

# Innovation Zones:

## How the Federal Government Can Create Thriving, Place-Based Innovation Ecosystems



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## Executive Summary

**The United States is currently facing four epochal and compounding crises: a public health emergency, an economic downturn, climate change, and a reckoning with systemic racism.**

Addressing these challenges will require a new approach to investing in our communities that stimulates more diverse economic growth, promotes social equity, and taps into knowledge creation that solves, rather than compounds, our twin health and environmental crises.

**Federal investment in place-based innovation ecosystems – more commonly known as innovation districts – provides a significant opportunity to address these challenges.** The antithesis of monocultural research parks, innovation districts combine academic institutions, corporate R&D, startups, and entrepreneurial support organizations in dense, mixed-use neighborhoods that promote creativity and collaboration. Some innovation districts have also begun to build stronger pathways to the knowledge economy for marginalized populations through strategic workforce and educational partnerships, though more work remains to be done. Experts estimate that there are now approximately thirty mature innovation districts around the country, in both booming high-tech hubs (Boston, San Francisco) and post-industrial “legacy” cities (Pittsburgh, St. Louis).<sup>1</sup>

**To date, the growth of innovation districts has occurred without deliberate federal involvement.** Instead, the development of these knowledge-intensive neighborhoods has mostly been spearheaded by cross-sectoral coalitions of local leaders, including mayors, presidents of colleges, universities, and medical institutions, captains of industry, and philanthropists. The federal government’s role has mostly been relegated to that of passive (and sometimes unknowing) investor via its R&D funding and entrepreneurial support programs.

**The federal government’s absence in the innovation district story is no surprise.** Innovation districts sit at the intersection of two distinct policy domains: innovation policy and economic development policy. At the federal level, unfortunately, there is currently limited alignment and coordination between these two arenas. Federal innovation policies – including the grantmaking activities of the National Science Foundation (NSF), National Institutes of Health (NIH), Department of Defense (DOD), Department of Energy (DOE), and others – channel funds to individual companies or research institutions to enhance national competitiveness but have not yet leveraged the advantages of physical proximity to supercharge innovation activity. Meanwhile, federal economic development policies – including most recently the Opportunity Zones program, introduced in the Tax Cuts and Jobs Act of 2017 – incentivize the investment of private capital into underserved communities but insufficiently leverage proximate innovation ecosystems to drive sustainable, long-term growth.

**A new federal Innovation Zone (IZ) program, promoting investment in innovation districts, offers a powerful tool to enhance both national and regional competitiveness – particularly in parts of the country that have yet to benefit from the knowledge economy.** Decades of research now demonstrates that the innovation economy thrives best in dense, porous, multisectoral settings; a 2003 study, for instance, found that spillover benefits for software companies are ten times greater when firms are a mile apart than when they are between two and five miles apart.<sup>2</sup> By leveraging

<sup>1</sup> Julie Wagner, Bruce Katz, and Thomas Osha, “The Evolution of Innovation Districts: The New Geography of Global Innovation,” *The Global Institute on Innovation Districts* (2019), 35.

<sup>2</sup> Stuart Rosenthal, William Strange, “Geography, Industrial Organization, and Agglomeration,” *The Review of Economics and Statistics* 85, no. 2 (May 2003): 377-393.



proximity in its allocation of research dollars, the federal government has the opportunity to amplify the impact of its investments. Similarly, by linking educational and workforce programs in low- and moderate-income neighborhoods to nearby innovation districts, the federal government can create a more sustainable economic engine for communities that are less connected or, worse, disconnected from the knowledge economy. Finally, by embracing its role in supporting regional innovation ecosystems, the federal government can reshape the country's economic geography on a more equitable basis, creating new opportunities for job growth and investment in the nation's heartland.

To enhance place-based innovation ecosystems, federal policymakers should focus on three interlocking policy domains. First, investments in **district development** will provide the dense, physical environments necessary for innovation economies to thrive. Second, investments in **talent development** will cultivate the expertise needed to drive cutting-edge research and diversify the talent pipeline of local workers and students. Third, investments in **research & development** will supercharge local and national competitiveness by targeting federal R&D spending within specific innovation geographies.

More specifically, the federal government should take the following actions:

- Create a **federal Innovation Zone (IZ) program** that awards funds for programmatic and physical investments in districts with emergent innovation ecosystems that, barring federal support, would be unable to capitalize on these latent knowledge economy assets.
- Seek proposals from **local consortia bridging city government, private industry, and higher education** in a competitive process with awardees selected based on evaluation against economic criteria (e.g., strength of the local innovation ecosystem, identified technology and impact focus), physical criteria (e.g., existing or proposed district with diverse anchors), equity criteria (e.g., affordable housing, workforce development, K-12 partnerships, equitable procurement commitments), and financial criteria (matching or proportional contributions by state, local, and philanthropic entities, current demonstrated gap in market viability).
- Support the education and recruitment of **diverse research and entrepreneurial talent** in high-tech fields relevant to specific innovation districts.
- Fund the training of a **diverse and resilient labor force with STEM skills** through targeted partnerships with community colleges, four-year colleges, workforce investment boards, and the K-12 system.
- Require **co-location of educational and vocational facilities within IZs** to facilitate job placement and access to the innovation ecosystem. Skills development programs should be customized to match the talent needs of specific districts.
- **Target R&D funding to universities and businesses within specific IZs** through initiatives that incentivize partnerships between companies, educational institutions, and state and local governments.
- **Encourage commercialization within universities** by amending grantmaking criteria to incentivize applied research and industry partnerships and restructuring Technology Transfer Offices into loss-leading, third-party entities operated independently from university administrations.
- Create **satellite innovation hubs** linked to military, intelligence, and energy research facilities and advanced manufacturing institutes in IZs.
- Provide seed funding for the creation of **IZ-specific venture capital funds** that can increase access to financing for new companies.



