Tech South East
INNOVATION INTERMEDIARY WORKSHOP
October 5, 2009
Moncton, NB

Presented by:
Richard A. Bendis
President and CEO
Innovation America
October 5, 2009
“It is not the strongest of species that survive, nor the most intelligent, but the ones most responsive to change.”

–Charles Darwin
“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
Knowledge Economy: Definitions & Terminology

• 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 and interactions, entertainment forms, and ways of communicating and collaborating.
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 economy
• 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
The Role of the Public Sector

- A healthy, educated public
- Job creation, economic health, and Knowledge Worker development
- World leadership in STEM (science, technology, engineering and mathematics) and innovation
- Improved environment quality and sustainable development
- Harnessed information technology
- Enhanced national security
Government’s Role in S&T

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

Knowledge Integration

Education Research

Resource Investment → Knowledge Creation

Continuous Learning and Innovation → Knowledge Transfer
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
Progress is promoted by strong industry, government and university leadership.

Sustained by dynamic public/private partnerships.

These leaders create new, responsive models of governance.
## Traditional ED vs. Innovation-Based ED

<table>
<thead>
<tr>
<th></th>
<th>Traditional ED</th>
<th>Innovation-Based ED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Competitive Basis</strong></td>
<td>Natural resources</td>
<td>Specialized talent</td>
</tr>
<tr>
<td></td>
<td>Highways / Rail</td>
<td>Networks, information</td>
</tr>
<tr>
<td></td>
<td>Proximity</td>
<td>University research / professors</td>
</tr>
<tr>
<td></td>
<td>Costs</td>
<td>Market understanding</td>
</tr>
<tr>
<td></td>
<td>i.e. PHYSICAL</td>
<td>i.e. KNOWLEDGE</td>
</tr>
<tr>
<td><strong>Key values / offerings</strong></td>
<td>Business parks</td>
<td>Access to research</td>
</tr>
<tr>
<td></td>
<td>Incentives</td>
<td>Workforce competencies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lifestyle</td>
</tr>
<tr>
<td><strong>Lead Organization</strong></td>
<td>Chambers / EDCs</td>
<td>Innovation intermediaries,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Economic developers</td>
</tr>
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</table>
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

Research & Marketing of the Strengths of the Innovation Economy

Innovation AMERICA

Programs
Commercialization
Direct Investment
Angel Capital
Federal Investment Programs (SBIR, CRADA, TIP)
Technology Mining / Intellectual Property Programs
## Innovation Intermediary Commercialization Structure

### Investigation
<table>
<thead>
<tr>
<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>
</tr>
</tbody>
</table>

### Development Phase

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

### Commercial Phase

<table>
<thead>
<tr>
<th>Technical</th>
<th>Market</th>
<th>Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Scale Production</td>
<td>Production</td>
<td>Sales and Distribution</td>
</tr>
<tr>
<td>Maturity</td>
<td>Production Support</td>
<td>Market Diversification</td>
</tr>
</tbody>
</table>
Innovation Paradigm Shift

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

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

economic value creation

return on invested capital
margin
- cost of capital
organic
+ m&a
growth
Innovation Commercialization Lifecycle
Innovative Small Business Facts

- Innovative small business have generated 60 to 80 percent of net new jobs annually over the last decade
  - Employ 30 percent of high-tech workers, such as scientists, engineers, and computer workers
- SME’s produce 13 times more patents per employee than large patenting firms
- Small Companies are a key source of innovation by themselves and for Large Companies

Source: Small Business Administration

Innovation Capital Facts

- Proof of Concept, Start-up, and Seed stage companies lack investment support
- Most Seed stage firms need investments of $500K - $2M
- The average venture capital investment today is $8.3M

Source: PriceWaterhouseCoopers – MoneyTree©
Reduced Angel Activity
• Angel Investors reduced their investments by over 26% in 2008
• Availability of investment capital among angels decreased dramatically by 40% in 2008

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 2009 was the worst quarter in 12 ½ in terms of total capital invested by venture firms

