Considerations on Phase II Application and Commercialization Outcomes

Claudia Cantoni

claudia.cantoni@science.doe.gov

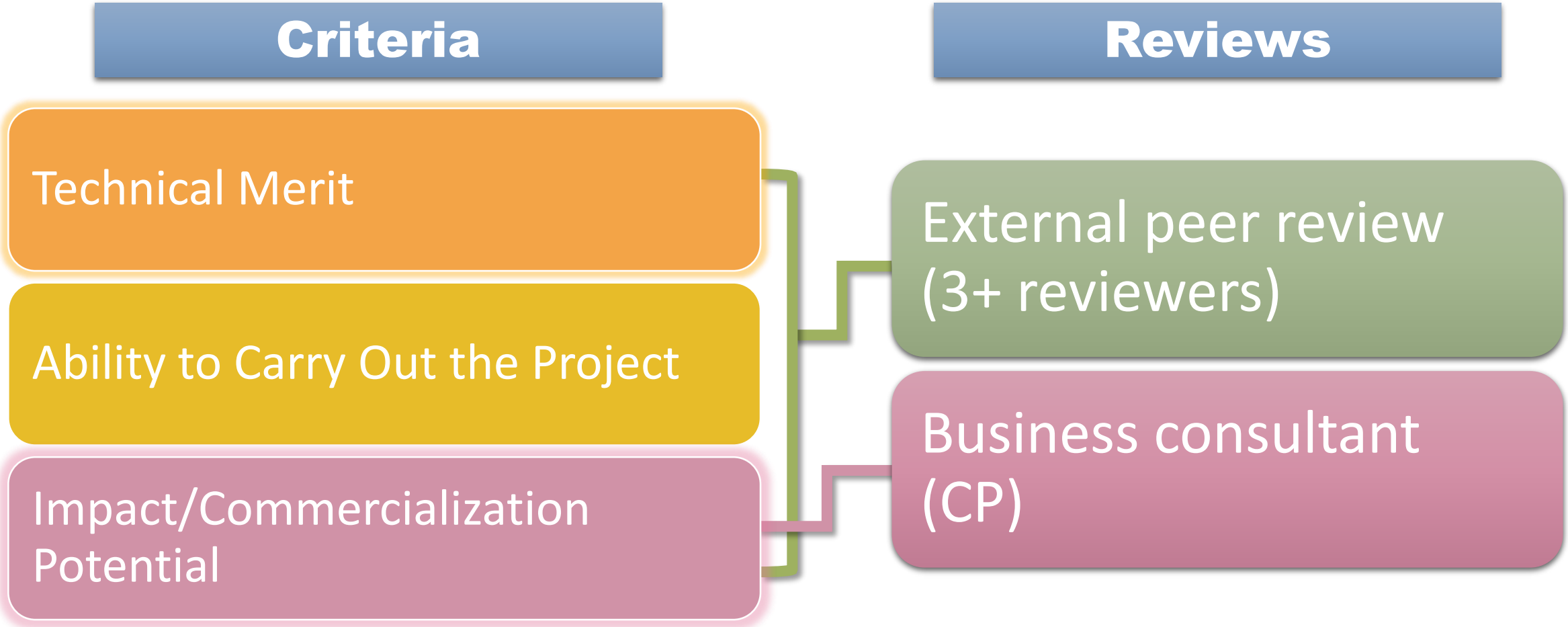
U.S. DEPARTMENT OF ENERGY

SBIR/STTR
Programs Office

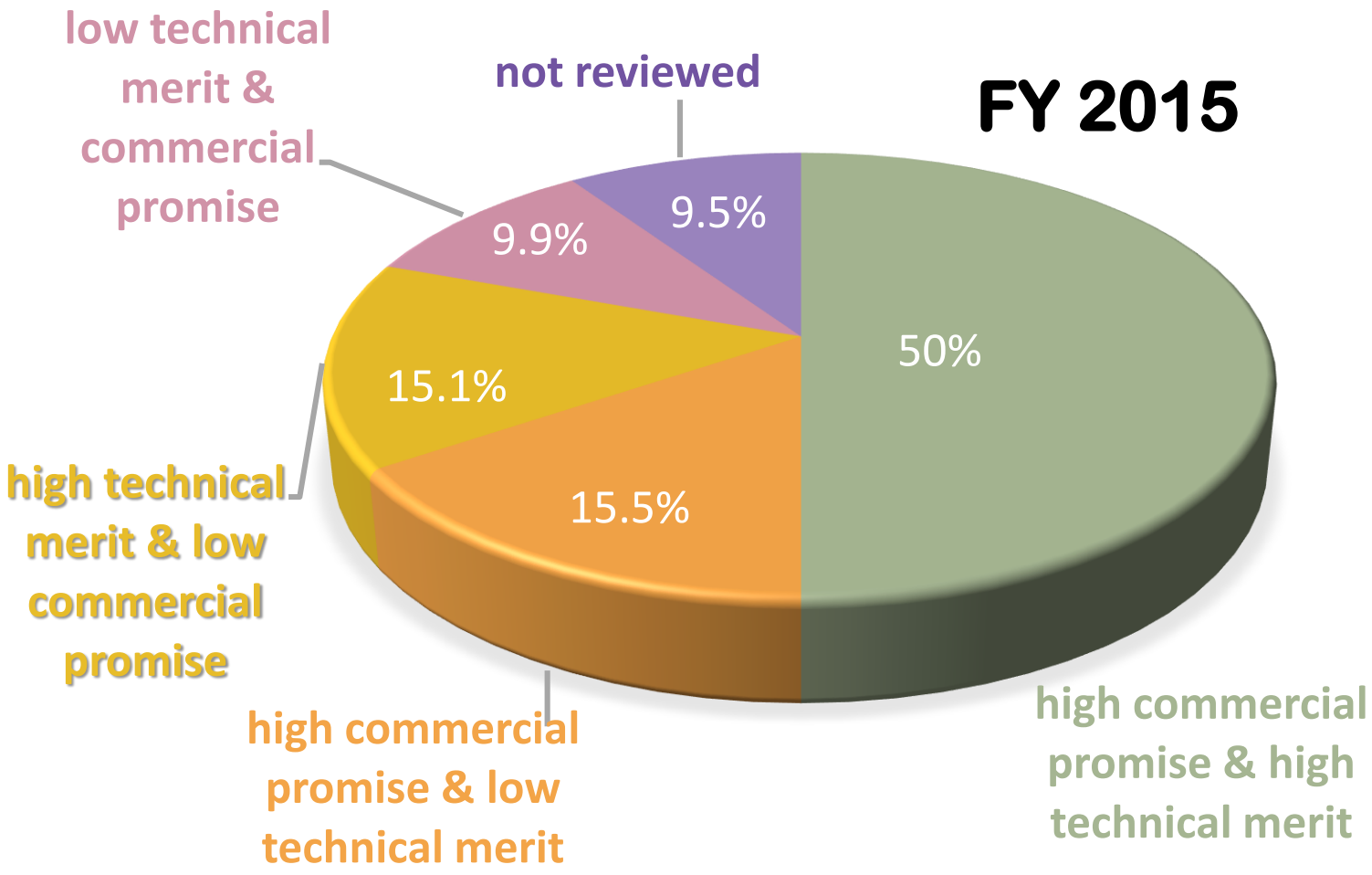
Overview

- Going from Phase I to Phase II: The Commercialization Plan
- The Commercialization Assistance Program (CAP)
- Examples of commercialization strategies from previous awardees

Phase II Proposal Review



CP evaluation is an important part of the review process



The majority of awarded projects are in the green slice. Only 6% are awarded Phase II with low CP score

The CAP is not:

- A way to get your CP written by someone else.
