How to Build Competitive Innovation-Based Cluster Strategies

September 30, 2010

Presented by:
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Innovation America

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The World Has Changed

- Convergence of Complex Challenges
- Loss of Jobs
- Growing US Trade Deficit
- Greater International Competition in manufacturing and service industries
- Competitive advantages are increasingly tied to human capital and innovation
- Economic growth is closely related to education/workforce, energy, climate change, environmental, natural resource and geopolitical issues
- **"Clusters Matter"**

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Future is Determined By the Present

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Knowledge and Innovation

- Knowledge is the confident understanding of a subject, potentially with the ability to use it for a specific purpose.
- Knowledge economy is based on creating, evaluating, and trading knowledge
- Innovation is the creation and transformation of knowledge into new products, processes, and services that meet market need.

What is Innovation?




- **Radical Innovation:** a new product, process, or system that replaces its accepted predecessor and renders it obsolete.
- **Ideation** is applied knowledge; **Creativity** is applied ideation; Invention is applied creativity; and **Innovation** is the successful commercialization or adoption of radical invention
- **Innovation** results when a new approach is applied to an old problem that makes lasting and far-reaching changes in behavior
- "A new match between a **Need** and a **Solution**"

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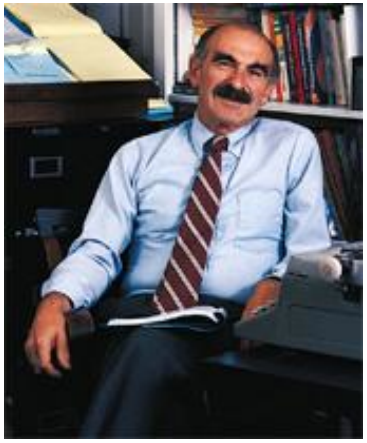
Why Is Innovation Essential?

"INNOVATION IS THE SPECIFIC INSTRUMENT OF ENTREPRENEURSHIP. THE ACT THAT ENDOWS RESOURCES WITH A NEW CAPACITY TO CREATE WEALTH."

-PETER F. DRUCKER

"INNOVATION DISTINGUISHES BETWEEN A LEADER AND A FOLLOWER."

-STEVE JOBS



"JUST AS ENERGY IS THE BASIS OF LIFE ITSELF, AND IDEAS THE SOURCE OF INNOVATION, SO IS INNOVATION THE VITAL SPARK OF ALL HUMAN CHANGE, IMPROVEMENT AND PROGRESS!"

-TED LEVITT

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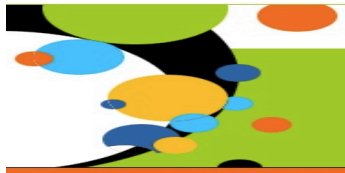

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by 2thinknow Innovation Agency

Innovation Cities™ Program.

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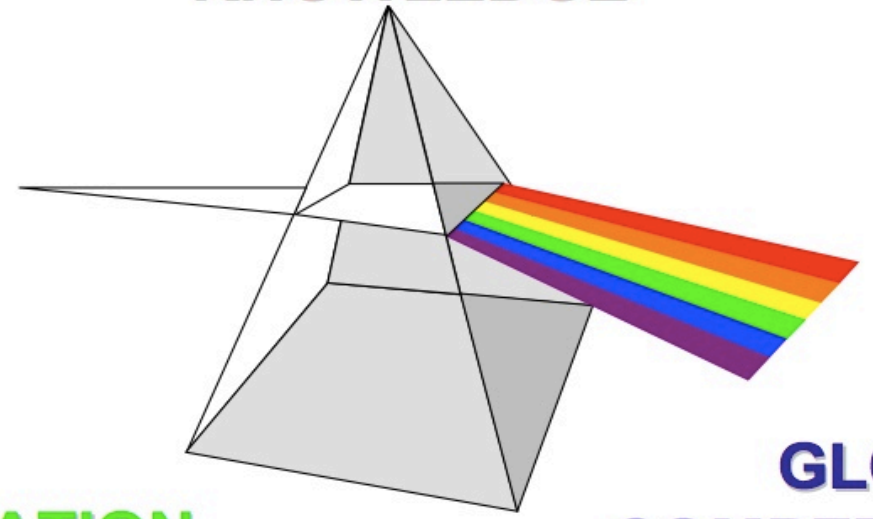
Innovation Cities™ Top 100 Index

RANK	CITY	STATE	COUNTRY	REGION	2010 GRADE
1	Boston	Massachusetts	United States	AMERICAS	1 NEXUS
2	Paris		France	EUROPE	1 NEXUS
3	Amsterdam		Netherlands	EUROPE	1 NEXUS
4	Vienna		Austria	EUROPE	1 NEXUS
5	New York	New York	United States	AMERICAS	1 NEXUS
6	Frankfurt		Germany	EUROPE	1 NEXUS
7	San Francisco	California	United States	AMERICAS	1 NEXUS
8	Copenhagen		Denmark	EUROPE	1 NEXUS
9	Lyon		France	EUROPE	1 NEXUS
10	Hamburg		Germany	EUROPE	1 NEXUS
11	Berlin		Germany	EUROPE	1 NEXUS
12	Toronto		Canada	AMERICAS	1 NEXUS
13	Stuttgart		Germany	EUROPE	1 NEXUS
14	London		United Kingdom	EUROPE	1 NEXUS
15	Munich		Germany	EUROPE	1 NEXUS

Innovation Economy

KNOWLEDGE



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GLOBAL COMPETITIVENESS

"If a man empties his purse into his head, no man can take it away from him. An investment in knowledge always pays the best interest."

--Ben Franklin

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Realities, Opportunities & Innovations for the Next Decade

- Continued fiscal difficulties
- Sorting out of the capital markets
- More opportunities for entrepreneurship
- China as a potential market if consumers spend
- Reshaping of manufacturing
- New tech frontiers (e.g., alt energy, climate change)
- Continued growth of open innovation
- Workforce issues among the U.S. and global populations
- **INNOVATION** is essential to remain competitive

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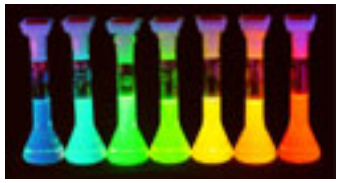
Implementing a New Innovation Paradigm

- Willingness to deviate from traditional and parochial perspectives
- Encourage public investment and risk taking
- Developing trust through collaboration
- Ensuring the paradigm is responsive to partners' missions
- Building consensus of all constituents through education, participation, and positive outcomes
- Move from technology-based economic development to **Innovation-Based Economic Development (IBED)**



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Goals of Innovation-Based Economic Development

Intervene at the margins of private sector investment flows of capital (financial and intellectual) to:

- Address economic transition
- Capture the benefit of investments in research and development, higher education
- Build entrepreneurial cultures
- Help existing industries modernize
- Diversify both rural and urban economies
- Develop global innovation network

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Collaboration

A recursive process where 2 or more people or organizations work together in an intersection of common goals.

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Public/Private Partnership

- Progress is promoted by strong industry, government and university leadership
- Sustained by dynamic public/private partnerships
- These leaders create new, responsive models of governance

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Government's Role in Cluster Development

•Federal policymakers can provide a rich base of information and related foundational resources for cluster practitioners nationwide.

•State policymakers should strategically invest their own resources in cluster-led economic development.

•Regional leaders should identify cluster challenges and coordinate cluster actors.

•Local policymakers should bring to tools to influence on-the-ground implementation of cluster-oriented economic development.

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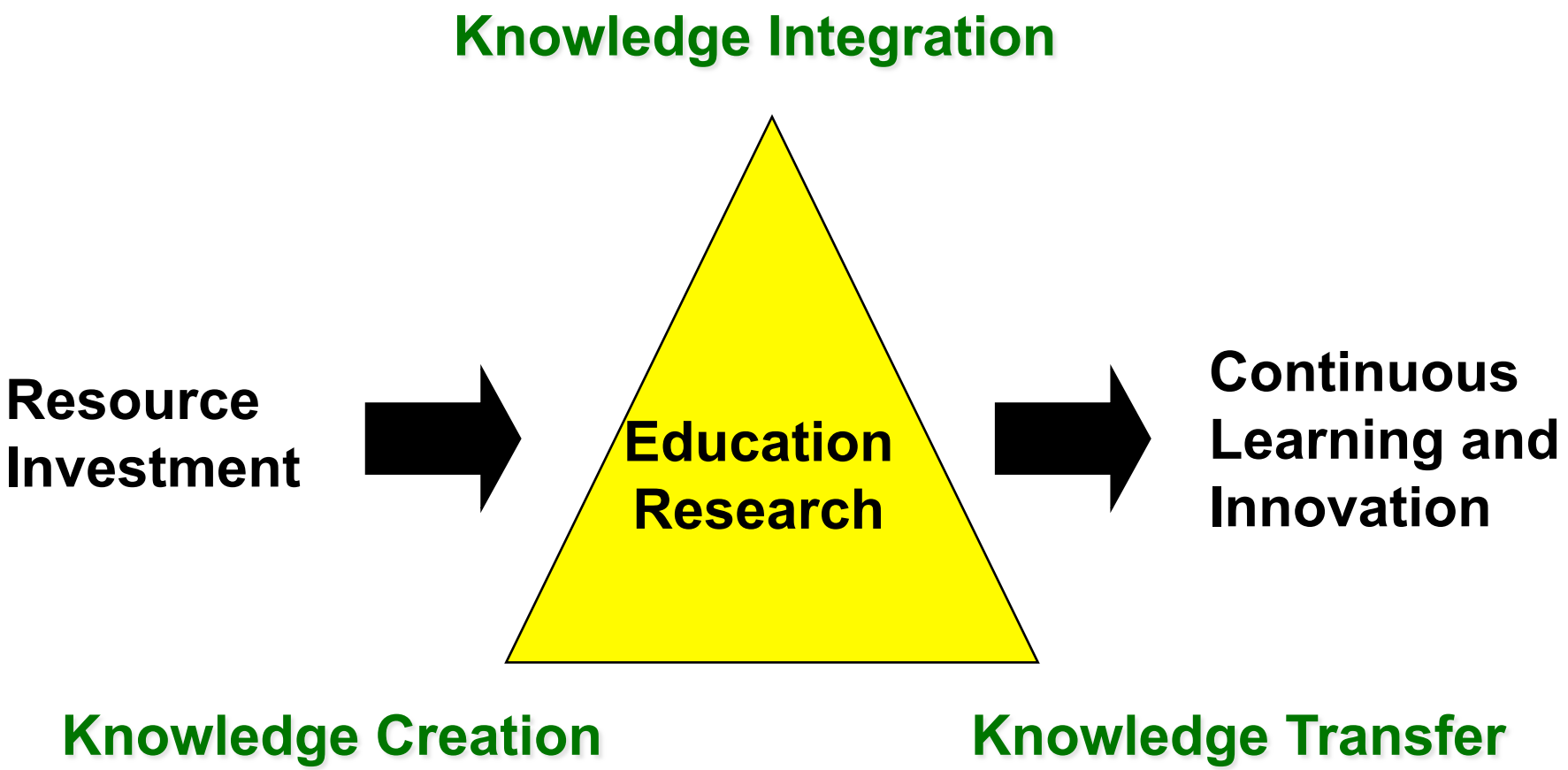
The Role of Education



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The Role of Industry: Wealth Creation

Capitalism is a Process of Creative Transformation

"The interaction of technological innovation with the competitive marketplace is the fundamental driving force in capitalist industrial progress."

Joseph A. Schumpeter, 1942

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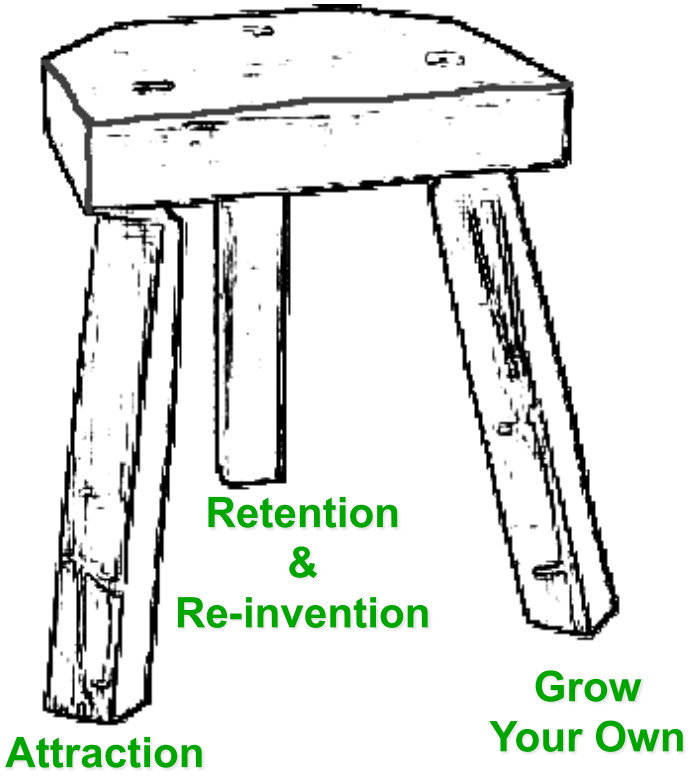
Economic Development

- Economic Development is a three-legged stool:
  - **Attraction**
  - **Retention & Re-Invention**
  - **Grow Your Own**
- IBED requires patience and persistence, continuity and consistency.
- Working with early-stage companies takes time.
- A balanced portfolio economic development strategy is best!



