



ACADEMY FOR INNOVATION & ENTREPRENEURSHIP  
Edward St. John Teaching & Learning Center, Suite 1130, College Park, MD 20742

TESTIMONY OF DR. DEAN CHANG  
Associate Vice President for Innovation & Entrepreneurship  
University of Maryland

Before the  
House Committee on Science, Space, and Technology  
Subcommittee on Research and Technology  
Hearing Titled  
"From Lab to Market: A Review of NSF Innovation Corps"  
Wednesday, December 6, 2017

Good morning, Chairwoman Comstock, Ranking Member Lipinski, and distinguished members of this House Science Subcommittee. I am greatly appreciative of the opportunity to testify and engage in a discussion with all of you about the NSF I-Corps program.

My name is Dr. Dean Chang. Sometimes it helps if I clarify that Dean is my name, not my title. I'm the Associate Vice President for Innovation & Entrepreneurship at the University of Maryland. We've already heard a lot from my fellow witnesses about the lab-to-market impact that I-Corps has had. So as the lead principal investigator for the NSF I-Corps Node for the DC, Maryland, and Virginia area (the DMV Node), I'd like to use my five minutes to highlight two specific areas of impact of I-Corps:

- Area #1: Impact of I-Corps on the regional and national level
- Area #2: Impact of I-Corps on undergraduate education

Area #1: Impact of I-Corps Nodes on the regional and national level

NSF has created a National Innovation Network with seven I-Corps Nodes across the country. What is a Node? Nodes are basically charged with rallying and marshalling together the many universities, investors, entrepreneurs, and industries in our geographic regions and getting everyone to work together as one. It is my observation that this has been one of the hallmarks and most impactful contributions of the NSF I-Corps program.

In the past, critical startup knowledge of what worked and what didn't often lived in the heads of a few expert individuals, and most universities didn't have easy access to those individuals. That's all changed with I-Corps Nodes.

Here in the DMV Node, we have built up a strong bench with over a dozen I-Corps instructors from UMD, JHU, VT, GWU, and Howard. Once or twice a year, NSF sends us about 25 teams for the national I-Corps training. But the rest of the year, our dozen I-Corps instructors continue to



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teach in various versions of I-Corps programs throughout the region to another 200 teams each year. Those instructors even travel to other schools to provide I-Corps training to teams from schools like George Mason, UVA, VCU, Morgan State, and even outside the DMV to schools in Pennsylvania and North Carolina.

This means a team from just about any school in our region can get access to any instructor from our Node. For instance, if you're a team from Morgan State, we can connect you with our instructor from JHU who specializes in life sciences; or our instructor from UMD who specializes in VR/AR, and UAVs; or our instructor from VT who specializes in DOD-funded companies; or our instructor from GWU who specializes in international markets.

This picture I paint for our DMV Node is the same at the other six Nodes. In the Midwest Node, the University of Michigan collaborates with Purdue and University of Illinois and other schools in that region. In the Southeast Node, Georgia Tech collaborates with University of Alabama and University of Tennessee and other schools in that region. The same for the Nodes in the Northeast, West Coast, and Southwest. This National Innovation Network of Nodes created by NSF really has an "All for one, one for all" sense of community across regions and across the country.

### Area #2: Impact of I-Corps on undergraduate education

The curriculum and methods in the national I-Corps training are also being widely integrated into undergraduate education.

At the University of Maryland, key components of I-Corps training have been incorporated into over 50 courses reaching over 7,000 students each year. One of those classes is the senior capstone course in bioengineering in which students spend the year working with doctors to design medical devices. Before incorporating I-Corps into the course, some beautiful devices were designed and manufactured with little regard to validating a business model. Now the students spend time in customer discovery and learn how improved healthcare also requires purchasing, reimbursement, and regulatory to be part of any successful business model.

Two students in the course, Shawn Greenspan and Stefanie Cohen, said, "I-Corps finally put us on the road to real customer discovery. Our initial business plan started with an incorrectly identified buyer, value propositions that were wrong, and guesses everywhere else. Fortunately after 67 interviews we now have ... a developing revenue model. We still have lots of work to do ... but now we know where our answers lie: outside the building."



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Shawn is now working for Palantir Technologies, and Stefanie works for a spinal surgical implant company. Both Shawn and Stefanie cite I-Corps as a formative experience that gave them the essential skills to be able to accelerate technology into the market, skills that they are both using in their jobs today.

Many of the 85 other colleges teaching I-Corps have similar stories of the impact I-Corps is having on undergraduate education.

### Conclusion

In conclusion, I-Corps has created a significant culture change across campuses among both students as well as faculty. Faculty who go through the national I-Corps training get connected to the tremendous resources of the National Innovation Network and come back eager to apply I-Corps principles to their entire research portfolio as well as to their teaching. That in turn better prepares and better equips students to make an impact on the economy and in society, whether it be at a startup, at a large company, or even at a non-profit or in the government.

Lastly, one of the things that has made I-Corps so successful has been the flexibility for I-Corps Nodes to experiment and innovate with the I-Corps program itself. In I-Corps we push scientists to go beyond their comfort zone to find the unexpected opportunities, so we need to continue to push ourselves out of our comfort zone as well to keep making I-Corps better. Thank you for your time, and I'm eager to hear your thoughts and questions.