

Building Capacity in the Innovation Ecosystem

March, 2011

Moscow and St. Petersburg, Russian Federation

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President and CEO	Vice President
National Association of Seed and Venture Funds	Innovation America



Innovation Commercialization Requires

- Management Knowledge
- Research Partnerships
- Investment Partners



Organization Strengths and Weaknesses - ??

- Research
- Scientists
- Technology clusters
- Venture capital and Angel Groups
- Mentoring
- Government policy for tech transfer
- Marketing and Branding of the technologies in Russia and worldwide
- Facilities (incubator and science parks)
- Ecosystem



Desired Metrics and Recommendations

Metrics to Measure Success?

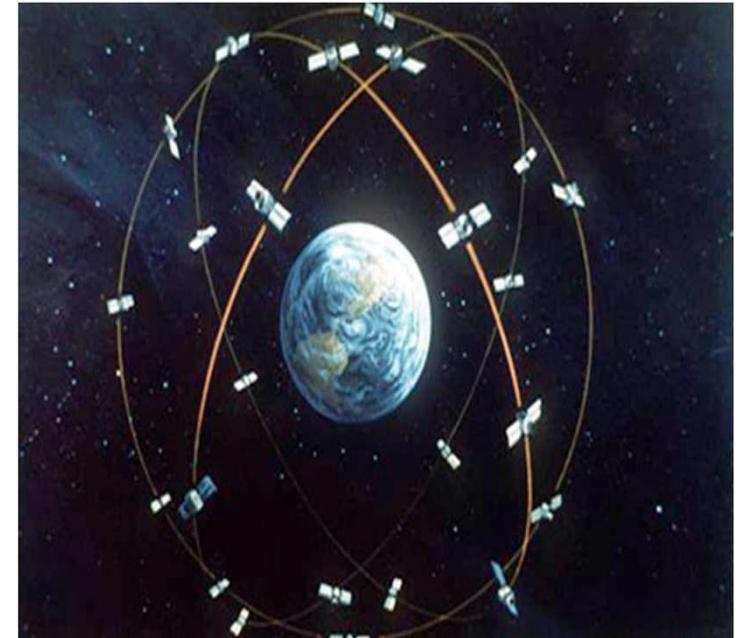
- Patents
- Licenses
- Royalties
- Jobs Created
- Other

Recommendations – 12 to 36 months?



The Global Innovation Imperative

- Innovation is Key to Growing and Maintaining a Country's Competitive Position in the Global Economy
- Collaboration among Small and Large Businesses, Incubators, Universities, and Research Institutes is Essential for Innovation
- New Institutions and New Incentives, are increasingly important to support collaboration and foster innovation



Responding to the Innovation Imperative?

Leading Nations Provide

- High-level Focus
- Sustained Support for R&D:
Leveraging Public and Private Funds
- Support for Innovative SMEs
- New Innovation Partnerships to bring new products and services to market

Note: Many countries are investing very substantial resources to create, attract and retain industries in leading sectors



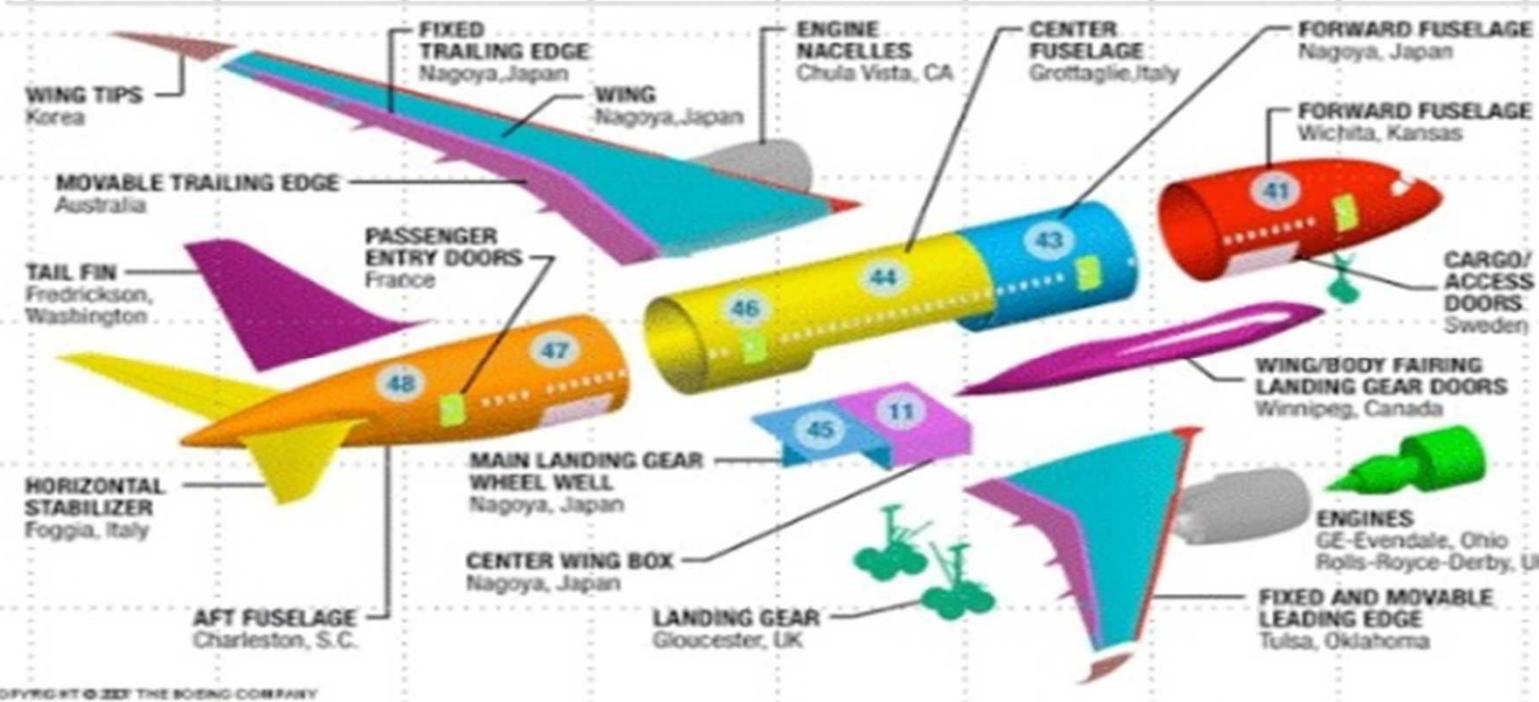
Global Innovation Networks

Partners Across The Globe Are Bringing The 787 Together

787 DREAMLINER

THE COMPANIES

U.S.	CANADA	AUSTRALIA	JAPAN	KOREA	EUROPE
Boeing	Boeing	Boeing	Kawasaki	KAL-ASD	Messier-Dowty
Spirit	Messier-Dowty		Mitsubishi		Rolls-Royce
Vought			Fuji		Latecoere
GE					Alenia
Goodrich					Saab

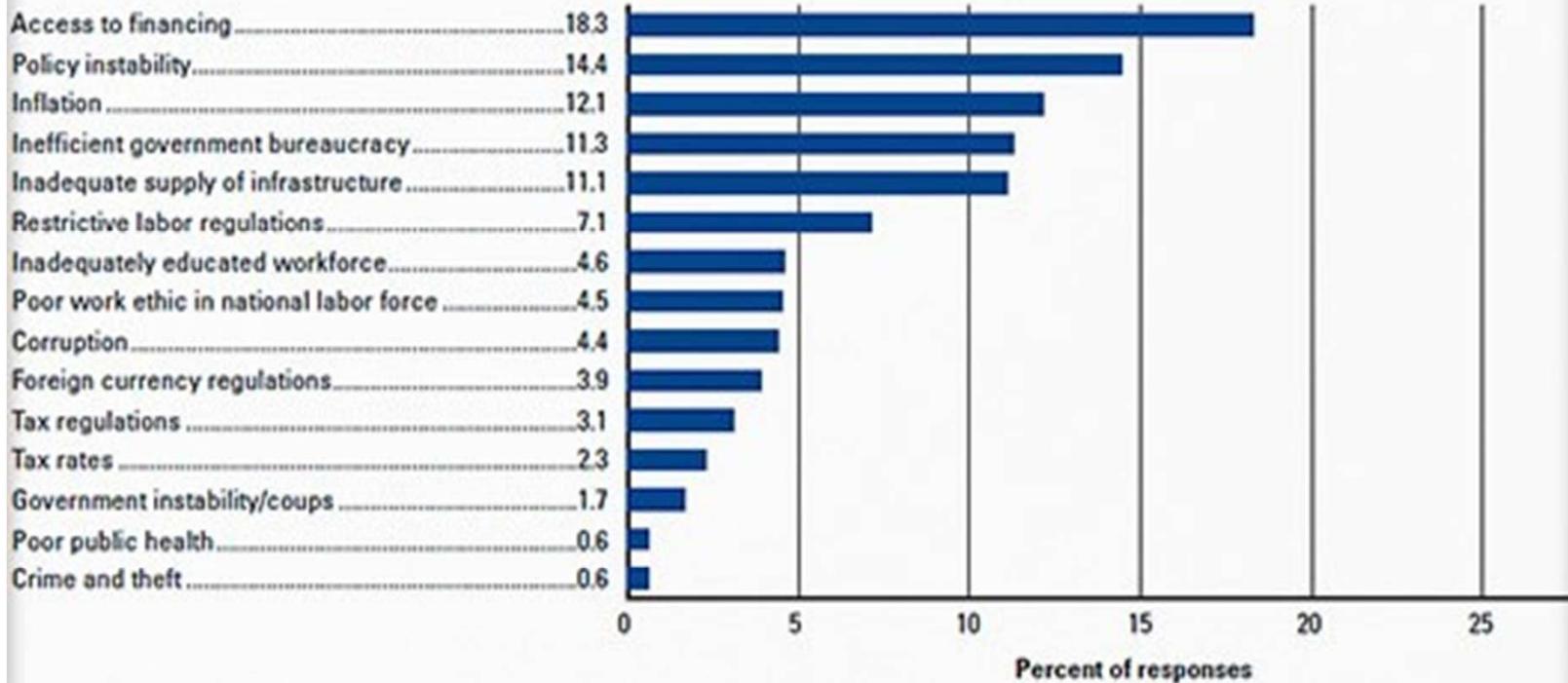


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Global Problems for Business

