ERIK ACTION and INTERREGIONAL COOPERATION –
Upgrading the Innovation Capacity of Enterprises
through Interregional Transfer

Tuesday 11 May 2010 – Palazzo degli Affari, Florence, Italy

Good Practices from the USA

Richard A. Bendis
President & CEO
Innovation America
May 11, 2010
Palazzo degli Affari
Florence, Italy
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
What Is Technology-Based Economic Development?

- Approaches designed to encourage the creation and growth of technology companies
- Instilling technology in existing non-tech companies
- Emphasis is “growing your own” rather than recruitment, although recruitment can play a role, particularly the recruitment of talent
- Goal: create an environment in which tech firms will be created and thrive without government action
  - “Organic rather than synthetic” – Don Smith
Elements for a Tech-Based Economy

- Intellectual infrastructure
- Spillovers of knowledge
  - from universities
  - from informal networks
- Physical infrastructure
- Technically skilled workforce
- Capital
- Entrepreneurial culture
- Quality of life
“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
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
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
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
Government’s Role in S&T

- Long term vision and planning
- Identify gaps and trends in science, technology and innovation
- Be a catalyst through strategic investments and partnering
- Develop a balanced and flexible innovation capital investment portfolio
- Encourage private sector innovation
- Establish performance-oriented innovation-based economic development strategy and implementation plan
The Role of Academia

- Resource Investment
- Knowledge Creation
- Education Research
- Knowledge Transfer
- Continuous Learning and Innovation
- Knowledge Integration
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
Economic Development is like a three-legged stool:

- **Attraction**
- **Retention**
- **Grow Your Own**

IBED requires patience and persistence, continuity and consistency.

- Working with early-stage companies takes time.
- Balanced portfolio economic development strategy is best!
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
<table>
<thead>
<tr>
<th><strong>Traditional ED</strong></th>
<th><strong>Innovation-based ED</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Competitive Basis</strong></td>
<td>Natural resources</td>
</tr>
<tr>
<td></td>
<td>Highways / Rail</td>
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<tr>
<td></td>
<td>Proximity</td>
</tr>
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<td></td>
<td>Costs</td>
</tr>
<tr>
<td></td>
<td>i.e. PHYSICAL</td>
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<tr>
<td><strong>Key values / offerings</strong></td>
<td>Business parks</td>
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<tr>
<td></td>
<td>Incentives</td>
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<tr>
<td><strong>Lead Organization</strong></td>
<td>Chambers / EDCs</td>
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</table>
Innovation Paradigm Shift

PROOF OF CONCEPT
(Technological Feasibility)
“It Works!”

PROOF OF RELEVANCE
(Market Pull)
“I’ll Buy It!”

Diagram:
- economic value creation
  - margin
    - return on invested capital
  - cost of capital
    - organic
    - m&a
  - growth
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.
21st Century Innovation Intermediary

Connectivity of Key Human & Institutional Players

Leverage & Alignment of Funding & Resources

Programs
- Commercialization
- Direct Investment
- Angel Capital
- SBIR Programs
- Technology Mining / Intellectual Property Programs

Research & Marketing of the Strengths of the Innovation Economy
## Innovation Intermediary Commercialization Structure

<table>
<thead>
<tr>
<th>Investigation</th>
<th>Technical</th>
<th>Market</th>
<th>Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proof of Concept</td>
<td>Technology Concept Analysis</td>
<td>Market Needs Assessment</td>
<td>Venture Assessment</td>
</tr>
</tbody>
</table>

### Development Phase

<table>
<thead>
<tr>
<th>Feasibility</th>
<th>Technology Feasibility</th>
<th>Market Study</th>
<th>Economic Feasibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>Engineering Prototype</td>
<td>Strategic Marketing</td>
<td>Strategic Business Plan</td>
</tr>
<tr>
<td>Introduction</td>
<td>Pre-Production Prototype</td>
<td>Market Validation</td>
<td>Business Start-Up</td>
</tr>
</tbody>
</table>

### Commercial Phase

<table>
<thead>
<tr>
<th>Full Scale Production</th>
<th>Production</th>
<th>Sales and Distribution</th>
<th>Business Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maturity</td>
<td>Production Support</td>
<td>Market Diversification</td>
<td>Business Maturity</td>
</tr>
</tbody>
</table>
U.S. Regional IBED Intermediaries

