include partnering with innovation district stakeholders on public programming designed to draw residents into the district to mingle with students, researchers, and other district workers. They can also help fund public art projects, public space revitalization, or other small-scale physical improvements that demonstrate the city’s commitment to surrounding neighborhoods.



The West Philadelphia Skills Initiative connects residents to employers—including key anchors in Philadelphia’s innovation district—in positions such as nursing assistants, caretakers, and security guards. Photo credit: Ryan Collard.

Section 7: Mayor as catalyst—using city powers to strengthen an innovation district

A catalyst is a role that mayors and their administrations play by using their legal and legislative powers to influence a particular outcome or set of outcomes. Since city governments are extensions of state

Catalyst

noun

cat·a·lyst \ 'kad(ə)ləst \

1. a substance that accelerates a chemical reaction without itself being affected.
2. a person or thing that precipitates an event

governments, the range of powers mayors can leverage as a catalyst for growth varies from state to state. In general, however, city governments have the power to raise certain taxes and other local revenue, set future land uses, and make changes to local zoning ordinances.

Acting as a catalyst within the context of innovation districts means knowing how to apply, with deep intentionality, specific regulatory tools, regulations, and financial incentives, including the strategic reuse of publicly owned property.

A review of innovation districts across the United States reveals three consistent challenges that are limiting their true potential—challenges that can be meaningfully addressed, in part or in whole, by the mayor serving as catalyst.

1. Many emerging districts lack the physical platform necessary for innovative growth—connectivity, proximity, and density.

While land-use regulations cannot stimulate the emergence of an innovation district, they can set a crucial framework for development. Conversely, an outdated, inappropriate, or inflexible set of land-use regulations can seriously impair, if not prevent, a district's ability to create a vibrant and integrated environment. The right zoning tools can be extremely useful, especially when there is a viable real estate market. Described below are specific tools to help cities strengthen this physical platform.

Tools for cities with strong and growing economies

The balancing act between maximizing use and preserving affordability is a particular challenge for these cities that are trying to create lively, attractive innovation districts. A key ingredient to achieving that goal is a mix of uses and types of users. Cities may consider across the board “up-zoning” within innovation districts as an easy and effective way to increase density, proximity, and mixing. The challenge with this approach is that it can inadvertently lead to



1) Wide streets encourage fast-moving traffic and are challenging for pedestrians to cross. 2) Buildings set back far from the street undercut connectivity and proximity. Setbacks such as these fail to create an enclosure—where buildings work in concert with streets and sidewalks to create a public realm. 3) A lack of ground floor activities helps explain why people are not seen here. Photo credit: Project for Public Spaces.



District Hall, the heart of Boston's innovation district, is a space designed to facilitate networking and idea sharing. Photo credit: Gustav Hoiland Flagship.

higher land prices. The best zoning solutions in strong markets keep the base zoning low, with uses limited to producer-type activity, but then permit extra density or more profitable residential, retail, and commercial uses through a planned unit development (PUD) or similar discretionary zoning process.

Planned unit development: Through a PUD process, the developer can obtain flexibility from zoning constraints (usually allowing more density than would normally be permitted) in exchange for providing a commensurate benefit to the public. Keeping the base zoning low allows city staff to negotiate with developers to provide the key attributes and assets missing within the district, such as:

- Provision of space or a structure for an incubator, innovation hub, or center where the public or aspiring entrepreneurs can gather and exchange ideas
- Open spaces for food trucks and/or farmers markets
- Special streetscape improvements
- Fiber for high-speed broadband (1 gigabit)

- Completing gaps in pedestrian or bike networks or providing shared-bike stations
- Shuttles for inter- or intra-district circulation

District Hall in Boston’s innovation district was created through a negotiated PUD-type process. As part of its Community Benefit Agreement, property developer Boston Global Investors agreed to provide District Hall at no cost to the city in exchange for approval of its 23-acre waterfront development plan. District Hall is a new type of dedicated civic space for the innovation community to gather and exchange ideas. It includes open work and teaching spaces, event spaces, and flexible use spaces.³⁵ District Hall has become the “hub” if not the heart of Boston’s innovation district.

Overlay zones: Most states give cities sufficient authority over local zoning regulations that the city can specify the uses and amenities they desire within a designated area. This is usually referred to as an overlay zone, because it is “overlaid” on top of existing zoning. Initial planning first identifies the desired innovation-related uses that are later used as a basis for changes in the defined area. Cities usually grant property owners extra density in exchange for compliance with the uses expressed in the plan as an incentive or to avoid being subject to a “takings” suit. A taking is where a property owner alleges that the public sector must compensate them for taking some or all of their property value by virtue of requiring less profitable uses.

Mayor as Catalyst: Incentivizing Clean Tech in Los Angeles

When former Los Angeles Mayor Antonio Villaraigosa identified clean tech as a prime economic cluster to cultivate, his administration—along with the city’s redevelopment agency, the Department of Water and Power (LADWP), and the area’s major universities—determined that it would require a unified effort to truly catalyze growth. They set their eyes on a 4-mile corridor to attract clean tech companies to the area. The cornerstone of the initiative is the new 60,000 square foot La Kretz Innovation Campus, which now houses the city’s clean tech incubator (LACI), a prototyping shop, wet and dry labs, a training center, and importantly, the co-location of LADWP’s R&D research and development labs.

Under current Mayor Eric Garcetti’s leadership, the clean energy initiative received an infusion of \$47.4 million in city, state, federal, and philanthropic funds to build the innovation campus. The co-location of LADWP’s R&D labs with clean tech start-ups is a success story in the making: Since the campus opened in 2011, it has delivered over \$120 million in funding to participating companies and helped create over 1,300 jobs. Over the long term, the clean tech district is expected to deliver over \$300 million in economic value to Los Angeles.³⁴

There are two caveats to keep in mind for this kind of overlay zone. First, the real estate market must be strong enough for property owners and developers to perceive sufficient return on investment to outweigh the costs of the public benefits. Second, since the real estate market is often quite fluid, the negotiated PUD mechanism may be more desirable than the less flexible overlay zone approach.

Tools for cities with weak-market economies

Cities with a slow real estate market and little growth often require other tools to shape development. Although zoning is less useful as a direct tool for these municipalities, the mayor should ensure that existing zoning does not provide obstacles to creating vibrant innovation districts. For example, several cities have nascent innovation districts in former industrial or warehouse districts; often the zoning there prohibits residential uses. Enabling residential uses, at least in conjunction with creating live-work buildings, is an important step.

In these economies, city governments should consider the strategic reuse of government-owned properties in or near a nascent innovation district to help stimulate growth. (See page 46 for more detailed information.)

Tools for all city economies

Special design standard district: Overlay districts can focus on uses, as described above, or aim more at creating the right environment for street vitality through design standards. This tool—which has a defined boundary within which proposed construction or renovation is subject to specific controls—can carve out how the area should grow with every new development by:

- Requiring transparency in buildings at the ground level along streets so pedestrians can see what is happening inside the building
- Establishing minimums (typically at least half of the ground floor) that must be filled with activating uses such as retail, cafes, bars



There are many types of public spaces that can strengthen innovation districts. Photo credit: Project for Public Spaces.

or restaurants, maker spaces or public “third places,” galleries or performing arts spaces, etc.

- Creating “build to” lines, which require new construction to extend to the property-line limits, better framing the public space and minimizing empty voids
- Prohibiting parking between the curb and the front of a building, and restricting curb cuts for parking and loading along major pedestrian routes
- Requiring wide sidewalks or other public space improvements

Reducing zoning-related parking minimums to encourage multimodal transportation. If the innovation district location is sufficiently well served by various transportation modes, then the zoning regulations that require a certain minimum amount of parking can be reduced within a designated area. The reduction or elimination of parking can enhance both pedestrian vitality (few facades are more deadening to the pedestrian experience than a multilevel parking structure or a surface parking lot) and improve the potential for interaction by reducing the isolation of individual developments in the district.³⁶

Employing strategies to create great public spaces. Effective public spaces are essential to creating connected, inspiring, and welcoming innovation districts. The alternative—a barren public realm—mirrors the challenges found in remote science parks that isolate people and firms. If designed and programmed well, public spaces can be the connective tissue between people and firms, effectively serving as the heart of a healthy and vibrant innovation ecosystem. While there are multiple strategies that cities can use to make public spaces lively and active in districts, some of the more pertinent are:

- Identifying new, active uses for existing public spaces through a community-based placemaking process.
- Investing in new public spaces, potentially using publicly owned property (as described in the following section).
- Creating a public/private place management entity, such as a community benefit district or business improvement district. Key to building a strong and healthy public realm, place management in districts should provide more than the standard “clean and safe” functions of many business improvement districts. Community-driven programming and improvements that increase usage of public spaces are also vital.

