

**“How NSF is leveraging its research investments, in people like you, to build a national, sustainable Entrepreneurial Ecosystem”**

**NSF’s Innovation Corps Programs  
(I-Corps™)  
and the role you might play**

**Dr. Anita J. La Salle  
Program Director  
National Science Foundation**

## Risk-Averse Culture Infects U.S. Workers, Entrepreneurs Through 2011 -- *Updated June 2, 2013*

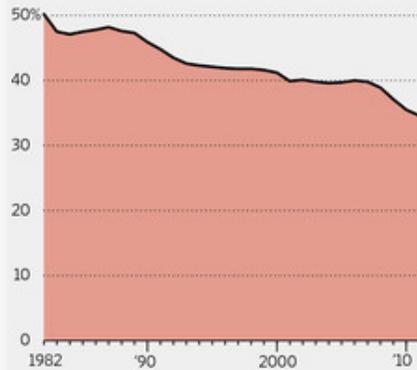
**Once upon a time ... Why did the NSF get into the entrepreneurship "business"?**

### Playing It Safe

Even before the recent recession, entrepreneurship was declining.

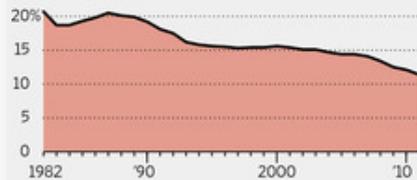
**A smaller share of U.S. businesses are new companies...**

Share of companies founded in past five years



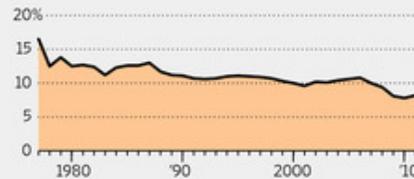
**...and the share of the labor force working at new companies has fallen.**

Share of workers at young firms



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

Share of private companies less than one year old



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

**...and more than 40% is going to one place.**

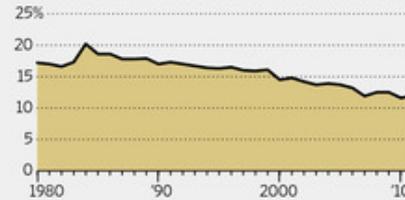
Share of venture capital going to Silicon Valley



Workers and companies...

**Migration rates have fallen...**

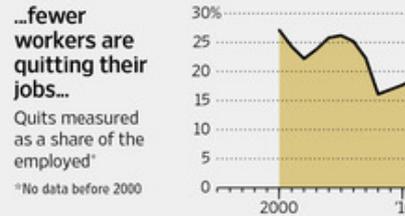
Movers as a share of the U.S. population, one-year-of age and older



**...fewer workers are quitting their jobs...**

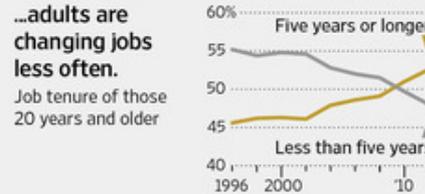
Quits measured as a share of the employed\*

\*No data before 2000



**...adults are changing jobs less often.**

Job tenure of those 20 years and older



**...fewer new jobs are being created...**

New jobs as a share of private employment



**...and companies are keeping more cash on hand.**

Cash and liquid assets as a share of total assets at nonfinancial corporations



Sources: Commerce Department's Business Dynamics Statistics (young firms and their workers, startup rates, job creation); Pricewaterhouse Coopers/National Venture Capital Association (seed money, investment by region); Census Bureau (migration); Labor Department (job tenure, quit rates); Federal Reserve (corporate cash)

Pat Minczeski and Erik Brynjildsen/The Wall Street Journal

# How might we, at NSF, react to these disturbing trends ... ?

“Was there anything we might do to successfully Translate Innovations from Labs (something we and you know about) to Market – quickly?”

Our goal was to:

- Leverage NSF’s investments and broaden the impact of funded research
- Prepare scientists and engineers to expand their focus beyond the laboratory -- into entrepreneurship and commercialization
- Promote the commercial success and societal benefit of new technologies funded by the US Government
- Turn ideas into companies
- Change the lives of researchers and the cultures of academic institutions

This is a “tall-order” –  
it’s a “we’re going to change the world  
kind of goal!” (with only \$1.2M to start)  
And, naively, we thought we were  
starting small. 😊

# HBR.ORG Harvard Business Review

MAY 2013  
REPRINT R1305C

SPOTLIGHT ON ENTREPRENEURSHIP

## Why the Lean Start-Up Changes Everything

by Steve Blank

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## How/why did we go about creating a solution to unsettling trends – the origins of I-Corps:

- There was an emerging body of knowledge about why the “5-yr business plan” approach to startup wasn’t working.
- There was an emerging body of knowledge about what practices might lead to a higher probability of startup success. (And, NSF had 35 years of history of managing the SBIR Program.)

So, **in 2011 we launched a Pilot Program** – to immerse academics (with clever ideas) in a curriculum that would teach them how to commercialize their research outcomes – quickly – or recognize non-viability - quickly.

## We began modestly:

- We “mined” NSF’s grantees in STEM to see where we might find IP that had potential to be commercialized.
  - We recruited 21 teams of three – **Principle Investigator, Entrepreneurial Lead, and a Mentor**.
    - We sent them to Stanford, gave each team **\$50K**, immersed them in a curriculum **taught by Steve Blank** and gave them **7 weeks** to decide if they were a “Go” or a “No-Go”.



## What did those Teams (and all subsequent teams) experience?

- They spent three very, very long days with the Instructors, immersed in the **Lean Startup Curriculum** and also “getting out of the building” to interview potential customers.
- They spent the next five weeks engaged in customer discovery and interacting with the Instructors and keeping electronic “diaries” of who they talked with and what they learned.
- Each Team was required to make more than 100 customer contacts during the next five weeks and also engage in weekly Webex Sessions with the instructor.
- After the Customer Discovery portion of the curriculum, all of the Teams returned to Stanford for a two-day “Lessons Learned” - “Go”/“No-Go” review (covered by CNN and other media!)
- **Amazingly -- 19 of the original 21 teams from 2011** are still engaged in commercializing their technology.

A total of 7 weeks of “immersion” in entrepreneurship.

We suspected we  
were onto something  
but --- FAST FORWARD  
a couple of years ....

**I-Corps Exploded!**  
 – with Presidential and Congressional support --  
 I-Corps is one of the nation's "Priority Programs"

I-Corps ended up achieving national recognition –

In 2014 (only 2+ years into the program) President Obama included I-Corps in his 2015 budget message ...

Accelerating and Institutionalizing Lab-to-Market Practices. The Budget reflects the Administration's commitment to accelerating and improving the transfer of the results of Federally-funded research to the commercial marketplace by, for example proposing increased funding for the National Science Foundation's public-private "Innovation Corps" program to bring discoveries ripe for innovation out of the university lab and increased funding at NIST to increase interagency lab-to-market efforts.

*This was not necessarily a good thing! Now we were very visible*

Opportunity for All: Creating a 21<sup>st</sup> Century Government

**Opportunity, Growth, and Fiscal Responsibility:** The President's Budget provides a path to sustained economic growth, expanding opportunity for all Americans, and ensuring investments in infrastructure, job training, preschool, and pro-growth tax cuts, while addressing health, tax, and immigration reform.

**Continuing Progress:** The Budget adheres to the 2015 spending levels agreed to in the Budget Act and shows the choices the President would make at those levels. But it also shows how to build on this progress to realize the nation's full potential with a fully paid for \$56 billion Opportunity, Growth, and Security Initiative, split evenly between defense and non-defense priorities.

