

# **Catalyzing University Technology Commercialization -- NSF SBIR/STTR Program**

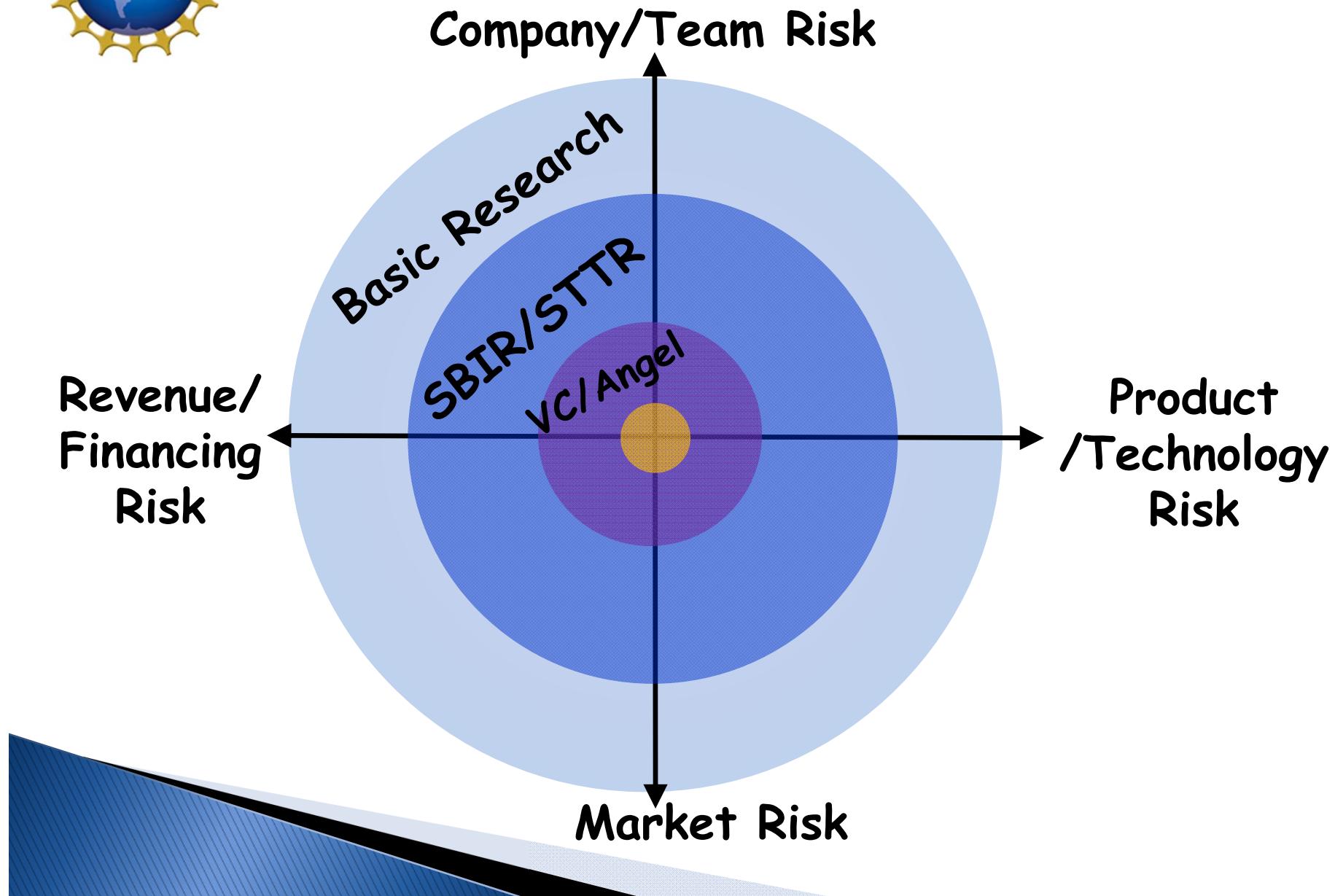


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## Positioning of NSF SBIR/STTR Program

