



The ABC's of NSF I-Corps

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Director, Commercialization Programs



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Agenda

- Introductions
- Overview of NSF I-Corps
- Lean LaunchPad Methodology
 - Program Curriculum
 - What we used to believe vs What we now know
 - The Business Model Canvas
- Application Process
- How to Join the National Innovation Network
- Q&A



Christina Pellicane



Antevasin LLC



Christina Pellicane

Overview of NSF I-Corps™

- Maximizes impact of federal investments – accelerate readiness to transition tech out of the lab
- Began in 2011 with Steve Blank's course at Stanford
- Now offered by 8 federal agencies: NSF, NIH, DOD, DOE, NSA, USDA, DHS, SBA
- The National Innovation Network is the U.S. I-Corps community and has 3 levels:
 - **Sites:** \$300K for 3 years to fund 30 teams per year for early-stage customer discovery
 - **Teams:** \$50K to teams of researchers for intensive customer discovery research during a 7-week bootcamp taught by an instructor team at an I-Corps Node
 - **Nodes:** \$3M hubs for education, infrastructure, research



National Innovation Network



A Little More on Sites...

- 86 Sites across the country
- 86 models of training
- Each Site provides \$1-3K grants to teams of their own researchers for customer discovery research
- Designed to be a pipeline feeder for I-Corps Teams
 - Once training is completed, Site teams can then use the I-Corps Site parent grant as their lineage for NSF I-Corps Teams
- See solicitation: <https://www.nsf.gov/pubs/2016/nsf16547/nsf16547.htm>



A Little More on Teams...

- Over 1,300 teams have completed NSF I-Corps Teams program
- Each team received \$50K NSF grant and must complete the intense 7-week bootcamp
- Program curriculum centers on the Lean Launchpad methodology
 - Business-model discovery to address market risk
 - Leverages scientific method – form hypotheses, run experiments, iterate to search for repeatable & scalable business model
 - Learn how to secure substantial customer feedback before building & launching your product
- Utilizes a flipped classroom
 - Online lectures via Udacity/Launchpad Central
 - “Classroom” time spent reviewing progress
 - Interview ~15 customers & partners/week
 - Weekly teaching team office hours
- See solicitation: <https://www.nsf.gov/pubs/2018/nsf18515/nsf18515.htm>

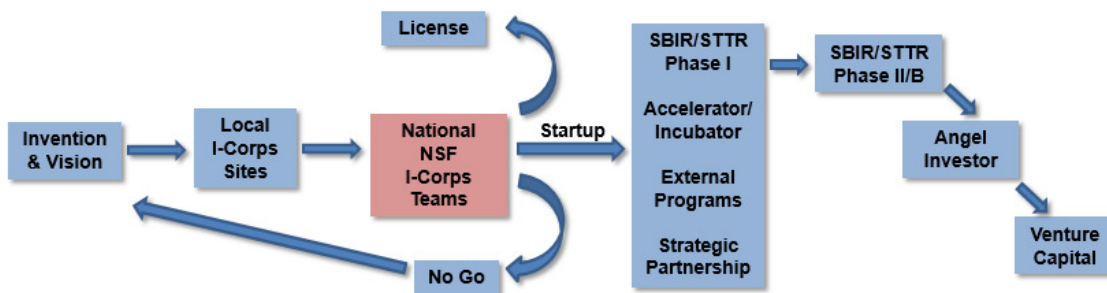


A Little More on Nodes...

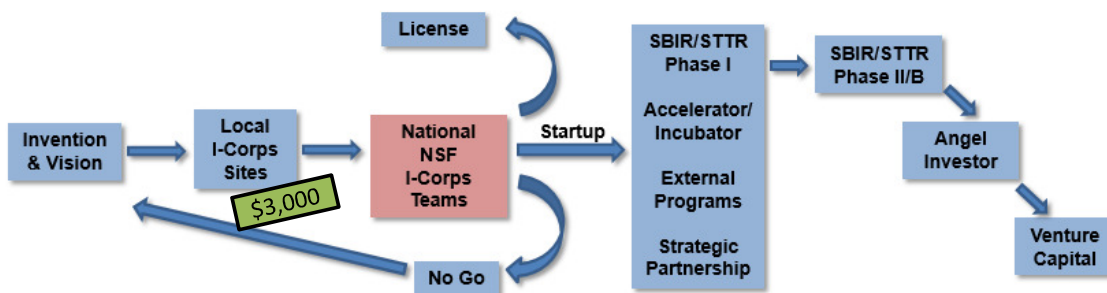
- Regional hub which provides:
 1. Regional training courses
 2. National NSF I-Corps Teams training course (by request of NSF)
 3. Blue Sky R&D
- Might also be able to provide mentors, connections to other Sites (to see winning proposals), train the trainer at regional and national courses
- See solicitation: <https://www.nsf.gov/pubs/2017/nsf17533/nsf17533.htm>



