THE INNOVATION DRIVEN ECONOMIC DEVELOPMENT MODEL

A PRACTICAL GUIDE FOR THE REGIONAL INNOVATION BROKER

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This executive summary describes an innovation-driven economic development model based on the new realities of globalization and changing nature of the innovation process. It shows how "regional innovation brokers" have a unique role to play in creating more globally competitive economies. It describes the steps these brokers—including economic development practitioners and others—can take to understand and mobilize their region's innovation assets. The full document includes examples from specific regions that have developed and launched innovation strategies. It also includes templates for use by regions in developing and launching their own innovation strategies.

THERE IS A NEW GLOBAL CHALLENGE FACING AMERICA'S COMMUNITIES

Many American communities are experiencing growing pressure from a new wave of globalization and technological change. Many are uncertain how to respond. Many communities have seen large employers move some or all of their operations overseas, forcing them to refocus workforce development strategies and even to reinvent their economic base. Meanwhile, other regions, from Beijing to Bangalore are rapidly increasing their capabilities to perform value-added activities and compete in the global market place.

What is emerging is a *global innovation economy* that both opens up new opportunities for prosperity and raises the stakes for participation. As some regions of China and India will attest, this kind of globalization is bringing a burst of prosperity to regions that can add value to the innovation process. It is also creating both growth and disruption in regions in advanced economies like the United States—rewarding those that are strong innovators and causing hardship in regions that are, for a variety of reasons, more bystanders than contributors to global innovation.

The global innovation economy is primarily driven by ideas, and is different than the industrial economy of the past. As Seth Goldin has written in the magazine *Fast Company*: "The first 100 years of our country's history were about who 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." This means the stakes are higher in the sense that, to compete, regions must be wellsprings of ideas that drive innovation in the global marketplace (see chart below).

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 Corporations, 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*.

WHY REGIONS ARE KEY TO MEETING THIS CHALLENGE

The world's top competitors and collaborators are not cities, states, or countries per se, but regions. Economic regions are defined not by political boundaries, but economic resources such as industry concentrations, labor markets, and common infrastructure. For example, the key competitor in India is not the country per se, but rather a growing high-tech region within the state of Bangalore. It is metropolitan areas including Shanghai and Guangzhou that are the key competitors, rather than the country of China or its provinces.

As columnist Tom Friedman has observed, the world is "flattening," with more countries able to participate in the global economy thanks to improvements in communications, advances in education, and other factors. While the metaphor is generally sound, it needs to be qualified. While the world is flattening, it is also becoming spiky:

> Regions still vary by their relative strengths and weaknesses from which regional specializations and comparative advantage emerge—creating spikes in a flat world. (A region's) challenge is to recognize its own strengths, identify other regional "spikes" based on their strengths, and then connect to those "spikes" for mutual benefit.
>
> The perceived zero-sum game between regions vying to out-compete each other can be transformed into the pursuit of integration for the purpose of mutual gain. While competing for talent, technology, and capital, regions can also benefit from sharing these assets across national boundaries in order to grow the economy in each region. (*2007 Index of Silicon Valley).*

Most American communities by themselves stand little chance of competing with the leading economic regions in the global economy. However, clusters of communities acting as regions are large enough to achieve a critical mass of companies, institutions, infrastructure, and talent—yet small enough to allow for the close interactions among people, firms, and organizations required to innovate and ultimately compete in the global economy. While important partners, federal and state governments are no substitute for regional economic resources, knowledge and networks. Regional innovation is the means, then, for American communities to meet the new global challenge.

