
PROMISING PRACTICES IN BUILDING INNOVATION INFRASTRUCTURE THE ROLE OF INNOVATION BROKERS

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[CREATING AND SUPPORTING INNOVATION ECONOMIES]

A changing global economy and the elimination of industries and jobs from American soil has been central to policy and politics on a national, state, and local level. As communities struggle to keep pace with a shifting economic environment, many look to sustainable answers for maintaining and improving the quality of life of their citizens. Emerging as a possible answer over the past few decades is the practice of shifting from an industrial economy to an idea-based economy. As Seth Goldin has written in the magazine *Fast Company*, “The first 100 years of our country’s history were about how could build the biggest, most efficient farm. The second 100 years were about the race to build efficient factories. The third 100 years are about ideas.” If communities are to keep pace, regions are tasked with supporting or in some cases creating an innovation based economy.

An innovative economy is not just about generating regional wealth; it is the core of regional vitality and quality of life. Without an innovative economy, any gains in social inclusion, livable community, and collaborative governance are short-lived. An innovative economy is the engine that produces economic opportunity and community revenues that make possible career mobility, investment in educational systems, development of community infrastructure and amenities, investments in environmental preservation, and other critical assets for regional vitality and quality of life. A region’s ability to recognize, support, and capitalize on new

technologies, innovations, and trends in industry, known as its “absorptive capacity”, will directly affect its ability to capitalize on innovation. This ability to be flexible, dynamic and responsive is an outcome of the interplay between a region’s industrial legacies, socio-cultural dynamics and its physical, financial, and intellectual assets.

An innovative economy alone cannot produce regional vitality and quality of life if other factors are not in place (e.g., if residents do not have the skills to participate in the growth of higher-level job opportunities, if the natural environment is seriously degraded). However, it is not possible to sustain regional vitality and quality of life over the long term without an innovative economy (i.e., if residents lack economic opportunity, if communities lack revenues, if the natural environment is not viewed as an indispensable economic asset).

But what does it take to create or foster an innovation economy? What are components of a healthy innovation ecosystem that supports the realization of ideas into products with market value? Silicon Valley is arguably the most powerful innovation economy in the world and many have studied it to glean information on what makes it work. In the Silicon Valley Edge, William Miller et. al. describe what they believe to be the unique attributes of the Silicon Valley “habitat”. Some attributes apply to the entire United States, like a regulatory and tax system that

» Ideas Drive Economic Growth

	INDUSTRIAL ECONOMY	IDEA ECONOMY
RAW MATERIALS	Natural Resources, Labor, Capital	Ideas
CUSTOMER FOCUS	Mass Production	Mass customization based on information technology and product design
ORGANIZATION	Large Corporation, Economies on Scale	Entrepreneurs, Small Scale, Free Agents, Networks
SUCCESS FACTOR	Labor, Quantity, Low Cost Stability, Control	Talent, Speed, Innovation Flexibility, Customization

Source: Collaborative Economics, Joint Venture: Silicon Valley’s 2006 *Index of Silicon Valley*.

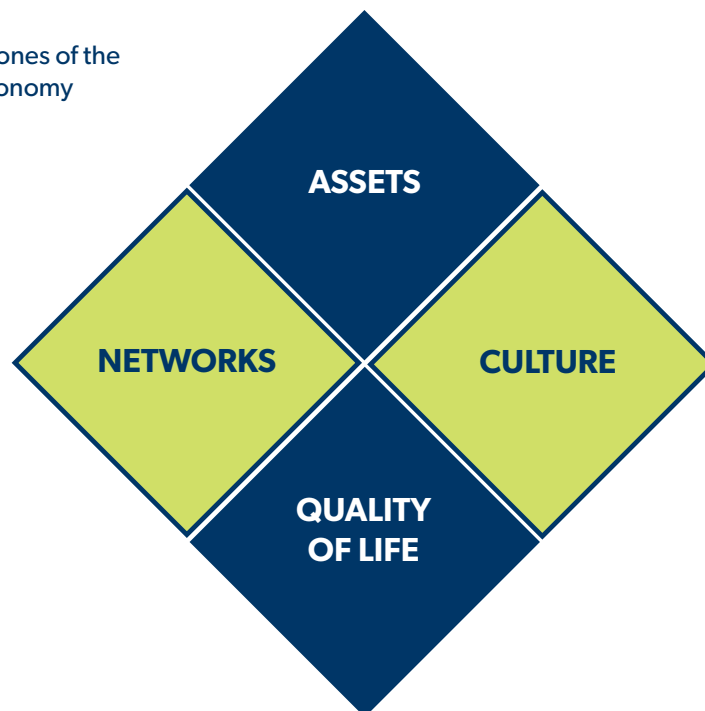
is more favorable to innovators than any other country in the world¹ and some are very specific to Silicon Valley like a climate that rewards risk and tolerates failure and specialized business infrastructure. A good number of Miller's attributes apply to many communities with burgeoning innovation economies: universities and research institutions; mobile workforce; knowledge intensity; collaboration among business, government and nonprofit organizations; high quality of life; and a results oriented meritocracy. As we will discuss later on, the political, cultural, and industrial history of a region which is reflected in the above attributes has a significant impact on developing an innovation economy.

