MICHIGAN VENTURE CAPITAL ASSOCIATION
ANNUAL AWARDS DINNER
NOVEMBER 9, 2009
ANN ARBOR, MI

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

–Charles Darwin
• Stock market bubble followed by housing bubble

• Recession different than previous ones and more challenging to get out of
  – Unemployment rate higher for those with college degrees than in previous recessions
  – American consumers not positioned to spend money
  – National recession, not regional
  – Asia had export bubble dependent on U.S.
• Foundations expect to give less
• People not moving
• Incomes not likely to recover in near-term
• Potential for jobless recovery
Entrepreneurship Opportunities

• **Realities**
  – Unemployed can turn to creating own company
  – More than half the Fortune 500 started during economic downturn

• **Opportunities**
  – Helping potential entrepreneurs explore opportunities

• **Innovations**
  – Growth of “entrepreneur venture development organizations” in last 10 years
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. population
The Boulevard of Broken Dreams: Government and the Promotion of Entrepreneurship and Venture Capital
Legacy of the Crisis

- Massive public intervention in failing firms.
- Fiscal pressures from commitments.
- Desperate need for economic growth.
  - A global story.

Ford reports $1 billion profit in Q3!
But Entrepreneurship Growth Engines Sputtering

- Poor venture returns since 2000 boom.
- Even more pronounced drought elsewhere.
  - Linked to difficulties in exiting investments.
- Downturn in venture activity world-wide since crisis.
- Concerns of wide-spread disillusionment of investors.
Distributed/Paid-in Capital, by Vintage Year, U.S. VC funds

Source: Thomson/Reuters. Data as of 9/30/08.

1997 is last year with >1 median and mean ratio.
U.S. Venture Capital Returns

Source: Author's analysis of Thomson/Reuters data
## Returns Before and After Vintage Years

<table>
<thead>
<tr>
<th></th>
<th>Vintage Years: 1990-98</th>
<th>Vintage Years: 1999-2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S.</td>
<td>37%</td>
<td>0%</td>
</tr>
<tr>
<td>Europe</td>
<td>8%</td>
<td>-5%</td>
</tr>
</tbody>
</table>

Source: Thomson/Reuters. Data as of 12/31/08. Numbers are capital-weighted average IRRs,
Investments by Venture Funds ($B)

Source: Sand Hill Econometrics
Exits by Venture Funds ($B)

Source: Sand Hill Econometrics
Exits/Venture Pool (%)

Source: Author’s analysis of Sand Hill Econometrics data
Question for Discussion

What explains the poor performance of venture funds world-wide?

- A lack of entrepreneurial opportunities?
- Short-sightedness on part of institutional investors?
- Paralysis in the exit markets?
- Just a natural cycle that will soon fix itself?
Is it feasible to rely on matching funds as a signal?

– Yes, this is the only way to get an arms’ length understanding of what the market demands?

– No, market failures here are so profound that if we cannot wait for private sector interest.

– Yes, but only if we can rely on a broad array of indications, including funds from angels and other government funds.
Getting the Details Right

- Appropriate sizing:
  - Too small may not make a difference.
  - Too big may flood local investor.
- Avoiding rules that go against what market needs.
- Need to ensure incentives to ensure participants do well if meet goals.
- Allowing programs to evolve and adjust over time.
- Evaluation of managers and program itself.
Why Should the Public Sector Care?

• Venture capital is still very young:
  – First fund in 1946.

• Venture capital is still very small.

• But…
  – Young high-tech and restructuring firms pose many challenges:
    • Difficult for traditional financiers to fund these firms.
  – Great deal of wealth creation from these ventures.
  – Substantial public returns:
    • Evidence regarding innovation.
Why A Government Role?

• Increasing returns to scale
  – Much easier to do 100th deal than the first:
    • Knowledge and expectations of entrepreneurs.
    • Familiarity of intermediaries.
    • Sharing of information among peers.
    • Comfort level of institutional investors.

• Economists term these “externalities.”

• In these cases, government can frequently play a catalytic role.
Illustrations From History

• In the U.S.:
  – Critical role of SBIC program.
  – Many early VC firms started as SBIC awardees, then opted out.
  – Building critical “infrastructure”: Lawyers, data providers, etc.

• Similar insights from Israel, Singapore, etc.
  – Suggests that some of funding should be directed to growing industries!
Two Fundamental Problems

• *Incompetence:*
  – Often, relatively little familiarity with worlds of entrepreneurship and venture capital.
  – Many well-intentioned efforts are poorly executed.