## The Case for Place-Based Innovation Ecosystems

The United States is currently facing a series of compounding crises: a global pandemic, an economic recession, a reckoning with systemic racism, and ever more frequent natural disasters exacerbated by human-induced climate change. To address these challenges, the country must adopt a new growth model that promotes equitable economic outcomes while generating innovative solutions to our most pressing societal needs.

Federal investment in place-based innovation ecosystems – more commonly known as **innovation districts** – provides a significant opportunity to address these challenges. Innovation districts are compact, mixed-use neighborhoods that co-locate academic, entrepreneurial, corporate, and business support entities with the goal of sparking new ideas, products, and services and creating, attracting, and growing thriving businesses. The twenty-first century antidote to the postwar suburban research park, innovation districts maximize the cross-sectoral networking and collaborative synergies that create value in the contemporary knowledge economy. These knowledge-intensive neighborhoods can be found in many of the nation’s cities, typically centered around preeminent research institutions. Notable examples of innovation districts include University City in Philadelphia, Cortex in St. Louis, Kendall Square in Cambridge, and Mission Bay in San Francisco.

Over the past decade, innovation districts have emerged as powerful vehicles for local economic development across a range of dimensions:

- **Innovation districts are formidable job engines.** The extraordinary growth of Cortex, an innovation district in St. Louis with close ties to Washington University, is a case in point. In 2012, a decade after its inception, the district housed approximately 1,000 employees in 50 companies. Just seven years later, the number of jobs in the district grew to 6,000 employees in 425 companies – a 600% increase in on-site employment.<sup>3</sup> In St. Louis, the number of jobs citywide increased by only 4% over the same time period.<sup>4</sup>
- **Innovation districts address pressing societal challenges.** In response to the COVID-19 pandemic, innovation districts around the world have retooled their research agendas, institutional networks, and technical facilities to confront the public health emergency. At the Buffalo Niagara Medical Campus in Buffalo, NY, district members launched a clinical study on the effects of COVID-19 on children, conducted an experimental treatment using arthritis drugs to treat inflammation in the lungs of COVID-19 patients, and manufactured kits to convert sleep apnea machines into emergency ventilators – all in just the first month of the crisis.<sup>5</sup>
- **Innovation districts enhance American competitiveness and speed commercialization.** The impact of the Broad Institute, a genomics research center in Kendall Square, Massachusetts, demonstrates the power of multi-institutional and multi-sectoral collaboration. Founded as a partnership between MIT and Harvard, and now incorporating a wide range of additional partners from hospitals to business leaders, the Institute’s Genomics Platform is currently the largest producer of human genomic information in the

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<sup>3</sup> Cortex Innovation Community, [“Impact Report: 2002-2018.”](#)

<sup>4</sup> EMSI Labor Market Analytics, 2020.

<sup>5</sup> Julie Wagner, “Take 2: Additional Innovation Districts Advancing Research to Fight COVID-19,” *Global Institute on Innovation Districts*, April 19, 2020.



world, creating approximately 500 terabases of genomic data a month.<sup>6</sup> Leveraging in-house licensing and patenting support, the Institute also regularly spins off new companies in fields ranging from surgical oncology to genome editing.

- **Innovation districts upskill and reskill workers for the new economy.** A Baltimore City Community College (BCCC) satellite campus at the University of Maryland's BioPark district is one of the largest community college biotechnology training programs in the country, preparing students for jobs as biotechnicians, microbiologists, and lab assistants. By linking BCCC's associate degree and non-credit programs with the resources of a major research university, the innovation district creates a robust talent pipeline for local companies and promotes economic opportunity for Baltimore residents. This is only one of many examples around the country of high schools and community colleges co-locating within innovation districts to promote inclusive workforce development.
- **Innovation districts reduce economic inequalities between regions.** Following decades of decline as a manufacturing and logistics center, Chattanooga, TN, has recently repositioned itself as a knowledge hub through strategic investment in a downtown innovation district. Leveraging the city's impressive high-speed internet infrastructure and a long-term partnership with EPB, the city's public utility provider, Chattanooga is now home to the INCubator, the largest business incubator in Tennessee and the third largest in the nation.<sup>7</sup>

Despite this impressive track record, the growth of innovation districts has mostly been driven by cross-sectoral coalitions of local leaders, including city governments, anchor institutions, and major employers, often leveraging philanthropic support. The federal government's role has mostly been that of a passive investor channeling R&D funds to universities and entrepreneurial support dollars to growing companies (such as Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) funds).

Due to this limited federal involvement, the market has overwhelmingly determined the allocation of economic resources across the country. Cities with strong market fundamentals and well-resourced institutions have captured the lion's share of job growth and investment, while those unable to meaningfully participate in the innovation economy have fallen further and further behind. Nothing makes this clearer than the uneven distribution of venture capital dollars. As of 2018, the Bay Area accounted for nearly half of venture capital investment nationwide, while Atlanta, Austin, Washington, D.C., Chicago, and Seattle – hardly considered innovation laggards – collectively accounted for less than 10%.<sup>8</sup>

The absence of the federal government in the innovation district story should come as no surprise. Innovation districts sit at the nexus of two distinct policy domains: innovation policy and economic development policy. As noted by a recent report from the National League of Cities, federal approaches to innovation and economic development are currently siloed – and occasionally even working at cross purposes.<sup>9</sup>

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<sup>6</sup> Broad Institute, "Genomics," accessed at: <https://www.broadinstitute.org/genomics>

<sup>7</sup> Nate Storrington and Charlotte Benz, "Opportunities for Transformative Placemaking: Chattanooga Innovation District, Tennessee," *Brookings Institution*, November 9, 2018.