- A means to have the CAP Provider perform extensive customer discovery for you.
- A cure-all for a company's commercialization needs. Business plans evolve with time.
- An exercise that is required to win Phase II.
- A box to check.

The CAP is:

- A program designed to give you tools for a go-to-market strategy useful during and after your SBIR grant.
- Going to require you to invest time and effort to succeed.

New in the CAP:

- Administered by Larta, Inc.
- Customized commercialization services added through access to professional industry advisors (PAs) & new track.

Phase I

Option A1

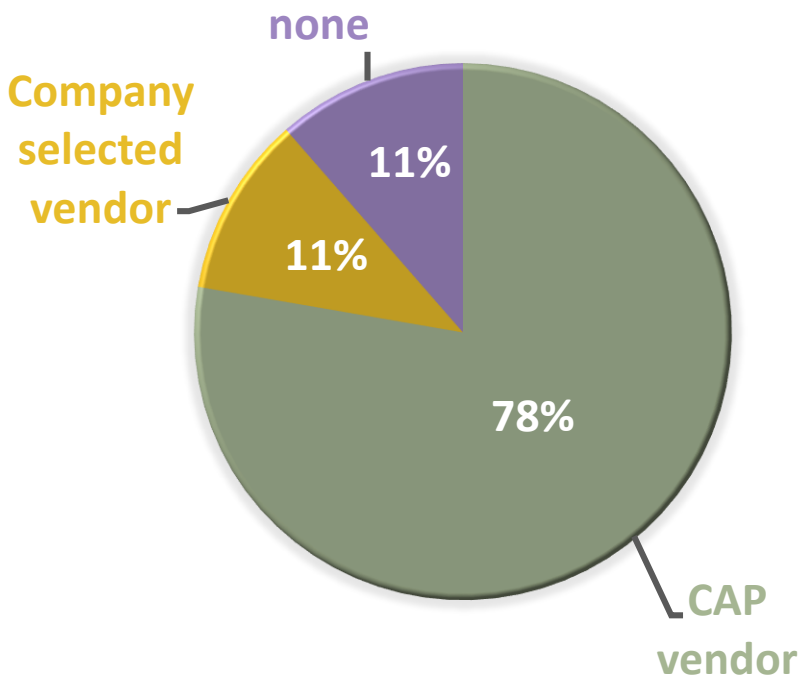
Focus on commercialization plan modules

Option B1

Tailored PA assistance according to specific needs

What is the value of the CAP?