State TBED Budgets Decreasing
• 44 states have budget deficits
NO SBIR RE-AUTHORIZATION & TIP UNDERFUNDED
### 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**

- **Funding Gap**
- **Secondary Funding Gap**
Does Seed Investing REALLY Create Jobs?
<table>
<thead>
<tr>
<th></th>
<th>State of PA</th>
<th>CDVCA</th>
<th>Stimulus Bill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funds Invested</td>
<td>$90M</td>
<td>$26M</td>
<td>$800B</td>
</tr>
<tr>
<td>Jobs Created</td>
<td>8,150</td>
<td>3.700</td>
<td>4,000,000</td>
</tr>
<tr>
<td>$ Per Job Invested</td>
<td>$11,000</td>
<td>$7,100</td>
<td>$200,000</td>
</tr>
</tbody>
</table>
1991 Recession: Small Business Drives Job Creation

In the three years after the 1991 recession, Companies of less than 20 employees created 89% of net new jobs while companies over 500 employees created a net of 4%

Total USA Cumulative Net New Job Creation 1991 to 1994
(In The Three Years After The 1990-1991 Recession)

Source: Small Business Administration
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%.
Atlantic Canada Innovation Intermediaries

Tech South East

Innovacorp
www.innovacorp.ca

Oceansadvance
www.oceansadvance.net

PEI Bioalliance
www.peibioalliance.com
Implementing a New Atlantic Canada 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
National 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
U.S. Innovation Intermediaries' Best Practices

☆ Ben Franklin Technology Partners (BFTP, 1982)
  www.benfranklin.org

☆ Kansas Technology Enterprise Corp. (KTEC, 1987)
  www.ktec.com

☆ Innovation Philadelphia (IP, 2001)
  www.innovationphiladelphia.com

✧ Oklahoma Center For The Advancement Of Science And Technology (OCAST, 1987) www.ocast.state.ok.us

☆ UCSD Connect (1985)
  http://www.connect.org

☆ First State Innovation (2007)
  www.firststateinnovation.org
Technology Investment
Pennsylvania’s Industry Clusters

- Biotechnology
- Nanotechnology
- Collaboration
- Manufacturing
- Energy
- Support Services
- Telecommunications / Information Tech.
- Workforce
- Innovation
- Capital
Pennsylvania’s Innovation Intermediary

Mission

The mission of the Technology Investment Office is to serve as a catalyst for growth and competitiveness for Pennsylvania companies and universities through technology-based economic development (TBED) initiatives including funding, partnerships and support services.

Our Goal

● The goal of the Technology Investment Office is to ensure that the variety of TBED organizations and initiatives located throughout the Commonwealth are working collaboratively to fully leverage the wealth of research, capital sources, and support services available to build a comprehensive infrastructure that supports company growth.

Our Customers

● Pre-revenue, emerging and mature technology companies
● Universities engaged in R&D that can be commercialized
● Community organizations focusing on technology infrastructure, training and facilities
● Investment partners
The Four Pillars of Innovation-Based Economic Development

- Innovation
- Capital
- Workforce
- Support Services
- Collaboration
Technology Investment

Concept
The idea for the company is hatched

Formation
The company begins to establish itself and its product, hiring employees and winning customers

Growth
The company grows with increased pace

Maturity
The company has an established customer base and flattening growth

Reinvention
The company takes action to seek new market opportunities

Revenue & Employees
Ben Franklin Technology Partners

- Established in 1982 to stimulate economic growth through innovation, entrepreneurship, and the development and adoption of new technologies.

- BFTP operates on a Regional level through four centers strategically located throughout PA, with offices in Pittsburgh, State College, Bethlehem, and Philadelphia.

- Every dollar invested in BFTP yielded nearly $23 of additional income in the state.

- BFTP generated 93,105 job-years at a cost to PA of $3,342 per job-year*.

- The state garnered more than $400 million in additional tax revenue as a direct result of the program, which more than covered the operating costs of the program over the same period.

- BFTP boosted Pennsylvania’s economy by $8 billion.