To create an innovation economy a region must possess smart people and prestigious universities but these assets alone will not automatically lead to a productive innovation economy. It is strong networks of people and institutions along with the cultural attitudes they perpetuate that are equally important to exponentially expanding upon more tangible assets like investment capital and strong research facilities. This balance physical, human, and capital assets and other less

quantifiable aspects of an innovation economy are reflected in Collaborative Economics' four cornerstones of innovation - assets, networks, culture and quality of life.²

Despite the strong and growing body of evidence about its importance, regional innovation is not at the core of many economic development strategies. Economic development must now change because the nature of the business development in the global economy has fundamentally changed. Central to this task of spurring innovation from an economic development perspective is creation and/or support of infrastructure--both tangible and intangible--that supports innovation. Facilitating and catalyzing these efforts is the innovation broker: an organization or body that acts as an agent or broker in any aspect of the innovation process between two or more parties. Such intermediary activities include: helping to provide information about potential collaborators; brokering a transaction between two or more parties; acting as a mediator, and helping find advice, funding and support for the innovation outcomes of such collaborations

» Four Cornerstones of the Innovation Economy



¹ Lee, C.-M., Miller, W., Hancock, M. G., & Rowen, H. S. (2000). *The Silicon Valley Edge*. Stanford, CA: Stanford University Press. pg. 7

² <http://www.coecon.com/innovdriven.html>

[INNOVATION BROKERS]

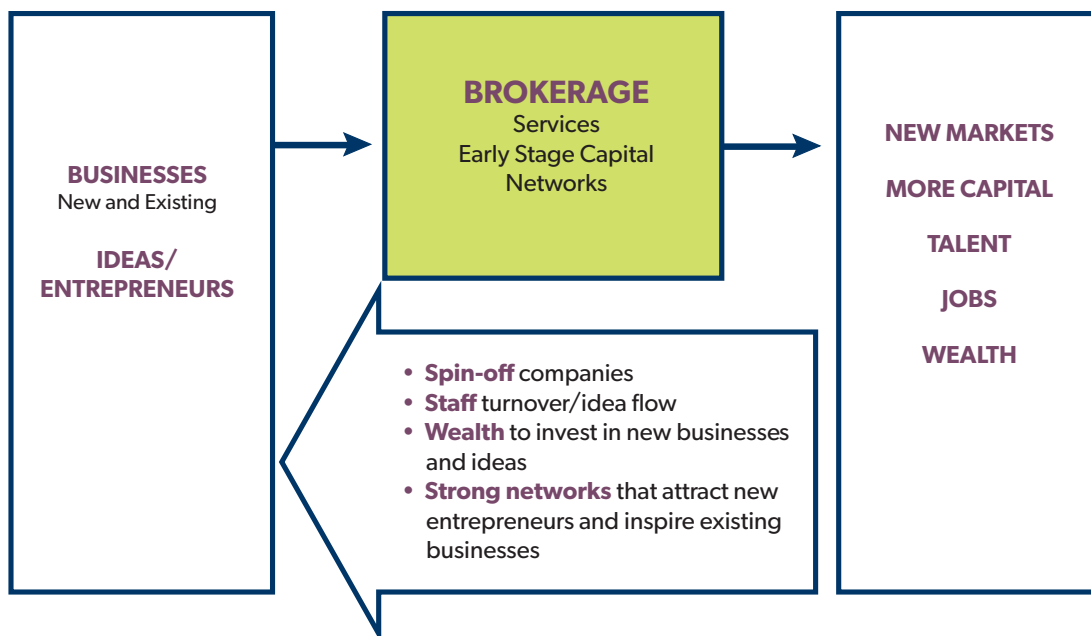
In 2008, Collaborative Economics published the ***Innovation Driven Economic Development Model***. The paper outlined why innovation was important to regional development, how regional development relationships and existing social infrastructure might support innovation, and featured a series of case studies on regions that created a regional infrastructure that supported innovators and innovative companies. The outcome of investing in such infrastructure allowed the region's innovation economy to strengthen by reinforcing the bonds, networks, and resources that allow for the successful commercialization of ideas and research.