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Traditional & Innovation-Based Development

	Traditional		Innovation (Clusters)
• Competitive Basis	Natural resources Highways / Rail Proximity Costs	→	Specialized talent Networks, information University research / professors Market understanding Global Reach
	i.e. PHYSICAL		i.e. KNOWLEDGE
• Key values / offerings	Business parks Incentives	→	Access to research Workforce competencies Lifestyle
• Lead Organization	Chambers / EDCs	→	Economic developers **Innovation Intermediaries**

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What is An Innovation Intermediary?

An Organization at the Center of the region's, state's or country's efforts to align local technologies, assets and resources to work together on advancing Innovation.

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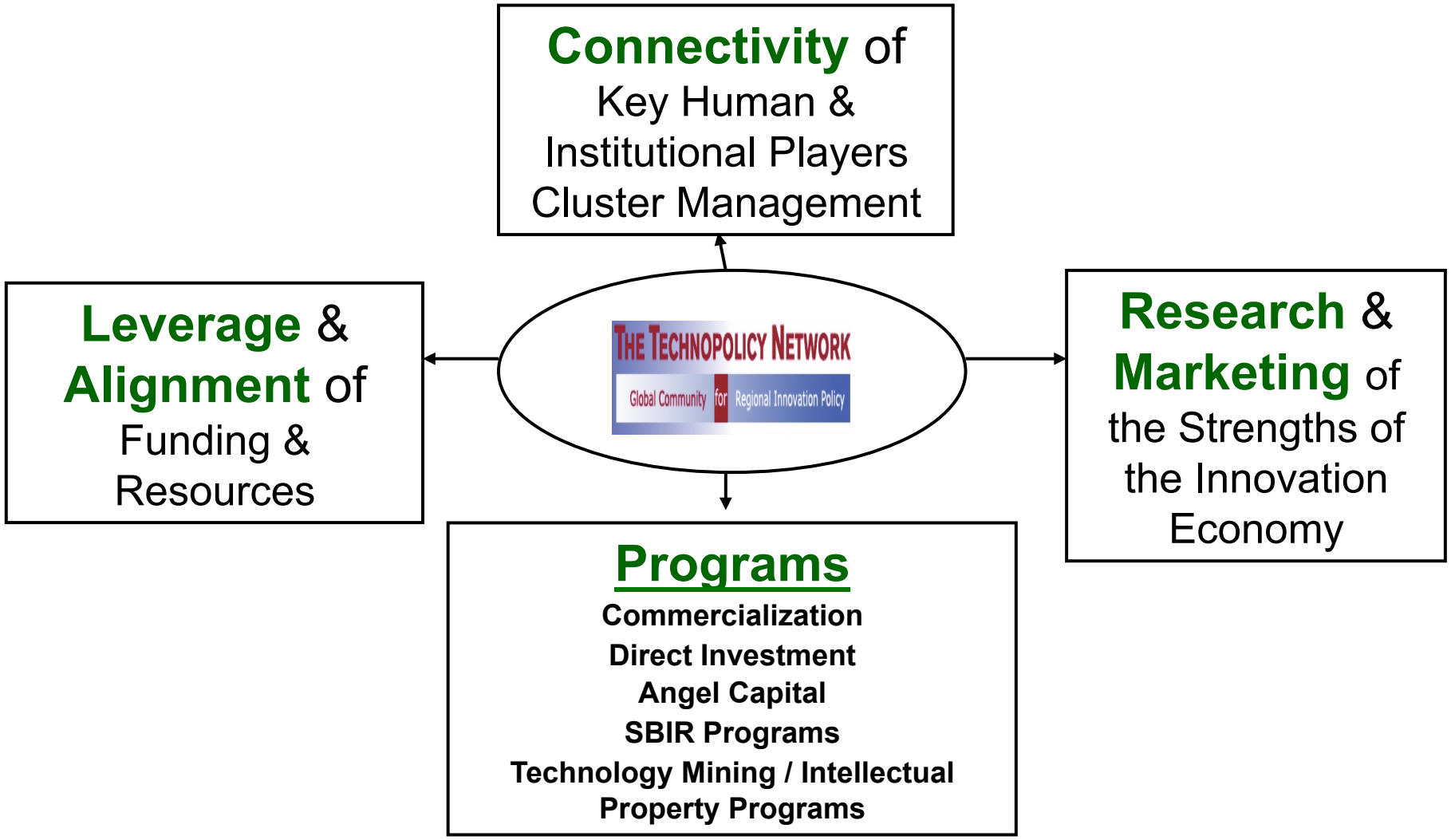
21st Century Innovation Intermediary



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Intermediary Best Practices

- Longevity
- Bipartisan Support & Champions
- Independent Organizations
- Continuous Reinvention
- PRIVATE SECTOR LEADERSHIP
- Understand Return On Investment
- Sustainability In Funding
- Accountable
- Innovative
- Effective Leadership

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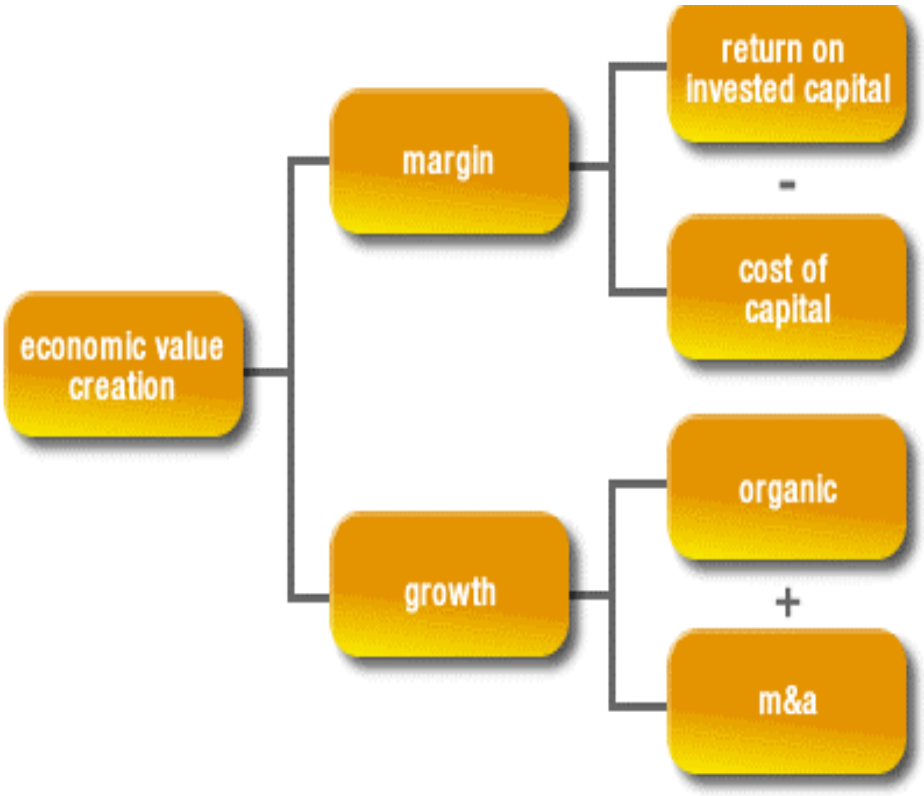
Innovation Paradigm Shift

PROOF OF CONCEPT
(Technological Feasibility)

PROOF OF RELEVANCE
(Market Pull)



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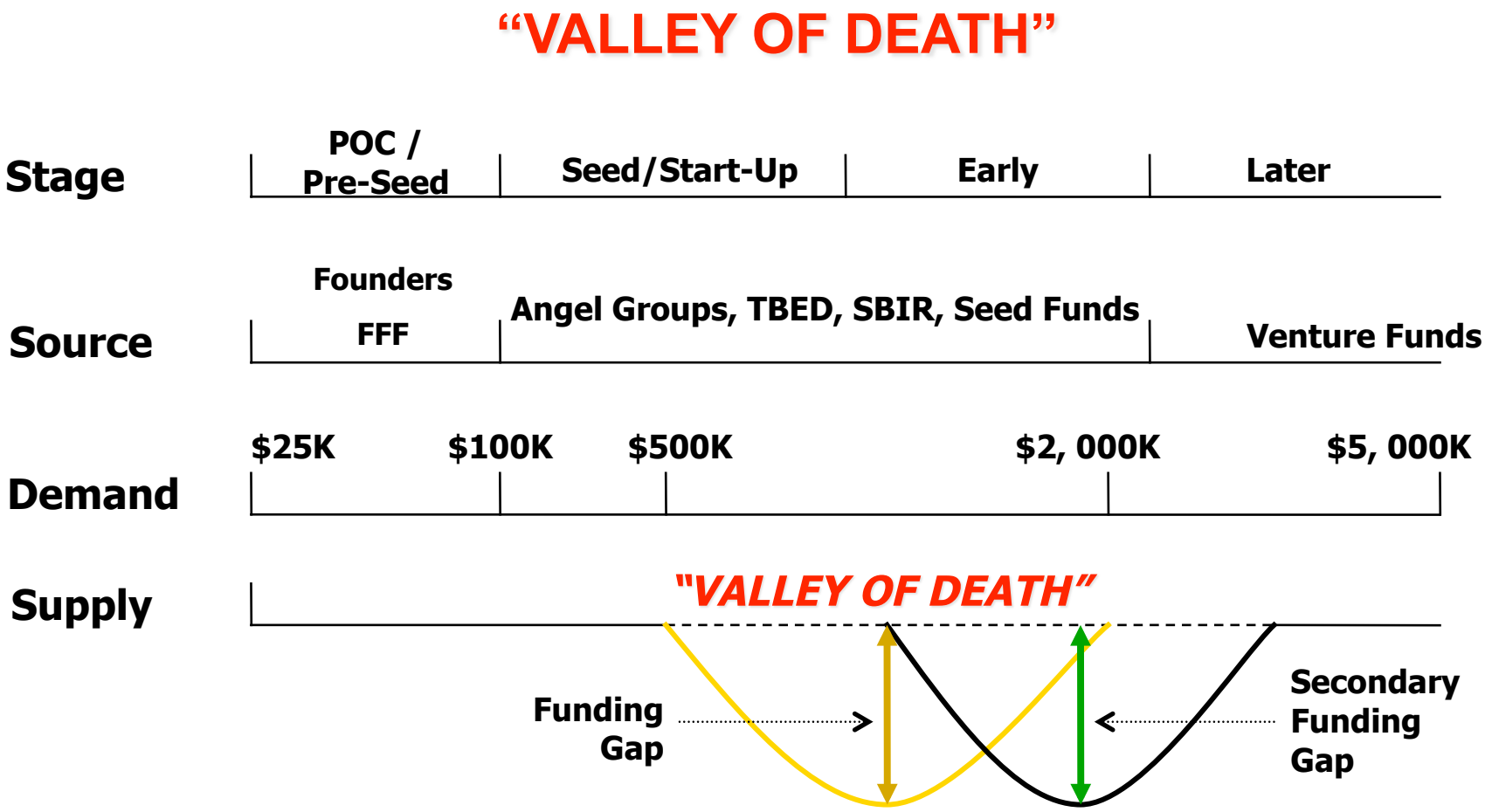
Innovation Capital Valley of Death



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Jobs! Jobs! Jobs!

Does Seed Investing

REALLY

Create Jobs?

