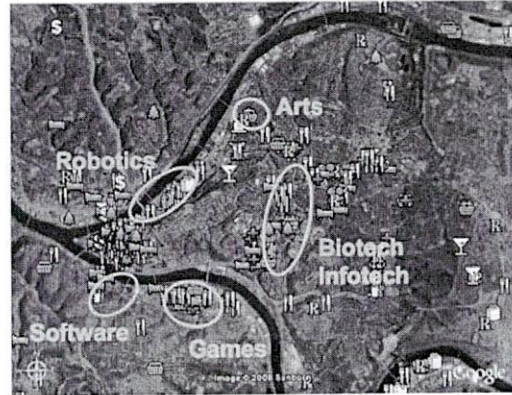


Regional Innovation Clusters and Urban Economic Revitalization

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DISCUSSION DRAFT - February 8, 2011

Regional Innovation Clusters are geographic concentrations of firms and industries that do business with each other and have common needs for talent, technology, and infrastructure. They can accelerate the process of technological innovation and stimulate entrepreneurship, business expansion and job creation.

Even in regions with strong clusters, however, growth typically is not uniform. Firms in the cluster are attracted to locate near each other and within a comfort zone of existing infrastructure, amenities, anchor institutions and social networks. High-growth pockets become more crowded and benefits reach only the few. In the worst case, property-centered development can push gentrification into the region's economically distressed neighborhoods. The citizens of these neighborhoods can be forced out and economic disparities can increase.



To reverse this trend, development must be people-centered rather than property-centered to build the direct and deliberate bridges that are needed to create a strong, self-sustaining business and community network. Recognizing the power of ethnic economies and their global networks to shape urban revitalization, African American communities especially can build upon their own rich history of entrepreneurship to create new opportunities. For example, targeted support for new business ownership can strengthen the local supply chain for the region's innovation clusters. A comprehensive revitalization strategy should ensure that the community's cultural roots are respected and strengthened in the design of interventions so that the cluster will become part of a mutually supporting community system including social services and educational programs.

Regional Collaboration for Innovation-Driven Economic Growth

"History should be our guide. The United States led the world's economies in the 20th century because we led the world in innovation. Today, the competition is keener; the challenge is tougher; and that is why innovation is more important than ever. It is the key to good, new jobs for the 21st century. That's how we will ensure a high quality of life for this generation and future generations."

*-President Barack Obama,
August 6, 2009*

Based on decades of successful technology-based economic development in regions across the nation, a well-developed methodology has evolved for designing a strategy to stimulate the growth of regional innovation clusters that can be competitive in a global economy. Collaboration among neighboring political jurisdictions is essential in this process. First, research is carried out to identify a region's strongest and most distinctive industry sectors. A broad regional consensus-building process then uses this research along with market analysis to choose which sectors are best positioned for growth in the region. Once the choice of focus has been made, governments and other stakeholders invest in a suite of programming interventions to attract specialized talent, support entrepreneurship, provide access to business growth capital, and train the region's citizens for the workforce needs of the chosen cluster.

This collaborative economic development approach has worked well to strengthen the innovation-driven clusters that it targets. Yet those who assumed that this rising tide would automatically lift all boats have been disappointed. Innovation-driven clusters do deliver wealth-creating opportunity, but typically their

impact is felt by only a small fraction of their region's population. Even in the most affluent regions in the nation, business districts experiencing rapid development may be located directly adjacent to neighborhoods with high unemployment rates and persistent, concentrated poverty. Property-centered planning has been an inadequate tool to address this issue, even when it has been coordinated in a systems-level design exercise with transportation planning, Main Street and Elm Street urban programming, workforce training and social service initiatives.

Support Networks for Economic and Community Revitalization

If innovation clusters are to realize their full potential as regional economic engines, focused attention must be paid to strengthening a business support network throughout the entire community. Local entrepreneurs, small business associations, grassroots nonprofit social service providers and other stakeholders must be involved along with the usual set of participants in technology-based economic development planning. The first step, especially in historic African American business communities and other disenfranchised enclaves, must be to build genuine relationships based on respect for each other's cultural norms and aspirations. This will enable a mutual learning process in which **social issues are not seen as separate from what is necessary to generate sustainable economic growth in the cluster.**

"We got rid of colonialism, we got rid of slavery, and we got rid of apartheid – everyone thought each one of them was impossible. Let's take the next impossible, do it with joy and get it finished with and create a world free from poverty. Let us create the world of our choice."