To describe this infrastructure and the networks that connected people and businesses to resources Collaborative Economics has used the term Innovation Broker; the actor who “intervene[s] at appropriate times to help firms achieve higher value and productivity by gaining access to appropriate innovation assets at each stage of the business development process- start up, expansion, production and marketing.” The model below shows how businesses and entrepreneurs connect to the innovation broker in order to interface with many of the other resources within the community. Innovation brokers serve as the hub of an important network of businesses,

follow-on capital, and people. They connect (or if there is a dearth of crucial innovation services, providing) entrepreneurs and businesses to services like help writing SBIR applications, intellectual property analysis, and early stage capital. Through the brokerage, the company is efficiently connected with necessary services to grow their business, thus generating jobs, wages, and regional wealth. The system is reinforced by what flows from new and improved businesses (more capital for investment, more companies, more ideas) and attracts more investment and talent from other places.

The broker builds a regional financial, tactical, and social infrastructure to support innovators who can turn their ideas into things that the world needs. What is special about an innovation economy as shown in this model is that it is perpetually reinforced by the cyclical nature of investing and supporting innovation. New markets, new talent, and increased capital created by this cycle attract high quality talent to the region and spin out new companies, new ideas, and increased capital to reinvest in other forms of innovation.

» Connecting Businesses and Entrepreneurs to Innovation Brokers



THE BROKER IN THE INNOVATION ECONOMY

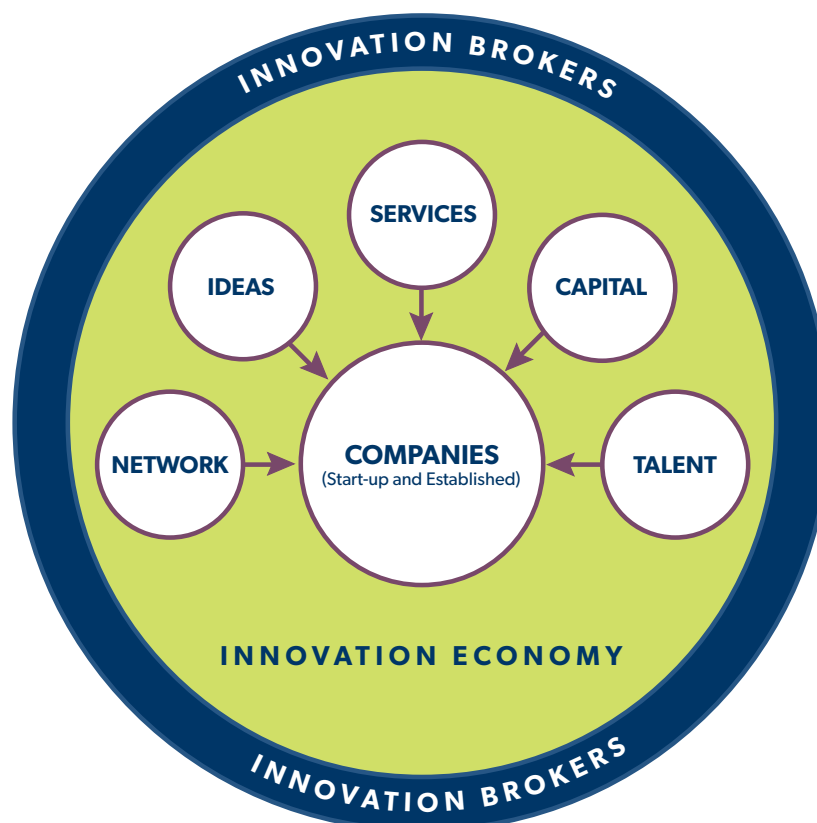
An innovation economy supports its businesses and entrepreneurs by fostering a network of open idea flow, capital, and services (often other businesses) aimed at helping companies innovate and get ideas off the ground. As described in the previous paragraph/model, the system strengthens itself with each iteration. In this sense the broker is also the centripetal force that binds and enforces the innovation economy and strengthens the region's continued ability to attract talent, capital, and ideas.

