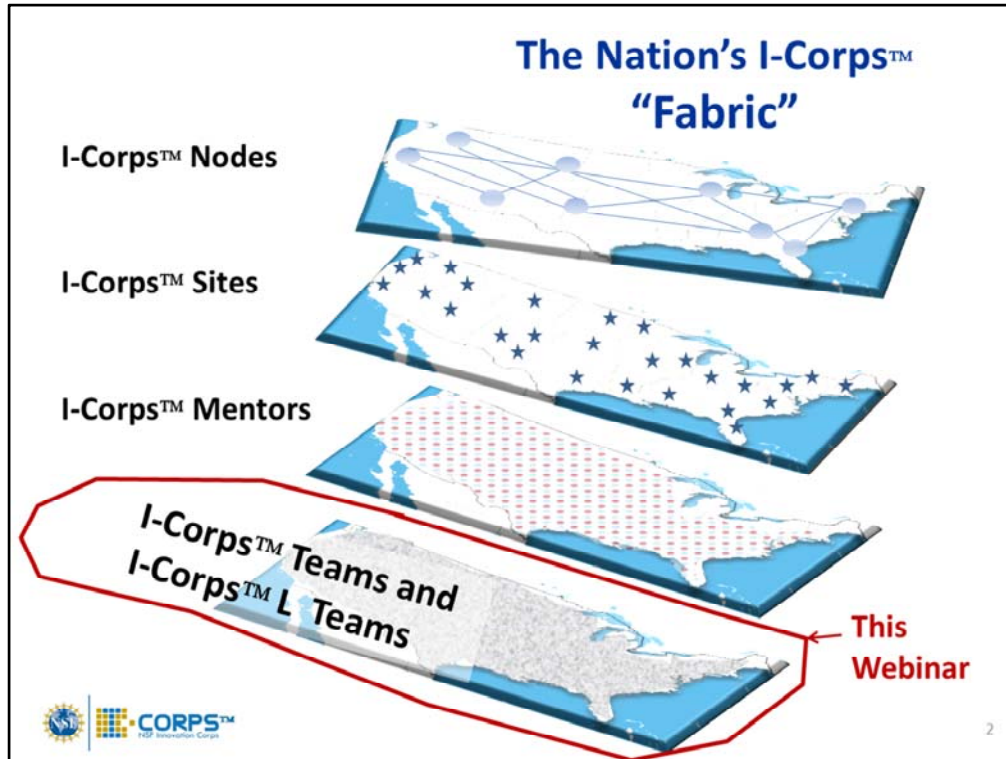


Welcome to the National Science Foundation's Innovation Corps for Learning (I-Corps - L) webinar.

Introduction

Our goal with this webinar is

- to provide information about the I-Corps L Teams program – as you will hear, there is more than one I-Corps Program.
- To help you understand what the goals of the program are
- To help you self-select as to whether I-Corps is appropriate for you



When NSF's I-Corps Program first began, in 2011, it was a single program – the Teams program.

But since then, I-Corps has evolved into a collection of activities designed to create a national fabric of support for entrepreneurship.

The purpose of today's webinar is to describe, in detail, how you can pursue funding for an I-Corps L Team – a recently added I-Corps activity focused on learning.

I-Corps™ Webinar Agenda

- Background and Overview of I-Corps™ Teams and I-Corps™ L Teams Program
- Program Details
 - Eligibility
 - Before Submitting a Proposal
 - Preparing Your Proposal
 - Your Budget
 - I-Corps Curriculum
- Expectations
- Frequent Questions
- I-Corps™ Teams Q&A Session



Here's what we are going to cover.

