

# NSF I-Corps and the Value of Customer Discovery in Applied R&D

ARPA-E University Webinar

May 6, 2014



# Agenda

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- ▶ ARPA-E Technology-to-Market program overview
- ▶ NSF I-Corps program, curriculum, and results
- ▶ “I-Corps @ ARPA-E” introduction
- ▶ Example of energy sector-focused I-Corps curriculum
- ▶ Moderated discussion
- ▶ Audience Q&A

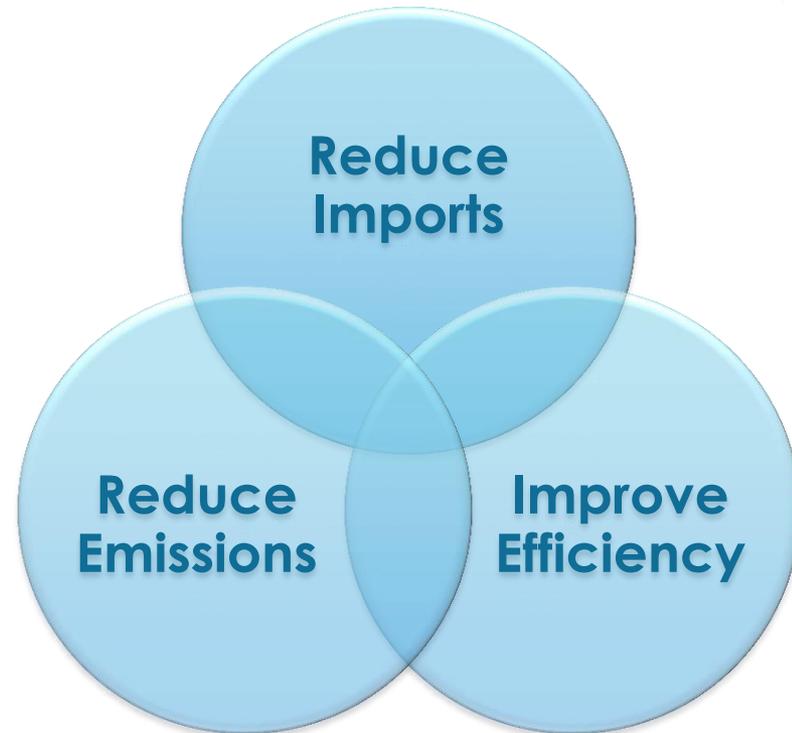
# Our Mission

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**Catalyze and support**  
**transformational, high impact energy technologies**

## Ensure America's

- ▶ Technological lead
- ▶ National security
- ▶ Economic security
- ▶ Environmental security



# Innovation

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People creating value through the  
implementation of new ideas