- Help Mitigate Technical and Business Risks*





# Driving the Expansion of Innovation Capacity

Cultivate entrepreneurship

Connect to market reality

Provide technology translation pathways

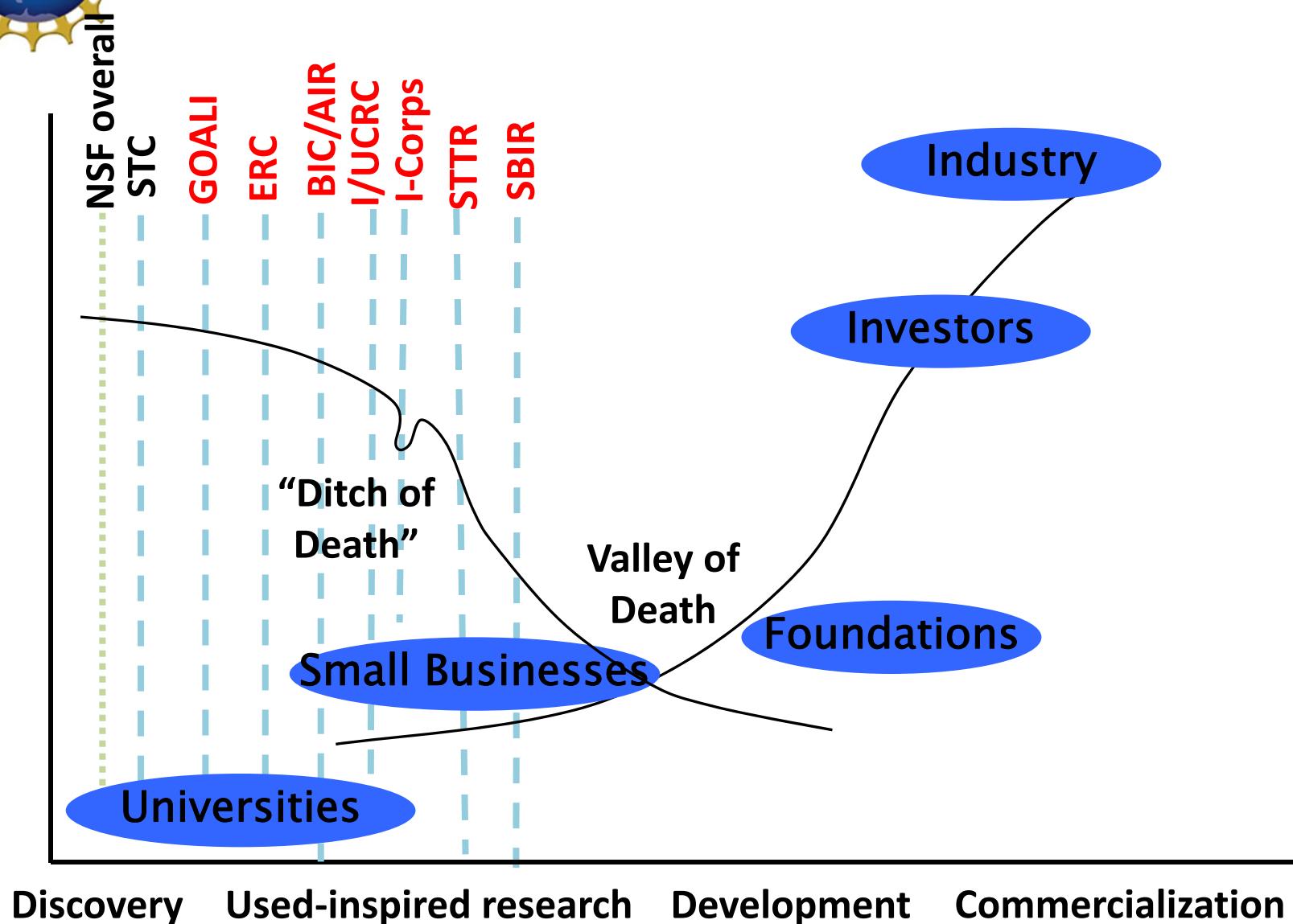
Innovators /Entrepreneurs

Business

Technological Innovations



# Providing Technology Translation Pathways





# Accelerating Innovation Research (AIR)

## NSF funding lineage requested

- AIR choice 1: TECHNOLOGY TRANSLATION (TT)
  - Proofs-of-concept and/or pre-commercial prototypes
  - Promote entrepreneurial thinking among faculty and students
  - In FY2013, 41 projects were funded
- AIR choice 2: RESEARCH ALLIANCE (RA)
  - Develop innovation ecosystem
  - Stimulate entrepreneurial & innovation activities
  - In FY2013, 6 projects were supported





# STTR Program

- Utilize STTR program as a vehicle for university technology commercialization
- In FY2013
  - ✓ Increased STTR Phase I to \$225k
  - ✓ **Strongly encourage the commercialization of previously NSF-funded fundamental research**
- In June 2013 cycle
  - ✓ **54%** of STTR submissions have NSF funding lineage





# Connecting to Market Reality

- ▶ Phase IIB supplement
  - ❖ Match 50% of third-party investment up to \$500k
  - ❖ Encourage fund-raising from private sectors