<sup>8</sup> Richard Florida, "[The Extreme Geographic Inequality of High-Tech Venture Capital.](#)" *CityLab*, March 27, 2018.

<sup>9</sup> National League of Cities, "[Place-Based Policies for America's Innovation Economy.](#)" 2019.





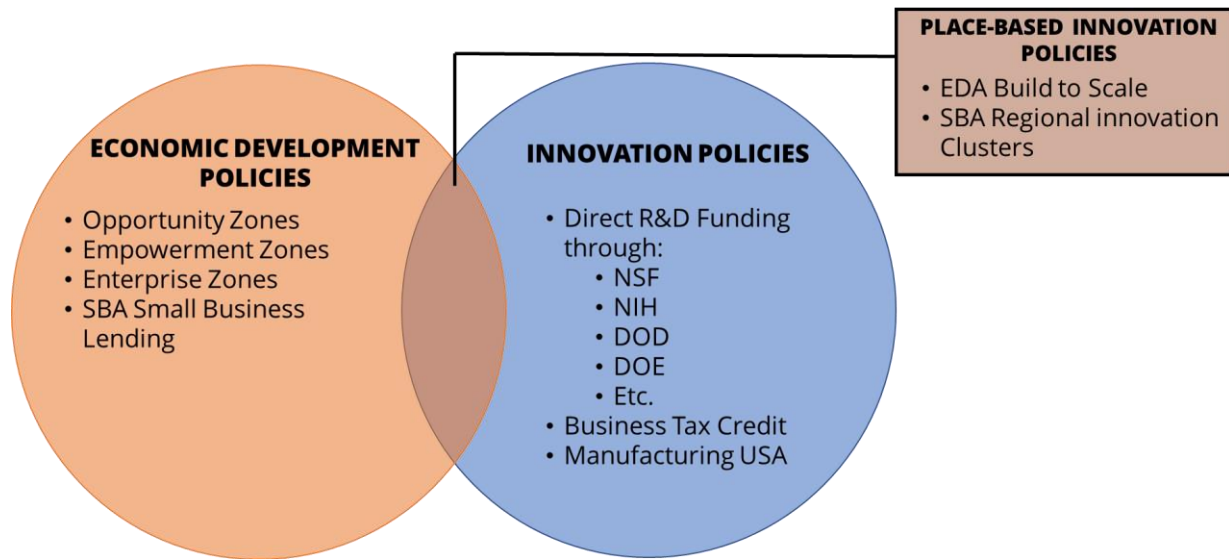


Fig. 1: Examples of federal economic development policies, innovation policies, and place-based innovation policies.

On the one hand, **federal innovation policies focus on channeling R&D funds to individual companies or research institutions to promote national competitiveness, but rarely align these investments geographically.** For example, the NSF's Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS) fund has distributed awards across 28 states and 44 institutions, but these investments follow no geographic pattern.<sup>10</sup> Similarly, while several of the federal government's advanced manufacturing institutes are located in emerging innovation districts (such as the Additive Manufacturing Institute in Youngtown, Ohio), the member networks associated with each institute are deliberately spread across the country, inadvertently undercutting the growth of place-based innovation ecosystems. For instance, the Manufacturing x Design (MxD) Institute, headquartered in Chicago, IL, has over 300 public, private, and nonprofit partners scattered across 33 states.<sup>11</sup> Other federal research funders, including the National Institutes of Health (NIH), the Department of Defense (DOD), the Department of Energy (DOE), and the Department of Agriculture (DOA), are equally agnostic towards place.

On the other hand, **federal economic development policies focus on leveraging private capital into disinvested communities, but rarely tap into proximate innovation ecosystems to drive sustainable, long-term growth.** Instead, federal economic development programs typically subsidize bricks-and-mortar real estate investment or consumption-oriented uses like retail, stadiums, or convention centers. While these approaches create jobs, they are often temporary and usually low-skill, thus preventing residents from gaining an edge in the knowledge economy. The federal Opportunity Zones (OZ) program, introduced as part of the Tax Cuts and Jobs Act of 2017, provides a particularly compelling example of the limited impacts of federal economic development investments. While originally conceived as a vehicle for investing in businesses in low-income neighborhoods, the program has primarily functioned as an incentive for market-rate real estate investment, spurring fears of gentrification and mostly failing to reinvest returns within local economies. The program hinges on reducing capital gains obligations for investors in OZ projects –

<sup>10</sup> National Science Foundation, Program Directory, accessed at: <https://www.nsf.gov/index.jsp>

<sup>11</sup> Manufacturing X Digital, "About Page," accessed at: <https://www.mxduisa.org/about/>

but while 94% of taxable capital gains came from households with incomes above \$100,000, only 12% of OZ residents have incomes above that amount.<sup>12</sup>

While the primary thrust of federal policy mitigates against place-based investments in the innovation economy, there are **nascent examples of federal policies that leverage the power of place to promote the growth of local innovation ecosystems**. These policies represent important precedents for the federal innovation district program advocated for in this paper.