➤ Herman D'hooge, Intel

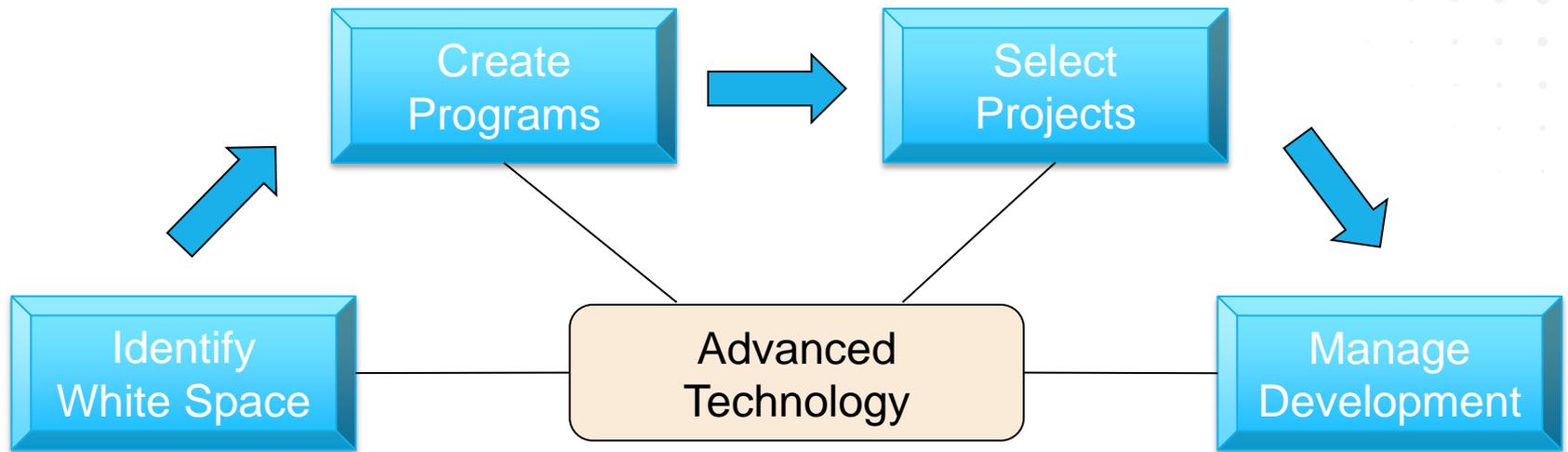
# Innovation

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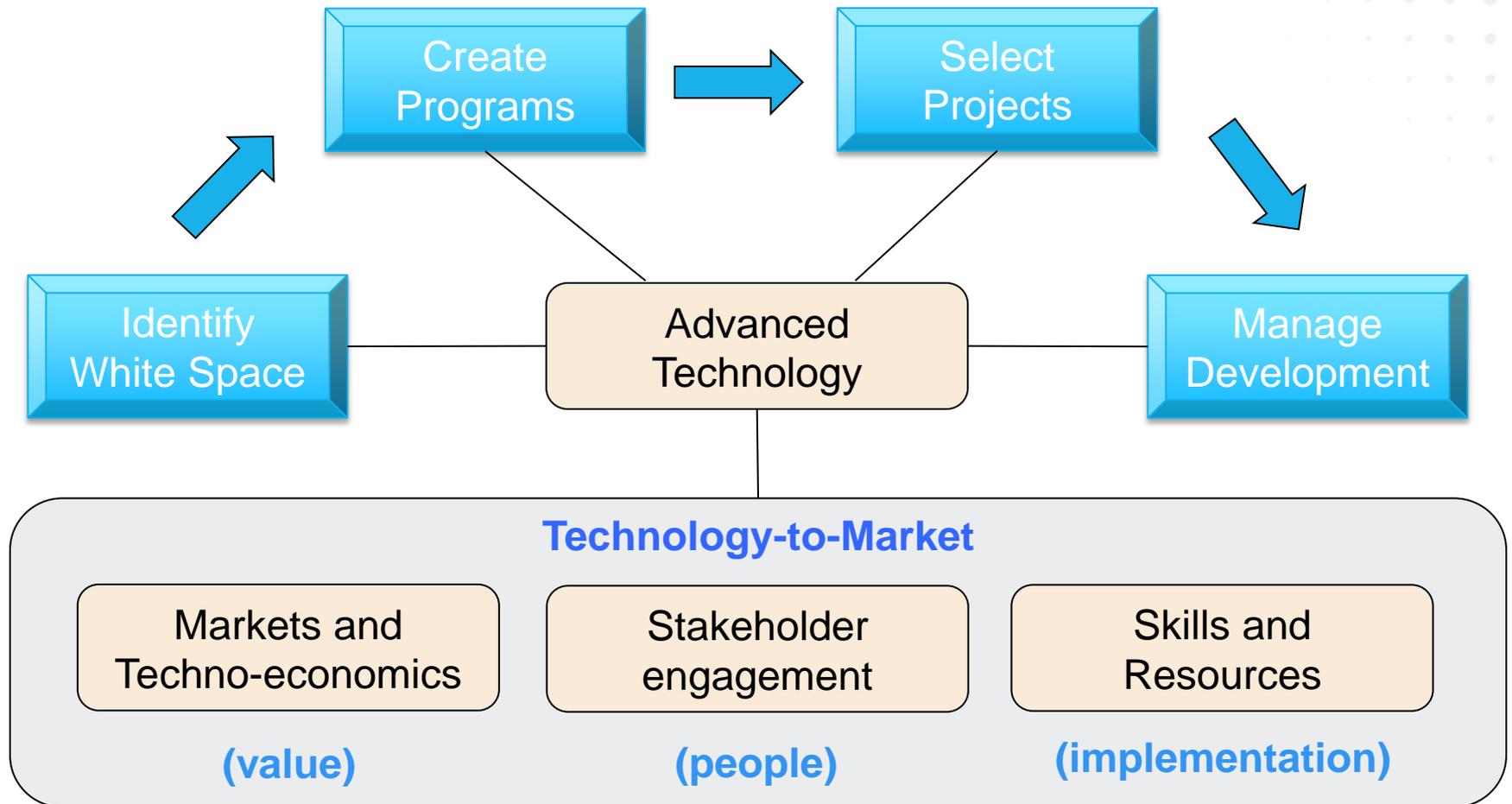
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# ARPA-E Technology-to-Market Program