Mayor as Catalyst: Opening up Pittsburgh as a Living Lab

If someone were to drive across Pittsburgh today, they would see something remarkable happening on its city streets. Pittsburgh has become a living lab, where the ride-sharing company Uber is testing its autonomous vehicle technology. Uber’s decision to advance its robotic prowess in Pittsburgh was years in the making. Before Uber’s arrival, Carnegie Mellon University’s National Robotics Engineering Center (NREC) had been at the forefront of autonomous vehicle research and development for more than two decades. Because of its highly industry-focused and collaborative culture, Uber aggressively recruited a number of lead researchers from NREC. Rather than fight back, CMU viewed it as a chance to practice “open innovation” — drawing on these firms for insights and inspirations.³⁷

Of course, none of this would have mattered if the local government did not openly embrace the idea of Pittsburgh’s roads becoming a global testbed for autonomous vehicles. “It’s not our role to throw up regulations or limit companies like Uber,” said Bill Peduto, Pittsburgh’s mayor, in an interview with the *New York Times*. “You can either put up red tape or roll out the red carpet. If you want to be a 21st-century laboratory for technology, you put out the carpet.”³⁸ In fact, Mayor Peduto successfully demonstrated to Uber what it means to be a catalyst. Not only did the city help the company lease a large plot of land to become a test bed, it rallied to block a state ban on ride-sharing services.³⁹ Even with recent bumps between the city and Uber, this platform for growth has only opened more doors for autonomous vehicle testing.⁴⁰ For example, Ford recently invested \$1 billion in Argo, a CMU robotics spinoff company. The interplay between global research and a supportive mayor has put Pittsburgh on the map.

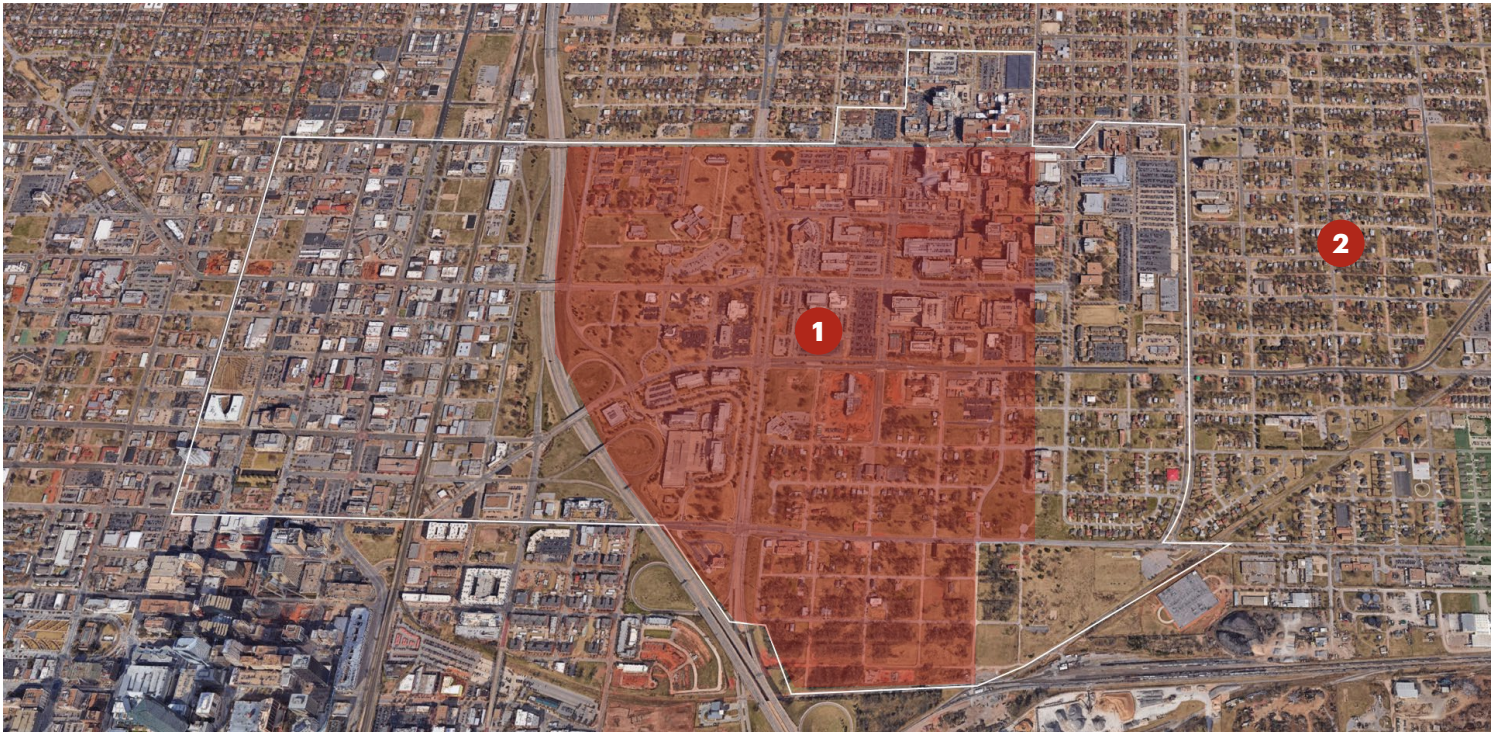
- Removing bureaucratic obstacles. Excessively arduous permitting processes, highly restrictive zoning and traffic engineering rules, and prohibitions on amenities like sidewalk cafés can hinder forward movement on an innovation district. By contrast, a "bureaucracy free" zone frees the public realm and the community to innovate.

2. Many cities have not leveraged publicly owned land or facilities to unlock the real potential of innovation districts.

In many American cities, government-owned property and facilities can be found in both nascent and maturing innovation districts. Many of these properties have not only failed to catalyze the growth of innovation districts, they have become barriers to development. In one city now brimming with innovation potential, city land found in the heart of its innovation quarter is being used to store unused city vehicles. Unfortunately, this exemplifies the norm rather than the exception.

To unlock these assets as a means of catalyzing growth, mayors and their administrations will need to play a central role in the process of:

- *Identifying and making transparent city ownership in innovation districts.* It is quite feasible for up to 10 separate ownership structures or agencies—such as school boards, fire and police departments, and other city agencies—to own property within the innovation district.⁴¹ Identifying and making ownership transparent is a crucial first step. “Siloed” government entities that often fail to share information can be nudged, if not cajoled, by mayors to offer up their ownership records.
- *Strategically engaging city government in a collective vision process.* Simply put, mayors have a critical role to play here. Encouraging government agencies to engage in a locally driven process might require some persuading. The concept is for governments to recognize the contribution their individual properties can play in strengthening a city’s overall competitiveness. Among other tools, mayors can use the capital



As part of an update to the Oklahoma Health Center Economic Development Project Plan, the Oklahoma City Council approved in 2016 a revised TIF district (1). Revenues from the TIF will be used to improve the connectivity to the adjacent low-income neighborhood (2)—both physically and economically. Photo credit: Google Earth.

budgeting process to establish funding priorities for city facilities which meet these broader objectives.

- *Identifying a process for reimagining city properties.* Cities can optimally leverage their land to allow important uses that strengthen innovation ecosystems but cannot pay market rents. These include maker spaces, public innovation centers, training and meeting space, affordable housing, and other spaces. The use of city land for these purposes is an especially valuable tool where the real estate market is not strong enough for the profit from conventional development to subsidize these important, but less profitable uses. The city can dispose of the land in the traditional fashion—through Requests for Proposals or Requests for Expressions of Interest—but strong consideration should be given to the city to retaining and ground leasing the land. Not only does this reduce the cost to the developer for delivering the project, it will contribute to the city’s portfolio—particularly helpful when the district’s collective assets appreciate over time.

3. Most emerging innovation districts have not fully embedded economic inclusion strategies and incentives into their development plans.

Cities need to be intentional about designing, aligning, and financing programs and incentives that connect local residents—particularly those from nearby neighborhoods—to district employment and business opportunities.