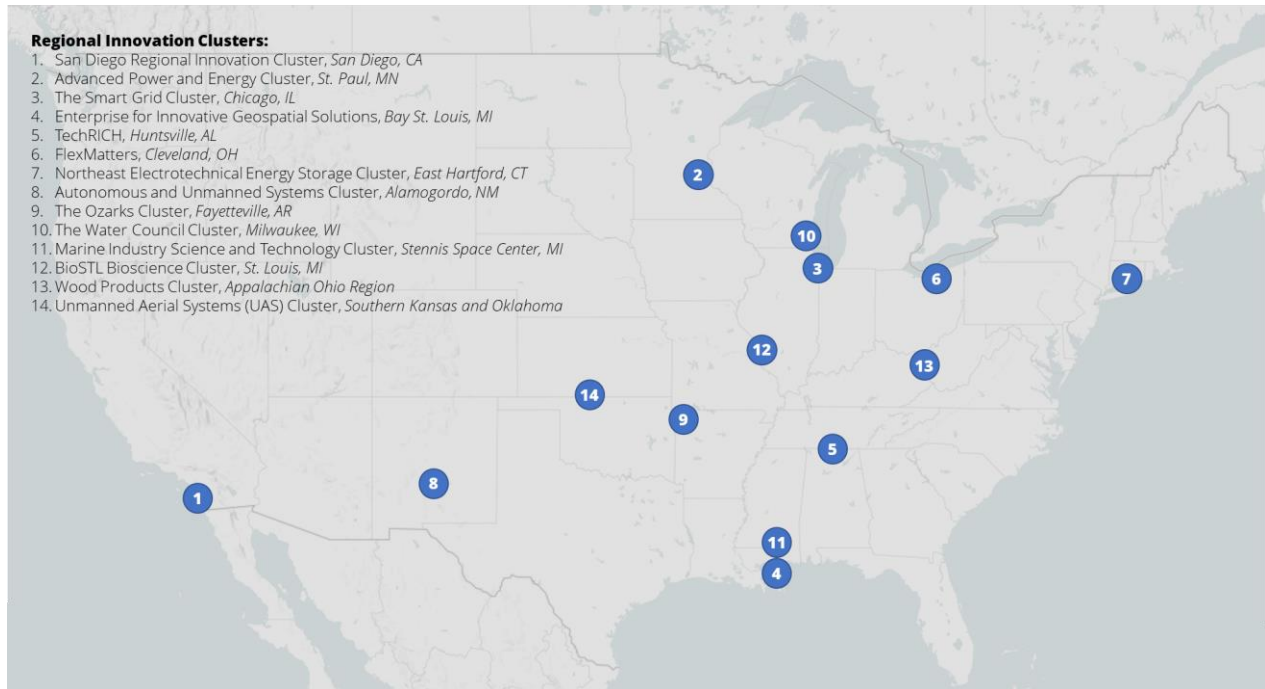


Fig. 2: Distribution of federally designated Regional Innovation Clusters (RIC) throughout the country.

Launched in 2010, the Small Business Administration's **Regional Innovation Clusters** (RIC) initiative establishes and supports geographically-proximate networks of small and large businesses, suppliers, academic institutions, and business support organizations in related industries. As of 2019, there are 14 RICs around the country focused on sectors including bioscience, agriculture, and advanced materials (see Fig. 2 above). Preliminary evaluations of firms participating in the RIC initiative have demonstrated outsized growth in economic output, employment, and payroll relative to non-participating firms.<sup>13</sup> However, the Trump administration has repeatedly proposed eliminating the program and has permitted annual appropriations of only \$5M, half the program's initial \$10M annual allocation.<sup>14</sup>

The Economic Development Administration's **Build to Scale** program (formerly Regional Innovation Strategies) deploys competitive funding to intermediary organizations like universities, accelerators, and VC funds that are focused on growing regional advantage in specific sectors. Launched in 2014,

<sup>12</sup> Brett Theodos, Eric Hangen, Jorge Gonzalez, Brady Meixell, "An Early Assessment of Opportunity Zones for Equitable Development Projects," *Urban Institute*, June 17, 2020.

<sup>13</sup> Small Business Administration, "[The Evaluation of the U.S. Small Business Administration's Regional Innovation Cluster Initiative: Year Three Report.](#)" July 2014.

<sup>14</sup> Congressional Research Service, "[Small Business Administration \(SBA\) Funding: Overview and Recent Trends.](#)" June 17, 2020.

the program has since deployed \$100M in federal funding, leveraged \$120M in matching community funds, and supported the creation of 14,200 jobs.<sup>15</sup> The program has received increased funding in recent years and currently represents 10% of EDA's FY2020 budget.<sup>16</sup>

States have also played an important role as laboratories of experimentation for place-based innovation policy. Launched in 2014, the State of Maryland's Regional Institution Strategic Enterprise (RISE) program offers income and real property tax credits to businesses locating or expanding in areas adjacent to anchor institutions such as research universities, with the goal of promoting synergies between businesses, researchers, and students. As of 2020, there are six RISE zones located throughout the state, ranging from 2 acres to 129 acres in size. Participating anchor institutions include Morgan State University, the University of Maryland, College Park, and the University of Maryland Baltimore County, among others.<sup>17</sup>

Building on these scattered initiatives, a federal innovation district program offers a sustainable and inclusive model for boosting local and national competitiveness for three key reasons.