• “*Capture*”:
  – Public efforts can be directed to well-connected parties, who seek to benefit themselves.
The Case for Focus: U.S. Venture Capital

Source: Gompers, Kovner, Lerner and Scharfstein [2009].
IPO Rate for U.S. VCs

Source: Gompers, Kovner, Lerner and Scharfstein [2009].
Josh Lerner Final Thoughts

• The critical rationale…
  – And the many pitfalls.

• Three key points:
  – More than money is needed: entrepreneurship is not in a vacuum.
  – The virtues of market guidance.
  – Getting details right important as well.

• Need for patience!
Venture Capital Rebound

The new superhero of the modern world.
## The Venture Capital Rebound

### Table: Venture Capital Fund Size and Number of Funds

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Average Fund Size</th>
<th>Total # Funds</th>
<th>Total # Funds $250M+</th>
<th>Total # Funds $500M+</th>
<th>Total # Funds $1 billion+</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980s</td>
<td>$53.7</td>
<td>653</td>
<td>12</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>1990s</td>
<td>$94.7</td>
<td>1,344</td>
<td>147</td>
<td>47</td>
<td>15</td>
</tr>
<tr>
<td>2000s*</td>
<td>$179.7</td>
<td>1,622</td>
<td>408</td>
<td>164</td>
<td>30</td>
</tr>
</tbody>
</table>

*Through 2008

Source: Thomson Reuters (for funds greater than $10 million)
The Venture Capital Rebound

**Total Number of Transactions for Successfully Exited Venture-Backed Companies by Decade**

<table>
<thead>
<tr>
<th>Decade</th>
<th>Total Transactions</th>
<th>IPO (%)</th>
<th>M&amp;A (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980-1989</td>
<td>1,124</td>
<td>94%</td>
<td>6%</td>
</tr>
<tr>
<td>1990-1999</td>
<td>1,596</td>
<td>59%</td>
<td>41%</td>
</tr>
<tr>
<td>2000-2008</td>
<td>3,119</td>
<td>17%</td>
<td>83%</td>
</tr>
</tbody>
</table>

Source: Thomson Reuters
The Venture Capital Rebound

Average Exit Value per Venture Backed Company by Decade

Source: Thomson Reuters
## The Venture Capital Rebound

### Net Distributions: VC & Buyout as of December 31, 2008

<table>
<thead>
<tr>
<th></th>
<th>1 Year</th>
<th>3 Year</th>
<th>5 Year</th>
<th>10 Year</th>
<th>20 Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>VC Cumulative Distributions</td>
<td>$5.3</td>
<td>$29.1</td>
<td>$53.2</td>
<td>$152.0</td>
<td>$206.1</td>
</tr>
<tr>
<td>VC Cumulative Calls</td>
<td>5.7</td>
<td>24.4</td>
<td>49.8</td>
<td>135.0</td>
<td>170.2</td>
</tr>
<tr>
<td>Net VC Distributions</td>
<td>(0.4)</td>
<td>4.7</td>
<td>3.4</td>
<td>17.0</td>
<td>35.9</td>
</tr>
<tr>
<td>Buyout Cumulative Distributions</td>
<td>16.3</td>
<td>107.8</td>
<td>205.5</td>
<td>306.0</td>
<td>394.8</td>
</tr>
<tr>
<td>Buyout Cumulative Calls</td>
<td>44.7</td>
<td>141.9</td>
<td>208.5</td>
<td>378.5</td>
<td>478.6</td>
</tr>
<tr>
<td>Net Buyout Distributions</td>
<td>(28.4)</td>
<td>(34.1)</td>
<td>(3.0)</td>
<td>(72.5)</td>
<td>(83.8)</td>
</tr>
</tbody>
</table>

Source: Thomson Reuters
The Venture Capital Rebound

Distributions as a % of Net Asset Value

US Venture Capital

Year
13.0% 10.5% 11.8% 7.2% 7.5% 12.5% 6.3% 10.6% 15.4% 18.7% 20.3% 25.9% 37.3% 10.7% 6.5%

US Buyout

Year
10.7% 6.2% 3.5% 2.6% 19.5% 25.4% 23.7% 39.8% 11.1% 14.6% 15.3% 21.9% 28.3% 31.1% 15.1% 23.7%

Source: Thomson Reuters
The Venture Capital Rebound

US Private Equity Capital Raised 1997-2008

Source: Thomson Reuters
The Venture Capital Rebound

Performance of Smaller Venture Funds vs Larger Venture Funds
1990 - 2008

Source: Cambridge Associates, LLC
Michigan Venture Capital

Total Capital

Michigan has a total of $1 billion of venture capital under management among Michigan-based venture funds.