Mayors and their administrations could:

- *Catalyze anchor-based procurement initiatives.* Cities can be a central hub for organizing procurement demand from district anchor institutions and firms; then provide technical and financial assistance for minority- and woman-owned businesses to help them capture those opportunities. For example, Philadelphia’s Anchor Procurement Initiative—an effort of the city controller’s office—focuses on organizing joint demand from the city’s many anchor institutions and developing new sources of supply through providing technical assistance to local business to scale up to meet the demand. The combined purchasing power of multiple anchors not only increases the total dollar amount of goods and services purchased locally, but also simplifies and routinizes the process for firms to engage with multiple institutions. It also helps to ensure that local firms have a steady stream of business, enabling them to grow and ultimately create jobs.⁴²
- *Negotiate incentives tied to community benefits.* Financing or other incentives supporting innovation district development often include specific provisions designed to benefit the local community. One approach, particularly suited for hot markets (and described earlier in this section) is to engage the community from the outset to design a package that meets its needs. Doing so can help foster greater trust among developers, residents, and the city while ensuring that the benefits best serve the community’s interest. For example, as a part of the Hunter’s Point Shipyard and Candlestick Point project in San Francisco, developers pledged nearly \$36 million toward affordable housing and job training



Innovation districts, often anchored by universities, can lead efforts to strengthen community engagement and inclusion. "[M]y aspiration for Drexel University," said Fry, "is for it to be the most civically engaged university in the United States. Photo credit: Drexel University.

for local residents as a part of its Core Community Benefits Agreement with the city.⁴³

- *Use tax increment financing (TIF)—the use of municipal bonds to pay for improvements—with an emphasis on inclusion outcomes.* The establishment of the innovation district can build on a provision that earmarks some of the revenue generated for community benefits. For example, Oklahoma City's amended tax increment financing plan creates a \$52 million fund that includes \$18 million for enhanced education, working with city schools and the Metro Technology Center. Revenues are used to support residential and commercial activities in surrounding neighborhoods, several of which are very low-income, and to finance education, skills training, internship, and workforce development programs.⁴⁴

Section 8: Conclusion

Many American cities are riding a new wave of urban competitiveness. With our national and regional economies increasingly reliant on innovation, and with urban assets and amenities now revalued as the right platform for this growth, innovation districts can be a powerful economic strategy.

What is the role of mayors in advancing what is largely a hyper-local strategy—with anchor institutions, companies, civic organizations, and others at the helm? As expressed in different ways and through different roles described in the pages of this handbook, mayors of American cities have many vital roles to play:

- Shaping early conversations about the value and ideal location of an innovation district
- Using their pulpit to outline a vision of leveraging homegrown economic strengths into a more robust innovation play
- Serving as the chief spokesperson for the city—conveying the district’s distinctive assets to potential investors and companies outside the region.



Mayors Bill Peduto, Greg Fischer, and Jorge Elorza, with other participants of the innovation district working group, watch as a Carnegie Mellon University student interacts with a robot. Photo credit: Scott Goldsmith.

- **Reforming regulations or reimagining government properties as a means to unlock a district's real potential**

Ultimately, mayors will play a highly tailored role in advancing a district strategy in their cities. Some will drive the strategy from conception, serving as convener, champion, and catalyst to support and accelerate change. Other mayors will engage only when local efforts are stymied by city regulations. In either scenario, or with the range of possibilities in between, the contribution of mayors and their administrations can make all the difference.

References

Research on Innovation Districts

Research on the innovation district paradigm:

- Bruce Katz and Julie Wagner, *The Rise of Innovation Districts: A New Geography of Innovation in America* (Washington: Brookings Institution, 2014), www.brookings.edu/essay/rise-of-innovation-districts/.
- Bruce Katz, Jennifer S. Vey, and Julie Wagner, “One Year After: Observations on the Rise of Innovation Districts,” Brookings Institution, June 24, 2015, www.brookings.edu/research/one-year-after-observations-on-the-rise-of-innovation-districts/.
- Brooks Rainwater, “Cities as a Lab: Designing the Innovation Economy,” Meeting of the Minds, September 20 2013, meetingoftheminds.org/cities-lab-designing-innovation-economy-9757.

Bass research and strategy reports for U.S. innovation districts:

- Scott Andes, Jason Hachadorian, Bruce Katz, Anna Siprikova, Jennifer S. Vey, and Meg Walker, *Positioned for Growth: Advancing the Oklahoma City Innovation District* (Washington: Brookings Institution, 2017), www.brookings.edu/research/positioned-for-growth-advancing-the-oklahoma-city-innovation-district/.
- Scott Andes, Jason Hachadorian, Bruce Katz, and Jennifer S. Vey, *Connect to Compete: How the University City-Center City Innovation District Can Help Philadelphia Excel Globally and Serve Locally* (Washington: Brookings Institution, 2017), www.brookings.edu/research/connect-to-compete-philadelphia/.

Research on Innovation and the Intersection on Innovation and Place

- Scott Andes, *How Firms Learn: Industry Specific Strategies for Urban Economies* (Washington: Brookings Institution, 2016), www.brookings.edu/research/how-firms-learn-industry-specific-strategies-for-urban-economies/.
- Julie Wagner and Dan Watch, *Innovation Spaces: The New Design of Work* (Washington: Brookings Institution, 2017), www.brookings.edu/research/innovation-spaces-the-new-design-of-work/.
- Scott Andes and Bruce Katz, “Why Today’s Corporate Research Centers Need to Be in Cities,” *Harvard Business Review*, March 1, 2016, hbr.org/2016/03/why-todays-corporate-research-centers-need-to-be-in-cities.
- Scott Andes and Bruce Katz, “Technology will Create Tomorrow’s Global Cities,” Brookings Institution, September 14, 2016, www.brookings.edu/blog/metropolitan-revolution/2016/09/14/technology-will-create-tomorrows-global-cities/.

Research and Practice on Placemaking

- Project for Public Spaces, “Announcing the PPS ‘Lighter, Quicker, Cheaper’ Resource Page,” May 5, 2015, www.pps.org/blog/announcing-the-pps-lighter-quicker-cheaper-resource-site/.
- Project for Public Spaces, “The Lighter, Quicker, Cheaper Transformation of Public Spaces,” www.pps.org/reference/lighter-quicker-cheaper/.
- Project for Public Spaces, “Lighter, Quicker, Cheaper: A Low-Cost, High-Impact Approach,” www.pps.org/reference/lighter-quicker-cheaper-a-low-cost-high-impact-approach/.
- Project for Public Spaces, “The Power of 10+: Applying Placemaking at Every Scale,” www.pps.org/reference/the-power-of-10/.
- Project for Public Spaces, “Equity and Inclusion: Getting Down to the Heart of Placemaking,” www.pps.org/blog/equity-and-inclusion-getting-down-to-the-heart-of-placemaking/.
- Nate Storing and Meg Walker, “8 Placemaking Principles for Innovation Districts,” Project for Public Spaces, May 10, 2016, www.pps.org/blog/eight-placemaking-principles-for-innovation-districts/.
- Project for Public Spaces, “Placemaking 101,” www.pps.org/reference/reference-categories/placemaking-tools/.

Additional Resources Referenced in: Mayors as Conveners

- Hal Movius, “Building to Win: A Practitioner-Author’s Reflections,” Consensus Building Institute, www.cbuilding.org/tools/bpcs/building-win-practitionerauthor’s-reflections-0.
- Julie Wagner and Nate Storing, “So You Think You Have an Innovation District?” Brookings Institution, March 30, 2016, www.brookings.edu/blog/metropolitan-revolution/2016/03/30/so-you-

[think-you-have-an-innovation-district/](#). This blog post provides an overview on the process of conducting an audit.

- Bass research and strategy reports for U.S. innovation districts (listed earlier in this section under “Research on Innovation Districts”) also include detailed findings from an audit process.

Additional Resources Referenced in: Mayors as Champions

- Project for Public Spaces, “Lighter, Quicker, Cheaper: A Low-Cost, High-Impact Approach,” www.pps.org/reference/lighter-quicker-cheaper-a-low-cost-high-impact-approach/.
- Master plans or strategic plans referenced in this handbook that could be found online are included here:
 - Summary of the 22@Barcelona Plan: www.brookings.edu/wp-content/uploads/2016/07/06_barcelona_22_presentation.pdf
 - Cortex 3.0 Growth Plan (a later stage of the St Louis Cortex Innovation Community Master Plan), cortexstl.com/cortex-innovation-community-in-st-louis-unveils-cortex-3-0-growth-plan/
 - Providence Innovation & Design District: www.195district.com/_resources/common/userfiles/file/2016.1.11%20-%20I-195%20Final%20Report%2012PM.pdf
 - Research Triangle Park Master Plan: aws-master.s3.amazonaws.com/wp-content/uploads/2014/08/CONCISE-MASTER-PLAN.pdf

Additional Resources Referenced in: Mayors as Catalysts

- Hans Karssenbergh, Jeroen Laven, Meredith Glaser, and Mattijs van 't Hoff, editors, *The City at Eye Level: Lessons for Street Plinths* (Delft, The Netherlands: Eburon Academic Publishers, 2016), thecityateyelevel.files.wordpress.com/2016/02/ebook_the-city-at-eye-level_english.pdf.

- Form-Based Codes Institute, formbasedcodes.org/. This site offers information about how Form-Based Codes can strengthen quality place objectives.
- City of Alexandria, Va., *Eisenhower West: Small Area Plan* (2015), www.alexandriava.gov/uploadedFiles/planning/info/EisenhowerWest/EWSAPFinalReportLoRes120115.pdf.
- STIPO, *The City at Eye Level*, www.thecityateyelevel.com. This document describes the design features that are important for street vitality.
- Tracey Ross, “Eds, Meds, and the Feds: How the Federal Government Can Foster the Role of Anchor Institutions in Community Revitalization,” Center for American Progress, October 24, 2014, www.americanprogress.org/issues/poverty/reports/2014/10/24/97480/eds-meds-and-the-feds/.
- Hortencia Rodriguez, Dave Congdon, and Vanessa Ampelas, *The Development of Boston’s Innovation District: A Case Study of Cross-Sector Collaboration and Public Entrepreneurship* (New York: The Intersector Project, 2015) intersector.com/wp-content/uploads/2015/10/The-Development-of-Bostons-Innovation-District.pdf.

