Developing the Business of Technology

Entrepreneurial Training & Consulting

Beyond Phase II
Mentor Protégé Training Week

DoD SBIR/STTR

Phase II Proposal Preparation

August 14, 2017

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DEVELOPING THE BUSINESS OF TECHNOLOGY

Topics to Cover

- Doing your homework
  - …even during Phase I
- Consider the evaluation criteria
- The Phase II Proposal
- The Commercialization Plan

3

Before writing a Phase II

Do your homework…**

Access all current information about the other Phase I awardee companies

Look back at the original solicitation description of the Phase I, Phase II and Phase III objectives

Search for current information based on contents of the solicitation and your Phase I discussions with TPOC/Program Officer

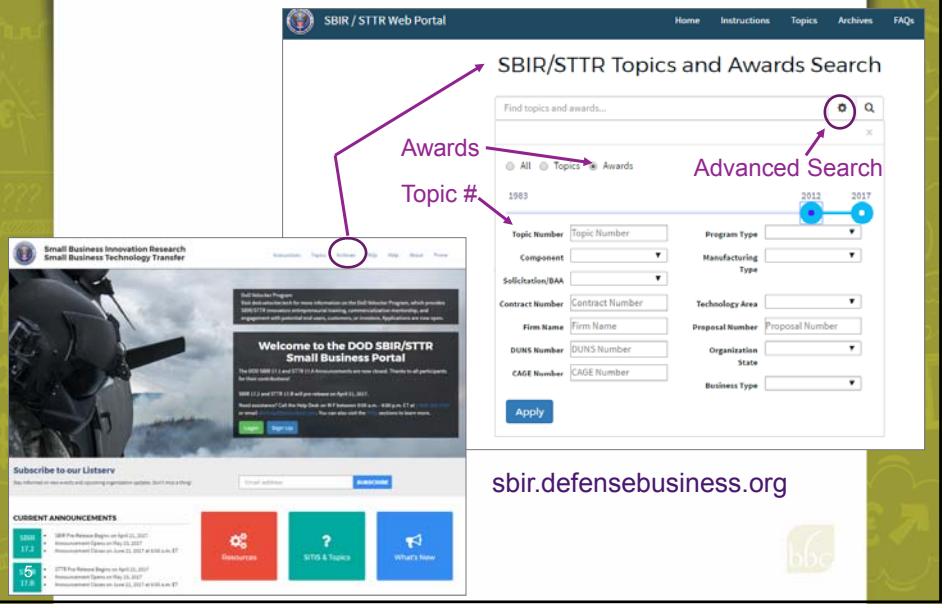
Search most recent awards related to your technology

Update technical literature & market analysis data

****…and don't wait until your Phase I is done!**

4

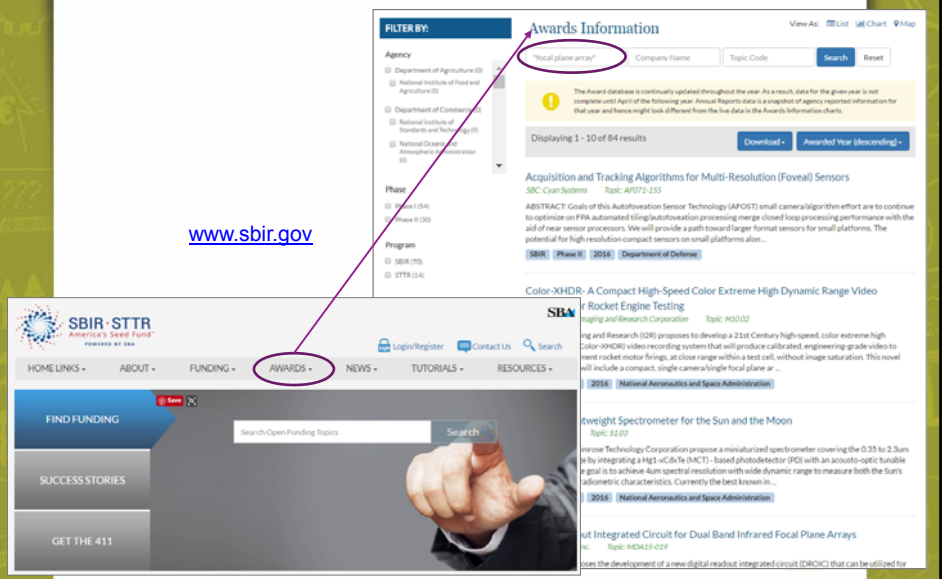
Find the other Ph. I awardees



sbir.defensebusiness.org

Identify other SBIR companies in your field

www.sbir.gov



Research relevant companies/technologies

SBIR·STTR
America's Seed Fund

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HOME LINKS ABOUT FUNDING AWARDS NEWS TUTORIALS RESOURCES

Home / Award Details

Print

Monolithic CMOS LADAR Focal Plane Array (FPA) with a Photonic High-Speed Output Interface