WHAT THE PRESIDENT'S BUDGET DELIVERS:

- **Stronger Growth and Job Creation:**
  - Advanced manufacturing – Invests in American innovation and strengthens our manufacturing base, including a national network of 45 manufacturing institutes
  - Research and innovation – Supports ground-breaking research to fight disease, protect the environment, and develop new technologies, and makes permanent the R&D Tax Credit
  - Pro-growth infrastructure – Lays out an ambitious, four-year \$302 billion surface transportation reauthorization proposal paid for with transition revenue from pro-growth business tax reform.
  - Government reform – Promotes government management that delivers improved services that are more effective, efficient, and supportive of economic growth.
- **Opportunity for All:**
  - Tax cuts for working Americans – Doubles the maximum value of the childless worker EITC to build on the EITC's success in encouraging people to enter the workforce and reducing poverty; improves tax benefits that help middle-class and working families pay for child care and college and save for retirement.
  - Preschool for all – Invests in the President's vision of making access to high-quality preschool available to every four-year-old child.
  - Job-driven training – Invests in new efforts to drive greater performance and innovation in workforce training to equip workers with skills that match the needs of employers.
- **Fiscal Responsibility:**
  - Continues historic progress in slowing health care cost growth – Builds on the savings and reforms in the Affordable Care Act with additional measures to strengthen Medicare and Medicaid, slow health care cost growth, and improve the quality of care.
  - Pro-growth tax reform – Curbs inefficient and unfair tax breaks that benefit the wealthiest, and ensures that everyone is paying their fair share.
  - Immigration reform – Supports comprehensive reform of our broken immigration system, which independent economists say will grow our economy and shrink our deficits.
  - Further reduces the deficit and debt – By paying for new investments and tackling our true fiscal challenges, reduces deficits to 1.6 percent of GDP by 2024, and stabilizes debt as a share of the economy by 2015 and puts it on a declining path after that.

\*\*\*

transitioning the Department of Housing and Urban Development's core financial management

2

Accelerating and Institutionalizing Lab-to-Market Practices. The Budget reflects the Administration's commitment to accelerating and improving the transfer of the results of Federally-funded research to the commercial marketplace by, for example proposing increased

3

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So, that's all background about I-Corps Teams

What does this have to do with you?

What is I-Corps™ now  
and how did it launch a national  
movement toward creating a  
sustainable entrepreneurial  
ecosystem? ....

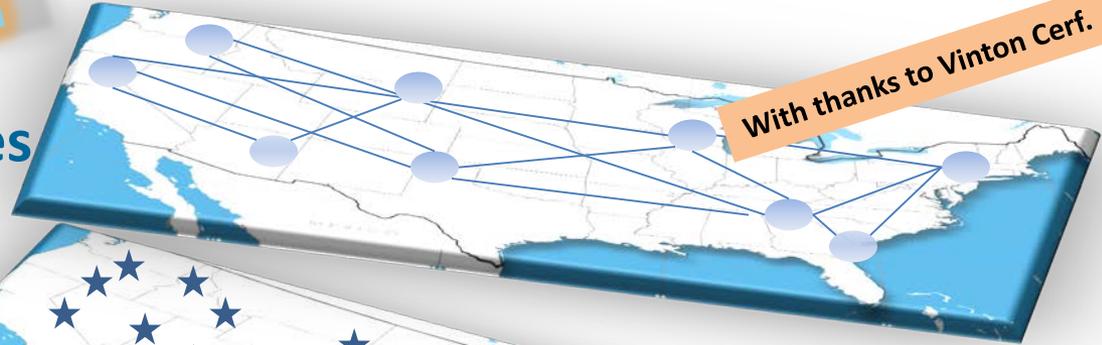
And, how can you take advantage  
of the I-Corps Programs?

We realized pretty soon that we were doing more than getting a few academics to create startups  
The "Bigger Picture" ...

# Building the Nation's I-Corps™ "Innovation Fabric"

With thanks to Vinton Cerf.