In this vision of the innovation economy, business is central to all other activities. The networks, services, and capital that are ingredients to allow business to expand and innovate are directed towards (and exist in service of) businesses and entrepreneurs. Holding the innovation economy together is the innovation broker. All of these services, people, ideas and capital might exist in a regional economy but the broker accelerates, facilitates and supports the connection of these entities ensuring better access to information and resources. The broker can be an official entity like an accelerator or economic development office: a place for entrepreneurs to go when they need advice, capital, and support. Or it can be more informal: a network of people who have knowledge of resources, are willing to share, and see the importance of facilitating the free flow of information in an innovation economy.

Many mistakenly believe that the Innovation Economy is limited to start ups, but an important part of the broker model is that it provides services for existing entities as well as start ups. Good commercialize-able ideas don't just spin out new businesses, they can improve existing businesses by making them more competitive.

In the past several decades many regions and organizations have undertaken the task of defining, designing and implementing infrastructure that supports local innovation with the hope that these projects will create – well-paying jobs, regional wealth, and social capital. In this paper we will focus on the kinds of broker-entities that regions have proactively created to accelerate the growth of innovative businesses. These entities often provide services that may not yet be available in the regional economy, and even more importantly, they provide a platform or hub for entrepreneurs and business owners to access to the innovation assets in a community.

For the purposes of this early promising practices work, we surveyed the work of approximately ten Innovation Brokers. Six of these organizations have been featured on the **Regional Innovation Acceleration Network (RIAN)** website as examples of successful innovation infrastructure (www.regionalinnovation.org). We also spoke to **San Diego CONNECT**, the **International Center for Water Technology**, **Innovate St. Louis**, and a number of Washington State institutions, both public and private.



CREATING AND SUPPORTING AN INNOVATION ECONOMY

Promising Practices In Innovation Brokerage

CREATING, SUPPORTING, AND DRIVING THE NETWORK

As mentioned previously, the most obvious inputs to an innovation economy are ideas/research, workforce, and capital, but to effectively utilize and synthesize these innovation inputs, strong, thoughtful leadership and collaboration are key. The network that facilitates the efficient connection of people, services, ideas, and capital greatly improves outcomes. The work of creating active, collaborative networks that work together to realize shared goals is no small task. Including the right people, and having a realistic and actionable plan to drive regional innovation are crucial to effectively utilizing innovation assets.

» Strong Collaborative Leadership

The Innovation Broker leadership team needs to be comprised of entrepreneur and innovation experts as well as established regional leaders who have the credibility, connections, and resources to aid implementation. All of the organizations surveyed for this paper asserted that strong, collaborative leadership was crucial to moving these organizations forward. More specifically, leadership needs to be comprised of decision-makers who don't just advocate for innovation infrastructure within their organizations but actually deliver on action steps. For example, in St. Louis, the mayor, the head of the Chamber of Commerce, and the Chancellor of Washington University (and philanthropist) were all part of the leadership group that set out to make St. Louis a hub for the Life Sciences Industry. In Fresno, the International Center for Water Technology had important advocates from industry, local government, and California State University who helped find funding and drive the mutually beneficial venture forward.

Dr. Mary Walshok's recent work for the National Science Foundation Unraveling the Cultural and Social Dynamics of Regional Innovation Systems (forthcoming) found that the characteristics of the region, technology, industrial legacy, and leadership team have significant impacts on efficacy of innovation brokers. Important takeaways from Walshok's work are the Innovation Broker must be entrepreneur-focused (as opposed to simply business

focused--brokers help innovators and entrepreneurial individuals cause creative and sometimes disruptive change); that the leadership team must include researchers, scientists, and entrepreneurs; and that staffing and leadership must have directly relevant skills and competencies to help innovators commercialize their ideas. The University of Washington's Center for Commercialization saw their effectiveness increase when they hired a serial entrepreneur to head the organization. Her specific knowledge of and experience in shepherding ideas to through to products has helped the team serve more clients and with greater success.

Another important quality of Innovation Broker leadership is that it should be driven by and have a strong presence of private sector representatives. Governments and economic development organizations can play an important role in innovation, but sustainable efforts must come from the entities that directly benefit from such collaboration and networking. Government can be an excellent partner in this process: addressing regulatory issues, providing funding and support for the processes that lead to strong relationships, and by serving as "advocates for the deal." There is general consensus that governments should not be "picking winners and losers" or actively trying to plan or shape markets, but the work of economic development does require strong channels of communication and response from state and local government.