Award Information

Agency:	Department of Defense	Branch:	Air Force
Amount:	$99,995.00	Award Year:	2011
Program:	STTR	Phase:	
Contract:	FA9550-11-C-0038	Agency Tracking Number:	
Solicitation Year:	2010	Solicitation Code:	
Solicitation Number:	2010.B		

Small Business Information

Aerius Photonics, LLC
2223 Eastman Ave., Suite B, Ventura, CA

Hubzone Owned:	N	Socially/Economically Disadvantaged:	
Woman Owned:	N	Duns:	

Principal Investigator
Name: Lloyd Linder
Title: Senior Systems Engineer
Phone: (805) 642-4645
Email: linder@aeriusphotonics.com

Business Contact
Name: John Baumann
Title: Chief Financial Officer
Phone: (805) 642-4645
Email: baumann@aeriusphotonics.com

Research Institution
Name: Boise State University
Contact: R. J Baker
Address: 1910 University Drive
Boise, ID, 83725-2075
Phone: (208) 426-5715
Type: 1 nonprofit college or university

Abstract

ABSTRACT: Aerius Photonics proposes to develop a monolithic electronic-photonic silicon CMOS Focal Plane Array (FPA) to enable ultra-compact imaging LADAR sensors. These miniature LADAR sensors would have far reaching impact on a number of DoD applications because of their dramatic reduction in cost, significantly smaller size, weight and power (SWaP) and their improved performance regarding sensitivity and frame rate. The CMOS FPA will integrate in one chip hundreds of photonic components and about one million transistors, making it one of the largest electronic-photonic integrated circuits ever fabricated. In Phase I, Aerius will design all the elements of the integrated chip and will test some individual components. This work will evaluate integration feasibility and reduce the risk for further development. Also in Phase I, Aerius will define the commercialization plan to guide action in Phase II and Phase III of the program. In Phase II, Aerius will fabricate a prototype FPA to demonstrate the significant functionality improvements targeted. The resulting high performance FPA prototypes will be provided to system integrators for incorporation into systems that benefit the mission of DoD and that will be transitioned into manufacturing in Phase III. BENIEFIT: With the successful completion of this project, Aerius will have developed the technology to fabricate highly integrated electronic-photonic systems utilizing standard silicon CMOS technology. The first implementation of this technology will produce a miniature low cost LADAR system that will have a large impact on a vast range of defense and civilian systems such as: Unmanned Aerial Vehicle (UAV) navigation, target identification, weapon precision aiming, surveillance, recovery of injured warfighters, transportation, construction, manufacturing processes, traffic control and visual clues for blind people. The disruptive benefits brought about by this highly integrated FPA are enormous. Following the development of this miniature low cost LADAR, the technology can be applied to the development of other sensors such as detectors of biological and chemical agents and also for advanced communication systems.

* information listed above is at the time of submission.

Use the Original Solicitation to Guide you

AF171-080	TITLE: Dual Band Focal Plane Array

OBJECTIVE: To develop a dual-band focal plane array EO/IR (0.4 to 2.5 micron) low-size and weight, power and cost (SWaP-C) camera with on-board sensor fusion.

DESCRIPTION: Significant advances have occurred in the development of dual band Infra Red (IR) Focal Plane Array (FPA) technology in recent years. However, current technology often requires multiple FPA's, overly complex optics and significant off board sensor fusion technology in order to meet the needs of missile seekers for next generation smart munitions. Visual navigation will permit platforms like next generation cruise missiles to navigate long distances over featureless terrain when GPS is unavailable. Developed seeker technology will aid in the performance of air launched missiles in varied environmental conditions and in the presence of various obstructions in the imaged scene. Dual band performance will permit visual navigation in day and night conditions. The Air Force seeks innovative solutions for large format, small pixel, dual band Electro Optic (EO) and IR (0.4 to 2.5 micron) camera with high performance, low cost, compact, light weight and low power characteristics.

Acceptable solutions will incorporate efficient real time on board sensor fusion technology to help minimize the need for off board signal processing resources. The offeror will specify achievable focal plane array size given the proposed technology and within typical air launched missile seeker size, weight, power and cost parameters. Technologies suitable for new seeker designs as well as those suitable for retrofitting into existing platforms are desired. Offerors with innovative enabling or breakthrough technologies that contribute significantly toward these goals are encouraged to submit proposed technologies if a reasonable path to system development for the described application can be articulated. Innovative technologies that demonstrate reasonable performance in multiple bands will be considered if the engineering trade off with size, weight, power, or other key parameters is significantly advantageous. Any development technology will be suitable for eventual integration into small air launched munitions and cruise missile type platforms.

PHASE I: Phase I entails development of the basic concept of the technology with supported infrared systems engineering modeling and analysis. It will conclude with a clearly laid out design for a prototype hardware unit. The technology development plan documented during this Phase will incorporate a feasible path to integrate readout electronics and optics for a full system lab demonstration and field test by the end of Phase II.