HOW INNOVATION WORKS IN TODAY'S ECONOMY AND COMMUNITIES

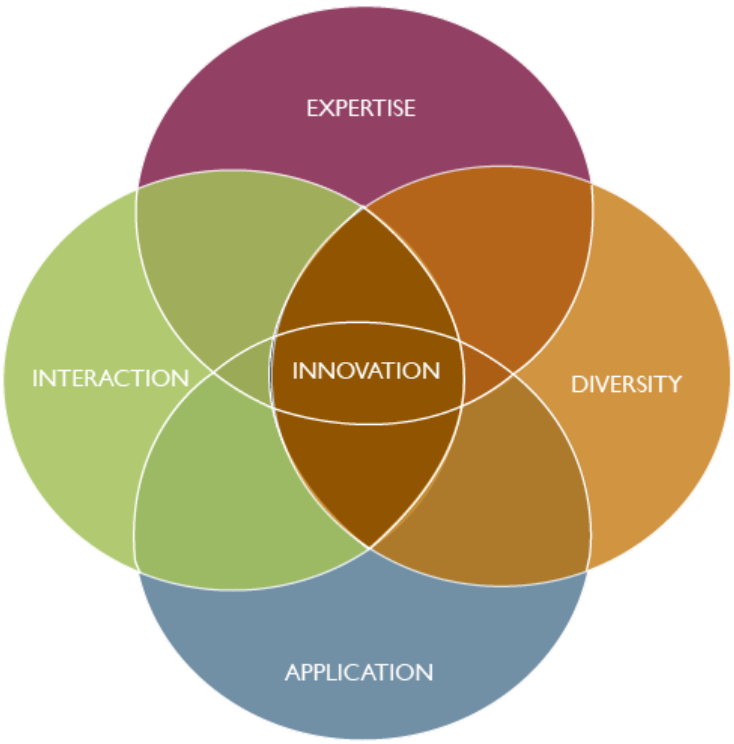
Innovation has become the key to economic and community success: regions must now compete on the basis of increasing productivity, not simply costs. While each region has a different set of industries and must compete globally in its own way, every region and industry needs to become more innovative based on increasing productivity. This is true for agriculture and manufacturing as well as professional services, tourism and entertainment and health care as well as so called "high tech" industries such as information and biotechnology. In fact, there is no such thing as a "high tech or low tech" industry anymore, only innovative and non-innovative. To achieve economic and community success, regions must understand the evolving nature of innovation.

INNOVATION IS ABOUT IDEAS AND RECIPES

Stanford economist Paul Romer has proposed a "new growth theory" that provides a way to understand the central role of innovation in advanced economies. In new growth theory, ideas are the primary catalyst for economic growth. New ideas generate growth by reorganizing physical goods in more efficient and productive ways. For Romer, the ingredients (natural, human, capital resources) are not as important as the recipes (the ideas about how to put the ingredients together). The recipes are the product of the innovation process.

After assessing the field of research and experience with innovation, the Pew Center on the States and the National Governors' Association identified a framework including both the recipe and the ingredients. Innovation is the recipe that is composed of four major ingredients (*Investing in Innovation*, p. 16):

- **Expertise**—New discoveries, new knowledge, and new insights come from all people who are given the resources necessary for success.
- **Interaction**—Face-to-Face is still very important for the exchange of ideas and synergy that creates new business models, marketing plans, or products.
- **Diversity**—Ideas will only get better when they are openly discussed and considered by a mix of people with a variety of research fields, backgrounds, approaches, and mind-sets.
- **Application**—Ideas are useless unless used. The true proof of their value is in commercialization.

