Building innovation ecosystems: Accelerating tech hub growth

February 28, 2023 | Article

By Cameron Davis, Ben Safran, Rachel Schaff, and Lauren Yayboke

Share Print Download Save

Innovation ecosystems can generate economic, financial, and social benefits for all, and there's new federal funding to build them. A six-step playbook could help leaders get them right.

McKinsey & Company – Listen to the article: Building innovation ecosystems: Accelerating tech hub growth
SOUNDCLOUD

Across the United States, from urban to rural areas, public- and private-sector leaders are coming together to build innovation hubs. Relative upstarts such as the Indianapolis 16 Tech Innovation District and Tulsa Innovation Labs are positioning themselves as new centers of innovation, drawing inspiration from established ones such as Silicon Valley and Boston. Currently, the opportunity to launch new hubs is especially ripe given there is nearly $2 trillion in new federal funding designed to boost US innovation, competitiveness, and national security over the next decade.

DOWNLOADS
Article (12 pages)

Sidebar

Ecosystems, hubs, and districts: A short primer

Innovation hubs are geographic areas that bring together R&D institutions (such as tech-enabled corporations, universities, and medical facilities), as well as venture capital, incubators, and start-ups. They fall into three categories: smaller districts, midsize tech hubs, and larger cross-regional ecosystems, with the latter being by far the most complex but potentially impactful (see sidebar "Ecosystems, hubs, and districts: A short primer").

Think tanks and businesses have published papers defining the value proposition of innovation hubs and offering ways for companies to participate in the hubs that already exist. While these papers generally address the *what* and the *why*, this article builds on those perspectives to explore *how* public- and private-sector leaders could launch and scale an innovation ecosystem anchored in existing regional assets or accelerate efforts that are already underway.

Below, we outline the potential benefits of innovation hubs and offer six essential steps that leaders can consider for building and nurturing an ecosystem that promotes vibrancy, attracts top talent, and creates new and significant opportunities for economic and social development. The playbook we've created is based on our experience designing and developing best-in-class ecosystems and on our data analysis of more than 100 innovation districts and tech hubs. It addresses key elements of building an innovation hub including prioritizing sectors, attracting talent and investment capital, mapping strengths and opportunities, and identifying ways to support the effort.

Creating an innovation ecosystem is a significant undertaking, and success often pivots on how well those who lead it build relationships with new and established companies and institutions, fill gaps in the business landscape through investment, and address the specific needs of workers and residents.

Why innovation hubs matter

Spanning high-value, research-oriented sectors from aerospace to life sciences to software, innovation hubs generate attention and investment for a reason. Annual productivity growth for US innovation industries has averaged 2.7 percent since 1980—nearly double the rate of all other sectors. These industries also claim 60 percent of US exports, boast 80 percent of US engineers and patents, and attract workers with above-average earnings—generating even more jobs for the communities where they are located.[1] Innovation hubs have higher commercial-rent growth rates than adjacent business districts: 5.3 percent from 2010 to 2020, compared with 4.8 percent, respectively.[2] They outperform other regions and business districts economically, financially, and socially. In the most successful examples, the unifying, mission-driven spaces they create open new avenues for healthier, more diverse, and more connected communities.

MOST POPULAR INSIGHTS
1. The human side of generative AI: Creating a path to productivity
2. How the world's best hotels deliver exceptional customer experience
3. The CEO's secret to successful leadership: *CEO Excellence* revisited
4. Implementing generative AI with speed and safety
5. Working nine to thrive

Innovation hubs open new avenues for healthier, more diverse, and more connected communities.

There are compelling reasons to focus on innovation hubs now. In 2021 and 2022, the federal government passed a suite of legislation that aims to bolster the resilience of the US supply chain, promote the development of high-tech innovation clusters, and extend services and infrastructure to rural communities. Leaders can help finance and jump-start the development of an innovation ecosystem by taking advantage of competitive grants to regional innovation ecosystems and of legislation such as the CHIPS & Science Act, which creates incentives for domestic semiconductor manufacturing and authorizes funding for programs such as the National Science Foundation's Regional Innovation Engines.