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Public Investment In Job Creation

Category	CDVCA*	State of PA	State of MI	State of UTAH	Stimulus Bill
Funds Invested	$26M	$90M	$291M	$60M	$800B
Jobs Created	3.700	8,150	28,854	2,047	1,000,000 To 4,000,000
$ Per Job Invested	$7,100	$11,000	$11,728	$29,300	$800,000 To $200,000

*Community Development Venture Capital Association

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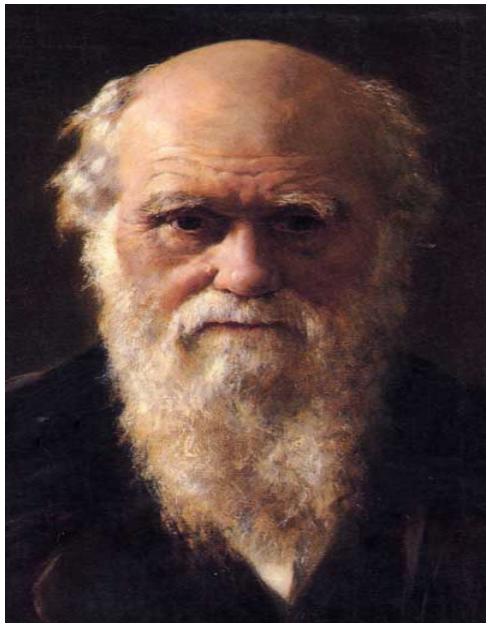
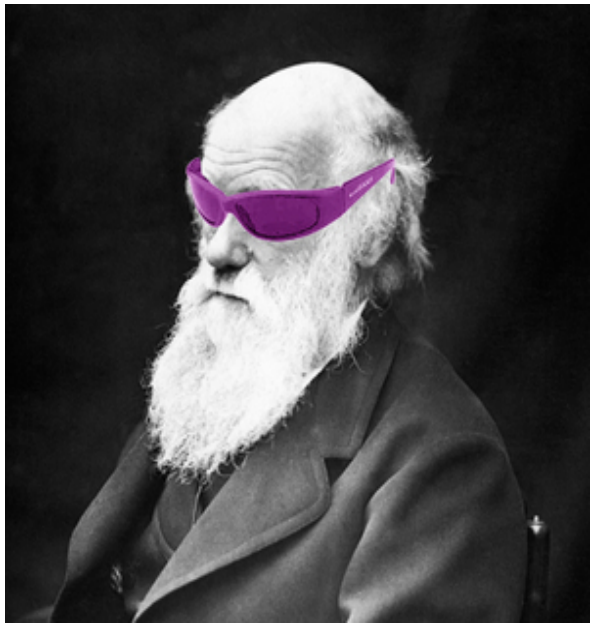
Change Is Inevitable

" It is not the strongest of species that survive, nor the most intelligent, but the ones most responsive to change."

-Charles Darwin





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Why Regional Innovation Capacity Matters

- In a knowledge-driven economy, new job and wealth creation derive from the accelerated commercialization of innovative, world-class technological breakthroughs
- A region's accumulated research and innovation assets is *the* "seed corn" that enables the growth of entrepreneurial science-based enterprises in that region
- Every region's research assets ("seed corn") differs ***(Are you growing "soybeans" or "wheat"?)***
- "Seed Corn" that is tossed on infertile growing conditions will not generate a rich harvest of jobs or wealth.

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What Is A Road Map…..Why Is It Needed?

- A roadmap answers the ***question "Where do we want to be and how to we get there?"***
- A cluster roadmap ***provides strategies and action*** plans to best ***achieve a vision of the future shared by a critical mass*** of industry-related organizations.
- The strategies and action plans are developed according to the unique strengths of the cluster and region as compared to a global market opportunity.

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Key Innovation Road Map Elements

1. Asset Mapping
2. Cluster analysis
3. Innovation Benchmarking (Peer 2 Peer)
4. Innovation and Entrepreneurship resource identification
5. Innovation Economic Development organizational analysis and matrix
6. Gap Analysis (programs & services)
7. Public policy recommendations
8. Recommended organizational structure, governance, budget and funding sources (Private Public Partnership)
9. Organizational leadership and staffing
10. Program portfolio/implementation
11. Economic Impact Analysis
12. Branding and Market Research

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Mapping The Characteristics of Innovative Regions

- **World class research institutions** as sources of intellectual capital
- **Appropriate business assistance programs** to accelerate technology commercialization
- **Seasoned senior managers with entrepreneurial "know-how"** that can work in tandem with scientists and engineers on teams to jump-start enterprise creation
- **Sources of "intelligent" startup capital** beyond what "sweat equity/boot-strapping" and "family and friends" capital can provide
- **Active entrepreneurial networks** that can support all the players involved in enterprise creation activities
- **Institutions of higher learning** that can train and quickly upgrade the skills of a world-class workforce for the region's growing high tech companies

All of these regional assets must be integrated for the entire eco -system to work!

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Mapping Innovative Regions DNA

- **Each region's innovation capacity ("regional DNA") differs**
  - Every region has its unique path to building its cluster
  - Scientific expertise concentrated in a region is distinct from other regions
  - Regions need to understand what they *truly* have as assets
- **Must couple world-class scientific with business smarts for successful tech. commercialization**
  - Synergy in a cluster depends on functional social structures between technologists and business community

What Are Clusters & Do They Matter?

Clusters represent a new way of thinking about national, state, and local economies, and they necessitate new roles for companies, government, and other institutions in enhancing competitiveness.

-Michael Porter

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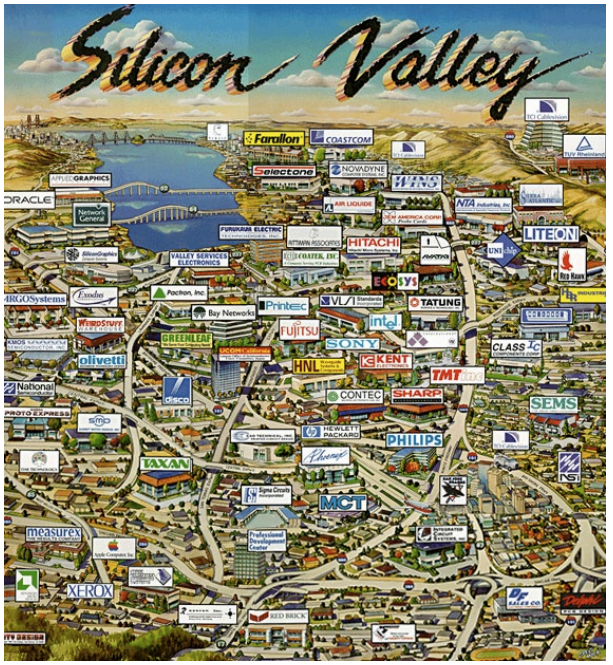
Why Clusters?

- New/bipartisan relevance
- Value-creation in local economies, whether metropolitan or rural, high-tech or manufacturing.
- Policy action clusters—ranging from the famous Silicon Valley technology cluster to the Vermont cheese making cluster—***are all about synergies and efficiencies, and don't tend to cost too much***.



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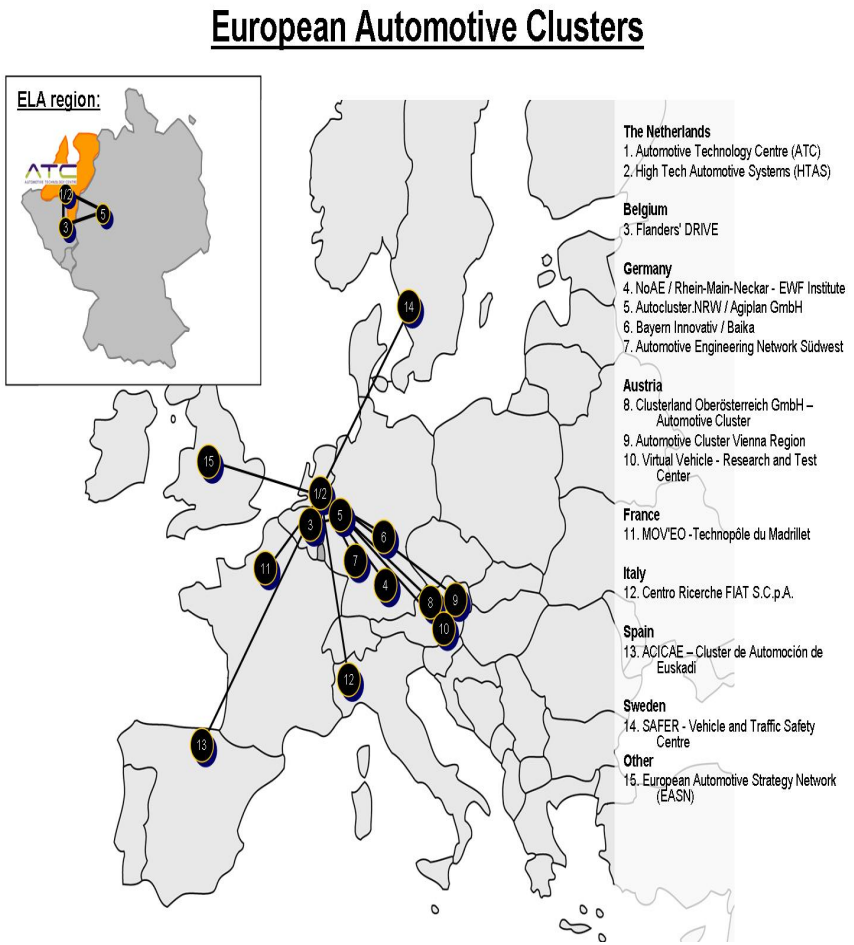
Why Clusters?

Clusters and cluster approaches holdout substantial attractions as the nation seeks to rebuild a damaged economy.

- *Pointing to impact, new research confirms that strong clusters tend to deliver positive benefits to workers, firms, and regions.*
- *As a matter of paradigm, clusters reflect the nature of the real economy.*



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General Principals for Cluster-Based Economic Development Strategies

- Don't try to create clusters.
- Use data and analysis to target interventions, drive design, and track performance
- Focus cluster initiatives on clusters where there is objectively measured evidence of under-capacity.
- As a matter of policymaking, clusters provide a framework for rethinking and refocusing economic policy.
- Maximize impact by leveraging cluster-relevant preexisting approaches, programs and initiatives.
- Align efforts "vertically" as well as horizontally.
- Let the private sector lead

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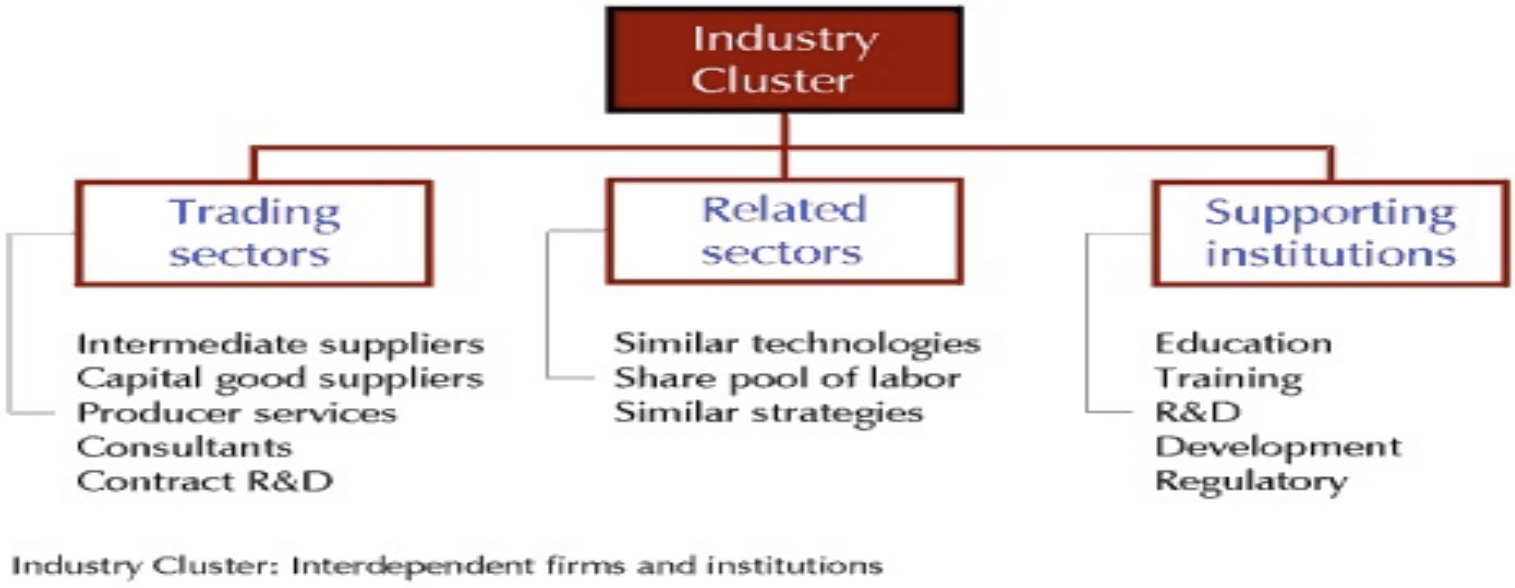
Cluster Benefits



Industry Cluster: Interdependent firms and institutions

Labor market pooling, supplier specialization, knowledge spillovers, Enhancing the local and innovation potential, encouraging, entrepreneurship & ultimately promoting growth in productivity, wages, and jobs.