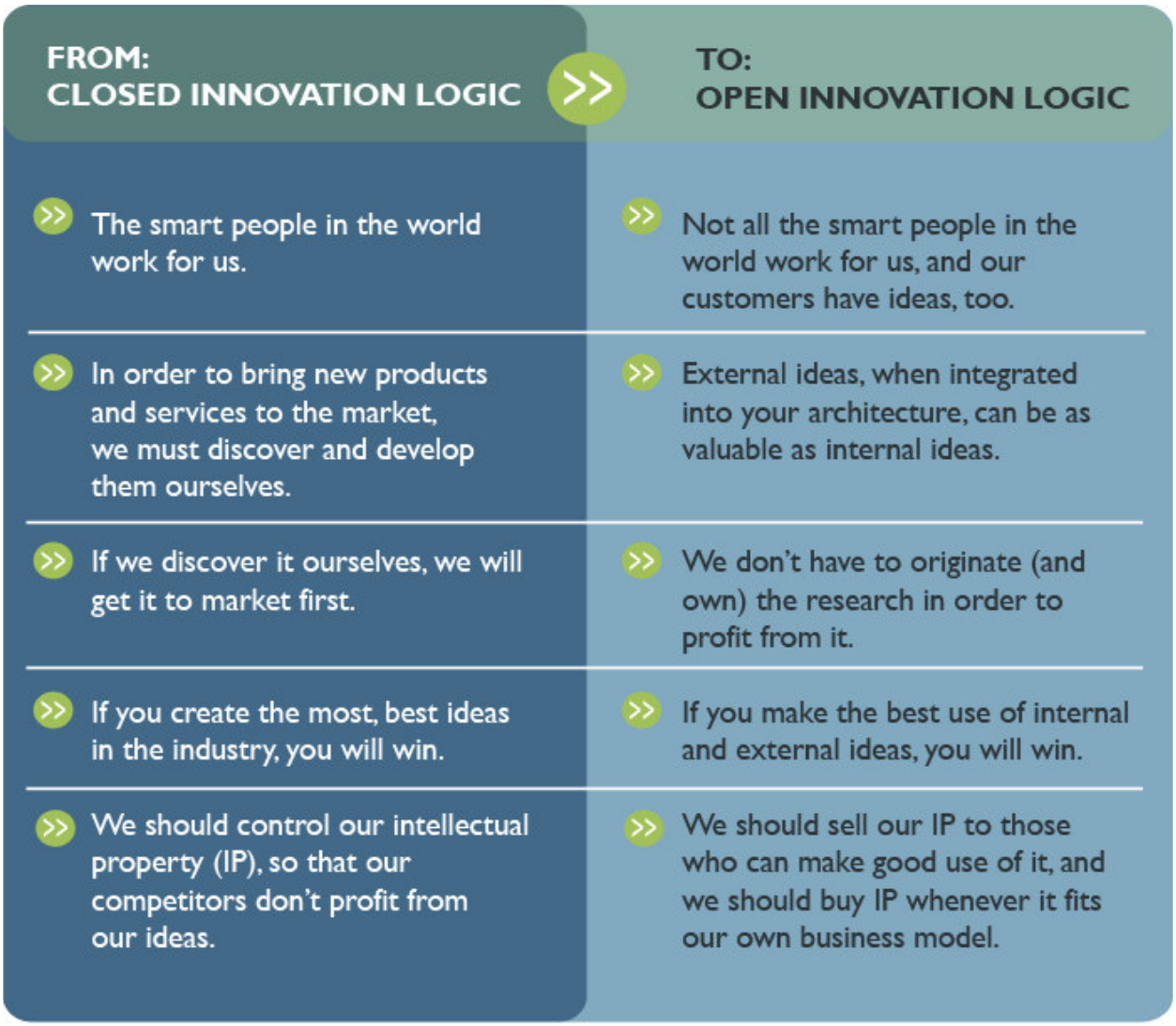


INNOVATION IS UNPREDICTABLE AND DISRUPTIVE

Economist Joseph Schumpeter famously coined the term "creative destruction" to describe the inherently disorderly process of change, where ideas, products, firms, and whole industries are displaced by new innovations driven by entrepreneurship. Innovation seldom appears according to script and is often disruptive—creating an unpredictable impact.

INNOVATION IS OPEN AND GLOBAL

Innovation can originate from anywhere. In the old economy, hierarchy ruled and R&D departments were responsible for generating a predictable flow of new improvements. In today's innovation economy, anyone with a good idea can potentially become innovation leaders. This new reality creates a positive sum opportunity, where everyone can benefit from participating in innovation networks.



Source: Henry W. Chesbrough, *Open Innovation: The New Imperative for Creating and Profiting from Technology* (Cambridge: Harvard Business School Press, 2003).

Wayne Johnson of Hewlett Packard has observed that globalization is ushering in a new wave of innovation. In the past, the focus of innovation was university laboratories and corporate R&D departments. This model evolved into universities, companies, and governments beginning to work together, making investments, building infrastructure, and creating partnerships—but in a fragmented fashion. The result was too often narrowly focused efforts to serve local interests, with collaboration getting mired in complexities such as intellectual property issues, institutional silos, and the like. Instead, in the new wave he has dubbed "Innovation 3.0," Johnson describes how a region like the Bay Area needs to change:

> In the past, innovation in the Bay Area has happened in a bottom-up, relatively unorchestrated manner, building on the results of the social fabric and the intense creativity and entrepreneurial spirit of the region, and taking advantage of an infrastructure which has taken decades to build up. Innovators thought globally and acted locally. However, to be assured of future innovation leadership, Bay Area innovators (as well as regional innovators elsewhere) must start thinking locally and acting in the global landscape (Bay Area Innovation Network Roundtable, pp. 4-5).