The most problematic factors for doing business



Note: From a list of 15 factors, respondents were asked to select the five most problematic for doing business in their country and to rank them between 1 (most problematic) and 5. The bars in the figure show the responses weighted according to their rankings.

The Global Competitiveness Report 2010-2011 © 2010 World Economic Forum



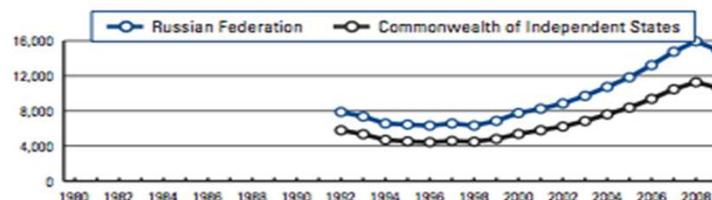
Russian Global Competitive Ranking

Russian Federation

Key indicators, 2009

Population (millions).....	140.9
GDP (US\$ billions).....	1,229.2
GDP per capita (US\$).....	8,694
GDP (PPP) as share (%) of world total	3.05

GDP (PPP) per capita (int'l \$), 1980–2009



Global Competitiveness Index

	Rank (out of 139)	Score (1–7)
GCI 2010–2011	63	4.2
GCI 2009–2010 (out of 133).....	63	4.2
GCI 2008–2009 (out of 134).....	51	4.3
Basic requirements	65	4.5
1st pillar: Institutions.....	118	3.2
2nd pillar: Infrastructure.....	47	4.5
3rd pillar: Macroeconomic environment.....	79	4.5
4th pillar: Health and primary education.....	53	5.9
Efficiency enhancers	53	4.2
5th pillar: Higher education and training.....	50	4.6
6th pillar: Goods market efficiency.....	123	3.6
7th pillar: Labor market efficiency.....	57	4.5
8th pillar: Financial market development.....	125	3.2
9th pillar: Technological readiness.....	69	3.6
10th pillar: Market size.....	8	5.7
Innovation and sophistication factors	80	3.4
11th pillar: Business sophistication.....	101	3.5
12th pillar: Innovation.....	57	3.2

Stage of development



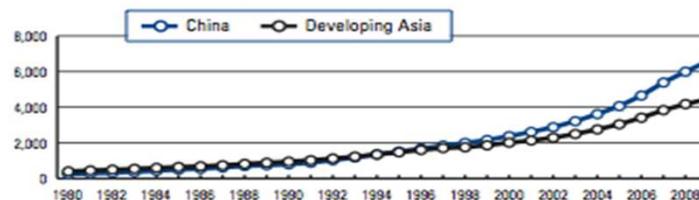
China's Global Competitive Ranking

China

Key indicators, 2009

Population (millions).....	1,345.8
GDP (US\$ billions).....	4,909.0
GDP per capita (US\$).....	3,678
GDP (PPP) as share (%) of world total.....	12.52

GDP (PPP) per capita (int'l \$), 1980–2009



Global Competitiveness Index

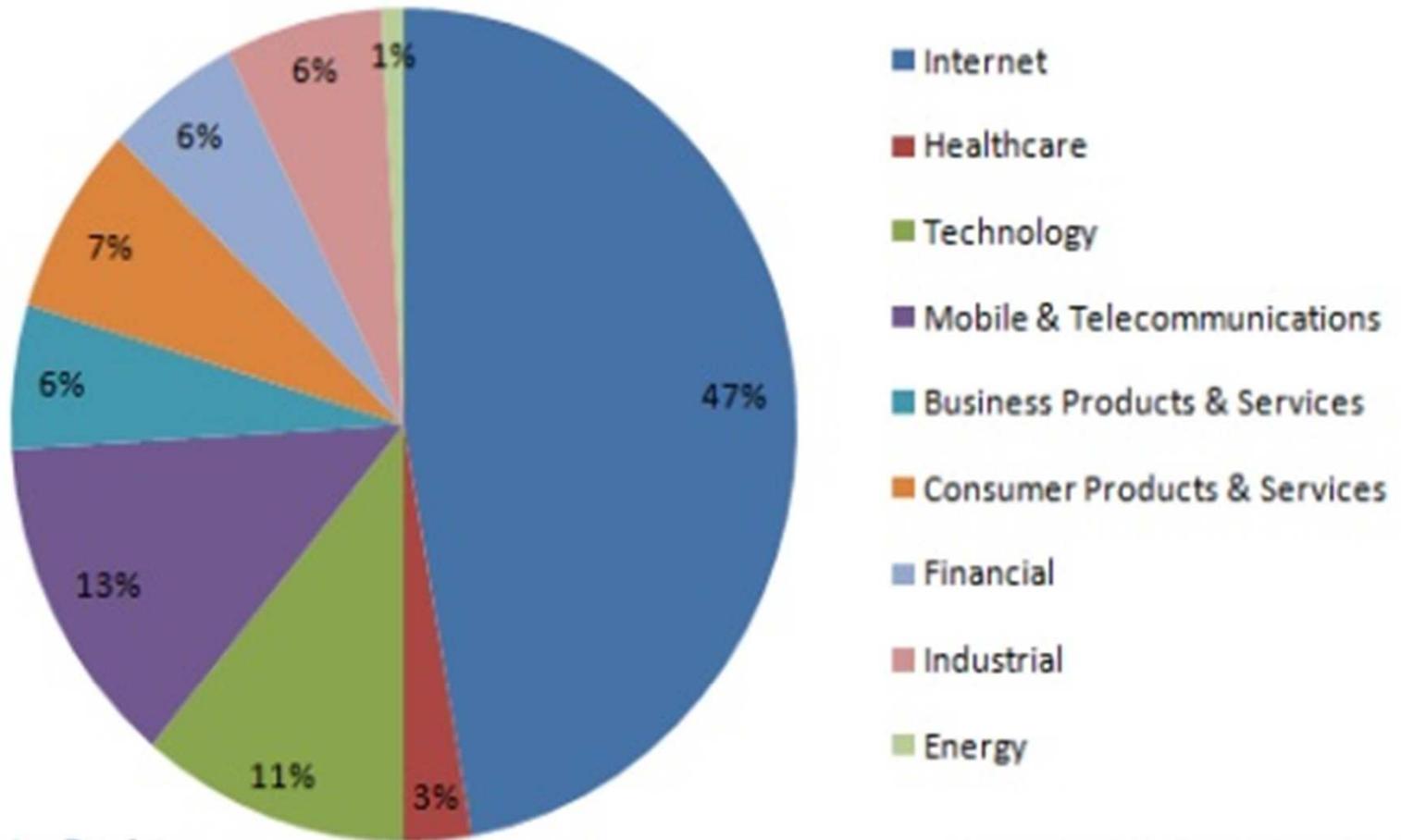
	Rank (out of 139)	Score (1–7)
GCI 2010–2011	27	4.8
GCI 2009–2010 (out of 133).....	29	4.7
GCI 2008–2009 (out of 134).....	30	4.7
Basic requirements	30	5.3
1st pillar: Institutions.....	49	4.4
2nd pillar: Infrastructure.....	50	4.4
3rd pillar: Macroeconomic environment.....	4	6.1
4th pillar: Health and primary education.....	37	6.2
Efficiency enhancers	29	4.6
5th pillar: Higher education and training.....	60	4.2
6th pillar: Goods market efficiency.....	43	4.4
7th pillar: Labor market efficiency.....	38	4.7
8th pillar: Financial market development.....	57	4.3
9th pillar: Technological readiness.....	78	3.4
10th pillar: Market size.....	2	6.7
Innovation and sophistication factors	31	4.1
11th pillar: Business sophistication.....	41	4.3
12th pillar: Innovation.....	26	3.9

