INNOVATIVE REGIONS

The Importance of Place and Networks in the Innovative Economy

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As the economy changes, so has thinking about innovation and its role in regional economies. *This paper is intended to stimulate discussion and further exploration of the role of place and networks in the innovative economy. It is based on the experience of leaders working in regions across the United States and a review of the evolving literature on new growth theory, innovation, and networks. The authors welcome any comments on this paper.*

What Is the Secret of Innovative Regions?

How has Silicon Valley made continual leaps across technology waves over four decades, moving from leadership in integrated circuits in the 1960s to leadership in personal computers in the 1970s, in software in the 1980s, and now the Internet in the 1990s? All these innovative leaps occurred in the face of rising costs, growing competition, and the rapid diffusion of technology. The answer lies in the dense and flexible networks of tight relationships among entrepreneurs, venture capitalists, university researchers, lawyers, consultants, highly skilled employees, and others who know how to translate ideas into new products and services fast enough to stay on the edge of the innovation curve. These complex networks continually connect people with good ideas and test the changing market, always searching for the next innovation.

Assets may not be enough in the innovation economy.

Why did San Diego become a hotbed of bioscience and digital communications start-ups in the 1990s while Houston—with its much greater concentration of assets, including the world-renowned Houston Medical Center, NASA Space Center, Rice and Baylor Universities—produced fewer entrepreneurial firms in the same fields? An important reason may be that San Diego has learned how to stimulate an entrepreneurial environment by actively connecting its assets through formal and informal innovation networks; Houston has not. Assets may not be enough in the innovation economy.

Innovation and the successful entrepreneurs that drive innovation are embedded in regional networks that connect assets in ways that create wealth and opportunity for both firms and individuals. *Innovation is a social process.* It rarely occurs because a single individual or firm takes an idea to market. Instead, it involves many people playing many roles in a dynamic collaborative process built around creative teams and face-to-face interaction. Creative work, as opposed to routine production, requires close proximity. Innovation is not a linear process, but an active process of learning through trial and error. Networks speed up the innovation process by connecting people across boundaries and accelerating learning.

Toward a New Model of Regional Innovation Based on Networks

This paper explores why some regions are more innovative than others. It examines why place and networks matter in the innovation economy. The paper makes the case that as we have moved from the more traditional industrial economy of vertical integration to a more "inside-out" paradigm of horizontal relationships, a new model of "innovation without boundaries" is taking form.

The key to understanding innovation is the power of networks that allow individual entrepreneurs to connect in new ways.

The key to understanding innovation is the power of networks that allow individual entrepreneurs to connect in new ways. In a seeming paradox, successful entrepreneurship today requires an innovative, collaborative region. The days of both the lone inventor (Thomas Edison) and the monolithic corporation (GM) are over. The era of the networks has arrived.

What Is Innovation?

A growing awareness suggests that innovation is the key to success in the today's economy. Continuous reinvention is required to keep pace with the rate of change that we now face. Any person, organization, or place that stands still will have trouble catching up.

What is innovation? Literally, it is the act of making changes. It involves introducing new ideas and new way of doing things. Peter Drucker defines innovation as follows:

> *Innovation consists of the purposeful search for changes and the opportunities that such changes might offer.*

Innovation can lead to a series of incremental improvements, and it can also lead to radical change.

Drucker maintains that innovation and entrepreneurship go together. Entrepreneurs innovate, and innovation is the specific instrument of entrepreneurship. Drucker says also, "The entrepreneur always searches for change, responds to it and exploits it as an opportunity."

Drucker, like the economist Joseph Schumpeter, sees innovation and entrepreneurship as the engines of change in the economy. They are the source of wealth creation and the generator of opportunity for individuals and society.

Why Innovation Is Central to Economic Growth

The key to prosperity is increasing productivity. Productivity growth is the basis for rising real wages for workers, increasing returns to shareholders, and increasing per capita income for a region and the nation.