**First, innovation districts leverage the power of place to supercharge innovation activity.**

Decades of academic research now demonstrates that geographic density of firms and institutions in related fields is correlated with wage growth, job growth, and patent formation.<sup>18</sup> This dynamic is particularly powerful in the contemporary knowledge economy, which, more than traditional industries, relies on new ideas for the creation of value. For instance, a 2003 study found that spillover benefits for software companies are ten times greater when firms are a mile apart than when they are between two and five miles apart – and that benefits evaporate after more than ten miles.<sup>19</sup> More pragmatically, physical co-location also enables researchers, firms, and entrepreneurs to leverage economies of scale by sharing the costs of both hard and soft infrastructure, including lab and fabrication facilities, entrepreneurial support organizations, access to capital, and access to a shared talent pool.

While the COVID-19 pandemic has led to the temporary closure of physical facilities, including research labs, classrooms, offices, and coworking spaces, early evidence suggests that remote work is a poor substitute for the intensive collaboration and networking upon which successful innovation ecosystems depend. For instance, a recent survey of approximately 3,000 office workers in North America found that while 63% of respondents were satisfied with collaboration while working remotely, 90% were satisfied when collaborating face-to-face.<sup>20</sup> Moreover, many of the technical facilities (labs, maker spaces, etc.) located within innovation districts cannot be replicated virtually, suggesting that the closure of physical facilities in innovation districts is a temporary rather than a permanent change. Given likely ongoing tumult in office markets for the coming years, however, it is all the more important for the federal government to step in to provide targeted support to

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<sup>15</sup> Economic Development Administration, "[Build to Scale Program Overview](#)," February 25, 2020.

<sup>16</sup> State Science and Technology Institute, "[8 Things to Know from the FY 2020 Budget](#)," December 19, 2019.

<sup>17</sup> Maryland Department of Commerce, "Regional Institution Strategic Enterprise (RISE) Zone Program," accessed at: <https://commerce.maryland.gov/fund/programs-for-businesses/rise-zone-program>

<sup>18</sup> See, among others: Michael Porter, "Competitive Advantage, Agglomeration Economies, and Regional Policy," *International Regional Science Review* 19, nos. 1-2 (1996): 85-90.

<sup>19</sup> Stuart Rosenthal, William Strange, "Geography, Industrial Organization, and Agglomeration," *The Review of Economics and Statistics* 85, no. 2 (May 2003): 377-393.

<sup>20</sup> Global Workplace Analytics, "[Work from Home Experience: Survey Results](#)," April 2020.





innovation districts and ensure that the face-to-face collaboration that drives the creation of new knowledge remains economically viable.

**Second, if accompanied with adequate support for workforce development and affordable housing, supporting the growth of place-based innovation ecosystems offers an effective strategy for combating growing inequality within cities and communities.** As described above, prior federal approaches to place-based economic development have focused on subsidizing construction projects and consumption-oriented uses like shopping malls and stadiums, creating low-skill, often temporary jobs and doing little to promote a community's long-term competitiveness in the twenty-first century knowledge economy. Sustainable economic growth, conversely, requires the creation of jobs in traded sectors that attract spending from outside the region. Historically, the manufacturing sector provided such low-skill, traded jobs in abundance. Today, these jobs are increasingly found in high-skill innovation sectors including life sciences, materials sciences, and computing. The impact of innovation jobs on local economies is profound. Economist Enrico Moretti, for instance, found that for every high-tech job created in a city, five additional jobs were created, in both skilled occupations (such as lawyers and teachers) and unskilled ones (such as carpenters and hairdressers).<sup>21</sup> Meanwhile, a 2012 study by the U.S. Census Bureau concluded that 15 additional local jobs were created for every new patent filed by a city's research university.<sup>22</sup>

Simply creating new innovation jobs is not enough to guarantee equitable outcomes, however. Absent intentional strategies to link low- and moderate-income residents to these higher-wage opportunities, growth in the innovation economy is likely to benefit workers with pre-existing professional and educational advantages. Similarly, without affordable housing protections in place, growth in innovation jobs may put inflationary pressure on local rents and housing prices, thus undercutting the benefits of the associated spinoff jobs that are predominantly low-skill and low-wage.<sup>23</sup> The affordability challenge is particularly urgent given that innovation districts tend to locate in lower-cost, often formerly industrial districts adjacent to low-income neighborhoods.

The proactive work of innovation district leaders around the country to promote more inclusive outcomes suggests that innovation in and of itself is not a driver of inequality. Rather, it is poor foresight that keeps the benefits of innovation jobs from accruing to the less fortunate. After all, while some innovation jobs are high-skill, requiring a masters or even doctoral degree, many are accessible to workers without a bachelor's degree. A recent study of the tech ecosystem in New York City found that 44% of jobs in the city's tech ecosystem did not require a bachelor's degree, including non-tech jobs in tech firms (such as a sales representative) and tech jobs in non-tech firms (such as a web developer).<sup>24</sup> Nationally, 26% of all IT workers do not have a bachelor's degree, according to an analysis by the Bureau of Labor Statistics.<sup>25</sup>

Similarly, the medical and educational institutions that typically anchor innovation districts have employment and procurement needs that can be provided by local residents and small businesses. The West Philadelphia Skills Initiative (WPSI), which connects large, specialized employers with

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<sup>21</sup> Enrico Moretti, *The New Geography of Jobs* (New York: Mariner Books, 2013): 13.