*-Professor Muhammad Yunus,
July 11, 2009*

(Delivered in Johannesburg on the eve of the 91st birthday of Nelson Mandela)

This learning process must be informed by research to identify and chronicle the legacy of misguided policies and structural factors that led to the distressed economic conditions that exist today.

An array of teaching styles along with guided learning experiences may be needed to enable stakeholders to challenge the assumptions they bring to the process. Learners should be willing to be escorted into the history and cultural traditions of the citizens who live in these communities. Where there is lost history there are lost customs, principles and practices; recovering these customs, principles and practices can provide tools for the design of the two-way bridges that are needed.

"If you want to lift yourself up, lift up someone else."

- Booker T. Washington

Deep understanding establishes proper cross-cultural protocol, stabilizes power dynamics and informs a broadly collaborative process. It empowers each community's respected leaders and trusted organizations to design a holistic, culturally rooted, place-based and people-centered strategy to attract development, thus creating economic opportunity for the residents of the community without forcing their physical or economic displacement. Based on this capacity building, the collaborative regional planning process for innovation cluster development can be a community-led process.

Strong personal and business networks are the most important feature of successful regional innovation clusters, ethnic and other group economies. With the contributions of stakeholders throughout the region's economic system, a suite of policies and initiatives can be chosen collaboratively that will give the cluster a much better chance to deliver on the promise of a steadily improving quality of life.

"This is America's opportunity to help bridge the gulf between the haves and the have-nots. The question is whether America will do it. There is nothing new about poverty. What is new is that we now have the techniques and the resources to get rid of poverty. The real question is whether we have the will."

-Reverend Martin Luther King, Jr., March 31, 1968



Common Approaches to Regional Innovation Cluster Implementation

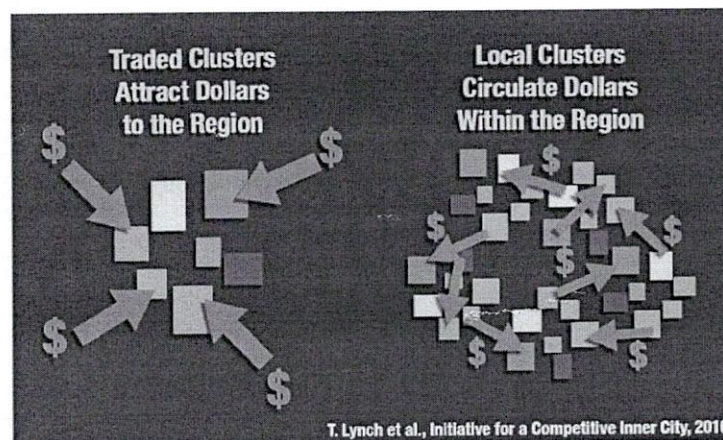
Economic regions are defined much more by work commuting distances than by political jurisdictions. Recognizing the value of industry-sector clustering to regional comparative advantage, governments across the nation are working to collaborate with their neighboring jurisdictions rather than seeing these others as competitors in the struggle to attract jobs and investment. Collaboration among the governments, corporations of all sizes, educational institutions and other organizations within an economic region is the primary driving force behind the most successful policies and investment strategies being implemented to promote innovation-driven job growth and wealth creation.

Current practice in regional innovation cluster development focuses on:

1. **Know Your Region: "What are we good at?"** Identifying the region's most promising, most distinctive sources of continuing innovation, then characterizing the high-growth, job-creating, wealth-creating industry sectors that this innovation could support and sustain over time;

and based on this understanding:

2. **Grow Your Own: "How do we build on what we're good at?"** Developing a strategy to stimulate continuing economic growth by attending to the needs of the firms in the targeted sectors so that they will aggregate in the region as one or more mutually supporting clusters. Sometimes attention is paid both to promoting the success of the highest-growth "gazelle" firms and to supporting the creation of a complementary local supply-chain cluster, since the supply chain can also offer high-wage jobs and rewarding career paths.