The basis for increasing productivity is innovation. In the long term, an advanced economy like that of the United States cannot compete by just lowering costs or increasing inputs. The only way to compete and raise our standard of living is to find new and better ways to use natural, human, and capital resources to increase productivity.

Stanford economist Paul Romer has developed 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 (the physical items) are not as important as the recipes (the ideas).

> *Recipes (new ideas) combine ingredients (natural, human, capital resources) in new and different ways to yield more valuable economic results. The recipes come from the innovation process.*

Regions need to understand what conditions support the generation of new ideas and the translation of existing ingredients into high-value outcomes.

Innovation Is a Social Process

What do we know about how innovation occurs in today's economy?

- **Interactive: We know that innovation is interactive.** It doesn't occur in a straight line, chain link fashion from research lab to development to commercialization. As British historian James Burke points out:

> *Innovation is often surprising and unexpected because the process by which new ideas emerge is serendipitous and interactive…. Interlocking threads of ideas, people and events are woven into a web of knowledge and—bingo—we get today's world of science and technology.*

"Creativity in business is a group exercise."

— Dorothy Leonard and Walter Swap *When Sparks Fly*

- **Group creativity: Innovation results from the creative process, and this creative process occurs in groups.** Every person has the promise of being creative, and this promise can be unleashed as groups of people share and shape their insights through a creative process. As Dorothy Leonard and Walter Swap point out in *When Sparks Fly,* it is a dangerous myth to view innovation as dependent on a handful of especially creative individuals.
- **Tacit knowledge: Tacit knowledge based on personal experience is as valuable for innovation as theoretical or "explicit" knowledge.** Theoretical or explicit knowledge establishes a base of information for innovators. It is, however, the know-how gained through personal experience and learning by doing that leads to innovation (see Michael Polanyi, *Personal Knowledge,* Ikujiro Nonaka/Hirotaka Takeuchi, *The Knowledge-Creating Company).*

The most rapid advances in a trial-and-error, iterative learning process take place through face-to-face interaction and information exchange. As Francis Fukuyama points out, "a great deal of knowledge is tacit and cannot be easily reduced to a commodity that can be bought and sold in the intellectual property market."

- **Networks: In the traditional economy, ideas were held tightly within institutions; in the new 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 must come down. Separation and hierarchy do not work when speed is of the essence. Networks stand between "hierarchical" and impersonal "market" forms of organization. Increasingly, the process of innovation is not conducted simply within an individual company but through knowledge-creating networks of individuals with ideas in companies, universities, and other institutions. The key is the sharing of tacit knowledge through interactive processes based on trust, willingness to share, and mutually beneficial exchange over time.

- **Competition/Collaboration: 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. Networks distribute know-how and ideas among a community of professionals that transcend companies. Programmers, for example, express their loyalty to the Java programming language, rather than to their particular employer. The early model of precompetitive collaboration developed by MCC and SEMATECH consortia has evolved into a rapid sharing of information and ideas in a more open systems environment.

Innovation Is Place Based

If innovation is a social process, and face-to-face tacit knowledge is important, then innovation is also place based. 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.

The most innovative work occurs primarily in face-to-face exchange within teams where people work in close proximity to each other.

Although electronic communication is important, it is not a substitute for the trust, sharing, and intense interpersonal interaction essential for the innovation process. For this reason, the creative heart and soul of the economy (where the action is) will continue to be tied to place. Ultimately, place matters because people matter. Talented and creative people want to be where the action is, where their ideas stand the best chance of coming to fruition.

The growth of the Internet industry—creating products and services for an inherently locationless medium—demonstrates the value of place-based networks for innovation. Internet companies are starting and growing in a number of places that, despite their high costs, are attractive for their regional innovation networks. A recent survey of Internet executives found that the executives regard their companies' locations as critical to success. Because they compete on time to market, it is not accidental that Internet companies start and grow in the geographic pockets that share these critical characteristics:

- Strong, diverse talent pool
- "Pillar" companies in high tech
- Risk-tolerant venture capital and angel investors
- Specialized support services such as marketing, consulting, design, and intellectual property
- Universities that supply talent and networking along with research programs that foster innovation
- An entrepreneurial community that nourishes innovative businesses and understands that failure is a necessary and acceptable part of the innovation process

Each is an important element of regional innovation networks that speed the transfer of innovative ideas into new products, services, and processes.