- Web site – [www.benfranklin.org](http://www.benfranklin.org)
KTEC Mission:

“To create, grow and expand Kansas enterprises through technological innovation.”
What is KTEC?

- A quasi-private entity created by legislation in the State of Kansas in 1986
- A holding company which manages a portfolio of programs, investments, subsidiaries & affiliates which operate as for-profit and not-for-profit entities
- An equity or royalty investor in emerging Kansas technology businesses
- 20-member industry-led board of directors comprised of stakeholders representing the legislature, government, universities and the private sector
- In addition to its enabling legislation, KTEC operates under corporate bylaws similar to a private corporation
- KTEC is managed by a professional technology management team
KTEC Goals

- Stimulate creation & **commercialization** of innovative technologies.
- Build a comprehensive **financial network** willing to invest in technology-based businesses at each stage of development.
- Improve the competitive **research & development** capacity of Kansas universities & industry.
- Create new and improved high-wage, **high-skilled job** opportunities.
- Make small-to-medium **manufacturers competitive** in the global economy.
- Create a **Lifelong Learning environment** for the new Knowledge-based economy.
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
Linking Opportunity With Capacity

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

Investment Grade Technologies

Applied Research Project

Innovation
• Development Risk
• Market Risk
• Management Risk
• Growth Risk

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

• Business Plan Consulting
• Financial Expertise
• Management & Operations Consulting
• Marketing & Sales Strategies
• Guidance in Accessing Financing
• Training
• Market Research
• Due Diligence
• Technical Review
$
2008 State New Economy Index

- There is concrete evidence that KTEC’s efforts are improving the entrepreneurial climate in Kansas, which was ranked 8th in Nation for “Gazelle Jobs” - according to the 2008 State New Economy Index. Rapid growth “Gazelle” companies account for 80% of new jobs created.

- The New Economy Index also ranked Kansas a “Top Mover” in “Fastest Growing Firms.” Through our direct equity investments and business assistance, KTEC has helped Kansas experience a large increase in the number of “fast growing firms” (i.e. those with growth exceeding 200% over 4 years). These firms provide a strong base for the state’s current and future growth.
Come Home to Kansas Initiative

- #1 issue for bioscience and IT companies is talent recruitment

- Garmin, LSI Logics, Perceptive Software, etc.

- KTEC & partners launched www.comehometokansas.com to address issue

- Site shows thousands current technology job openings, plus strong cluster of recognizable companies in Kansas

- Software crawls internet to match people with career opportunities
The Kansas Experience

Organizational Lessons:

• A clear articulation of the problem is critical.
• A “champion” for the S&T-economic policy process.
• The development of a public-private partnership must be a priority from an early stage.
• Programs must be targeted at critical bottlenecks.
• Institutional innovation must reach outside of traditional bureaucracies.
• The return to Science and Technology investments takes time to grow.
<table>
<thead>
<tr>
<th>CLUSTER</th>
<th>ORGANIZATION</th>
<th>OUTCOMES</th>
</tr>
</thead>
</table>
| Human BioSciences                         | Kansas BioScience Authority (KBA)                  | • $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)    | • $500m Research Center  
• Focused on protecting America's agricultural infrastructure and economy from endemic and emerging biological threats. |
| Aviation                                  | National Institute for Aviation Research (NIAR)    | 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) | Advocate for Kansas’ software and information technology sector to help Kansas' software and IT companies grow and succeed. |
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
Economic Development

- Economic Development is like a three-legged stool:
  - Attraction
  - Retention
  - Grow Your Own (Innovation Philadelphia’s focus)
- TBED requires patience and persistence, continuity and consistency.
- Working with early-stage companies takes time.
- “If it worked in Philadelphia, it can definitely work in Atlantic Canada!”
How Innovation Philadelphia Started

- Blank sheet of paper
- Need for an **Innovation Intermediary**
- Gap analysis of all Regional-based economic development and investment programs
- SWOT analysis of all organizational programs, boards, and funding
Innovation Philadelphia’s Strategic Goals