Strategic planning to promote economic development in regional innovation clusters begins with research to determine the region's core competences: those industry sectors that are best positioned to grow more quickly than the population. These "traded clusters" can attract both investment capital and sales revenue to the region, usually by capturing customers outside the region for their products and services. Once these core, high-growth clusters have been identified, new government policies and investment programs are designed to support the needs of the targeted sectors. The collaborative regional process enables all of the region's stakeholders, such as educational institutions and business associations, to align their internal planning to fit these targeted sectors.

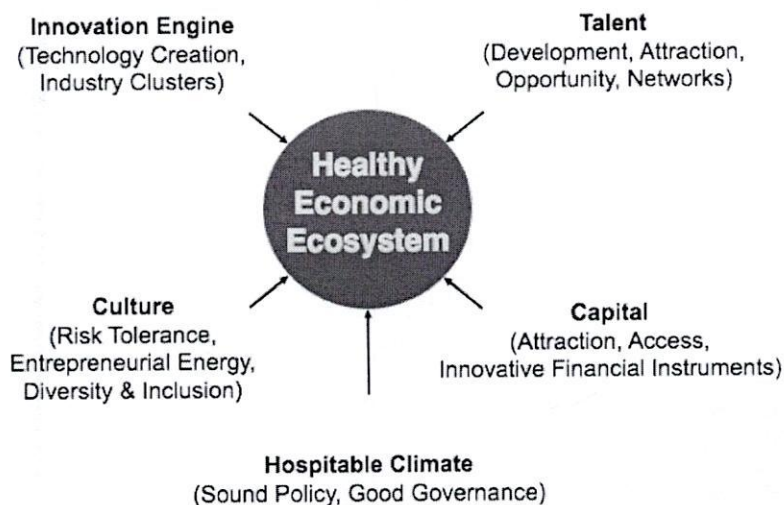
In addition, firms that support the supply-chain needs of the traded clusters can create local clusters with career paths and entrepreneurial opportunities that are more rewarding than those available in other local clusters such as retail, where growth depends only on population growth. Investments are often made in marketing and communications to build a regional brand and attract synergistic investments and key talent in support of the shared regional development goals. Finally, progress over time is tracked and strategy is adjusted as needed to keep momentum strong.

Policy and program recommendations for implementing a regional strategy to develop and support a targeted innovation cluster typically focus on strengthening the following elements of a healthy regional economic ecosystem:

- **Innovation engine;**
- **Talent** attraction and retention;
- **Capital;**
- **Entrepreneurial culture;** and
- **Hospitable policy climate for business investment and growth**

Implementation often includes additional investments in

- **Marketing** to improve the region's image as the center of economic activity for the targeted cluster.



Appendix I lists specific initiatives that are commonly designed to implement regional economic development strategies in support of a targeted innovation cluster. Sources of support for these policies and programs could include state and local governments, philanthropic foundations, corporations and other investors. While some aspects of implementation are sector-dependent, such as the shared laboratory facilities that might be needed in a business incubator to support specific technologies in development, for the most part any regional innovation cluster implementation plan would include most of these elements.

Not all of these interventions have been shown to be effective. Some are controversial and some are more cost-effective than others. Political considerations can also distort funding choices and government investment levels away from the regional consensus. Regions that have reached consensus on strategy,

however, and then implemented measures such as these in support of their shared goals, have nearly all been able to improve their economic performance when their collaborative effort has been sustained over time.

The selection of investments that each region makes from among its many options depends on the characteristics of the targeted industry sector around which the regional innovation cluster is created, as well as the level and character of the funding and professional talent base, facilities and other infrastructure that is available. **Performance metrics usually include such measurable quantities as job growth within firms that make up the cluster, investment capital flowing into the firms, sales revenue, attracted, and alignment of educational programs and workforce development training efforts to the needs of the cluster.** With diligent tracking of outputs and outcomes, it is possible to adjust programming based on outcomes and in response to macroeconomic conditions.

What's Missing? Creating Direct and Deliberate Bridges

Regional innovation cluster planning and implementation initiatives typically focus their support narrowly on the specific core technology drivers for the targeted clusters. There is an implicit or explicit assumption that supply-chain businesses and other local support services for the cluster will emerge organically as the cluster creates a market for them. Similarly, it is considered the responsibility of others to work on such things as public education reform, housing developments and improvements in social service delivery for those who live in low-income communities. Eventually, the thinking goes, these other, separately funded and separately planned programs will prepare a broader demographic group of citizens to enter the specialized workforce that high-growth clusters typically need.