BioEnterprise

jumpstart

NorTech

team neo

IP innovation PHILADELPHIA

Innovation Works

SPARK

innovation AMERICA

Connect

Erik On Action
10 Reasons (Some) SME’S Underperform

1. Passion
2. Physical and mental strength
3. Self-doubt
4. Belief
5. Foresight
6. Guts
7. Failure
8. Self-discipline
9. Fairness
10. Integrity
Reduced Angel Activity
• Angel Investors reduced their investments in 2009 Q1/Q2 by over 27%
• Availability of investment capital among angels decreased dramatically by 50% in 2009

Venture Funding Moving Downstream
• The average investment by venture firms last year was $8.3 million per investment and only about 4% of the capital went to early-stage companies.
• First Quarter of 2010 was the worst quarter in 12½ in terms of total capital invested by venture firms

State TBED Budgets Decreasing
• 44 states have budget deficits
# Innovation Capital Valley of Death

## "VALLEY OF DEATH"

<table>
<thead>
<tr>
<th>Stage</th>
<th>POC / Pre-Seed</th>
<th>Seed/Start-Up</th>
<th>Early</th>
<th>Later</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
<td>Founders</td>
<td>Angel Groups, TBED, SBIR, Seed Funds</td>
<td>Venture Funds</td>
<td></td>
</tr>
<tr>
<td>Demand</td>
<td>$25K</td>
<td>$100K</td>
<td>$500K</td>
<td>$2,000K</td>
</tr>
</tbody>
</table>

**Supply**

**Secondary Funding Gap**

**Funding Gap**

"VALLEY OF DEATH"
US Angel Capital Programs

Note: 29 states with Angel Capital Tax Credit Investment Programs
Does Seed Investing REALLY Create Jobs?
In the three years after the 2001 recession, Companies of less than 20 employees created 107% of net new jobs while companies over 500 employees eliminated a net of -24%.

Source: Small Business Administration
## Public Investment Job Creation

<table>
<thead>
<tr>
<th>Category</th>
<th>State of PA</th>
<th>CDVCA*</th>
<th>State of UTAH</th>
<th>Stimulus Bill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funds Invested</td>
<td>$90M</td>
<td>$26M</td>
<td>$60M</td>
<td>$800B</td>
</tr>
<tr>
<td>Jobs Created</td>
<td>8,150</td>
<td>3,700</td>
<td>2,047</td>
<td>4,000,000</td>
</tr>
<tr>
<td>$ Per Job Invested</td>
<td>$11,000</td>
<td>$7,100</td>
<td>$29,300</td>
<td>$200,000</td>
</tr>
</tbody>
</table>

*Community Development Venture Capital Assoc.*
“It is not the strongest of species that survive, nor the most intelligent, but the ones most responsive to change.”

–Charles Darwin
Innovative Entrepreneurial Support Initiatives

- Seed Funding
- A Collaborative work space
- Mentors and Advisors who have "been there and done it" before
- Donated legal, accounting and administrative help to form companies properly
- Introductions to funding sources (including Angel Investors, Venture Capitalists, private investors and public sources of funding)
U.S. State Innovation Councils

Idaho Technology Council

The Governor's Innovation Council

Oregon Business Council

(IInno)State
Louisiana's Innovation Summit

Hawaii Innovation Initiative

big Business Innovation Growth

IOWA Innovation Council
IBED Best Practices, Common Attributes

- Longevity
- Bipartisan Support & Champions
- Independent Organizations
- Continuous Reinvention
- Private Sector Involvement
- Understand Return On Investment
- Sustainability In Funding
- Accountable
- Innovative
- Effective Leadership
Pennsylvania’s Industry Clusters

Collaboration

- Biotechnology
- Nanotechnology
- Manufacturing
- Telecommunications / Information Tech.
- Energy
- Support Services
- Workforce
- Innovation
- Capital
Ohio's $700M Third Frontier initiative is a comprehensive, professionally run effort to build world-class research capacity, promote interaction between research and industry, and commercialize R&D." – National Governor's Association and Pew Center for the States
Kansas Technology Enterprise Corporation

www.ktec.com

KTEC Mission:

“To create, grow and expand Kansas enterprises through technological innovation.”
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.
Linking Opportunity With Capacity

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

KTEC Staff

Federal Initiatives and Partnerships

KTEC Program Structure

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)
ICC’s Expand the Life Cycle

Innovation and Commercialization Corporations
Independent 501(c)(3) not-for-profit
Independent Board of Directors
President with commercialization experience
For Profit Seed Capital Funds

Applied Research Project
- Investment
- Grade
- Technologies
- Development
- Risk