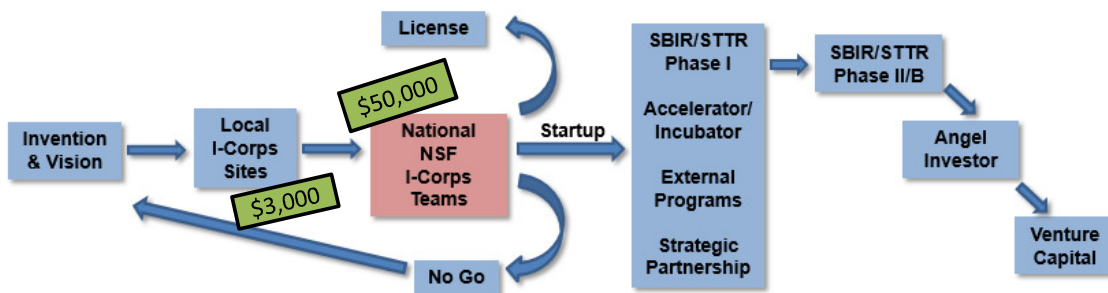
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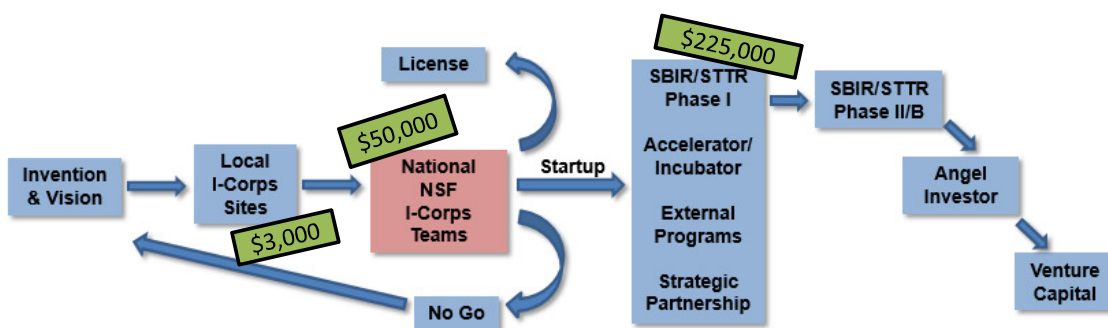
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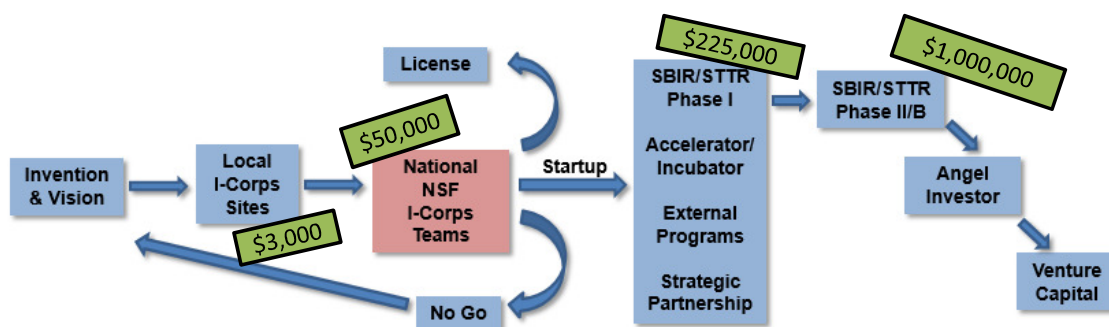
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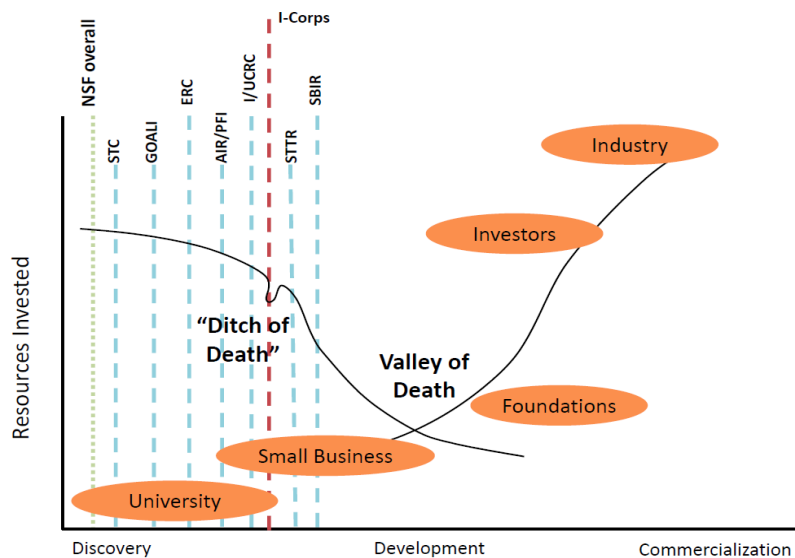


I-Corps Goals

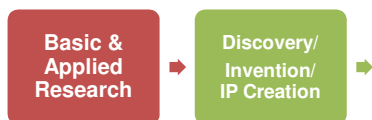
- Aligns with NSF strategy
 - Increase the **impact** of basic research **investments**
- Increase network opportunities
 - National **network** of collaboration between government, public and academic sectors
- Transcending the “**Ditch of Death**”
 - Helping entrepreneurs succeed



