

Considerations on Phase II Application and Commercialization Outcomes

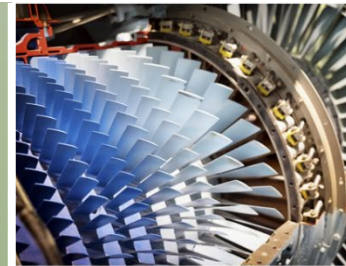
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U.S. DEPARTMENT OF
ENERGY

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

Criteria

Technical Merit

Ability to Carry Out the Project

Impact/Commercialization Potential

Reviews

External peer review
(3+ reviewers)

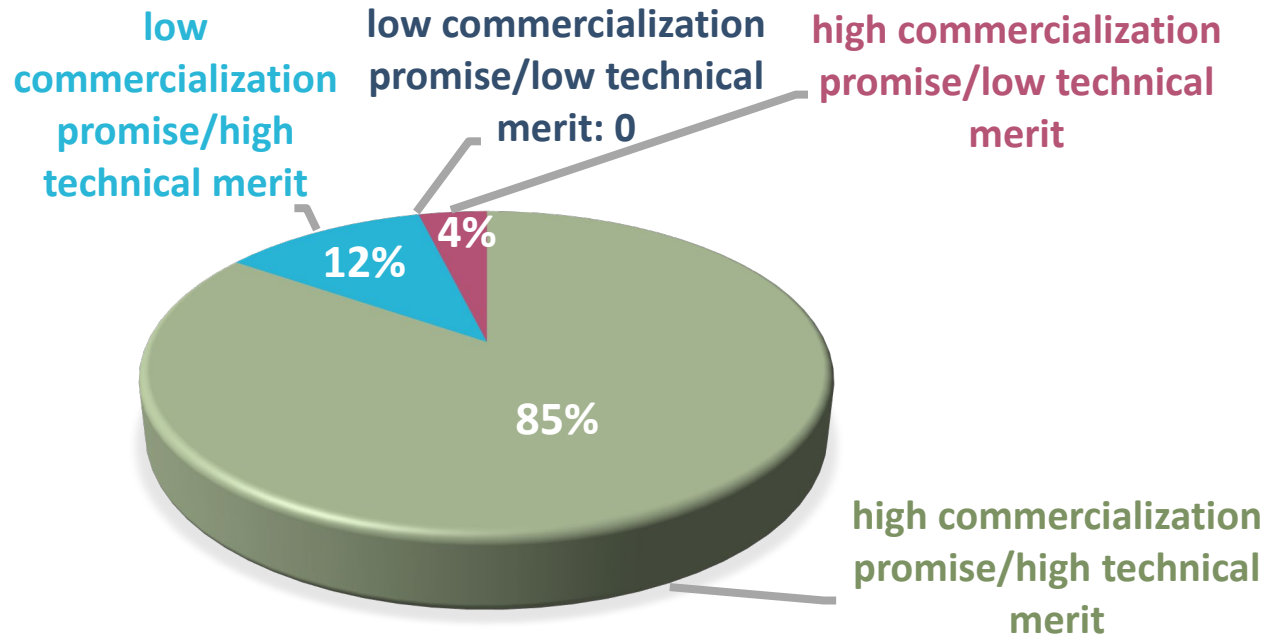
Business consultant
(CP)



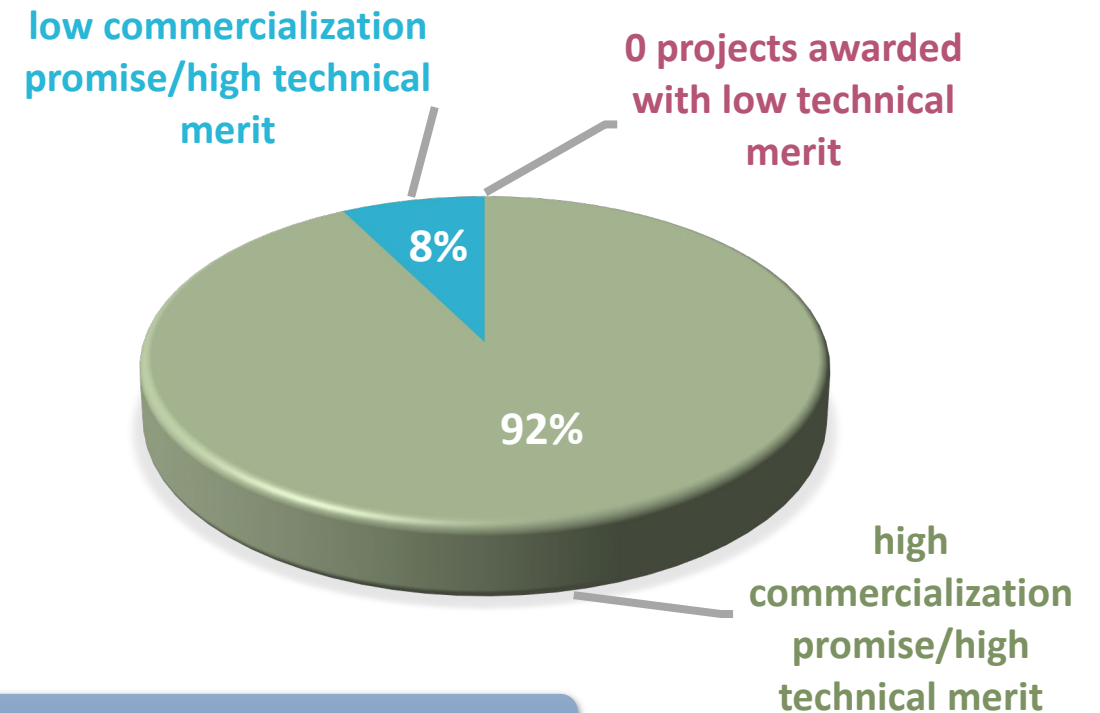
CP evaluation is an important part of the review process