Just as in the economic sphere, social and environmental innovation can originate from anywhere—not simply large national organizations or traditional policymaking bodies. Grassroots innovations are emerging all across the country to preserve the natural environment, address global warming, educate the workforce, and address a variety of community challenges.

INNOVATION IS COLLABORATIVE AND NETWORKED

In the traditional economy, ideas were held tightly within institutions; in the innovation economy, ideas flow more freely within networks. The unit of innovation has become the network, not simply the firm. To stay abreast of change and speed up the commercialization process, the walls that once separated public and private institutions, education and business, large and small firms, are coming down.

The new hybrid model, sometimes called "co-opetition," means that individuals and companies can compete ferociously, but collaborate at the same time to create knowledge. Through a wide variety of formal and informal relationships, networks organize the sharing and distribution of knowledge. In sum, research and experience shows that large-scale and sustainable economic, social, and environmental innovation is the product of collaboration and networks rather than the lone inventor, the inspirational community leader, or the single policy initiative.

INNOVATION IS PLACE BASED AND REGIONAL

The networks at the heart of the new innovation model function most effectively when their components are clustered geographically in a region. Geographic clustering of people, companies, and institutions is a powerful mechanism for transferring and augmenting personal knowledge quickly. Sharing knowledge, skills, and experience is simply easier when the components of the learning network are in the same place.

The most innovative work occurs primarily in face-to-face exchange within teams where people work in close proximity to each other. The most rapid advances in a trial-and-error, iterative learning process take place through in-person information exchange. Face-to-face interaction remains important in the Internet age.

INNOVATION IS ACCELERATING AND EXPANDING IN SCOPE

Technology advances are diffusing at ever-increasing rates. It took 55 years for the automobile to spread to a quarter of the country, 35 years for the telephone, 22 years for the radio, 16 years for the personal computer, 13 years for the cell phone, and only seven years for the internet (*Measuring Regional Innovation*, Council on Competitiveness). Because of advances in communications and access to information, economic, social, and environment innovators can find one another, develop collaborations, and begin implementation much faster than in the past.