- ▶ TECP (Technology Enhancement for Commercial Partnerships) supplement
  - ❖ Promote customer discovery and strategic partnerships





# Connecting to Market Reality

- ▶ Leverage networks of other organizations
- ▶ Supported SBIR/STTR grantees to attend selected tradeshows/venture fairs
  - ❖ Consumer Electronics Show ([CES](#)): 24 companies
  - ❖ International Society for Technology in Education ([ISTE](#)): 10 companies
  - ❖ Florida Educational Technology Conference ([FETC](#)): 15 companies
  - ❖ Angel Capital Association ([ACA](#)): 8 companies
  - ❖ Biotechnology Industry Organization ([BIO](#)) venture forum: 10 companies





# Cultivate Entrepreneurship

- ▶ An NSF internal evaluation indicated
  - ❖ Majority of SBIR/STTR Phase II project failures are due to market issues
  
- ▶ **Launched SBIR Entrepreneurial Boot-Camp in 2013**
  - ❖ 69 small businesses participated
  - ❖ Focuses on customer discovery
  - ❖ Overwhelmingly positive feedback





# I-Corps™ Approach

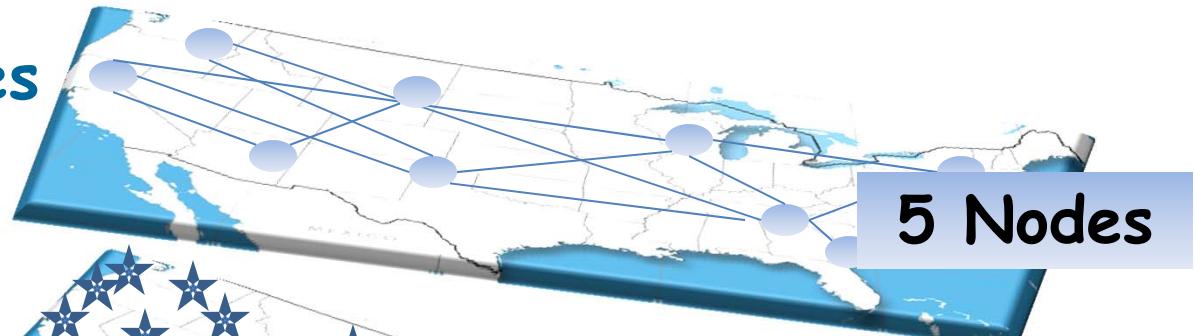
- Emphasizes experiential learning and feedback
- Challenges teams to create their own business model canvas
- Values revision and continual improvement of business development elements
- Expects teams to be inquisitive, motivated and capable of self management
- Full contact immersive class