Stage of development



Russian – Investment Sectors

Russia: Sector Breakdown of Venture & Angel Investments

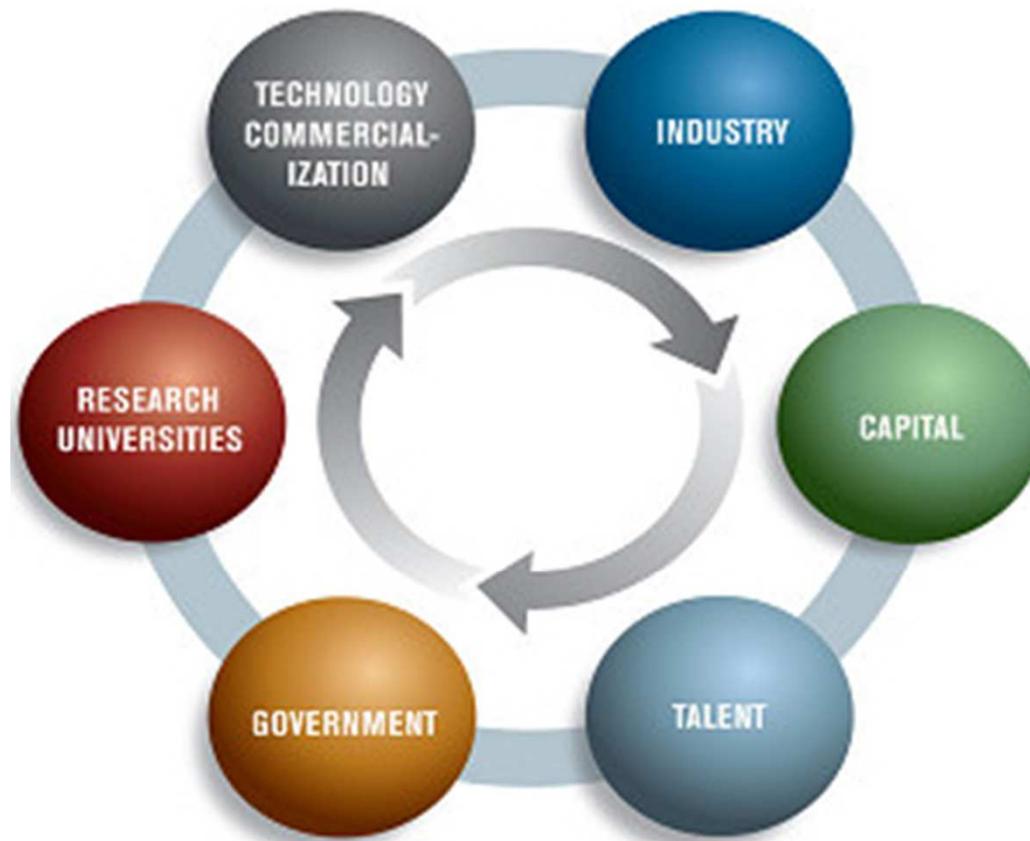


 ChubbyBrain

www.chubbybrain.com



Innovation Ecosystem Components

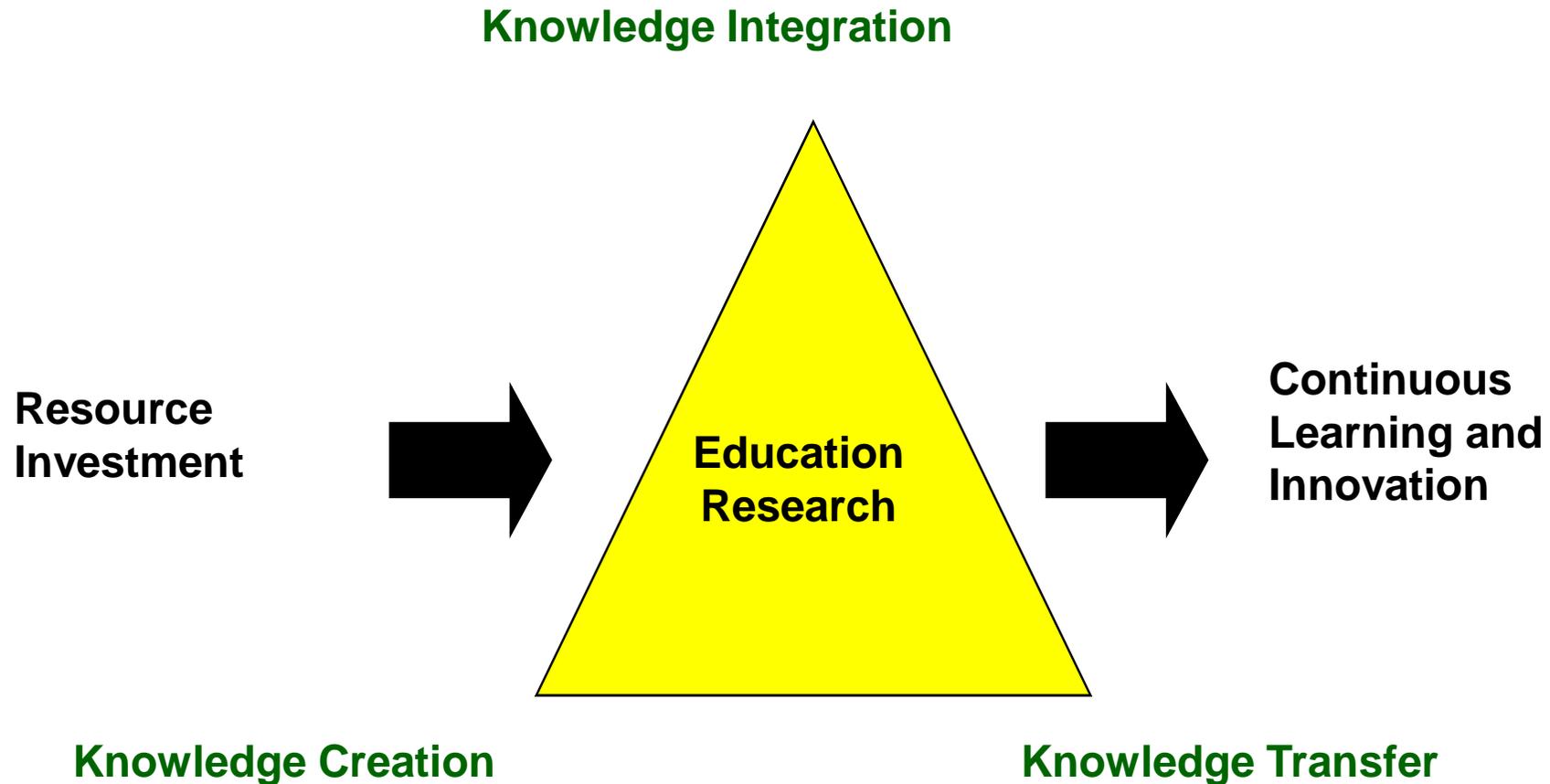


Public/Private Partnership

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



The Role of Academia



U.S. State IBED Programs



Funding & Resources for Innovation Capital

<u>Seed</u>	<u>TBED</u>	<u>Federal</u>	<u>Angel</u>	<u>Innovative</u>
	 			
				
				
				
				



Innovation Capital

- Invested before commercial success
- \$100,000 - \$2,500,000
 - Seed Capital \$100,000 - \$250,000
 - Early Stage \$250,000 - \$2,500,000
- High risk - vital to new innovative companies
- Scarce for new entrepreneurs
- Innovation Capital Providers
 - Angels
 - Tech and innovation-based economic development organizations
 - VC's



Innovation Capital.....

- Generates 60 to 80% of net new jobs annually
- Employs 30% of high-tech scientists, engineers, and computer workers
- Produces 13 to 14 times more patents per employee than large firms



Funding Resources

<u>Seed</u>	<u>TBED</u>	<u>Federal</u>	<u>Angel</u>	<u>Innovative</u>
				
				
				
				
				



Bootstrapping

The term comes from the German legend of Baron Münchhausen pulling himself out of the sea by pulling on his own bootstraps.



Definition: “*The act of starting a business with little or no external funding*”



New Popular Venture Financing Programs

Mentorship programs:

- Help startups ideate
- Form founding teams
- Build initial products.

Super Angels:

Provide capital and guidance to:
hire non-founder employees
further product development
market the initial product (usually to early adopters) and
raise follow on VC funding.