Bridging the Ditch



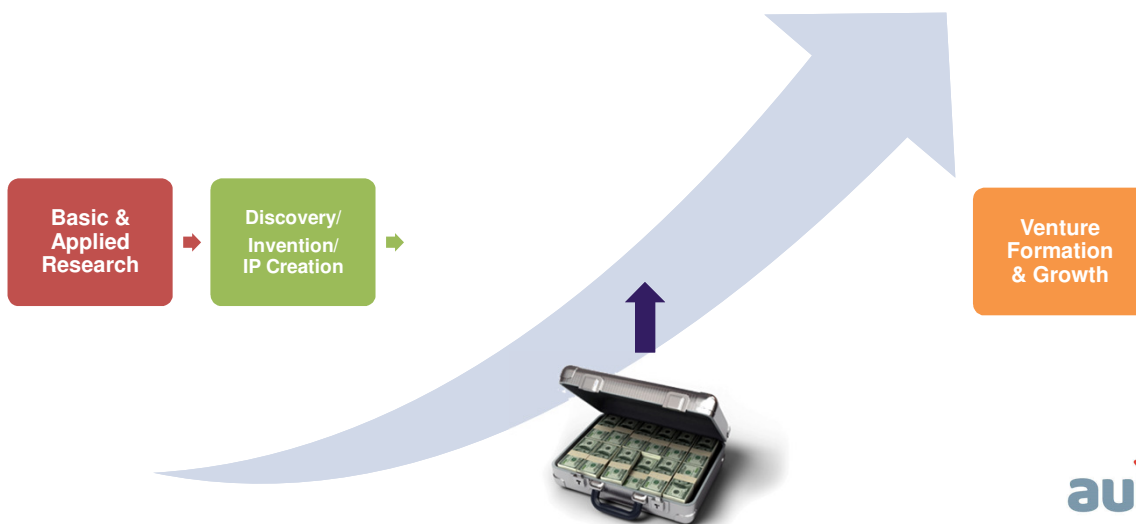
Commercialization Myth



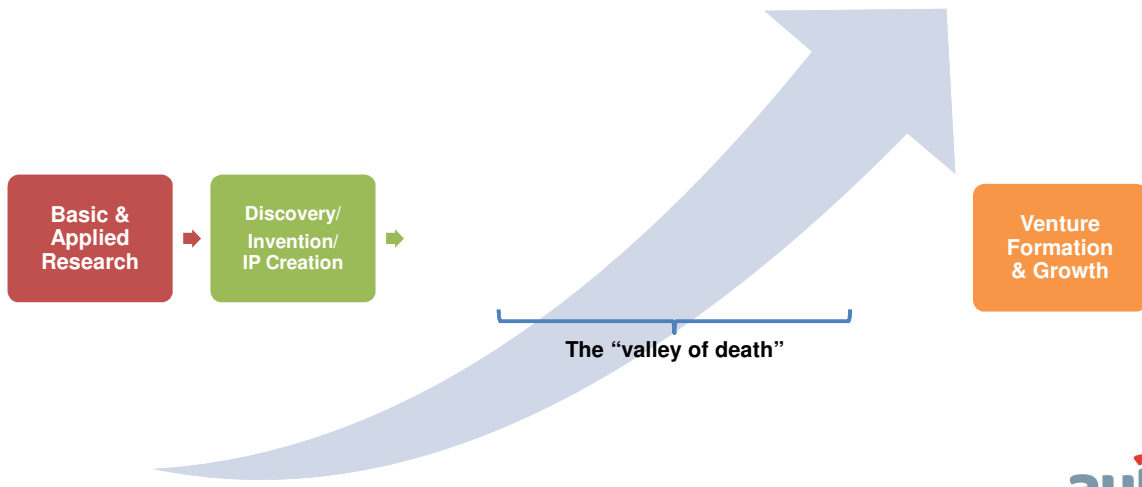
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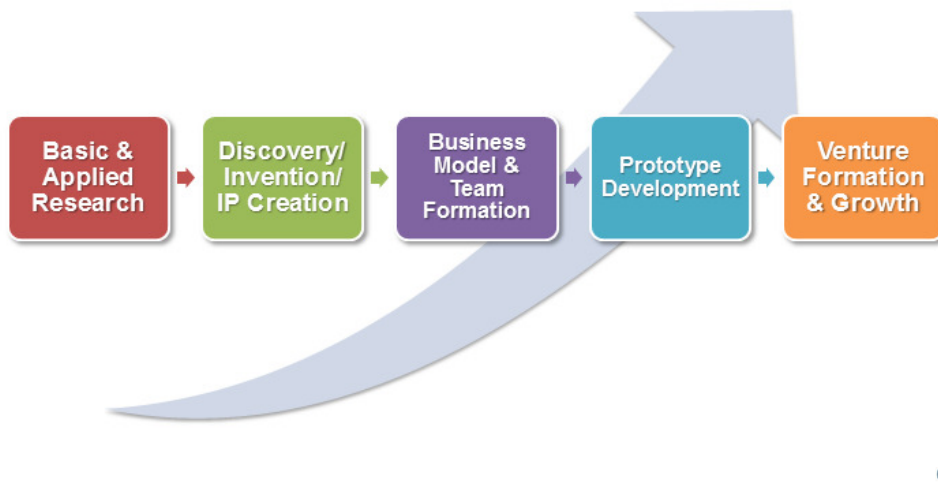
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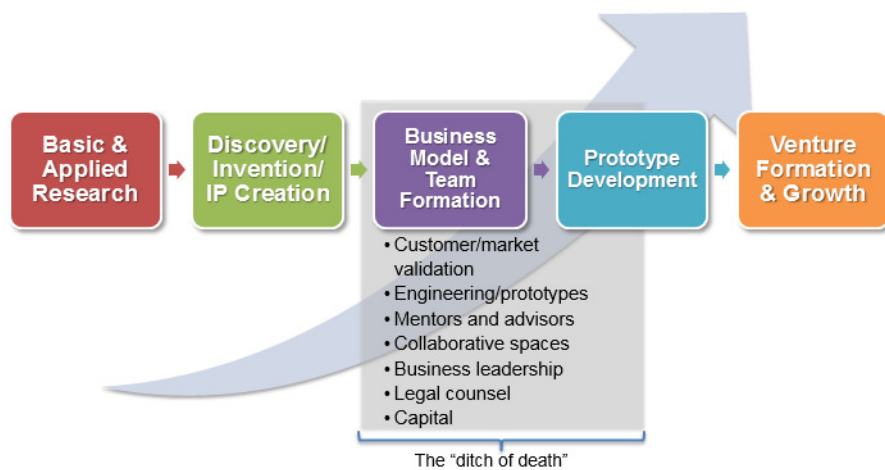
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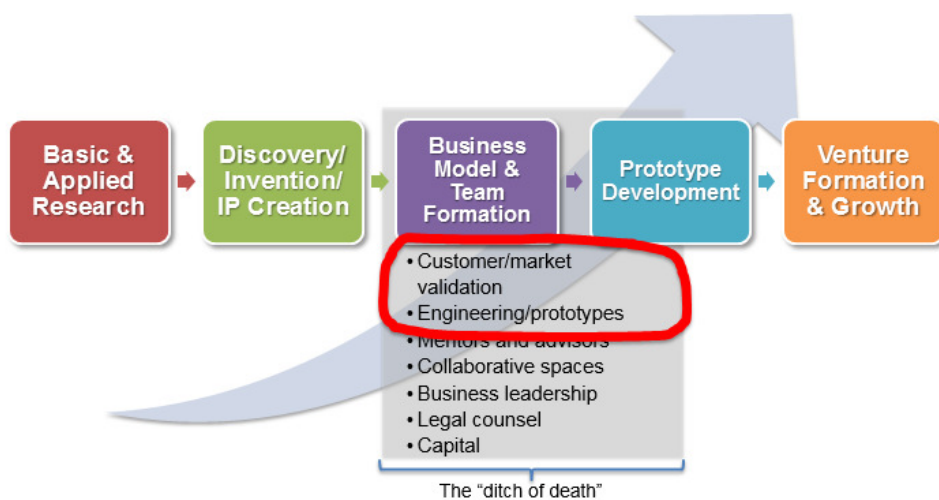
Commercialization Reality