Yet all the evidence to date has shown that expanding economic activity does not automatically lift all boats. Unfortunately, in regional innovation clusters across the country as well as in places as far away as Israel, the most positive impacts have been felt only within demographic and geographic pockets. For example, direct employment in the cluster may reach only 5-10% of the population. Concentrated, intergenerational poverty has continued to worsen even in regions where average levels of wealth attainment have risen. The Washington, DC metropolitan region, for example, which has experienced dramatic job growth during the past decade of increasing federal procurement activity, is now considered one of the strongest regional economies in the nation. At the same time, the already large economic disparities among demographic groups and geographic sub-regions have grown larger. Indeed, Senator Mark Warner has said that when he brings up the concept of innovation as a driver for economic growth, many of his Virginia constituents respond negatively: "Innovation just makes the rich richer and the poor poorer."

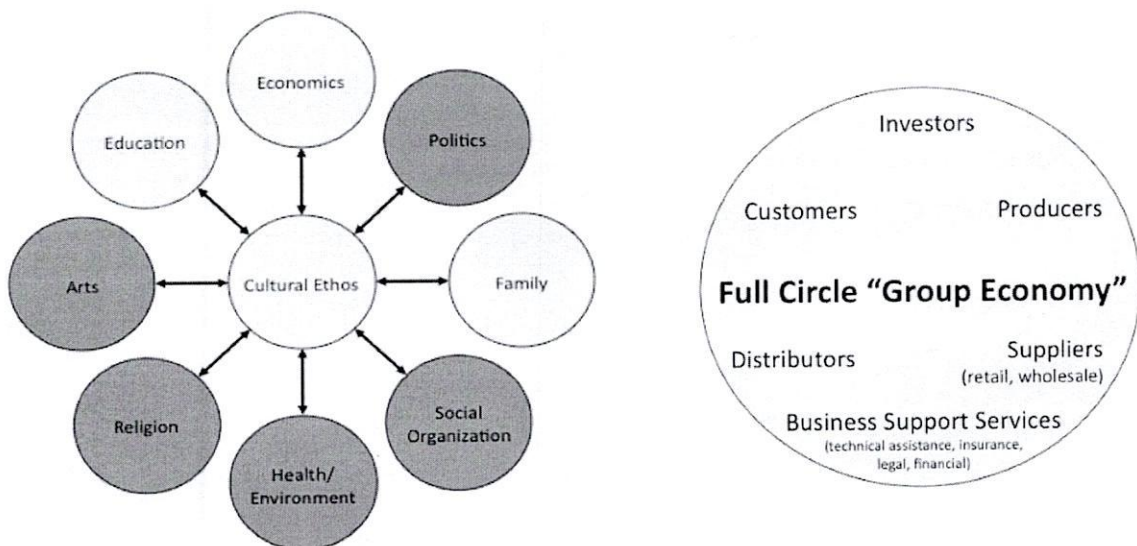
There is no fundamental reason why innovation clusters cannot create broad economic opportunity, reduce economic disparities and help break the cycle of intergenerational poverty. Attention simply has not been directed toward designing the interventions that will be required. Because the needs of economically distressed communities are addressed in ways and by agencies different from those involved in technology-based economic development, each sphere focuses narrowly on its own issues with little understanding of the other. With direct and deliberate consideration and a new collaborative learning process, effective bridges can be built between areas that are experiencing innovation-driven growth and those that are economically distressed.

Even for individuals who have never had access to the benefits of high-quality K-16 and graduate education focusing on science and technology, entrepreneurial business opportunities and career paths for employment already exist within innovation-driven, technology-based clusters. For example, anchor institutions within the clusters such as universities, hospitals, and federal agencies purchase goods and services, and this procurement could be directed to local small business enterprises in their immediate proximity. Entry-level laboratory technicians can receive career guidance from the scientists and

engineers who work with them every day. Moreover, even in firms based on specialized technological advancements, most of the employees perform functions that do not require advanced technical degrees. Innovation zones can be designated in economically distressed regions directly adjacent to university campuses and downtown business districts, offering incentives that make it easier for entrepreneurial and employee-owned service businesses to build wealth in these communities. With direct attention to nurturing the establishment of a robust local supply chain of small businesses related to the designated regional innovation cluster, broad economic opportunity for individuals and businesses can be created and sustained.