What Makes a Place Innovative?

"It's not the ingredients but the recipe."

— AnnaLee Saxenian
Regional Advantage

"It's not the ingredients but the recipe." In her pathbreaking research comparing Silicon Valley and Boston's Route 128, *Regional Advantage,* AnnaLee Saxenian found that the performance difference between the two technology regions was the "network model" in Silicon Valley that connected companies and sped up the innovation process. Route 128 had similar assets but different results because it failed to collaborate and build open networks for information sharing. According to Saxenian, the important part is not the ingredients as much as how the community leverages its assets.

Francis Fukuyama summarizes the importance of networks to innovation in Silicon Valley:

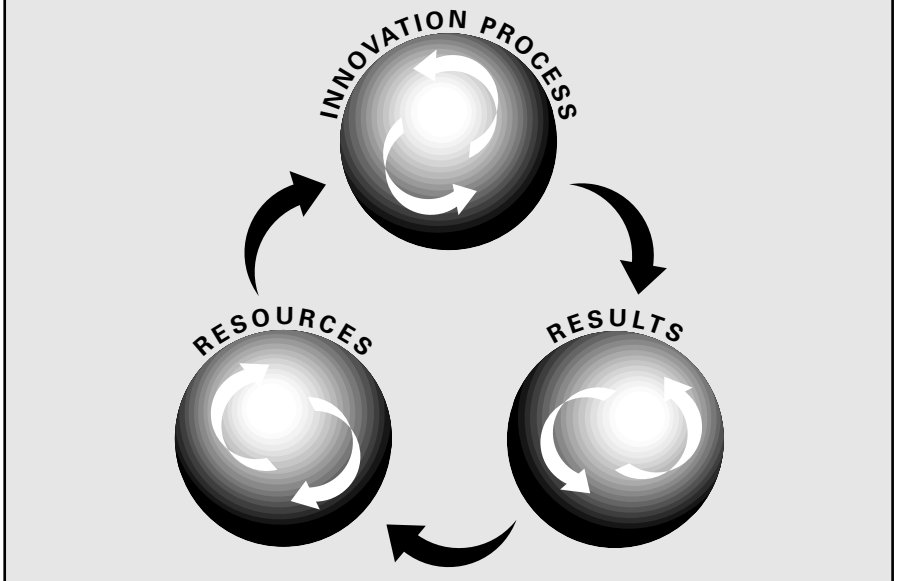
> *The whole of Silicon Valley can be seen as a single large network organization that can tap expertise and specialized skills unavailable to even the largest vertically integrated Japanese electronics groups and their keiretsu partners. The impersonal sharing of data over electronic networks is not enough to create the mutual trust and respect evident…in Silicon Valley.*

Building on both Romer's new growth theory and Saxenian's findings on regional advantage, it is possible to create a framework for better understanding the regional dynamic of innovation.

What matters most is the ability of companies and entrepreneurs to connect with appropriate regional assets and leverage them through the innovative process to achieve competitive results.

Many factors affect this ability, many no doubt linked to the competence and leadership of companies. The question for regional leaders is: "What regional factors most affect the ability to speed up the translation of ideas into results?"

Framework for the Innovation Process



Source: Massachusetts Technology Collaboration, Collaborative Economics

A framework for regional innovation links resources to economic results through an innovation process.

Clearly, the mere presence of resources or assets is not enough. Houston's resources in bioscience and communications dwarf those of San Diego, yet San Diego is currently generating many more entrepreneurial start-ups in these sectors. Pittsburgh is blessed with several leading universities, including Carnegie Mellon, University of Pittsburgh, and Duquesne University, but has had difficulty generating and retaining innovative firms. On the other hand, Austin was able to leverage its assets in the University of Texas (with fewer total students than in Pittsburgh's universities) and state government to become a leading technology region.