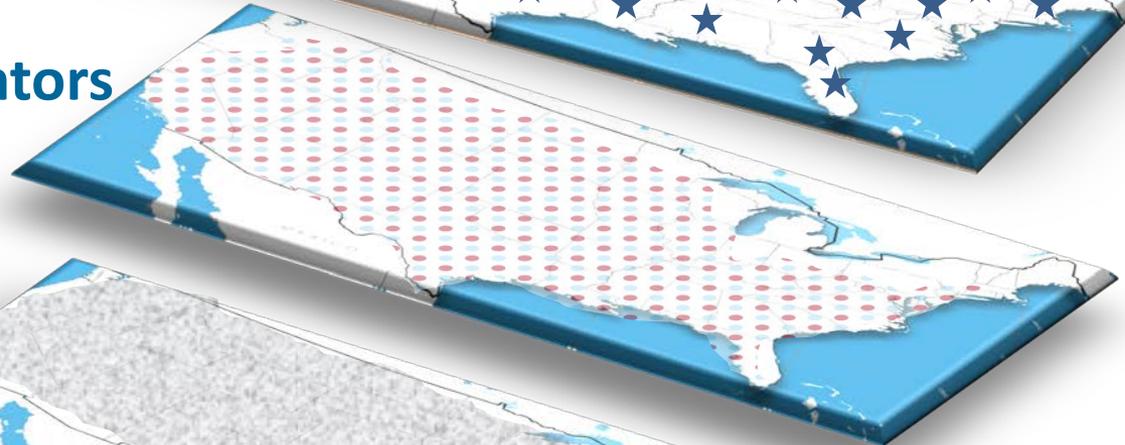
I-Corps™ Nodes



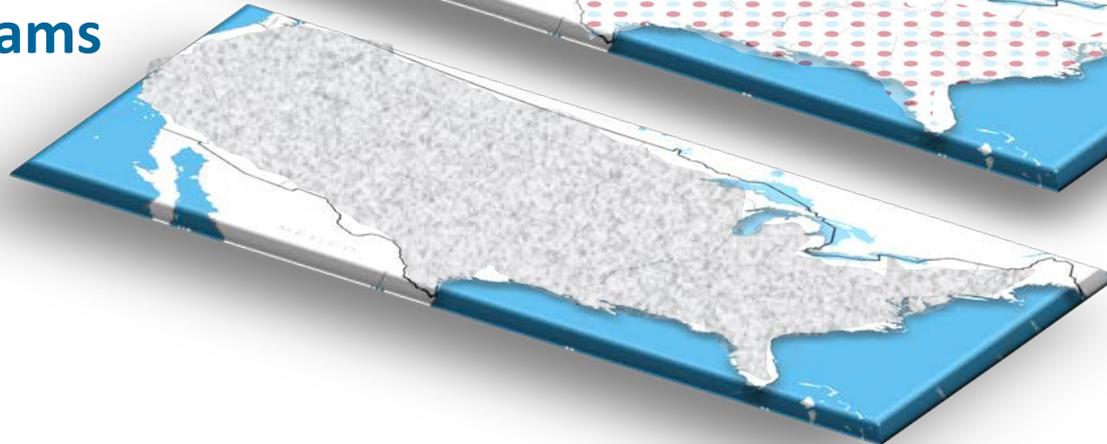
I-Corps™ Sites



I-Corps™ Mentors



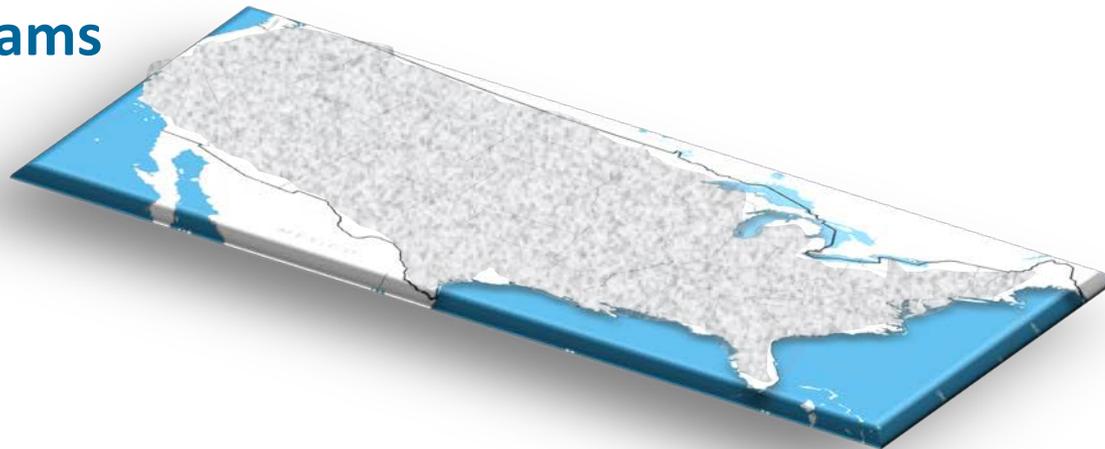
I-Corps™ Teams



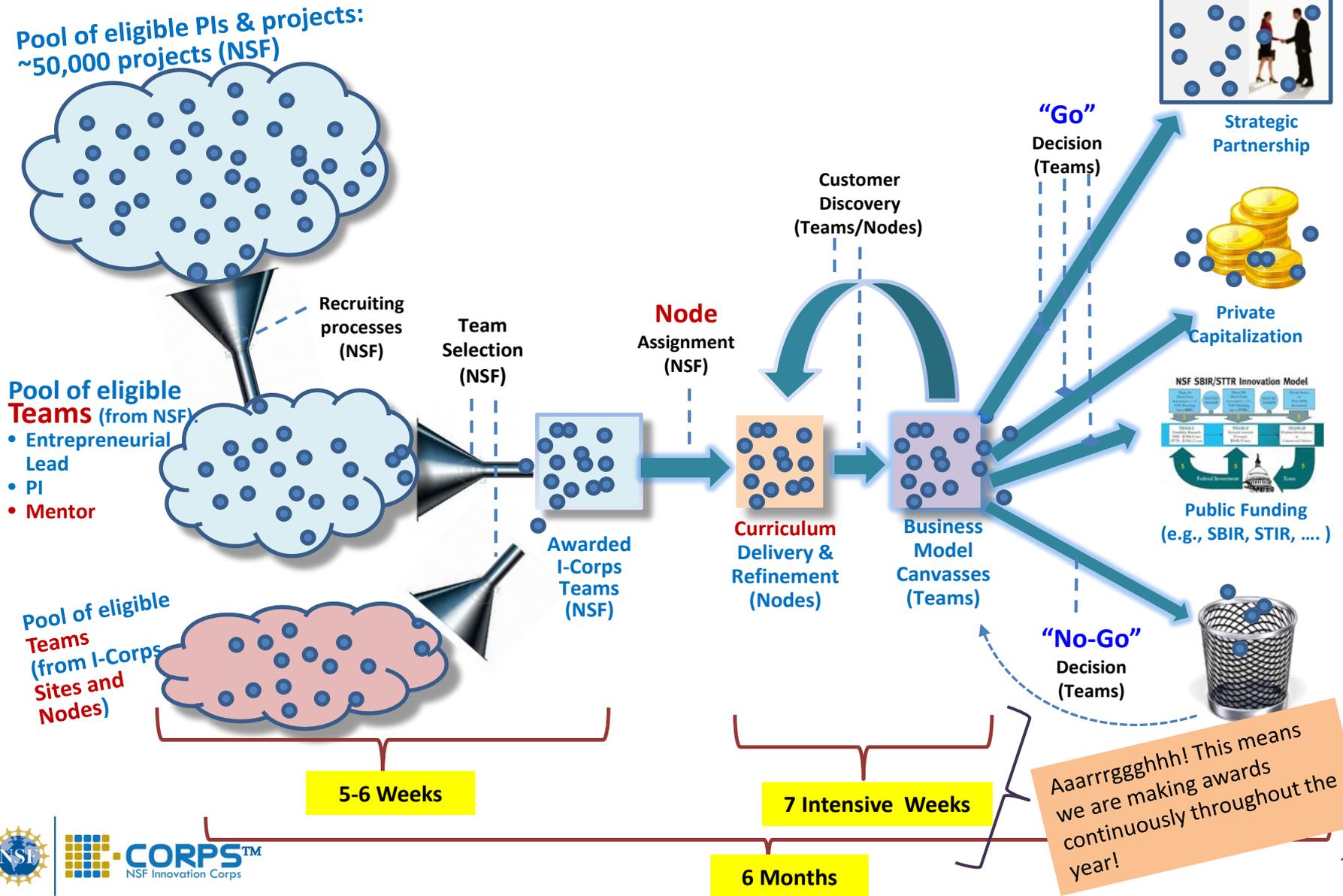
# The I-Corps™ “Grass-Roots “ Activity – Teams

This is where most of you come in ...

I-Corps™ Teams



# NSF Innovation-Corps Teams Flow Diagram



## And Here's what happened

>1,200 Teams completed I-Corps in past  
6<sup>1/2</sup> years

>50% have already created start-up  
companies!!

And, those companies have attracted more  
than 3x the investment \$ the taxpayers  
(through NSF) made in the program.

*[One company alone was just acquired (April'18) for  
\$74M only 18 months after they completed I-Corps]*

Here are some  
highlights of just a  
few of the many  
success stories across  
all STEM from NSF's I-  
Corps Teams Program

*This team of CISE – funded Computer Scientists Developed software to annotate a large number of images quickly and accurately*

*Combining human input (e.g., crowd-sourcing) with an annotation algorithm to facilitate image analysis (e.g., photos, maps, ...)*

**Acquired by Dropbox,  
three months after  
completing I-Corps!**

Founders



[Serge Belongie](#)

Professor at UC San Diego



[Peter Welinder](#)

Award-winning research in computer vision, machine learning and crowdsourcing.



[Boris Babenko](#)

Co-founder of [@Anchovi Labs](#), Inc.

# MATH Snacks

“Smart and yummy educational animations, mini-games, and interactive tools that help mid-school learners better understand math concepts.”

New Mexico State University



Smart and yummy educational animations, mini-games, and interactive tools that help mid-school learners better understand math concepts.

**MATH SNACKS**

Learning Games Lab

View All Snacks About Us Blog Download Teaching with Math Snacks

Animations Online Games iOS Apps

### What are Math Snacks?

*Math Snacks* are short animations and mini-games designed to present mathematics in a very different way. In fact, we hope these snacks don't look like traditional math at all. *Math Snacks* give students, especially those who don't particularly like math, another way to look at math concepts. While *Math Snacks* are designed for middle school, they address content and have been used by students in grade 3 – 8.

Using *Math Snacks* on mobile devices, like the iPad, helps kids take the learning on the go. iPads and iPods are also great classroom tools, when you can't take the entire class to a computer lab.

Mathematicians, math educators, artists, and game developers work collaboratively to create games and animations that teach math in a different way.

*Math Snacks* include learner guides kids can use and teacher guides to transfer a conceptual understanding to math problem solving. Teacher guides and printed transcripts of each animation are also available.

