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ACCELERATING THE GROWTH OF THE ENTREPRENEURIAL INNOVATION ECONOMY IN AMERICA

Richard A. Bendis
President and CEO

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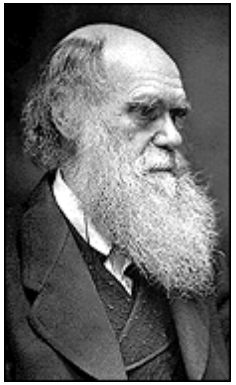
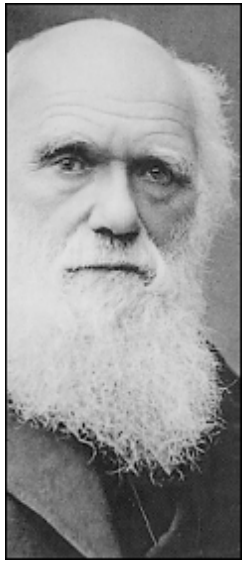
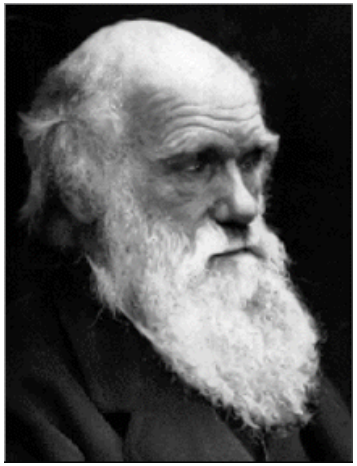
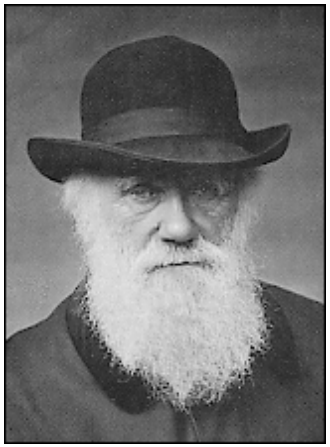
Change Is Inevitable

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

-Charles Darwin

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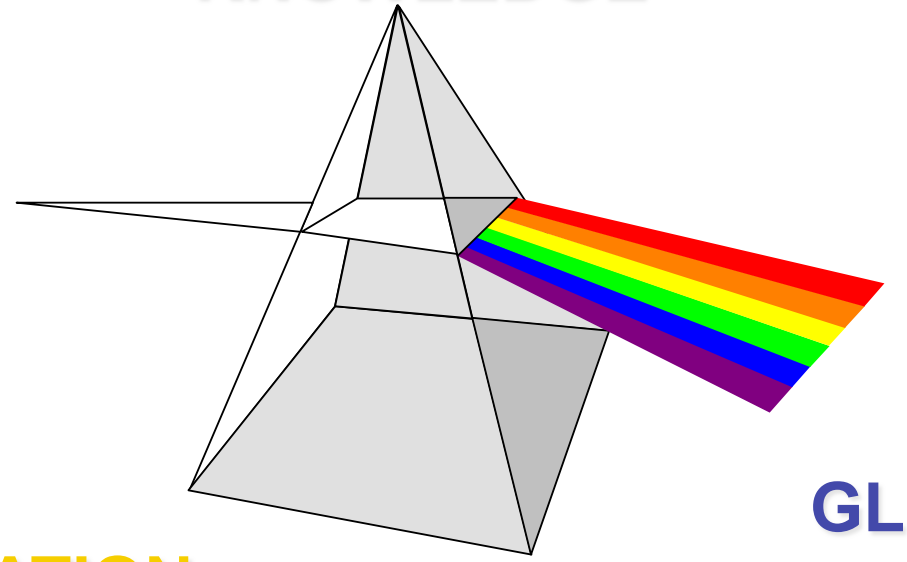
Innovation Economy

KNOWLEDGE



INNOVATION

GLOBAL COMPETITIVENESS

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

--Ben Franklin

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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

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Goals of Innovation-Based Economic Development

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

- Address economic transition
- Capture the benefit of investments in research and development, higher education
- Build entrepreneurial cultures
- Help existing industries modernize
- Diversify economy and create Knowledge-based jobs

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Implementing a New Innovation Paradigm

- Willingness to deviate from traditional and parochial perspectives
- Encourage public investment and risk taking
- Developing trust through collaboration 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**

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Traditional ED vs. Innovation-Based ED

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

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What is An Innovation Intermediary?

- An organization at the center of the region's, state's or country's efforts to align local technologies, assets and resources to work together on advancing Innovatio