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Collaboration

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U.S. State IBED Programs

Ben Franklin Technology PArtners

Ohio Third Frontier
Innovation Creating Opportunity

KTEC
KANSAS TECHNOLOGY ENTERPRISE CORPORATION

OCAST

GEORGIA RESEARCH ALLIANCE

Maryland TEDCO
Technology Development Corporation
Maryland...Technology Starts Here.

USTAR
Turning innovation into industry.

TTDC
TENNESSEE TECHNOLOGY DEVELOPMENT CORPORATION

eda
NEW JERSEY ECONOMIC DEVELOPMENT AUTHORITY

First State INNOVATION

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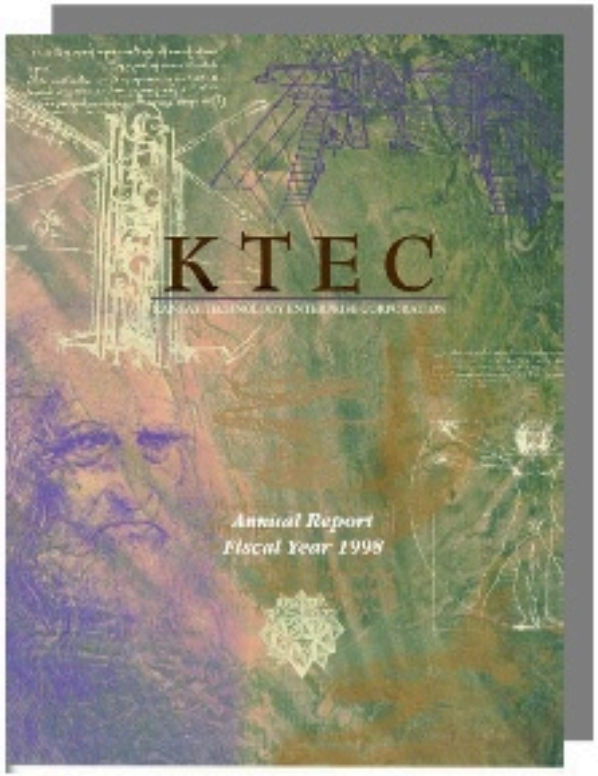
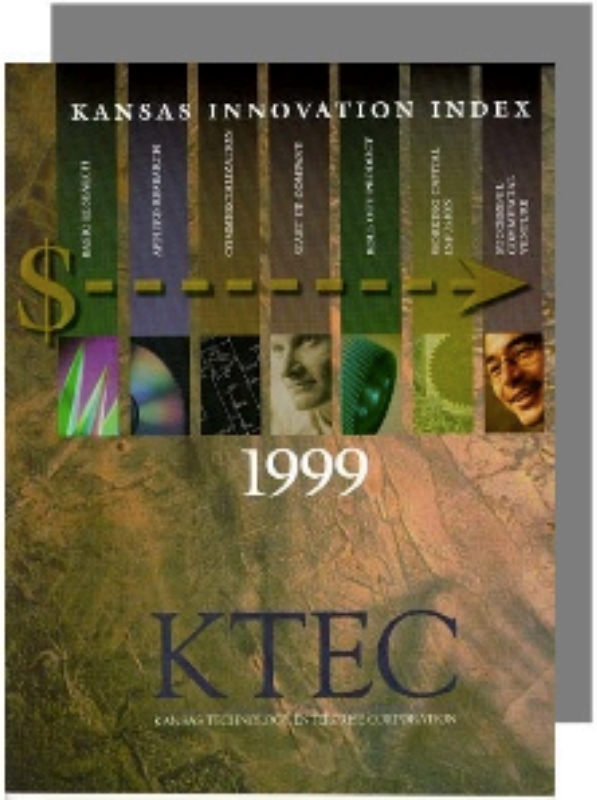
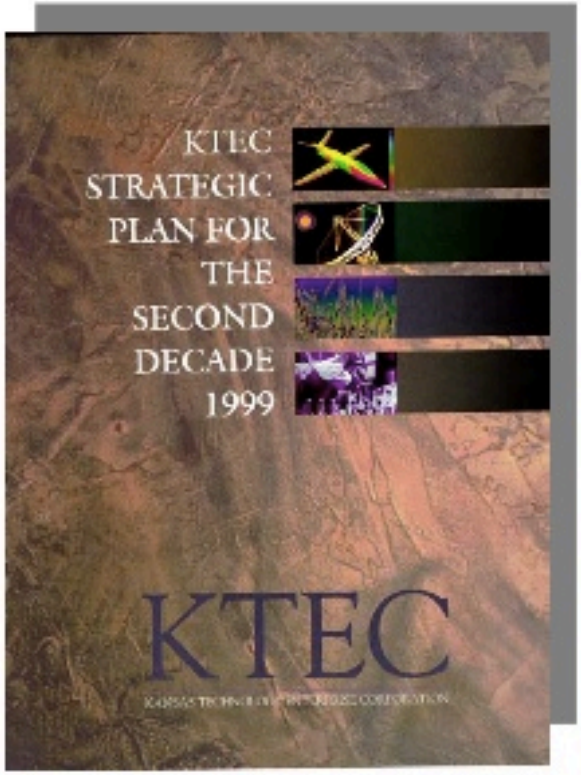
Past, Present and Future of Kansas Science and Technology







Kansas Strategic Technology Cluster Assessment and a Plan for the 21st Century

Purpose of the Study:

- Technology revolution affecting the economy.
- We must map our course in this new innovation economy.
- Focus our resources on strategic technology clusters in order to compete.

Published by The Kansas Technology Enterprise Corporation

Strategic Technology Cluster Assessment and Plan

Study Methodology:

- Identified four key sets of partners:
  - Private Sector
  - Federal Government
  - Research Universities
  - State Government
  - Link opportunity and capacity

Realities:

- Scarce resources
- Global competition

Action:

- Establish a competitive advantage through specialization.

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Strategic Technology Cluster Assessment and Plan

Opportunity and Capacity:

- Global, national and local opportunities
- Capacity of businesses, government, and research universities in the country
- International and national data on various variables
- Valuation of variable performance.

External and Internal Environments:

- The external environment represents “opportunities.”
- The internal environment represents “capacities.”

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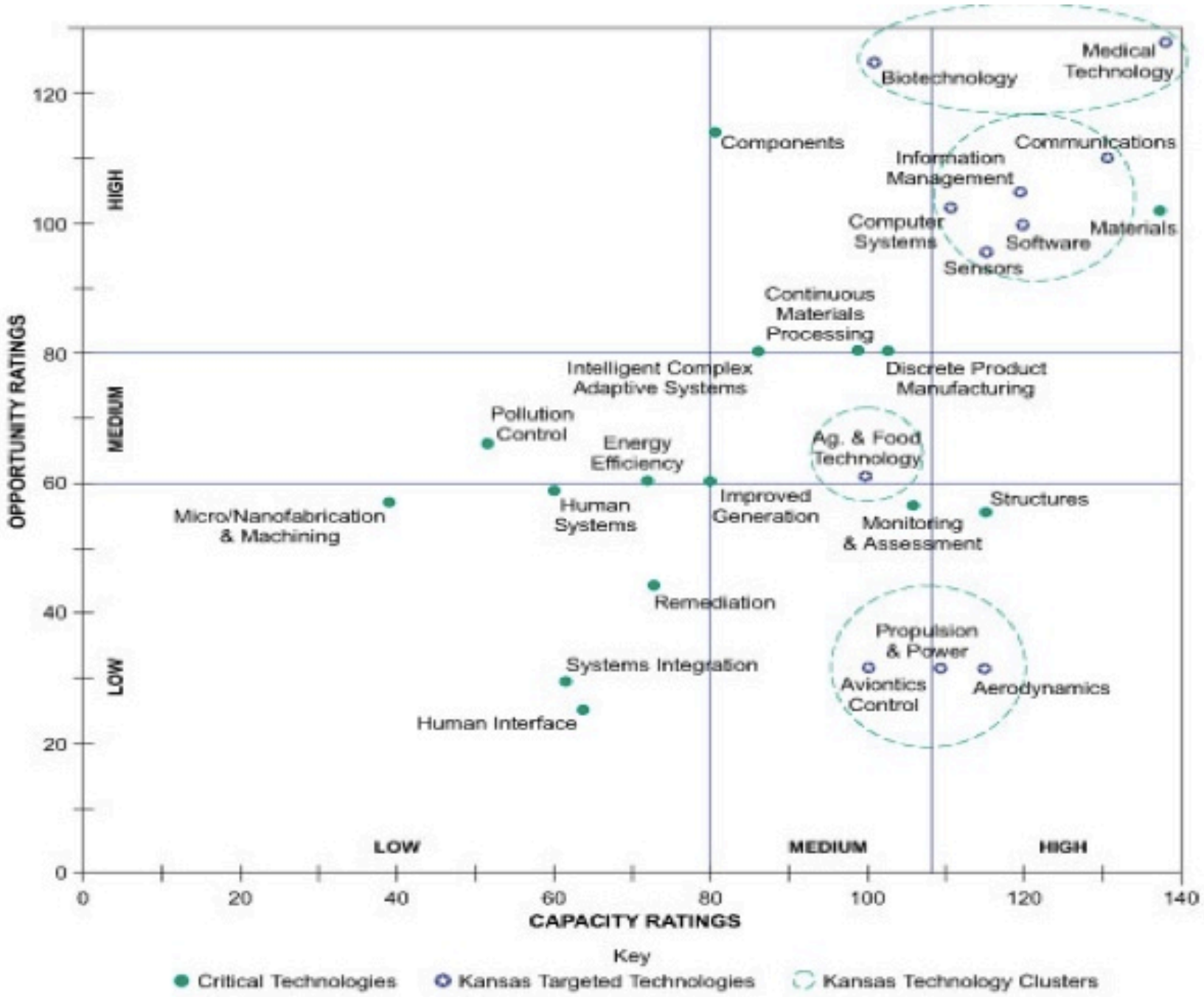

The technology areas with high levels in both categories represent logical targets for investment activity. Other technologies which may not have scored as well may be so important to Kansas' economy as to also warrant consideration.

The Strategic Study

Results:

- Opportunities and capacities assessed
- Strategic technology areas identified:
  - ***Primary Clusters:***
    - Information & Telecommunications/Computing
    - Aviation
    - Value-Added Agriculture & Ag. Biotechnology
    - Human Biosciences
  - ***Enabling Clusters:***
    - Nanotechnology
    - Manufacturing Technology
    - Polymers

Next:

- Select policy recommendations
- Develop broad guidelines

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Policy Recommendations

Framework and Assumptions:

- Based on diagnostic study of the state, country, or region
- Focused in supporting technological innovation and development.
- Constitute broad guidelines.
- Each state, country, or region must adjust and prioritize policies according to its individual context.

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Policy Recommendations

Objective:

- Improve competitiveness of key industrial sectors.
- Strengthen the state and country's R&D capacity.
- Integrate technology policies into overall economic development plans.
- Promote development of strategic sectors.
- Establish business conditions attractive to domestic and foreign investment in strategic technologies.

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Policy Recommendations

Desired Results:

- Stimulate creation and commercialization of strategic technologies.
- Foster productive interrelationships and linkages among the state and country's institutions.
- Establish institutional arrangements to improve effectiveness of public investments in R&D.
- Expand and disseminate information and knowledge about technological innovation
- Promote state and national consciousness about the importance of technology clusters.
- Create new, high wage, high skilled job opportunities to avoid "brain-drain."
- Make small and medium sized enterprises become more competitive.
- Build a financial-technical network willing to invest in and support technology-based enterprises.
- Provide incentives for foreign and domestic investment.