What is the difference between these regions? We believe regional leadership has made the difference.

Regional Leadership Makes the Difference In Building Innovative Regions

Economic innovation requires social innovation. In successful regions, business and civic leaders set the stage for entrepreneurs to do what they do best.

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Because innovation is a place-based social process, regional leaders can promote social interactions and shape regional institutions and context that affect the innovation process. Good examples have emerged about how regional leadership has helped to create more innovative regions.

- Build fundamental economic assets—Regional leaders take care of the basics, creating the education, research, and financial platforms necessary for success. They make and leverage investments in institutions like universities and find new sources of capital for innovative companies. Austin and San Diego provide examples of a relatively rapid expansion of fundamental innovation assets.
- Connect entrepreneurs and companies to assets—Regional leaders ensure that public and private assets are leveraged for commercial benefit. They often expand connections through new intermediary mechanisms. San Diego and Pittsburgh provide examples of the use of new mechanisms to connect entrepreneurs and companies to assets.
- Promote a culture of innovation—Regional leaders know that the intangibles can be as important as the concrete assets and intermediary mechanisms. How accepting and conversant a region is towards innovation is critical. Regional leaders can support the culture of innovation by calling attention to people and companies that are leading innovators, and defining, measuring, and communicating the nature of regional innovation—actions which create a more supportive regional climate for building and leveraging

innovation assets, including quality of life. Greater Washington, Massachusetts, and Pittsburgh provide examples of this approach.

- Make quality of life an innovation asset—Regional leaders understand that the environment in which people live and work is important to creative social interactions and the innovation process. They are active in expanding amenities like vital downtown centers and addressing quality of life problems, such as schools, environmental preservation, and transportation. Silicon Valley and other regions are making this connection a priority.

Building Fundamental Assets: San Diego and Austin

Throughout much of the century, San Diego, California was known as a tourist-oriented Navy town with a defense technology base—not as a wellspring of innovation. But in the early 1960s visionary regional leaders worked diligently to build on an existing asset, the well-respected Scripps Institute for Oceanography, an effort which culminated in the creation of the University of California at San Diego (UCSD) in 1965.

Over the next three decades, UCSD grew to become the leading research university of the UC system and one of the top research universities in the country. The University became one of the nation's leading catalysts in helping create a regional technology economy. In particular, two university professors, Ivor Royston and Irwin Jacobs, helped to stimulate both the bioscience and the digital communications industries in San Diego and model a culture of academic entrepreneurship. From their original firms, Hybritech and Linkabit, have come strong "family trees" of dozens of related firms. In a relatively short period of time, San Diego has become one of the nation's innovation hot spots, generating excellence in defense (1970s), health (1980s), and telecommunications (1990s). Today, the region is home to a fast-growing software and Internet sector, the latest manifestation of its culture of innovation.

Austin, Texas also focused on expanding its fundamental innovation assets. No region in the past few decades has moved as quickly into the top ranks of technology regions as Austin. In early 1980s, Austin was still torn in a grow/no-growth debate that blocked progress toward any objective. The university was not connected to business, and the State government, more attuned to oil and real estate issues, did not see Austin as its focus. Then came an opportunity and a group of regional leaders who knew how to seize it as a way that fundamentally transformed Austin.

Austin business leaders, the university, and the State joined forces in 1983 to recruit MCC, the first major U.S. technology consortium assembled to meet the competitive challenge from the Japanese.

In succeeding, Austin set its sights on the goal of becoming a major player in technology and added a critical asset: an R&D consortium that included many of the top technology firms in the country.

Austin used this new "asset" as leverage. To attract and support the consortium, leaders secured new investments in the University of Texas, including the endowment of 32 $1 million faculty chairs in engineering and natural sciences, which catapulted the University into the top tier of research universities in these fields. They succeeded in attracting SEMATECH, a second national consortium, which involved another set of major technology firms. Business and civic leaders supplemented these assets with new entrepreneurial support programs including incubators, seed capital funds, and mentoring.