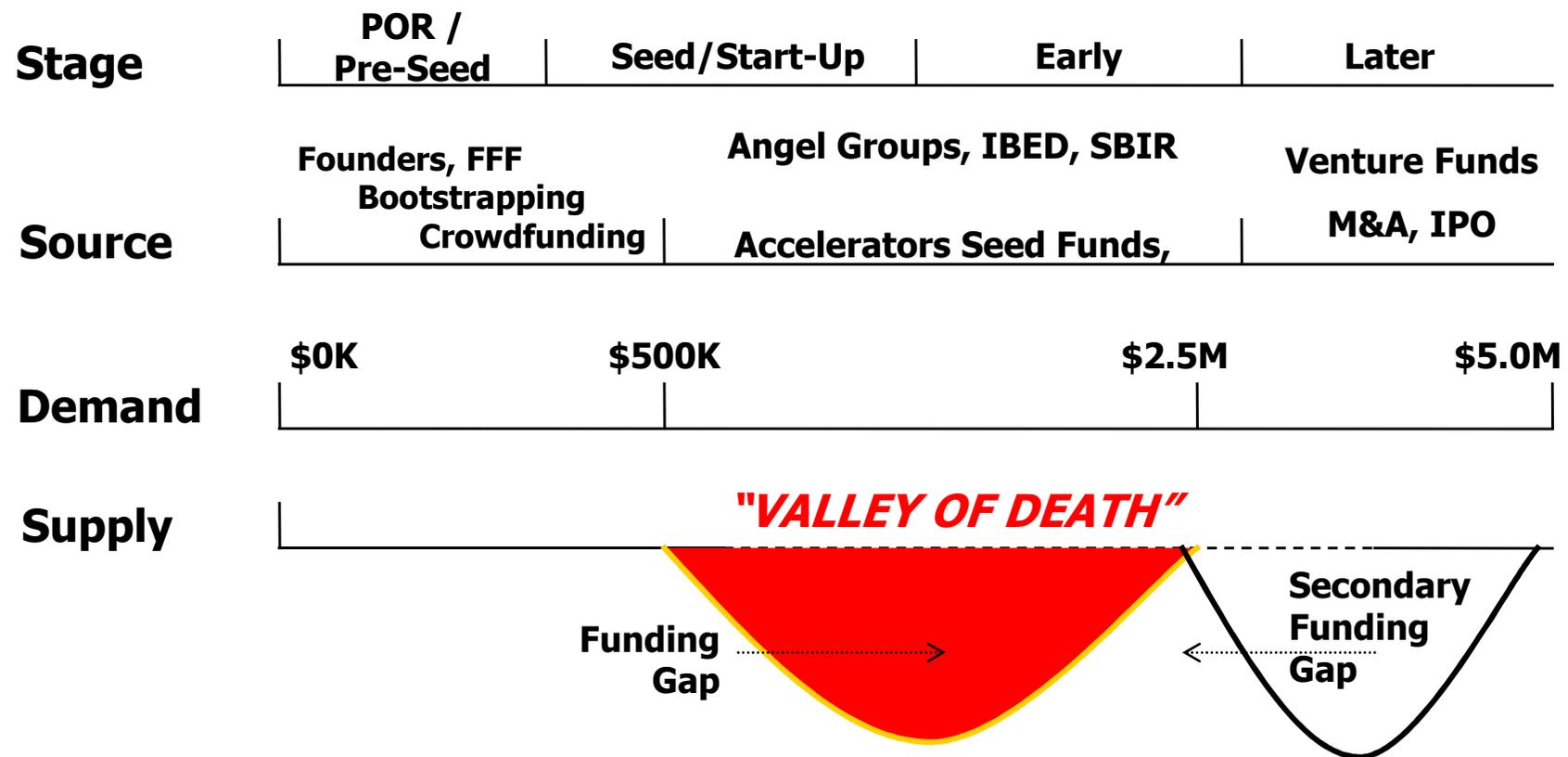
Seed Investing & Job Creation

Category	State of PA	CDVCA*	State of UTAH	State of MI	Stimulus Bill
Funds Invested	\$90M	\$26M	\$60M	\$291M	\$800B
Jobs Created	8,150	3,700	2,047	28,854	4,000,000
\$ Per Job Invested	\$11,000	\$7,100	\$29,300	\$11,728	\$200,000

*Community Development Venture Capital Alliance



Innovation Capital Valley of Death



Innovation Paradigm Shift

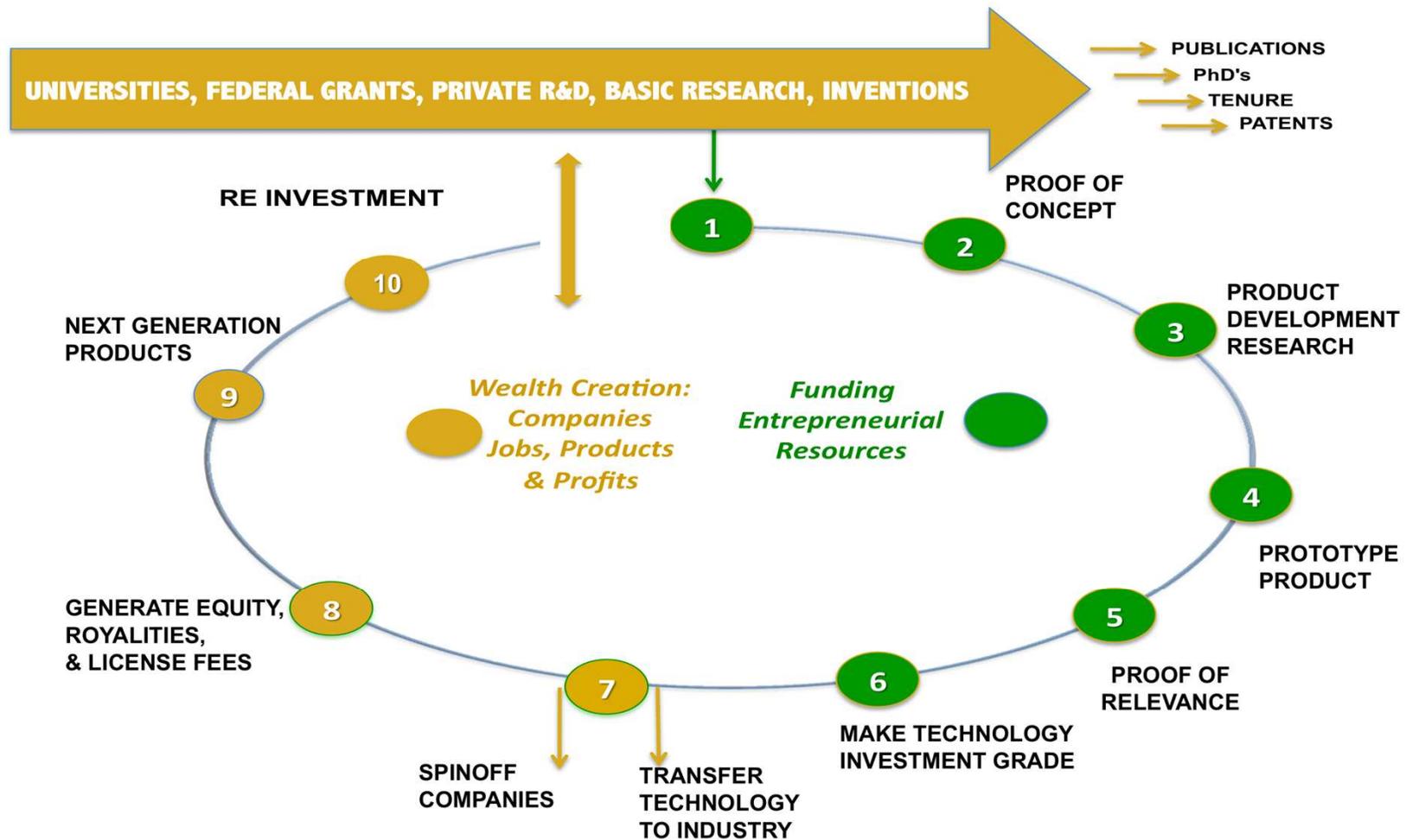
PROOF OF CONCEPT (Technological Feasibility) "It Works!"



PROOF OF RELEVANCE (Market Pull) "I'll Buy It"



Innovation Commercialization Model



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

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



Mapping Characteristics of Innovative Regions

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

All of these regional assets must be integrated for the entire ecosystem to work!