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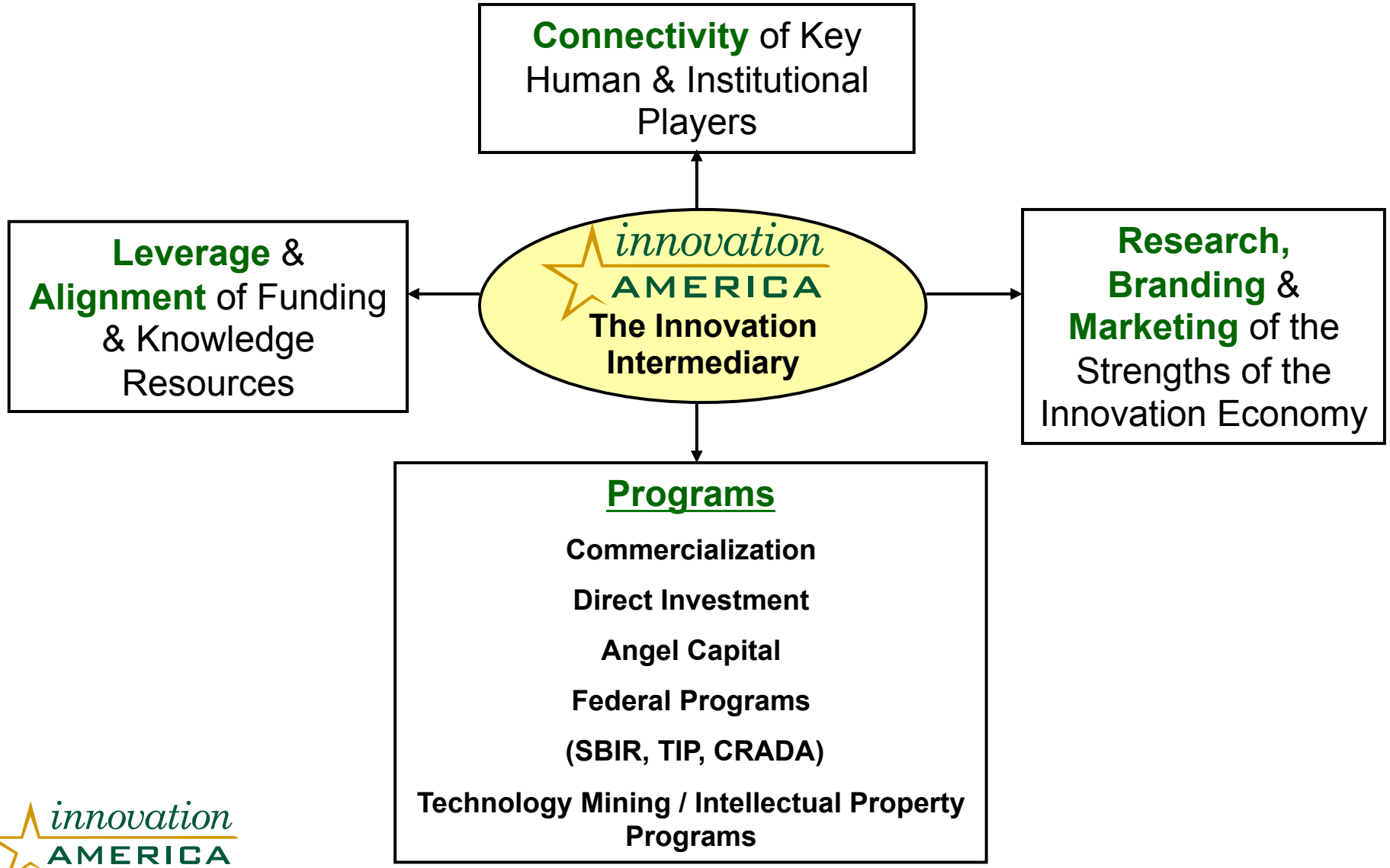
21st Century Innovation Intermediary



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Innovation Intermediary Commercialization Structure

Investigation	Technical	Market	Business
Proof of Concept	Technology Concept Analysis	Market Needs Assessment	Venture Assessment
Development Phase			
Feasibility	Technology Feasibility	Market Study	Economic Feasibility
Planning	Engineering Prototype	Strategic Marketing	Strategic Business Plan
Introduction	Pre-Production Prototype	Market Validation	Business Start-Up
Commercial Phase			
Full Scale Production	Production	Sales and Distribution	Business Growth
Maturity	Production Support	Market Diversification	Business Maturity

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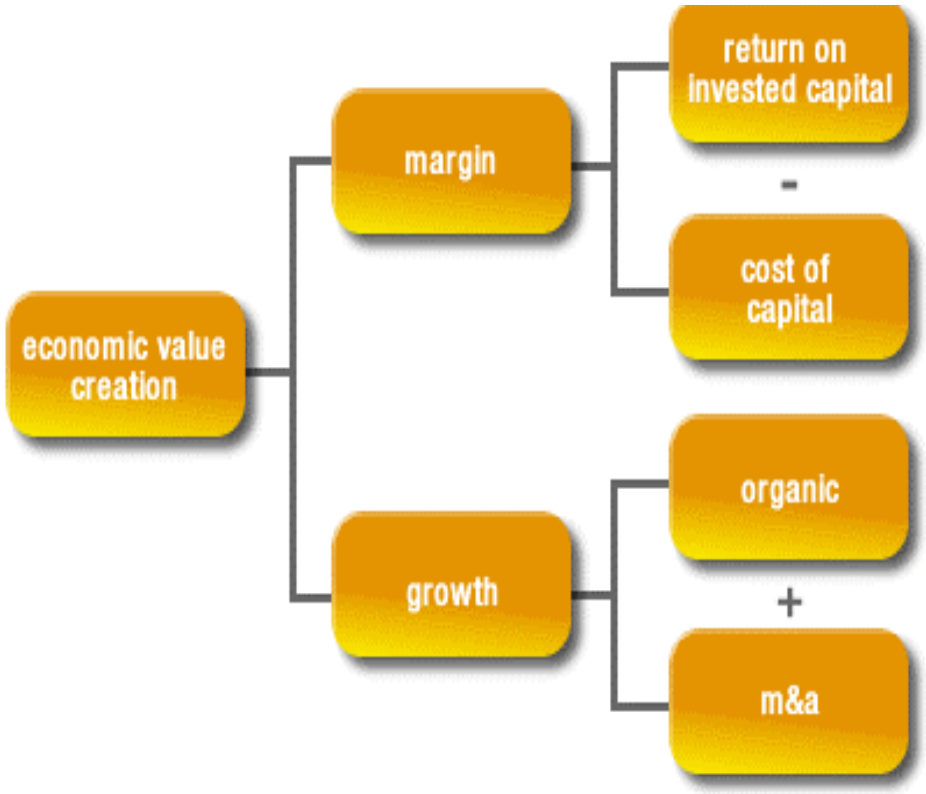
Innovation Paradigm Shift

PROOF OF CONCEPT
(Technological Feasibility)

PROOF OF RELEVANCE
(Market Pull)