- Increase the **INVESTMENT** in knowledge-based companies
- Increase the **KNOWLEDGE** Economy workforce
- Foster and **LEVERAGE** Regional **COOPERATION** to Accelerate Technology **COMMERCIALIZATION** and Wealth Creation
- **BRAND** and market the Greater Philadelphia Region
- Promote **SUSTAINABLE** economic development
- Increase the Number of **INNOVATION-BASED COMPANIES** in the Greater Philadelphia Region
Innovation & Entrepreneurial Index

Is our glass half empty or half full?
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
Philadelphia County: Cluster Analysis by Output

- Relative Cluster Size, Philadelphia 11-County
- Direction of Change in LG 97-02

U.S. Industry Output Growth Forecast 2002-2007 Annualized Growth %
Philadelphia Region: 11-County Aggregate; Cluster Analysis by Output

GREATER PHILADELPHIA

Philadelphia 11-County Aggregate Location Quotient, U.S. = 1

- Relative Cluster Size, Philadelphia 11-County
- Direction of Change in LQ 97-02

U.S. Industry Output Growth Forecast 2002-2007 Annualized Growth %
### The Targets of Opportunity – Churn Indicators

#### The Seven Prime Targets of Opportunity for Regional Innovation and Growth

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

#### 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
Critical Ingredients of Success:

- Civic, business, and political leaders willing to sustain Hot Teams and results
- Leadership that acts like ‘civic venture capitalists’
- Individuals willing to hold ‘feet to the fire’ and catalyze collaboration
- Individuals willing to put vital resources towards implementation: time, reputation, financial resources
<table>
<thead>
<tr>
<th>CLUSTER</th>
<th>ORGANIZATION</th>
<th>OUTCOMES</th>
</tr>
</thead>
</table>
| Transforming Biomedical Research | Select Greater Philadelphia [www.selectgreaterphiladelphia.com](http://www.selectgreaterphiladelphia.com)  
University City Science Center [www.sciencecenter.org](http://www.sciencecenter.org)  
Delaware Valley Innovation Network [www.delawarevalleyinnovationnetwork.com](http://www.delawarevalleyinnovationnetwork.com) | • Greater Philadelphia’s #1 industry  
• Science Center QED Proof of Concept Fund  
• $5m WIRED (DOL) grant - 14 county tri-state regional initiative to transform the way in which the region develops its life science talent. |
| Nanotechnology                | Ben Franklin Technology Partners of Southeast PA [www.sep.benfranklin.org](http://www.sep.benfranklin.org)  
Mid-Atlantic Nanotechnology Alliance (MANA) [www.midatlanticnano.org](http://www.midatlanticnano.org) | Collaboration to develop and position the tri-state region (PA, NJ & DE) as a global hub for the expanded research, development, application and commercialization of nanotechnology. |
| The Creative Economy          | Innovation Philadelphia (IP)  
Global Creative Economy Convergence Summit [www.innovationphiladelphia.com](http://www.innovationphiladelphia.com) | IP is a non-profit economic development organization that serves 11 counties in SE PA, Southern NJ and DE – Strives to establish the region as a national leader and world-class destination for Creative Economy industries, businesses and talent. |
<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 Economic Stimulus Fund</td>
<td>Mid-Atlantic Commercialization Corporation™</td>
<td>Knowledge Industry Partnership</td>
<td></td>
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<tr>
<td>RESEARCHDollars FUND</td>
<td>Phoenix IP Ventures</td>
<td>careerPHILLY.com</td>
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<tr>
<td>INNOVATION PARTNERSHIP</td>
<td>World’s Best Technology Network</td>
<td>GP2 Greater Philadelphia Global Partners</td>
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<tr>
<td>MAG Mid-Atlantic Angel Group</td>
<td>IP innovation PHILADELPHIA™</td>
<td>Creative Economy</td>
<td></td>
</tr>
<tr>
<td>innovation AMERICA</td>
<td>BioAdvance</td>
<td>Delaware Valley Innovation Network</td>
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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.
Knowledge Industry Partnership

The Knowledge Industry Partnership (KIP) was formed to maximize the impact of the region’s “knowledge industry” of colleges and universities on Philadelphia’s economic position. This coalition of civic, business, government, and higher education partners is unprecedented in its leadership breadth and cross-representation of interests. KIP serves as a national model of collaboration by a diverse set of partners around a common agenda.
Who is the Innovation Partnership?