Commercialization Reality



Commercialization Reality



Intro to I-Corps



Agenda

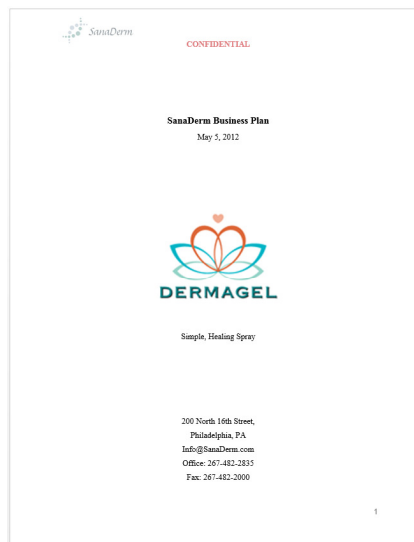
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- Overview of NSF I-Corps
- **Lean LaunchPad Methodology**
 - Program Curriculum
 - What we used to believe vs What we now know
 - The Business Model Canvas
- Application Process
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Traditional Entrepreneurship



Traditional Entrepreneurship



The image shows the table of contents page of a business plan. At the top left is the SanaDerm logo. To its right, the word "CONFIDENTIAL" is written in red. The table of contents is as follows:

I. Executive Summary.....	5
1.1 Objectives	
1.2 Mission	
1.3 Competitive Advantage	
1.4 Financial Summary	
II. Company Summary.....	8
2.1 Company Ownership	
2.1.1 Management Team	
2.1.2 Private Investors	
2.2 Start-up Summary]	
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5.1 Market Segmentation	
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5.3 Industry Analysis	
5.3.1 Industry Participants	
5.3.2 Competition and Buying Patterns	
5.4 Competition Analysis	
VI. Web Plan Summary.....	17
6.1 Development Requirements	
VII. Competitive Strategy.....	18
7.1 Competitive Analysis – SWOT Analysis	
7.2 Marketing Strategy	
7.3 Sales Strategy	

The number "2" is at the bottom right corner.

Traditional Entrepreneurship

	Year 1	Year 2	Year 3	Year 4	Year 5
Beginning Cash Balance	1,000	1,410	1,987	3,022	6,641
Cash Inflows					
Income from Sales	600	3,250	6,950	10,400	17,100
Account Receivable	120	650	1,310	2,080	3,420
Total Cash Inflows	720	3,900	7,960	12,480	20,520
Cash Outflows					
Investing Activities					
New Capital Purchases	-	-	-	-	-
Cost of Sales	350	1,950	3,930	6,240	10,250
Operating Activities					
Salaries and Wages	252	504	504	504	504
employee #	4	8	8	8	8
Business Expenses	447	470	178	218	270
indirect sales	325	325	-	-	-
promotion/public relation	50	50	50	50	50
transportation	7	35	68	108	160
office rental/supply	65	60	60	60	60
license fee 7% (3.5% each)	50	273	550	874	1,430
Taxes	-	246	343	1,625	2,817
Financing Activities					
Loan Payments	-	-	-	-	-
Line of Credit Interest	-	-	-	-	-
Line of Credit Repayments	-	-	-	-	-
Dividends Paid	-	-	-	-	-
Total Cash Outflows	1,110	3,443	6,105	9,481	15,287
Cash Flow	(390)	457	1,754	3,019	5,233
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SanaDerm Business Plan
May 5, 2012

Simple, Healing Spray

200 North 16th Street,
Philadelphia, PA
Info@SanaDerm.com
Office: 267-482-3855
Fax: 267-482-2000

CONFIDENTIAL

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Why Do Most Startups Fail?