- Customized commercialization services
- Access to PAs, commercialization professionals who have experience with awardee industry and target markets
- Connections with Larta's network (e.g. industry, potential investors, subject matter experts)



Successful SBIR/STTR commercialization strategies:

Two main models

https://science.energy.gov/sbir/sbir-sttr-success-stories/

Start-up Model:

one SBIR/STTR award followed by private investment

- Mostly within the DOE Applied Programs, especially Energy Efficiency & Energy Reliability.
- Both a validated market need and an innovative solution exist for a commercial impact in ~10 years.
- Privates are likely to invest in the technology. VC investments are rare.

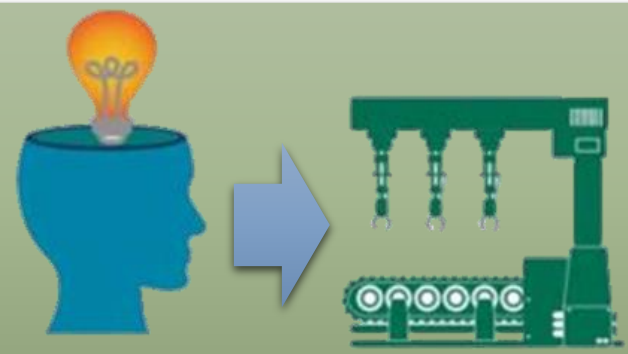
Deep Science Company Model:

Multiple SBIR/STTRs supported by additional grants/federal funding. Focused product.

- Most successful approach within Science-funded projects.
- Multiple SBIRs are necessary to develop a working prototype because commercialization might be 20+ years in the future.

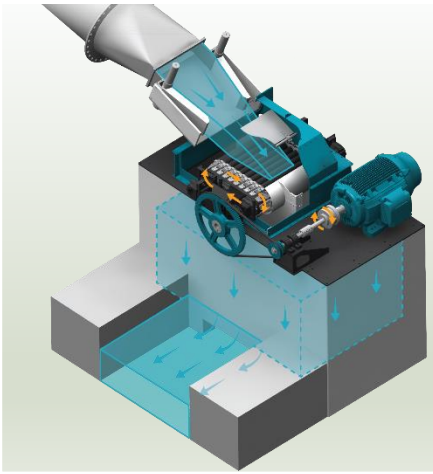
- Challenging. Fundamental R&D cannot be connected to an immediate commercial market. Few private investors

Deep Science Company Approach



- Aim at market applications independent of SBIR topics.
- Use SBIR to develop components of a marketable prototype, at the same time fulfilling the SBIR technical objectives.
- Find synergy between DOE mission and commercialization potential. Even if a topic has no immediate commercialization outcome, working on the project can expand aspects of product/technology, and ultimately lead to a commercial goal. If this is not the case do not apply.
- Do not apply to an SBIR topic just because you can do the work.

Examples



NATEL ENERGY

- **DOE OFFICES:** Energy Efficiency and Renewable Energy (EERE).
- **TECHNOLOGY:** low civil work hydropower turbines
- **IMPACT:** tap into the undeveloped 70 GW hydropower potential at drops between 5 and 20 feet. Preserving the environment.
- **TIMELINE:** founded in 2009. One Phase II SBIR followed by $10M investment from three-billion-dollar family investment firms. Currently expanding manufacturing.
- **STRENGTHS:** Knowing there is a market. Balanced leadership. Vision.
- **CHALLENGES:** SBIR Phase II not enough to de-risk early market entry. Topics not always available.