<sup>22</sup> Naomi Hausman, "University Innovation, Local Economic Growth, and Entrepreneurship," Working Paper No. CESWP-12-11 (Washington: U.S. Census Bureau Center for Economic Studies, 2012).

<sup>23</sup> See, for instance: Neil Lee and Stephen Clarke, "[Do Low-Skilled Workers Gain from High-Tech Employment Growth? High-Technology Multipliers, Employment and Wages in Britain.](#)" *Research Policy* 48, no. 9 (November 2019).

<sup>24</sup> Association for a Better New York, "[The New York City Tech Ecosystem: Generating Opportunities for All New Yorkers.](#)" March 2014.

<sup>25</sup> U.S. Bureau of Labor Statistics, "[Educational Attainment for Workers 25 Years and Older by Detailed Occupation.](#)" 2018.



unemployed West Philadelphians, offers a replicable example of a customized workforce development program that is driving more inclusive outcomes. Since WPSI's creation in 2012, program participants who had previously been unemployed for an average of 33 weeks found jobs through WPSI and have since earned over \$37 million in collective wages.<sup>26</sup>

Co-locating specialized secondary schools and community colleges within innovation districts also provides an effective strategy for building more diverse pathways into the innovation economy. As mentioned previously, a Baltimore City Community College satellite center at the University of Maryland's BioPark district is one of the largest community college biotechnology training programs in the country, preparing students for jobs as biotechnicians, microbiologists, and lab assistants.

Finally, innovation districts can create opportunities to support minority entrepreneurs by offering technical assistance, networking, and access to capital. The Black Founders Exchange, a weeklong immersion program based in Durham, North Carolina, is focused on reversing the disproportionate flow of VC dollars to white, Ivy League-educated men. One of the program's goals is for at least half of the participating startups to receive funding within nine months. As of 2019, 94% of the program's 32 alumni companies are still operational.<sup>27</sup>

**Third, federal support of innovation districts offers a robust strategy for offsetting growing inequality between different parts of the country.** While the manufacturing economy of the mid-twentieth century led to a convergence in wealth and income across the country, the innovation economy of the early twenty-first century has had the opposite effect. Between 2005 and 2017, five metropolitan areas (Boston, San Francisco, San Jose, Seattle, and San Francisco) accounted for over 90% of innovation-sector job creation in the country. Meanwhile, over the same time period, the bottom 90% of metro areas lost market share in innovation jobs.<sup>28</sup> This regional polarization has produced negative consequences in both "superstar" coastal hubs, where surging housing costs have cut into productivity, and heartland metros, which suffer from low job growth, underinvestment, and a brain drain. At the national level, growing inequality between regions has contributed to political backlash and congressional gridlock.

Absent federal intervention, the reality is that innovation jobs will continue to cluster in existing tech hubs with high concentrations of talent, infrastructure, and access to capital. Even areas with latent innovation assets, such as high-performing research universities or advanced lab facilities, will continue to lag because the market on its own will not provide the patient capital required to jumpstart sustainable innovation ecosystems. With deep pockets, a long-term view, and a national perspective, the federal government is well-positioned to provide the seed funding for innovation district development. This is hardly the first time the federal government has tipped the scales to promote regional economic growth. It is now widely accepted that postwar investments in federal R&D helped jumpstart the innovation economy in contemporary tech hubs like Boston and San Francisco. Today's economic, health, and climate emergencies are surely as urgent as the Cold War. Given looming fiscal crises at the state and local levels, it is imperative that the federal government provide a new foundation for jumpstarting local economic development, enhancing national competitiveness, and identifying new solutions to our most pressing societal challenges.

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<sup>26</sup> Bruce Katz and Megan Humes, "West Philadelphia Skills Initiative: A Model for Urban Workforce Development," *Drexel University Nowak Metro Finance Lab Working Paper*, 2019.

<sup>27</sup> "American Underground, Google looking for startups to join Black Founders Exchange program," *WRAL TechWire*, June 21, 2019.

<sup>28</sup> Robert D. Atkinson, Mark Muro, and Jacob Whiton, "The Case for Growth Centers: How to Spread Tech Innovation Across America," *Brooking Institution*, December 2019.



## How the Innovation Zones Proposal Amplifies the Impact of Recent Federal Innovation Policy Proposals

Earlier this year, two bills were introduced in the U.S. Senate that seek to leverage federal funds and authority to promote the growth of regional innovation clusters, particularly in parts of the country that have yet to experience significant growth in innovation jobs:

- The **Endless Frontier Act**, sponsored by Senator Charles Schumer (D-NY) with bipartisan cosponsors Senators Todd Young (R-IN), Gary Peters (D-MI), Steve Daines (R-MT), Jeff Merkley (D-OR), Susan Collins (R-ME), Maggie Hassan (D-NH), and Martha McSally (R-AZ), calls for a new technology directorate within a re-designated National Science and Technology Foundation (NSTF). Along with a \$100B increase in federal R&D funding to reestablish American primacy in high-tech innovation, the bill also proposes a competitive process to establish 10 to 15 regional technology hubs located in metropolitan areas that have yet to become leading technology centers. Technology hubs would foster the growth of regional innovation clusters by coordinating workforce development, startup support, commercialization, and other activities.
- The **Innovation Centers Acceleration Act**, cosponsored by Senators Chris Coons (D-DE) and Dick Durbin (D-IL), proposes expanding federal R&D funding to spur investment in high-tech sectors including biomedical technology, advanced manufacturing, and others. Specifically, the act calls for a national competition for metropolitan areas to apply to become Innovation Centers, based on existing technical advantages, local research institutions, and core competencies. Innovation Centers would also be required to advance racial equity and inclusive growth, including an emphasis on affordable housing, education, and workforce development. The act proposes an \$80B federal investment over nine years in selected Innovation Centers, with a preference for metropolitan areas that have yet to become established high-tech hubs.<sup>29</sup>