Rather than focusing a place-based revitalization strategy on property development, a people-centered approach would be a more promising way to achieve holistic and comprehensive success. A legacy of disinvestment has often resulted in a local economy within economically distressed communities that is dominated by social-service agencies and nonprofit organizations. When property-centered development attracts new businesses and creates new transportation patterns, this can force displacement rather than revitalization as gentrification prices low-income citizens out of their communities. Instead, the citizens of the community, rather than its buildings and organizations, are its most important assets and should be the central focus of the formal planning process. When a regional collaboration is led with full participation of the host communities, innovation cluster design and development strategy can build upon a comprehensive asset base that includes not only its technology strengths but also the historical ethnic and cultural assets of its citizens. In both technology-based clusters and ethnic economies, strong interpersonal networks can position businesses and regions well to compete in global markets. For example, ethnic economies have traditionally drawn upon their global networks and trusted extended family connections to access investment capital and efficient supply chains for local businesses in their communities. In predominantly African American communities, support for entrepreneurship can draw upon the rich heritage of group economies, such as the Greenwood district of Tulsa, Oklahoma during the early 20th Century, that have been successful within an African American cultural ethos.

Research to assess the economic condition of communities throughout a region can identify specific issues that will need to be addressed to enable full participation in the region's strongest innovation clusters. Implementing the region's cluster growth strategy will then require the collaborative design of a comprehensive business and community support network for the region's entrepreneurs. A regional innovation cluster will be stronger and more sustainable when it is embedded within a system of healthy local economies for entrepreneurs as they work to build their businesses, their families and their communities.



Implementation Example: Pittsburgh

Pittsburgh's Hill District, home of playwright August Wilson, was once a community rich with demographic diversity and cultural life, including especially the places that bred its strong jazz tradition. Today it is a predominantly African American community still struggling to recover economically from the federally subsidized "Urban Renewal" bulldozing that displaced 8000 residents fifty years ago and severed their social and business networks. Located on high ground with spectacular views and sandwiched between the region's downtown business district and the campuses of its major research universities, the Hill District has continued to experience high rates of poverty, unemployment and crime even though technology-based clusters of new, high-growth firms are aggregating in the adjacent neighborhoods. Pittsburgh's celebrated transformation from a town dominated by its one steel industry to one with a diversified economy with much of its growth driven by world-class "eds and meds" assets has not been felt in this community.

Five years ago a state-supported program created an "innovation zone" centered in the Hill District to attract technology firms with a variety of incentives. Foundations and nonprofits have been collaborating to design and fund a series of mutually supporting interventions to complement this state seed funding. New initiatives include entrepreneurship support, education, social services, and technology. Programs have been put into place to offer early-stage financing to new businesses along with support to help them use technology to enable access to larger markets and global supply-chain networks. A former public school building is being renovated to host a workforce training program for green building operating engineers, an energy innovation business incubator, a university biofuels testing laboratory, and related high school and community college programs with support from foundations, corporations and government agencies. Other programming examples that support this strategy include microfinancing for African American and African immigrant entrepreneurs with connections to suppliers on the African continent and diaspora; a cooperative of women entrepreneurs who do business according to the African principle of Ujamaa; a pharmacy hosted by one of the universities to serve the community while training students; entrepreneurship training for ex-offenders; and investment by a former professional football player and other local community leaders in the restoration of the Hill District's iconic historical cultural sites to become new social, cultural and business venues.

Coordination among nonprofits, educational institutions, individual investors, and philanthropic foundations has helped to keep projects moving forward in the face of setbacks resulting from the recent economic downturn and the uncertainty of state funding. The number of technology-based firms in the zone has been increasing steadily and an existing manufacturing firm has been expanding as it has developed distribution channels for its products in Asia. A new generation of community and business leaders has developed a shared commitment to a specific economic development strategy that builds business and social networks within the community while working to align economic activity with high-potential growth paths for the region's strongest innovation clusters.