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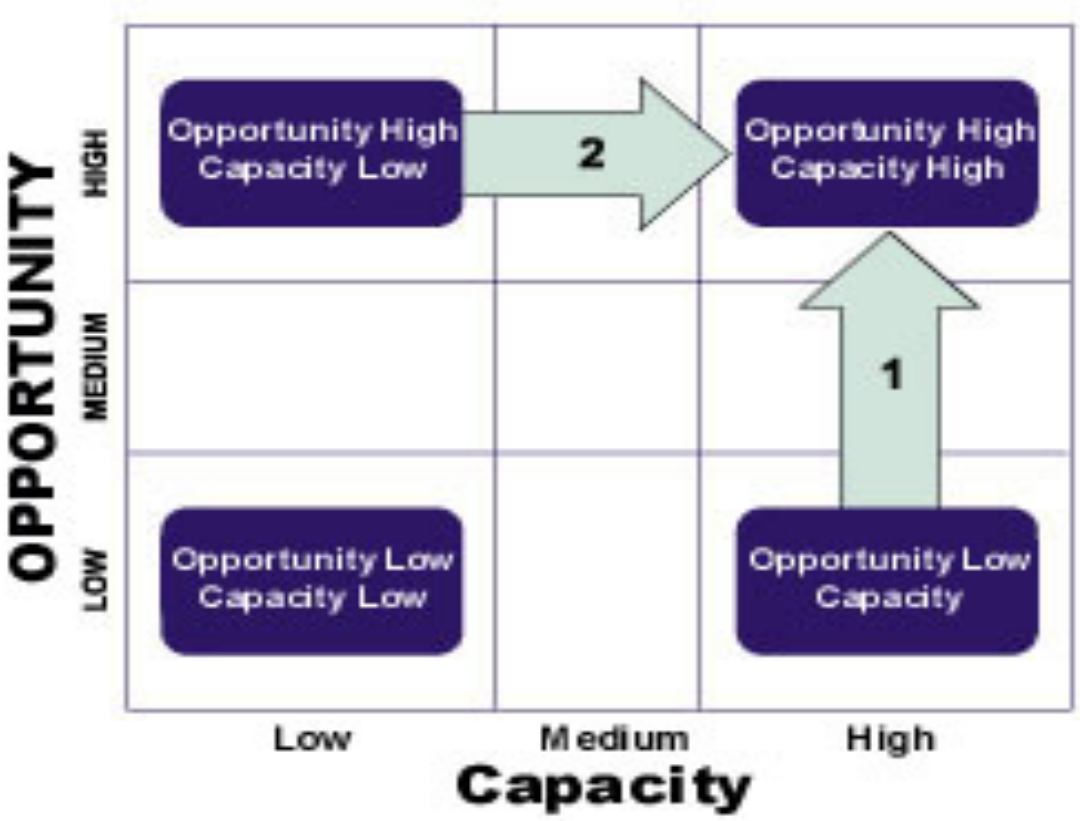
Linking Opportunity With Capacity

- Standardized rating system
- Determine level of capacity and opportunity for critical technologies



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KTEC Program Structure

Board of Directors

KTEC Staff

Federal Initiatives and Partnerships

Research
For Inventors, Entrepreneurs and University & Industry Scientists

- Advanced Manufacturing Institute (AMI)
- Kansas Polymer Research Center (KPRC)
- Information Technology & Telecommunications Center (ITTC)
- Higuchi Biosciences Center (HBC)
- National Institute for Aviation Research (NIAR)
- EPSCoR

Investments
For Inventors, Entrepreneurs and New & Existing Companies

- Small Business Innovation Research (SBIR) Awards
- SBIR Bridge Funding
- State-Sponsored SBIR
- Applied Research Matching Fund (ARMF)
- ACE-Net
- Ad Astra Funds I & II
- Kaw Holdings (KIC)
- Wichita Ventures (WTC)
- Manhattan Holdings (MACC)
- Prairie Investments
- Quest Ventures
- KU Medical Center Research Institute Pre-Seed Fund
- Alliance for Technology Commercialization

Business Assistance
For Inventors, Entrepreneurs, Scientists and New & Existing Companies

- Kansas Innovation Corporation (KIC)
- Mid-America Commercialization Corporation (MACC)
- Wichita Technology Corporation (WTC)
- Mid-America Manufacturing Technology Center (MAMTC)
- Capital for Manufacturers (CFM)
- Information Research Corp. (IRC)
- Kansas Integrated Commercialization Information Network (KICIN)
- Intern Program
- Business Residency Program
- Inventor Development Assistance Program (IDAP)

The Kansas Experience - 2010

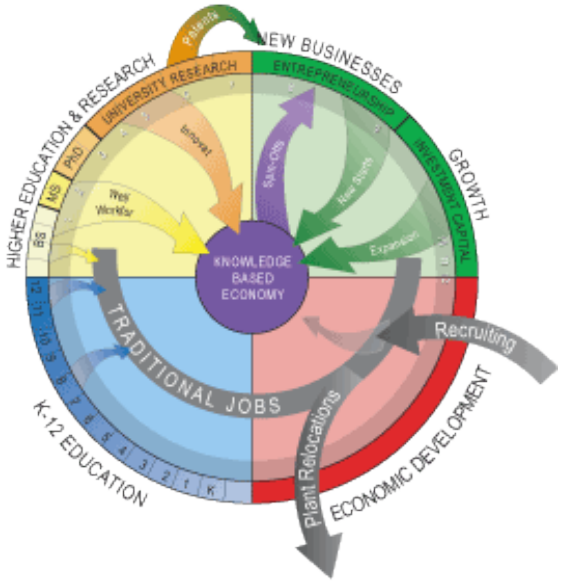
CLUSTER	ORGANIZATION	OUTCOMES
Human BioSciences	**Kansas BioScience Authority (KBA)** www.kansasbioauthority.org	•$581m Fund •Build world-class research capacity, growth of bioscience startups, expansion of the state's bioscience clusters and facilitate industrial expansion and attraction.
Value-added Agriculture and Ag Bio	**National Agricultural Biosecurity Center (NABC)** http://nabc.ksu.edu/content	•$650M Research Center •Focused on protecting America's agricultural infrastructure and economy from endemic and emerging biological threats.
Aviation	**National Institute for Aviation Research (NIAR)** www.niar.wichita.edu	24 year-old research and tech-transfer center established to advance the nation's aviation industries that may benefit from aviation-related technologies.
Information and Telecommunications & Computing	**Software and Technology Association of Kansas (SITAKS)** www.sitaks.com	Advocate for Kansas' software and information technology sector to help Kansas' software and IT companies grow and succeed.

Kansas Bioscience Authority

- $581 million state-funded independent bioscience TBED organization
  - $75.5 million program budget; $3.5 million operating budget
  - 18 employees (8 “deal” people)

- Investment priorities
  - Expand the quantity and quality of bioscience research
  - Focus on the commercialization of bioscience discoveries
  - Foster formation and growth of bioscience companies
  - Position Kansas for international leadership in key clusters

KANSAS BIOSCIENCE AUTHORITY



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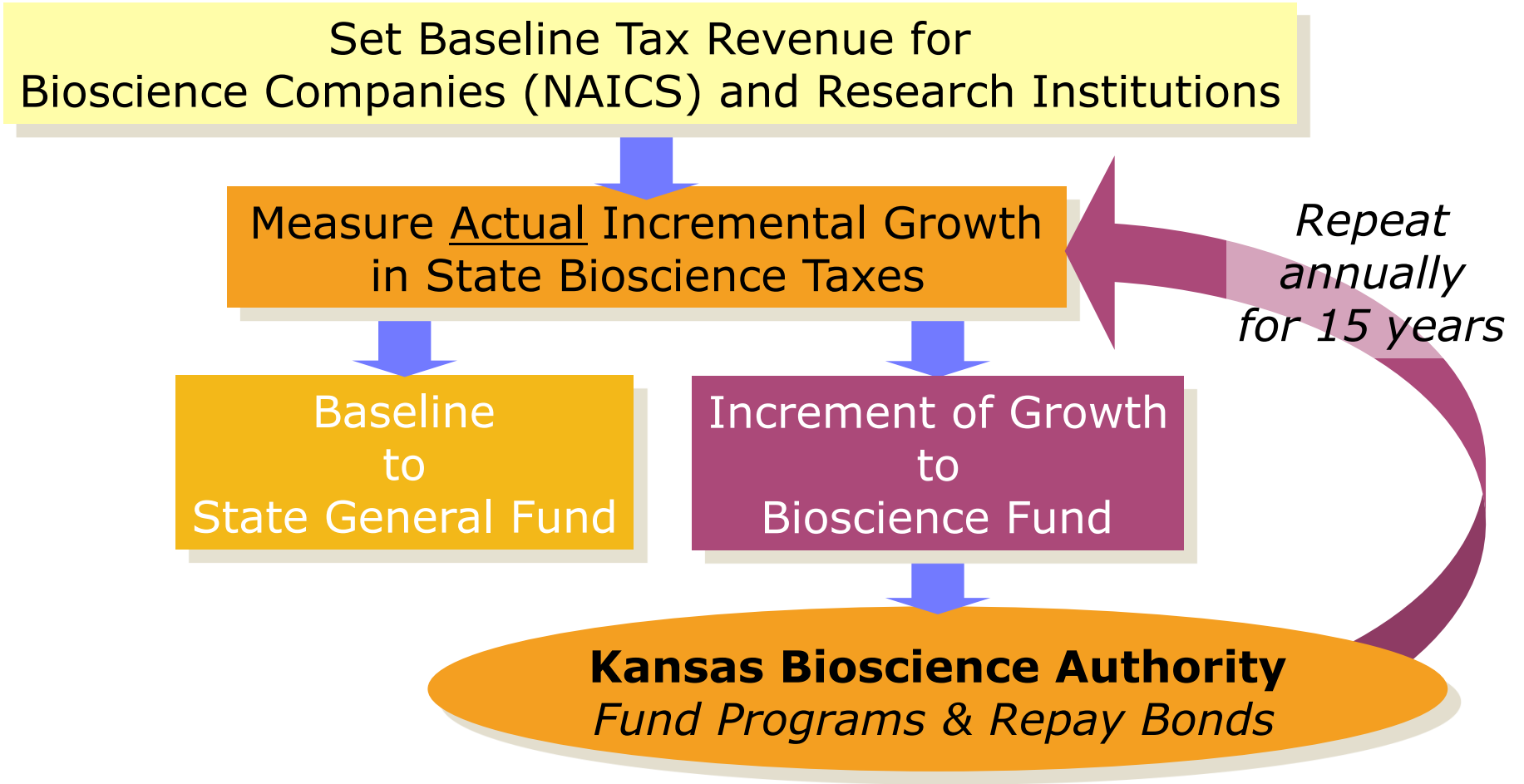
How The Fund Works



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National Bio and Agro-Defense Facility (NBAF) - Kansas

- $650 million research facility
- Kansas Task Force includes a team of citizens, scientists, civic leaders, elected officials, industry leaders, farmers, and agricultural specialists working closely with the Kansas Bioscience Authority to provide seamless support to the federal government throughout the NBAF process.
- NBAF will feature state-of-the-art, bio-containment laboratories to research and develop diagnostic capabilities to assess and detect potential threats against humans and animals alike

Pennsylvania's Industry Clusters

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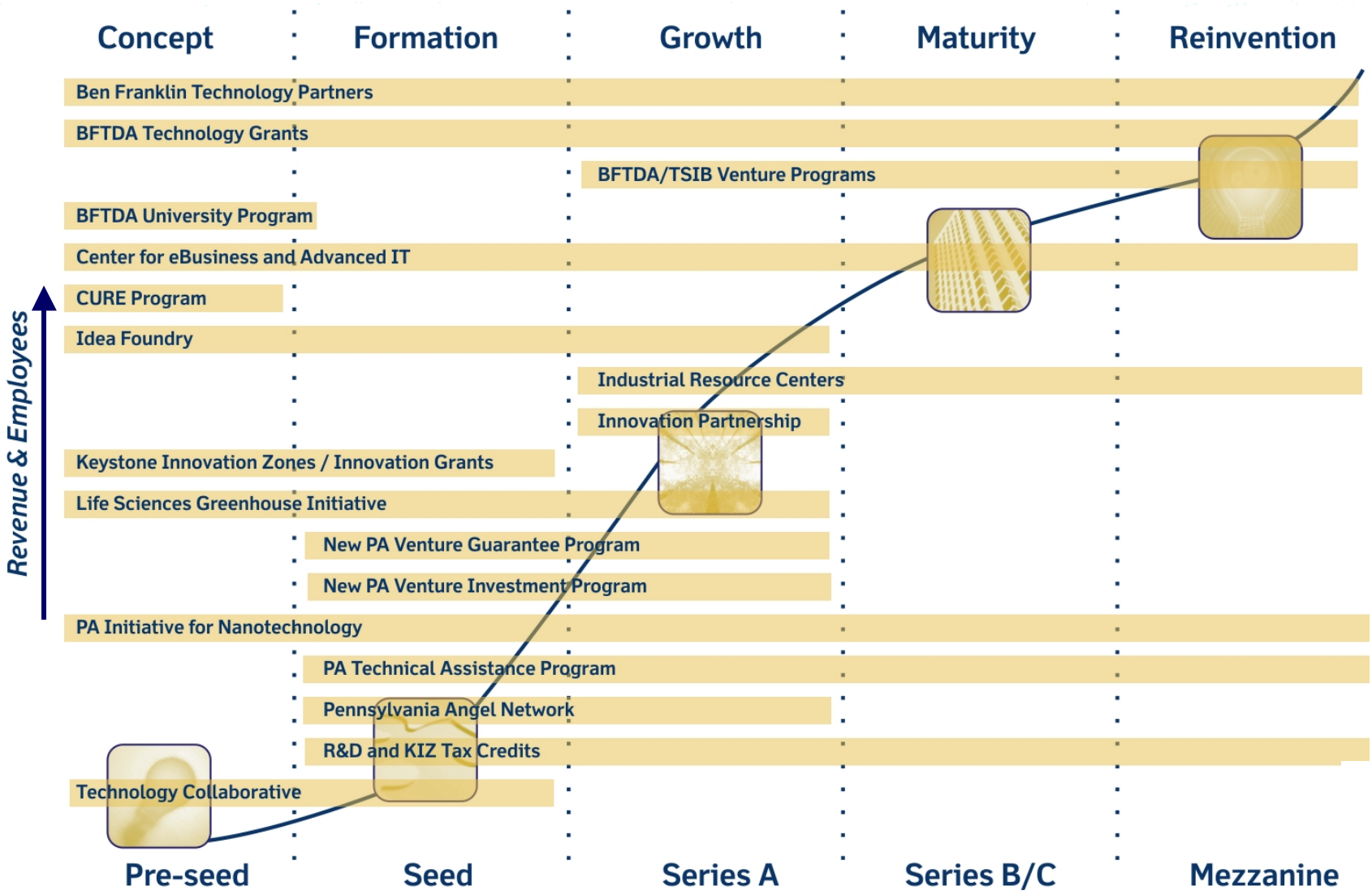
Technology Investment

Technology-based Economic Development Tools Along the Continuum

> ready > set > succeed



Churning the Greater Philadelphia Innovation Economy

A Roadmap for Regional Growth

> "You can always amend a big plan, but you can never expand a little one. I don't believe in little plans. I believe in plans big enough to meet a situation which we can't possibly forsee now."
>
> – Harry S. Truman

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GREATER PHILADELPHIA CHAMBER OF COMMERCE
Get involved. Get results.