© 2013 NMSU Board of Regents. All rights reserved. NMSU is an equal opportunity/affirmative action employer and educator. *Math Snacks* materials were developed with support from the National Science Foundation (0918794). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation. Some materials were originally prototyped or discussed as part of a cooperative agreement from the U.S. Department of Education (U295A050094).

“One of the most exciting outcomes of the Math Snacks I-Corp efforts is the new focus of the PI's as we continue to seek funding. There is an increased interest in the distribution and commercialization of the products throughout the writing process. This has resulted in the team seeking out these partners and getting letters of support prior to submitting grants. For example, the NMSU Learning Games Lab, which produced Math Snacks was selected by Glass Labs at USC to be one of the game developers involved in a pilot study where teachers can go for a clearinghouse of gaming resources for the classroom. The I-Corp experience has made the education team and the development team realize how important this is to future development and funding.”

**North Carolina A&T State University Crowned  
Champion in \$100,000 ACC Clean Energy Challenge**

Bioadhesive Alliance's winning technology, an environmentally friendly bio-based adhesive, is a sustainable alternative resource developed from the thermochemical liquefaction process converting swine manure to a bio-binder, while sequestering carbon and greenhouse gases otherwise released into the atmosphere.



... **Bio-Adhesive Alliance** was selected as the **\$25,000 grand prize winner**. The start-up company is a spin-out from NC A&T State University that has developed an innovative technology to produce liquid asphalt from swine manure.

According to the company, "This technology provides a sustainable and cost-effective solution to swine manure treatment while reducing pavement construction and maintenance cost."

The Bio-Adhesive Alliance team completed the National Science Foundation's commercialization program known as I-Corps.

**Bio-Adhesive Alliance**



**Mobile Robots: CISE-Funded City-Climbers with Artificial Intelligence**

A wall-climbing robot system based on the teams "**City-Climber**" technology for building façade inspection and glass wall cleaning applications. The current practice of manual inspection of building façade is time-consuming, expensive, and poses risk to human workers.

The City-Climber technology provides a solution to meet a strong demand for automated inspection of building façades. In addition, the City-Climber robots can be modified to carry out tasks such as to clean glass walls and solar panels. Under prior funding, this team developed several wall-climbing robot prototypes, named City-Climber.

*CISE-funded AppScale is the open source implementation of Google App Engine cloud platform.*

Cloud computing platform that automatically deploys and scales unmodified Google App Engine applications over public and private cloud systems.



PI: Chandra Krintz  
University of California-  
Santa Barbara  
**“AppScale -- Spurring  
Innovation Through  
Cloud Application  
Portability”**

*“They've already received \$1.5M in Angel financing and are going out for their series A round now.”*

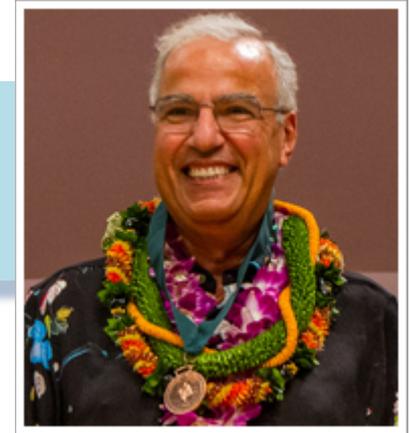
*“Selected as a GigaOm "Best of the Best" finalist for new start-up”*

*“AppScale Launches As An Open-Source Backup Equivalent To Google App Engine”*

Magdy Iskander, University of Hawaii  
NSF Industry/University Collaborative Research Center (I/U CRC)



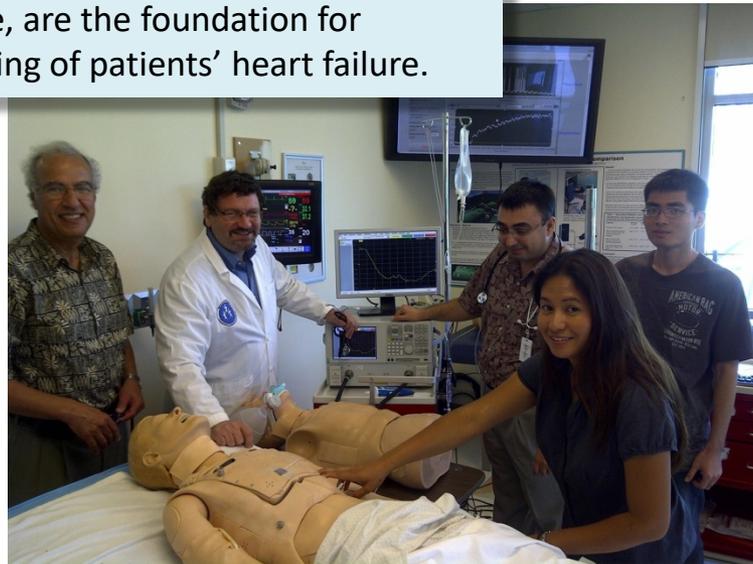
## Microwave Stethoscope



MiWa Technologies has developed the Cardiopulmonary Stethoscope, a low-cost, non-invasive integrated radio frequency-based system for lung water and vital sign measurements.

Being able to closely monitor the changes in lung water, respiratory rate, and heart rate, are the foundation for proactively preventing worsening of patients' heart failure.

*"All in all , ICORPS has been a most rewarding experience in my over 35 years in academia. ICORPS is magic, transformative and most effective, in a deceptively simple way, in invigorating interstate in commercialization and makes believers out of academic doubters. ... We are most grateful for the opportunity and wholeheartedly thank you for having our team being a part of this outstanding program."*





Study cropping patterns over north Texas.



## Selling and buying water rights

NSF Innovation Corps awardees founded the company Mammoth Trading to provide a neutral, centralized resource

Trying to sell or buy water rights can be a complicated exercise. Scientists at the University of Nebraska and the **University of Illinois at Urbana-Champaign** have developed an algorithm that can match potential buyers and sellers, sift through the complexity of local physical and regulatory systems, and reach a fair deal designed especially for them. It also allows the negotiating parties to provide information confidentially during the process.

"It's a different way of matching buyers and sellers in places where there aren't established markets," says Nicholas Brozovic, director of policy at the Robert B. Daugherty Water for Food Institute and associate professor of agricultural economics at the University of Nebraska. "It's a different way of building a market for potential buyers and sellers of natural resources. It maintains confidentiality and it is structured in a way that is neutral and fair."



Richael Young and Nick Brozovic received an NSF Innovation Corps award.

So, if you think you have an idea that has commercial potential, check out the I-Corps Teams Website for how to apply.

[https://www.nsf.gov/news/special\\_reports/i-corps/teams.jsp](https://www.nsf.gov/news/special_reports/i-corps/teams.jsp)

The application process is not like any other at NSF –

- you begin with a one-page Executive Summary,
  - followed up with two phone interviews.
    - If your phone interviews go well, you are invited to submit your proposal -- only 5-pages long -- and the entire process takes a matter of weeks, not months.

So, the Teams part of the program was on a path to success --- BUT --- we worried that the pipeline of NSF-awardees might not be sufficient to scale-up the program.

And, besides, the impact would be quite localized ... individual teams.

We had to re-examine how might we impact the pipeline, the academic culture, regional economics, please Congress, etc. ... and have broader impact.