Six essentials: The innovation ecosystem playbook

Sidebar

Share

Categorizing innovation districts, tech hubs, and ecosystems

Innovation hubs typically fall into one of three categories—districts, tech hubs, and ecosystems—that vary according to scale, levels of collaboration, and reach. Ecosystems are the newest of these, and definitions are evolving (see sidebar "Categorizing innovation districts, tech hubs, and ecosystems"). Broadly speaking, in addition to prioritizing technology-centered R&D, investment, and growth, these ecosystems usually feature assets such as robust mobility options (including public transit), as well as a strong technological infrastructure and accessible spaces to play, connect, and live. All this promotes inclusive and equitable economic growth, innovation, and productivity (see sidebar "Research Triangle Park").

Sidebar

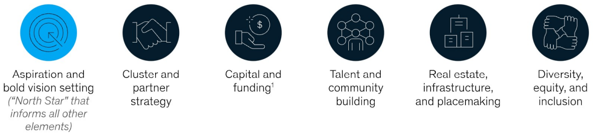
Share

Research Triangle Park

Public- and private-sector leaders could consider following a six-step approach to create and expand a thriving innovation ecosystem (Exhibit 1). A community-building program in a district will look quite different from one at an ecosystem, for example—but the playbook's essentials remain the same across the spectrum of innovation hubs.

Exhibit 1

The innovation ecosystem playbook comprises six key actions.


Aspiration and bold vision setting
("North Star" that informs all other elements)
Cluster and partner strategy
Capital and funding[1]
Talent and community building
Real estate, infrastructure, and placemaking
Diversity, equity, and inclusion

[1] Eg, venture capital, business/academic R&D, federal funding.

McKinsey & Company

1. Set the aspiration and a bold vision

Innovation ecosystems that struggle to succeed often underdeliver on the first playbook element: a strong identity rooted in a clear aspiration and forward-looking goals that build broad stakeholder excitement and buy-in. Defining a unique, differentiated identity and brand crystallizes an ecosystem's intangibles, such as livability or regulatory stability. It establishes a value proposition for people and businesses alike. It also sets the stage for defining short- and long-term success metrics, helping to maintain the focus on why the ecosystem exists. It is the vision—backed by core competencies, specific strengths, and culturally consistent themes—that distinguishes one ecosystem from the others.

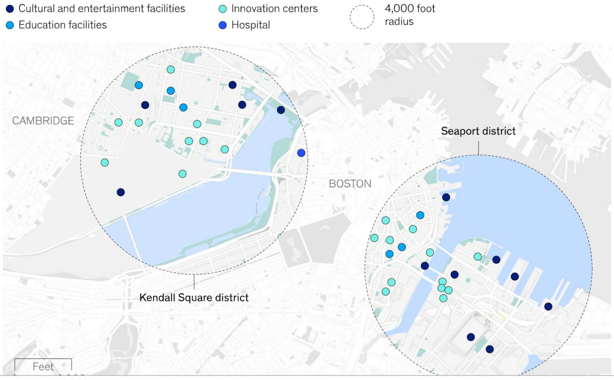
Aspirations can vary. Cortex, in St. Louis, aspires to be an "inclusive economic engine" for the region, linking success to outcomes beyond just financial returns,[3] while Virginia's Commonwealth Cyber Initiative is anchored in growing a specific sector. But when leaders establish an aspirational identity that resonates with employees and organizations, people become excited about pioneering new models for working, collaborating, and living.

Boston is a prime example of an ecosystem based on an ambitious goal: to define its "place, people, and purpose as the capital of scientific revolution."[4] Taking advantage of its wealth of universities (including Harvard and the Massachusetts Institute of Technology), as well as leading institutions such as Mass General and Brigham and Women's Hospital, the city government set out to work closely with entrepreneurs, developers, and leaders across sectors to define its ambitions. In turn, the city as an ecosystem has been able to support smaller, more defined innovation districts within its sphere, including Seaport, South Station, Kendall Square, and Back Bay/South End (Exhibit 2).

Exhibit 2

Greater Boston is a prime example of an innovation ecosystem supporting multiple smaller districts.