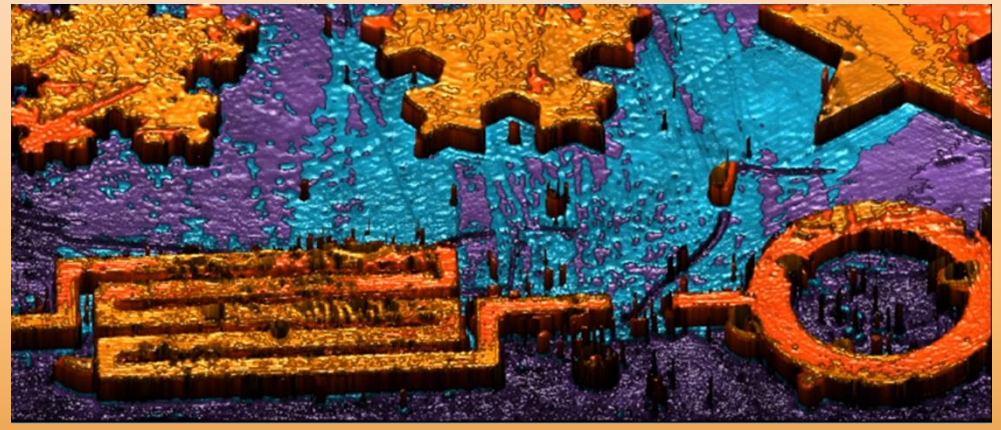
- **DOE OFFICES:** Basic Energy Sciences (BES), Nuclear Energy (NE), Nuclear Physics (NP).
- **TECHNOLOGY:** compact neutron generators
- **IMPACT:** economical and practical replacement for expensive research reactors or national neutron beamlines.
- **INITIAL SBIR MODEL:** founded in by researchers at Stanford University to expand their R&D.
- **CHALLENGES:** target R&D too expensive and lacking commercial potential

- **REVISIONS:** Shift in R&D. Identify a product with commercialization potential. Leverage grants to build a better product. Uncover additional market opportunities through collaborations and interactions with other businesses.

- **TIMELINE:** 4 DOE Phase II were leveraged to develop the technology before significant sales were achieved in 2016.

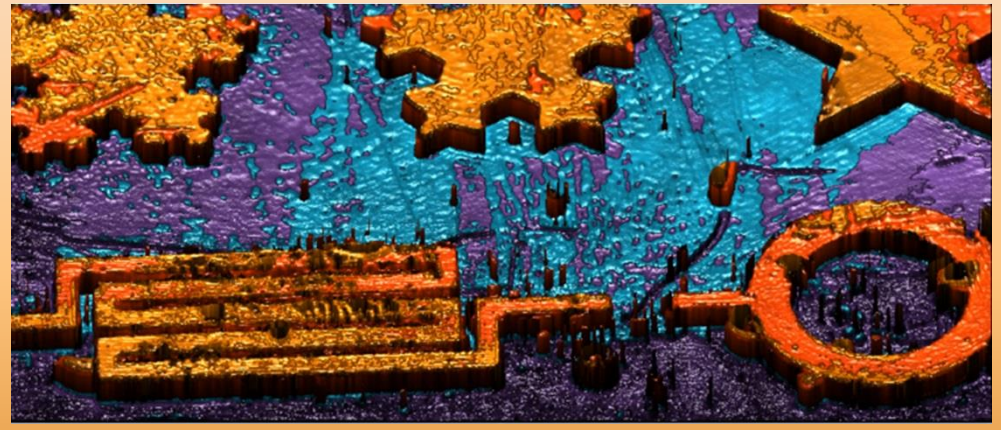
- **ROI:** 30 customized neutron generators sold for a revenue of $ 8 Million. Reached a total revenue of $4M/year in 2017. 3 R&D100 Awards.

- **TAKE-AWAY MESSAGE:** Even technologies that seem too basic-science-oriented can give rise to unforeseen applications in the near term.



KMLABS™ inc.
LEADING IN ULTRAFAST

- **DOE OFFICES:** Basic Energy Sciences (BES), High Energy Physics (HEP).
- **TECHNOLOGY:** femtosecond pulsed x-ray lasers
- **IMPACT:** Femtosecond-pulse EUV and soft X-ray table top sources are the next generation materials characterization tool enabling 3D, fast, element sensitive and high resolution imaging.
- **COMPANY ORIGIN:** founded by two University of CO professors out of overwhelming requests from other universities and scientific institutions for know how and parts.



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- **TIMELINE:** KMLabs' technology was developed leveraging several SBIR awards starting in 2002 with a DOD grant and following on with 6 DOE Phase II SBIR awards.
- **ROI:** $14M in product sales; >$13M in two rounds of investment led by Intel Capital.
- **TAKEAWAY MESSAGE:** commercial success can originate directly from fundamental physics research, even when demand for a product comes predominantly from the scientific community.

Common winning strategies

- Understand that R&D only is not a business plan
- Leverage SBIR for private (or federal, non-SBIR) funding
- Advance technology and business aspects at the same time
- Always think past Phase II
- Good communication with Program Manager

In Conclusion…

- We value your feedback to help us meet the mission of the SBIR/STTR Programs
- Contact me for questions or to share your opinion at claudia.cantoni@science.doe.gov
- Sign up for meetings with Larta and DOE staff
- Refer to Julie Webber and Jody Crisp for any logistics questions
- Enjoy the meeting!