Capital Under Management

- Michigan-based Venture Capital
  - 2008: $900M
  - 2007: $1B

- Venture Capital with Michigan Presence
  - 2008: $1.5B
  - 2007: $1B

- Total Capital Managed in Michigan
  - 2008: $2.4B
  - 2007: $2.6B

Available Capital

- Michigan-based Venture Capital
  - 2008: $100M
  - 2007: $330M

- Venture Capital with Michigan Presence
  - 2008: $300M
  - 2007: $320M

- Total Capital Available in Michigan
  - 2008: $400M
  - 2007: $530M
National Venture Capital and Michigan

A Tiered View of National Rankings

<table>
<thead>
<tr>
<th>Tiers by Percentage</th>
<th>Tier 1: 70%</th>
<th>Tier 2: 11%</th>
<th>Tier 3: 5%</th>
<th>Tier 4: 4%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tiers</td>
<td>Tier 1</td>
<td>Tier 2</td>
<td>Tier 3</td>
<td>Tier 4</td>
</tr>
<tr>
<td></td>
<td>$1Billion+</td>
<td>$500M-$1B</td>
<td>$250M-$500M</td>
<td>$100M-$250M</td>
</tr>
<tr>
<td>California</td>
<td>Washington</td>
<td>Minnesota</td>
<td>Michigan</td>
<td></td>
</tr>
<tr>
<td>Massachusetts</td>
<td>Colorado</td>
<td>Virginia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New York</td>
<td>Pennsylvania</td>
<td>North Carolina</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Texas</td>
<td>New Jersey</td>
<td>Maryland</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Illinois</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Georgia</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ohio</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Investment Stage Diversification

By Investment Stage

Investment Stage Diversification
By Dollars of Investment

- Growth/Expansion: 55%
- Start-Up/Early: 31%
- Mezzanine: 1%
- Seed: 13%
### National Venture Capital and Michigan

#### Venture Capital Investments by State in 2008

<table>
<thead>
<tr>
<th>State</th>
<th>Rank</th>
<th>Year Over Year Rank Change</th>
<th>Number of Companies</th>
<th>Amount Invested ($Million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>1</td>
<td>-</td>
<td>1,294</td>
<td>$14,280</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>2</td>
<td>-</td>
<td>346</td>
<td>$2,998</td>
</tr>
<tr>
<td>New York</td>
<td>3</td>
<td>+2</td>
<td>195</td>
<td>$1,299</td>
</tr>
<tr>
<td>Texas</td>
<td>4</td>
<td>-1</td>
<td>124</td>
<td>$1,283</td>
</tr>
<tr>
<td>Washington</td>
<td>5</td>
<td>-1</td>
<td>126</td>
<td>$962</td>
</tr>
<tr>
<td>Colorado</td>
<td>6</td>
<td>+5</td>
<td>78</td>
<td>$817</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>7</td>
<td>-1</td>
<td>152</td>
<td>$701</td>
</tr>
<tr>
<td>Minnesota</td>
<td>9</td>
<td>+6</td>
<td>43</td>
<td>$487</td>
</tr>
<tr>
<td>Illinois</td>
<td>13</td>
<td>-1</td>
<td>57</td>
<td>$445</td>
</tr>
<tr>
<td>Ohio</td>
<td>15</td>
<td>+5</td>
<td>44</td>
<td>$258</td>
</tr>
<tr>
<td>Michigan</td>
<td>16</td>
<td>+9</td>
<td>33</td>
<td>$246</td>
</tr>
<tr>
<td>Indiana</td>
<td>22</td>
<td>+7</td>
<td>13</td>
<td>$132</td>
</tr>
<tr>
<td>Missouri</td>
<td>24</td>
<td>+2</td>
<td>19</td>
<td>$87</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>25</td>
<td>+3</td>
<td>18</td>
<td>$75</td>
</tr>
<tr>
<td>Iowa</td>
<td>31</td>
<td>+11</td>
<td>4</td>
<td>$40</td>
</tr>
<tr>
<td>Kentucky</td>
<td>35</td>
<td>-13</td>
<td>10</td>
<td>$30</td>
</tr>
</tbody>
</table>