PHASE II: Develop and demonstrate a compact prototype of a dual-band focal plane camera unit based on the successful outcome of feasibility assessment determined in Phase I. A complete dual-band focal plane camera with integral dual bands, (visible and SWIR) optics will be delivered at the end of Phase II. Show approach to lower unit cost in quantities for small air launched munitions, cruise missile type platforms and commercial applications.

PHASE III DUAL USE APPLICATIONS: Phase III will transition the technology to a fielded platform.

Google search:
"Air Force platform dual band focal plane array"

Before writing a DoD Phase II

Discuss with your TPOC or Program Official:

- ONGOING: Network, network, network about how to secure Phase III funding
- Programs of Record for your technology
- Required deliverables
- Government use of deliverables after Phase II
- Agency/Component expected Return on Investment (ROI) and Total Ownership Cost (TOC)
- Expected tests and acceptable threshold test results
- Statement of Work (SOW) review
- Private sector commercialization review
- Required Phase II proposal components
- Phase II contract structure (deadlines, base + option, duration)
- Follow on funding opportunities & process

10

DoD Phase II Continuation Funding

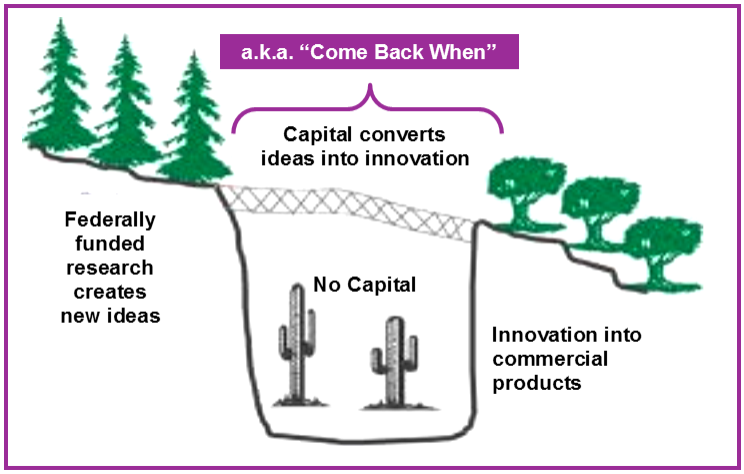
- Phase II continuation funding is to encourage transition of SBIR research into DoD acquisition programs
- Phase II Enhancement/Phase II Plus
  - SBIR/STTR matching investment funds the company obtains from non-SBIR/non-STTR sources such as DoD acquisition programs or private sector
  - Can extend Phase II contract up to 1 yr. and match up to $500K of non-SBIR/non-STTR funds
- Sequential Phase II
  - Phase II contractor may receive up to one additional, sequential Phase II award for continued work on the project, up to $500K
- TALK TO TPOC DURING Phase II

11

Writing the Phase II Proposal

12

Goal of SBIR/STTR Programs



What Does SBIR/STTR Fund?

- **Product Development**
  - What is the intended product?
  - What applications will it be used for?
- **Based on Technological Innovation**
  - What technological innovation will enable the product to achieve the desired performance?
  - Is there risk of failure?
  - Will the product be revolutionary or evolutionary?
- **Credible Commercialization Strategy**
  - Is there a market identified? Competitive analysis done?
  - How will the company generate revenue?
  - What additional resources will be required to achieve commercialization? Have they been identified?
    - Strategic Partners
    - Sources of capital

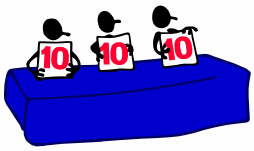
14

DoD Phase II Evaluation Criteria

- Soundness, technical merit, and innovation of the proposed approach & incremental progress toward a solution
- Qualifications of the proposed/key investigators, supporting staff and consultants INCLUDING ability to commercialize
- Potential for commercial (Gov. or private sector) application and benefits expected to accrue from this commercialization

15

Additional Evaluation Criteria Considered



- Results of the Phase I effort
- Commitment for Phase III funding
- Program balance
- Budget limitations
- Potential of leading to a product of continuing interest to the agency
- If technical evaluations are essentially equal in merit
  - Cost to the Government
  - Manufacturing considerations
  - Value to the Government

16

DoD Phase II Proposal Package

- Volume 1: Cover Sheet
- Volume 2: Technical Proposal
- Volume 3: Cost Volume
- Volume 4: Company Commercialization Report

EACH COMPONENT HAS UNIQUE REQUIREMENTS THAT MUST BE FOLLOWED

17

AF Phase II Technical Proposal Outline*

1. Coversheet (not counted toward page limits)
2. Table of Contents
3. Glossary
4. Milestone Identification
5. Identification and Significance of the Problem or Opportunity
6. Phase II Technical Objectives
7. Nonproprietary Phase II Work Plan
8. Nonproprietary Proposer-prepared Statement of Work
9. Deliverables
10. Related Work
11. Commercialization Potential, Strategy & Transition Plan
12. Military Applications
13. Relationship with Future R/R&D Efforts
14. Key Personnel
15. Facilities/Equipment
16. Subcontractors/Consultants
17. Prior, Current or Pending Support
18. Cost Proposal (not counted toward page limits)