- Consortium of leading economic development organizations located throughout the Commonwealth of Pennsylvania that collaborated to compete for and win a Federal & State Technology Partnership (FAST) Grant.
- Goal – to assist Pennsylvania technology companies in gaining a greater share of federal grant dollars available each year.
- IP is the statewide fiscal intermediary and our Research $ program is the foundation for the Partnership.
The Partners

Founding Partner Organizations

Assistant Partner Organizations

[Logos and icons of various organizations]
### World’s Best Technology Network

<table>
<thead>
<tr>
<th>Cumulative Funding Per Deal</th>
<th>Cumulative Funding Per Deal</th>
<th>Total Annual Deal Funding Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ben Franklin</td>
<td>Up to $750K</td>
<td>$3M</td>
</tr>
<tr>
<td>BioAdvance</td>
<td>Up to $1M</td>
<td>$5M</td>
</tr>
<tr>
<td>Science Center</td>
<td>Up to $500K</td>
<td>$3M</td>
</tr>
<tr>
<td>IP (ESF)</td>
<td>Up to $100K</td>
<td>$500K-1M</td>
</tr>
<tr>
<td>MAG</td>
<td>Up to $250K</td>
<td>Up to $1M</td>
</tr>
<tr>
<td>IPART &amp; IP SBIR Program</td>
<td>Up to $750K</td>
<td>Up to $13M</td>
</tr>
</tbody>
</table>

- Regional Branding & Marketing
- Common Investment Review Process
- Shared Due Diligence
What Worked For KTEC and Innovation Philadelphia

- **FOCUSED & INTEGRATED** Science & Technology Collaboration for Kansas and the Greater Philadelphia region
- **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
Accelerating Delaware’s Entrepreneurial Economy

www.firststateinnovation.org
Mission:

“First State Innovation is a private-sector led 501c3 focused on growing the wealth and workforce of Delaware’s Innovation Economy by attracting, connecting, and retaining high-growth, technology-based businesses in Delaware and the surrounding region, through the productive use of people, ideas and capital”
Delaware’s Pro’s and Con’s

### Regional Assessment

**Pros**
- Patents per worker 3 ½ times the national average
- Regional productivity exceeds national average
- Unemployment lower than the national average
- Cost of living below national average
- Proximity to major markets
- “Chateau” country

**Cons**
- Middle of pack for venture capital funding but far behind leaders (26th in the nation)
- Relatively few jobs in high growth firms (46th in Gazelle jobs)
- 50th of 50 in new entrepreneurial startups per Kaufmann Foundation
- Programs to train entrepreneurs average at best
- Attitudes toward entrepreneurs
  - Failure not well tolerated
  - Small firms not celebrated
STRATEGY

It is actually quite simple….

• FSI connects **People, Ideas and Capital**
2 YEAR MILESTONES:

- Over $1,000,000 raised through public & private grants
- Obtained 501c3 approval in 4 months
- Strong high profile Board has been formed
- Outstanding Advisory Board doing heavy lifting
- Over 50 new entrepreneurial companies in pipeline
- Assembled over 300 Angel Investors poised to invest
- First FSI facilitated deal completed – OrphageniX
- Second FSI facilitated deal completed – Patria Services Corp.
- Aided in launch of 4 additional companies
- Conduct Breakfast Showcase events quarterly
- Sponsored and participated in University of Delaware Knowledge-based partnerships summit
- Launched the FSI website at: www.firststateinnovation.org
• Provide new Delaware Governor with “Roadmap for Entrepreneurial Growth”
• Sponsor major Spring 2009 Summit
• Formalize our 300+ Angels into a focused engine
• Facilitate the launch of 6-9 new companies
• Conduct Breakfast Showcase events every 60 days
• Work closely with the major science-based companies, DSU, UD and Deltech in technology transfer and commercialization
• Plug in closer to the regional economy (Greater Philadelphia Chamber of Commerce, Select Greater Phila, Innovation Philadelphia, NJ & MD incubators)
• Coordinate with national organizations like Council on Competitiveness and SSTI.
• Obtain increased private funding from business community
The Science Center