Source: NVCA and MVCA
National VC vs. Michigan

National Venture Capital and Michigan

Michigan Versus the Top Ten States

Bottom 40 States

Michigan

CA

MA

NY

TX

WA

CO

PA

NJ

VA
Michigan’s Entrepreneurial Demand for Funding

Building Michigan’s Vibrant Future

*Michigan’s Entrepreneurial Demand*

<table>
<thead>
<tr>
<th>Company Stage</th>
<th>Dollar Demand</th>
<th>No. of Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Seed/Seed</td>
<td>$50M</td>
<td>100+</td>
</tr>
<tr>
<td>Start-Up/Early</td>
<td>$1,102M</td>
<td>106</td>
</tr>
<tr>
<td>Growth/Expansion</td>
<td>$455M</td>
<td>14</td>
</tr>
<tr>
<td>Grand Total</td>
<td>$1,607M</td>
<td>310</td>
</tr>
</tbody>
</table>

70% of MI VC demand is in the Start-Up/Early Stage
Technology Investment
Pennsylvania’s Industry Clusters
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
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
Tennessee Investment Co

• Provides no less than $84,000,000 of financial capital to be invested in small businesses in Tennessee
• Funded by deferred insurance premium tax credits
• Focused on early stage, equity investments
• Targeting high-growth companies for “transformational” outcomes
• Professionally managed private sector funds
• Creates the opportunity for financial return to state government
• Access to Capital:

• A New Program…… A New Approach…
Principles of Capital Formation Policy

1. Capital must be pooled in the most efficient and cost-effective manner possible

2. State must not subsidize private sector competition in markets that are well-served by existing Tennessee businesses or investors

3. Process of choosing fund managers must be competitive and free from political influence

4. Economic development investments must serve to facilitate private sector investment
TNINVESTCO Announces New Funds (11/5/09)

- Tennessee Community Ventures Fund
- Xmi High Growth Development Fund
- Limestone Fund
- Tri-Star Technology Fund
- Innova Fund II
- Council and Enhanced Tennessee Fund
- Alternative Programs/Funds
  - Solidus-TNInvestco LLC
  - Tennessee Angel Fund
KBA Quick Facts

• $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

• KBA is governed by an 11-person board of directors comprised of local and national leaders in industry and academia
  – Standing investment committee; all investments subject to board approval
Innovative funding mechanism transfers state withholding taxes from bioscience companies directly to the KBA, not subject to annual appropriations.

A baseline of bioscience sector employee withholdings (from defined NAICS codes) was set at end of 2003. Since Jan. 2006, 95 percent of any increase over the baseline withholding, if any, has been devoted to bioscience growth in Kansas.

The KBA receives quarterly payments from the state treasurer, and the funds accrue solely for the authority’s independent use.

Funding will sunset when $581.8 million has been transferred into the fund...approximately 2019.
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

Kansas Bioscience Authority
Fund Programs & Repay Bonds

Repeat annually for 15 years
Original Fund Projections

Model assumes a 0.45% annual growth rate for bioscience industry and research institutions.

Cumulative collected incremental revenue in FY '15 is $552M.

State Tax Revenue Model

<table>
<thead>
<tr>
<th>Year</th>
<th>Bioscience Fund</th>
<th>State General Fund</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 2004</td>
<td>$0.0</td>
<td>$0.0</td>
</tr>
<tr>
<td>FY 2005</td>
<td>$5.0</td>
<td>$5.0</td>
</tr>
<tr>
<td>FY 2006</td>
<td>$10.8</td>
<td>$10.8</td>
</tr>
<tr>
<td>FY 2007</td>
<td>$17.5</td>
<td>$17.5</td>
</tr>
<tr>
<td>FY 2008</td>
<td>$25.2</td>
<td>$25.2</td>
</tr>
<tr>
<td>FY 2009</td>
<td>$34.1</td>
<td>$34.1</td>
</tr>
<tr>
<td>FY 2010</td>
<td>$44.4</td>
<td>$44.4</td>
</tr>
<tr>
<td>FY 2011</td>
<td>$56.3</td>
<td>$56.3</td>
</tr>
<tr>
<td>FY 2012</td>
<td>$70.2</td>
<td>$70.2</td>
</tr>
<tr>
<td>FY 2013</td>
<td>$86.3</td>
<td>$86.3</td>
</tr>
<tr>
<td>FY 2014</td>
<td>$105.1</td>
<td>$105.1</td>
</tr>
<tr>
<td>FY 2015</td>
<td>$126.9</td>
<td>$126.9</td>
</tr>
</tbody>
</table>
How’s It Really Working?