In response to these regional efforts, leading technology firms began making commitments of people and resources to Austin, which helped fuel innovation in the region. More and more companies came to know the region, and with the collaborative efforts of Austin's leaders, selected it as an expansion site. Within a decade, Austin had added more manufacturing jobs than any other metropolitan area. Today, entrepreneurial software and Internet firms are growing faster than traditional hardware firms. Austin is once again having to create a new set of relationships between business and the university. A new group of young entrepreneurs has emerged to challenge the university and the business community to meet their needs as smaller, entrepreneurial firms. As in San Diego, the innovation cycle continues.

Connecting Entrepreneurs and Companies to Assets: San Diego and Pittsburgh

As important as the original creation of UCSD are the efforts of San Diego's leaders to strengthen the university-industry connection. An important catalytic event in this regard was the arrival of Richard Atkinson as chancellor in 1980. Atkinson had been director of the National Science Foundation and a professor at Stanford University. He wanted to stimulate the type of university-industry collaboration begun by Fred Terman, the dean of Engineering at Stanford, that lead to the creation of the Stanford Industrial Park, Hewlett-Packard, and other innovation-based companies. Atkinson's encouragement led to the formation of UC Connect, an innovative networking model that has helped connect entrepreneurs to university researchers and business service professionals. UC Connect has helped to bridge the gap between the worlds of business and science, teaching professors how to become entrepreneurs and helping entrepreneurs connect to the university. UC Connect's greatest accomplishment may have been to connect existing local networks to each other—to connect the "downtown attorneys" to the "uptown scientists and engineers."

As important as the original creation of UCSD are the current efforts of San Diego's leaders to strengthen the university-industry connection.

As Mary Walshok, university vice chancellor explains, "when this boundary was crossed, we started to get momentum that we didn't have before. But something had to catalyze this networking and shared learning—in our case, UC Connect."

Today, industry networks BioComm and the Telecom Council connect the entrepreneurs and firms in ongoing networks to work on practical workforce and marketing opportunities as well as big-picture policy issues. The San Diego Regional Economic Development Corporation is supporting local business and academic leaders in the development of entrepreneurial management training and local venture funds. And the San Diego Council on Science and Technology is a constant advocate to ensure that the underlying research base at the university and other research institutions remains strong.

In Pittsburgh, software and bioscience companies are emerging in the region, building on the technology base generated by the world-class science and engineering at Carnegie Mellon University and other local universities. Leaders in Pittsburgh are creating new institutions to accelerate the development of entrepreneurial companies. Recently, business leaders, venture capitalists, and foundations joined together to create Innovation Works, a new organization that will help link entrepreneurs to innovation resources from the university, venture capital community, and other businesses.

Promoting a Regional Culture of Innovation: Greater Washington, Pittsburgh, and Massachusetts

Greater Washington is known as a government center where federal agencies dominate. In 1998, a study of the region discovered a startling fact: more people are now employed in information and communications industries in the region than in the federal government. Greater Washington, especially Northern Virginia, has been a hot spot for Internet companies. As the birthplace of the Internet, the region has blossomed to the top ranks of technology regions behind Silicon Valley and Boston. What happened is an interesting and still evolving tale. The assets of the region are enormous, with the federal government, several leading universities, and some major headquarters companies, including America Online.

About five years ago, several regional leaders began to notice this change and hoped to speed up the process. Mario Morino, a software entrepreneur who had just sold his firm, and others decided to organize a regional effort to promote a more entrepreneurial, innovation-oriented culture. Through the NetEntrepreneur initiative of the Potomac KnowledgeWay, more than 1,500 entrepreneurs involved in the Internet have been supported, mentored, and networked in the region.

Pittsburgh, long known as a steel town dominated by big companies, has begun an effort to promote the culture of entrepreneurship and innovation in the region. At the turn of the century, Pittsburgh was the cradle of industrial innovation in the United States, with leaders such as Carnegie, Mellon, and Heinz taking extraordinary risks at a young age to create the leading companies of their day. Pittsburgh lost its innovative culture in succeeding generations, culminating with the steep decline of the steel and heavy manufacturing industries in the 1970s and 1980s as result of foreign competition. The region lost nearly half its population.