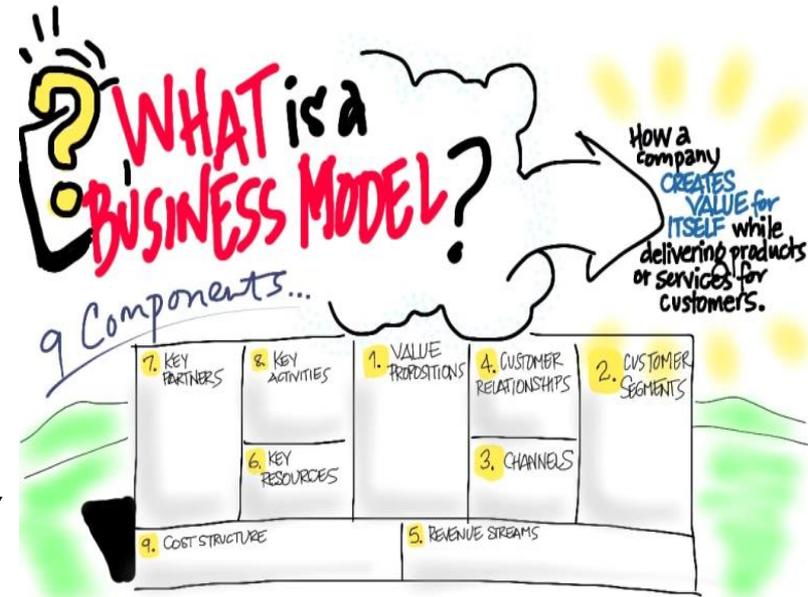


# ARPA-E Technology-to-Market Program



# NSF I-Corps™ Approach

- ▶ Team based (3)
- ▶ Lean Framework
  - *Business Model Canvas*
  - *Customer Development*
  - *Agile Development*
- ▶ Emphasizes experiential learning and feedback
  - *Getting out of the building – 10-15 hours/weekly*
  - *Formal methodology for customer interaction*
  - *Focus on **MVP** and **Pivots***
- ▶ Expects teams to be inquisitive, motivated, and capable of self management
- ▶ Full contact immersive class
- ▶ Goal is product/market fit



# NSF I-Corps™: A Hectic Two + Years

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- I-Corps™ Teams:
  - *296 Teams have completed the curriculum*
  - *Start-Up creations (123 of 296)*
  - *SBIR/STTR proposal submission to various agencies*
  - *One licensing*
  - *One acquisition (by Dropbox)*
  - *Private sector investments received*
  - *One company expanding to Japan and Korea*
  - *Many more...*
- National Innovation Network (NIN) meeting
- Pilot Activity with NIH SBIR in October 2014

# “I-Corps @ ARPA-E” Trial Program

- ▶ Memorandum of Understanding signed by ARPA-E/NSF in January 2013
- ▶ Five eligible ARPA-E projects applied, interviewed, and were selected to participate in NSF I-Corps cohort, jointly with NSF teams

<u>ARPA-E Awardee</u>	<u>Program</u>	<u>Technology</u>
Michigan State University	OPEN 2009	Wave disk engine
University of Southern California	GRIDS	Iron-air battery
University of Houston	REACT	Superconducting wire
Virginia Commonwealth University	REACT	Ferromagnetic material
Georgia Institute of Technology	IMPACCT	Metal organic frameworks

- ▶ ***ARPA-E / NSF partnership extended in January 2014 for an ongoing collaboration on I-Corps!***

# University of Michigan: I-Corps Node

Last two years: CFE @ U-M has trained >1000 people (~300 projects) in addition to supporting NSF I-Corps.

		
Curriculum	Customer Discovery Business Model Canvas Blunt feedback Format: 7 weeks	Customer Discovery Business Model Canvas Blunt feedback Format: Various
Participants	Univ based with NSF "lineage"	University based Community startups SBIR awardees Company spinouts
Team	EL, PI, Mentor	EL + Support team
Teaching Team	Entrepreneurs, investors	Same
Cohort	21-27 teams	6-29 teams

# University of Michigan: I-Corps Node

## I-Corps™ Training: Energy and Transportation in partnership with Michigan I-Corps™

Why: Energy and Transportation – Regionally important industries

Who: Teams for all over US – Energy Storage, Power Electronics, Solar, Wind, Geothermal, Vehicle Lightweighting, Sensors, Software

What's Different: Two tracks, industry overviews, Customer discovery hints, Teaching team with E&T backgrounds, Networking with local industry, specific content on policy and regulations.

How to contact us: Jonathan Fay, [jpfay@umich.edu](mailto:jpfay@umich.edu), 734-615-7021

# Discussion / Q&A

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- ▶ Please submit questions for any of our speakers using the “Q&A” dialog box.
- ▶ If you have technical questions, please submit those using the “Chat” function.
- ▶ The slide deck and a recording of this presentation will be made available within the next week.



Thank you for joining!

For more information, please visit:

[http://www.nsf.gov/news/special\\_reports/i-corps/](http://www.nsf.gov/news/special_reports/i-corps/)  
<http://arpa-e.energy.gov/?q=arpa-e-site-page/i-corps-arpa-e>