Why Do Most Startups Fail?



Evidence-Based Entrepreneurship

- We used to believe startups are a **smaller version** of a large company



Evidence-Based Entrepreneurship

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 - Company: a business organization which sells a product or service in exchange for revenue and profit [**Execute** on knowns]



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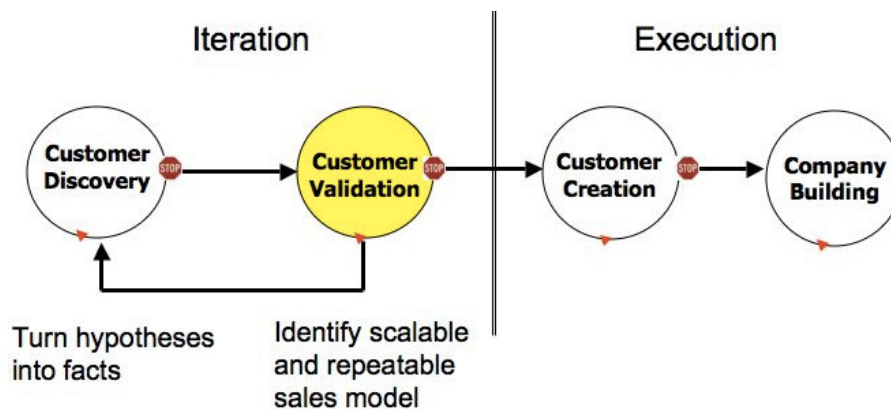
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A Startup aims to become a company



Customer Development



Step 1: Customer Discovery



Business Models

<p>Key Partners</p> <p>Who are our Key Partners? Who are our Key Suppliers? Which Key Activities do we acquire from partners? Which Key Activities do partners perform?</p>	<p>Key Activities</p> <p>What Key Activities do our Value Propositions require? Our Critical Success Factors? Customer Relationships? Revenue Streams?</p>	<p>Value Propositions</p> <p>What value do we deliver to the customer? Which pain and/or customer problems are we helping to solve? What bundles of products and services are we offering to each Customer Segment? Which customer needs are we addressing?</p>	<p>Customer Relationships</p> <p>What type of relationship does each of our Customer Segments expect to establish and maintain with us? How are we creating value? How are they interacting with the rest of our business model? How costly are they?</p>	<p>Customer Segments</p> <p>For whom are we creating value? Who are our most important customer?</p>
<p>Key Resources</p> <p>What Key Resources do our Value Propositions require? Our Critical Success Factors? Customer Relationships? Revenue Streams?</p>		<p>Channels</p> <p>Through which Channels do our Customer Segments want to be reached? How are we reaching them now? How are we currently packaged? Which sales are most cost-effective? How are we integrating them with customer routines?</p>		
<p>Cost Structure</p> <p>What are the most important costs incurred in our business model? Which Key Resources are most expensive? Which Key Activities are most expensive?</p>			<p>Revenue Streams</p> <p>For which value are our customers really willing to pay? For what do they currently pay? How are they currently paying? How would they prefer to pay? How much does each Revenue Stream contribute to overall revenues?</p>	