In an effort to re-establish its culture of innovation, regional leaders have launched a series of initiatives aimed at retaining and attracting entrepreneurial talent and creating a more entrepreneurial environment. One initiative includes local entrepreneurs who are working together in a network—"The Hot Team"—to generate new initiatives to attract talent. The Pittsburgh Regional Alliance is also creating an Index of Entrepreneurial Pittsburgh to measure how well the region is doing in moving toward an innovative economy.

Massachusetts has pioneered a new way of defining, understanding, and promoting its innovation economy. In 1996, the Massachusetts Technology Collaborative (MTC), under the leadership of Joseph Alviani, a former Massachusetts Secretary for Economic Affairs, set out to develop a new way to understand the state's changing economy and create a framework that could help Massachusetts align its investment priorities with the needs of its changing economy. The result was the Massachusetts Innovation Index, which measured the strength of Massachusetts innovation resources and how well those resources are being turned into results through a dynamic process of innovation.

Massachusetts has pioneered a new way of defining, understanding, and promoting its innovation economy.

Massachusetts Innovation Index

	FRAMEWORK ELEMENT	INDICATOR (samples)
RESOURCES	Human Resources	Engineering & Computer Science Degrees
	Technology R&D Resources	R&D Expenditures
	Investment Capital Resources	Venture Capital Investment
	Infrastructure Resources	Information Infrastructure Use
PROCESS	Idea Generation	Patent Activity
	Commercialization	Technology Licensing Activity and Values
	Entrepreneurship	Initial Public Offerings (IPOs) Activity and Values
	Company Business Innovation	Proportion of Revenues from New Products
RESULTS	Individual Opportunity	Real Income Adjusted for Cost of Living
	Competitiveness	Industry Value Added
	Business and Cluster Performance	Job Cluster Growth

The Massachusetts Innovation Index measures the strength of Massachusetts innovation resources and how well they are being turned into results.

When the *Massachusetts Innovation Index* revealed that an asset central to the Massachusetts economy—engineering graduates—was in major decline, MTC reached across traditional boundaries to bring high-profile industry leadership and academic leadership to the same table to create an action plan. This group created the Engineering in Mass Collaborative. This network focuses on increasing the number of young people enrolling in engineering programs in Massachusetts.

Making Quality of Life an Innovation Asset: Silicon Valley and Other Innovative Regions

Those places that already rank among the top tier of innovative regions are concerned about the sustainability of their success. They are realizing the importance of quality of life as an innovation asset. Unfortunately, most of these regions are coming to this conclusion at the point where quality of life has begun to erode.

Those places that already rank among the top tier of innovative regions are concerned about the sustainability of their success.

Silicon Valley successfully transitioned from its early roots in defense technology through several succeeding technology generations because of the buildup of its strong innovative networks that can move quickly into new opportunities. Rich assets are accessed quickly through extensive personal and institutional networks. The effectiveness of these networks ultimately depends on talented people who want work in the Valley. Today, Silicon Valley faces a quality-of-life challenge that could threaten those critical innovative networks. Although Silicon Valley remains a good place to do business, it is challenged to remain a good place to live.

In 1998, regional leaders organized by Joint Venture: Silicon Valley crafted *Silicon Valley 2010,* a vision with measurable goals for how the Valley could address its housing, transportation, land-use, and environmental challenges in a way supportive of quality of life and an innovative economy. The key is in promoting innovation in regional development patterns along the lines of smart growth. Doing so means more compact development in vital centers where people can live and work in closer proximity.

A citizen-based network, Silicon Valley Civic Action Network, was launched recently to promote the goals of Silicon Valley 2010 and bring regional thinking into local decision making. Achieving the goals will require unprecedented collaboration among business, government, and community leaders and unprecedented engagement of citizens. Without the social innovations embodied in 2010, the Valley will become an increasingly less desirable place to live, and the very asset that has fueled its innovation—its creative people—will choose to live elsewhere. In this sense, economic and social innovation must go together.