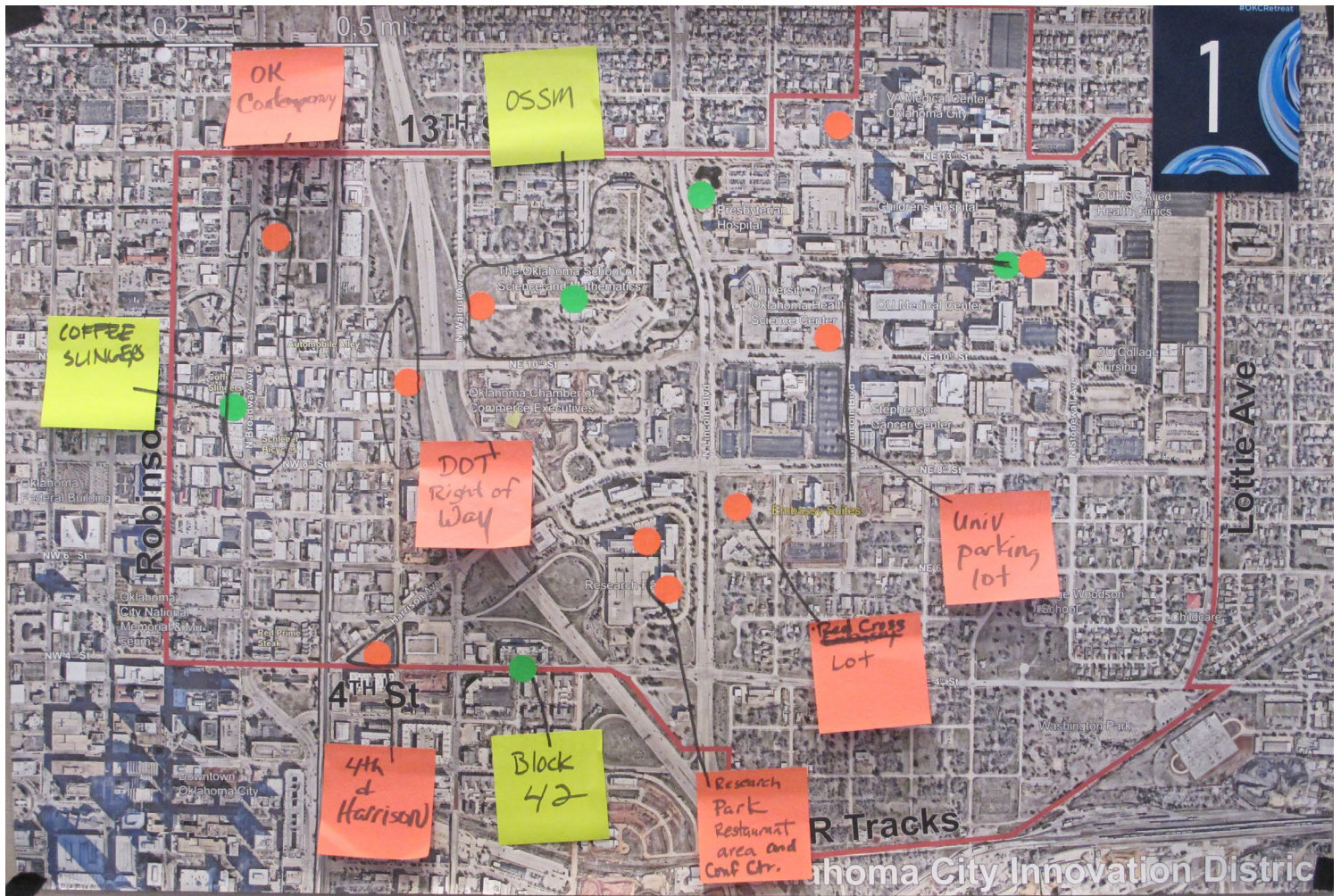
Appendix 1: Employing strategies to create great public spaces

As described in the “Mayor as Catalyst” section of this handbook, effective public spaces are essential to creating connected, inspiring, and welcoming innovation districts. The alternative—a barren public realm—mirrors the challenges found in remote science parks that isolate people and firms. If designed and programmed well, public spaces can be the connective tissue between people and firms, effectively serving as the heart of a healthy and vibrant innovation ecosystem.

This appendix offers greater specificity on the three strategies cities can use to make public spaces lively and active in districts.⁴⁵

1. Identifying new, active uses for existing public spaces and investing in new public spaces

Developed by the Project for Public Spaces as a means of evaluating and facilitating placemaking at multiple city scales, the Power of 10+ is a powerful tool for generating constructive conversations to identify targeted placemaking efforts. The idea behind the concept is that places thrive when users have a range of reasons—ten or more—to be there (see below). When ten or more such lively places cluster into a destination, they become more than the sum of their parts, shifting



A Power of 10+ exercise for the Oklahoma City innovation district, including great places (green) and places with potential (orange). Photo credit: Project for Public Spaces.

public perception of the city as a whole and increasing people’s attachment to their community.

This simple yet powerful idea provides the framework for a useful exercise to identify where a city should focus its placemaking efforts. A Power of 10+ workshop convenes a diverse range of community stakeholders, including municipal representatives, residents and workers, community groups, and city building professionals. Working in groups of 10 or fewer, participants affix color-coded dots to a map of the city (or district) to identify what they consider the best places (green), the most challenging places (red), and the places with the greatest opportunity for improvement (yellow), while keeping notes on why each one was selected. The process of classifying these places helps stakeholders think through the importance of creating substantive physical and social connections between existing spaces, the strategic creation of new places, and the energy that can

be generated through the creation of a network of destinations. By aggregating the results of this exercise, the city can quickly identify the community's existing place assets as well as city-owned lands or public spaces that city agencies could influence to become better-used places.

The city can use the insights from the Power of 10+ workshop to initiate a placemaking process. Whether beginning with an existing public space (like a park or a square) or underutilized city-owned lands (like a street, parking lot, or vacant building), a placemaking process can help city agencies better understand existing assets as well as current and potential users, and to generate a plan of action with community buy-in for moving forward.

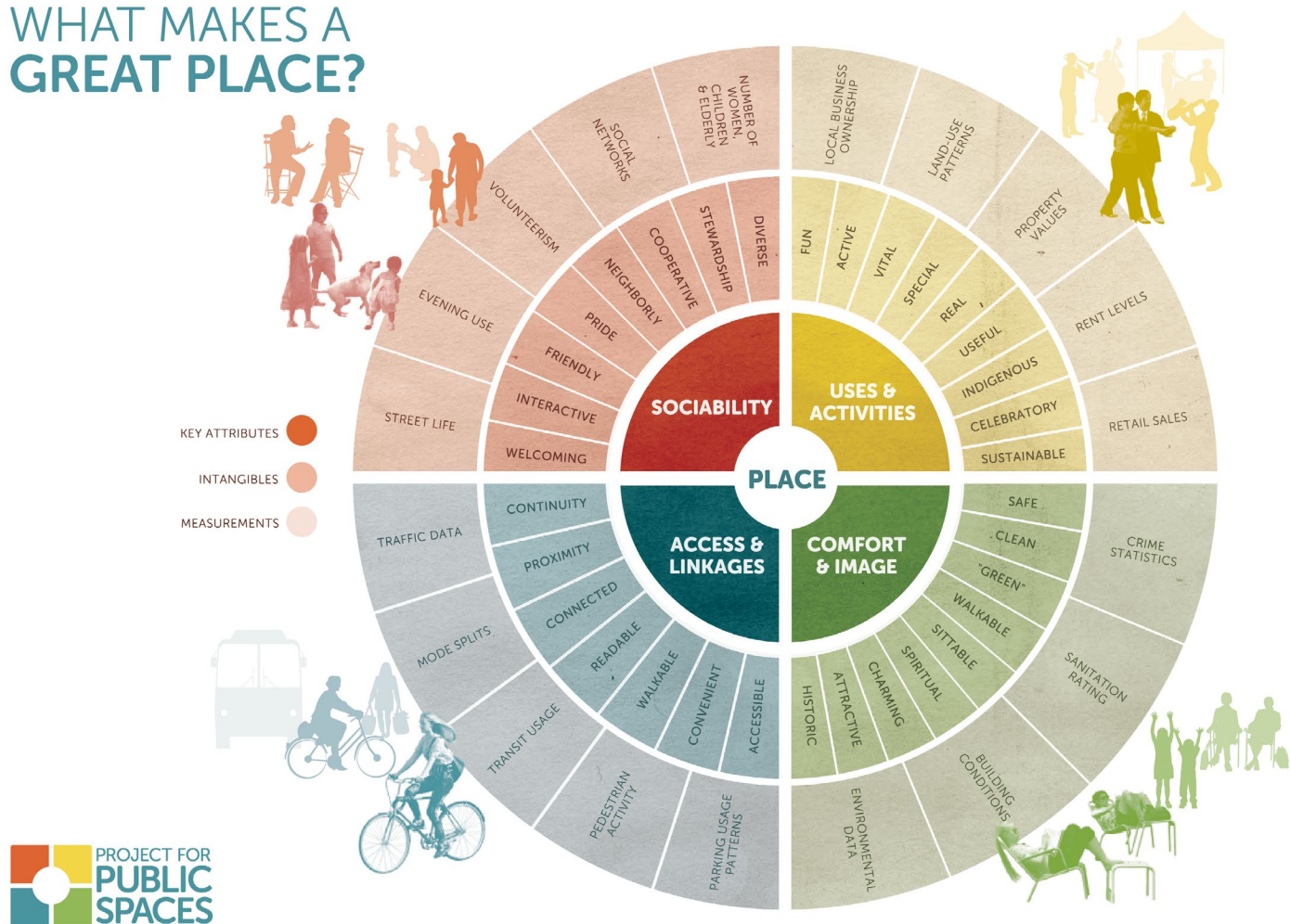
The placemaking process takes place during one or more community workshops. Much like the Power of 10+ exercise, the city should start by convening a diverse group of stakeholders, including representatives from relevant agencies, city building professionals, business owners and founders, nonprofit and institutional representatives, and nearby residents and workers.