Progress has been fragile but significant as programming and investment innovations are tried and tested here. Lessons learned in the Hill District are being monitored so that they can inform a larger process to revitalize other urban communities in the region and ensure that they are linked productively to the opportunities in the region's high-growth, technology-based industry clusters. Some of the residents say that the community's psychology overall is beginning to improve as early results of this collaborative work take root. As this suite of interventions begins to broaden the reach of Pittsburgh's innovation clusters, many more of the region's citizens will be able to celebrate the story of Pittsburgh's transformation and become part of its innovation-driven engine of wealth creation.

Summary

The development of innovation-driven economic engines within narrow technology-based clusters in Silicon Valley, North Carolina's Research Triangle, and other strong regional economies has been strengthened over time by sustained and reasonably synergistic effort among a broad group of stakeholders. A similar collaborative, thoughtfully developed strategy can design a suite of interventions tailored to the needs of each innovation cluster that can broaden opportunity and reduce economic disparities throughout these regions. To overcome longstanding barriers to progress, both spheres of development must be willing to learn from each other. The resulting innovation cluster development strategy can weave together the interventions that are typically made to promote its technology drivers much more effectively with those that are needed to build social, educational and economic capacity at the grassroots level, consistent with the cultural ethos among the residents of these communities.

Appendix II lists examples of specific recommendations for implementation interventions that might be carried out in addition to the more common innovation cluster support interventions as a result of such a broad-based community process. A successful comprehensive implementation strategy will combine elements of the programs and policies in both appendices to create a full-circle economy that builds upon the contributions of the broadest possible stakeholder asset base.

Appendix I.

Common Policies and Programs for Regional Innovation Cluster Support

A. Innovation Engine

- Fund the formation and growth of university research centers in the technology areas important to the cluster; encourage industry consortia to guide research directions toward their long-term needs and to leverage any government funds that are awarded to the centers.
- Encourage universities to alter their technology transfer practices, including licensing and new business formation, to enable a higher volume of transactions and greater collaboration with the regional business community in decision making for commercialization strategy. For example, best practices include the use of standard templates for the legal agreements that are required.
- Support the professional time of industry researchers and senior managers in the targeted industry sector to serve as adjunct professors working in collaboration with the region's university faculty to increase the exposure of students to industry points of view in both teaching and research.
- Provide matching funds for corporate support of applied research projects carried out by researchers at university and government laboratories.
- Support lobbying efforts by regional universities and corporations to secure federal and state government appropriations for research projects, centers and facilities in support of the cluster.
- Build "proof-of-concept" centers on or near university campuses, offering prototype development, "hardening" of laboratory inventions and software to enable commercial readiness, seasoned business advice for research teams, and small amounts of funding to explore the commercial viability of laboratory innovations.
- Build business incubation facilities tailored to the laboratory or light manufacturing needs of the early-stage firms in the cluster. Renovate old factory or school facilities rather than building new buildings. Offer a flexible portfolio of space options for firms as they grow, and keep rental rates at or just slightly below market rate to encourage firms to "graduate" and leave the incubator as they grow and achieve early market success. Provide shared services for firms in each facility including business accounting, connections to legal advice, office services and kitchens, with ample opportunities for interaction to build a social support network among the tenants.

- Offer matching funds and professional networking connections between large and small firms in the cluster to promote strategic partnerships and the development of local supply-chain vendor relationships.

B. Talent

- Offer lump-sum "startup packages" to attract star faculty to the region's universities, including support to build out laboratory space and support graduate students. Such infrastructure support is not available from federal funding agencies but can help new faculty launch their research careers more quickly than at a competitor university in another region.
- Build strong partnerships between the region's K-12 schools, community colleges, universities and businesses so that education, workforce development, and college curricula are designed in partnership with employers who make a commitment to hiring the graduates of these programs.
- Offer internships at the firms within the targeted cluster. Create a managed program to support the formation of a social network among the internship programs so that early-career professionals have the opportunity to interact routinely with each other and develop a deep understanding of the cluster and a strong personal affinity for the region.
- Provide support for professional recruiting of senior talent needed by firms in the cluster, for example by subsidizing a shared human resources manager for entrepreneurial firms that are too small to support a full-time position for this function.

C. Capital

- Provide flexible "gap funds" for early prototype development and other early-stage commercialization activities, managed by university technology transfer offices.
- Offer matching funds for government-funded applied research and commercialization projects that are awarded to universities and technology-based businesses, such as the federal Small Business Innovation Research Program or NIST's Technology Innovation Program.
- Subsidize the creation of angel networks and early-stage venture capital funds focused on the region and its strongest targeted innovation clusters.
- Provide tax credits for patient investment in firms within targeted clusters.