- Revised NAICS codes in first year to ensure fund would accumulate $581 million over 15 years
- $124 million in fund income to date
- In the past fiscal year, the KBA committed more than $177 million to 32 bioscience projects.
  - These investments bring total commitments to $229 million since the authority’s inception.
- Looking forward: FY 2010 annual operating plan commits $75.5 million
First Principles

• Highly focused
• Diversified
• Game-changing potential
• Evaluative process
• Partnership approach
• Outcome oriented
KBA’s Investment Tools

- Kansas Bioscience Eminent Scholars
- Kansas Bioscience Rising Stars
- Kansas Bioscience Matching Fund
- Bioscience Centers of Innovation
- Heartland BioVentures
- Kansas Bioscience Growth Fund
- Kansas Bioscience R&D Vouchers
- Kansas Bioscience Attraction and Retention
FY 2010 Exemplar Investments

• Three Eminent Scholars

• National Bio and Agro-Defense Facility: Kansas was selected for this $650 million federal biodefense laboratory.
  – House and Senate conference committee awarded $32 million to complete the NBAF design phase and begin construction in 2010.

• KC BioMedix: $800,000 total investment to commercialize medical devices based on technologies developed out of the University of Kansas for the care and treatment of infants born prematurely.

• ThermoFisher Scientific: Assisted with a multi-million dollar expansion of a microbiology products company that manufactures and distributes to laboratories around the world.
Kansas: On the Right Track

- **Academic R&D expenditures and NIH funding** up 15.5 percent and 12.7 percent respectively since 2004.
  - Academic R&D up over $100 million since 2004
- **Medical Laboratory establishments** have increased by 51 since 2004.
  - In 2007, there were 3,830 industrial sector employees, a 12.6% increase since 2004.
  - The national employment for the industrial sector increased 7.6% from 2004 – 2007.
- **Bioscience venture capital investment** in Kansas amounted to $101.4 million from 2004 – 2007.
  - Most recently, the KBA invested $50 million in the Kansas Bioscience Growth Fund to significantly increase the amount of venture capital in the state.
- Kansas had 883 private bioscience companies in 2004, and **936 in 2007, a 6% increase in just three years**. The nation had a 5.6% increase from 2004 - 2007.
- **Bioscience employment** has risen by over 2,388 since 2004, having a total of 16,525 employees in 2007.
- **Kansas has moved up to #9** on *Business Facilities*’ Top 10 list of states in the nation for biotechnology strength.
Attracting Investors

- Kansas Angel Tax Credit Program
- Kansas Angel Networks
  - Three statewide organizations

<table>
<thead>
<tr>
<th>KANSAS ANGEL TAX CREDITS 2005 – 2008</th>
<th>Total (from inception)</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Companies Receiving Investments</td>
<td>73</td>
</tr>
<tr>
<td>Total Capital Raised</td>
<td>$118M</td>
</tr>
<tr>
<td>Total Revenue</td>
<td>$119M</td>
</tr>
<tr>
<td></td>
<td>Dollars Invested</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Utah FOF</td>
<td>$60M</td>
</tr>
<tr>
<td>Utah Stimulus</td>
<td>$520M</td>
</tr>
</tbody>
</table>

Note: Utah FOF average salary is $63,364
"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.
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 and create Knowledge-based jobs
Implementing a New Innovation Paradigm

- Willingness to deviate from traditional and parochial perspectives
- Encourage public investment and risk taking
- Developing trust through collaboration and partnerships
- 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
## Traditional ED vs. Innovation-Based ED

<table>
<thead>
<tr>
<th>Traditional ED</th>
<th>Innovation-based ED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural resources</td>
<td>Specialized talent</td>
</tr>
<tr>
<td>Highways / Rail</td>
<td>Networks, information</td>
</tr>
<tr>
<td>Proximity</td>
<td>University research / professors</td>
</tr>
<tr>
<td>Costs</td>
<td>Market understanding</td>
</tr>
<tr>
<td>i.e. PHYSICAL</td>
<td>i.e. KNOWLEDGE</td>
</tr>
</tbody>
</table>

- **Competitive Basis**
  - Natural resources
  - Highways / Rail
  - Proximity
  - Costs

- **Key values / offerings**
  - Business parks
  - Incentives

- **Lead Organization**
  - Chambers / EDCs
  - Access to research
  - Workforce competencies
  - Lifestyle
  - Innovation Intermediaries, Economic developers
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 & Knowledge Resources