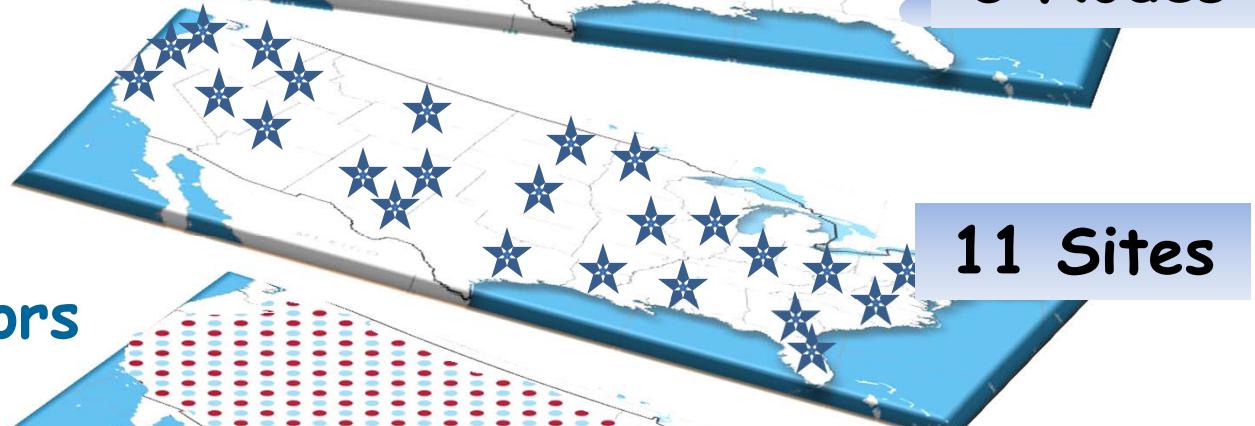


# Building the I-Corps™ “Fabric”

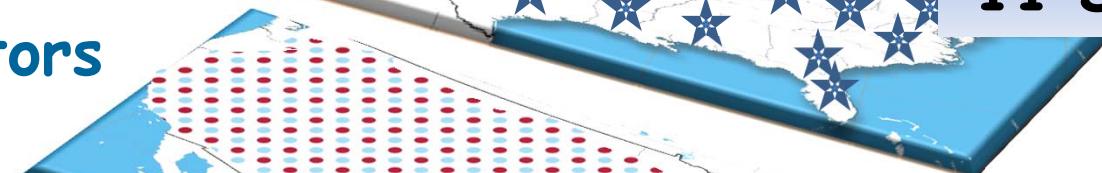
I-Corps Nodes



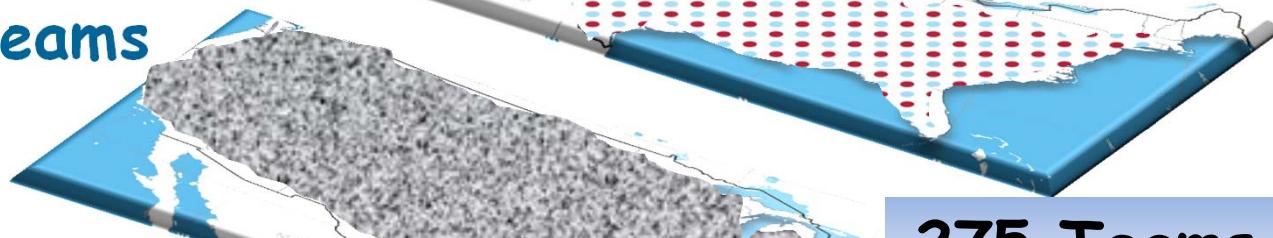
I-Corps Sites



I-Corps Mentors

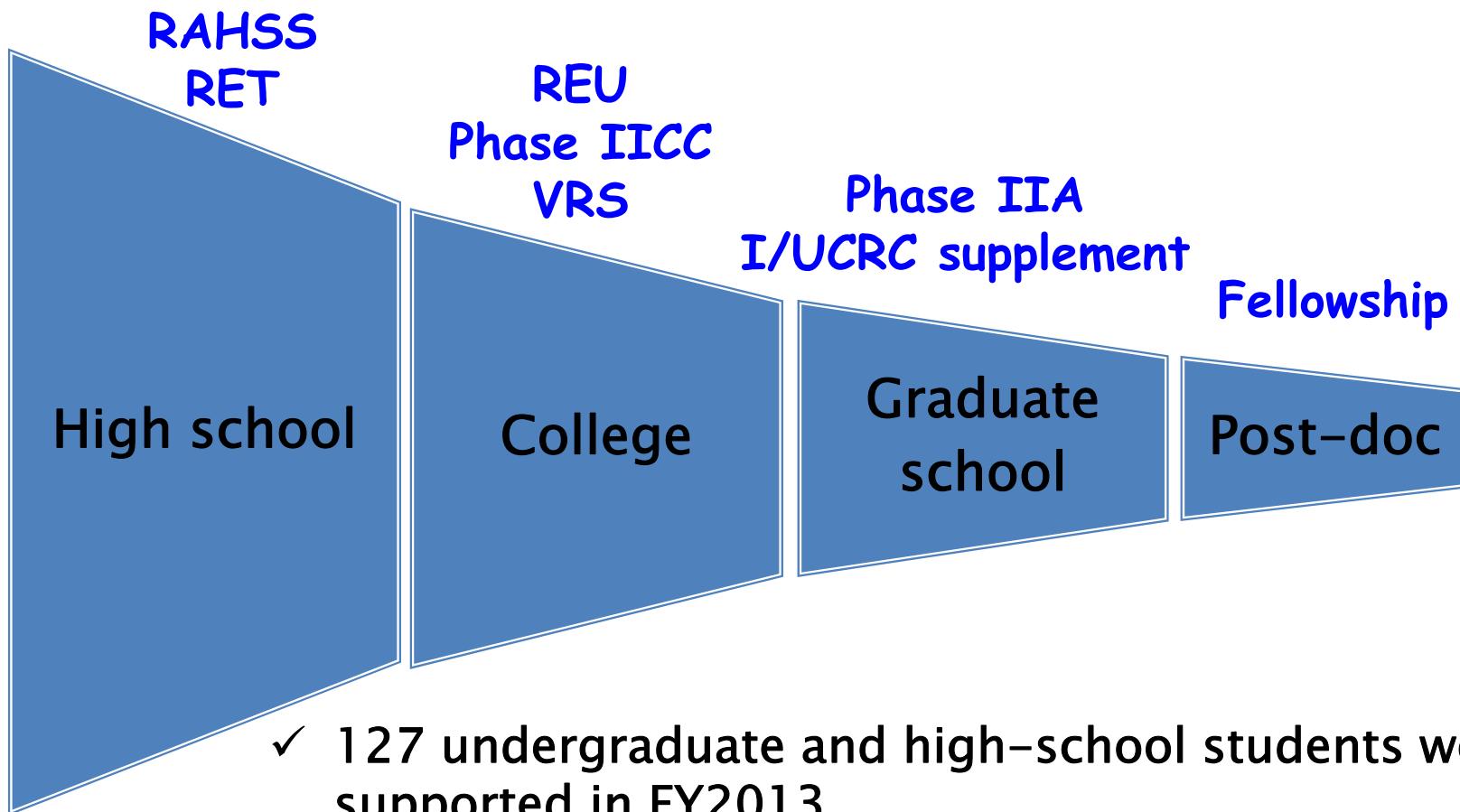


I-Corps Teams





# Providing Students with Real-Life Startup Experience



- ✓ 127 undergraduate and high-school students were supported in FY2013
- ✓ 70 Postdoc fellows were supported in last 2 years



## Cultivate Entrepreneurial Culture – *Supporting High-Risk Startups*

- FY2012 SBIR/STTR Phase I awardees
  - ✓ 86% – 10 and fewer employees
  - ✓ 90% – 5 years old or younger





## M4 SCIENCES LLC

- Modulated-Assisted Manufacturing
- Basic research: Purdue University (supported by NSF)
  
- 2005: founded (West Lafayette, IN)
- 2007–2012: NSF STTR Phase I & II
- **Product in the market now – augments modern lathe and CNC machines**