» **Mission/Strong Business Model**

When asked about what drove the success of their International Center for Water Technology, President David Zoldoske said that a strong business plan, built collaboratively, was key. The plan focused on three discrete tasks, which were assigned to small groups, and each set out to accomplish their piece of the work. After completing these tasks, the team re-evaluated and re-wrote their business plan to include a new set of goals. In St. Louis, a study commissioned at the beginning stages of their planning laid out specific targets to enable the city to attract large life sciences corporations. The first set of actions in the plan were to create the physical infrastructure (lab and office space) to house early-stage research and take it to the next stages of commercialization. Their initial plan from 2000 served as a roadmap for future work. The plan represented a mission that the entire leadership team shared and gave them a means of moving forward together, despite their varied sectors.

Creating an actionable plan with the right group of people is not the same for every community. Depending on the technology, industrial legacy and geographic landscape, embedded social and cultural dynamics, and material capital assets, different kinds of strategies will need to be formulated. Over two decades ago with the

end of the Cold War, San Diego needed to fill the gap in their economy that defense contract spending had previously driven. The local University and a handful of entrepreneurs, IP lawyers, and scientists got together and formed San Diego CONNECT. CONNECT's leadership did not include (at the outset) politicians, major philanthropists, or representation from large companies, but it was the right group of people to drive innovation and the supporting innovation infrastructure in San Diego. In contrast, in St. Louis, which was a major industrial city at the beginning of the 20th century, the effort to reinvent their city as a destination for Life Sciences companies necessarily involved the participation of major civic leaders, such as the mayor, head of the chamber of commerce, and a member of a major philanthropic family. The cultural and industrial histories of these two cities are different and resulted in different approaches to building innovation infrastructure. For more on the characteristics of regions that influence their Innovation Broker structure, see Walshok's *Unraveling the Cultural and Social Dynamics of Regional Innovation Systems*.

FILLING IN THE GAPS: SPECIALIZED SERVICES AND CAPITAL

Two key components of a healthy innovation ecosystem are specialized services for innovators and access to capital. For communities lacking in either area, often an important role that the broker can play is to provide these specialized services and to connect businesses and start ups with various forms of early-stage capital. The two key activities work hand-in-hand to assist companies and individuals with innovative ideas to secure both the financial and tactical support they need to sell products and generate jobs and wealth.

› SERVICES

In our brief survey of innovation brokers, we have found that many of them offer similar services for entrepreneurs but may package them differently. For instance, at one broker, a startup could apply for help just to find management personnel (i.e. chief executive or financial officers) but at another broker this same service might be bundled into a suite of other services. It also varied from broker to broker whether or not funding was attached to services. In some organizations, companies who did not receive funding directly from the broker were still able to access the business services they offered. In other organizations, business support services were limited to the startups in which the broker was directly invested. Below is a beginning list of services that an innovation broker might offer. It's important to remember that this is just a brief overview of the kinds of services organizations might offer. The way individual communities tailor these models to best serve regional needs is crucial to their success.

» Business Services for Entrepreneurs

Almost every broker we spoke with actively provided business services for innovators. Services included: business plan creation/review; intellectual property (IP)/legal consulting; business viability consulting (domain specific, commercialization potential, business development); headhunting for executive management; and Small Business Innovation Research (SBIR) grant application assistance. Innovation brokers had various ways of providing these services. Some used law students and MBA students to provide business plan assistance or IP review. Others employed professionals, either through a referral/contract basis, or had these individuals on staff. Regardless of who provided the services and how much they cost, the most important take away was that staff who deliver these services must be qualified. This is a challenge that any new innovation broker should not take lightly.

» Technology Transfer

For regions with strong research assets (federal labs, large research universities), helping scientists bring an idea to market is an important service. For example, Tech2020's Center for Entrepreneurial Growth (CEG) is a resource for any University of Tennessee or Oakridge National Lab researchers. Employees of these organizations can access CEG's business services and pathways to capital as part of an agreement between Tech2020, University of Tennessee and Oakridge/Battelle labs. Similarly, Innovation Works in Pittsburgh has special grants for university researchers who want to take their research from basic (usually federally funded) to applied (more difficult to find funding). The

University of Washington's Center for Commercialization connects researchers with Entrepreneurs in Residence and also offers a post-doc in commercialization for PhD students who want to commercialize their dissertation research. It is important to note that one of the most difficult aspects of technology transfer is recognizing a commercialize-able idea within the kind of research conducted at a lot of these facilities. Researchers are not necessarily entrepreneurial thinkers and may not be able to recognize what in their "pure" research has marketable value. Because this kind of thinking is rare, effective tech transfer offices both help researchers take their products to market and help them find applicable purposes by supporting activities like Entrepreneur in Residence.