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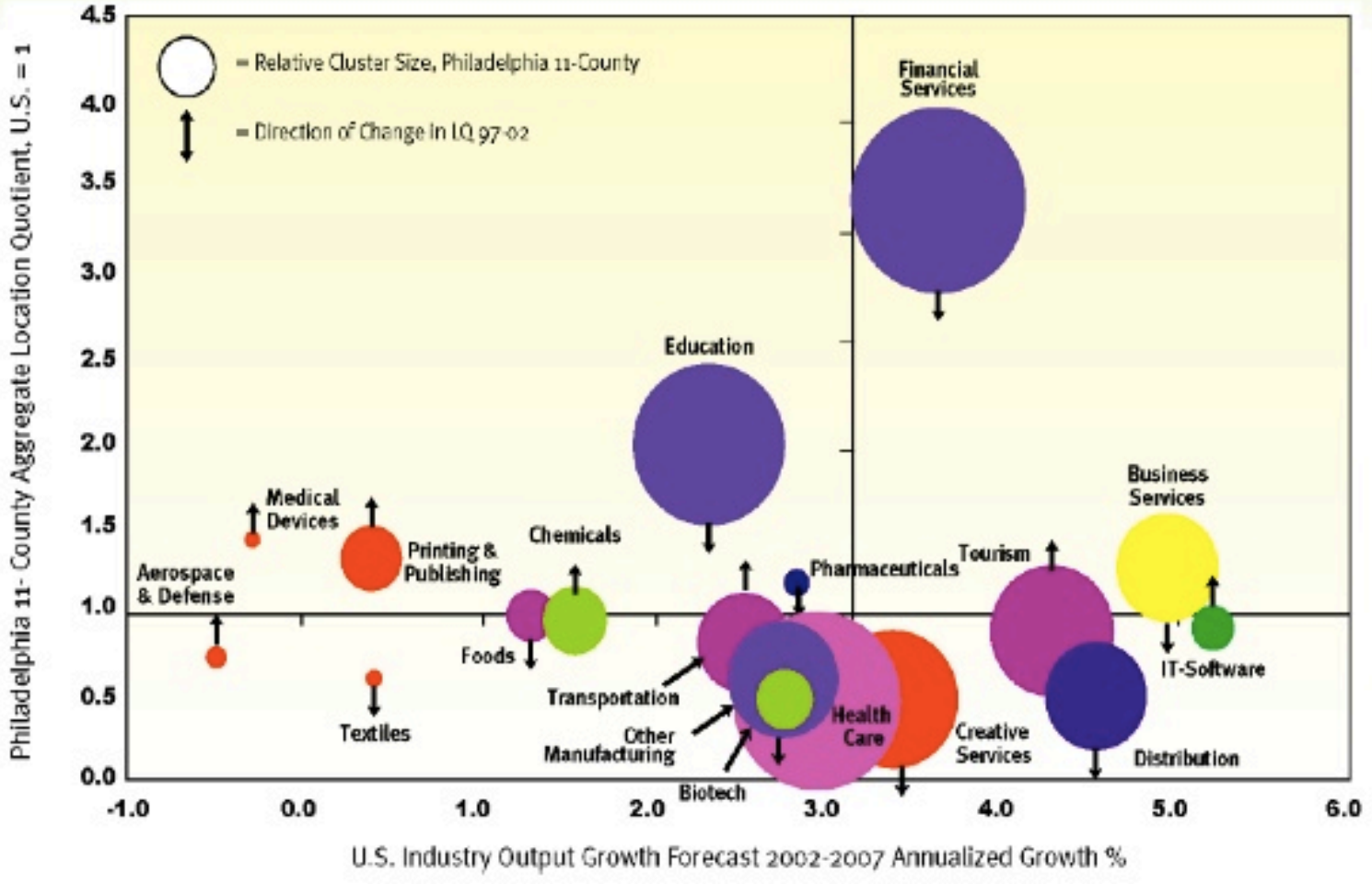
2010

Philadelphia County: Cluster Analysis by Output



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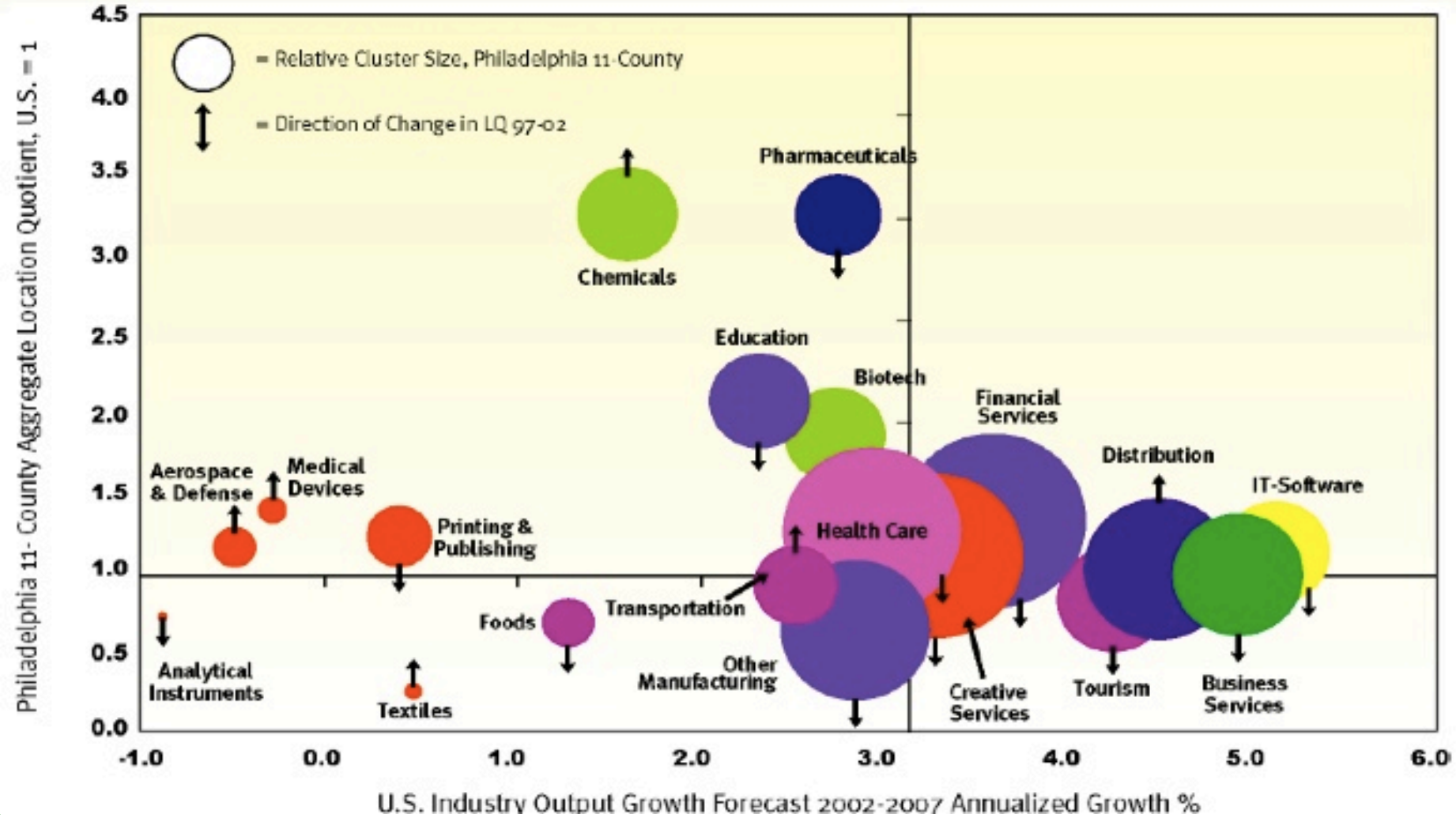
Philadelphia Region: 11-County Aggregate; Cluster Analysis by Output



Philadelphia Region's The Prime Clusters for Economic Growth

The Seven Prime Targets of Opportunity for Regional Innovation and Growth

Evidence-Based Medicine	Business Process IT/Software	The Creative Community	Breakthrough Research on Cancer	Chemicals: Polymers, Coatings and Advanced Fibers	Propellers, Propulsion and Rotorcraft	Advanced Materials/ Nanotechnology

Projected Regional Outcomes With Successful Road Map Implementation

Increased Connectivity Accelerating Churn and Wealth Creation ▶ Increased Employment and "Brain Gain" ▶ More Spinouts from Industry and Universities ▶ New Global Partnerships and Global Innovation Image ▶ Increased Public, Private and Direct Foreign Investment ▶ Product and Market Expansion ▶ New Vendor Supplier Networks

Greater Philadelphia Life Sciences Cluster 2009

Current Impact Composite Index

2007

Rank	Metro area	Therapeutics and devices	Supporting industries	Health-care industries	Composite score
1	Greater Philadelphia	100	100	81	100
2	Greater New York	88	76	100	93
3	Boston	99	67	61	91
4	Greater San Francisco	86	74	49	81
5	Greater Raleigh-Durham	88	63	44	80
6	Greater Los Angeles	82	67	61	79
7	Chicago	79	67	58	76
8	Minneapolis	77	71	42	72
9	San Diego	74	51	36	67
10	Washington, D.C.	62	39	68	63
11	Seattle	55	31	50	54

Source: Milken Institute

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IP Core Products / Services

Investment

ESF Economic Stimulus Fund
An IP Investment Fund

ResearchDollar$ Fund

Innovation Partnership

MAG Mid-Atlantic Angel Group

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Commercialization

MAC Mid-Atlantic Commercialization Corporation

Phoenix IP Ventures

World's Best Technology Network

Bio Advance
Biotechnology Greenhouse of Southeastern Pennsylvania

Ben Franklin Technology PArtners

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Science Center

Global & Regional Workforce / Economic Development

KIP Knowledge Industry Partnership

career PHILLY

GP2 Greater Philadelphia Global Partners

Creative Economy

DVIN Delaware Valley Innovation Network

Branding, Research & Marketing

The Technopolicy Network
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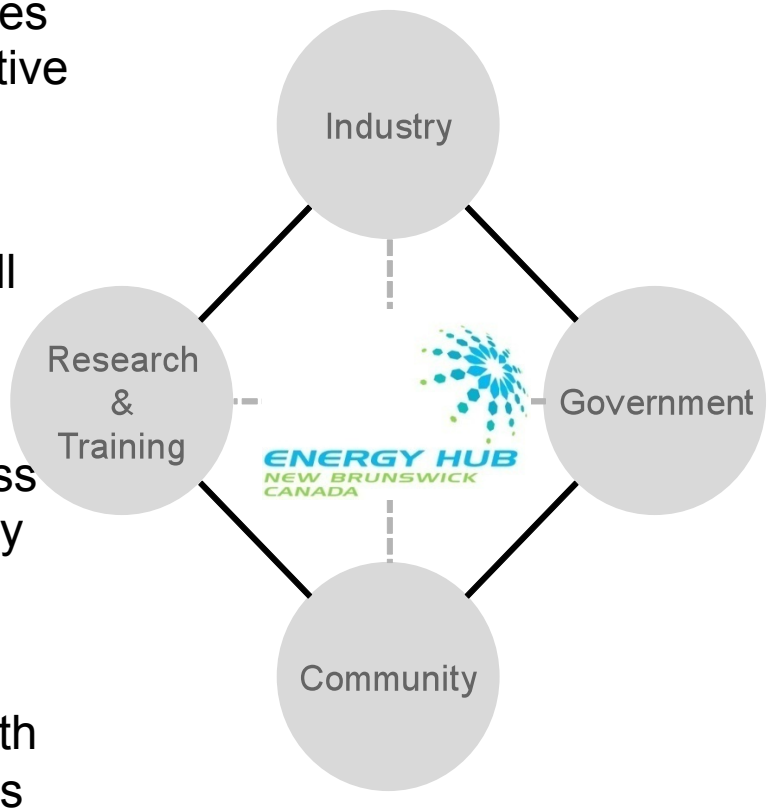
New Brunswick Energy Hub Partners

- **INDUSTRY**
  - Requires energy to produce goods & Services in NB & competitive energy enables competitive businesses.
- **GOVERNMENT**
  - Government sets policy to enable the overall success of the Energy Hub.
- **RESEARCH & TRAINING**
  - These organizations generate the world-class ideas that lead to world-class solutions & they ensure an effective & productive workforce.
- **COMMUNITY ORGANIZATIONS**
  - Ensure that the Energy Hub is consistent with "public good" & the values of the communities within the hub.