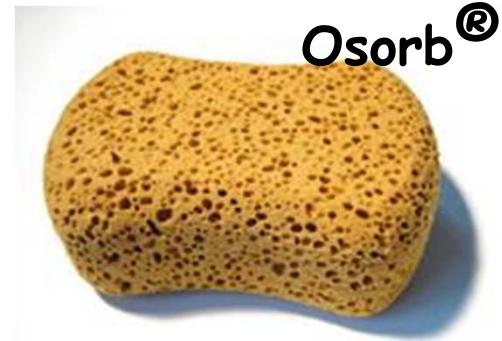
## BLUEFIN LABS, Inc.

- Social web and TV analytics to index video
- Based on the founder's Ph.D. thesis
- Basic research: MIT (supported by NSF)
  
- 2008: founded (Cambridge, MA)
- 2008–2012: NSF SBIR Phase I & II
- 2013: Acquired by Twitter





## ABS Materials



- Produced water treatment using nano-engineered material
- Basic research: Wooster College (supported by NSF)
  
- 2008: founded (Wooster, OH)
- 2010–present: NSF SBIR Phase I & II
- 2010: # of full-time employees = 4
- 2013: # of full-time employees = 52
- Forbes “Names You Need to Know: Osorb”

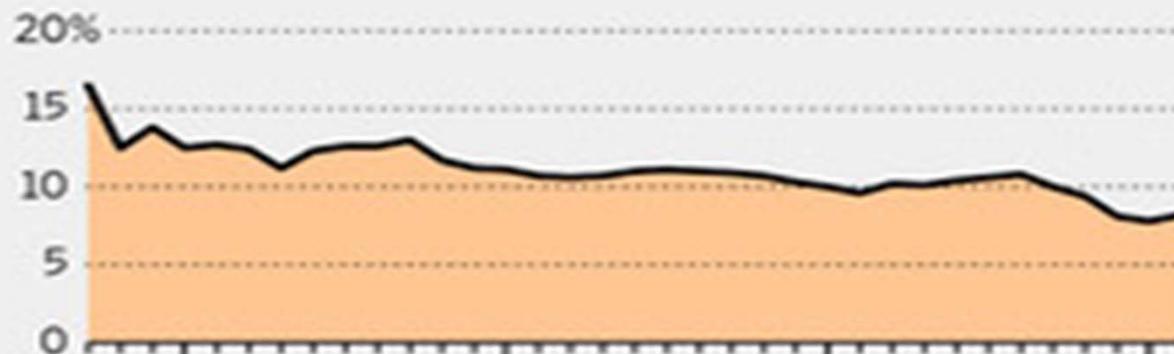




# Closing Thought

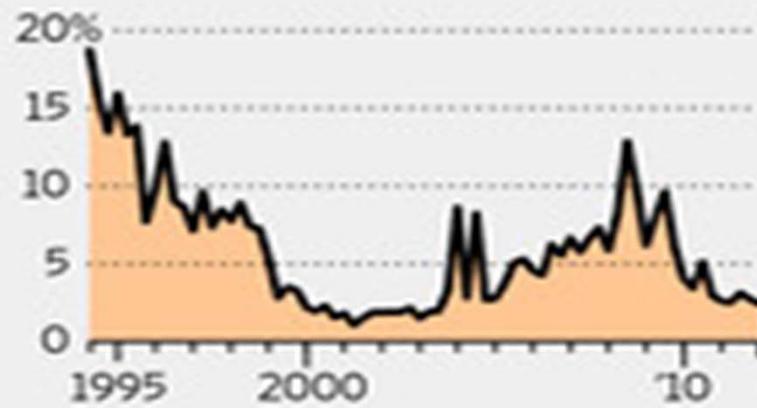
**The startup rate is falling...**

Share of private companies less than one year old



**Cultivating entrepreneurship is essential**

**...a declining share of venture capital is going to seed new firms...**



Source: Wall Street Journal, Risk-Averse Culture Infects U.S. Workers, Entrepreneurs, June 2, 2013