In working with over 4,000 communities around the world, PPS has identified four key characteristics that make a place well-used and well-loved:

- It has a variety of uses and activities.
- It is physically and visually accessible and well connected to its surroundings.
- It is comfortable and is perceived to be clean, safe, welcoming, and unique.
- It is sociable—a place where you take friends and family, run into people you know, and meet new people.

After explaining these characteristics and pointing out examples of beloved places (local ones and global ones), stakeholders travel in small groups (10 or fewer) to the public spaces selected in the Power of 10+ exercise. There, individuals evaluate the space using the four characteristics described above as a framework by observing how people use the space and asking them questions about their use and perceptions of it. Upon returning to the workshop, each group

WHAT MAKES A GREAT PLACE?



The Place Diagram illustrates the four characteristics of successful public spaces, along with associated qualitative words that people often use to describe these places (inner ring), and quantitative metrics that can be used to measure these characteristics (outer ring). Photo credit: Project for Public Spaces.

discusses their findings, summarizes key issues, and brainstorms ideas to improve the performance of the space. The focus of this brainstorming session should be on “Lighter, Quicker, Cheaper” strategies that can be accomplished quickly and with minimal resources. If necessary, additional input can be collected through a variety of other strategies, including interviews and surveys with users on-site, focus groups on specific topics, or booths at local events and festivals.

For each public space, these findings can be synthesized into a vision for the place’s future use. This can take the form of a concept diagram, which illustrates the new uses that would animate the public space, and an activation plan, which lists all desired improvements along with

POWER OF 10

- 1 CENTER LAWN
- 2 TREE PLATFORM
- 3 BACKYARD LOUNGE
- 4 FOCAL POINT/ART
- 5 MONUMENT AREA
- 6 MONUMENT PARTERRES
- 7 FOOD KIOSK
- 8 PICNIC / KIOSK TERRACE
- 9 STATE CAPITOL MODEL
- 10 DOG WALK
- 11 GARDEN AREA
- 12 GARDEN FOCAL POINT
- 13 DINING TERRACES
- 14 BEER GARDEN
- 15 CO-WORK/STUDY HUB



A concept diagram illustrating the Power of 10+ at a micro-scale: This vision proposes more than ten distinct uses, supported by the necessary physical infrastructure. Photo credit: Project for Public Spaces.

the resources, time, and partners needed for implementation. The first items on the activation plan should be the easiest ones to accomplish. It is important at this point to build momentum by implementing these first items immediately, evaluating the results, and continuing down the list.

2. Creating a public/private place management entity

While cities direct significant time and resources to new projects and new facilities, the resources needed for place management—including the maintenance of public spaces—are commonly underestimated, if they are considered at all. For instance, when cities construct schools or recreation facilities, annual maintenance budgets are necessary to ensure that the facilities operate at a high level of efficiency and provide a satisfactory return on investment. Public spaces should be viewed in this way, too—although the programming and maintenance of these spaces can be led by entities other than city agencies.

Just as city builders overestimate the potential of expensive design interventions to transform how people use a space, cities

often underestimate the importance of managing places. Place management organizations—such as business improvement districts, community benefit districts, and friends of parks groups—are the backbone of placemaking as an ongoing strategy of public space improvement. In the cities where placemaking is highly valued, the responsibilities of these organizations extend beyond keeping streets clean and safe to include events and programming; Lighter, Quicker, Cheaper design interventions; and data collection about foot traffic and how a public space is used. Without their constant presence, the iterative process of community engagement, experimentation, and observation breaks down—making it likely that a space will fail to keep up with community needs and opportunities.

Place management organizations work best as independent nonprofit organizations. This does not, however, mean the city has no role to play. Municipal governments can—and should—actively support place management organizations by initiating placemaking campaigns and processes that galvanize community interest in a space and, of course, by providing limited but consistent operational funding for staff and improvements.

Philadelphia's University City District (UCD) is one of the best examples of a place management organization operating in an innovation district. Founded in 1997 by neighbors, small businesses, and district anchors, including the University of Pennsylvania, Drexel University, and Amtrak, UCD today is responsible for far more than just maintenance and public safety. UCD assists in economic development and innovation strategies; it operates the West Philadelphia Skills Initiative, a pioneering program that connects the innovation economy to local residents through training and recruitment; it works with neighborhood groups to produce community programs, such as a composting facility; and it improves public spaces throughout the district, including The Porch at 30th Street Station, one of the best-used public spaces in the city. UCD receives a limited amount of public funding, which it leverages into far more giving from institutions, foundations, corporations, small businesses, and individuals.

3. Removing bureaucratic obstacles

Through the placemaking process, can often realize that the strategies that have the greatest impact on the usage of a public space are often surprisingly inexpensive, impermanent, and quickly implemented—Lighter, Quicker, Cheaper. Much can be accomplished without significant investment, extensive studies or plans, or professional design and construction. However, when it comes to getting more done with less in public space, the greatest barrier is often bureaucracy.

This does not mean that city agencies should dismantle regulations willy-nilly. Rather, they should get involved in the placemaking process—often as stakeholders and facilitators rather than leaders. This experience will help them identify which permitting processes, fees, land-use restrictions, traffic engineering conventions, and other municipal policies are burdensome. Common examples include restrictions on food trucks, sidewalk cafés, signage, and street vending. Mayors should encourage agencies to find creative solutions to reducing or removing these burdens. Agencies have the power to reexamine these restrictions, which can severely limit the use of public space, and they should also look at how other cities have dealt with similar issues.

One simple way to test whether a regulation needs to be removed or reformed is to create a temporary “bureaucracy-free” zone. For a period of six months or so, the city allows a place management entity to experiment with improvements and uses in a limited geographic area, regulating the process using discretion rather than current rules. As the use of the space changes, the city observes whether the same negative impacts arise that the regulations were originally intended to mitigate. If by the end of the trial period, no negative impacts (or different negative impacts) have been identified, the city should rewrite the regulations accordingly. This simple process can help municipal agencies to respond to changing circumstances in public spaces, while leaving room for innovative uses that current regulatory systems have not anticipated.

Appendix 2: Paying for it all—financial incentives and sources to help districts succeed

Research reveals a broad range of incentives that cities have provided, or can avail themselves of, to foster or enhance innovation districts. Clearly, a substantial part of the investment needed to create a successful innovation district must come from the private sector, as for-profit developers and nonprofit institutions tap sources of debt, equity, and philanthropic capital. However, the “secret sauce” of great innovation districts—the lively and attractive public realm, the public innovation centers, and related programs—are not likely to be recipients of traditional private finance. This appendix explores financial and other incentives that cities can provide, particularly to address these more unconventional programs.

Municipal bonds

General obligation bonds (GO) or special instrumentalities, such as industrial revenue bonds, are the most widely used tool for infrastructure investment. These tax-exempt financial instruments are used to finance roads, public facilities, and other capital expenses, making use of the city’s ability to borrow at relatively low rates. For many cities, however, caps on borrowing authority, combined with demands for maintenance and replacement of older infrastructure, can limit the availability of this tool, particularly if the proposed

infrastructure investment is designated to benefit an innovation district in a relatively small area of the city.