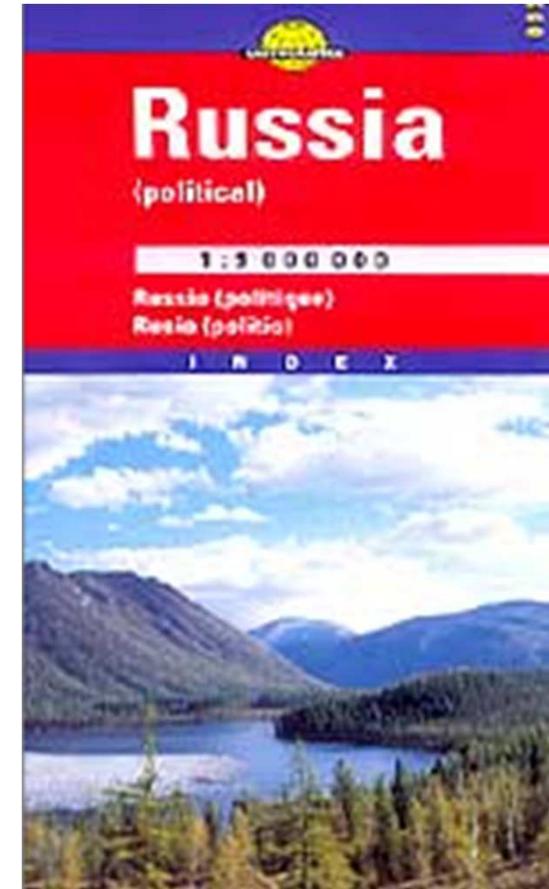
Mapping Innovative Regions DNA

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



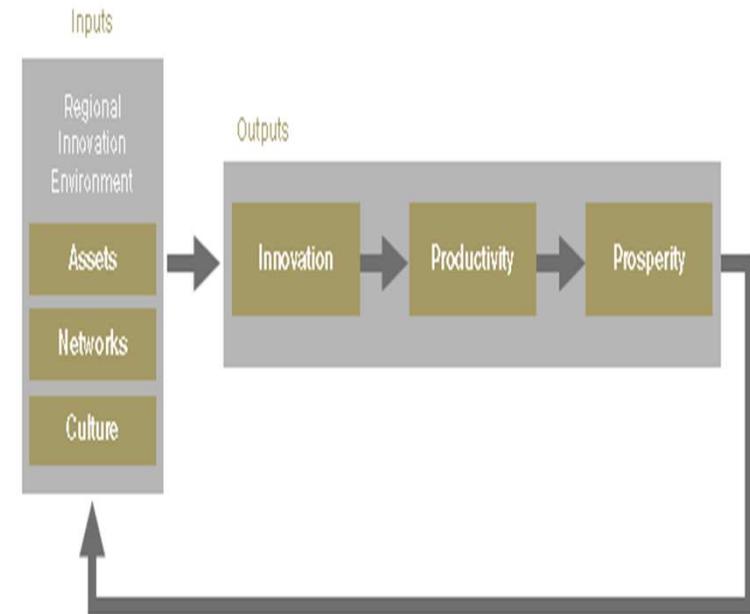
Road Map Elements

- 1) Asset Mapping
- 2) Cluster Analysis
- 3) Benchmarking
- 4) Resource Identification
- 5) Organization Analysis and Matrix
- 6) Gap Analysis
- 7) Public Policy
- 8) Strategic Plan
- 9) Leadership and Staffing
- 10) Program Implementation
- 11) Economic Impact Analysis
- 12) Branding and Market Research



1) Asset Mapping

- Provides an inventory of key resources to utilize in a development effort
- Provides a deep understanding of the **key networks** and **cultural attitudes** that shape a regional economy, indicate **gap areas** that require further investment
- Provides a baseline by which to judge future progress toward regional prosperity.



Source: Council on Competitiveness Asset Mapping Roadmap

2) Cluster Analysis

A statistical technique that compares multiple characteristics of a population to determine different groups



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

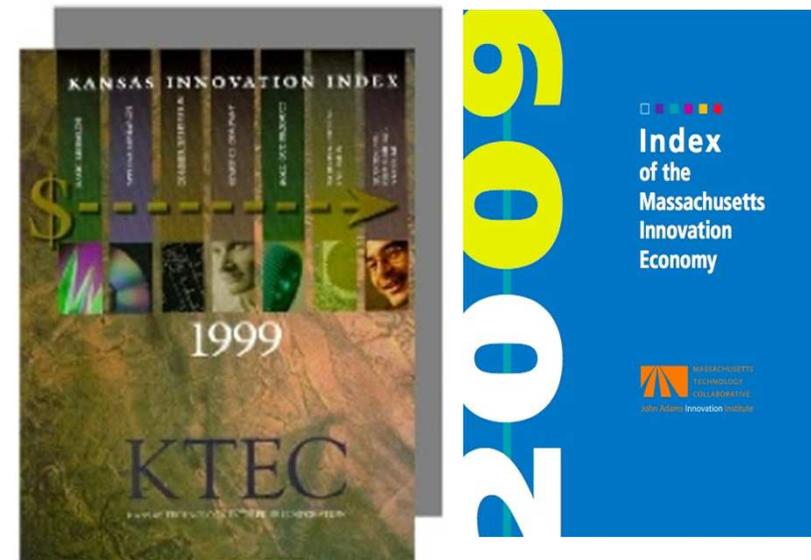


Published by The
Kansas Technology
Enterprise Corporation



3) Benchmarking

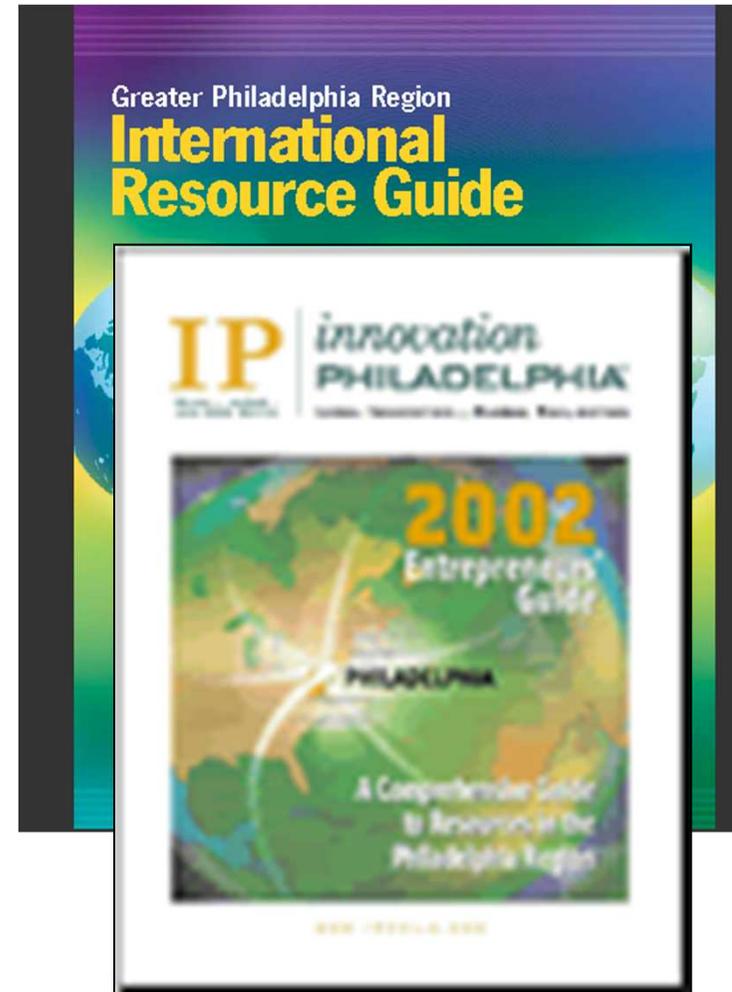
- Compares business processes and performance metrics to industry best practices. Typically measures quality, time, and cost
- Requires identifying the best firms in an industry (the "targets") and comparing processes to one's own
- Improvements from learning mean doing things better, faster, and cheaper



4) Resource Identification

Entrepreneurs' Resource Guides helps businesses to:

- Obtain information and outlets to make contacts
- Secure funding
- Promote their businesses and products to a wide array of consumers
- Provide resources that are unique to the geographic regions



5) Organizational Analysis and Matrix

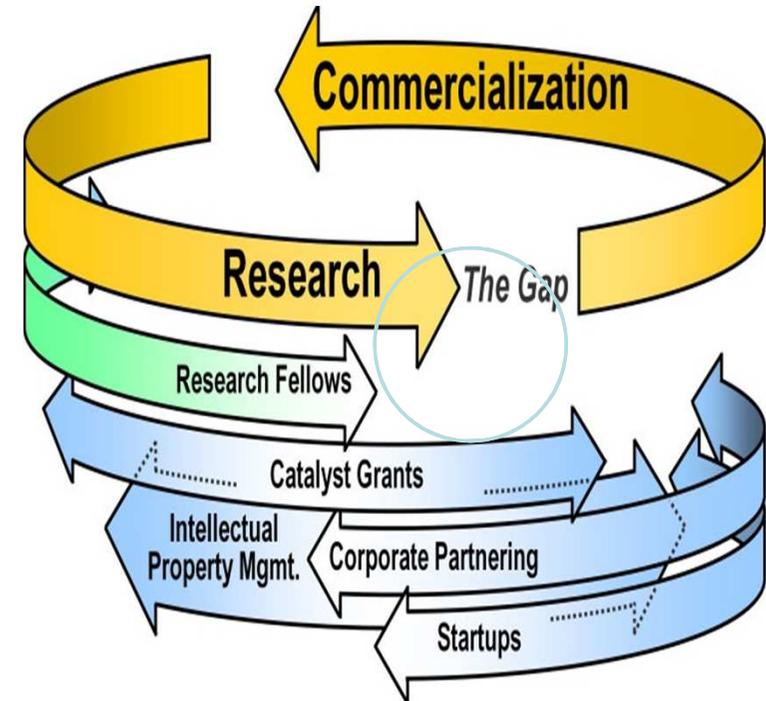
Comprehensive listing of organizations and services