- Founded in 1963 – 46th Anniversary
- Non-Profit organization
- Largest & Oldest Urban US Science Park
- 17 acres, 15 buildings – over 2 million sq. ft. of laboratory and office facilities
- 56,000 sq. ft. of state-of-the-art incubation facilities (effective 9/1/08)
- Wet-Dry Lab & Office Facilities
- Lab equipment & access to academic collaborations
- Birthplace of 400 + companies employing today 29,000 with annual revenues of $9 billion +
- SC Campus has 100 tech-based, 7500 employees that work in healthcare, technology & research institutions
- Campus expansion plan – 2.0 million sq. ft. to 3.5 million sq. ft.
Science Center Global Soft Landing

• Established in 2005
• Focus on Asia and Europe
• Country site visits: Greece, India, China, Malaysia, Italy, South Korea, Germany, Ukraine, Turkey, Spain, and more…..over 75 site visits
• Relationships with JETRO (Japan), Rhone/Alps Region (France) & Belgium Trade Office (Wallonia Foreign Trade & Investment), Spain, UK and Germany
• Project funded by U.S. Department of Commerce - EDA
• $2.5M project for construction and facility programs
• 10,000 sq. ft. of wet laboratory and offices
Hot Off the Presses

Center for American Progress

Creating a National Innovation Framework

Forbes.com

More Signs of Capital Starvation

PEHUB

A Federal VC Fund of Funds?

The Wall Street Journal

Federal Aid Sought for Equity-Backed Companies

San Francisco Chronicle

Recession Knocks VC Funds to 5 ½ Year Low

BioCentury

Into the Valley of Death

VCexperts

Health Care Bleeds Small-Biz Finances

ThomasNet Industrial News Room

Buzz Article

Innovation America
US Government has not yet addressed the “Valley of Death” Funding Crisis

Nor Has It Developed

An Integrated Innovation Plan for America

Innovation America has a Plan!
GLOBAL INNOVATION INDEX

<table>
<thead>
<tr>
<th>RANKING</th>
<th>COUNTRY</th>
<th>SCORE*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Singapore</td>
<td>2.45</td>
</tr>
<tr>
<td>2</td>
<td>South Korea</td>
<td>2.26</td>
</tr>
<tr>
<td>3</td>
<td>Switzerland</td>
<td>2.23</td>
</tr>
<tr>
<td>4</td>
<td>Iceland</td>
<td>2.17</td>
</tr>
<tr>
<td>5</td>
<td>Ireland</td>
<td>1.88</td>
</tr>
<tr>
<td>6</td>
<td>Hong Kong</td>
<td>1.88</td>
</tr>
<tr>
<td>7</td>
<td>Finland</td>
<td>1.87</td>
</tr>
<tr>
<td>8</td>
<td>United States</td>
<td>1.80</td>
</tr>
<tr>
<td>9</td>
<td>Japan</td>
<td>1.79</td>
</tr>
<tr>
<td>10</td>
<td>Sweden</td>
<td>1.64</td>
</tr>
</tbody>
</table>

Source: Boston Consulting Group & National Association of Manufacturers

*Global Innovation Index evaluated both innovation inputs, such as fiscal and education policies, and outputs such as patents, technology transfer from basic university research, research and development, and business performance.
UK Government Unveils Plans for £1BN Venture Capital Fund of Funds

30 Jun 2009, Source: AltAssets

The UK’s venture capital industry will receive a much needed boost as the government announced plans to commit £150m (€177m) to a new fund of funds, the UK Innovation Investment Fund.