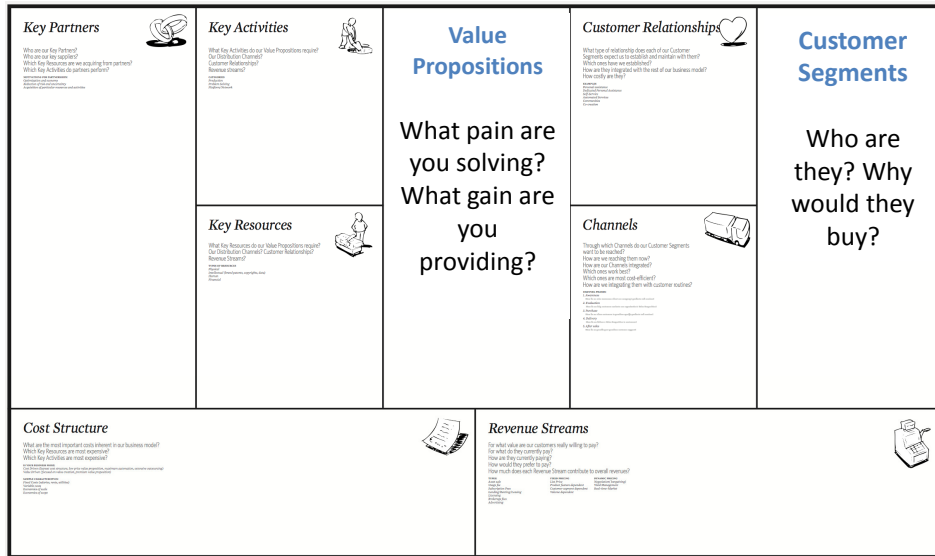


Business Models

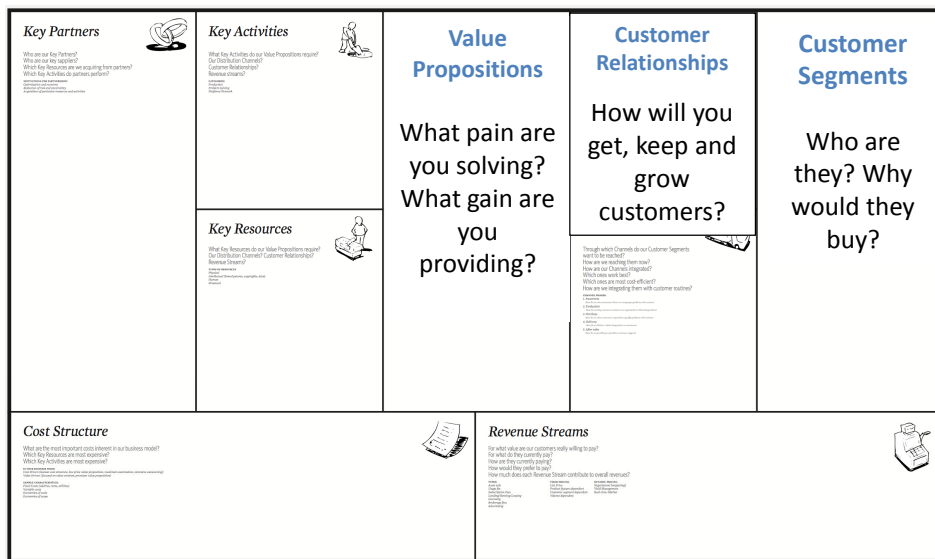
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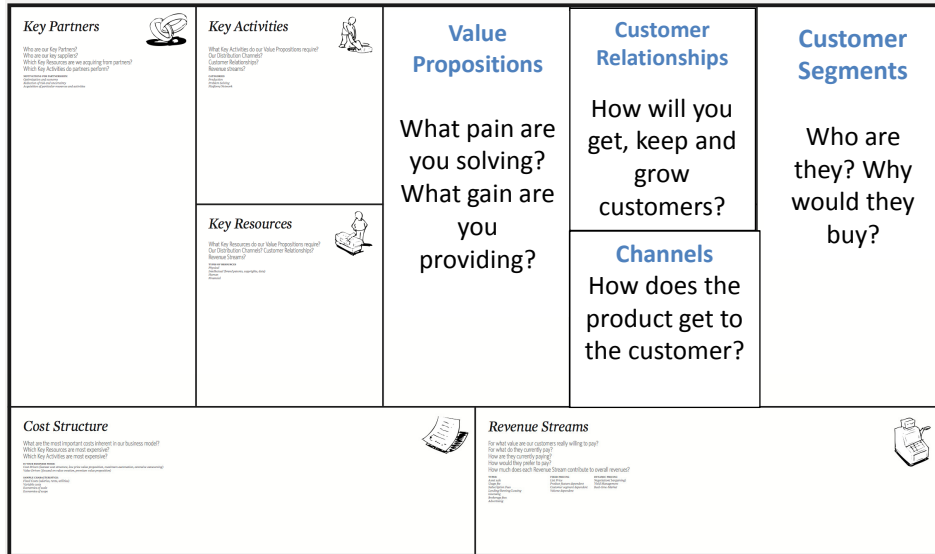
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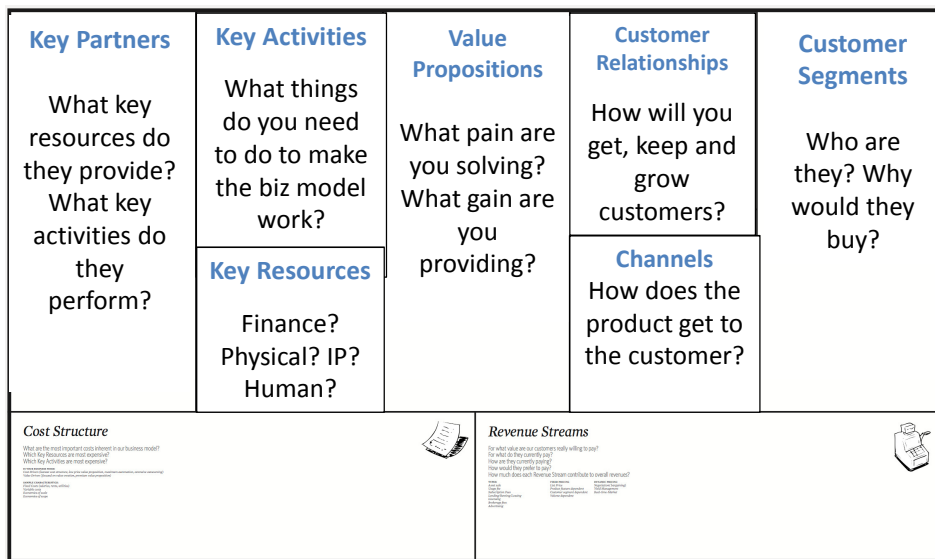
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Business Models



Business Models



Business Models

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<p>Key Resources</p> <p>Finance? Physical? IP? Human?</p>	<p>Revenue Streams</p> <p>What strategy will you use to capture value?</p>		<p>Channels</p> <p>How does the product get to the customer?</p>	<p>Cost Structure</p> <p>What are the most important costs involved in your business model? What key resources are most expensive? What key activities are most important? What key channels are most important? What are the most important cost structures? What are the most important revenue streams? What are the most important customer segments? What are the most important customer relationships? What are the most important value propositions?</p>