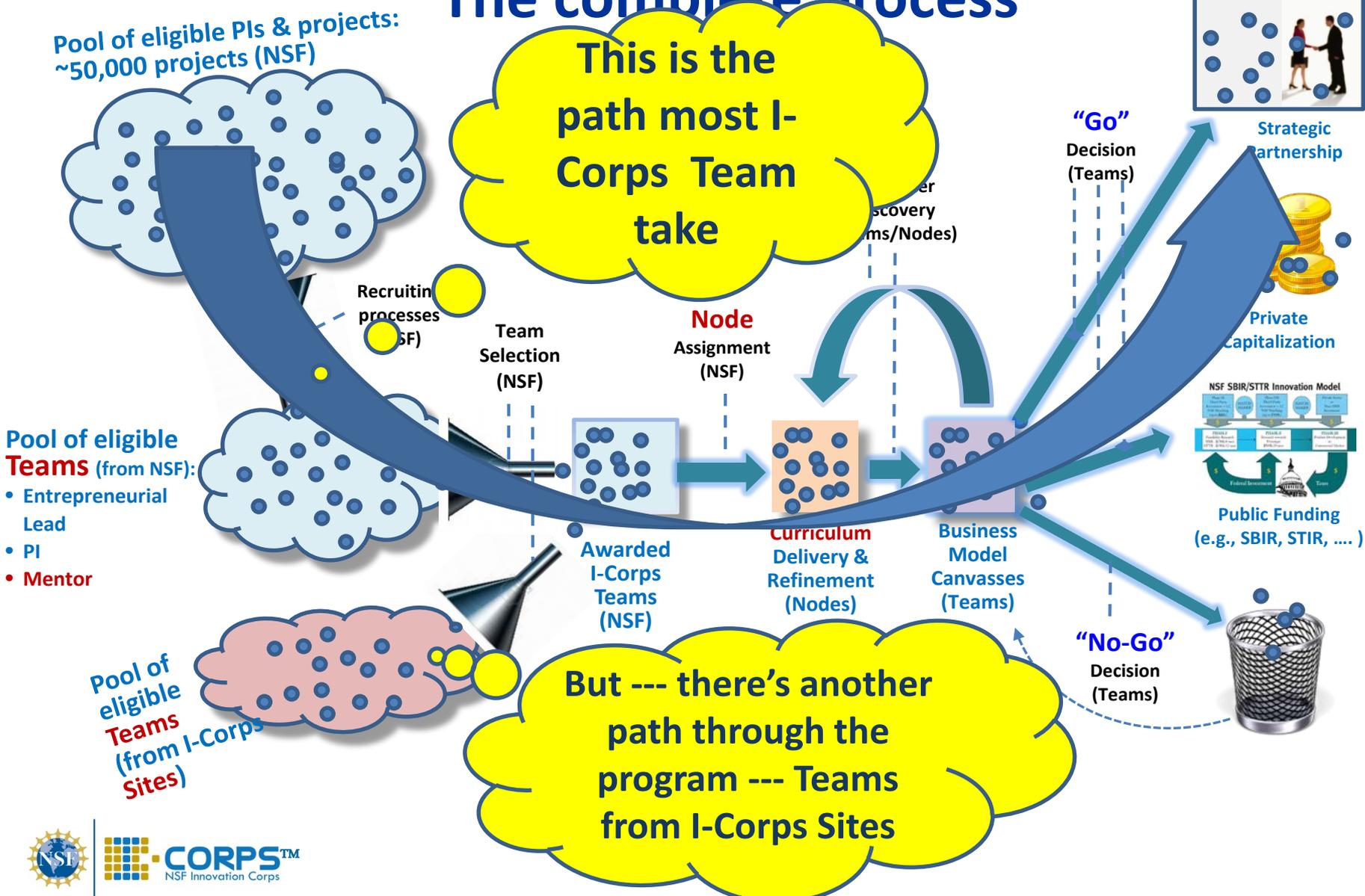
# The I-Corps™ Local Institutional-Level Activity -- Sites

I-Corps™ Sites



# NSF Innovation-Corps (I-Corps™)

## The complete process



# What are I-Corps™ Sites ... and what do they have to do with you?

## Motivation for I-Corps Sites Program:

- A need to **increase the pool** of potential NSF I-Corps Teams by supporting local teams whose projects are likely candidates for commercialization.
- **Leverage intellectual assets** of academic institutions and instill a **culture of entrepreneurship** in universities

## Sites are funded at **single academic institutions**:

- with **already existing** innovation or entrepreneurial units,
- to enable them to **nurture teams** of students and/or faculty who are engaged in projects having the potential to be transitioned into the marketplace.

Sites can be **funded** up to \$100,000/year for up to 5 years.

## Sites provide:

- infrastructure, advice, resources, networking opportunities, training, and
- **modest funding** (\$1,000 to \$3,000 total to individual teams) to enable groups to transition their work into the marketplace or into becoming I-Corps Team. Approx. **30** teams per institution per year.

*So Sites can also serve as “feeders” to produce I-Corps-eligible teams*

And, starting really,  
really small in 2013,  
here's what  
happened with the I-  
Corps Sites ...

# Our growing I-Corps™ Sites Portfolio

## Spring/Summer 2013 – 4 Sites Awards:

- University of Toledo
- UCSD
- University of Akron
- University of Illinois -- Urbana-Champaign

## Spring 2015 – 21 Sites Awards:

- Brigham Young University
- Howard and Hampton Universities
- Michigan Technological University
- New Jersey Institute of Technology
- Oregon State University
- Purdue University
- SUNY at Stony Brook
- Tulane University
- University of Alabama Tuscaloosa
- University of California-Los Angeles
- University of Connecticut
- University of Houston
- University of Iowa
- University of Louisville
- University of North Carolina at Charlotte
- University of Pennsylvania
- University of Pittsburgh
- University of Rochester
- University of South Florida
- University of Washington
- University of Wisconsin-Milwaukee

## Spring 2014 – 11 Sites Awards:

- CMU
- MIT
- RIT
- San Diego State
- University of Southern Cal
- University of Central Florida
- University of Chicago
- University of Delaware
- University of Minnesota
- University of Texas – SA
- University of Utah

## Spring 2016 – 15 Sites Awards:

- Arizona State University
- Dartmouth College
- Jackson State University
- Louisiana State University & A&M Col
- Missouri University of Science and Technology
- New Mexico State University
- Ohio State University
- Oklahoma State University
- Rensselaer Polytechnic Institute
- Tennessee Technological University
- University of Arizona
- University of Nevada Las Vegas
- University of New Hampshire
- Washington State University
- Wichita State University

## Spring & Summer 2017 – 35 Sites Awards:

- Brandeis University
- Cal State Northridge
- Cornell University
- CUNY - City Univ New York
- George Washington Univ
- Johns Hopkins University
- Mississippi State Univ
- New York University
- Texas A&M Main Campus
- University of Alabama Birmingham
- University of Cal - Merced
- University of Cal Irvine
- University of Cal Santa Cruz
- University of Georgia
- University of Mass Lowell
- University of Virginia
- . . . .
- American University
- East Carolina University
- George Mason University
- Georgia Tech Research Corp
- Iowa State University
- North Carolina State U
- Northeastern University
- Penn State University
- Rutgers Univ New Brunswick
- SUNY Binghamton
- SUNY Buffalo
- University of Arkansas
- University of California Riverside
- University of SC Columbia
- University of South Alabama
- University of NC - Greensboro
- University of New Mexico
- Univ of TX - Rio Grande Valley
- Vanderbilt University

*There are now **86 I-Corps Sites** at  
**universities in the USA**  
**25 in EPSCOR states***

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- Purdue University
- SUNY at Stony Brook
- Tulane University
- University of Alabama
- University of California
- University of Colorado
- University of Houston
- University of Iowa
- University of Louisville
- University of North Carolina at Charlotte
- University of Pennsylvania
- University of Pittsburgh
- University of Rochester
- University of South Florida
- University of Washington
- University of Wisconsin-Milwaukee

If your institution is listed here, you are eligible to go through an abridged I-Corps Program at your own institution (\$1000 - \$3000 + get I-Corps training)!  
 Then, you are eligible to compete for \$50K award and participate in the I-Corps Teams National Program!  
 Or, you might compete for an SBIR or even create your own startup.