The Department for Business, Innovation and Skills, with the Department of Energy and Climate Change and the Department of Health, will invest the money alongside the private sector in order to stimulate growth.

Government of Canada Announces $450 Million in New Funding for BDC to Assist Canadian Businesses

TORONTO, Ontario, June 15, 2009 — The Honourable Tony Clement, Minister of Industry, today announced that the Government of Canada is providing $450 million to the Business Development Bank of Canada (BDC) in support of small and medium-sized enterprises and innovative firms.

The funding will include $100 million to establish the Operating Line of Credit Guarantee and $350 million over three years to help drive venture capital investment in promising Canadian technology businesses.
## U.S. Early Efforts – No Innovation Road Map

<table>
<thead>
<tr>
<th>Year</th>
<th>Innovation Initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>The State–Federal Technology Partnership Taskforce Formed</td>
</tr>
<tr>
<td>1997</td>
<td>President Clinton creates the U.S. Innovation Partnership</td>
</tr>
<tr>
<td>2000</td>
<td>The State Science and Technology Institute (SSTI) is free-standing</td>
</tr>
<tr>
<td>2004</td>
<td>Innovation Philadelphia and Rich Bendis create Innovation America</td>
</tr>
<tr>
<td>2005</td>
<td>The National Innovation Act created President’s Council on Innovation</td>
</tr>
<tr>
<td>2006</td>
<td>The National Competitiveness Investment Act</td>
</tr>
<tr>
<td>2007</td>
<td>The America Competes Act</td>
</tr>
<tr>
<td>2007</td>
<td>The National Governor’s Association under Gov. Napolitano create the Innovation America Partnership</td>
</tr>
<tr>
<td>2008</td>
<td>Governor Napolitano creates the Innovation America Foundation</td>
</tr>
<tr>
<td>2008</td>
<td>The National Innovation and Job Creation Act introduced to create a National Innovation Council</td>
</tr>
<tr>
<td>2008</td>
<td>The National Innovation Foundation proposed by Rob Atkinson</td>
</tr>
<tr>
<td>2009</td>
<td>A National Innovation Framework proposed by Rich Bendis</td>
</tr>
<tr>
<td>2009</td>
<td><strong>Commerce Dept. creates Office of Innovation &amp; Entrepreneurship</strong></td>
</tr>
</tbody>
</table>
MISSION: TO ACCELERATE THE GROWTH OF THE ENTREPRENEURIAL INNOVATION ECONOMY IN AMERICA

• Preliminary framework on how to finance and bring together organizations, networks, and resources involved in growing the nation's entrepreneurial innovation economy and creating new jobs.

• Private-public partnership such as Innovation America could be an innovation intermediary for facilitating this process between, State, Federal, University, Foundation and Private Sector stakeholders.

• Opportunity to leverage the federal innovation portfolio of programs with state and regional early-stage funds and IBED organizations.

• The moons are aligning to create and implement, an integrated innovation U.S. strategy and leverage the newly created Commerce Department Office of Innovation and Entrepreneurship.
Creating a National Innovation Framework

- The National Innovation Jobs Seed Fund and Technical Assistance Grant Fund
- The Federal Innovation Partnership and a National Innovation Advisor
- The National Private-Public Partnership Innovation Program
National Innovation Framework

- Angel Capital Association (ACA)*
- Community Development Venture Capital Alliance (CDVCA)*
- National Association of Seed & Venture Funds (NASVF)*
- American Society of Mechanical Engineers (ASME)*
- State Science & Technology Institute (SSTI)*
- National Business Incubation Association (NBIA)*
- Association of University Research Parks (AURP)*
- Association of University Technology Managers (AUTM)*

*Potential national innovation partners

Federal Agency (TBD)

National Innovation Jobs Seed Fund
$2 billion fund

National Seed Fund of Funds 50 Seed Funds
$1.8 billion

Innovation Capital Technical Assistance Grant Fund
$200 million

NPPPI
501©3
Not For Profit (Innovation America)

establishes criteria, metrics & best practices

Investment
Commercialization
Technical Assistance, Education, & Mentoring
Technology, Economic & Workforce Development
Networking, Strategic Planning, Marketing & Branding