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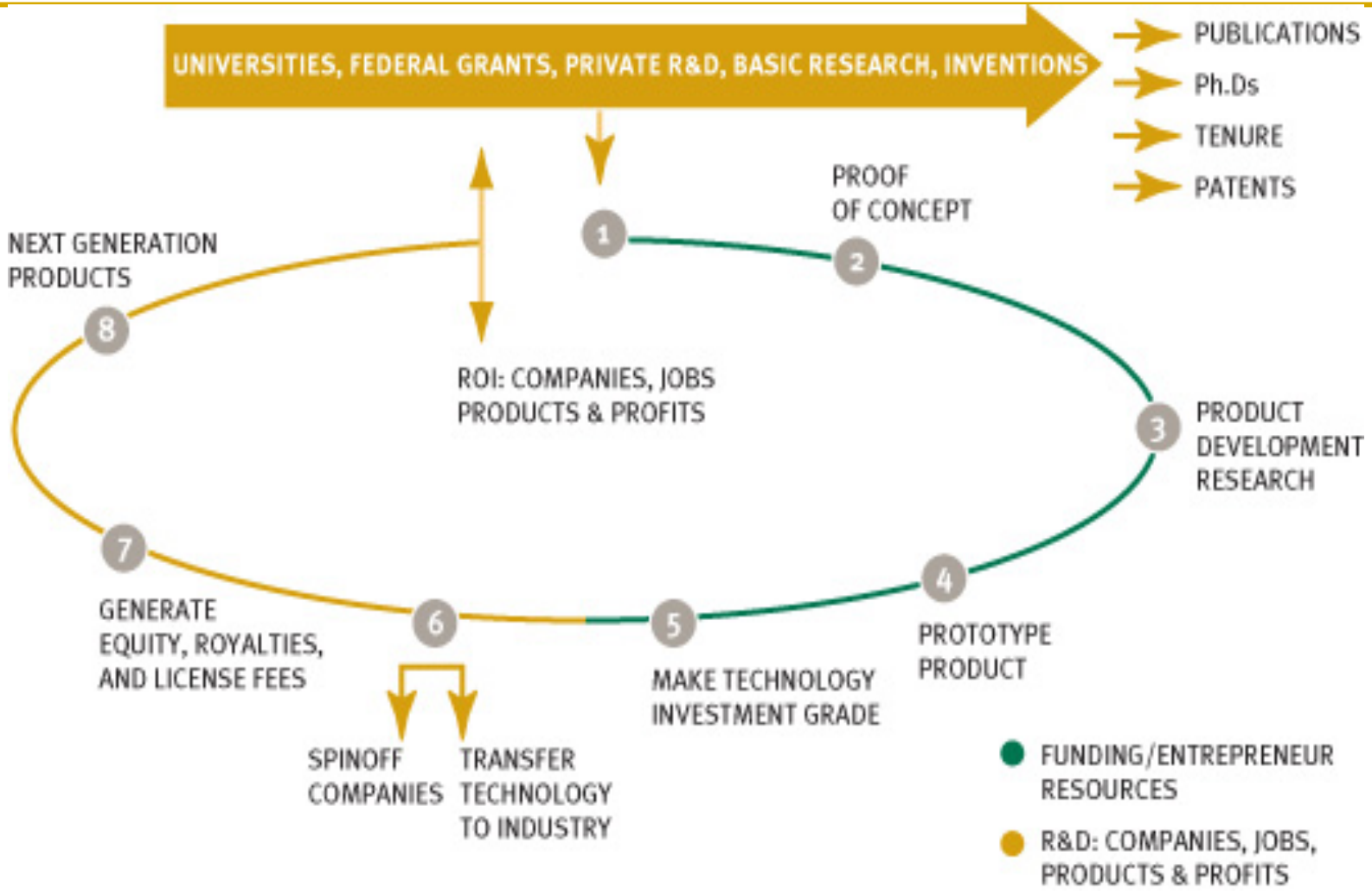
Innovation Commercialization Lifecycle



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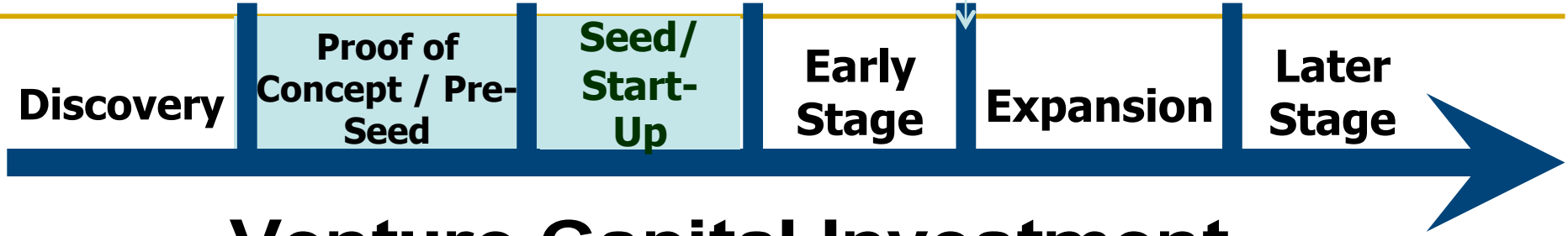
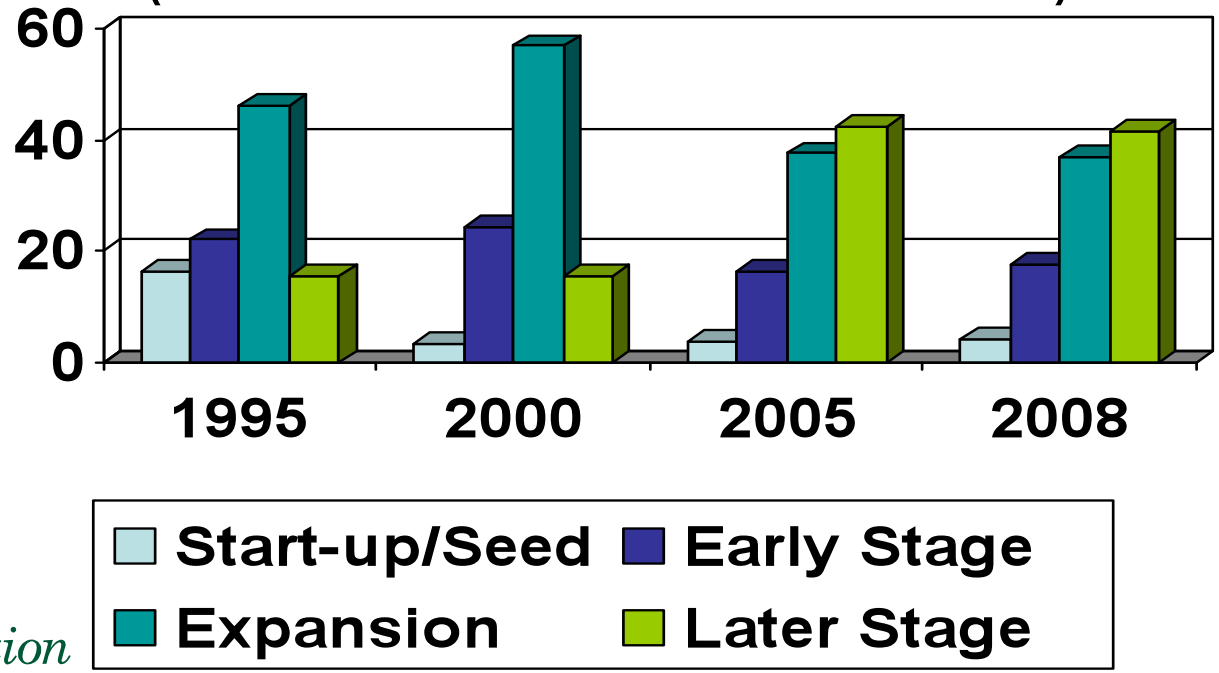
Innovation Capital Lifecycle