2017 Phase I R2 → 2018 Phase II R2

APPLICATIONS



AWARDS



Only 8% 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.





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.
- 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).

Phase I

Option A1

Focus on commercialization plan modules

Option B1

Tailored PA assistance according to specific needs



2019 CAP Upgrade

- The FY19 National Defense Authorization Act signed by the President in August 2018, allows Agencies to increase commercialization assistance to not more than \$6,500 per year for Phase I and not more than \$50,000 per project for Phase II.
- Only FY 2019 and future awardees will be eligible for increased CAP support.
- DOE has raised the Phase I CAP support to \$6500 beginning with FY 2019 Phase I Release 1. DOE is planning to raise the Phase II CAP support, the final amount will be included in the Phase II Release 1 FOA that will be issued on December 10, 2018.
- Larta is in discussion with the Department of Energy to revise and expand CAP offerings.



Successful SBIR/STTR commercialization strategies:

Two main models

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



Start-up Model:

one SBIR/STTR awards followed by non-SBIR investment

- Mostly within the DOE Applied Programs, especially Energy Efficiency & Renewable Energy.
- 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.





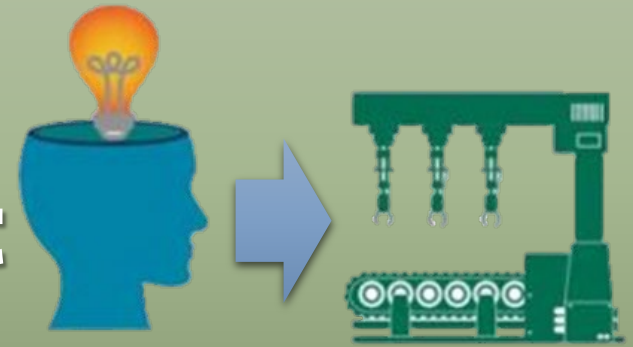
Deep Science Company Model:

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

- 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: Focused Product

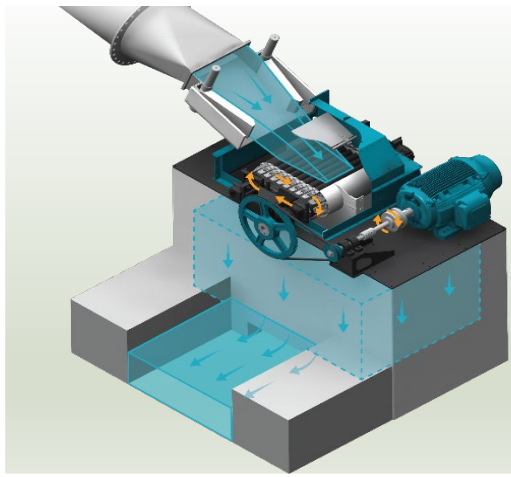


- Aim at market applications independent of SBIR topics.
- Use SBIR to develop components of a marketable prototype, at the same time fulfilling the SBIR technical objectives.
- Find synergy between DOE mission and commercialization potential. Even if a topic has no immediate commercialization outcome, 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

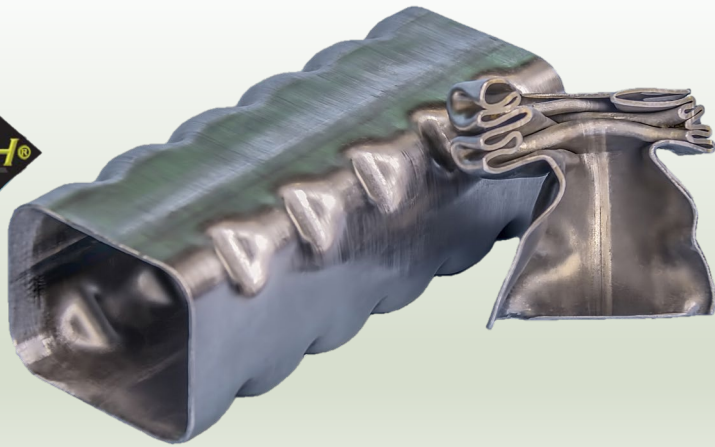




NATEL ENERGY

- **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.