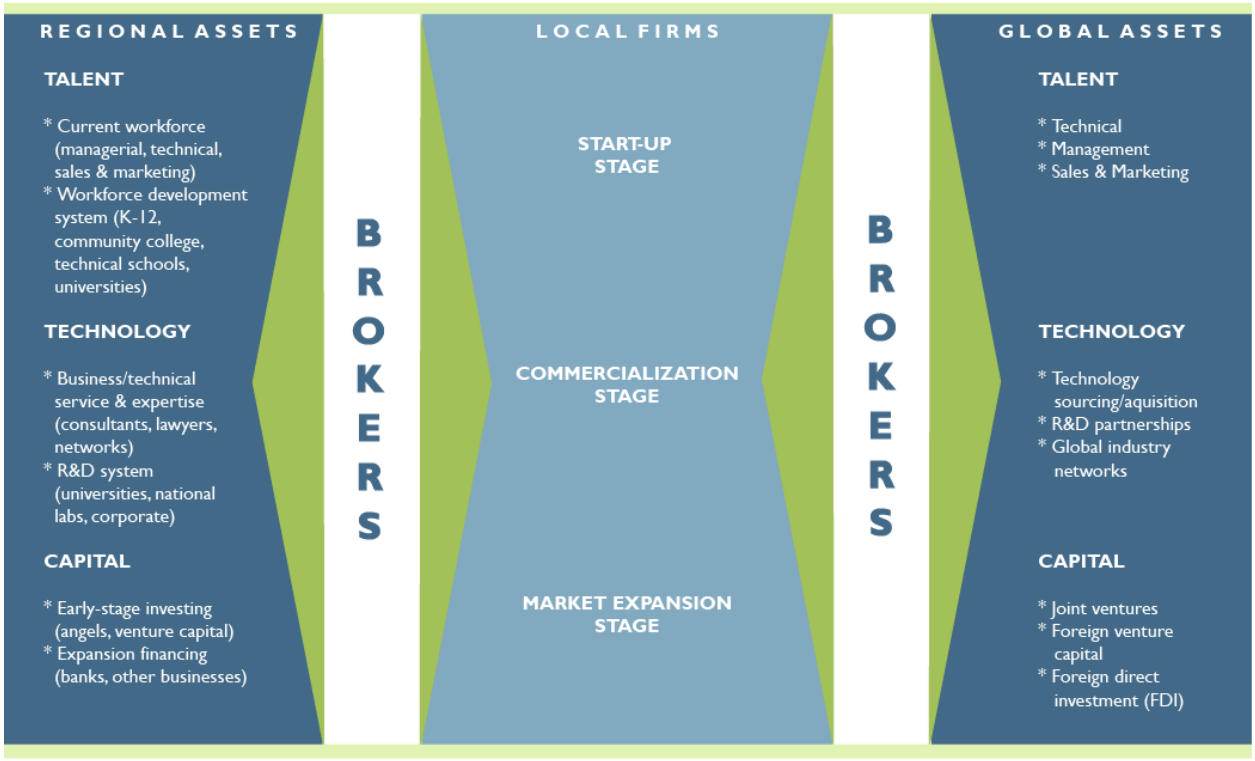
At the same time, the scope of innovation is expanding. Regional innovation is the product of economic, social, environmental, and other place-based factors. It requires innovative companies, but also talent with education, skills, and creativity, and livable communities that provide a quality environment, one that is attractive and supportive for people and commerce. It also requires effective regional governance—the ability of public and private entities to work together across boundaries to strengthen economic, social, and environmental assets that are the key to regional vitality and quality of life.

WHAT ARE THE IMPLICATIONS FOR ECONOMIC DEVELOPMENT?

Despite the strong and growing body of evidence about its importance, regional innovation is not at the core of many economic development strategies. Many regions are still focused on industrial recruitment or other strategies that are not strengthening their ability to innovate and compete in the global marketplace. While it is true that these strategies can produce benefits, it is also true that they can be a distraction from pursuing a more critical regional innovation agenda.

Economic development must now change because the nature of the business development in the global economy has fundamentally changed. Business development today is based on an open innovation model where firms seek innovation assets- ideas, talent, capital- from many sources, often outside the firm itself. Under this model, the role of economic development is to intervene 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.

BROKERS IN AN OPEN INNOVATION SYSTEM



Many economic development practitioners are operating under the expectations and metrics of a cost-driven economic development model. For example, they are expected to grow the number of jobs. Even if they succeed on this basic metric, their region could be falling behind in innovation, which in today's global economy is increasingly the factor that will determine productivity and living standards. Failing to focus on factors that produce a strong innovation habitat, regions run the risk of trying to compete for jobs and markets with other regions of the world that have much lower wages. The key differences between these models are described in the chart below:

Key Characteristics	Cost Driven Economic Development Model	Regional Innovation Driven Economic Development Model
Focus	Domestic competition Zero sum game	Global competition and collaboration Positive sum game
Logic	More inputs (land, labor, capital) create more output The lower the costs of inputs, the higher the profitability of outputs	More efficient and innovative use of higher-value inputs (physical, human, knowledge resources) creates more profitable output
Goal	Growth of jobs	Increasing productivity and per capita income
Approach	Incentives to attract or retain cost-driven firms and industries	Investments in talent and infrastructure to support innovation-driven clusters
Role of economic development practitioners	Lead industry attraction and marketing efforts to firms and industries	Broker innovation networks, connecting inventors, financiers, and transformers, to produce results
Performance metrics	Quantity of jobs, number of firms attracted/retained	Quality jobs, wage and income growth, innovation (e.g., patents, commercialization, start-ups, etc.)