I-Corps™ Teams

Some Background

- Leverages NSF investments in R&D
- Contributes to the nation's **innovation ecosystem**
- **Small grants** -- focus on **sustainable scaling/commercialization** roadmap -- Addresses the "Ditch of Death"
- I-Corps awards NOT for new research –but scaling
- **Nimble review and funding** -- Immediate assessment
- Projects are **team-based**
- Process-oriented -- **Curriculum-focused**



4

The ideas behind I-Corps are based on the fact that:

- NSF spends almost \$7 billion per year on research and 50,000 active awards.
- outcomes of research projects is appropriate and ready to transition out of the lab. So, with I-Corps Teams, NSF is leveraging its investments in R&D.
- At the same time, because I-Corps Teams focuses on commercialization of ideas that were funded by NSF, we are contributing to the Nation's innovation ecosystem.
- I-Corps makes available small grants and other support to enable commercialization of research outcomes.
- One of the goals of the program is to help you answer the question: "Should this idea be transferred out of the lab?".
- So, it is important for you to understand that I-Corps does NOT fund research. It funds the commercialization of research outcomes.
- Bridge the "ditch of death" gap between success in lab/classroom and establishing infrastructure for widespread use.
- One important aspect of I-Corps is that funding decisions are essentially immediate. From the first time that you engage a Program Officer until you know whether your I-Corps Teams project will be funded is a matter of weeks and not months as is usual for most of our programs.
- If you decide to pursue I-Corps you should understand that it is a team based Activity. I-Corps Teams requires three participants (we will return to this later also).
- I-Corps is also process-oriented. What do we mean by process oriented?
 A significant number of academic spin-out and tech-transfer through licensing typically struggle in the market place.
 We know that basic research, in which you - our PIs excel - is much different than tech transfer.
The emphasis, of the I-Corps experience, is on elements of the project that the team may have less experience with.
- Having said that, however, the curriculum in which I-Corps awardees are immersed is based on a hypothesis-validation approach with near-exact alignment to the scientific method which all of NSF's PIs have deep understanding and experience.

In 2014, NSF added the I-Corps™ L Teams Program

- I-Corps L Teams focuses on learning across all STEM disciplines
- I-Corps L supports taking discoveries and promising practices from education research and development (with proof-of-concept results) and promoting opportunities for widespread adoption, adaptation, and utilization.
- I-Corps L teams will receive support - in the form of mentoring and funding - to accelerate innovation in learning that can be successfully scaled, in a sustainable manner.



5

I-Corps for Learning.

Applies to all STEM disciplines.

All aspects of education pre-K to Grey

Take discoveries, innovations, promising practices with PROOF-OF-CONCEPT Results and promote widespread utilization.

Could take form of commercial product, company, non-profit, other self-sustaining entity.

I-Corps-L teams support in form of funding and guidance to accelerate innovation to scale up in sustainable manner.

I-Corps™ L Teams Program Details

Eligibility



Credit: © 2011 JupiterImages Corp.

- **PI: NSF award**
(current or expired no more than 5 years ago, relevant to your innovation)
- Must have I-Corps **team in place** at initial contact
- Prepared for a serious **time commitment**
(Consistent with start-up mentality)
- Must be **available for off-site Workshops** and on-site Curriculum (entire team)



6

Now let's talk about what needs to be in place for you to be a candidate for I-Corps L.

To be eligible to pursue funding through I-Corps L, applicants must have been associated with a relevant prior award from NSF (in a STEM education field relevant to the proposed innovation) that is currently active or that has been active within five years from the date of the proposal submission. The lineage of the prior award extends to the PI, Co-PIs, Senior Personnel, Post-doctoral Researchers, Professional Staff or others who were supported under the award.

You should have a team in place – we will come back to this.

You must understand that there is a substantial Time Commitment – for the off-site Workshop, for the on-going Web interactions, and for the demo phase.

What we're doing is helping you actually use methods adapted from business startups to scale educational innovations.

For I-Corps participation we insist on a fulltime commitment **but** it is a commitment consistent with a start-up.

We'll tell you more about what all of this means in the next few slides.

I-Corps™ L Teams Program Details

First, form your I-Corps L Team

- **Principal Investigator (PI)**

- Researcher with connection to current or previous NSF award

- **Entrepreneurial Lead (EL)**

- Often a Post-doc or Student. Leads effort to move project forward

- **I-Corps™ Mentor(M)**

- Domain-relevant volunteer guide
- Proximity is better



Credit: © 2011 JupiterImages Corp.



7

The **Principal Investigator (PI)** The principal investigator is the person who was affiliated with a prior NSF award. Like other NSF awards responsible for overall grant management.

The **Entrepreneurial Lead (EL)** Often a Post-Doctoral scholar, graduate or other student with relevant knowledge of the technology and a commitment to spearhead effort to investigate the educational ecosystem surrounding the innovation. The Entrepreneurial Lead should also be capable and have the will to support the transition of the technology, should the I-Corps L project demonstrate the potential for commercial viability.