Other innovative regions are also beginning to grapple with pressing quality of life issues:

- In Austin, the strategy has always been to marry the innovative technology economy and a strong quality of life—the natural surroundings, cultural vitality, and intellectual stimulation of its university community. In the past, this kind of commitment produced a new convention center with the backing of the environmental community. But today, growth is testing Austin's vision of a community where knowledge workers wanted to live and work, as streets get more crowded, housing more expensive, and open spaces more developed. A broader regional effort is being organized to address these growing pressures.

- In San Diego, a new initiative has been created with the help of the San Diego Regional Economic Development Corporation to ensure that future land-use patterns make sense for the innovative economy and its workers.

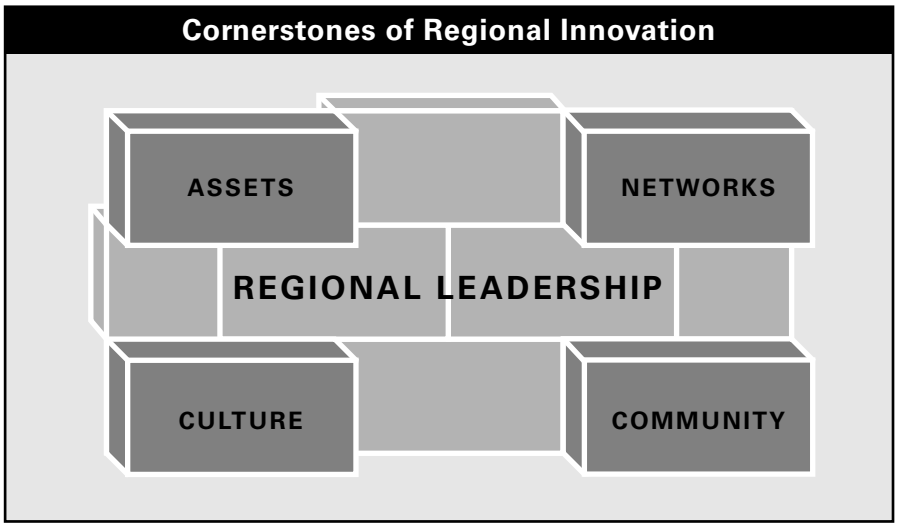
- In Greater Washington, Steve Case, Chairman and Founder of America Online is helping to lead a regional leadership effort—the Potomac Conference—to preserve and enhance the innovative industries and communities of the region. Working against the tradition of competition among the three jurisdictions of Northern Virginia, District of Columbia, and Suburban Maryland, regional business leaders are promoting innovative ways to connect the assets of the region to address critical human resource and transportation issues.

- Innovative regions outside the United States are also making the quality of life connection. The university town of Cambridge, England, has begun to face challenges similar to those of Silicon Valley as it spawns entrepreneurial firms at a rapid pace. Traffic congestion, housing prices, and environmental concerns are escalating. The Cambridge Network, a group of leaders from the entrepreneurial community, provided leadership and resources to create Cambridge Futures: seven computer-simulated scenarios of how the region could grow into the future. Each scenario included pictures and video of how the region would look and numbers showing the effect that different development patterns would have on the environment, the economy, and equity. Cambridge Futures has helped entrepreneurs, university leaders, town officials, and citizens have a better conversation about the region's future—and the means to preserve its role as an innovative region.

The Cornerstones of Regional Innovation: Four Areas Requiring Regional Leadership

Assets, networks, culture, and the community quality of life are critical cornerstones for regional innovation.

Assets, networks, culture, and the community quality of life are critical cornerstones for regional innovation. As a result, regional leaders can—and must—take action to create a better regional environment for innovation and entrepreneurship. Outside investors can only contribute so much—such as federal funds for enhancing university R&D assets. Regional leaders must attend to not only the assets, but the networks and culture of innovation that translate assets into economic benefits. And, they must ensure that community quality of life is attractive and stimulating to the people who drive innovation. Regional leaders can come from business, government, education, private foundations, and other segments of the community.