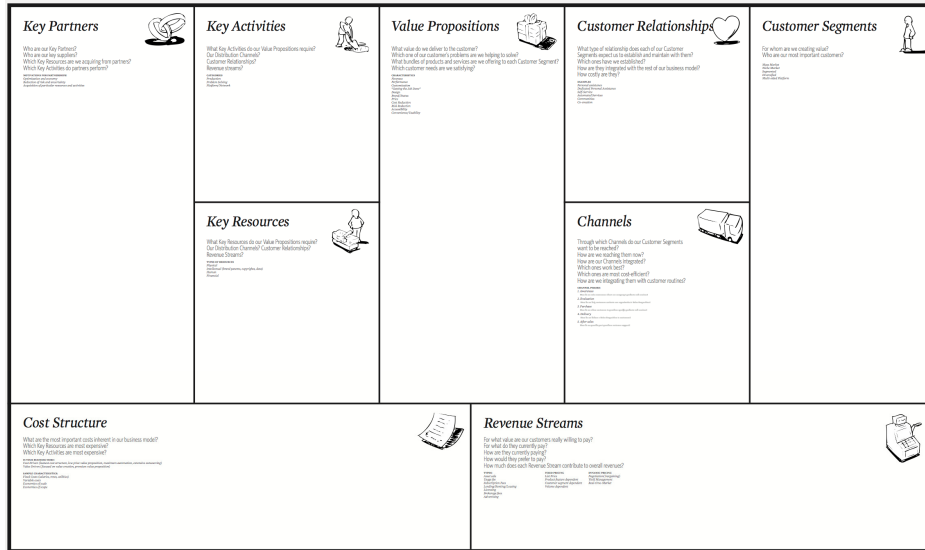


Business Models

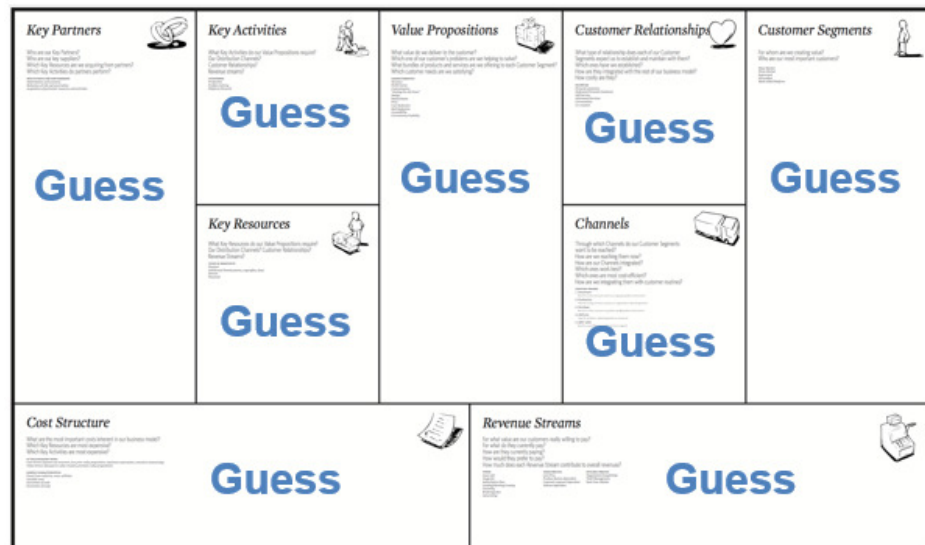
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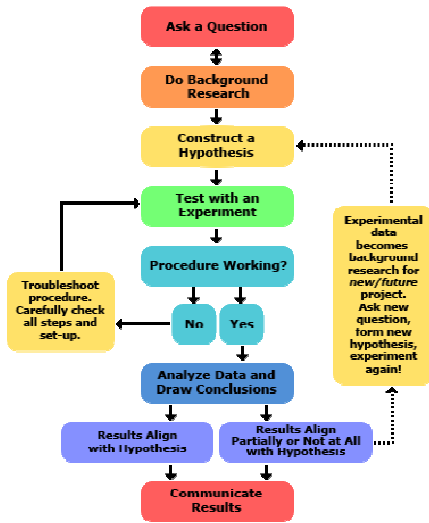
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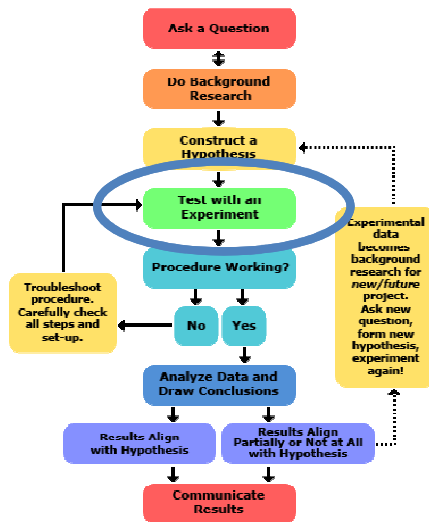
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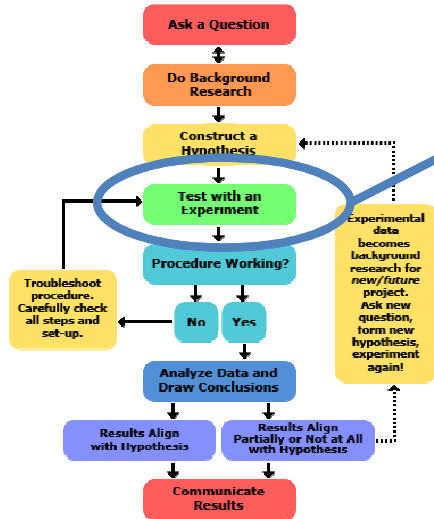
Hypotheses (guesses) into Facts