D. Entrepreneurial Culture

- Provide funds for the professional compensation of "entrepreneurs in residence" or other business mentoring programs targeted to new technology-based businesses within the cluster.
- Build connections into the alumni networks of regional universities to engage individuals who would be capable of serving as experienced investors, advisers, or management talent for the region's young technology firms.
- Identify and recruit individuals with strong entrepreneurial experience for every business leadership position in the region, such as the region's technology business council, boards of university research centers, business support organizations, and technology transfer offices at the region's universities, government and industry labs.
- Fund innovative early-stage incubation programs modeled after Silicon Valley's Y Combinator or Colorado's TechStars for technology businesses in the cluster that require only modest early support and a short amount of time for development.
- Conduct a campaign to celebrate entrepreneurship in the region by promoting individual success stories in the popular media throughout the region; selectively include stories of failure to promote the value of risk-taking in eventual entrepreneurial success.
- Create physical spaces that enable the routine interaction of artists and designers with early-stage technology entrepreneurs. Alternatively, fund short-term internships for artists in technology-based companies.

E. Business Climate

- Create an organization to promote the growth of early-stage firms in the cluster through a public-private partnership such as joint state-foundation-investment partner funding. Ensure that the organization has strong, experienced entrepreneurial leadership, funding (e.g. through equity investment or convertible-debt loans), business advice, and support for shared human capital and other services.
- Create "innovation zones" that offer tax incentives and other subsidies for high-growth firms in the targeted industry sector to locate in proximity to each other and to research centers with related programs.
- Fund "grow-our-own" cluster development initiatives rather than supporting the ongoing "economic war among the states" in which states and regions aim to out-subsidize each other in the competition for corporate attraction.
- Support a high-quality communication function and Internet presence to disseminate information about funding opportunities, government contracting, industry associations, and other resources that could support businesses of all sizes and stages in the cluster.

F. Marketing, Image Promotion and Coordination

- Convene a leadership steering committee including university presidents, corporate chief executives, small business entrepreneurs, nonprofit directors, foundation grant makers, and government officials. This group should track and monitor a set of agreed-upon performance metrics and then guide implementation efforts, changing course as necessary based on reviews of these metrics that are carried out at least annually.
- Capture opportunities to host national and international conferences on subjects related to the targeted industry sector, including both research and business focus.
- Carry out an explicit marketing campaign including press releases announcing successful research milestones achieved, corporate attraction successes, jobs created, etc.

Appendix II.

Eliminating Disparities in Economic Outcomes: Direct and Deliberate Bridges

A. Innovation Engine

- Fund the formation of employee-owned cooperative businesses to provide such services such as office support, secretarial, cafeteria, landscaping, information technology, transportation shuttles, and linens for the businesses in the cluster.
- Provide incentives for anchor institutions in the cluster to direct their service procurement to entrepreneurial businesses in the cluster.
- Offer education programs tailored to the needs of local, family-owned small businesses to capture larger markets for product sales and distribution over time, develop professional boards, plan for leadership succession, and eventually reinvest in the community.
- Fund specialized business startup support and incubation programs where teams of experienced product development engineers help early-stage firms within the cluster reach the point of first sale, overcoming a common commercialization "valley of death."
- Work with local firms to ensure that they appreciate how to access government technology business support programs such as Small Business Innovation Research, NIST's Manufacturing Extension Partnerships, and university-industry centers programs. Fund a process to enable local firms to tap into the experience of prior awardees within these programs to increase the chance that their applications for government funding will be successful.