Page	Organization	Chamber of Commerce	Economic Development	Int'l Trade Assistance Orgs	Financial Assistance	Government Organizations	Higher Education & Research Institutes	Regional Based International Assists	Tourism / Cultural Organizations	Consuls
9	Philadelphia Industrial Development Corporation		*							
25	Philadelphia International Airport		*	*		*			*	
24	Philadelphia International Medicine							*		
17	Philadelphia Multicultural Affairs Congress							*		
99	Philadelphia Museum of Art								*	
58	Philadelphia Regional Port Authority		*	*						
96	Philadelphia Tribune, The									*
82	Philadelphia University						*			
71	Phoenixville Area Chamber of Commerce	*								
29	Portugal Consulate									*
87	Princeton Regional Chamber of Commerce	*								
91	Princeton University						*			
29	Romania Consulate									*
91	Rowan University						*			
91	Rutgers University						*			
87	Salem County Chamber of Commerce	*								
97	SBDC, Delaware (state of)		*	*		*				
97	SBDC, Kutztown		*	*		*				
97	SBDC, Lehigh		*	*		*				
97	SBDC, Rutgers		*	*		*				
97	SBDC, Temple University		*	*		*				



6) Gap Analysis

- Helps define resources to bridge current and future gaps that slow down or stop growth
- ***Determines and documents variance*** between business requirements and current capabilities.
- Gap analysis naturally flows from benchmarking



7) Public Policy

- Defined as courses of action, regulatory measures, laws, and funding priorities on a given topic promulgated by a governmental entity or its representatives
- Commonly embodied in constitutions, legislative acts, and judicial decisions



science progress

Creating a National Innovation Framework

Building a Public-Private Support System to Encourage Innovation

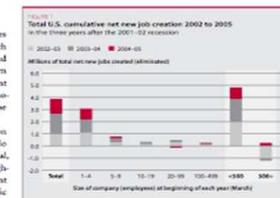
By Richard Bendis & Ethan Byler
April 2009

INTRODUCTION AND SUMMARY

Science, technology, and innovation experts in the United States today almost unanimously agree that our country needs to launch a collective national effort to accelerate U.S. technological and innovation-based growth. Amid a global economic downturn during which other nations are boosting their already significant public- and private-sector efforts to build more competitive, innovation-led economies, the United States stands almost alone in the world without a national innovation framework.

The result? Our country is beginning to lose its innovation leadership and national competitive advantage because we do not coordinate innovation policy across federal, state, municipal, and university boundaries and do not adequately support high-growth entrepreneurial companies. The federal government pours approximately \$150 billion annually into basic scientific research but then largely fails to ensure this money results in the kind of broad-based economic growth that makes our products and services the most competitive on the planet! This is a tragedy because it is innovative small businesses that have generated between 60 to 80 percent of net new jobs annually over the last decade as they grow and prosper, according to the U.S. Small Business Administration. These same companies also employ 30 percent of high-tech workers such as scientists, engineers, and information technology workers.

Today's economic crisis, however, is also an opportunity to restimulate our knowledge economy, if recent history is any guide.

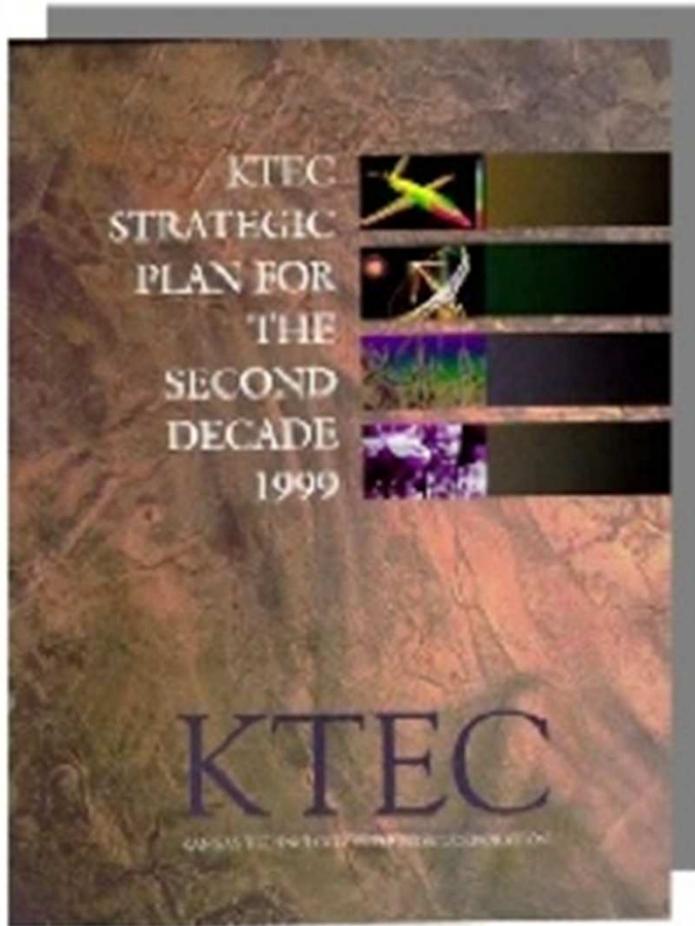


After both the 1990-91 and the 2000-01 recessions, small businesses of less than 20 employees were by far the dominant job creators in our country. The Office of Small Business Advocacy in the Small Business Administration shows that during the three years after the 2000-01 recession, the smallest of our companies (one to four employees) provided 79 percent of the net new jobs in the subsequent three years. Similarly, after the recession of 1990-91, small businesses created 89 percent of net new jobs (see sidebar for case studies in Pennsylvania and Kansas).

science progress • Creating a National Innovation Framework 1

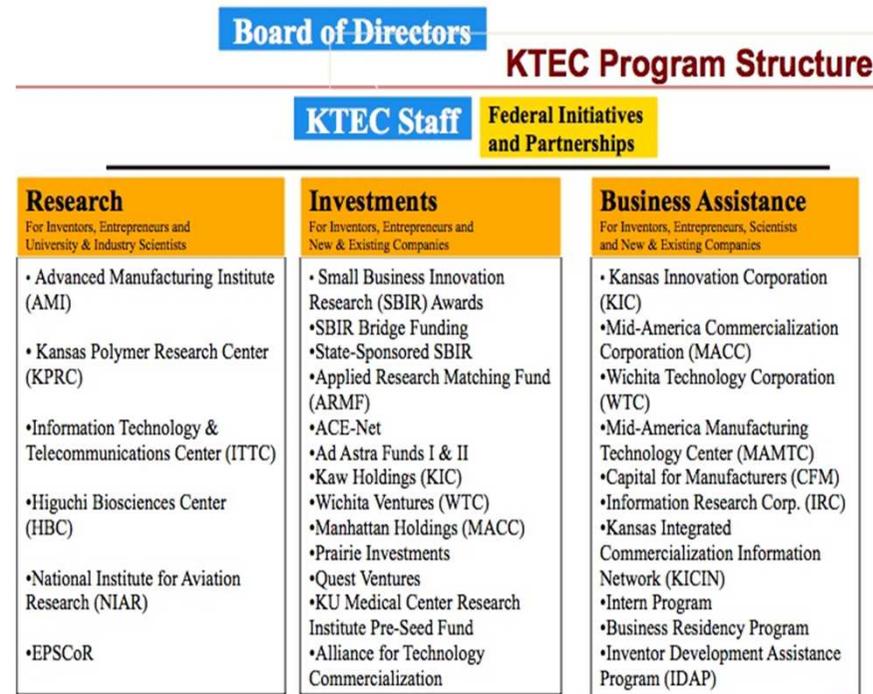


8) Strategic Plan



9) Leadership and Staffing

- Be Proactive
- Begin with the End in Mind
- Seek First to Understand, then to be Understood
- Put First Things First
- Think Win-Win, Be Inclusive
- Synergize
- Sharpen the Saw



10) Program Implementation

Investment



Commercialization



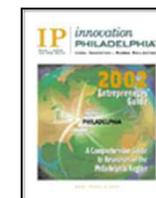
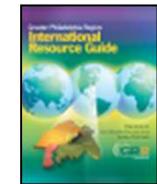
World's Best
Technology Network



Global & Regional Workforce / Economic Development

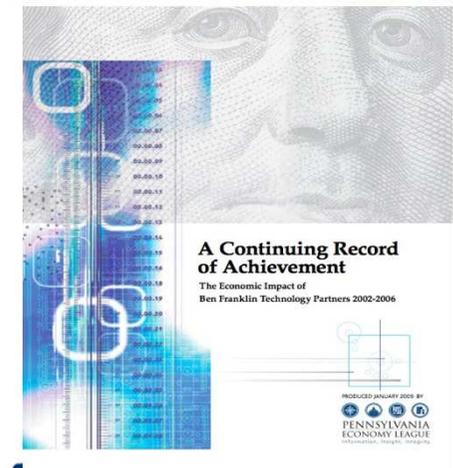
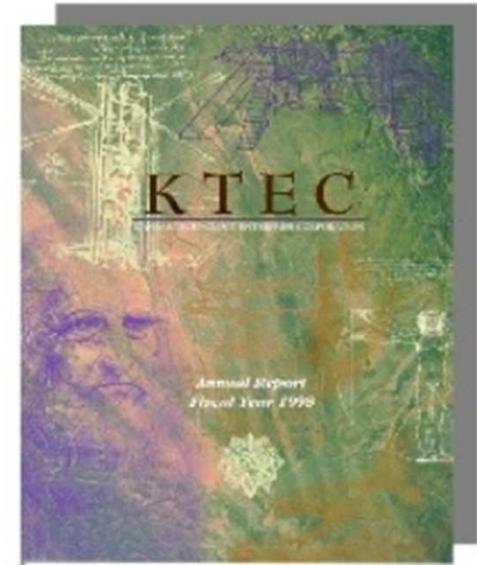