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New Brunswick Cluster Desired Results

- **SUSTAINABLE WEALTH CREATION**
- **THE WHOLE IS GREATER THAN THE SUM OF THE PARTS**
- **COORDINATED TACTICAL IMPLEMENTATION OF SHARED MISSION AND PROJECTS**

ENERGY HUB
NEW BRUNSWICK
CANADA

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How Does NB Measure Success?

- Stimulate creation and commercialization of strategic energy projects
- Foster productive interrelationships and linkages among New Brunswick institutions.
- Establish institutional arrangements to improve effectiveness of R&D.
- Expand and disseminate information and knowledge about energy innovation
- Promote consciousness about the importance of Energy Hub.
- Create new, high wage, high skilled job opportunities to avoid “brain-drain.”
- Make small and medium sized enterprises become more competitive.
- Build a financial-technical network willing to invest in and support energy-based enterprises.
- Provide incentives for foreign and domestic investment.

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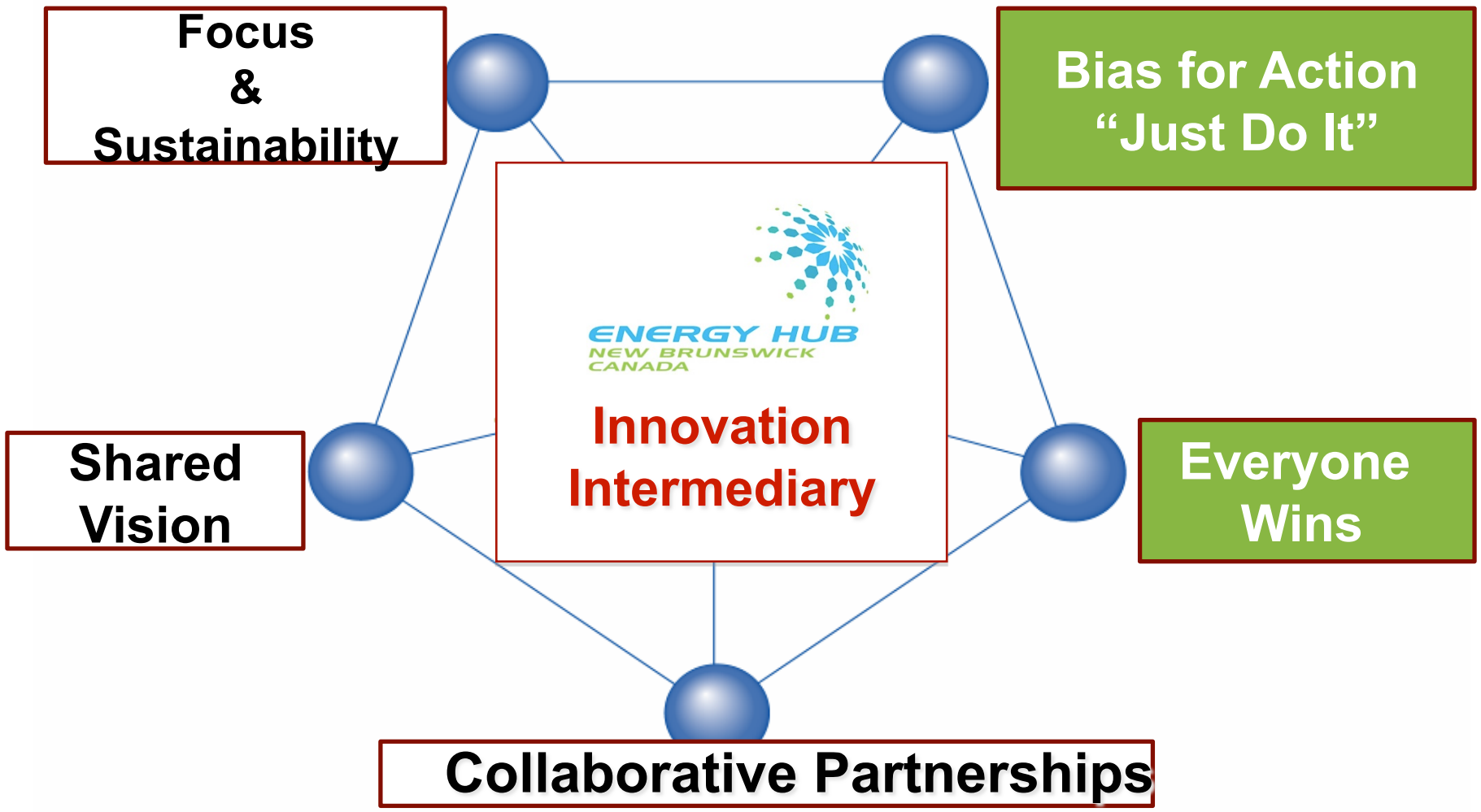
New Brunswick Key Components for Success



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What Works for Effective Cluster Intermediaries

- **FOCUSED & INTEGRATED** Science & Technology Collaboration
- **PRIVATE** Sector Leadership and **COMMITMENT**
- Organization's function as a **BUSINESS**
- Successfully manage a technology investment portfolio for **ROI**
- Operational **FLEXIBILITY**
- **ACCOUNTABILITY** with measurable outcomes
- Experienced **PROFESSIONAL** team
- Focus on the **INDUSTRY CLUSTER** needs
- **SUSTAINABLE** Funding

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Regional Innovation Clusters and Cluster Initiatives Defined

- **Regional innovation (or industry) clusters are geographic concentrations of interconnected businesses, suppliers, service providers, coordinating intermediaries, and associated institutions like universities or community colleges in a particular field (e.g., information technology in Seattle, aircraft in Wichita, and advanced materials in Northeast Ohio).**

Regional Innovation Clusters Initiative (RICs)

RICs are a geographically-bounded, active network of similar, synergistic or complementary organizations which leverage their region's unique competitive strengths to create jobs and broader prosperity.



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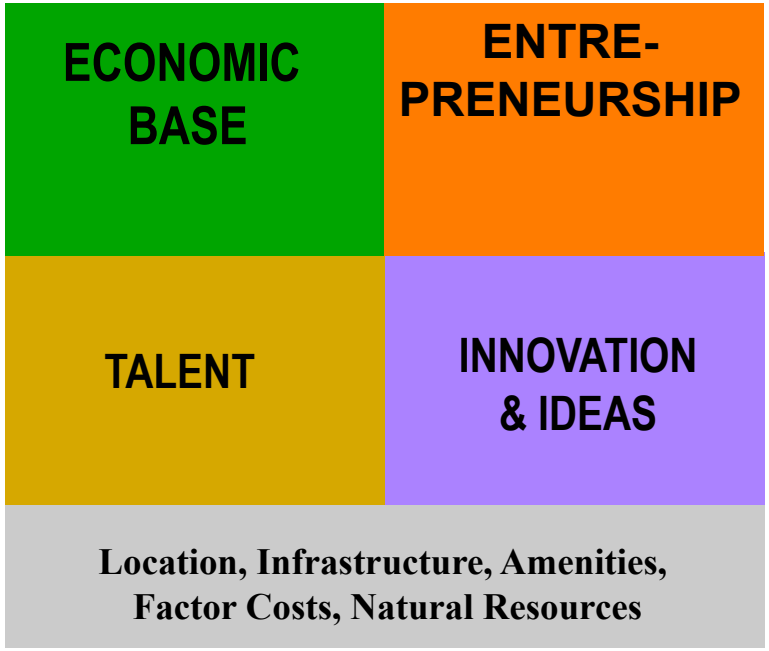
Regional Innovation Clusters

Five Key Components to Consider When Defining Unique Regional Assets

What you make, including your existing & prospective industry clusters

What you do: your workforce skills & human capital base



Your capacity to create companies wholly new or from existing firms

Your capacity to innovate and generate new ideas

The basic conditions defining the economic milieu of the region

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Why Do RICs Matter?

- They create a transition path from unemployment or underemployment to high-skill jobs.
- On average, jobs within clusters pay higher wages.
- Regional industries based on inherent place-based advantages are less susceptible to off-shoring.
- Create many new job opportunities for American workers.
- They connect disenfranchised communities to new career and educational opportunities.
- They stabilize communities by re-purposing idle manufacturing assets, engaging underutilized human capital, and contributing to improvements in the quality of life.

Regional Innovation Clusters

- Implies bounded area characterized by inherent social, environmental, economic, and cultural assets
- Transcends socio-political boundaries
- May include **urban & rural**

Energy Regional Innovation Cluster (E-RIC)

- $129.7 million over five years to create an Energy Innovation Hub
- Focused on developing new technologies to improve the design of energy-efficient building systems.
- Regional research centers will develop new building efficiency technologies and work with local partners to implement the technologies in area buildings.

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Energy Innovation Hubs

Department of Energy will establish the following three Energy Innovation Hubs

- Fuels from Sunlight
- Efficient Energy Building Systems Design
- Modeling and Simulation for Nuclear Reactors.
- $122 Million per project

California Institute of Technology to lead team in partnership with Lawrence Berkeley National Laboratory and other California institutions

- Focus**:** Develop an integrated solar energy-to-chemical fuel conversion system and move this system from the bench-top discovery phase to a scale where it can be commercialized

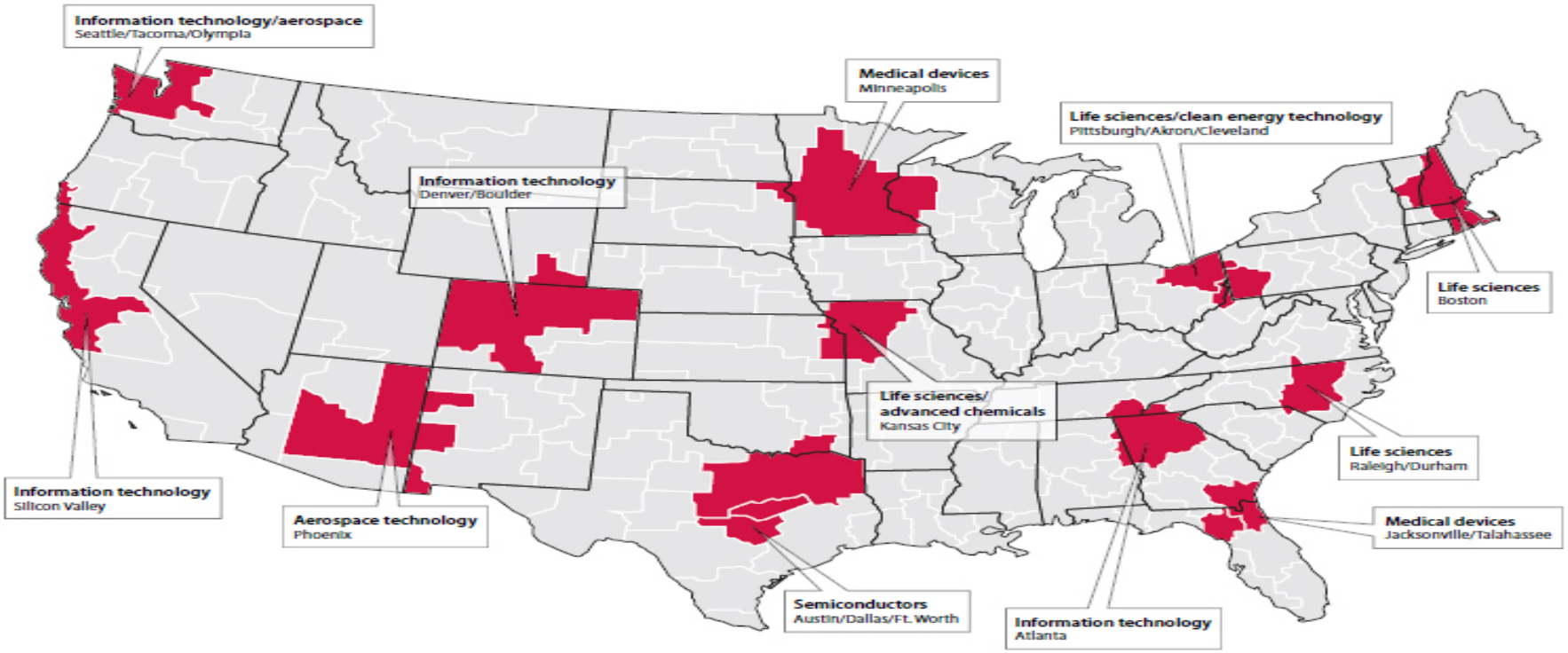
Penn State to Lead Philadelphia-Based Team that will Pioneer New Energy -Efficient Building Designs