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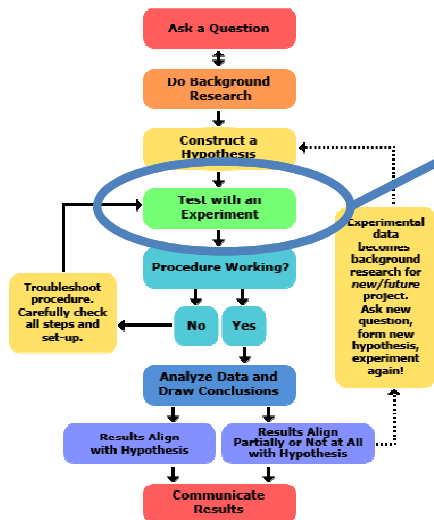
Hypotheses (guesses) into Facts



Get out of the Building and talk to potential customers!



Hypotheses (guesses) into Facts



Get out of the Building and talk to potential customers!

"It's the difference between a vision and a hallucination"
- Steve Blank



Talking to Humans



Source: [Talking to Humans](#)



So where does our technology
come in?



So where does our technology come in?

Customers don't care about your tech
They are trying to *solve a problem*

Customer discovery is about
identifying that problem

and exploring
how you can solve it



Agenda

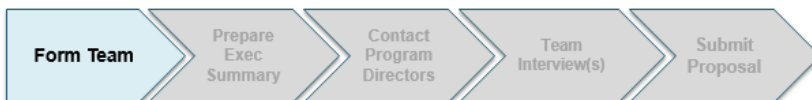
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Application Process



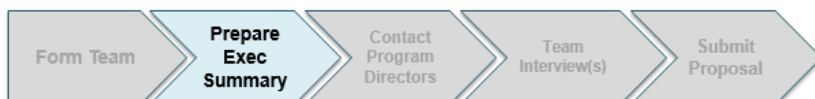
Application Process



- Entrepreneurial Lead (EL)
 - Post-doc or grad student who can move project forward
- Principal Investigator (PI)
 - Researcher with prior award
 - Responsible for grant management (for NSF program)
- Industry Mentor (IM)
 - Domain-relevant volunteer guide
 - Proximity is better



Application Process



- One page (I can provide a template)
- Composition of team proposing to undertake commercialization feasibility research
- Relevant awards (NSF or other funding source)
- Brief description of potential commercial impact
- Brief description of *current* commercialization plan



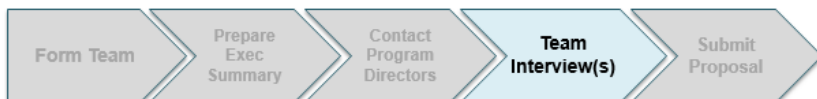
Application Process



- Email the Executive Summary to icorps-apply@nsf.gov



Application Process



- Conference call with your entire team & program directors
 - NSF program will require at least 2 interviews
- Interviews focus on availability and commitment to program and openness to customer feedback
- Not asked to provide details about your technology



Application Process



- Read solicitation
 - Written authorization from Program Director required to submit proposal— sent after phone interviews
- 5-page proposal
 - Team (2 pages)
 - NSF Lineage (1 Page)
 - Potential Commercial Impact (1 page)
 - Project Plan/Demo (1 page)
- Rolling process, quarterly batches, FCFS
- 4-week turnaround to award



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- How to Join the National Innovation Network
- Q&A



Become an I-Corps Site

- Start by connecting with your local Node and Sites
- Site grant provides \$300K and therefore the ability to fund about 30 of your teams each year (for 3-5 years) with \$1-3K grants each
 - Teams are then eligible for NSF I-Corps Teams \$50K grant
 - This makes you VERY attractive to work with
- Sites and Teams really helps to vet what IP is worth supporting at your institution



Getting involved in National Innovation Network

- Join a Node's regional or national teaching team
- Be a mentor on a national I-Corps Team
- Promote the I-Corps Team grant to your researchers
- Other suggestions?



Nodes are There to Help

- Additional detail about program & what to expect
- Discuss what kind of projects are best suited
- Introductions to mentors who may join the team
- Facilitate intro to NSF I-Corps Program Directors
- Review executive summary before team submits
- Help anticipate what to expect from interviews
- Connect with others who've participated in I-Corps
- Hold info sessions to boost team recruitment



Benefits of I-Corps

- Opportunity to make a significant societal and economic **impact** with your research projects
- De-risking commercial potential for **startup OR licensing** route
- Connections to high-quality **mentors, instructors,** and business **training**
- **Funding** for meeting with potential customers and building prototypes and/or proving the technical concept
- Attracting innovative, motivated **graduate students** to your lab/group
- Up to 4x increase in likelihood of **winning \$225K SBIR/STTR** grants as well as basic research grants (because of a stronger Broader Impacts section)
- Sites opens eligibility for other grants (\$50K NSF I-Corps Teams)



Questions?

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