The cost-driven model creates a set of incentives that actually undermine the innovation-driven model of economic development. It defines success in ways that actually undercut a regions ability to compete longer-term. Having more of something that does not improve your competitive prospects in the global economy can provide a false sense of progress and security, and prevent community leaders from focusing on the strategic investments and policies needed to advance regional innovation.

THE INNOVATION-DRIVEN ECONOMIC DEVELOPMENT MODEL AND THE REGIONAL INNOVATION BROKER

We have entered a new era in which innovation has become the key to both economic and community success. This change is structural, rather than cyclical—it is a fundamental shift in how regional economies compete, rather than a product of the ups and downs of the business cycle. While regions have different economies, every region and industry can become more innovative based on increasing productivity. This reality is true for large, complex metropolitan regions as well as less-developed rural regions. Innovation is everyone's business.

If innovation is now the imperative, what does it mean for strategy? It means that the focus of public and private sector action must be on those factors that are crucial to improving a region's ability to innovate. We need to ask how existing economic development, workforce development, and other strategies promote innovation—keeping or expanding those that are making an important contribution. We must also consider new strategies that promote the kind of innovation needed to compete in today's fast-changing global economy, not just other U.S. communities or states.

What do these changes mean for the economic development practitioner—whether they come from an economic development corporation, a city or county agency, a college or university, a chamber or industry association, or somewhere else? Simply put: They must embrace a new role if they are to remain relevant in these challenging times. The good news is that a growing number of practitioners are doing just that—becoming "brokers" of regional innovation.

What does it mean to be a broker of regional innovation? Navi Radjou of Forrester Research has described four kinds of people key to the innovation process:

> Inventors serve as the intellectual powerhouses that conduct basic science research and/or design products and services that results in patentable inventions. Transformers provide multifunctional production and marketing services that convert inputs from inventors or other transformers into valuable business innovations for either internal or external customers. Financiers provide funding for both inventors and transformers, usually in return for intellectual property rights. Brokers serve as the matchmakers or facilitators in this system who find and connect the other three network entities. (Bay Area Innovation Network Roundtable, pp. 6-7).

All parties are important to fully leverage innovation in a region. Brokers play a special role in that they have the ability to find the inventors, transformers, and financiers—but also connect them in partnerships that can produce economic and community benefits. Moreover, inventors, transformers, and financiers are typically very focused on individual innovations, while brokers are more likely to be able to focus on the broader climate for innovation. Without a strong broker function, innovation can still happen, but likely in more isolated, fragmented, and fleeting ways.

WHO ARE THE INNOVATION BROKERS?

The most effective brokers often come from the ranks of business service professionals—individuals who have strong networks and relationships among inventors, transformers, and financiers. Economic development practitioners are less likely to play the broker role because they are expected to provide marketing, recruitment, information collection, technical assistance, or other services. Those practitioners who do play the broker role have often delegated, curtailed, or dropped these other activities.

For practitioners choosing to make the transition to regional innovation brokers, this model identifies a series of steps based on extensive experience in regions across the country. These steps can be completed within months, and should become part of an ongoing cycle of innovation over time.

1. Raise the Stakes: Introduce Innovation as the Imperative
2. Reassess the Region: Identify Current and Potential Sources of Innovation
3. Connect the Innovators: Conduct a Disciplined, Collaborative Process
4. Broker Breakthroughs: Help Innovators Take Collaborative Action
5. Network the Brokers: Accelerate and Expand Innovative Collaborations
6. Redefine Success: Change the Metrics in Economic Development

1. RAISE THE STAKES: Introduce Innovation as the Imperative

The regional innovation broker must often begin by changing the subject. They need to refocus their region on innovation as the imperative in economic development. Too often the discourse among local leaders focuses on specific deals, disputes, or tactics in economic development, often at the expense of focusing on the bigger picture. The media is drawn to conflicts, and battling jurisdictions in many regions provide a steady stream of stories—creating a destructive diversion from the more important conversation about how best to innovate to compete globally. To lift a region out of a pattern of political and tactical debates, the first task of an innovation broker is to raise the stakes. Success in economic development today is about increasing innovation to produce higher living standards for people and growing prosperity for communities.