- Focus: Develop new energy-efficient building designs

RICs Are Diverse

- All parts of the nation
- Can be in wide array of industries vary in size, shape, and reach
- Often cross local, county, and state boundaries - Urban and rural

A SNAPSHOT OF U.S. INNOVATION CLUSTERS
A selection of high-tech clusters in different parts of our country



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Best Practices in RIC Management

- **Regionally-Led** from existing networks & assets – bottom-up approach
- **Involve partnerships between private and public** at all levels (i.e. local, regional, state, and Federal)
- Unique **strengths of region are built upon** rather than trying to copy other regions (i.e. everyone can't support a biotech cluster)
- **Different strategies are developed for different clusters**
- Well-funded initially and **self-sustaining over the long-term**
- **Linked with relevant external efforts**, including regional economic development partnerships and cluster initiatives in other locations

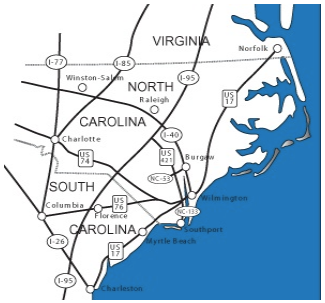
SBA 2010 Awards To 10 Regional 'Innovative Economies' Clusters

Agriculture Innovation Cluster - (Monterey – Santa Cruz – San Benito, Calif.)

- Focus: Agricultural innovation, including production, related physical and human capital infrastructure, and leading-edge agriculture research.

Carolinas' Nuclear Cluster (N.C., S.C.)

- Focus: Strategy, structure, and on-the-ground execution to grow the North and South Carolina businesses that serve the nuclear energy industry locally, regionally, and multi-nationally.



Connecticut Hydrogen-Fuel Cell Coalition (Conn., N.Y., Mass., Maine, Vt., N.H., R.I.)

- Focus: Enhance economic growth by developing, manufacturing, and deploying fuel cell and hydrogen technologies and associated fueling systems.

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SBA
U.S. Small Business Administration

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SBA Awards 10 Regional 'Innovative Economies' Clusters

Enterprise for Innovative Geospatial Solutions (Miss., La.)

- Focus: Help create a trained workforce, transfer geospatial technology from public institutions into the market, and foster new business growth. Geospatial technology is the combination of GPS & GIS

Illinois Smart Grid Regional Innovation Cluster (Ill.)

The ISG-RIC is a collaboration of 100+ entities (including 70 businesses) in the Chicago region.

- Focus: acceleration of Smart Grid innovation, deployments, and new market development.

NorTech (Ohio) NorTech technology-based economic development in 21 counties of Northeast Ohio.

- Focus: Advanced energy and flexible electronics which are electronic devices printed on flexible substrates, are emerging as newly commercializable science, and a growing manufacturing opportunity.

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SBA
U.S. Small Business Administration

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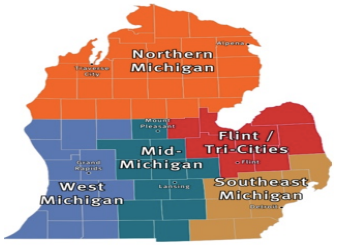
SBA Awards 10 Regional 'Innovative Economies' Clusters

Upper Michigan Green Aviation Coalition (UMi-GAC) (Mich.)

Public-private partnership with 41 active members,

- Focus: Expanding the green aviation industry.



Defense Alliance of Minnesota (Minn., N.D., S.D., Wis.)

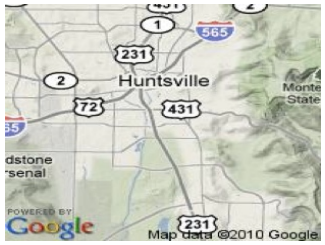
- Focus: The Defense Alliance of Minnesota connects high technology innovation to defense industry opportunities and accelerating technology transfer of R&D and into commercial markets.

San Diego Advanced Defense Cluster (San Diego, Calif.)

- Focus: Autonomous systems and cyber security, as well as other technologies applicable to defense needs.

Von Braun Center for Science and Innovation (Huntsville, Ala.)

- Focus: Aero-Space technology with applications for NASA, DoD, and NOAA. Its projects have included robotics for the detection of Improvised Explosive Devices, supporting spacecraft launches and building new micro satellites.



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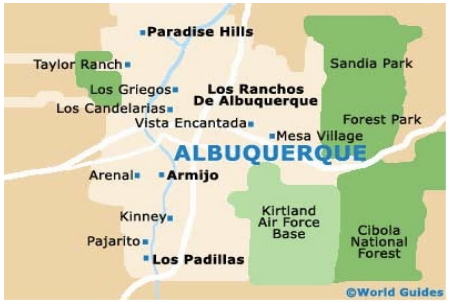
Ideas for Technology Commercialization & Entrepreneurship

The Global Center for Medical Innovation (Atlanta, Georgia)

- Focus: implement three initiatives to accelerate the development and commercialization of new medical devices and technology.

New Mexico Technology Ventures Corporation (Albuquerque)

- Focus: Develop an infrastructure for the maturation of technologies developed under the Small Business Innovation Research (SBIR) program into commercially viable enterprises.



University of Akron Research Foundation, Austen BioInnovation Institute in Akron, and Innovative Solutions for Invention Xceleration

- Focus: Reduce the time from needed ideas to commercialization of new technologies by bringing together scientists, physicians, engineers, researchers, and entrepreneurs in the biomedical device/product and polymer science industries of northeast Ohio.

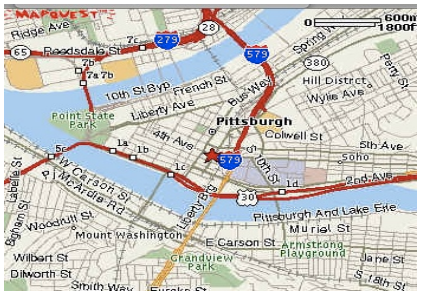
Ideas for Technology Commercialization & Entrepreneurship

Consortium of St. Louis, Missouri academic, Business, and research organizations

- Focus: Advance bioscience technology commercialization through collaborative translational research, company creation, and first funding, and build an entrepreneurial infrastructure around the needs of bioscience firms and investors.

Innovation Works Inc. & Carnegie Mellon University (Pittsburgh, Pennsylvania)

- Focus: Create the Agile Innovation System, to accelerate the commercialization of technologies being developed in the region's universities and small businesses.



Oregon Translational Research and Drug Development Institute, the Oregon Nanoscience and Microtechnologies Institute, and the Oregon Built Environment and Sustainable Technologies Center

- Focus: Create the Oregon Innovation Cluster to address gaps in the commercialization continuum for the three broad industry /technology sectors.

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The New Tasks of Regional Leaders

1. Be Proactive
2. Begin with the End in Mind
3. Seek First to Understand, then to Be Understood
4. Put First Things First
5. Think Win-Win, Be Inclusive
6. Synergize
7. Sharpen the Saw

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Helping Regions Advance Their Leadership Capacity

- Regional leadership, like regional growth strategy, is not a one size fits all proposition.
- The "new normal" for effective regional leadership starts with a combination of business and business association leaders and regional economic developers.
- "Don't just stand there, do something, any- thing!"
- Effective regional leadership requires an ongoing intermediary organization to keep regionalism alive.
- Regions need identities and a story to tell.
- Regional leaders and regional leadership are both made and born
- Worry less about defining a region and more about enabling it.
- It is possible to turn a competitive disadvantage into a collaborative advantage

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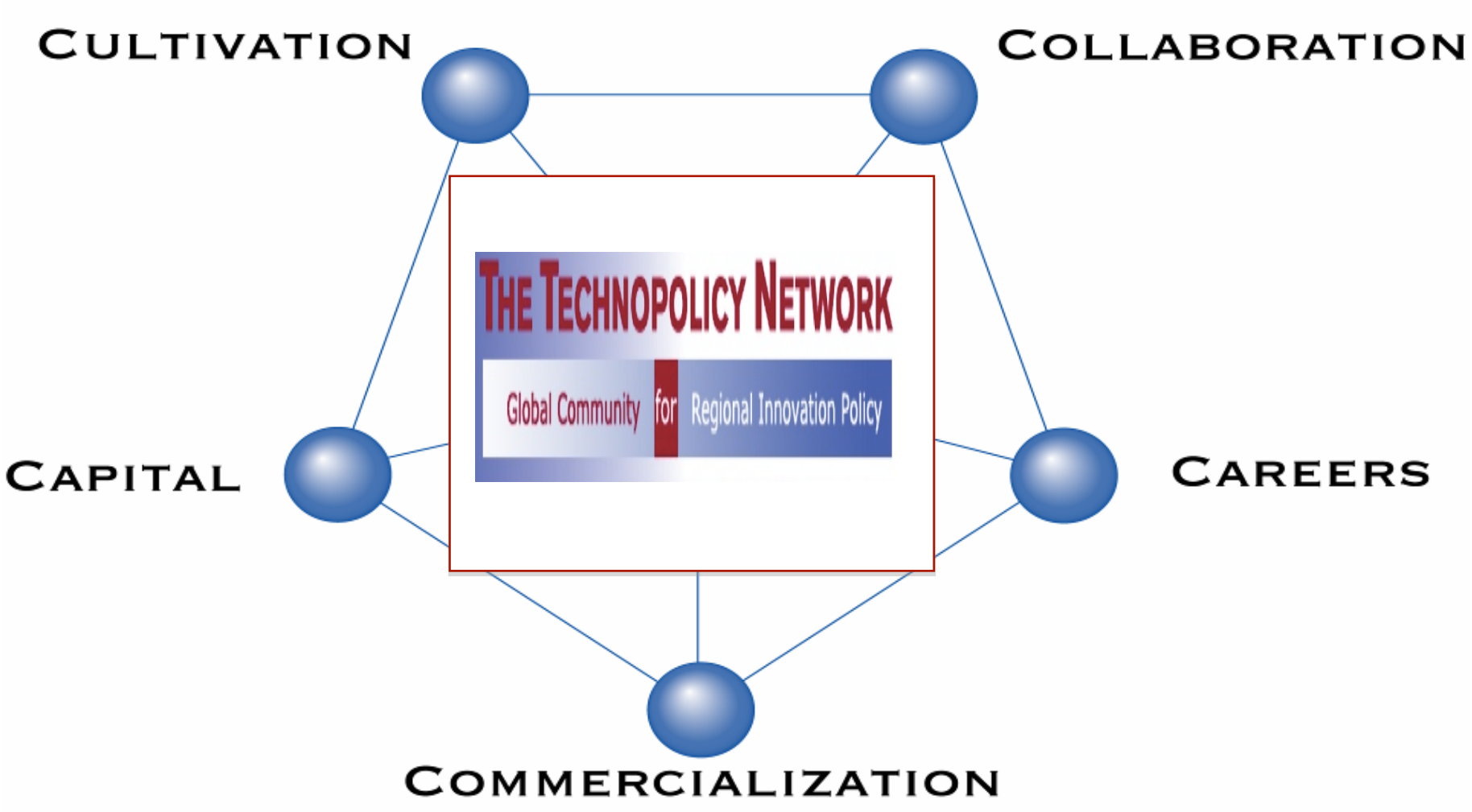
Innovation Paradigm



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Partners in International Innovation

http://www.aurp.net/

http://www.angelcapitalassociation.org/

http://www.nasvf.org/

http://www.evca.com/

http://www.cdvca.org/

http://www.eban.org/

http://www.autm.net/

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A Call to Action

"Somebody has to do something, and it's just incredibly pathetic that it has to be US."

--Jerry Garcia of the Grateful Dead

The US is YOU!

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