The Innovation Zone (IZ) proposal outlined below incorporates elements of both bills, which provide promising evidence of congressional momentum on federal support of place-based innovation ecosystems. However, **the IZ proposal also adds four critical components to these prior proposals to more effectively achieve the goal of inclusive innovation:**

1. The IZ proposal places greater emphasis on fostering a **diverse and collaborative innovation ecosystem**, composed of public, private, and nonprofit partners working together in integrated consortia. The Endless Frontier Act, by contrast, centers the role of universities, the NSF, and basic research in the innovation ecosystem. Evidence from innovation districts around the country suggests that universities operating in isolation are weak drivers of commercialization. Without a robust ecosystem of entrepreneurs, funders, and business support organizations, universities are unlikely to catalyze significant spinoff growth.
2. The IZ proposal focuses on **compact, contiguous districts** as opposed to Regional Technology Hubs, which are physically undefined, or metropolitan-scale Innovation Centers, which are physically scattered. Research has underscored the extent to which proximity, ideally in walkable districts, is critical for driving the “knowledge spillovers” that lead to the creation of new ideas. Investing in higher density development also promotes more

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<sup>29</sup> The bill is in turn based on a policy proposal from the Brookings Institution and the Information Technology & Innovation Foundation: Robert D. Atkinson, Mark Muro, and Jacob Whiton, “The Case for Growth Centers: How to Spread Tech Innovation Across America,” *Brookings Institution*, December 2019.



environmentally sustainable outcomes, leveraging existing infrastructure investments, promoting alternate mobility modes, and reducing urban sprawl.

3. The IZ proposal incorporates significant incentives and mandates to **channel education and workforce programs, equitable development investments, and R&D funds into designated districts**, as opposed to simply increasing funding writ large. This includes a much more robust emphasis on workforce development, affordable housing, equitable procurement, and minority/women-owned business support than the Endless Frontier Act in particular. Concentrating talent, research, and business development policies in specific districts in coordination with equity commitments will maximize the social impact of federal investments.
4. The IZ proposal calls for districts to organize around both economic sectors and **social impact challenges**, such as pandemics or climate change. Structuring districts around impact goals as opposed to solely economic niches encourages collaboration across sectors and disciplines and places the emphasis on “big wins” with societal impact as opposed to incremental technological advancements.

Given the strong alignment between the IZ proposal and precedent innovation-focused proposals, this policy proposal is framed as either a refinement to legislation previously introduced in the Senate or as a new bill. Given existing momentum with the Endless Frontier and Innovation Centers Acceleration Acts, however, it may be advisable to conceive of this proposal as an addendum or modification to prior proposals.



## Federal Policy Proposal: From Opportunity Zones to Innovation Zones

The Administration should launch a **federal Innovation Zone (IZ) program** to leverage the power of proximity to supercharge innovation and in so doing lay the foundation for a new and more inclusive era of American prosperity. Federal investments should be made in three interlocking policy domains: District Development, Talent Development, and Research & Development. In the past, federal action in these policy domains has been relatively siloed, if not working at cross purposes. Innovation Zones offer a powerful point of convergence for weaving together place-based investments with educational, research, entrepreneurial, and economic supports to maximize the impact of federal outlays.

### **District Development**

The federal government should create an Innovation Zone (IZ) program that awards funds for physical and programmatic investments in **twenty-five designated districts** throughout the country. Proposed districts should be between 100 and 350 acres in size. To promote regional economic convergence, **no more than five designated IZs should be located within existing innovation hubs**, defined as the 20 metropolitan areas with the largest volume of jobs in innovation industries.<sup>30</sup> To promote even distribution, at least three IZs should be located within each of the following geographic categories: Northeast, Midwest, South, West, and rural areas (i.e., counties outside of metropolitan areas).

To catalyze a thoughtful and intentional realignment of federal policies supporting innovation and economic development, the IZ program should be spearheaded by the White House Office of Science and Technology Policy and the Domestic Policy Council, and include an interagency coalition of federal agencies that engages leaders from the Economic Development Administration (EDA), the Small Business Administration (SBA), the Departments of Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, and Transportation, as well as the National Aeronautics and Space Administration (NASA), the National Science Foundation (NSF), and others.

Proposals should be solicited from regional consortia bridging local government, private industry, and higher education via a competitive RFP process. Proposals should be evaluated by independent review committees using the following criteria:

- **Economic:** Applicants should demonstrate the latent capacity of the local innovation ecosystem (as measured by educational attainment, STEM degrees per capita, R&D funding streams, industry partnerships, and an ecosystem audit demonstrating unique specializations and research strengths), and identify 1-3 impact goals (such as energy efficiency, sustainable land management, or improved public health) and 1-3 economic niches (such as artificial intelligence, biotechnology, or cybersecurity). Applicants should also leverage the participation of existing federal actors and programs, including University Technology Centers, Manufacturing USA/Hollings Manufacturing Extension Partnership programs, National Labs, and NSF iCorps Sites and Hubs, if appropriate.
- **Physical:** Applicants should identify an existing or proposed district with a diverse set of anchor institutions, businesses, and entrepreneurial support organizations already in place or committed to relocate.