Boston area innovation hubs, nonexhaustive



Sign up for our Monthly Highlights newsletter

Don't miss this roundup of our newest and most distinctive insights

2. Focus on specific sectors, partners, and anchor tenants

We've found that innovation ecosystems are more likely to thrive when local leaders and developers play to a region's existing skill base and institutional strengths. Ecosystems can focus on specific sectors and subsectors—for example, electric vehicles, advanced air mobility, or medical devices. Or they can focus on functions, such as artificial intelligence or the Internet of Things (IoT), across multiple sectors. Or they can live at the intersection of sectors and functions, as life science R&D and agricultural technology do.

> **Innovation ecosystems are more likely to thrive when local leaders and developers play to a region's existing skill base and institutional strengths.**

Two questions can help leaders identify a region's value proposition and ideal anchor institutions: What unique areas of competitive advantage can the region pursue? And which universities, research institutions, incubators and investors, and businesses could be anchor institutions?

Some regions may be primed for a "right to win" approach, which builds off existing sector-based assets to anchor an ecosystem in an area of advantage. These existing assets could include areas of specialization, talent pipelines fed by higher-education and research institutions, emerging venture capital (VC) capabilities, or infrastructure (such as proximity to farmland, specific transit options, or urban density).

Alternatively, leaders could pursue a "want to win" approach, which creates an area of advantage by leveraging current conditions and trends to drive investment. These conditions and trends can be identified by analyzing projected growth for a particular sector, function, or intersection; major disrupters; and other factors that could influence growth trajectories (such as technology trends, supply chain disruptions, or federal funding). It can be tempting to zero in on hot industries, regardless of an area's assets and strengths, but leaders could benefit from thinking like creators of coherent economic clusters—interconnected and intentional groups of employees, tenants, firms, and institutions.[5]

The approach used to identify a unique value proposition can also be applied to anchor institutions. One of them may already exist in the region. But such an institution could also be attracted to it—for example, a large company that's looking to tap into local start-ups for new capabilities and paid pilots, or a university that wants to expand its teaching and research facilities. The range of options may seem overwhelming, but large-scale developers can home in on an ideal candidate by considering factors such as revenues, growth, the total number of employees, and private versus nonprofit status. The process can be both iterative and opportunistic—testing multiple value propositions in the market to see where interest sparks and then refining the results.

Such intentionality in cluster and subsector design is evident in some of the largest innovation ecosystems currently being developed. National Landing, for example, is a 17-million-square-foot development spanning multiple Arlington County neighborhoods (including Pentagon City, Crystal City, and Potomac Yard) just outside Washington, DC. The ecosystem has secured the location for Amazon's HQ2 campus. National Landing clearly focuses on technology and the region's related expertise—including IoT, cybersecurity, and cloud computing. By building on two newly attracted anchor tenants (Amazon and Virginia Tech), National Landing has expanded its technology-focused footprint considerably. It has created enough space to accommodate 25,000 new employees and the follow-on economic growth.[6]

3. Catalyze a critical mass of VC capital and start-ups through a strong innovation backbone

Start-ups and early-stage companies often develop cutting-edge ideas with the potential for real financial and economic returns. Innovation ecosystems can boost their chances of success if they catalyze a critical mass of start-ups and VC funding by developing a "backbone" across the four key areas of the integrated innovation funnel—the generation of ideas and R&D,

commercialization, start-up and early-stage development, and growth (Exhibit 3).

Exhibit 3

The integrated innovation funnel spans four key areas.

Idea generation/R&D
Ideas developed through basic and applied research led by academic institutions, research institutions, and companies

Commercialization
Ideas translated to commercial technology by companies and higher education tech transfer offices

Start-up/early stage
Entrepreneurs starting new businesses using ideas, supported by seed funding and venture capital

Growth
Scaling of start-ups into businesses with good-paying jobs

McKinsey & Company

Scaling up R&D, both academic and private, can help ensure that innovation remains robust. Those ideas can then be translated into start-ups by attracting entrepreneurs, fostering tech transfers, and building out IP assets. Seed, angel, and broader venture capital funding nurtures start-ups so that they survive and scale up past infancy. Early-stage companies—part of the integrated innovation funnel and value that the ecosystem promises—also need access to capital and structured support.

Assessing strengths and opportunities across the innovation funnel and making tailored plans to bolster strengths and fill gaps are key ingredients of a successful ecosystem. Understanding the root cause of gaps can help target effective solutions for bridging them. If a location has low VC funding, for example, either a lack of investment vehicles or of funding opportunities in the region could be responsible. These distinct challenges would require distinct solutions.