Programs
- Commercialization
- Direct Investment
- Angel Capital
- Federal Programs (SBIR, TIP, CRADA)
- Technology Mining / Intellectual Property Programs

Research, Branding & 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>
Innovation Paradigm Shift

PROOF OF CONCEPT
(Technological Feasibility)

PROOF OF RELEVANCE
(Market Pull)
Innovation Commercialization Lifecycle

1. Proof of Concept
2. Product Development Research
3. ROI: Companies, Jobs, Products & Profits
4. Prototype Product
5. Make Technology Investment Grade
6. Spinoff Companies
7. Generate Equity, Royalties, and License Fees
8. Next Generation Products
Innovation Capital Lifecycle

Discovery | Proof of Concept / Pre-Seed | Seed/Start-Up | Early Stage | Expansion | Later Stage

Venture Capital Investment
By Stage

(percentage of total VC investment)

<table>
<thead>
<tr>
<th>Year</th>
<th>Start-up/Seed</th>
<th>Early Stage</th>
<th>Expansion</th>
<th>Later Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>20</td>
<td>30</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td>2000</td>
<td>10</td>
<td>50</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>2005</td>
<td>30</td>
<td>40</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>2008</td>
<td>20</td>
<td>20</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>
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

SBIR NOT REAUTHORIZED YET & TIP UNDERFUNDED

“The Perfect Storm”
“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>FFF</td>
<td>$25K</td>
<td>$100K</td>
<td>$500K</td>
</tr>
</tbody>
</table>

Innovation Capital
Does Seed Investing REALLY Create Jobs?
### 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>
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%.

Source: Small Business Administration
2001 Recession:
Small Business Drives Job Creation

- 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%

**Total USA Cumulative Net New Job Creation 2002 to 2005**
(In The Three Years After The 2001-2002 Recession)

- **Total**: 100%
- **1-4**: 79%
- **5-9**: 107%
- **10-19**: 107%
- **20-99**: 124%
- **100-499**: 124%
- **<500**: 124%
- **500+**: (-24)%

*Source: Small Business Administration*
Creating a National Innovation Framework

Hot Off the Presses

Center for American Progress

Forbes.com

More Signs of Capital Starvation

A Federal VC Fund of Funds?

PEHUB

Federal Aid Sought for Equity-Backed Companies

The Wall Street Journal

BioCentury

Into the Valley of Death

San Francisco Chronicle

Recession Knocks VC Funds to 5 ½ Year Low

Buzz Article

VC Experts

Private Equity and Venture Capital Expertise

ThomasNet Industrial News Room

Health Care Bleeds Small-Biz Finances
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.
<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>Commerce Dept. creates Office of Innovation &amp; Entrepreneurship?</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

<table>
<thead>
<tr>
<th>Angel Capital Association (ACA)*</th>
<th>Community Development Venture Capital Alliance (CDVCA)*</th>
<th>National Association of Seed &amp; Venture Funds (NASVF)*</th>
<th>American Society of Mechanical Engineers (ASME)*</th>
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</tr>
</thead>
</table>

*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

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**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 Resouce Center, DOE-Ind’l Tech. Program

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

---

**National Innovation Framework**

**National Innovation Advisor**

Federal Innovation Partnership

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Partners in National Innovation Development

Community Development Venture Capital Alliance
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
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

*Potential partnering innovation associations and networks*
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.
National Innovation Framework

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National Innovation Framework

Coordination

Advisory

Not For Profit (Innovation America)

$2 billion fund

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Pending Initiatives

• SBIR – Reauthorization
• SBIC - Reauthorization
• Office of Innovation and Entrepreneurship
• Small Business Early-Stage Investment Act of 2009,
  – Representative Glenn Nye (D-VA)
• Increase SBA loan limits and repeal SBIR/STTR exclusion from NIH Recovery Act Funds
  – U.S. Senator Benjamin L. Cardin (D-MD)
The Michigan Venture Capital Association will continue to focus on its efforts to ensure Michigan has the following:

• Abundant and Accessible Capital
• Abundant and Accessible Talent
• Many Successful Venture Capital-Backed Companies based in Michigan
• Many Successful Michigan–Based Venture Capital Funds that Invest Both in Michigan and Nationally
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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Philadelphia, PA 19102
(215) 496-8102
rbendis@bendisig.com
www.innovationamerica.us