- University of Georgia
- University of Massachusetts Lowell
- University of Virginia
- University of Wisconsin & A&M College
- University of Science and Technology
- New Mexico State University
- Ohio State University
- Oklahoma State University
- Rensselaer Polytechnic Institute
- Tennessee Technological University
- University of Arizona
- University of Nevada Las Vegas
- University of New Hampshire
- Washington State University
- Wichita State University

- University of New York
- New York University
- University of Illinois at Chicago
- University of Michigan
- University of Texas at Dallas
- University of Texas at Austin
- University of Texas at El Paso
- University of Texas at San Antonio
- University of Texas at Tyler
- University of Virginia
- American University
- East Carolina University
- George Mason University
- Georgia Tech Research Corp
- Iowa State University
- North Carolina State U
- Northeastern University
- Penn State University
- Rutgers Univ New Brunswick
- SUNY Binghamton
- SUNY Buffalo
- University of Arkansas
- University of California Riverside
- University of SC Columbia
- University of South Alabama
- University of NC - Greensboro
- University of New Mexico
- Univ of TX - Rio Grande Valley
- Vanderbilt University

**There are now 86 I-Corps Sites at universities in the USA  
25 in EPSCOR states**

And, here are some  
projects that came  
out of our early Sites

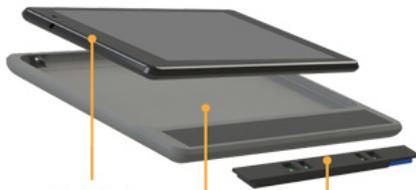
...

**MotionSavvy – A Tablet App That Understands Sign Language:** translate American Sign Language into English and vice versa. The entire development team is deaf. 3D motion recognition system detects when a person is using ASL and converts it to text or voice. The software also has voice recognition through the tablet's mic, which allows a hearing person to respond with voice to the person signing. It then converts their voice into text, which the hearing-impaired receiver can understand.

This project was developed at the Rochester Institute of Technology (RIT) which is one of NSF's **Innovation Corps Sites** – NSF's I-Corps Sites fund teams at universities to help them commercialize research.



**HARDWARE**



**Tablet**

MotionSavvy currently uses Windows and Android tablets and is working on getting the software onto Apple tablets.

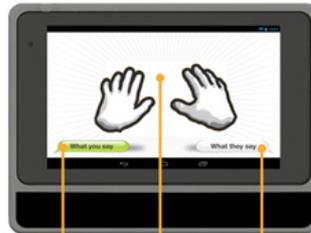
**Leap Motion**

This device can sense your hands and fingers and follows their every move with a camera, which is perfect for sign language.

**Custom Case**

Comes with a built in battery to ensure leap and the tablet stays powered for long periods of time.

**SOFTWARE**



**Sign to Speech**

Our sign language database reads what you say and transforms your signs into speech.

**Speech to Text**

Voice recognition captures the voice of who you are talking with and displays it in a easy-to-read format.

**Visualizer**

A mirror image of the users hands provide visual feedback for the user so he or she understands where their hands are and to avoid missing important signs.





# PhotoniCare

A new light on everyday health concerns



This project was developed at the University of Illinois which is one of NSF's **Innovation Corps Sites** – NSF's I-Corps Sites fund teams at universities to help them commercialize research.

This I-Corps Site Team developed an improved otoscope that enables physicians to quickly and accurately diagnose middle ear infections during routine examinations. In contrast to the traditional otoscope, *which hasn't changed in over a century since its inception*, the PhotoniCare CLEARVIEW™ allows the physician to look through the ear drum to directly observe and characterize effusions and biofilms responsible for infection in the middle ear.

**EAR INFECTIONS AFFECT 80% OF CHILDREN.  
WE'VE DEVELOPED THE FIRST NON-INVASIVE METHOD TO ACCURATELY DIAGNOSE THEM.**

## Prevent Network Outages. Identify Network Security Vulnerabilities

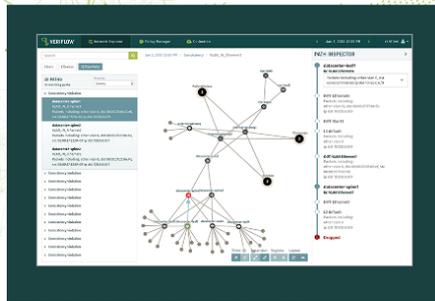
Today's networks are complex, supporting a variety of vendors in mixed environments: legacy, virtual, SDN, Containers, and whatever may come next. Staying ahead of the curve, with all this rapid change and complexity is impossible.

Request a demo and see how with Veriflow you can step into Intent Based Networking. Start asking, "What do I want my network to do?" And no longer limit network design and operation by fears of how your network is going to react to each change.

We will show you how to:

- Predict network-wide behavior & provide verification of business intent
- Prevent vulnerabilities from change & human error before they are exploited
- Proactively protect networks through mathematical verification

Imagine if you could see into the future state of your network. Would this help you predict and prevent network disruptions before they occur? Book a demo today, and we will show you how this is possible.



PI Brighten Godfrey's research  
resulted in the creation of VERIFLOW  
— attracted **\$11M in VC** investment  
their first year out of I-Corps

But – there’s another essential piece of the “innovation fabric” we needed.

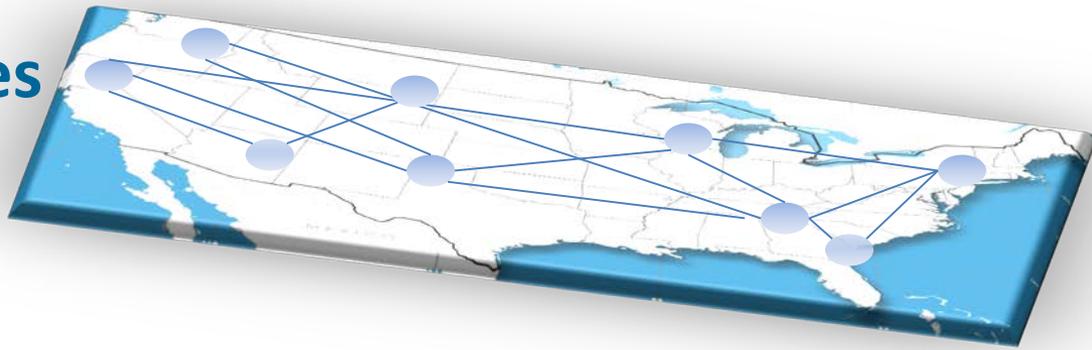
Reliable places, spread throughout the country, where we could immerse teams in the I-Corps curriculum.

Places where instructors understood Lean Startup and were themselves serial entrepreneurs.