The **I-Corps Mentor** will typically be an experienced or emerging entrepreneur with proximity to the institution and experience in transitioning innovations out of Academic labs/classrooms into widespread utilization. The I-Corps Mentor must be a third-party resource and may be recommended by the proposing institution. The I-Corps Mentor will be responsible for guiding the team forward and helping with decision-making process. The Mentor should understand the evidence concerning promise, e.g., from an institutional education-focused center or commercial background that will help inform the efforts

PI, EL, and M work as a team of equals throughout the process. Startup atmosphere, focus successful scaling not academic hierarchy.

I-Corps™ L Teams Program Details

Second, prepare a **1-Page** Executive Summary

Critical information

- Team (PI, EL, M) and backgrounds
- Relevant current/previous **NSF award**
- Description of your innovation and the potential **impact** including **current proof of concept evidence**.
- Description of the **current plan for sustainable scaling**
- **Your vision of success.** How do you define sustainable scaling for your innovation?
- Your contact information.



8

So, if you think you are a candidate for I-Corps L Teams, what should you do next?

Prepare a ONE PAGE "Executive Summary" that includes in the information shown on the slide.

I-Corps™ L Teams Program Details

Third, contact NSF

By **April 1, 2015**, submit your
Executive Summary to:

Karen Crosby
kcrosby@nsf.gov



9

Send your Executive Summary to Karen Crosby.

If yours is a viable I-Corps project, you will be contacted.

I-Corps™ L Teams Program Details

What will happen next?

1. Someone will contact you to set up an **initial telephone conference call** that includes **your entire team** and NSF staff responsible for I-Corps.

If this interview part of the process goes well . . .

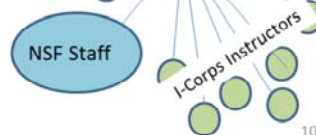
2. A **final conference call** will be set up with your team, the NSF staff and a group of Instructors from the I-Corps Program. If this part goes well, you will be asked to submit a proposal.



1



2



10

You will be contacted to schedule your team (all three members must be present) for a conference call with the NSF staff who manage the I-Corps Program.

Interactive Phone conferences replace the NSF traditional panel review process.

If the outcomes of that interview are favorable, you will be scheduled for a second call that includes NSF I-Corps staff and a collection of Instructors from the I-Corps nodes. Like the initial call all three members of the team must be available in the second or final call.

If the outcomes of the second call are favorable, you will be asked to submit a formal proposal.

I-Corps™ L Teams Program Details

Then, you submit your Project Proposal

- Read solicitation (I-Corps Teams Program, NSF 12-602)
*(but don't submit before completing the initial processes and obtaining **written authorization** from Cognizant I-Corps PD to submit proposal – sent after final phone interviews)*
- **5-page proposal**
 - Team (1/2 pages)
 - NSF Prior Award Lineage (1/2 Page)
 - Innovation and Proof-of-Concept Data (2 pages)
 - Potential Impact (1 page)
 - Current Project Scale and Sustain Plan/Demo (1 page)
- Rolling process, **FCFS**
- 4-week turnaround to award, **Internal Review**



11

While the I-Corps solicitation may look like a regular solicitation, don't be fooled. It's quite different.

First, you must have written authorization from one of the cognizant program officers to submit a proposal.

Submit within the window indicated last week of the open window and think you will be able to get in.

ONLY 5 pages. Guidelines of what to include:

The proposal review is an internal review and we will turn the awards around in under 4 weeks from the time the proposal is submitted. That doesn't mean from the time you start your communication with NSF. But, it means from the time that we accept a proposal.

I-Corps™ L Teams Program Details

What about your proposal's Budget?