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<sup>30</sup> These metropolitan areas include: New York, San Jose, Los Angeles, Seattle, Boston, San Francisco, Dallas, Washington DC, San Diego, Chicago, Philadelphia, Phoenix, Minneapolis, Houston, Portland, Atlanta, Austin, St. Louis, Denver, and Miami. See, Mark Muro et al, "America's Advanced Industries: What They Are, Where They Are, and Why They Matter," *Brookings Institution*, 2015.





- **Equity:** Applicants should include specific goals around affordable housing, workforce development, minority and female entrepreneurship, and equitable procurement commitments (potentially on the model of the federal HUBZone program), including federal funding support required to meet equity targets. Applicants should also exhibit diverse district governance.
- **Financial:** Applicants should provide evidence of matching funding commitments from state and local government and philanthropy, as well as a detailed elaboration of the “but for” case for federal investment that underscores the market gap that needs to be surmounted to jumpstart a mature innovation ecosystem.

Federal funds should be used to support a broad range of infrastructure, real estate, placemaking, and programmatic needs, including:

- Providing grants and loans for the development of **advanced fabrication or laboratory facilities** as well as installation of district-wide **digital infrastructure**.
- Amending EDA grantmaking criteria to provide gap funding for **step-up spaces and shared labs** within privately-developed, non-Class A buildings.
- Providing federal loan guarantees to incentivize banks to provide **debt capital to mixed-use assets** within IZs that might face challenges raising financing on the private market.
- Amending Opportunity Zones, Brownfield Tax Credits, Historic Tax Credits, New Markets Tax Credits, and Low Income Housing Tax Credits to provide a **basis boost for developments located within IZs**.<sup>31</sup>
- Providing grants to non-profit **entrepreneurial support organizations** (e.g., accelerators, incubators, intermediaries, tech transfer offices, specialized professional services), including expansion of funds for the iCorps program.

### **Talent Development**

In tandem with district-scale investments, the IZ program should dramatically expand funding for the training of a **diverse and resilient labor force with STEM skills** through targeted partnerships with employers, community colleges, four-year colleges, doctoral and post-doctoral programs, workforce investment boards, and the K-12 sector. To maximize the impacts of these investments, the administration should concentrate skills development programs within IZs by:

- Supporting the education and recruitment of **world-class research talent** in fields relevant to specific innovation districts.
- Requiring the **co-location of educational and vocational facilities** (including specialized secondary schools and/or community colleges) within IZs to facilitate apprenticeships, job placement, and access to the entrepreneurial ecosystem.
- **Customizing workforce development and entrepreneurial support programs** to match the sectoral focus of specific IZs.
- Funding **matchmaking services** to connect underemployed community members with employment opportunities within the IZ.
- Incentivizing industry to provide **K-12 teacher mentorship** and **experiential learning** through tax credits and other mechanisms.
- Requiring tangible and enforceable **local hiring** and **student placement targets** for IZs.

<sup>31</sup> Analysts have already noted the potential for synergies between innovation districts and Opportunity Zones legislation. Moving forward, however, it would be beneficial to more deliberately and coherently integrate place-based incentives with innovation investments. See: Bruce Katz and Suzet McKinney, [“The Illinois Medical District: Where Innovation Districts and Opportunity Zones Meet.”](#) *The New Localism*, October 17, 2019.

## Research & Development

To supercharge innovation activity, the administration should invest in basic and applied research within IZs by:

- Providing additional savings on the **R&D tax credit** for startups and companies located within IZs.
- **Earmarking R&D funding** via the NSF, NIH, DARPA, and others to support research activity within IZs.
- Promoting **regional, multi-institution grant opportunities** to encourage local collaboration.
- Creating **satellite hubs** within IZs linked to military, intelligence, and energy research facilities to speed commercialization of technologies incubated within federal agencies, while being mindful of security risks.
- Creating **DARPA and ARPA-E-type entities** charged with R&D and commercialization of technologies relevant to federal agencies such as Transportation, Commerce, the National Security Agency, and others.
- Restructuring **Technology Transfer Offices** into loss-leading, third-party entities operated at the IZ level rather than within universities and providing legal support to standardize industry-university commercialization agreements across IZs.
- Making federal funding contingent on **commercialization metrics** to encourage universities to adopt a more entrepreneurial stance towards faculty recruitment and promotion.
- Creating an **IZ voucher**, similar to regional innovation voucher programs already in operation in Tennessee, Colorado, and Rhode Island, to enable small businesses to obtain free or low-cost consulting services from nearby universities.<sup>32</sup>
- Creating **IZ-specific venture capital funds** to increase access to capital for startups and high-growth companies. The federal government should provide seed funding for the creation of IZ-specific VC funds managed by states, localities, community development financial institutions, and/or philanthropic entities, with a focus on investments in minority and women-owned businesses.

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<sup>32</sup> National League of Cities, "[Place-Based Policies for America's Innovation Economy](#)," 2019.



## Conclusion

In the face of numerous compounding crises – from COVID-19 to climate change, from an economic recession to a reckoning with systemic racism – now is the time for the federal government to invest in the growth of innovation districts, particularly in regions that have yet to benefit from the new economy. Over the past decade, innovation districts have emerged as powerful tools for promoting local economic development and enhancing national competitiveness. With a thoughtful and intentional re-alignment of federal policies supporting innovation and economic development, place-based investments in physical infrastructure, skills development, and advanced research can leverage the power of proximity to supercharge American innovation and in so doing lay a foundation for a new and more inclusive era of prosperity.