A robust mix of companies is also essential for building a healthy innovation funnel because it allows start-ups to improve their ideas—from applied research through the commercialization of a finalized product or service—by working together with large R&D anchor institutions and established talent. Boosting private investment in some higher-risk early-stage companies can help achieve better balance between start-ups, more mature companies, and established but slower-growing anchor institutions.

Sidebar

Share

Cortex (St. Louis)

Ecosystems can support activities across the integrated innovation funnel in several ways. University anchors can empower tech transfer offices to scout and support developing technologies more proactively. Incubators and accelerators can help entrepreneurs on their journeys. Ecosystem leaders can coordinate start-up showcases by building out physical hubs that allow VC firms to interact with the ecosystem organically. The right mix of activities will probably depend on the scale of the hub and its strengths and challenges across the pipeline: the ASU Scottsdale Innovation Center,[7] for instance, has fostered $1.3 billion a year in economic activity by incubating and funding student start-ups.[8] The St. Louis Cortex, meanwhile, has prioritized regulatory and infrastructural policies to generate $2.1 billion[9] in single-year economic impacts (see sidebar "Cortex (St. Louis)").

4. Develop an ecosystem talent and workforce strategy

Another critical component of successful ecosystems is a coordinated talent strategy. A scarcity of talent can severely constrain an ecosystem's growth. For knowledge-based industries, location decisions often hinge on the available talent pool and the ability to develop and attract qualified candidates.

Economic development organizations and local leaders have historically relied on businesses and schools to attract talent. But large-scale ecosystems can have their own strategies to convince employers that they are environments where people want to work, play, and live—and would willingly relocate to.

To that end, the talent pipeline can be expansive and can focus on development across a spectrum of occupations and skill levels aligned to priority sectors. Public- and private-sector leaders can create partnerships and collaborations with a range of institutions, including four- and two-year universities, training providers, and community-based organizations that support greater access. Standing up an ecosystem can be an opportunity for leaders to work together to tear down the "paper ceiling" by incentivizing and helping employers to rethink degree requirements and consider candidates with two-year degrees or other certifications of skills—an approach that emphasizes reskilling existing talent pools, uplifting the entire community.

Helping ecosystems tailor specific programs to the needs of a sector or even an individual company can also create direct pathways into family sustaining jobs. Leaders can look at K–12 education to maintain a high-quality talent pipeline over the longer term. Such novel strategies helped the economic development organization JobsOhio attract companies and capital investment to the state, creating tens of thousands of new jobs.

Attracting talented workers to an ecosystem and then retaining and developing them often hinge on creating a relatable aspiration and appealing anchor institutions. To ensure that the ecosystem's universities, research institutions, and companies have a robust talent pipeline, leaders could consider developing a coordinated and cross-sector regional workforce strategy that translates the ecosystem's brand, goal, and aspiration into a tangible pitch. They can also work with all participating organizations to ensure that employers have access to qualified applicants and that employees have access to exciting and competitive opportunities. Other ways to increase the retention rates of local graduates include launching new or expanded degree programs, loan forgiveness for graduates staying within the region, coding bootcamps, university satellite campuses, and working with ecosystem companies to offer internships and apprenticeships.

5. Design high-quality real estate, infrastructure, and livability

Say that sufficient talent has been attracted to an area and that large anchor tenants are coexisting with accelerators, incubators, start-ups, and academic entities. But to be sustainable, an ecosystem needs to remain attractive to businesses, institutions, and workers. That enduring appeal is anchored in two types of infrastructure: first, the physical and virtual infrastructure aligned to the specific needs of the prioritized sectors (for example, wet-lab space for life sciences), and second, the “placemaking” infrastructure that informs quality of life. Leaders typically focus on the physical and virtual, which are crucial, but placemaking is also key for facilitating an inclusive community, vibrant and successful start-ups, collaboration, ideas, and growth, as well as making people who live and work in the ecosystem happier and more productive (see sidebar “Boston and Kendall Square”).