\$50 K per award

- Capped at 10% IDC (\$5K)
- \$45K in direct costs (includes travel for three team members to two immersion sessions plus registration fee)

NUMBER OF PARTICIPANTS (E)	0	TOTAL PARTICIPANT COSTS	0
A. DIRECT COSTS			
TRAVEL AND SUPPLIES			0
REPLICATION COSTS (DOCUMENTATION/DISSEMINATION)			0
CONSULTANT SERVICES			0
COMPUTER SERVICES			0
SUBAWARDS			0
OTHER			45,000
TOTAL OTHER DIRECT COSTS			45,000
H. TOTAL DIRECT COSTS (A THROUGH G)			45,000
I. INDIRECT COSTS (FAX SPECIFY RATE AND BASE)			
TOTAL INDIRECT COSTS (F.B.A)			5,000
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)			50,000
K. RESIDUAL FUNDS			0
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)			50,000
M. COST SHARING PROPOSED LEVEL \$	0	AGREED LEVEL IF DIFFERENT \$	
FOR NSF USE ONLY			
		INDIRECT COST RATE VERIFICATION	
Date Checked	Date Of Rate Sheet	Initials - ORG	



12

Let's talk about I-Corps L details.

An award is for \$50K where the indirect is capped at 10% -- leaving \$45K for I-Corps activities.

I-Corps™ L Teams Program Details

What happens next? It's all about education.

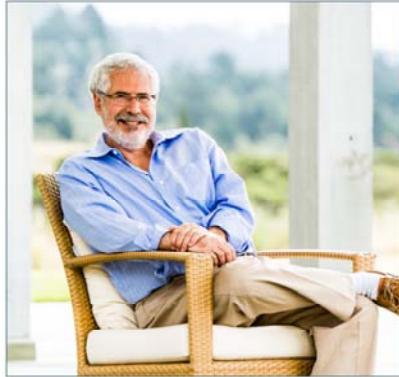


Photo Courtesy of Steve Blank
<http://steveblank.com/>



Immersion in the Teams Curriculum

- Pioneered by Steve Blank at Stanford
- Uses what we learned about building **Lean Startups and Evidence-Based Entrepreneurship** adapted for Educational Innovations.
- The curriculum is team-centric and emphasizes customer discovery and development, risk assessment, lessons learned, agility and evidence-based strategies for innovation transfer.
- Investigate: End users, user needs, alignment with needs, identify key partners, competition, costs.

13

If your project and team are funded by I-Corps, you will be immersed in the I-Corps L Curriculum.

The curriculum is based on a curriculum that was developed by Steve blank at Stanford university.

Lean Startup which is Evidence-Based Entrepreneurship adapted for scaling and sustaining educational innovations.

Discovery process based on interviewing potential users, collaborators, partners, even competitors.

Craft a path to scale up and sustainability based on: user needs, alignment of your innovation with real needs, identification of channels though which you will reach your customers, realistic understanding of costs, and outlining means through which can access resources needed to sustain.

It's **not** about how to write a research paper, business plan, or NSF proposal. The end result is not a publication.

Instead the entire I-Corps team will be engaged with industry; talking to customers, partners, and competitors; and encountering the chaos and uncertainty of creating successful innovations. Getting out of the laboratory/university is what the effort is about.

Program Details Specific Dates 2016

- Week 1: Attend 3-day intensive course in **Washington DC Area**
 - **July 13 – 15** (arriving the day prior to course start)
- Week 2-6: Immediately following-on **Return home**
 - **July 22, 29, Aug 5, 12, 19**
 - (Fridays, 1 - 4 p.m. Eastern): **web-based discussions**
 - Customer discovery
 - Interview at least 100 potential customers/users
 - AT LEAST 15 hours of prep per week per team member
- Week 7: Attend 2 days of Lessons-Learned in **Washington DC Area**
 - **August 25 – 26** (arriving on Wednesday the 24rd)
 - Present innovation scale and sustain disposition: Go/No Go
 - Scaling Roadmap: Assuming Go
- Beyond Week 7: **Teams proceed with plan (if Go)**



14

An I-Corps award requires a commitment:

- Attendance by the entire team at a three-day kickoff
- In Washington DC with other 23 teams
- Participation in five Webinars following the completion of the kickoff.
- About 15 hours of prep per week for at least five weeks.
- And two days of demonstrations at the end of the quarter.
- Your teams are expected to engage in at least 100 contacts with potential customers (primarily) during the seven week period that I-Corps takes place.
- Reach a go/no-go decision and plan to move forward.