Innovation
- Development Risk
- Market Risk
- Management Risk
- Growth Risk

Start-up Company
- Market Risk

Seed Capital
- Market Risk
- Management Risk
- Growth Risk

Quality Investments
- $10,000
- $25,000
- $50,000

General Incubator Services
- Laboratory & Office Space
- Business Plan Consulting
- Financial Expertise
- Management & Operations Consulting
- Marketing & Sales Strategies
- Guidance in Accessing Financing
- Training
- Market Research
- Due Diligence
- Technical Review

Independent 501(c)(3) not-for-profit
Independent Board of Directors
President with commercialization experience
For Profit Seed Capital Funds

Laboratory & Office Space

Quality Investments

ICC’s Expand the Life Cycle

For Profit
Seed Capital Funds
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
How the Fund Works

Set Baseline Tax Revenue for Bioscience Companies (NAICS) and Research Institutions

Measure Actual Incremental Growth in State Bioscience Taxes

Baseline to State General Fund

Increment of Growth to Bioscience Fund

Repeat annually for 15 years

Kansas Bioscience Authority

Fund Programs & Repay Bonds
Innovation Philadelphia’s Mission

A Public/Private Partnership created to:

Grow the Wealth and Workforce of the Greater Philadelphia Global Innovation Economy
Innovation Philadelphia: Leveraging the Resources of the Greater Philadelphia Region

3 states
11 counties

- **Pennsylvania**: Bucks, Montgomery, Philadelphia, Chester, Delaware
- **New Jersey**: Mercer, Burlington, Camden, Gloucester, Salem
- **Delaware**: New Castle
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 foresee now."

— Harry S. Truman
## IP Core Products / Services

<table>
<thead>
<tr>
<th>Investment</th>
<th>Commercialization</th>
<th>Global &amp; Regional Workforce / Economic Development</th>
<th>Branding, Research &amp; Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESF</td>
<td>MCC</td>
<td>KIP</td>
<td></td>
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<tr>
<td>RESOURCES</td>
<td>Phoenix Ventures</td>
<td>Career Philly</td>
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<tr>
<td>MAG</td>
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<td>GP2</td>
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### Investment
- ESF: Economic Stimulus Fund
- RESOURCES: Research Dollars Fund
- MAG: Mid-Atlantic Angel Group
- Phoenix Ventures: World’s Best Technology Network
- MCC: Mid-Atlantic Commercialization Corporation

### Commercialization
- KIP: Knowledge Industry Partnership
- Career Philly
- Greater Philadelphia Global Partners
- BioAdvance
- Ben Franklin Technology Partners
- Science Center
- Delaware Valley Innovation Network

### Global & Regional Workforce / Economic Development
- Creative Economy

### Branding, Research & Marketing
- Innovation Network
- Innovation America
- Innovation Action
Knowledge Industry Partnership/CareerPhilly

- The first Web site dedicated to the career development of students in the Greater Philadelphia Region.
- Provides Regional students with a search engine designed to help them find Regional job and internship opportunities.
- A calendar of events provides students with a listing of career development and networking activities.
- An advice section contains helpful information for students on the many aspects of their career development.
Attracting and Retaining College-educated Workers
Talent is the Currency of the New Economy

"Talented individuals are voting with their feet to live in cities where the work is smart, culture is cool, and the environment is clean."

The Washington Post
11.09.03

HOW GEN-Y DECIDES WHERE TO LIVE AFTER COLLEGE

Choose place before job 64%
Choose job before place 36%
REGIONAL HIGHER-ED CENTRIC COLLABORATIONS
Leveraging the Talent Pipeline

ROAD TO COLLEGE
- Earning HS Degree
  - Motivations

COLLEGE
- Going to College
  - Perceptions

LIFE-CYCLE
- College Life
  - Experiences

NEW PROFESSIONAL
- College to Career
  - Internships
- 2nd Job & Location
  - Connections

Enroll ➔ Engage ➔ Employ
What Worked For KTEC and Innovation Philadelphia

- 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 ENTREPRENEUR’S needs
- SUSTAINABLE Funding
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.
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.
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
Five Key Components to Consider When Defining Unique Regional Assets

**ECONOMIC BASE**

*What you make, including your existing & prospective industry clusters*

**ENTREPRENEURSHIP**

*Your capacity to create companies wholly new or from existing firms*

**TALENT**

*What you do: your workforce skills & human capital base*

**INNOVATION & IDEAS**

*Your capacity to innovate and generate new ideas*

**Location, Infrastructure, Amenities, Factor Costs, Natural Resources**

*The basic conditions defining the economic milieu of the region*
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
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
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. Marketing, Branding and Success Stories
12. Economic Impact Analysis
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
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