Tax increment financing

Most often used to finance infrastructure or other capital-intensive improvements in a defined area, tax increment financing (TIF) allows the city (generally through a TIF entity) to borrow funds to pay for improvements while also freezing tax revenues (usually property tax revenues) at their existing level. As the district begins to generate increased tax revenue, any increases over existing tax yields are earmarked to repay the bonds. In most cases, TIF funding requests must meet a “but for” test—that is, the developer requesting the funds must demonstrate that, if not for the TIF funds, it would be extremely difficult or impossible for key parts of the innovation district to proceed.

In practice, there are a number of variations in how TIF operates. St. Louis, for example, after providing limited funding for infrastructure in a particular project, uses the balance of the increment during the remainder of the defined period to provide for other improvements.⁴⁶ In Oklahoma City, a TIF is being used to provide new infrastructure, replace obsolete infrastructure, and rehabilitate existing properties deemed worth saving. Some tax increment is reserved for job training and educational improvements.⁴⁷

Public/private partnerships

Public/private partnerships (P3s) are an increasingly popular financing mechanism. P3s rely on private firms to finance and often provide the infrastructure, with the commitment of the public sector to pay off the private investment through fees, typically through some type of user charge. The most common type of P3s involves developing city-owned (or anchor institution-owned) land. The private sector provides the financial capital and generally implements the public improvement. The public sector might contribute an asset, such as city land, as its part of the partnership, or it may agree to earmark revenues resulting from the project to repay the private partner’s investment and profit.

The advantage of both TIFs and P3s is that the burden of repayment falls upon the beneficiaries of the investment. The disadvantage is that they entail fairly steep “soft costs” for consultant studies, legal and accounting fees, etc., and, depending on the accounting practices of the municipality, they may count against the city’s debt cap. In fact, there is a trade-off here: To the extent that investors feel that the borrowing is backed by the full faith and credit of the municipality, the loan interest rates will be lower; but the bonds are more likely to be viewed by rating agencies as increasing the risk to the city’s credit rating, which in turn can either bump up against the debt cap or increase the cost of borrowing.

City capital budgets

Every city has a capital budget, usually covering a period of at least five years, which identifies necessary public facilities and the financing tools to pay for them. City capital investment is a potentially overlooked resource for innovation districts, particularly with respect to the co-location of facilities. For example, if the city has identified the need for a new or expanded library in proximity to the district, a maker center or public co-working space could be incorporated into the library at little or no additional expense. In Washington, D.C., the main downtown library (currently closed for renovations) incorporated 17,000 square feet of space dubbed the Digital Commons that includes public-use computers, a 3D printer, an Espresso book publishing printer, and large and small conference rooms. The conference rooms are offered for free to those who agree to provide a lecture on some aspect of tech or provide technical assistance.

City-owned land

City-owned land can be an extremely valuable asset to make the district work as a place, if there is an available parcel located within or proximate to the district. Optimally, the city can leverage its land to establish catalytic uses that cannot pay market rents, such as maker spaces, public innovation centers, training and meeting spaces, affordable housing, and “third places” or open spaces, which are particularly desirable for young tech employees compelled to rent micro-units or share spaces to keep monthly rent low.

A city can simply give the land to a developer or nonprofit to provide the desired facilities, but it can also follow more traditional approaches—approaches that are less likely to be viewed as favoritism or a misuse of city resources. The city can issue a Request for Expressions of Interest to solicit best thinking for the use of the space, and then request a best and final offer for those ideas it deems most desirable. If the city has a definite use concept in mind, it can either issue a Request for Proposals or provide the desired structure as a city-owned and constructed facility. The Texas Medical Center innovation district in Houston traces its roots to 1943, when the city donated 134 acres of land adjacent to Hermann Hospital. The medical center subsequently leveraged this donation into more than a thousand acres of research and health care facilities, with numerous spin-off tech start-ups.⁴⁸

City officials should not overlook the potential to use city-owned rights-of-way within or adjacent to innovation districts to provide space for public activities. Even if the city does not have a vacant parcel, closing streets or alleys on a temporary or permanent basis can provide open space or areas for vending, food trucks, or markets. Another option, if the city's particular right-of-way is not located in the right place, is to swap with property owners who have vacant land where the city wants to provide amenities.

Tax abatements

Tax abatements are commonly used to reduce land prices for a purpose that contributes community benefits, particularly affordable housing. They are of somewhat limited value for innovation districts anchored by “eds and meds,” since most nonprofit education and medical organizations are tax exempt, especially for sales and property taxes. For private, for-profit developers and employers, however, tax abatements are very valuable. Abatements can also extend to deed and recordation taxes, personal property taxes, franchise taxes, and sales taxes. They can be offered broadly, for any private buildings established in the district, or targeted to specific uses or buildings. For example, in Boston the city government provided tax abatements for all the uses in District Hall except for the restaurant, because it was perceived as likely to be more profitable

and thus able to pay property tax more easily.⁴⁹

Credit enhancement

Developers, particularly those who serve disadvantaged communities, whether nonprofit or for-profit, may have a difficult time finding lenders, especially if the development includes a large public benefit component. Even established developers may have difficulty if the proposed facility, such as an innovation center, is seen as novel and risky financially. In these instances, cities can provide a big boost by offering financial backing to the developer, generally by providing a loan guarantee, which makes the lender feel more secure in its investment.

In the past, cities have used the U.S. Department of Housing and Urban Development's Section 108 program to use their anticipated Community Development Block Grant (CDBG) fund entitlements as collateral for a loan guarantee. At this time, the future viability of that program is not certain. But even if the CDBG program is discontinued, the city could either utilize capital funds that are awaiting use for a public project that has not yet begun or establish a loan guarantee fund from capital or operating funds. So long as the city is careful in its advance project evaluation and somewhat conservative in assessing its financial position, the risk to the city's funding is minimal, and the loan guarantee leverages substantial investment capital without a direct expenditure of city funds. This can make the difference in the viability of an innovation district project, and also allow the developer to access funds at lower interest rates and fees.⁵⁰

Federal sources

RRIF: Railroad Rehabilitation and Improvement Financing (RRIF) is a federal financial source adjacent to rail stations or transportation facilities. It can be used to finance private development with loans up to 35 years at 2.9 percent. The loans can provide construction, takeout and permanent financing at a 75 percent loan to value ratio for private development and 100 percent of infrastructure costs. Repayment terms can be quite flexible.⁵¹ RRIF was successfully used at Denver's Union Station to make improvements to the train station as well as

significantly redevelop the surrounding area. Amtrak has identified RRIF as a potential funding source to support upgrades to 30th Street Station, which lies at the heart of the Philadelphia innovation district.

TIFIA: The Transportation Infrastructure Finance and Innovation Act (TIFIA) is intended to leverage limited federal resources and stimulate capital market investment in transportation infrastructure by providing credit assistance in the form of direct loans, loan guarantees, and standby lines of credit (rather than grants) to projects of national or regional significance. TIFIA is also very flexible in terms of the range of investments it can fund, including parking garages.⁵²

The Anne T. and Robert M. Bass Initiative on Innovation and Placemaking

The Anne T. and Robert M. Bass Initiative on Innovation and Placemaking is a collaboration between the Brookings Institution and Project for Public Spaces to support a city-driven and place-led world. Using research, on-the-ground projects, and analytic and policy tools, the initiative aims to catalyze a new form of city building that fosters cross-disciplinary approaches to urban growth and development.

The Anne T. and Robert M. Bass Initiative on Innovation and Placemaking is part of the Brookings Institution's Centennial Scholar Initiative. This broader initiative cultivates a new style of scholarship at Brookings, fostering work that is cross-program, interdisciplinary, international, and intensely focused on impact.

About Brookings

The Brookings Institution is a nonprofit organization devoted to independent research and policy solutions. Its mission is to conduct high-quality, independent research and, based on that research, to provide innovative, practical recommendations for policymakers and the public. The conclusions and recommendations of any Brookings publication are solely those of its authors, and do not reflect the views of the Institution, its management, or its other scholars. Brookings is committed to quality, independence, and impact in all of its work. Activities supported by its donors reflect this commitment.

About Project for Public Spaces

Project for Public Spaces Inc. (PPS) is a nonprofit planning and design organization that is dedicated to advancing the comfort and attractiveness as well as the social, cultural, and economic vitality of public spaces. Founded in 1975, PPS has helped over 4,000 communities, large and small, grow their public spaces into vital community places complete with programs, uses, and people-friendly settings that highlight local assets, spur rejuvenation, and serve common needs. Driv-

ing these results is a unique community-led process that puts residents and stakeholders at the heart of the planning process by using structured observations, surveys, focus groups, and stakeholder interviews. PPS's pioneering "Placemaking" approach is grounded in the basic premise that successful public spaces should be lively, safe, and distinctive places that help communities flourish.

For more information, contact Julie Wagner at jwagner@brookings.edu

Acknowledgements

Julie Wagner, nonresident senior fellow at the Brookings Institution, is the lead author of this handbook. Contributing authors are Steve Davies, executive vice president, and Nate Storning, communications associate, at Project for Public Spaces, and Jennifer Vey, senior fellow, at Brookings. All lead and/or manage various aspects of the Anne T. and Robert M. Bass Initiative on Innovation and Placemaking.