I-Corps™ L Teams – Example -Team 19

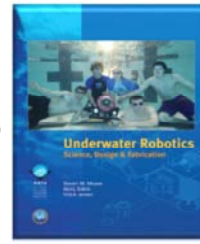


UW Robotic Kits

+



+



Lesson and Activity Book

103
Interviews

Assumed: Supply Underwater Robot Kits to Educators.

Discovered: Professional Development Robotics Certification for Teachers

15

Past I-Corps-L Team Example

SeaMate from Monterey Peninsula College

Developed kit for building underwater robots

Initial plan was to scale up and supply kits nationwide.

I-Corps-L and 103 interviews discovered:

Not as much interest in kits as expected but robotics certification for K12 STEM teachers plus kit.

Discovery process – PIVOT – shift direction to more sustainable opportunity.

I-Corps™ L Teams – Example -Team 24



Cognitive ToyBox

Science-Backed Games to Promote Language Acquisition



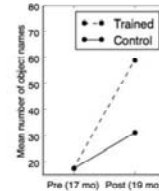
Brenden Lake
(PI)



Tammy Kwan
(EL)



Jen van der Meer
(M)



109
Interviews

Assumed: Users were parents seeking developmental edge.

Discovered: Parents of “late talkers.”

16

Team 24 Cognitive ToyBox from NYU

Games to promote language and vocabulary acquisition based on neuroscience and science of cognitive development

Expected users would be parents looking to accelerate children

Found more enthusiasm in parents of late talkers

PIVOT

Not all teams PIVOT but they are very interesting discoveries.

I-Corps™ L Teams – Expected Outcomes

- Challenge NSF education researchers to think beyond their research results and toward broader adoption of STEM education and learning innovations
- Encourage proposals that take discoveries and promising practices from education research and development and promote opportunities for widespread adoption, adaptation, and utilization.
- Getting the best evidence-based practices out to potential adopters where those practices can benefit large numbers of students or learners, rather than just in a few classrooms or informal learning organizations, requires an entrepreneurial approach.
- Through I-Corps L, the tools of evidence-based entrepreneurship can benefit educators and researchers by helping them to identify approaches that are effective in STEM teaching and learning.
- Increased impact of NSF-funded basic research
- Strengthen the nation's innovation ecosystem



17

Challenge NSF education researchers to think beyond their research results and toward broader adoption of STEM education innovations

Encourage proposals that take discoveries and promising practices from education research and development and promote opportunities for widespread adoption, adaptation, and utilization.

Getting the best evidence-based practices out to potential adopters where those practices can benefit large numbers of students or learners, rather than just in a few classrooms or informal learning organizations, requires an entrepreneurial approach.

Through I-Corps L, the tools of evidence-based entrepreneurship can benefit educator and researchers by helping them to identify approaches that are effective in STEM teaching and learning.

Increased impact of NSF-funded basic research

Strengthen the nation's innovation ecosystem

I-Corps™ Teams

Some Common Questions

- What **can be** included in **direct costs**?
 - ~\$10K in travel and registration for two trips to course-site for entire team (depending on proximity)
 - Stipend for Entrepreneurial Lead
 - Travel costs to customers/partners/stakeholders
 - Materials, software, licenses, etc for improving prototype or demo, as appropriate
- **Unallowable:**
 - Stipend/consulting fees for I-Corps Mentor or PI
 - Legal Fees (Startup, IP protection)



I-Corps™ Teams

Some Common Questions

Who makes a **good mentor**?

- Someone who has business expertise in your sector (education and learning) and has entrepreneurial experience
- Someone with the right “rolodex” – knowledgeable contacts in your area are critical for “getting out of the lab”
- Contact your Tech Transfer Office for ideas



More Information

- I-Corps™ L - Dear Colleague Letter (DCL) NSF 16-049
[nsf.gov/pubs/2016/nsf16049/nsf16049.pdf](https://www.nsf.gov/pubs/2016/nsf16049/nsf16049.pdf)
- ASEE I-Corps™ for Learning website:
<http://www.asee.org/i-corps-l/about>
- I-Corps™ Teams Solicitation:
<http://www.nsf.gov/pubs/2012/nsf12602/nsf12602.htm>
- I-Corps™ website:
www.nsf.gov/i-corps



Further follow-up:

kcrosby@nsf.gov



21



Thanks!