Branding, Research & Marketing



11) Economic Impact Analysis

- Examines the effect of a policy or activity on the economy of a given area - ranging from a neighborhood to the globe
- Measured in terms of changes in economic growth (output or value added) jobs (employment) and income (wages)
- Calculates the difference from what would be expected *if the project or policy did not occur*



12) Branding and Market Research

Investment

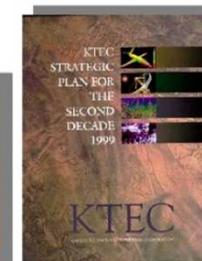
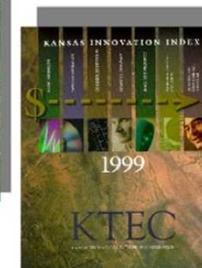
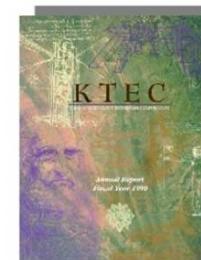
Commercialization

Global & Regional
Workforce / Economic
Development

Branding,
Research &
Marketing

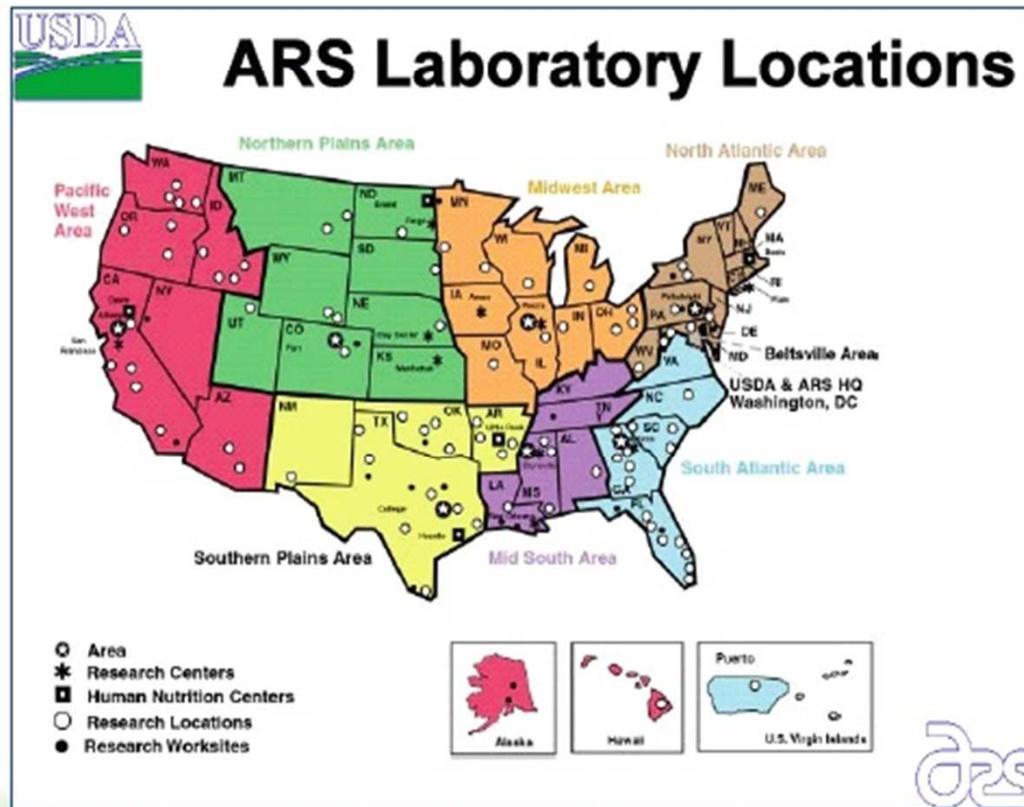


World's Best
Technology Network



ARS Case study - From Research to Jobs

The Research Capacity of ARS (\$1.2 B intramural)



Line Management of ARS

Area Directors of 8 Area Offices; oversee execution & quality of research

- 2100 scientists & engineers
- 100+ locations
- > 1000 research projects

USDA Economic Impact Research Project

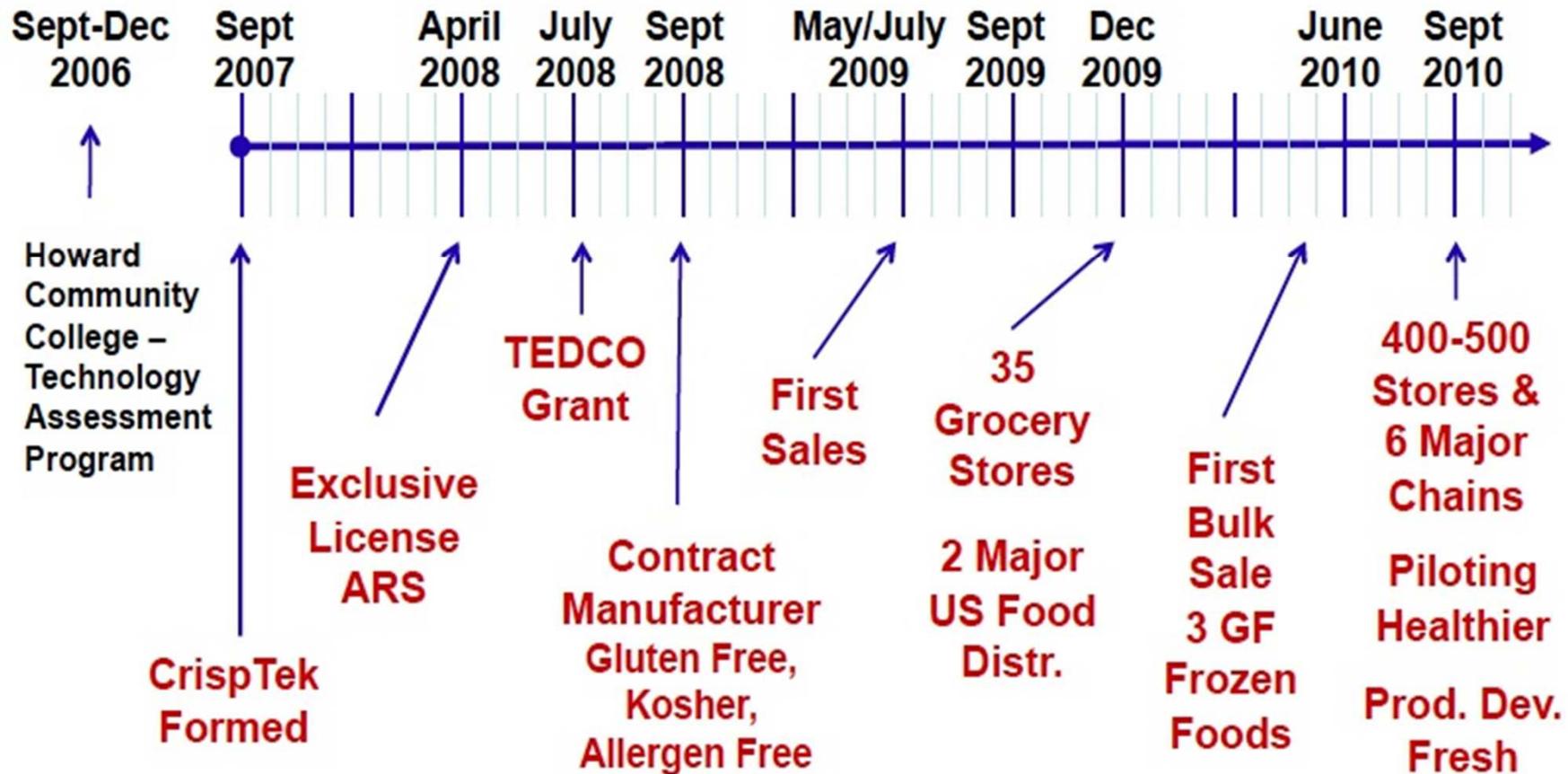


- ✓ Absorbs up to 50% less oil
- ✓ Great taste and crispy texture
- ✓ Certified Gluten Free
- ✓ Certified Kosher Pareve
- ✓ Free of the 8 most common food allergens