Federal Technology Innovation Programs
SBIR, STTR, TIP, MEP, WIRED, FLC, EPSCoT, EPSCoR, NSF-PFI, NSF-IUCRC, NSF-Eng’g Resource Center, DOE-Ind’l Tech. Program

Innovation Federal Capital Programs
CRA, CDFI, NMTC, NISF, TIP, SBIR

National Innovation Advisor
Federal Innovation Partnership

Innovation America

National Innovation Jobs Seed Fund

U.S. Federal Agency (TBD)

National Innovation Jobs Seed Fund
$2 billion fund

National Innovation Jobs Seed Fund of Funds
50 Seed Funds = $1.8 Billion

- 50 State/Regional Innovation Seed Funds
- Receive approximately $10-15 M direct investment from NISF
- Has to match with $1 from other third parties
- Awarded on early-stage innovation focus and experienced managers
- Leverages successful federal SBIR recipients and like or similar state and regional investment programs
- Federal Government is a Financial Partner

Innovation Capital Technical Assistance Grant Fund
$200 Million

- Available to both NISF funds
- Grants are used to provide support and technical assistance to fund managers, portfolio, companies & entrepreneurs
- The National Public-Private Partnership would administer the Innovation Capital Technical Assistance Grant Fund
- Approximately $200 M
Federal Innovation Partnership

- A National Innovation high-level Advisor performs an intermediary function with the existing and potential new federal innovation programs and also interacts with other national innovation initiatives
- Identify gaps in the US national innovation portfolio and make recommendations for new programs
- Current Federal budget for listed Technology Innovation Programs is approximately $2.7 - $3 billion
- Interacts with the National Public-Private Partnership and existing innovation associations and networks
- Leverages its technology innovation investment programs with state and regional like or similar programs
- Performance-based budgeting and measurement
- National clearinghouse of information and resources

Innovation Federal Capital Programs – CRA, CDFI, NMTC, NISF
Federal Technology Innovation Programs – SBIR, STTR, TIP, MEP, WIRED, FLC, EPSCoT, EPSCoR, NSF-PFI, NSF-IUCRC, NSF-Eng’g Resource Center, DOE-Ind’l Tech. Program

National Innovation Advisor
National Innovation Intermediary

- A Public Private Partnership with a mission to accelerate the growth of the entrepreneurial innovation economy in America
- Intermediates partnerships with existing innovation associations and networks and federal technology innovation programs
- Manages & supports the listed programs

Innovation America
501©3
Not For Profit

*Potential partnering innovation associations and networks

- Angel Capital Association (ACA)*
- Community Development Venture Capital Alliance (CDVCA)*
- National Association of Seed & Venture Funds (NASVF)*
- American Society of Mechanical Engineers (ASME)*
- State Science & Technology Institute (SSTI)*
- National Business Incubation Association (NBIA)*
- Association of University Research Parks (AURP)*
- Association of University Technology Managers (AUTM)*
Recommendations

✓ Create a $2 billion dollar National Innovation Jobs Seed Fund (NISF) that consists of a Fund of Funds and a Technical Assistance Grant Fund. The Technical Assistance Grant Fund provides entrepreneurial support resources and services to portfolio companies and Fund Managers.

✓ Encourage the leveraging and coordination of Federal Technology Innovation Programs through a Federal Innovation Partnership with a new administration high-level National Innovation Advisor that has access to the President.

✓ Create a Public-Private Innovation Intermediary with a mission to accelerate the growth of the entrepreneurial innovation economy in America and oversee the National Innovation Seed Fund. This intermediary would be a program partially supported by a U.S. federal agency.
The Road from Basic Research to Commercialization

...has many complex pieces!
All of the puzzle pieces must come together early in order for the project to have any hope of commercial success
What’s Next For Atlantic Canada?

Today:

- Tech South East
- innovacorp
- oceansadvance
- BioAlliance

Tomorrow: innovation

inovation AMERICA
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
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