Sidebar

Share

Boston and Kendall Square

Real-estate investments and spatial decisions involve more than glossy new buildings or flavor-of-the-month technologies. Economic development organizations should prioritize investments in physical and digital infrastructure aligned with an ecosystem’s sector needs, from research facilities and prototyping equipment to co-working spaces and incubators. Even in a postpandemic world, physical spaces such as offices and storefronts are important. Retail, residential, and commercial real estate that complements new ways of working can provide the right alchemy for attracting and retaining the best talent and businesses. Quality-of-life investments—such as highway interchanges, light rail stations, and public parks and open spaces—can create an appealing atmosphere for ecosystem residents, commuters, and businesses alike. Finally, a sufficient supply of housing is critical to ensure community affordability and vibrancy.

Each of these components—infrastructure to live, work, and play—can be designed to avoid the negative externalities that come from growth. Transportation and transit systems can use demand forecasting and load planning to get people from place to place without adding to congestion; land use and housing plans can account for pricing and affordability to avoid pricing people out of existing homes.

6. Cultivate a vibrant, diverse community and a sense of place

Innovation industries have long been notable for their lack of diversity and inclusion. Less than 20 percent of the people employed in engineering jobs are women, for example, even though they earn a majority of undergraduate and advanced STEM degrees.[10] Black workers make up 11 percent of total US employment across all sectors but only 9 percent of STEM workers, and the gap is even more pronounced for Hispanic workers.[11] Closing that divide will depend largely on the enrollment of members of historically marginalized communities in STEM education, and progress is currently poised to move slowly. Our research found that at current rates of change, racial and ethnic parity in higher education is still 70 years away.[12]

Sidebar

Share

University City Science Center

To redress the imbalance, successful ecosystems can catalyze diverse, inclusive community building and shared prosperity—“inclusive growth.” Leaders can begin with a firm understanding of their starting point to promote equity goals and then develop initiatives, together with community anchors and education institutions, to ensure that the voices of residents are included in the ecosystem’s development and that opportunities benefit everyone, not just transplants to the area. Partnerships with community-based organizations are also critical to ensure that existing residents are not displaced as rents rise and new public spaces are created. Ecosystem leaders can even steer investment to create opportunities for disadvantaged communities and company founders from underrepresented groups (see sidebar “University City Science Center”).

This last component of the playbook begins in the planning phase, when leaders are well-positioned to promote inclusion as they consider urban-design, health equity, or other initiatives that bring together a diversity of stakeholders. They can commit themselves publicly to the goal of inclusive growth by setting SMART[13] goals for diversity, equity, and inclusion and by announcing them transparently. They can also create performance incentives linked to these goals and share updates through annual progress reports on diversity, equity, and inclusion.

To capitalize on the promise of innovation ecosystems, government and private-sector leaders can consider a few critical shifts in their community-building approach. Instead of doing business as usual, these leaders can not only cultivate a community of anchor institutions but also support tenants that enhance one another’s businesses within specialized segments. Instead of just helping to shape infrastructure with public authorities and creating common residential amenities, economic development leaders in the public, private, and social sectors can work together to assist anchor tenants and cluster businesses. And instead of looking at financial returns in isolation, leaders across sectors can capture the value for all shareholders and stakeholders. The potential returns—for communities, organization leaders, and residents alike—are worth the effort.

ABOUT THE AUTHOR(S)

Cameron Davis is a consultant in McKinsey's New York office. **Ben Safran** is a partner in the Washington, DC, office, where **Lauren Yayboke** is an associate partner. **Rachel Schaff** is a client capabilities manager in the Waltham, Massachusetts, office.

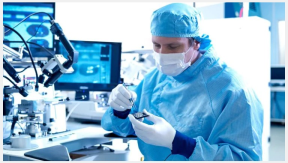
The authors wish to thank Kyoka Allen, Jennifer Bright, JP Julien, Mike Kerlin, Jonathan Law, John Means, Rob Palter, Steven Smith, and Lauren Voluck for their contributions to this article.

Talk to us

EXPLORE A CAREER WITH US

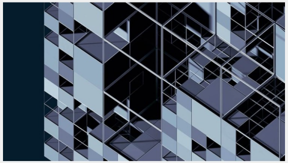
Search Openings

RELATED ARTICLES



Article

The CHIPS and Science Act: Here's what's in it



Article

Unlocking the potential of public-sector IT projects

Article

Are states ready to close the US digital divide?

© 1996-2024 McKinsey & Company

Sign up for our Monthly Highlights newsletter