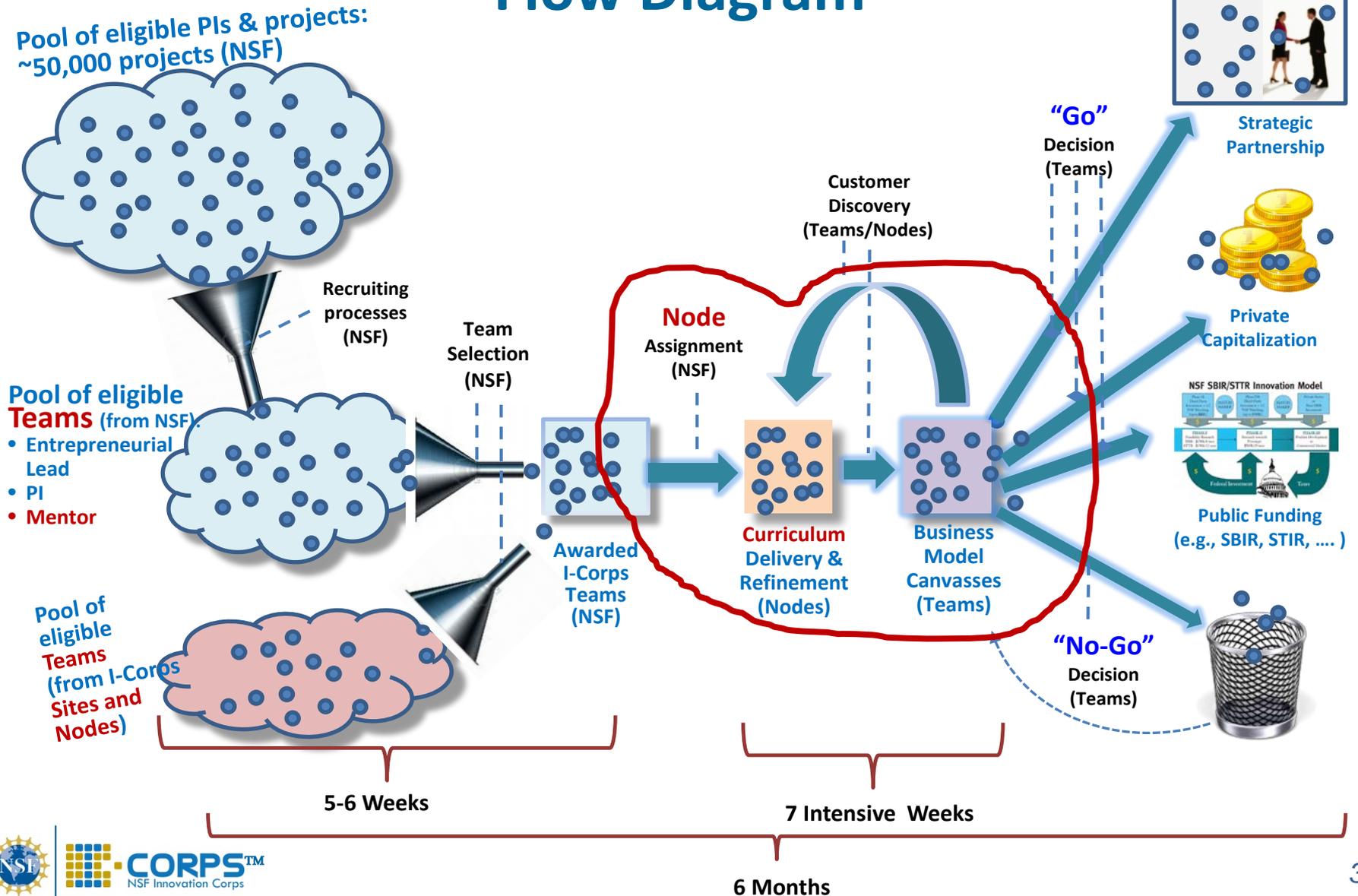
Along came the I-Corps™ Nodes ...

# The I-Corps™ “Regional Activity -- Nodes

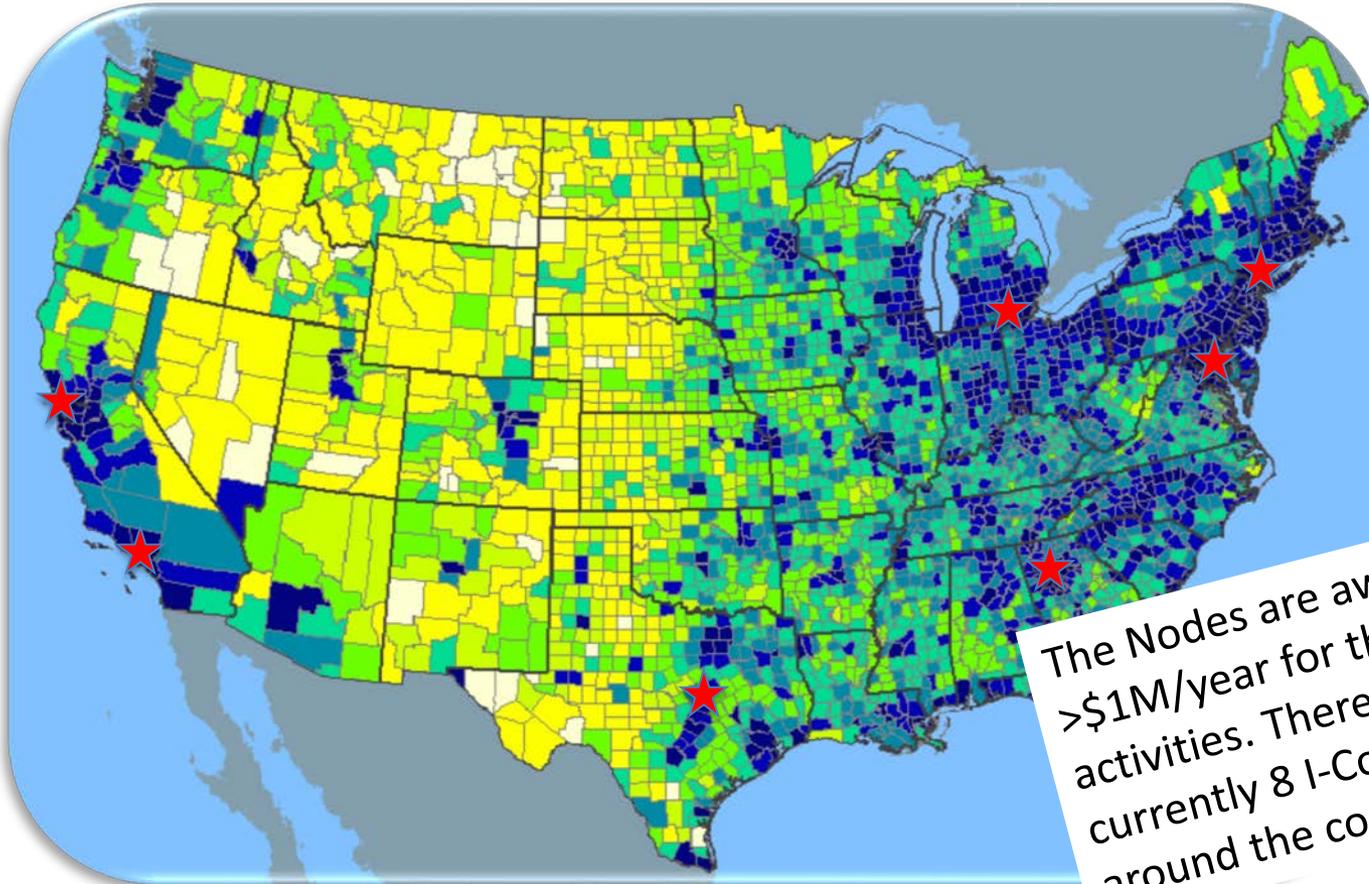
I-Corps™ Nodes



# NSF Innovation-Corps Flow Diagram



# I-Corps™ Nodes



The Nodes are awarded >\$1M/year for three activities. There are currently 8 I-Corps Nodes around the country.

Level 1 – *Regional Training*

+

Level 2 – *Develop Tools and Resources*

+

Level 3 – *Blue Sky Research*

And finally, theirs is still one missing piece.