FORMAT:
NTE 50 pages
11 point font
1" margins
Pages numbered
Proprietary markings

BUDGET:
NTE $750,000

PERFORMANCE PERIOD:
24 mos. Technical +
3 mos. Final Report

*Always subject to change

18

DARPA Phase II Technical Proposal Outline*

1. Significance of the Problem or Opportunity
2. Phase II Technical Objectives
3. Related Work
4. Relationship with Future R/R&D Efforts
5. Key Personnel
6. Facilities/Equipment
7. Subcontractors/Consultants
8. Prior, Current or Pending Support
9. Commercialization Strategy (5 pages, NOT counted in 40 page limit)
   - Technological Need
   - Market Analysis
   - Business Readiness

FORMAT:
NTE 40 pages
10 point font
1" margins
Pages numbered
Proprietary markings

BUDGET:
Base NTE $1 MM
Option NTE $500K

PERFORMANCE PERIOD:
Base 24 mos.
Option 12 mos.

*Always subject to change

19

Significance & Phase I Results

- Proposed innovation
- Relevance and significance to topic needs
  - How Phase II work will lay the foundation for Phase III
  - Include "spin-off" benefits & Private sector (e.g. "Dual Use")
- Phase I results should demonstrate "feasibility" based on agency criteria

20

Significance—BBC outline

- Phase I results
  - How Phase I results showed progress toward agency requirement
- Technical challenge and barriers to solution
  - What aspect of the problem are you addressing?
  - Why is your approach unique & superior to alternatives?
- What is your technological innovation?
- Significance
  - What will your technology enable that is not present now?
  - What are the end products/services and why are they important to Component? To other DoD Components? To other government agencies? To the commercial market?
  - How is it well suited for transition into an agency platform/system?
  - What are the social, economic & dual use impacts and benefits?

21

Phase II Technical Objectives

Pointers

- REMEMBER, “it’s all about them”
  - Their objectives are your objectives
  - Directly address milestones and objectives listed in the topic description
- Objectives should be bounded by resources company & your team can bring
- Presentation:
  - Begin by specifying objectives most clearly related to the solicitation topic and agency concerns.
  - Secondary: objectives relating to "spin-off" benefits.
- Keep objectives short, to-the-point & quantifiable

22

Technical Objectives—BBC outline

- List & explain the key Phase II objectives
  - Objective 1……
    - Measurable criteria for acceptance
  - Objective 2…..(repeat for all Objectives)
    - Measurable criteria for acceptance
  - Commercial implications of achieving Objectives
    - Focus on the Agency problem

23

Phase II Statement of Work—BBC Outline

- For each objective:

  <Objective Restated>

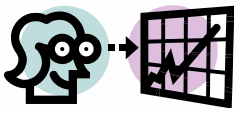
  i. Rationale
  ii. Experimental Design and Methods
  iii. Data Analysis and Interpretation
  iv. Potential Pitfalls/Alternative Approaches
  v. Expected Outcomes & Deliverables

24

Phase II Statement of Work

Project Scheduling (Gantt) Charts

- Ensure Work Plan proceeds chronologically
- Include each task to be completed, how long it should take to complete the task, who is responsible, where work will be done and completion date
- Highlight any decision points, milestones & deliverables y
- Indicate which targets are key starting points for Phase II Option work (if applicable)



25

Gantt Chart-Include Base & Option if needed

Technical Objectives	Month									
	1	2	3	4	5	6	7	8	9	10
Technical Objective 1 *PI/Chief Scientist, Ph.D. Chemist, M.S.* NewCo. Labs	↔									
Technical Objective 2 *PI Chief Scientist, Ph.D.* NewCo. Labs		↔	↔							
Technical Objective 3 *Engineer, M.S.* MidWest University			↔	↔	↔	↔				
Technical Objective 4 *Scientist, Ph.D.* Research Co. 2							↔	↔	↔	↔
	BASE Period						OPTION Period			

Related Work

Awareness Enhances Credibility

- Describe significant activities directly related to the proposed effort
- Include discussion of relevant related R&D or publications by your firm, key project staff, consultants and subcontractors
- Establish your awareness of state-of-the-art
- Literature references to support points
- Be certain to look at ALL references provided in the original topic description

27

Related Work—BBC Outline

- For key work conducted by team members:
  - Short description and how relevant
  - Client for whom work was done
  - Completion date
  - References if relevant
- Describe others' work in the field and how your proposed work advances the state-of-the-art
  - Must include references
  - Be sure to include competing Phase I awardees

