

“Transition to Practice Workshop: NSF’s Innovation Corps (I-Corps)”

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NSF’s Innovation Corps Programs
(I-Corps™)**



*initially quiet,
modest*

**One successful government activity:
Leveraging Investments in Research at the Nation's
Universities –
Support for Commercialization and Entrepreneurship**



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

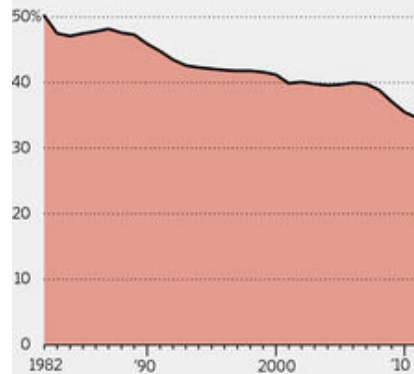
Once upon a time ... Why did the NSF get into the entrepreneurship "business"?

Playing It Safe

Even before the recent recession, entrepreneurship was declining.

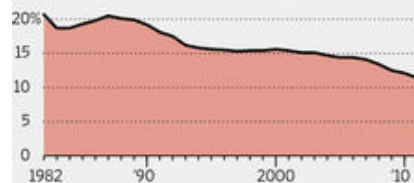
A smaller share of U.S. businesses are new companies...

Share of companies founded in past five years



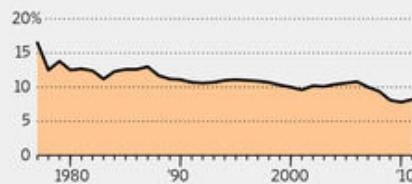
...and the share of the labor force working at new companies has fallen.

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.

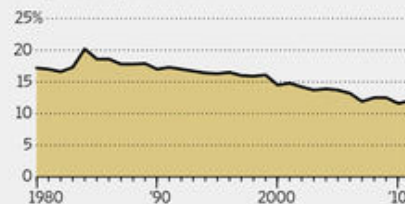
Share of venture capital going to Silicon Valley



Workers and companies are becoming more cautious, too.

Migration rates have been falling for more than 20 years...

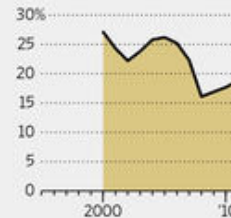
Movers as a share of the U.S. population, one-year of age and older



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

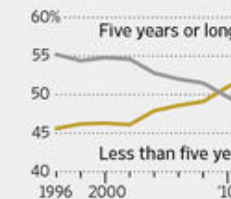
Quits measured as a share of the employed*

*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 Brynjolfsen/The Wall Street Journal

How could we at NSF's respond to disturbing trends ...

We asked ourselves – “Is there anything we might do to Successfully Translate Innovations from Lab (something we know about) to Market – quickly?”

Our goal was to:

- Leverage NSF's investments and broaden the impact of NSF-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!” And, naively, we thought we were starting small. 😊

HBR.ORG Harvard Business Review

MAY 2013
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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.

So, in **2011 we launched NSF’s I-Corps Teams 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”.

We suspected we
were on to
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.

THE PRESIDENT’S BUDGET
 FISCAL YEAR 2015

Opportunity for All: Creating a 21st Century Government

Growth, Opportunity, 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-work 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 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.

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This was not necessarily a good thing!