The Bass Initiative team would like to thank the U.S. Conference of Mayors for the opportunity to explore the rise of innovation districts. We are especially grateful to Oklahoma City Mayor Mick Cornett for his leadership of the Conference over the last year as well as Louisville Mayor Greg Fischer for his engagement in and support of the Council on Metro Economies and the New America City: Working Group on Innovation and Placemaking. Thanks also to Dave Gatton for being a fellow traveler over the past year.

The Bass team is indebted to Pittsburgh Mayor William Peduto and St. Louis mayors Francis Slay and Lyda Krewson for hosting the two study tours during the past year. The lessons learned during these trips were vital to the production of this handbook.

We are greatly appreciative of the following subject matter experts whose interviews contributed to this handbook: Steve Andrews, senior policy advisor in the Mayor's Office of Economic Development, City of Los Angeles; Ann Coulter, strategic planning consultant for the City of Chattanooga, Tenn.; Ken Hays, president and CEO of the Enterprise Center in Chattanooga; Mark Huang, director of economic

development for the City of Providence, R.I.; Dennis Lower, president and CEO, Cortex Innovation Community in St. Louis; Emily Vander Does, business analyst in the Office of Planning and Development, City of Providence; and Mary Jo Waits, consultant, Phoenix Innovation District.

We would also like to acknowledge two standout contributors to this handbook. Ellen McCarthy, urban planning expert recognized nationally for her work in zoning, who authored the sections pertaining to zoning, other land regulations, and finance. And Susan Kellam, a dedicated word sharpener, who skillfully refined our thoughts for busy mayors and government officials.

Finally, we are grateful for the individual contributions of several Bass team members, including Scott Andes, Zoe Covello, Jason Hachadorian, Bruce Katz, Ellen Ochs, and Grace Palmer at Brookings; and Fred Kent and Ethan Kent at Project for Public Spaces. We extend a particularly warm thanks to Kristen Belleisle for keeping us all on track and paying attention to the details.

Support for this work was generously funded by Anne T. and Robert M. Bass.

The views expressed in this report are those of its authors and do not represent the views of the donors, their officers, or employees.

Endnotes

- 1 Anchor institutions are research universities and research-oriented medical hospitals with extensive R&D.
- 2 Bruce Katz and Julie Wagner, *The Rise of Innovation Districts: A New Geography of Innovation in America* (Washington: Brookings Institution, 2014), www.brookings.edu/essay/rise-of-innovation-districts/.
- 3 Brookings research found that some innovation districts organize their assets into two categories: hard factors and soft factors. Hard factors are defined colloquially as the "hard stuff," such as the infrastructure and the physical structure of buildings that create the compact urban form. Soft factors are the "soft stuff," such as firms, people, and the important connections between them. We broke these two factors apart into economic, physical, and networking assets to enunciate the range of disciplines at play.
- 4 Jonathan Rothwell, *The Hidden STEM Economy* (Washington: Brookings Institution, 2013), www.brookings.edu/research/the-hidden-stem-economy/.
- 5 This research includes Mary Disis and John Slattery, "The Road We Must Take: Multidisciplinary Team Science," *Science Translational Medicine* 2, no. 22 (2010), pp. 22cm9, <http://stm.sciencemag.org/content/2/22/22cm9.full>; Stefan Wuchty, Benjamin Jones, and Brian Uzzi, "The Increasing Dominance of Teams in Production of Knowledge," *Science* 316, no. 5827 (2007), pp. 1036-39, science.sciencemag.org/content/316/5827/1036.
- 6 Henry Chesbrough, "The Era of Open Innovation," *MIT Sloan Management Review* 44, no. 3 (2003), pp. 35-41, sloanreview.mit.edu/article/the-era-of-open-innovation/.
- 7 Urban Land Institute, "America in 2013: A ULI Survey of Views on Housing, Transportation, and Community" (2013); Arthur C. Nelson, *Reshaping Metropolitan America: Development Trends and Opportunities to 2030*, 2d ed. (Island Press, 2013).
- 8 Scott Andes and Bruce Katz, "Why Today's Corporate Research Centers Need to Be in Cities," *Harvard Business Review*, March 1, 2016, hbr.org/2016/03/why-todays-corporate-research-centers-need-to-be-in-cities.
- 9 Mel Meléndez, "ASU Goes Downtown: New Campus to Alter Character, Landscape of Area," *Arizona Republic*, August 18, 2006, archive.azcentral.com/specials/special33/articles/0818ext-asu0818Z3.html.
- 10 This overview was developed drawing on personal communications with Mary Jo Waits, consultant, Phoenix Innovation District, May 8, 2017. The City of Phoenix provided additional comments on May 17, 2016.
- 11 University of Arizona, "Economic Impact of the University of Arizona College of Medicine–Phoenix/Health Services," December 2014, cdn.uanews.arizona.edu/s3fs-public/UA_COMP_EIR_Infographic.pdf.
- 12 Bruce Katz and Mark Muro, "Rhode Island Innovates: A Competitive Strategy for the Ocean State," Brookings Institution, January 19, 2016, www.brookings.edu/research/rhode-island-innovates-a-competitive-strategy-for-the-ocean-state/.
- 13 This overview was developed drawing on personal communications with Mark Huang, director of economic development, and Emily Vander Does, business analyst in the Office of Planning and Development, City of Providence, R.I., May 10, 2017.
- 14 Hal Movius, "Building to Win: A Practitioner-Author's Reflections" (Cambridge, Mass.: Consensus Building Institute), www.cbuilt.org/tools/bpcs/building-win-practitionerauthor's-reflections-0.
- 15 In some settings, this report is often released to local stakeholders (and in these cases, names and confidential information should not be included) to help in later conversations. Mayors and their teams should determine what makes the most sense given their local context.

16 Personal communications with Mark Huang, director of economic development, and Emily Vander Does, business analyst in the Office of Planning and Development, City of Providence, R.I., May 10, 2017; personal communications with Mary Jo Waits, advisor, Arizona State University, May 8, 2017.

17 Thomas M. Menino, "Inaugural Address," Boston, Mass., January 4, 2010, www.cityofboston.gov/TridionImages/2010%20Thomas%20M%20%20Menino%20Inaugural%20final_tcm1-4838.pdf.

18 Jose Gomez and Eugeni Madueño, "An Interview with Joan Clos, Mayor of Barcelona," *Barcelona Metropolis Mediterrania* 44 (2004), www.bcn.cat/publicacions/bmm/44/ang_11.htm.

19 Andy Berke, "State of the City Address," Chattanooga, Tenn., April 21, 2014, www.chattanooga.gov/mayors-office/speeches/state-of-the-city-2014.

20 These five districts are stellar examples of the deliberate actions various actors undertook to establish innovation districts in their cities. Angelo Battaglia and Diane-Gabrielle Tremblay describe how 22@Barcelona serves as a model of urban regeneration and economic revitalization (including for Montreal) and highlight the role of decisionmakers surrounding the governance, economics, and inclusion policies of 22@. See Angelo Battaglia and Diane-Gabrielle Tremblay, "22@ and the Innovation District in Barcelona and Montreal: A Process of Clustering Development between Urban Regeneration and Economic Competitiveness," *Urban Studies Research* 2011 (2011), www.hindawi.com/journals/usr/2011/568159/.

In St. Louis, the evolution of the Cortex Innovation Community is documented in series of articles by Mary Mack at EQ. To read Mack's articles, see chapter 1, eqstl.com/conceiving-cortex-cortex-special-feature-chapter-1-2000-2002/ (February 27, 2017); chapter 2, eqstl.com/creation-cortex-cortex-special-feature-chapter-2-2002-2009/ (February 28, 2017); chapter 3, [\[chapter-3-2010-2016/\]\(http://eqstl.com/cortex-shifts-focus-cortex-special-feature-chapter-3-2010-2016/\) \(March 1, 2017\); and chapter 4, \[eqstl.com/cortex-looks-ahead-cortex-special-feature-chapter-4-2017-beyond/\]\(http://eqstl.com/cortex-looks-ahead-cortex-special-feature-chapter-4-2017-beyond/\) \(March 2, 2017\). Cortex is also described throughout the 2014 Brookings report "The Rise of Innovation Districts: A New Geography of Innovation in America." <https://www.brookings.edu/wp-content/uploads/2016/07/InnovationDistricts1.pdf>](http://eqstl.com/cortex-shifts-focus-cortex-special-feature-</p></div><div data-bbox=)

In 2013, Rhode Island's I-195 Redevelopment Commission took possession of 22 parcels of land to be turned into an innovation district that would generate job growth and encourage cross-disciplinary interaction between the state's seven growth industries. In 2016, the commission released a report that laid out the vision and goals of the Providence Innovation and Design District. To read the report, see "Providence Innovation and Design District," January 2016, www.195district.com/_resources/common/userfiles/file/2016.1.11%20-%20I-195%20Final%20Report%2012PM.pdf.