28

Relationship with Future R&D

Research or Research and Development

- Contracting agencies want to fund work with a future!
- Synthesize material presented earlier in the proposal.
  - Begin by summarizing expected outcomes.
  - Indicate how each anticipated result will facilitate your ability to conduct Phase III R&D and transition to Phase III commercialization

29

Relationship with Future R&D—BBC Outline

- Anticipated results if Phase II is successful
  - Focus on objectives stated in the topic
- Significance of Phase II effort as a foundation for Phase III commercialization
- Identify any clearances, certifications, approvals needed for Phase III and outline plan for completion
- State how you will involve other parties (i.e. military users, prime contractors, dual use commercial customers)

30

Including Subcontractors/Consultants

Building a Team

- Keep the crucial work in-house
- Consultants and subcontractors should be used for clearly defined, support functions
  - Project review
  - Product testing
  - Specific experimental operations or data collection.
- Consider strategic subcontracting/consulting with potential prime contractors and with retired DoD personnel who know how to work with them

31

Ph II Commercialization Strategy

- Must show expected quantitative commercialization results including amount of additional investment and sales revenue (Required for DoD)
  - At one year after the start of Phase II
  - At the completion of Phase II, and
  - After the completion of Phase II
- Thereafter, must update Company Commercialization Reporting annually with actual results

32

Ph II Commercialization Strategy

- Commercial potential is evidenced by:
  - Record of commercializing SBIR/STTR or other research
  - Existence of private sector and non-SBIR/STTR funding sources
  - Existence of Phase III follow-on funding commitments
  - Strength of the firm's commercialization strategy

33

SBIR/STTR Three Phase Program

Phase III

- Commercialization phase
- "Derives from, extends or logically concludes efforts performed under" prior SBIR/STTR funding agreements from any agency
- Must be funded by sources outside of SBIR/STTR (private sector and/or non-SBIR Government)
- Develop prototype into viable product/service for sale in military and/or private sector markets
- Often initial customer is prime contractor for a major system or "program of record"

34

Commercialization

There is no such thing as the "Build it and they will come" Business Model

Why is Commercialization Important?

SBIR/STTR Reauthorization Act of 2011

- Increased emphasis on commercialization
- New requirements
  - Company registry at SBIR.gov (commercialization database)
  - Commercialization history of Phase II awardees
  - Phase II-to-Commercialization standard
  - Phase III acquisition preference
- Increased agency flexibility
  - Eligibility of VC-owned small businesses
  - Commercialization assistance programs
  - Offer option for non-agency commercialization assistance

36

What's a Commercialization Plan?

Business Plan	Commercialization Plan
All Company's products & services	Specific product or application of THIS proposal
Internal operating guide / request for funding	Defines a path-to-market
Strategic & tactical	Little emphasis on operations
Extensive financials	Revenue model; possibly P&L

37

DoD Commercialization Plan**

Proposed layout

- Product description/System application
- Advocacy letters
- Letters of intent or commitment
- Business models/Procurement mechanisms
- Market/Customer sets/Value proposition
- Primary & niche markets
- Market & growth trends
- Competitive assessment
- Funding requirements & plans
- Sales projections & quantitative commercialization results
- Expertise/Qualifications of team/Company readiness

**Specific requirements may vary by component

38

Commercialization Strategy

Phase II MUST address five questions:

- What is the first product the technology will go into?
- Who will be the customers, and what is the estimated market size? FOCUS ON DoD!
- How much money will be needed to bring the technology to market & how will that money be raised?
- Does the company have marketing & business expertise and, if not, how will it be brought in?
- Who are the proposing firm's competitors, and what is the price, technology and quality advantage over those competitors?

39

Commercialization Plan Components

- The Market Opportunity
  - Problem & its Significance
  - Customer & her Pain
  - Competition with Advantages & Shortcomings
- Product/Technology
  - The Innovation & its Disruptive Potential
  - The Value Proposition
  - Intellectual Property & the Competitive Landscape
- Financing and Revenue Model
  - Business Model
  - Operational Plan & Projections
- The Company/Team
  - Experience & Track Record

40

SBIR/STTR Reviewer Considerations

Market Opportunity

- Is market opportunity described succinctly?
- Does the proposal demonstrate an understanding of a typical customer profile?
- Is the product/service described and the customer need that's being addressed?
- Can you tell where the Company is in the development cycle?

41

Common Issues with Commercialization Plan

- Often starts with the technology "push" rather than market "pull"
  - Too much technology detail, not enough target market information
  - Must focus on DoD NEED
- Role of collaborators not acknowledged (i.e. Primes)
- End PRODUCT not clearly articulated (focus on technology instead)
- Target markets are described too broadly
  - Focus more on your niche
- Business model to generate revenue from the innovation is unclear or not articulated
- High growth rates assumed without substantiation
- No references used to support market analysis
- Assumptions not stated

42

SBIR/STTR Reviewer Considerations

Product/Competition

- Will the product features provide a compelling value proposition to Air Force, DoD and the government?
- Does the company fully understand transition requirements?
- What market validation is there about this value proposition?
- Does the proposal demonstrate knowledge of the competitive landscape?
- On what basis will the Company compete?
- Does the Company understand its position in the IP landscape?