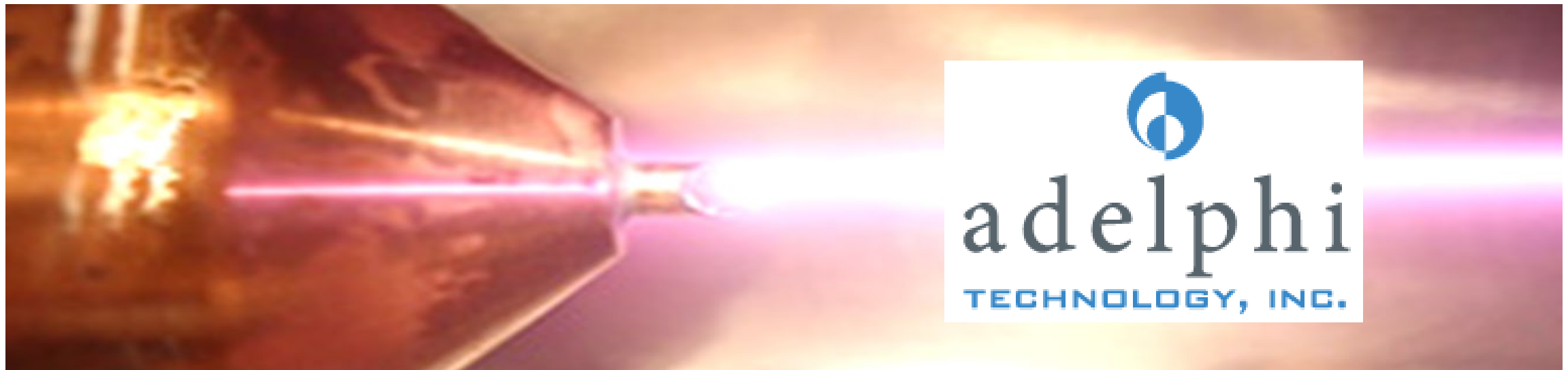




FLASH STEELWORKS, INC.

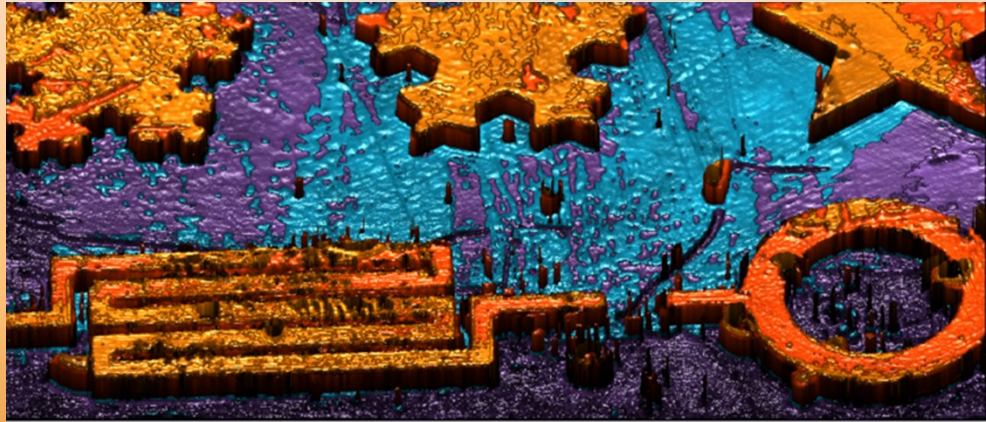
- **DOE OFFICES:** Energy Efficiency and Renewable Energy (EERE).
- **TECHNOLOGY:** new steel phase with unprecedented strength.
- **IMPACT:** inexpensive, 1500 MPa steel enables stronger, lighter vehicles.
- **TIMELINE:** One Phase II SBIR followed by \$1.3M Phase III from DOE AMO. Full-scale Production Line almost completed.
- **STRENGTHS:** Does not involve complete factory retooling. Close collaboration between DOE SBIR and DOE National Labs.





- **DOE OFFICES:** Basic Energy Sciences (BES), Nuclear Energy (NE), Nuclear Physics (NP).
- **TECHNOLOGY:** compact neutron generators.
- **TIMELINE:** 4 DOE Phase II were leveraged to develop the technology before significant sales were achieved in 2016.
- **ROI:** \$12M in revenue from sales of customized neutron generators. 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 short term.





- **DOE OFFICES:** Basic Energy Sciences (BES), High Energy Physics (HEP).
- **TECHNOLOGY:** femtosecond pulsed x-ray lasers
- **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!