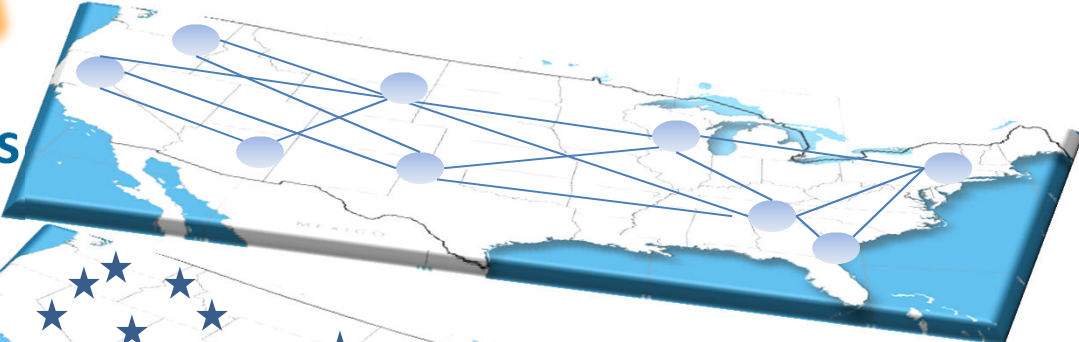


So, a little more about
“What is I-Corps™” and
how did it become a
national movement toward
creating a sustainable
entrepreneurial
ecosystem?
Does it seem to be
working?

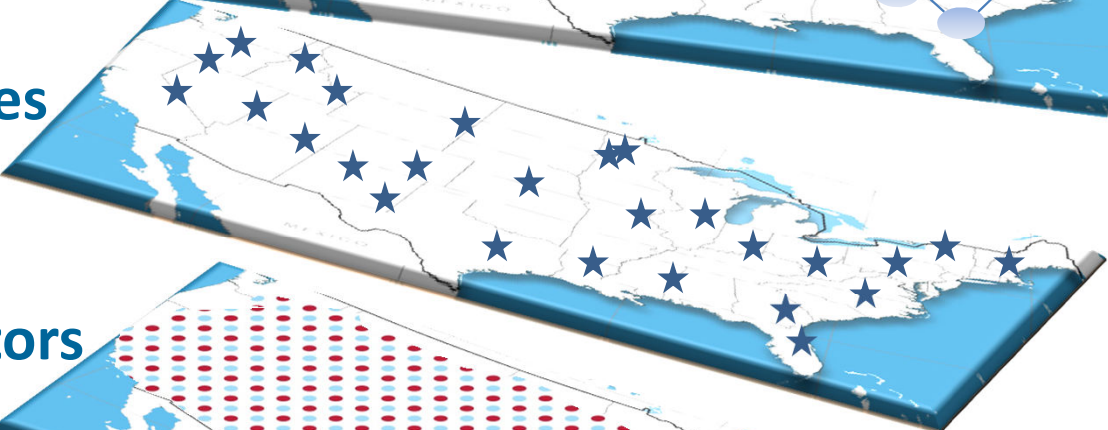
We realized pretty soon that we were doing more than getting a few academics to create startups
The "Bigger Picture" ...