43

SBIR/STTR Reviewer Considerations

Financing & Revenue Model

- Is there an adequate understanding of the financial resources needed to take the innovation to market?
- Is there a plan to bring reasonable resources to bear to get the innovation to market?
- How and how soon will the innovation generate revenue?
  - How will the company survive until then?

44

SBIR/STTR Reviewer Considerations

The Company and Team

- How well is the team positioned to take this innovation to market? To work with key partners?
- Have they taken similar products to market?
- Do they have additional outside advisors, mentors, partners, and stakeholders?
- Is the corporate structure consistent with the Company's stage and vision?
- Are key success milestones clearly identified?

45

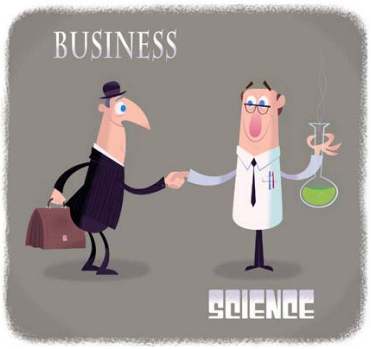
Commercialization Plan Overview

Activity	Year 1	Year 2	Year 3	Year 4	Year 5
Conduct Phase II R&D project	xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx			
Execute a joint development agreement		*			
Jointly complete product development			xxxxxxxxxxxxxxx	xxxxxxxx	
Execute a licensing agreement			*		
Identify prospective investors		xxxxxx	xxxxxxxxxxxxxxx	xxxxx	
Close Series A financing				*	
Recruit marketing manager			xxxxxx	xxxxx*	
Identify contract manufacturer				xxxxxxxx*	
Sign up international distributors				xxxxxxxx	xxxxxx
Launch product internationally					*

46

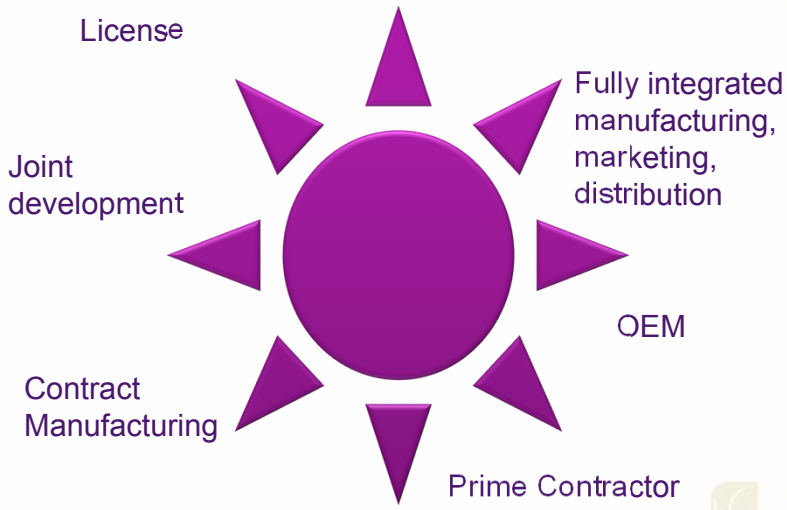
Are you a "real" company?

- Do you have marketing and business expertise?
- If not, how and when will you bring it into the company



47

Business Model = "How the company makes money"



48

Define the Business Model

- What do you sell?
  - License
  - Component
  - Full product
- How much do you charge?
  - What are the costs you'll incur?
  - How is your pricing constrained by competition?
- How do you get it to the customer?
  - Licensing partner
  - Prime contractor or Tier X supplier
  - OEM, contract manufacturer
  - Distributor or sales force
  - Fully integrated

49

Revenue Model

- Revenue projections for profit-and-loss (P&L) projections
- Categories of revenue streams
  - Do NOT include debt or equity as revenue
- Choose logical start and end dates
- Consistent with business model, IP strategy and commercialization strategy
- Clearly state assumptions
- Use text in your proposal to highlight the key points

50

Sample Revenue Model

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Grant revenue	115,000	43,000	677,000	227,000			
Licensing fees		10,000	25,000	25,000	20,000	20,000	20,000
Milestone payments			75,000	40,000	150,000	200,000	
Product sales					66,000	225,000	480,000
Royalties				13,000	47,000	128,000	238,000
Total Revenue	$115,000	$53,000	$777,000	$305,000	$283,000	$573,000	$738,000

Item	Assumption
Grant Revenue	One Phase I & one Phase II SBIR
License fees	$10k upfront; $5k/yr thereafter
Milestone payments	Pre-negotiated
Product Sales	Average selling price X # units
Royalties	5% of licensee's net sales

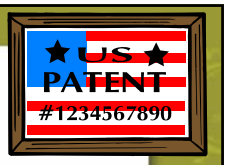
Common Issues with Commercialization Plan