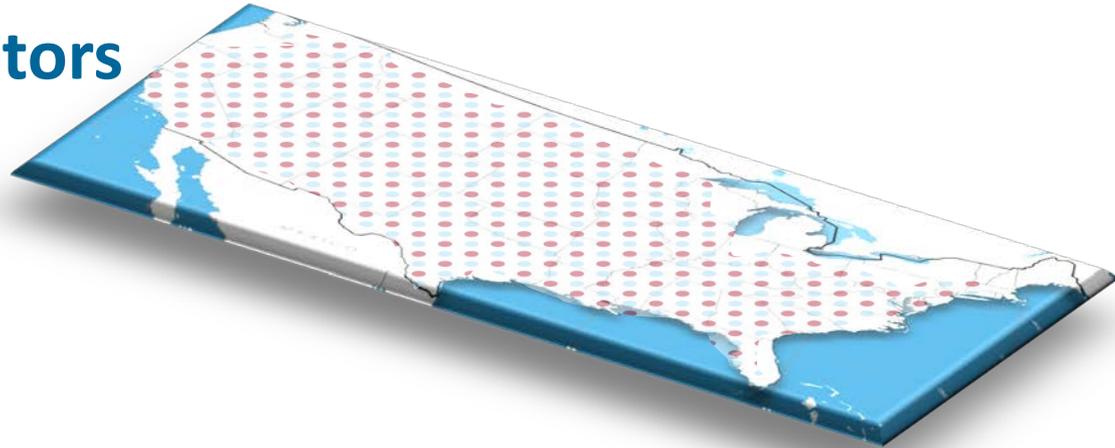
The Teams and the universities need access to qualified, willing, volunteers to serve as Mentors.

The Mentors are serial entrepreneurs with the “right Rolodex”.

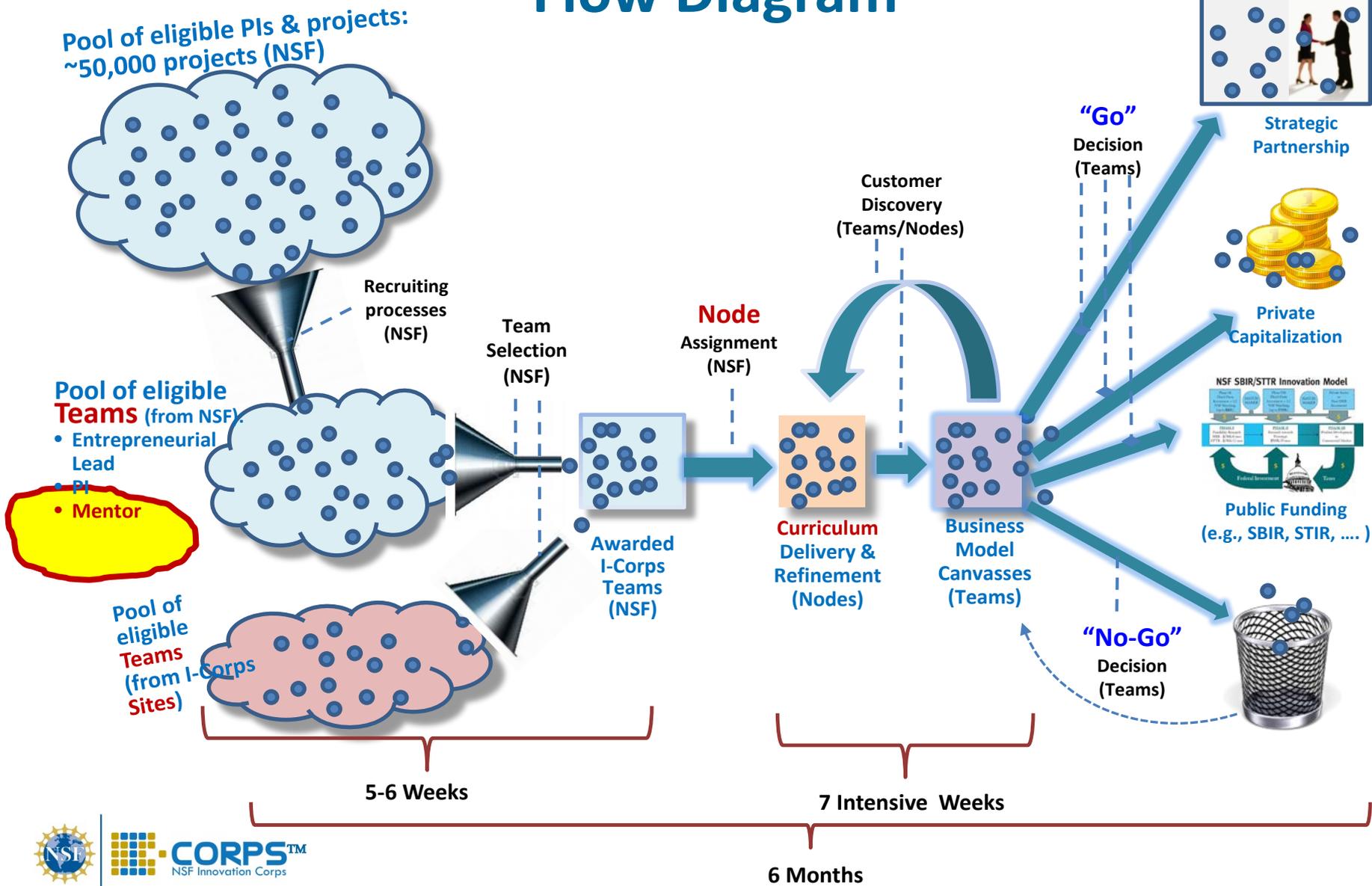
Mentors are experienced and knowledgeable in the Team’s technology space. ...

# The I-Corps™ National Resource Activity -- Mentors

## I-Corps™ Mentors



# NSF Innovation-Corps Flow Diagram



# I-Corps™ Mentors

## Mentor-Related Developments

- LinkedIn Mentor Network
- ~900Mentors
- Re-cycling among Mentors!

*The I-Corps space is still immature  
with respect to the Mentor Layer —  
there's work to be done.*

So where are we now?

How might this “modest beginning”  
impact the nation?

## Leveraging and Scaling I-Corps™

We, at NSF, were charged by the [Office of Science and Technology Policy \(OSTP\)](#) and [Congress](#) with scaling up I-Corps nationally to create a **National Innovation Network (NIN)** – a network for entrepreneurship that is broad and sustainable and involves:

- Federal Agencies
- States and Regional governments
- Academic institutions
- Non-profits
- Main-street

# Scaling to Other Federal Agencies – Memos of Understanding (MOUs) about replicating I-Corps within

- ARPA-E
- USDA
- DHS
- NSA
- **NIH**
- EERE
- DOD
- AFOSR
- ARL
- USDA
- SBA
- DOT
- NASA

(particularly for SBIR recipients)

# States and Regional governments

- State Legislatures (NY, Ohio, CA, ...)

## Non-Profits

- ACS
- Gates Foundation

## Main Street

- SBA

And then, SURPRISE!!!!

In November of 2016, an NSF program that started out as a pilot only five years earlier was legislated by Congress as part of the *America Competes Act!*

So, stay tuned – more to come ...

## Summarizing where you fit into I-Corps:

- You may be eligible to participate at your institution's I-Corps Site (if they are one) [\$1,000 - \$3,000 plus local, abridged training]
- You may be eligible to compete for an I-Corps Teams award (with your NSF funding lineage) [\$50,000 plus seven weeks immersion at a Node]
- Your institution might want to become an I-Corps Site or participate as part of a Node [\$100,000/year – Site – or ~\$1M/year – Node]

# Thank you!