Venture Capital Investment By Stage

(PERCENTAGE OF TOTAL VC INVESTMENT)



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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©

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"The Perfect Storm"

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

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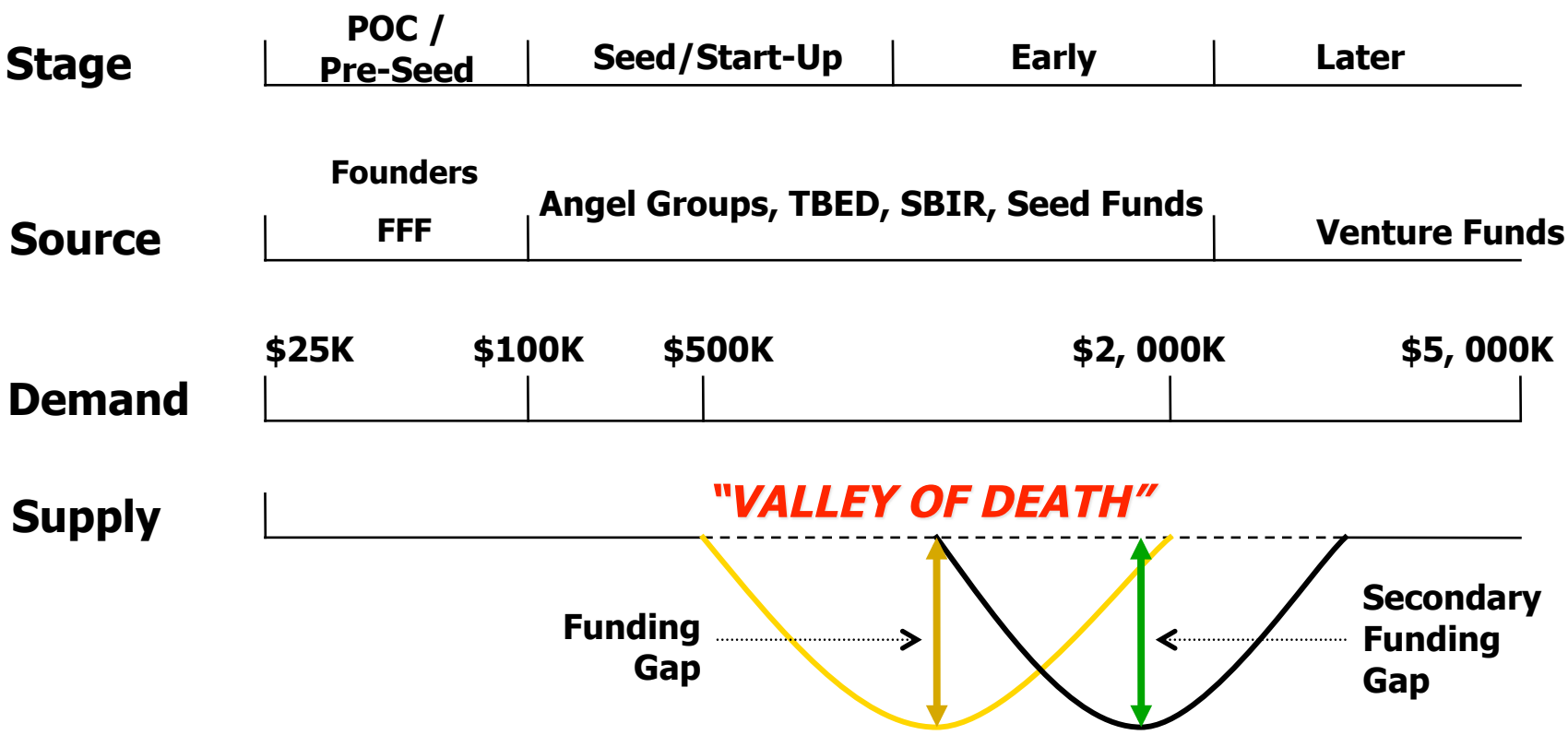
Innovation Capital

"VALLEY OF DEATH"



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Financing For Innovation In Crisis

- *Seed- and early-stage investors and entrepreneurs are struggling more than usual according to a recent survey by the National Association of Seed and Venture Funds*

NASVF® FOSTERING INNOVATION CAPITAL

Venture Funding

- **90% of the already-funded companies can't obtain follow-on funding to get to the next level. Without this follow-on funding, they will die and a generation of great ideas will die along with them.**
- **75 percent of the money received by seed- and early-stage venture funds comes from private investors**
- **70 percent of the money needed to fill this early stage investment gap is less than a million dollars per company**
- **60 percent of early-stage funds aren't making any new investments**

Entrepreneurial Companies

- **75 percent of the companies investors are putting money into can't leverage that money into bank financing**
- **42 percent of the companies investors are putting money into have been stripped of their lines of credit**

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Does Seed Investing REALLY Create Jobs?