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

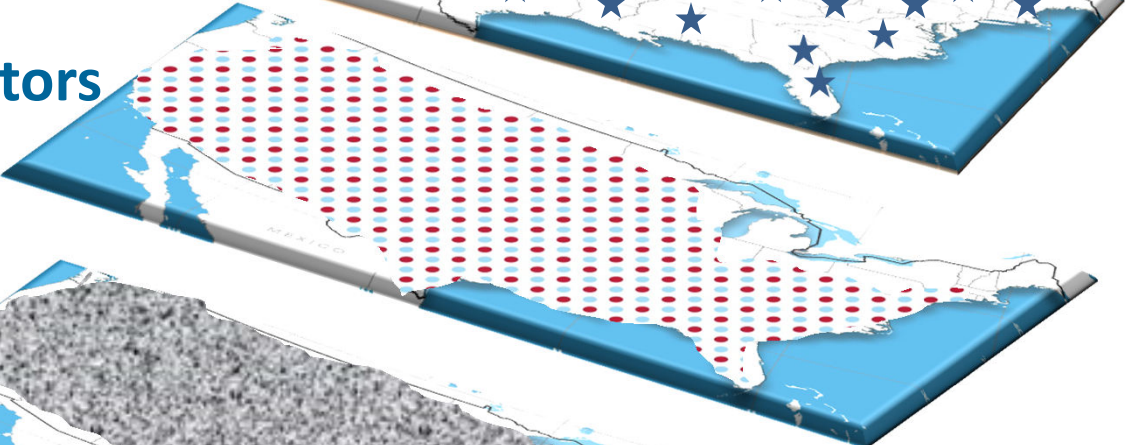
I-Corps™ Nodes



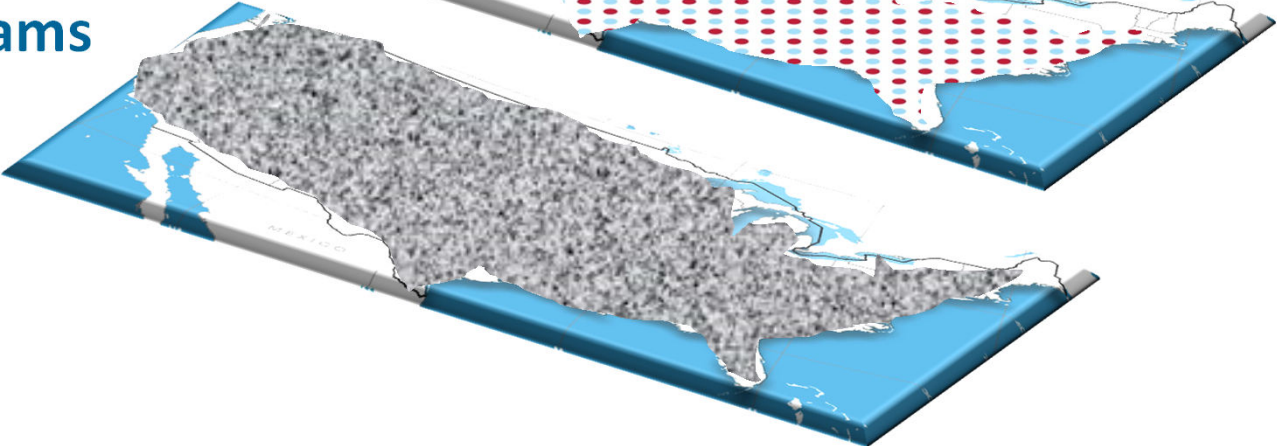
I-Corps™ Sites



I-Corps™ Mentors

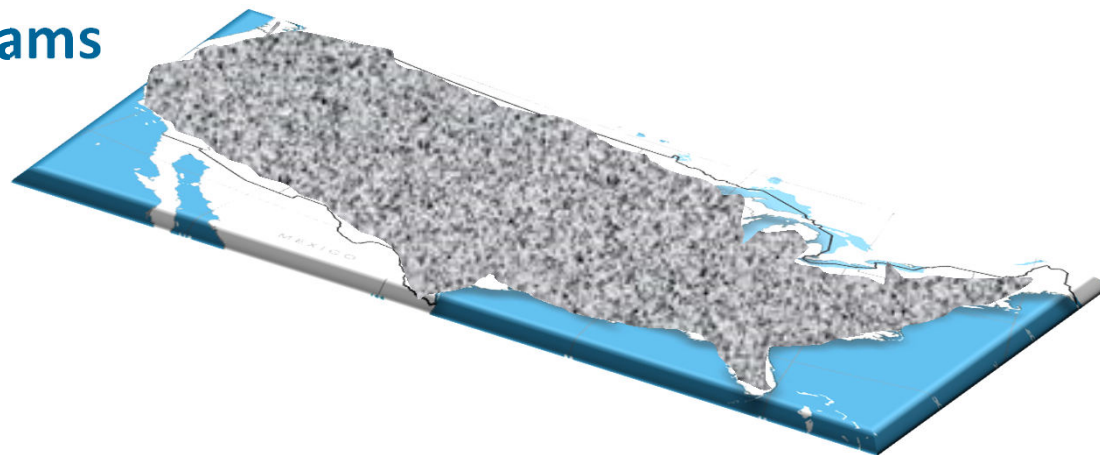


I-Corps™ Teams

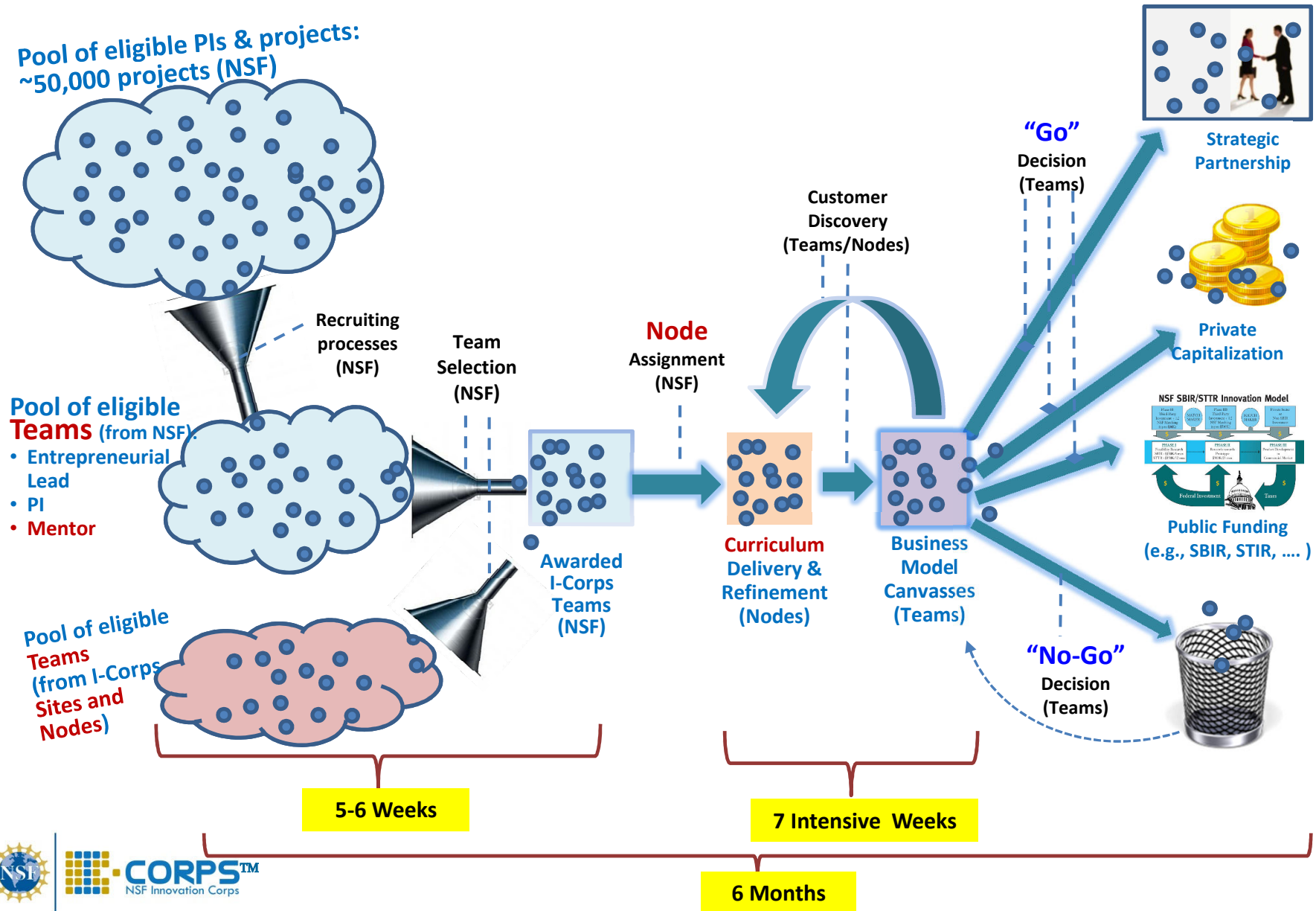


The I-Corps™ “Grass-Roots “ Activity -- Teams

I-Corps™ Teams



NSF Innovation-Corps Teams Flow Diagram



And Here's what happened

>600 Teams completed I-Corps in past 4
years
>50% have already created start-up
companies!!

Highlights of just a few of
the many success stories
from NSF's I-Corps
Program