Finance and Revenue Model

- Limited understanding of funding required to take technology from concept to market
- Lack of supporting letters from key collaborators (primes, federal labs, investors, etc.)
  - Inadequate time allowed to receive the letters
- Financial models don't differentiate between revenue generation and financing
- Superficial treatment of financials (or none)
- Limited or no assumptions provided
- Appropriate considerations not made for business model
  - Role of Prime Contractor
  - License: timing, IP risk, sources of income
  - Manufacturing: Cost to set up production, cost of goods, channels of distribution, working capital requirements
  - Approvals, clearances & regulatory requirements

52

Intellectual Property Protection



- How will you protect IP that results from this innovation
- What actions might you consider that will constitute at least a temporal barrier to others aiming to provide a similar solution
- Existing IP
  - List and describe importance to THIS project
  - Clearly explain the company's right to use the intellectual property
  - Discuss how the IP fits into the broader base of IP in the competitive landscape
- HOW DOES YOUR IP ENABLE YOUR BUSINESS STRATEGY??

53

Final Thoughts on Commercialization

- Remember why the SBIR/STTR program is funding your company!
  - Facilitate commercialization of technology
  - Create jobs
  - Encourage collaboration
  - Justify your assumptions
  - Be persuasive
  - Why is this product important to DoD?
- Be realistic
- Develop your Commercialization Plan with the same scrutiny you give your Research Plan

54

Technology Transition at DoD

- Transitioning fundamental scientific discovery to operational systems is the goal of SBIR/STTR
- Process from S&T to R&D to operational product is a long, non-linear process involving many government communities
- Objective is to provide the best possible technology to operational units at the earliest possible date at the lowest cost

55

Challenges of Technology Transition

- GAO studies show that advanced technologies:
  - Cost too much
  - Take too long to field
  - Are too expensive to sustain
- …Primarily because immature technologies are inserted into acquisition programs
- Successful programs:
  - Mature technologies
  - Stable designs
  - Developed production processes
  - Involve agency's S&T organizations in maturing technologies

56

Know Your TRLs!

TRL

- TRL (Technology Readiness Level) is a scale to describe maturity of a technology for a particular use:
  - Least mature (TRL1) to most mature (TRL 9)
- Provides
  - Common language and standard for assessing the maturity of a technology and plans for its future maturation
  - Framework for evaluating technologies which helps assess risk of inserting a technology into a new or existing program

57

TRL = Technology Readiness Level

- *Basic Technology Research*
  - **TRL 1**: Basic principles observed and reported
- *Research to Prove Feasibility*
  - **TRL 2:** Technology concept and/or breadboard validation in a laboratory environment
  - **TRL 3:** Analytical and experimental critical function and/or characteristic proof of concept
- *Technology Development*
  - **TRL 4:** Component and/or breadboard validation in relevant environment
- *Technology Demonstration*
  - **TRL 5:** Component and/or breadboard validation in relevant environment
  - **TRL 6:** System/subsystem model or prototype demonstration in a relevant environment (ground or space)
- *System/Subsystem Development*
  - **TRL 7:** System prototype demonstration in a space environment
- *System Test, Launch and Operations*
  - **TRL 8:** Actual system completed and "flight qualified" through test and demonstration (ground or space)
  - **TRL 9:** Actual system "flight proven" through successful mission operations

58

Step-Level Increases in Complexity

Each level increases the complexity of either:

- Technology
  - Concept -> Component -> Breadboard -> Prototype -> Actual system
- Environment
  - Lab -> Relevant Environment -> Operational Environment

TRL1	TRL2	TRL3	TRL4	TRL5	TRL6	TRL7	TRL8	TRL9
Basic Principles Observed	Concept Formulation	Proof of Concept	Breadboard in Lab	Breadboard in Rep Environment	Prototype in Rep Environment	Prototype in Ops Environment	System Qual	Mission Proven

Pre-Concept Refinement	Material Solution Analysis	Technology Development	Engineering & Manufacturing Development	Production & Deployment

Pre-Acquisition | Systems Acquisition

DoD Ph II Proposal Letters of Support/Advocacy

Requirements vary by component

- Typically counted in the Technical Volume page limit
- Include only very strong letters of commitment from investors, prime contractors and others
  - Less important letters can be referred to as "available on request"
- Be aware that government personnel cannot provide letters; however you can provide their contact information in the body of the proposal

60

Succeeding with DoD

Just getting started?

- Research topics consistent with your business strategy
- Current and past solicitations identify agency technology needs
- Know structure of Agency and procuring services
- Submit proposals for problems you can solve
- Prepare to be innovative

Already have a Phase I or Phase II?

- Know your target platform/system for insertion
- Build strategic partnerships (Primes, Universities, Acquisition Program Managers-Tech Directors-Requirements Officers)
- Plan commercialization path early with TPOC

When you hear the good news…..