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Public Investment Job Creation

	State of PA	CDVCA	Stimulus Bill
Funds Invested	$90M	$26M	$800B
Jobs Created	8,150	3.700	4,000,000
$ Per Job Invested	$11,000	$7,100	$200,000

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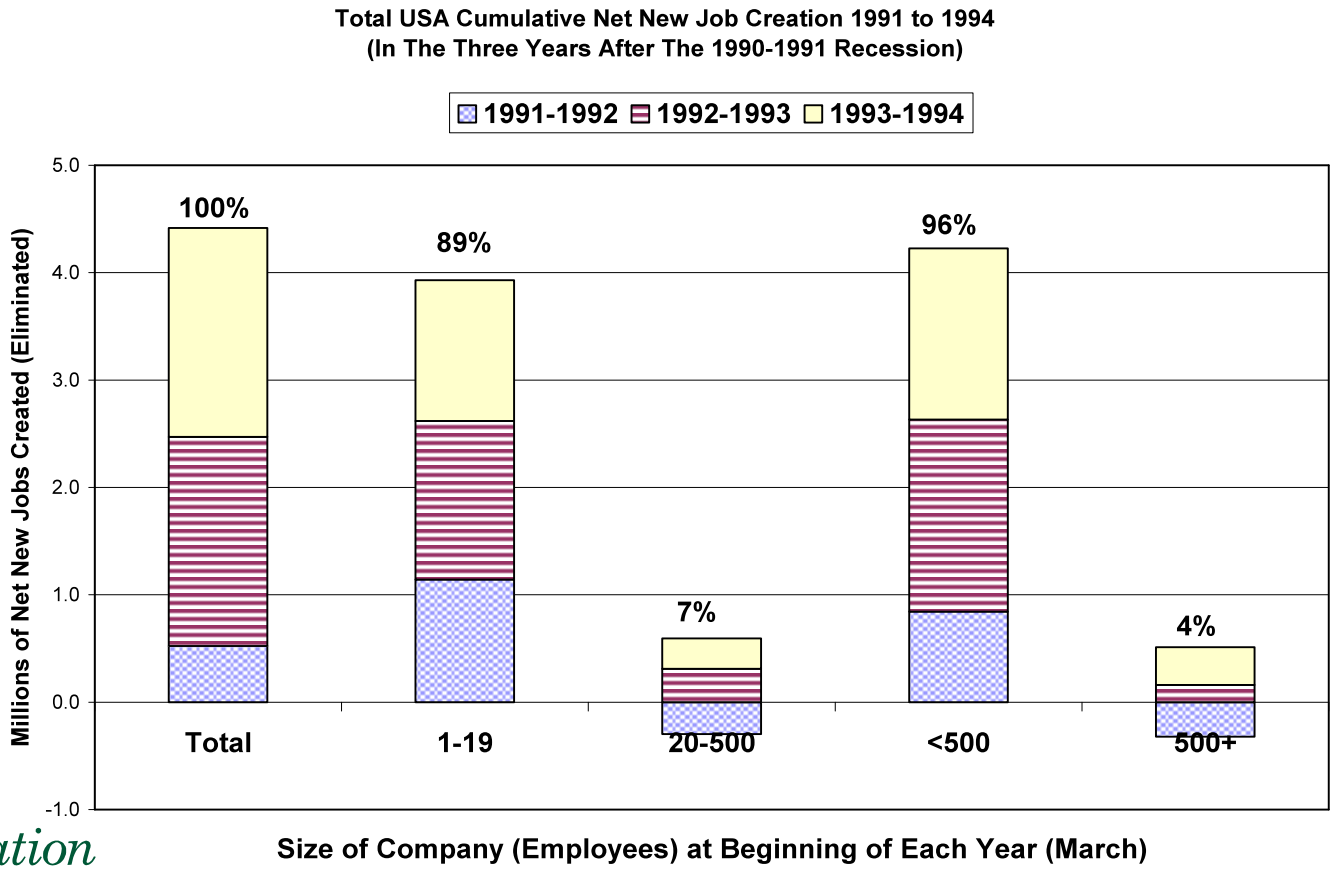
1991 Recession:

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%



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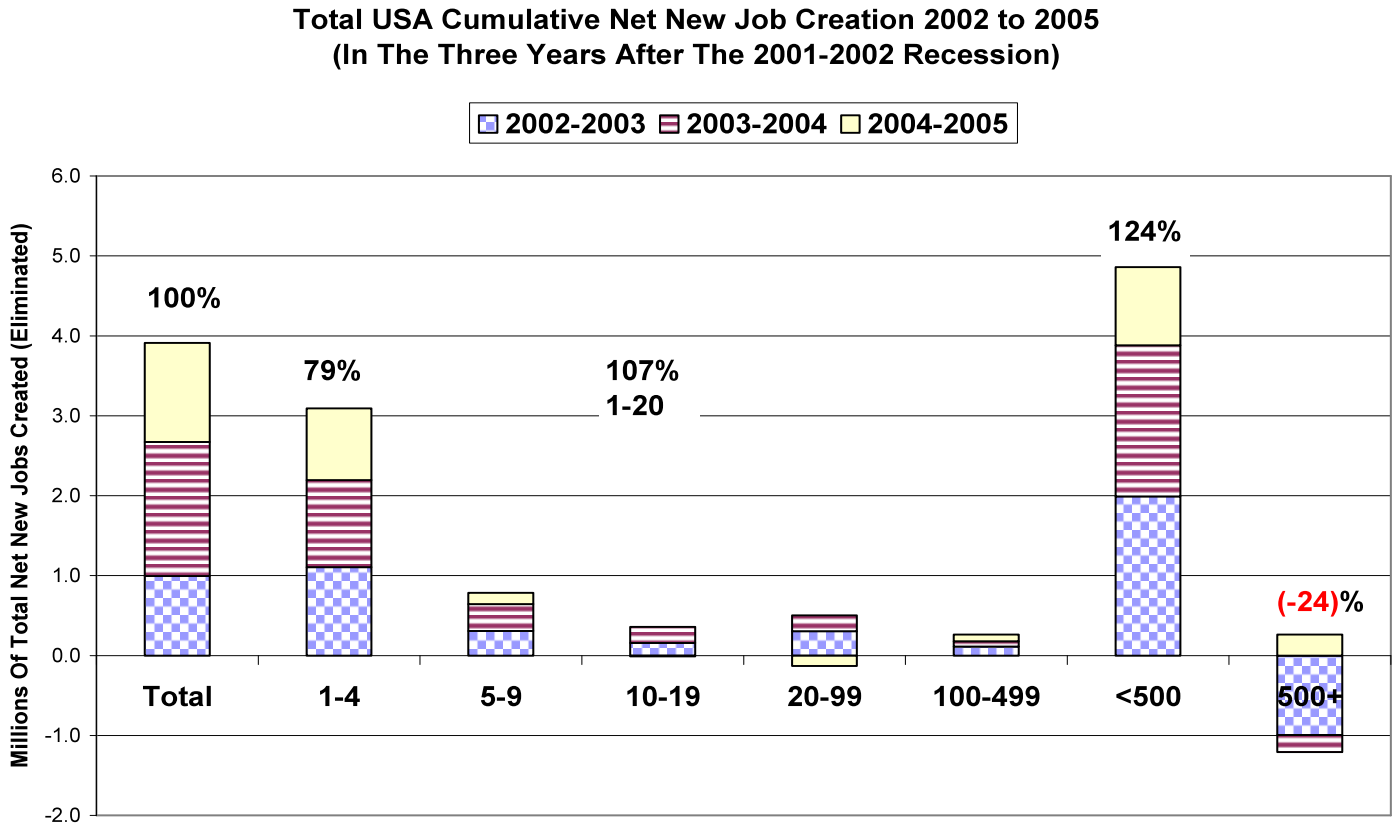
Source: Small Business Administration

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%



Source: Small Business Administration

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Hot Off the Presses

Center for American Progress — PROGRESSIVE IDEAS FOR A STRONG, JUST, AND FREE AMERICA

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

BioCentury
BECAUSE REAL INTELLIGENCE IS HARD TO FIND™

Into the Valley of Death

San Francisco Chronicle

Recession Knocks VC Funds to 5 ½ Year Low

VC experts
Private Equity and Venture Capital Expertise

Buzz Article

ThomasNet® IndustrialNewsRoom

Health Care Bleeds Small-Biz Finances

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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!

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U.S. Experiencing a Slowdown In Its Global Innovation Leadership

GLOBAL INNOVATION INDEX

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

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**

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Other Countries Response – Valley of Death

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.

Industry Canada Industrie Canada

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.

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U.S. Early Efforts – No Innovation Road Map

Year	Innovation Initiatives
1995	The State–Federal Technology Partnership Taskforce Formed
1997	President Clinton creates the U.S. Innovation Partnership
2000	The State Science and Technology Institute (SSTI) is free-standing
2004	Innovation Philadelphia and Rich Bendis create Innovation America
2005	The National Innovation Act created President's Council on Innovation
2006	The National Competitiveness Investment Act
2007	The America Competes Act
2007	The National Governor's Association under Gov. Napolitano create the Innovation America Partnership
2008	Governor Napolitano creates the Innovation America Foundation
2008	The National Innovation and Job Creation Act introduced to create a National Innovation Council
2008	The National Innovation Foundation proposed by Rob Atkinson
2009-	A National Innovation Framework proposed by Rich Bendis
2009	Commerce Dept. creates Office of Innovation & Entrepreneurship?

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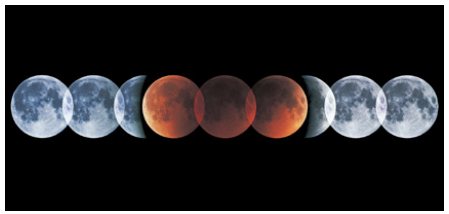
MISSION: TO ACCELERATE THE GROWTH OF THE ENTREPRENEURIAL INNOVATION ECONOMY IN AMERICA

- 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.