Assets, networks, culture, and the community quality of life are critical cornerstones for regional innovation.

In short, regional leaders make the difference. Innovative regions do not just happen because of outside forces; they are shaped by the actions of their regional leaders to connect their assets through collaborative initiatives. Many examples exist of regions that have successfully promoted innovation—and transformed their economies and communities rapidly. Other places are falling behind either because they do not understand the imperative to innovate or cannot work together to make the changes necessary to create a more innovative region.

In the end, regional leaders can change the underlying mind-sets and regional environment that shape how economic growth occurs. If it is true that "it's the recipe not the ingredients," then we can help support the chefs of the innovative economy—who create better environments for translating new ideas into powerful results for their communities.

Principles to Guide Action

There are many ways regional leaders can build the cornerstones of regional innovation—the assets, networks, culture, and community. As regional leaders consider different options, the following principles can help guide their decision-making.

1 Innovation is a Team Sport

Innovation is not simply the job of scientists and technologists, nor is it the product of a lone inventor working in a garage. Regional leaders are the key in building diverse teams from business, education, government and the community that will work together to promote an innovative region.

2 Good Information Puts Innovation on the Regional Agenda

Regional leaders can use well-designed indicators to raise the visibility of innovation as a key to regional success, spotlight key issues and opportunities, and provide a catalyst for action. Without good information on sources of innovation in a region, it is unlikely the region will embrace innovation as a priority.

3 Inform, Connect, and Promote (Over and Over Again)

Good information is not enough. Regional leaders must share information widely and often as a tool to connect leaders from diverse perspectives and help them embrace a regional vision for innovation. Regional leaders can work to inform, connect and promote innovation through formal visioning processes and repeated reminders through the media, speeches, and face-to-face encounters.

4 Think Regionally, Act Regionally

Many believe that innovation is either something that "just happens" or is largely the product of strong assets (e.g., universities) dependent on funding from outside the region. They see little if any regional role. Encouraging new thinking about the cornerstones of regional innovation can lead to action on a regional basis—action to use both national and regional assets to promote a regional vision for innovation.

5 Tear Down the Walls Between People

The greatest barrier to innovation has been the traditional "walls" that separate universities, industries, and entrepreneurs. Regional leaders can immediately create new forums and mechanisms to permeate these boundaries. Forget worrying about institutions and programs per se, and focus on connecting people.

6 **Hot Ideas Come From Cool Places**

Innovation is about sharing knowledge or "know-how". Creating environments where innovative ideas can be shared face-to-face is important in innovative regions. These can be personal networks of people with hot ideas who want to gather in creative places. Regional leaders can create spaces and amenities that are attractive for innovative people.

7 **Learn from Others, But Create Your Own**

Benchmarking against best practice is an important learning tool, but each region's assets, networks, culture, and community are so different that borrowing instead of creating is a mistake. Regional leaders should take time to understand their unique challenges, consider the experience of others, and customize strategies to fit their situation. Trying to duplicate the Silicon Valley experience is not going to work.

8 **Unleash the Power of Networks**

Remember that encouraging the growth of networks has a very high leverage impact. Metcalf's Law shows that the number of nodes on a network grows exponentially—i.e., each new node adds its own set of network connections. Networks connect to networks. Regional leaders can encourage the "networking of networks," and address obstacles discouraging the growth of networks.

9 **The Job is Never Done**

Innovation is a continuous process. Once an innovation culture is created, an environment of continuous improvement must take over. Regional leaders can create the expectation that continuous innovation is the norm. They must remain vigilant and prepare the next generation of leaders to understand and further build the cornerstones of regional innovation.

10 **Anyone Could Create the "Next Big Thing"**

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. However, it also means that the regional culture of innovation must be inclusive and welcoming, accepting of new ideas from untraditional sources. Regional leaders can nurture and celebrate the diversity of innovators—and in the process help expand the scope and benefits of regional innovation.