…. you're not done yet!

62

Typical DoD Phase II JIT Questions

Must undergo a pre-award accounting system audit

- SF1408: "Preaward Survey of Prospective Contractor - Accounting System"

SECTION II - EVALUATION CHECKLIST

MARK "X" IN THE APPROPRIATE COLUMN *(Explain any deficiencies in SECTION I NARRATIVE)*	YES	NO	NOT APPLICABLE
1. EXCEPT AS STATED IN SECTION I NARRATIVE, IS THE ACCOUNTING SYSTEM IN ACCORD WITH GENERALLY ACCEPTED ACCOUNTING PRINCIPLES APPLICABLE IN THE CIRCUMSTANCES?	☐	☐	☐
2. ACCOUNTING SYSTEM PROVIDES FOR:			
a. Proper segregation of direct costs from indirect costs.	☐	☐	☐
b. Identification and accumulation of direct costs by contract.	☐	☐	☐
c. A logical and consistent method for the allocation of indirect costs to intermediate and final cost objectives. (A contract is final cost objective.)	☐	☐	☐
d. Accumulation of costs under general ledger control.	☐	☐	☐
e. A timekeeping system that identifies employees' labor by intermediate or final cost objectives.	☐	☐	☐
f. A labor distribution system that charges direct and indirect labor to the appropriate cost objectives.	☐	☐	☐
g. Interim (at least monthly) determination of costs charged to a contract through routine posting of books of account.	☐	☐	☐
h. Exclusion from costs charged to government contracts of amounts which are not allowable in terms of FAR 31, Contract Cost Principles and Procedures, or other contract provisions.	☐	☐	☐
i. Identification of costs by contract line item and by units (as if each unit or line item were a separate contract) if required by the proposed contract.	☐	☐	☐
j. Segregation of preproduction costs from production costs.	☐	☐	☐
3. ACCOUNTING SYSTEM PROVIDES FINANCIAL INFORMATION:			
a. Required by contract clauses concerning limitation of cost (FAR 52.232-20 and 21) or limitation on payments (FAR 52.216-16).	☐	☐	☐
b. Required to support requests for progress payments.	☐	☐	☐
4. IS THE ACCOUNTING SYSTEM DESIGNED, AND ARE THE RECORDS MAINTAINED IN SUCH A MANNER THAT ADEQUATE, RELIABLE DATA ARE DEVELOPED FOR USE IN PRICING FOLLOW-ON ACQUISITIONS?	☐	☐	☐
5. IS THE ACCOUNTING SYSTEM CURRENTLY IN FULL OPERATION? (If not, describe in Section I Narrative which portions are (1) in operation, (2) set up, but not yet in operation, (3) anticipated, or (4) nonexistent.)	☐	☐	☐

63

Take Home Lessons

- Start planning early
- Focus on the problem
- Validate assumptions (e.g., prospective customer, investors, partners)
- Investigate all types of potential follow on funding

64

How to be Competitive in SBIR/STTR

- Understand the philosophy of the Agency
- Understand the review process
- Understand the psychology of the reviewers
- Develop and follow a strategic plan
- Follow the rules
- Complete your registrations at least 6-8 weeks ahead
- Submit Early!
- Remember Commercialization is why they're funding you!

65

Remember….

A good planning process is crucial for commercial success!

COMMERCIALIZATION!

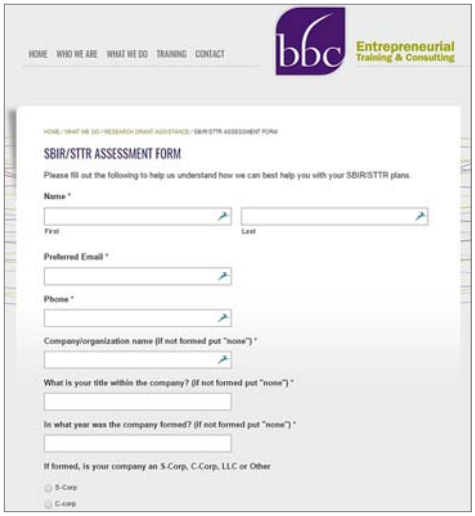
ARE YOU PREPARED?

YES!

67

Working with BBCetc

START HERE



http://bit.ly/bbcasmt

- Complete and submit our online Assessment Form.
- We'll set up a call to chat about your project, your SBIR/STTR eligibility and next steps.

69

About BBCetc

BBCetc works with technology-based entrepreneurs and companies on strategies to advance R&D efforts to commercialization. We are nationally recognized for our success in helping clients win federal funding through the SBIR/STTR programs and use it tactically to propel growth. Services include training courses and one-on-one counseling in:

- Commercialization Planning
- SBIR/STTR and Other Research Grant Assistance
- SBIR/STTR and Commercialization Training
- Grants/Contracts Management
- Tech-Based Economic Development Programs

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70

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DEVELOPING THE BUSINESS OF TECHNOLOGY