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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**


science progress

Creating a National Innovation Framework

Building a Public-Private Support System to Encourage Innovation

By Richard Bendis & Ethan Byler
April 2009

INTRODUCTION AND SUMMARY

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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

Coordination

NPPPI
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Not For Profit
(Innovation America)

establishes criteria, metrics & best practices

Advisory

National Innovation Advisor
Federal Innovation Partnership

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

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

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Partners in National Innovation Development

ASME
SETTING THE STANDARD

NASVF® FOSTERING INNOVATION CAPITAL

ACA
ANGEL CAPITAL ASSOCIATION
THE PROFESSIONAL ALLIANCE OF ANGEL GROUPS

SSTI

ASSOCIATION OF UNIVERSITY RESEARCH PARKS
Creating Communities of Innovation

NBIA
National Business Incubation Association

AUTM®
The Association of University Technology Managers

Community Development Venture Capital Alliance

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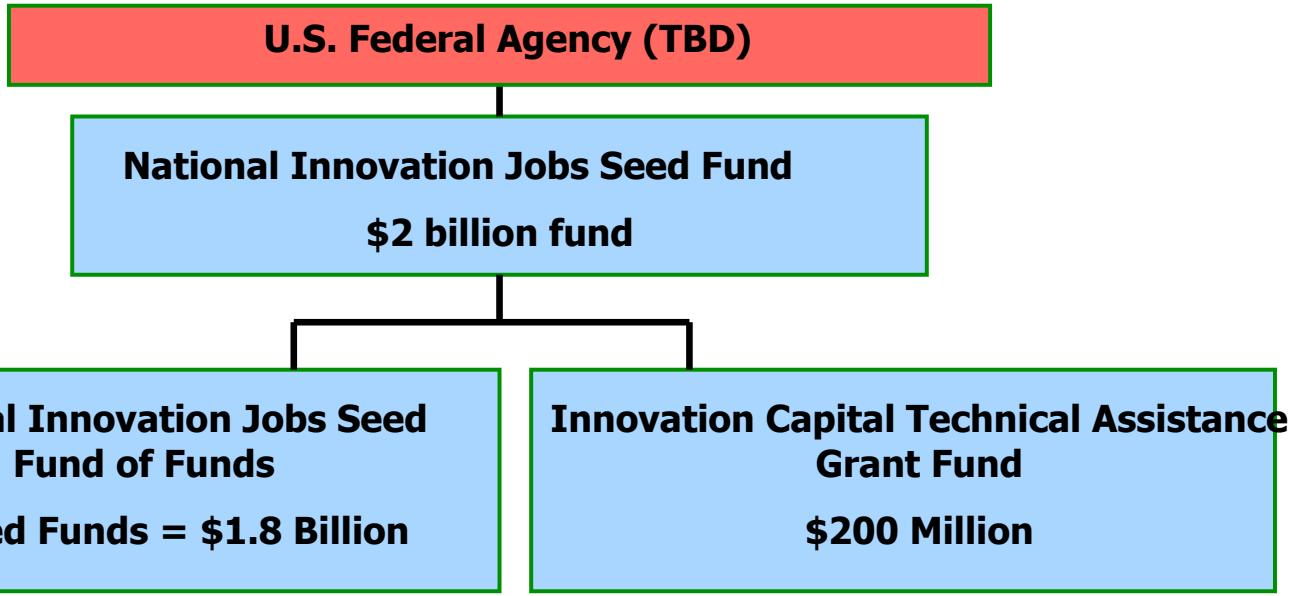
National Innovation Jobs Seed Fund



- 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

- 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

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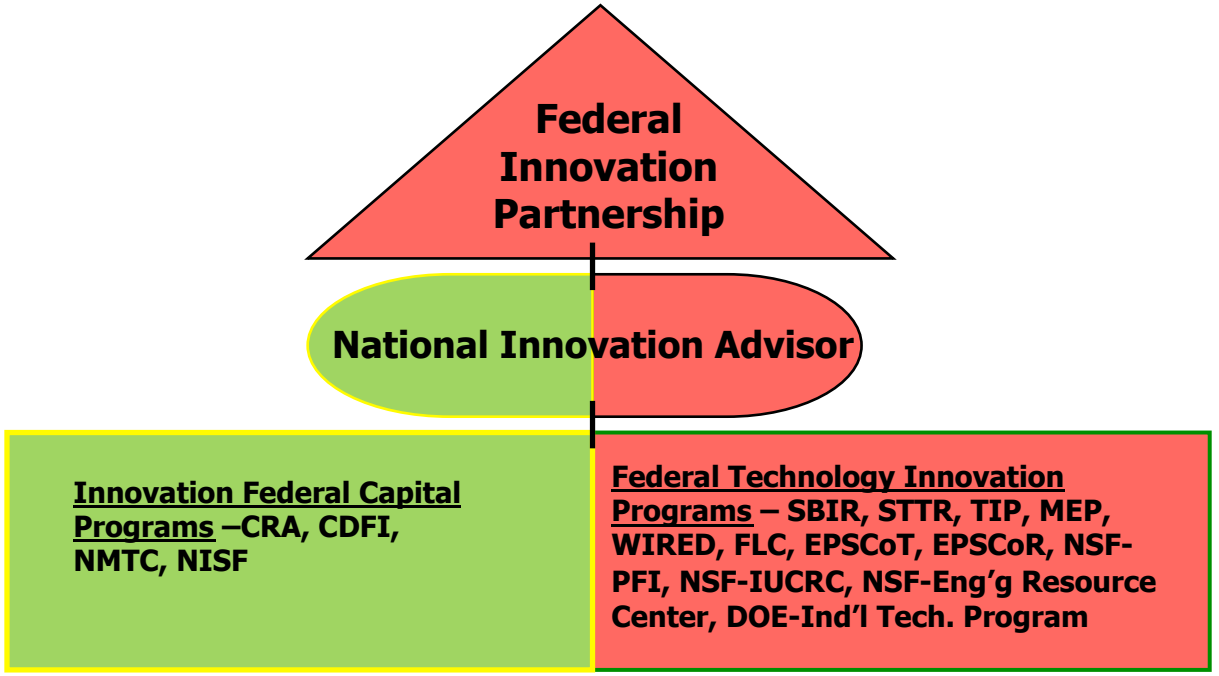
Federal Innovation Partnership



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

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National Innovation Intermediary

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 partnering innovation associations and networks

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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

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

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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.