» Entrepreneur in Residence (EIR)

At Washington State University the EIR program connects interested entrepreneurs with University researchers. The entrepreneur helps the department/researcher commercialize research by providing strategic, startup-specific, experiential knowledge. This often involves starting at the very beginning: figuring out what shape the research will take as a marketable item. EIRs work as both mentors and business partners to take research from its earliest stages all the way to market. Oklahoma's main innovation broker, Innovation to Enterprise (i2E, Inc.), also connects EIRs to startups but the program is less intensive. An EIR (who may or may not be located in the state) flies in for a week to work with the startup and then stays in touch through weekly phone calls to help coach the startup through the various stages of growth and decision-making.

» Physical Infrastructure: labs, office space, IT

St. Louis recognized its potential to be an influential life sciences hub, but understood that it lacked the kind of lab space needed to develop pharmaceuticals. The city built special wet laboratories where chemicals, drugs and other biological matter can be handled. Innovation Works in Pittsburgh offers researchers/innovators access to (partner) university labs to help solve problems that require the use of expensive equipment. Many of the brokers we spoke with offered incubator or office park space to fledgling companies. These incubator spaces usually charge below-market rent, offer opportunities for innovative businesses to work next to each other, and include some degree of administrative and IT infrastructure. Tech2020 opened its regions' first data center in 2001 to provide IT infrastructure for the entire region: the data center was an economic development/infrastructure project and it served to help Tech2020's clients.

» Services for College Students

North Dakota's Center for Innovation is actually housed at the University of North Dakota, as a collaboration between the business school and the school of engineering. Funding and incubator space are also provided for student (or recent student) startups. The Center for Innovation offers college students a chance to understand venture development from the capital side: the Center has an entirely student-managed venture fund.

» Networking events

All of the organizations in this study provide opportunities for entrepreneurs, startups, and investors to network with each other. Different organizations host conferences, networking events, educational activities, and even awards ceremonies.

» Community Resources

With limited resources and reach many several Innovation brokers have launched initiatives to extend their resources to the wider community. Pittsburgh's Innovation Works is not able to incubate and mentor every business or startup that comes to its door, but it has tried to make resources publicly available through its Entrepreneurs Toolkit blog. The blog includes a series of articles covering important topics for entrepreneurs such as business models, compensation, corporate governance, deals, founders' issues, fundraising, management and

marketing and sales. North Dakota's Center for Innovation employs a different approach to extending their reach in the community by managing a venture competition, "Innovate North Dakota". This competition is unique because anyone (from North Dakota or willing to relocate to North Dakota) can enter. The competition takes nine months and includes an entrepreneurial education curriculum and several boot camps along the way. In the end, 20 finalists pitch to ten angels, who determine five winners.

» Programs for existing businesses

Innovation infrastructure resources appear to be largely directed at entrepreneurs and start ups despite the fact that the majority of new jobs comes from existing business. However, there are several exceptions in this sample of Innovation Brokers. Innovation Works in Pittsburgh, PA has a program that connects small manufacturing businesses with regional Centers for Excellence to provide fee-for-service R&D that assist the companies in developing new products and better manufacturing processes. While the program charges companies for the R&D consulting work, companies can win match grants from the Innovation Adoption Grant Fund for up to \$50,000. The Center for Innovation in North Dakota manages a USDA rural outreach grant that supports businesses in rural communities. The Center for Innovation works with these businesses through a virtual client coach and relies on local economic development commission partners to help with in-person consulting. In Cleveland, NorTech works with its anchor companies to introduce them to local research and innovators that might help them improve their competitiveness. In some ways existing businesses need many of the same supports that start ups do: capital, the right partners, and IT/IP services. But existing businesses face challenges that start-ups do not (and have resources that start-ups do not) so it is important to work with local companies and assess their particular innovation needs.

The Innovation Broker lens can be limited to helping researchers commercialize and sell their ideas to entrepreneurs to be launched as start ups, but this kind of thinking limits sources of R&D, capital, and commercialization. Strategic investment by existing firms in new (extra-organization) research and innovation assistance for existing firms are two strategies that need to be further explored.

› EARLY-STAGE CAPITAL

In this section we will talk about different ways that brokers provide startups with access to early-stage funding. It is important to note that the funding is always tied to a package of services that include strong mentorship and business support from broker staff.