B. Talent

- Offer entrepreneurship education programs designed to meet the needs of women living in communities with high poverty rates. Many of the small and informal business entrepreneurs in these communities are women who may also head households, hold a low-wage job, and have child-care responsibilities.
- Connect entrepreneurship training programs with small-business financing and business support services, could enable these informal entrepreneurs to expand their businesses toward distribution, export, and other higher levels within the regional innovation cluster value chain.
- Ensure that after-school and other career-focused extracurricular programs at all levels are planned in coordination so that cohorts of students receive experiences that build on each other, maximizing their understanding of the opportunities available to them in the targeted regional innovation cluster.
- Work with correctional institutions and local community colleges to offer technician training and other workforce development programs for ex-offenders, beginning at least six weeks before their date of release. Ensure that these programs are planned in collaboration with employer firms in the targeted cluster, including those along its supply chain, and provide incentives for employers to offer jobs to nonviolent ex-offenders.
- Work with correctional institutions to offer entrepreneurship education programs for ex-offenders, beginning at least six weeks before their date of release. Ensure that these programs are planned in collaboration with employer firms in the targeted cluster, including those along its supply chain.
- Work with employers to support internships, mentoring experiences, a Black College Tour, and other career development programs targeted toward specific career paths within the regional innovation cluster.
- Create a "labor-management clearinghouse" where unemployed, unskilled individuals can be matched to entry-level jobs while also being trained after hours to be eligible for higher-level positions. Such programs require collaboration among several different unions as well as with employers willing to commit to hiring those who complete these training programs successfully.

C. Capital

- Subsidize small-business loan programs to reduce the barriers that would otherwise exist for employee-owned businesses serving the local supply-chain cluster to begin operations as well as to expand.
- Offer microfinancing along with capacity-building business support and guidance.
- Support the placement of business-school students from the local community as interns within investment funds that support urban revitalization projects, including especially pension-capitalized funds and those that have made a commitment to responsible investment principles but may not have staff professionals who have direct personal experience within low-income, economically distressed communities.
- Work with existing organizations to create and support a set of community development financial institutions, including community development venture capital funds.
- Work with credit unions and community banks to ensure that their leaders are known and respected within the communities where they are located and that their employees represent those communities. Enable these institutions to offer a suite of services for unbanked and underbanked individuals, families and businesses to discourage their use of exploitative check-cashing services.

D. Entrepreneurial Culture

- Collaborate with community and business leaders to design a program to identify and develop promising entrepreneurial talent in the targeted communities,

- Offer business mentorship and training directed toward specific supply-chain business opportunities in the cluster.
- Work with correctional institutions and local community colleges to offer entrepreneurship education for ex-offenders, beginning at least six weeks before their date of release.
- Provide networking support for ex-offenders so that experienced entrepreneurs can offer advice and guidance to help new business owners be successful.
- Establish business associations that encourage local businesses to pool their procurement to secure better pricing, do business with each other, and invest jointly in shared services and infrastructure for their mutual advantage.

E. Business Climate

- Offer tax incentives and other subsidies for employee-owned firms that offer services to firms in the targeted industry sector to do business with each other.
- Work with community leaders, community development organizations and leaders within local anchor institutions to develop a strategy to avoid both physical and economic displacement of citizens in communities adjacent to high-growth regions within the cluster.
- Provide support for minority-owned and women-owned businesses to become certified for contracting opportunities.
- Provide matching funds in collaboration with banks for a sheltered bond program along with business education that would enable minority-owned and women-owned contractors to build their bonding capacity to access larger contracting opportunities over time.
- Support "technology consulting in the community" courses in local universities to enable information technology majors to work with local community organizations and small businesses, enabling them to meet their information systems needs cost-effectively.
- Fund a clinic within the law schools at local universities in collaboration with entrepreneurial support programs in university business schools. Ensure that experienced advisers oversee interactions of students with local early-stage entrepreneurial firms.
- Create a data collection, correlation and visualization, and analysis capability within a local community organization. Use this capability to characterize and track the growth of the local business cluster and its connections to community support services, capital flows, and measures of the health and wealth of the community and its residents. Provide shared access to this analysis and offer routine opportunities for community engagement to influence trends.

F. Marketing, Image Promotion and Coordination

- Convene a leadership steering committee including respected elders and other leaders of the community where the cluster will be located and inviting other stakeholder representatives from the region including university presidents, corporate chief executives, small business entrepreneurs, nonprofit directors, foundation grant makers, and government officials. This group should define, track and monitor a set of agreed-upon performance metrics and then guide implementation efforts, changing course as necessary based on reviews of these metrics that are carried out at least annually.
- Create a plan along with a communication strategy to disseminate information about the development through a lens that builds upon the economic history and cultural ethos of the people in the community where the cluster will be located.

value chain

Supply chain

Economic Ecosystem

Incubation Centres/Labs

Social systems

inter-generational Poverty.

anchor institutions

Procurement network