Over the last 18 months, Brookings and PPS conducted a comprehensive analysis of the strengths and weaknesses of the Oklahoma City innovation district. The report, published in April 2017, makes recommendations that Oklahoma City can undertake to better leverage their assets. See *Positioned for Growth: Advancing the Oklahoma City Innovation District*, www.brookings.edu/wp-content/uploads/2017/04/csi_17042017_okc_report.pdf.

North Carolina's Research Triangle Park (RTP) is one of the oldest innovation districts in the United States; over sixty years ago, it transformed 7,000 acres of forest into a leading space for research and technological discovery. In 2011, the leaders of RTP came together to propose a structural change that would take the park into the 21st century. Learn more about RTP's vision here: "Research Triangle Park Master Plan," November 2011, aws-master.s3.amazonaws.com/wp-content/uploads/2014/08/CONCISE-MASTER-PLAN.pdf.

21 Project for Public Spaces, "The Lighter, Quicker, Cheaper Transformation of Public Spaces," www.pps.org/reference/lighter-quicker-cheaper/.

22 This overview was developed drawing on personal communications with Dennis Lower, president & CEO, Cortex Innovation Community, May 2, 2017.

23 Project for Public Spaces, "The Lighter, Quicker, Cheaper Transformation of Public Spaces."

24 Drawing from personal communications with James Patterson, Director of Marketing and Communications at Wake Forest Innovations and Wake Forest Innovation Quarter, on May 5, 2017, the City of Winston Salem regularly engages with the Wake Forest Innovation Quarter on various local programs in an effort to engage members of the community. Some examples of the partnership between the City and the Innovation Quarter include: Holding various mixers to promote minority and women's business enterprises; different walk and bike rides for families to come out for a day of walking and biking around the Innovation Quarter; and the Venture Innovation Café's Annual Entrepreneurship Mixer, which allows participants to learn more about organizations in the area who are committed to local small businesses. These activities are all considered Lighter Quicker Cheaper activities.

25 Personal communications with Lindsey Yarborough, senior manager of community relations, Wake Forest Innovation Quarter, February 18, 2016.

26 "Chattanooga Is First Mid-Size City to Designate an Innovation District; Edney Building to Be Headquarters," *Chattanoogan.com*, January 13, 2014, www.chattanoogan.com/2015/1/13/291936/Chattanooga-Is-First-Mid-Size-City-To.aspx.

27 See Keith Schneider, "Chattanooga's Innovation District Beckons to Young Entrepreneurs," *New York Times*, August 16, 2016, www.nytimes.com/2016/08/17/realestate/commercial/chattanoogas-innovation-district-beckons-to-young-entrepreneurs.html; Polina Marinova, "One of America's Most Startup-Friendly Cities Is in Tennessee," *Fortune*, May 8, 2017, www.fortune.com/2017/05/08/tech-startup-innovation-chattanooga-tennessee/.

28 City of Chattanooga, Tenn., "Chattanooga Forward: Technology, Gig, and Entrepreneurship Task Force," March 19, 2014, www.chattanooga.gov/images/Mayor_Images/Chattanooga_Forward_Working_report.pdf.

29 The Enterprise Center, "Request for Proposals: The Edney Building 110 Market Street, Chattanooga, TN 37402," January 12, 2015, static1.squarespace.com/static/54a0561ae4b0d1a214afcf82/t/54b6ab69e4b0b6572f717ac8/1421257577834/Enterprise+Center+Request+for+Proposals+1.12.2015.pdf.

30 This overview was developed drawing on personal communications with Ken Hays, president and CEO, The Enterprise Center, and Ann Coulter, strategic planning consultant, May 4, 2017.

31 Read about how innovation districts enhance economic and job growth in this detailed report by Mark Muro and others, *America's Advanced Industries: What They Are, Where They Are, and Why They Matter* (Washington: Brookings Institution: 2015), www.brookings.edu/wp-content/uploads/2015/02/AdvancedIndustry_FinalFeb2lores-1.pdf.

32 For the last 18 months, Brookings and PPS have conducted in-depth analysis on both Oklahoma City and Philadelphia. To read more about these cities and their innovation capabilities, see these reports on the Brookings website: *Connect to Compete: How the University City-Center City Innovation District Can Help Philadelphia Excel Globally and Serve Locally* (2017), www.brookings.edu/research/connect-to-compete-philadelphia/; and *Positioned for Growth: Advancing the Oklahoma City Innovation District* (2017), www.brookings.edu/research/positioned-for-growth-advancing-the-oklahoma-city-innovation-district/.

33 David Zuckerman and Katie Parker, *Inclusive, Local Hiring: Building the Pipeline to a Health Community* (Washington: Democracy Collaborative, 2016), hospitaltoolkits.org/workforce/inclusive-local-hiring/.

- 34 This overview was developed drawing on personal communications with Steve Andrews, senior policy advisor, Mayor's Office of Economic Development, City of Los Angeles, April 27, 2017.
- 35 District Hall is a new type of innovation space. More information about this space can be found at www.districthallboston.org/about/.
- 36 It is also worth noting that in addition to tying FARs to activation of ground level spaces, the city used parking and transportation demand management (PTDM) plans to incentivize higher density development by allowing developers to increase FARs in exchange for reducing land dedicated to parking.
- 37 Cecilia Kang, "No Drive? Bring It On. How Pittsburgh Became Uber's Testing Ground," *New York Times*, September 10, 2016, www.nytimes.com/2016/09/11/technology/no-driver-bring-it-on-how-pittsburgh-became-ubers-testing-ground.html.
- 38 Ibid
- 39 Ibid
- 40 Cecilia Kang, "Pittsburgh Welcomed Uber's Driverless Car Experiment. Not Anymore," *New York Times*, May 21, 2017, www.nytimes.com/2017/05/21/technology/pittsburgh-ubers-driverless-car-experiment.html.
- 41 In his analysis of U.S. innovation districts, Bruce Katz, Centennial Scholar at the Brookings Institution, has identified fragmented ownership as a particular challenge when determining how to leverage city assets.
- 42 For more information, see the Office of the Controller's report, "Anchoring Our Local Economy: Developing a Local Procurement Strategy for Philadelphia's Higher Education and Healthcare Institutions," April 2015, www.philadelphiacontroller.org/publications/audits/AnchorInitiative_ManufacturingJobsRoadmap_2015.pdf.
- 43 "Core Community Benefits Agreement: Hunters Point Shipyard/Candlestick Point Integrated Development Project," May 30, 2008, d10benefits.files.wordpress.com/2013/01/lennar_ad10_ccba_executed-1.pdf.
- 44 Scott Andes and others, *Positioned for Growth: Advancing the Oklahoma City Innovation District* (Washington: Brookings Institution, 2017), www.brookings.edu/research/positioned-for-growth-advancing-the-oklahoma-city-innovation-district/.
- 45 For more on the evaluation and community-led improvement of public space, see Kathleen Madden, *How to Turn a Place Around: A Handbook for Creating Successful Public Spaces* (New York: Project for Public Spaces, 2000).
- 46 Personal communication with Dennis Lower, president & CEO, Cortex Innovation Community, May 2, 2017.
- 47 City of Oklahoma City, "Proposed Oklahoma Regional Innovation District Project Plan: Executive Summary," November 17, 2016, www.okc.gov/home/showdocument?id=6091.
- 48 Texas Medical Center, "The History of Texas Medical Center," August 2008, www.tmc.edu/wp-content/uploads/2016/08/TMCHistoryTimelinePDF_080916_v2.pdf.
- 49 Hortencia Rodriguez, Dave Congdon, and Vanessa Ampelas, *The Development of Boston's Innovation District: A Case Study of Cross-Sector Collaboration and Public Entrepreneurship* (New York: The Intersector Project, 2015) intersector.com/wpcontent/uploads/2015/10/The-Development-of-Bostons-Innovation-District.pdf.
- 50 U.S. Department of Housing and Urban Development, "Community Development Block Grants (Section 108 Loan Guarantee)," portal.hud.gov/hudportal/HUD?src=/hudprograms/section108.
- 51 Federal Railroad Administration, "Railroad Rehabilitation and Improvement Financing (RRIF) Program Fact Sheet," July 2015, www.fra.dot.gov/eLib/Details/LO4476.

52 U.S. Department of Transportation, “Transportation Infrastructure Finance and Innovation Act Overview,” www.transportation.gov/buildamerica/programs-services/tifia/overview.

B | Anne T. and Robert M.
**Bass Initiative on
Innovation and Placemaking**
at BROOKINGS

BROOKINGS

The Brookings Institution
1775 Massachusetts Ave., NW
Washington, DC 20036
202 797 6000



Project for Public Spaces
419 Lafayette Street,
Seventh Floor
New York, NY 10003