2. REASSESS THE REGION: Identify Current and Potential Sources of Innovation

After raising the stakes, the innovation broker will likely face a growing chorus of questions, most of them a variation on: "what should we do?" The answer is that before lunging ahead, the region needs to reassess its strengths and opportunities—its current and potential sources of innovation. Once this reassessment is complete—and it can typically be done in a few months—the region can move to action.

What will be the focus of the reassessment? Research and experience have shown that not only assets like talent, capital, and physical infrastructure, but regional networks, culture, and community quality of life are critical cornerstones for regional innovation. Regional innovation brokers must analyze not only the assets, but the networks and culture of innovation that translates assets into economic and community benefits. And, they must focus on the community quality of life that is critical to the people who drive innovation.

ASSETS: Assets are critical building blocks for regional innovation. Traditional assets, such as access to raw materials or low cost labor are no longer sufficient to succeed in today's knowledge driven global economy. Assets can include R&D/Technology (e.g., universities, research institutes), talented people, financial capital, industry clusters, and physical infrastructure. Assets also include innovative individuals and organizations in the environmental and social fields—and especially major institutions that shape the environmental and social outcomes in a region—such as water districts, educational systems, and the like.

NETWORKS: Assets are leveraged through personal and institutional networks. Networks are a complex web of tight relationships among people who know how to translate ideas into new products, services, policies, or initiatives fast enough to stay on the innovation curve. These complex networks continually connect people with good ideas and test the changing environment, always searching for the next innovation.

CULTURE: The attitudes, beliefs and mind-set that supports an environment for innovation and entrepreneurship. This cornerstone, like networks, is intangible and often overlooked in economic development and other community improvement strategies. A culture of innovation that encourages creativity and risk taking is essential for the development of new business models, creative community partnerships, and breakthrough technologies

COMMUNITY QUALITY OF LIFE: Innovation is driven by people and people flourish when they are part of vibrant, healthy and creative communities. Regions must have a strong quality of life to recruit and retain talented people, who are instrumental in growing technology, attracting capital, and solving complex economic, social, and environmental problems. Many regions are recognizing that to sustain success, quality of life problems, such as schools, environmental preservation, and transportation need to be made a priority.

FINDING OUT WHAT IS REALLY IMPORTANT TO INNOVATION

One of the biggest challenges is to go beyond developing a long inventory of "assumed" innovation assets—a list of institutions and programs that experts say should be important to companies and regions. Instead, go to your most innovative companies and ask them what helps them innovate. The answer can include things that exist in the region—or outside the region, even outside the country. We suggest the following approach to find out what is really important to innovation among your region's firms. Use a simple four-quadrant format as illustrated below.

ASSETS	**NETWORKS**
CULTURE	**COMMUNITY**

Ask innovative businesses the following series of questions:

1. What in the region helps you innovate? What hinders you from innovating? *Here you can probe for answers in each of the quadrants, recording plusses and minuses.*

2. What outside the region helps you innovate? *Here you can add important outside, even global assets and networks that are of particular importance.*

3. What is missing in the region that could help you innovate? *Here you can test ideas suggested by experts to see if they could be important to your firms.*

4. Where could you specifically use help? *Here is where you explore the potential roles for the innovation broker.*

Your most innovative businesses—large, small, across different industries—can point you to what is really important to innovation in your region. After you have talked with them, approach other firms and test how their answers compare—and where they could use help. While it is important to look at overall innovation indicators and understand the range of innovation assets in the region, it is even more important to understand what really makes the difference to firms that are proven innovators.

3. CONNECT THE INNOVATORS: Conduct a Disciplined, Collaborative Process

Brokers should start at the source. The drivers of innovation will primarily come from the private sector. With the network of relationships that the broker has developed during Steps 1 and 2, they should now be able to reach out and engage the drivers of innovation—some of whom may be well-known business leaders, some of whom are little-known entrepreneurs. These are the individuals who are on the frontlines of innovation, and can often leverage the resources needed to drive a regional innovation agenda forward. The full document offers specific guidelines for such a process.