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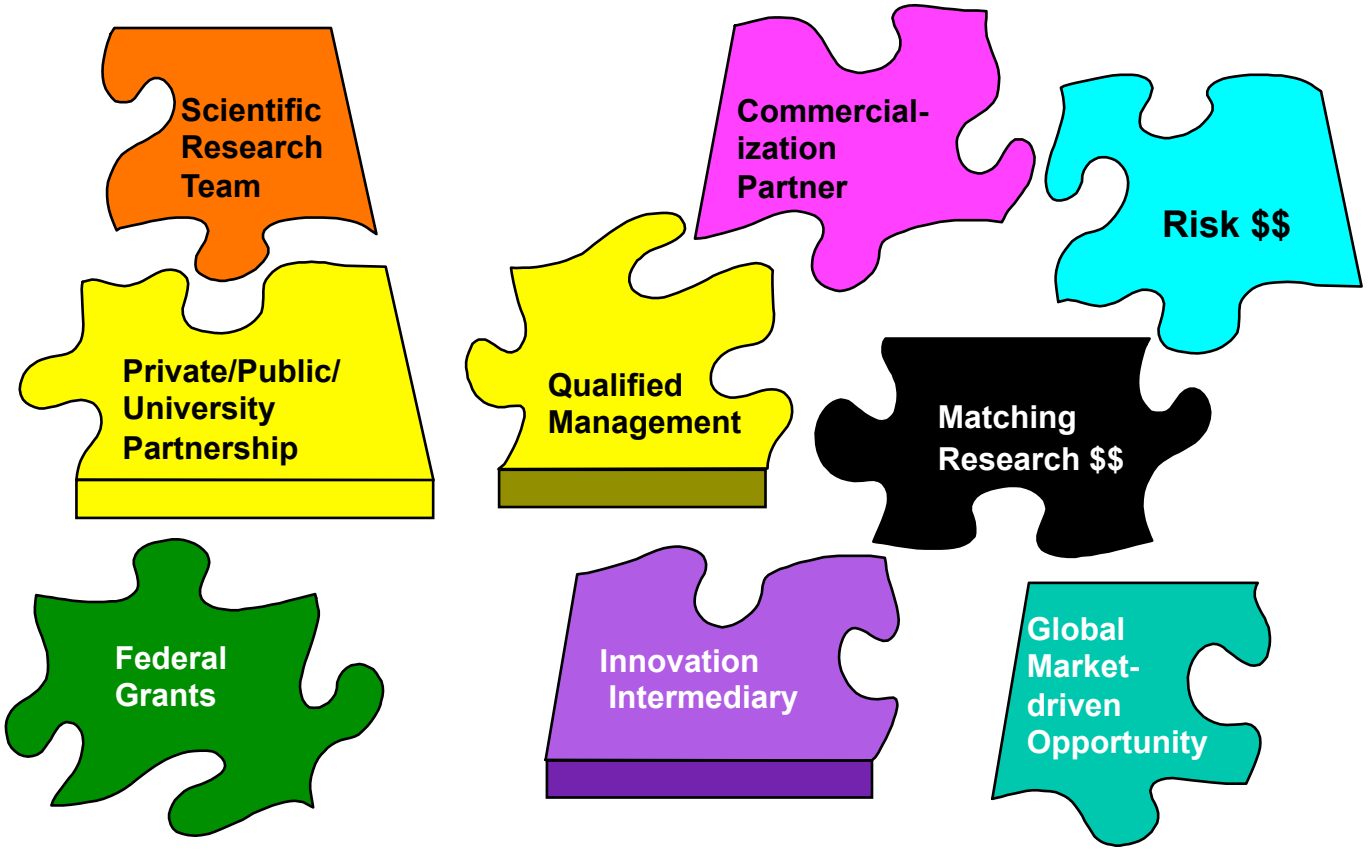
The Road from Innovation to Commercialization



…has many complex pieces!

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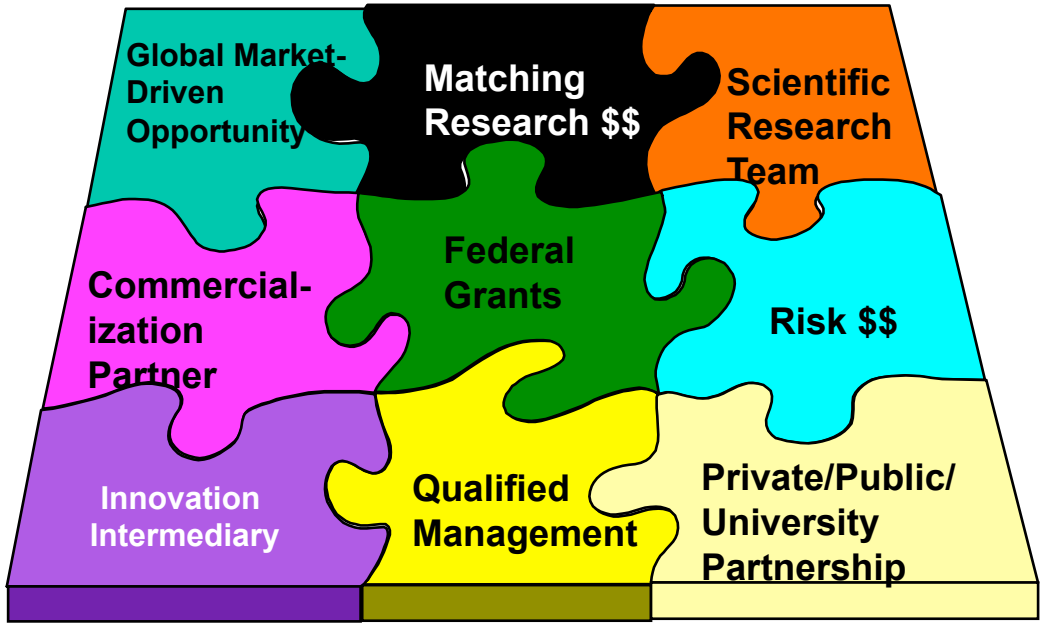
The Road from Innovation to Commercialization



All of the puzzle pieces must come together early in order for the project to have any hope of commercial success

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A Call to Action

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

--Jerry Garcia of the Grateful Dead

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