» Funding Provided by the Broker

A key element of a broker is providing early-stage, pre-venture (even pre-angel) funding for startups. Many brokers began as technology transfer offices and understand very well that many of the nation's most valuable R&D assets are not always readily evident or ready for market. Some brokers differentiate more micro stages of gap funding, breaking early-stage funding into even more categories. For example, TechColumbus has a "Tech Genesis Fund" that employs a "fail fast" methodology. Participants are given up to \$25,000 to quickly research whether or not their research is actually commercialize-able. TechColumbus follows the process closely and at the first sign that the idea may not make it all the way, the operation is shut down. Ben Franklin Technology Collaborative (BFTC) of Southeast Pennsylvania supplies both loans and investments depending on the stage of the innovation. BFTC offers large (\$100,000-750,000) investments to more mature startups and smaller direct loans for earlier stage companies for things like proof of concept, scalable prototypes, and field research. Other funds will offer capital to startups along the continuum of early-stage funding: proof of concept all the way to venture funding.

There are also a variety of funding models for the dispersal of early-stage capital. Some brokers provide unsecured loans, others convertible notes, and others a mix of both. Most organizations prefer a convertible debt model, which can allow for creativity and flexibility based on the organization, its risk profile, and the local market for capital.

Funding provided through connections within the broker Another means for financial support that an Innovation Broker can supply is access to Angel investors. Some brokers serve as clearing houses for Angel stakeholders who rely on connections with the Innovation Broker to introduce them to promising startups. In some cases, Angels are actively involved in reviewing Innovation Broker funding applications and provide either sidecar financing to the ventures the Innovation Broker funds or separate funding to companies the Innovation Broker elects not to support. In Philadelphia, the Ben Franklin Technology Collaborative of South East PA rigorously screens applications to determine which applicants will become a portfolio company. Even if the applicant does not receive funding and services from BFTC, at the end of the process they are often able to connect with other investors and mentors who saw their ideas during the screening process.

TechColumbus manages several "bands of Angels" or funds of pooled angel money. While the angel leadership makes choices about who to invest in, the staff at the Broker manages the day-to-day operations of the fund and make sure investments/entrepreneurs are well supported. The angels will often co-invest with other TechColumbus ventures.

FUNDING FOR INNOVATION BROKERS

Like start ups, brokers often require their own early-stage financing to get started. The organizations in this paper had significant funding from state, federal or philanthropic sources.

» State Support

Oklahoma and Ohio are examples of two states that invested heavily in creating innovation infrastructure support. Both states sought to strengthen their economies through diversification away from traditional industries, oil and gas (OK) and manufacturing (OH). The states invested significantly in startups and innovation by seeding the risk capital funds that the brokers deploy. In 2005, Ohio's Third Frontier program invested \$15 million in TechColumbus to get it off the ground and has provided follow-on funding since. In Oklahoma, there is a dearth of both early and late-stage venture capital, so the state has been largely responsible for funding i2e's two main venture funds that have dispersed over \$10 million. Until 2008, 90 percent of i2e's funding came from the state, while today it is closer to 60 percent. In both of these cases, the state was both the instigator and the major funder of the Innovation Broker.

» Philanthropic Support

The Center for Innovation at University of North Dakota was funded largely through alumni donations. The university granted \$20,000 to start the Center, but the rest of the capital came from 15 individuals who wanted to invest in the state and promote innovation and entrepreneurship at the university level. Today, roughly a quarter of the Center's operating budget comes from donations. In St. Louis, the leadership group of civic, educational, public and private sector leaders working to transform St Louis relied heavily on in-kind time investment of their leadership group, but were also supported by a local champion, Chancellor Emeritus of Washington University, William Danforth, who put the support of his family foundation behind the effort.

» Federal Support

When Oakridge National Laboratory management shifted from the government to Battelle Labs and the University of Tennessee, the region wanted to ensure that the research generated at the lab was commercialized and leading to new businesses and good paying jobs. Using a combination of donations from the private sector, such as Bell South and Lockheed Martin, and the U.S. government, Tech2020, a regional broker focused on commercializing Oakridge National Lab research was born. Since its establishment in 1995, a significant source of revenue to support investment in new businesses were federal grants through the USDA and the Small Business Administration. A combination of grants and designations

allowed Tech2020 to apply for, manage and eventually spin out several new kinds of federally recognized funds such as:

- [New Markets Venture Capital Companies](#)
- [Community Development Financial Institution](#)
- [Rural Business Investment Company](#)

» Self-sustaining activities

From its inception, the leadership of Tech2020 was focused on becoming self-sufficient and not reliant on federal or state grants to help with operating costs. Other brokers such as the International Center for Water Technology and San Diego CONNECT also sought diverse funding sources. While grants do cover special projects (like venture funds), the day-to-day operational costs are covered by several revenue generating ventures:

- [Incubator Space](#): The broker owns or operates seven incubators in the region. Rent revenues cover facility maintenance.
- [Stake in venture funds](#): As mentioned in the previous section, Tech2020 was successful in applying for federal SBA grants that led to the creation of community investment funds. While Tech2020 manages the staff of one of the ventures, it has spun its four funds out to be independent ventures. However, the organization still has a stake in all of these ventures funds and the revenue generated from these community loan programs is another source of funding. The advantage to having been investing in local businesses for almost 20 years is that many early investments and funds are starting to create a real source of revenue.
- [Center for Entrepreneurial Growth](#): The services that Tech2020 makes available University of Tennessee and Oakridge Lab researchers are also available to the general public, but the organization charges fees for its business/startup consulting services. Recognized regionally as an excellent source for startup services, the Center for Entrepreneurial Growth has an impressive team of consultants. They credit tireless recruitment for the best employees and finding extra dollars to pay competitive salaries crucial to being able to charge for their services.

- **Data Center:** In 2001, Tech2020 started a data center to meet unmet IT infrastructure demand. Over the last decade, the data center, the oldest in the region, has grown substantially. After being spun out to be its own company, Tech2020 sold its controlling interest in the firm last year. They are now hoping to use the proceeds from that and the revenue from their investment stakes to create an endowment as another source of operating revenue.
- **Services valued by industry:** the International Center for Water Technology (ICWT) offers 3rd party testing for water technologies. The center has an excellent reputation for quality testing and its position gives it a way to earn money and stay connected with industry trends.

- **Member dues:** San Diego CONNECT charges (sliding scale) dues to its members. Belonging to the CONNECT network has value to participating entities and CONNECT members show that value by paying to be part of the organization.

None of these sources of revenue are mutually exclusive and to a degree, all of the organizations we spoke with had some amount of support from the private, public, and philanthropic sectors. The age of the organization was also important in understanding its funding model. Older organizations have had enough time to see their venture capital begin to pay off. Younger organizations who have also invested in emerging companies have not yet had time to recoup their investments. What is clear is that significant early funding (along with good leadership and a sound business plan) was key to getting these organizations off the ground and on the path to sustainability

[MEASURING SUCCESS]

The most popular metrics for evaluating the success of innovation infrastructure projects are likely the result of economic development underpinnings; most innovation brokers have at least attempted to capture the dollar value of their investment in innovation. Common metrics include: follow-on funding and investments that were realized in companies due to early-stage investment by the Innovation Broker; actual dividends, interest payments, successful exits, etc paid back to Innovation Broker due a portfolio company's success; the wages and revenues from new jobs and businesses, and the associated tax revenues collected by these activities. However, measuring only these outcomes, especially at an early stage of brokerage can be frustrating and not tell a complete story. Many of these quantifiable economic benefits takes time to make clear gains. However, Innovation Brokers should not use this as a reason not collect these data points and instill a institutional cultural of rigorous self evaluation.

Viewing brokerage purely through an economic development lens can lead to missing other important outcomes of effect Innovation Brokers. The Innovation Broker must consider what other valuable outcomes they believe their institution can provide to the community.

- **Community and Network Building:** Some brokers measure the number of events that take place, the attendance, etc. Others measure the number of "touches" they had to local businesses and entrepreneurs: how many people came in seeking services or connection? San Diego CONNECT uses their member dues as a measure of how valuable members find CONNECT's services.

- **Innovation Inputs:** SBIR awards and other research/grant dollars are real cash assets coming into a community and express the confidence in/strength of the innovation landscape.
- **Innovation Outputs:** Outputs like patent registrations or licensing might be good examples.
- **High Quality Workforce:** Has investment in local educational institutions and business impacted the demographics of an area? Keeping track of in and out migration, education attainment, and other demographics will allow communities to measure their diversity, competitiveness, and other important human resource measures.

The above metrics are assets that have a direct connection to innovation, but to be a true innovation economy, a region must be attracting people workforce and a "buzz." While brokers cannot claim causal relationships, other important metrics a broker might want to collect surround quality of life: things like rates of volunteerism, voter turnout, and the development or attraction of other community amenities (parks, museums, college campuses).

Metrics are important and accountability is essential when investing public (and private) dollars, and innovation brokers must be thoughtful about what they choose to capture. As one broker put it, "what you measure is what you get." The culture of the innovation broker and its mission, goals, and outcomes will be dependent on a number of variables that are unique to regional need.