4. BROKER BREAKTHROUGHS: Help Innovators Take Collaborative Action

Brokers must now shift gears, and help innovators translate their ideas into collaborative action. Collaborative action can take many forms, which requires both flexibility and discipline at the same time. A simple Action Plan template can provide the structure for the creating the collaboration. An Action Plan calls for specificity and the discipline of articulating clear and compelling goals, outcomes, strategies, and implementation requirements that are all in alignment.

Brokers must also play a crucial role to insist on breakthroughs to bolster the regional innovation. Because of the need to build new connections and assets, breakthroughs will likely be required to make a meaningful difference in this field. Breakthrough strategies should focus on the cornerstones: building assets, strengthening networks, changing culture, improving community quality of life. Brokers can organize teams, and give them the charge of mapping out breakthrough strategies using the Action Plan template. These implementation plans or "roadmaps" should include outcomes and metrics for action, roles and commitments for multiple sectors and stakeholders, and timelines for implementation.

5. NETWORK THE BROKERS: Accelerate and Expand Innovative Collaborations

Over the long term, to sustain and multiply the productive collaborations among innovators, the broker will need help. Providing a focal point, some kind of vehicle (such as a forum) to serve as an ongoing communication and networking mechanism can yield impressive results. In the process of completing the first four steps, it is likely that the broker will discover others who also play a brokerage function in linking entrepreneurs, firms, and the like. By putting together an ongoing mechanism to network these individuals, they will naturally find other

areas around which to convene innovators. In a sense, this keeps the collaborative process going beyond the initial high-profile convening of Steps 3 and 4. The full document provides a number of specific examples of network models—from San Diego's Partnership for the Global Economy and Research Triangle's Regional Partnership to Northern Kentucky's Vision 2015 and the California Partnership for the San Joaquin Valley.

ACTIONS TO ACHIEVE BREAKTHROUGH OUTCOMES

RESULTS—the specific, measurable "breakthrough" outcomes expected. What constitutes a breakthrough will depend on the scope, setting, and stage of regional problem-solving.

ROLES—the specific roles implementation partners will play, depending on their unique set of capabilities to achieve the desired breakthrough results

RELATIONSHIPS—the specific connections among partners, depending on the level of interdependence required to achieve the desired breakthrough results.

AGREEMENTS—specific actions that can be taken, often focused projects or initiatives, or mobilizations such as campaigns, and specific multi-party arrangements that establish specific commitments or guidelines for policy and action by partners, such as compacts.

ACCOUNTABILITY—specific and ongoing commitments to hold partners (and the entire coalition) accountable for results, both follow-through on agreements and overall impact on regional competitiveness.

ARCHITECTURE—an organizational "platform" or "web" that provides the capacity to support, expand, and renew fledgling efforts, such as multi-party forums or networks.

6. REDEFINE SUCCESS: Change the Metrics in Economic Development

To succeed over the long-term, the broker must also fundamentally change the expectations in economic development. Without changing the incentives and the metrics for success, any efforts to shift to innovation-driven economic development will be ephemeral. With some initial success coming from the first five steps above, the broker is positioned to propose changes to the metrics which will guide their actions. Typically, this shift requires a broker working with his or her board to move away from cost- to innovation-oriented metrics.

Beyond his or her own organization, the broker will need to drive the conversation about redefining success and changing metrics back into the full range of organizations involved with economic development—including those who provide funding, offer services, and lead jurisdictions. The new metrics should be in alignment with the measurable outcomes developed in the action plans. Good examples of specific metrics can be found in Joint Venture:

Silicon Valley's Index (www.jointventure.org) or the Massachusetts Technology Collaborative's Innovation Index (www.masstech.org).

CONCLUSION

Regional innovation is not a new challenge. What is new is the broad agreement that innovation and regional vitality and quality of life are inextricably linked. What is also new is the understanding that innovation is not simply the responsibility of individual companies, economic development professionals, public officials, or non-profit leaders—nor is it simply an economic issue. Regional innovation requires collaboration across jurisdictions, sectors, and issues—including economic, environmental, and social concerns. Boundary-crossing of this kind is what regional innovation brokers do. In fact, with America's communities facing new global economic pressures, brokers are in a unique position to forge coalitions and catalyze campaigns to make innovation a top priority.

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