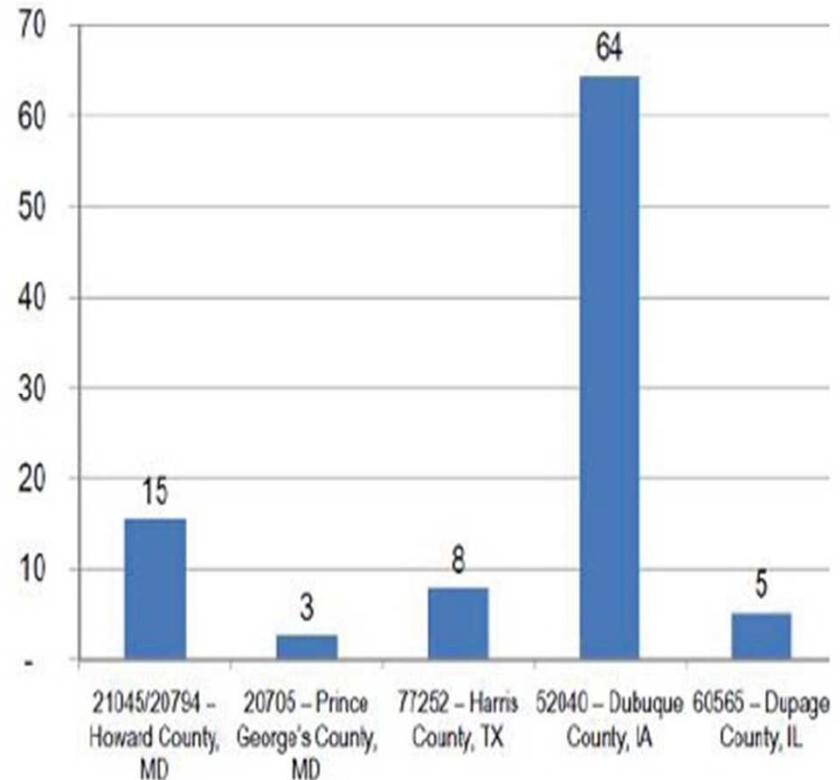
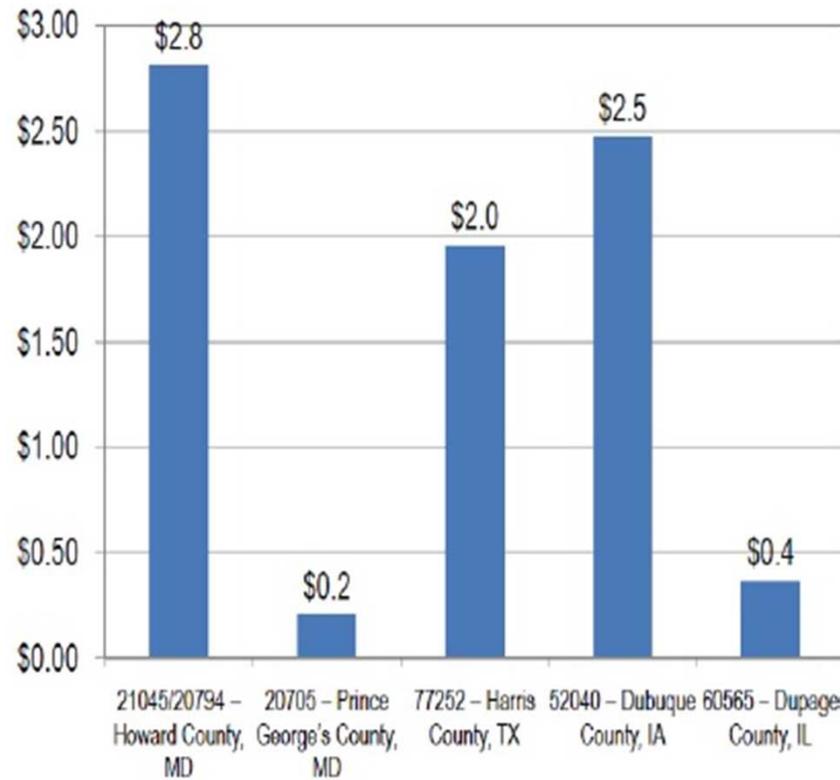
- GF US Market: ~\$2 Billion; +28%/yr
- Allergy/Intolerance: 84 MM US
- Healthier Food Options Trend



CrispTek/Choice Batter® Time Line



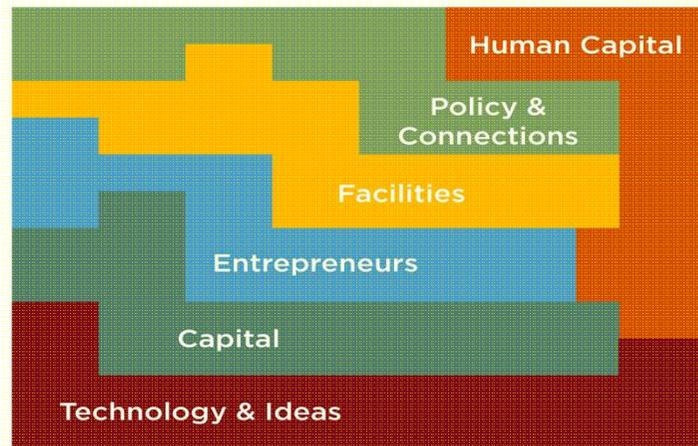
Impact by Location



INNOVATION COALITION



ECOSYSTEM



OUTCOMES

- Companies
- Jobs
- Innovation

The Innovation Coalition is a collaborative group of innovation-based associations supporting the key elements of the continuum for commercialization and job creation.



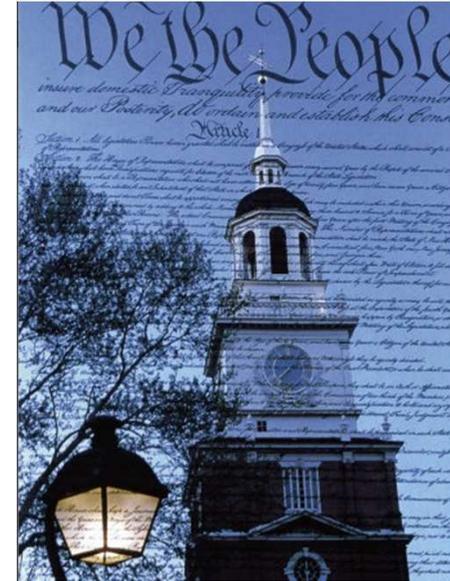
The Commercialization “Secret”

- Its not about
 - **TECHNOLOGY!**
- Its about
 - **REVENUE**
 - **SCALABILITY**
 - **CASH FLOW**
 - **PROFITS IN TWO YEARS**
 - **COMPETITIVE ADVANTAGE**



NASVF – OVERVIEW

- Established in 1995
- Non profit
- Headquarters Philadelphia, PA
- 175 member organizations
 - 43 states
 - Five countries
- 800 members
 - 1/3 Equity funds
 - 1/3 Public TBED
 - 1/3 Technology



NASVF Today – Our Role

NASVF'S Mission: Advancing Innovation Capital.



GOALS

- Increase availability, effectiveness and impact of innovation capital
- Expand and enhance membership value

STRATEGIES

- Advocacy
- Federal Programs
- Membership
- Conference
- Communications

OUTCOMES

- Funding
- Commercialization
- Job Creation



Publications: innovationDAILY & NetNews



Get a FREE subscription to
Innovation America's
innovationDAILY newsletter
www.innovationamerica.us

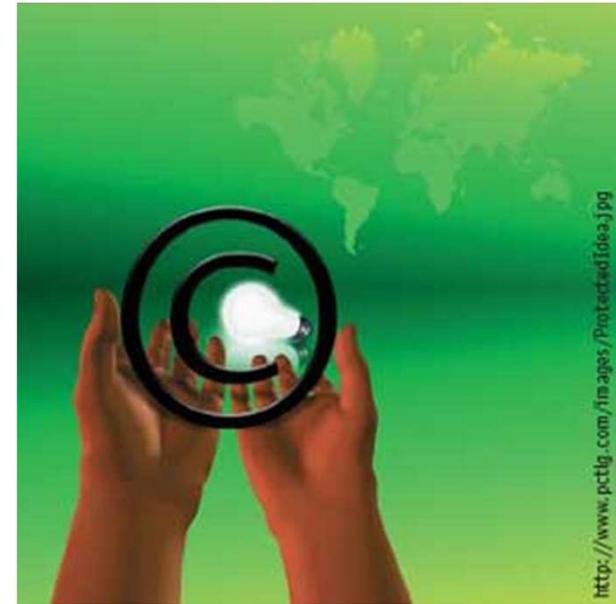


NASVF's Weekly Innovation
Capital newsletter
NetNews
www.nasvf.org/netnews



Summary

- **Ecosystems advance technology commercialization, innovation, funding and economic growth**
- **Innovation Road Maps provide the strategy to grow technology, commercialization and market the region**
- **Seed and early-stage funding is critical to success**
- **High risk - years to bear fruit**
- **Significant job creation**
- **BIG potential payoff!**



Potential Next Steps

- **Establish NASVF Russian chapter**
- **Develop pilot seed fund**
- **Roadmapping**
- **Deliver education programs**
 - Tech transfer – how it works
 - Investors and entrepreneurs
 - Commercialization
- **NASVF 2011 Conference – October in Texas**
- **Meet funders**
- **Tour incubators**
- **Visit TX TT programs**



- **Thank you for your time!**
- **How can NASVF help?**
- **How can American Councils help?**
- **Questions?**



Organization Strengths and Weaknesses - ??

- Research
- Scientists
- Technology clusters
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Metrics to Measure Success?

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Recommendations – 12 to 36 months?

