

Navy STTR Phase II Transition Plan

Purpose: The transition plan provides qualitative and quantitative details of the proposed technology and a better understanding of how the technology will be transitioned to the fleet. Knowing the potential Phase III funding sources, identifying the military uses and defining a planned path for transitioning this technology into a military application will be used to evaluate your Phase II proposal under the “Potential to Commercialize” criteria. The plan should address technology development activities, potential sponsors or interested parties, and how you plan to engage these parties during your Phase II project. The section on the technology insertion strategy and partnering are critical to the success of this plan.

The text below provides a template. Some sections will not be appropriate for your proposal. Most of the information gathering required to complete this plan should be done by the small business. If you need help in addressing some of these questions, it is recommended that you contact your technical program officer.

Format: Provide a cover page, non-proprietary quad chart, 5 to 10-page narrative plus attachments as follows:

Cover page:

- Firm name and address
- Topic number, proposal title
- Principal investigator and corporate official (with phone number and e-mail)
- Phase I contract number, name of Government Technical Monitor
- Phase I SYSCOM Sponsor (ONR, NAVSEA, NAVAIR, SPAWAR, MARCOR, or SSP)
- Phase I Acquisition Sponsor (if one was identified)
- If this is an STTR—include the research institution you plan to use in Phase II
- Indicate whether or not you have entered into a cost type Government contract and been audited by DCAA. If so, when, what office, and if possible provide the name and number of your DCAA contact.

Quad Chart – provide a non-proprietary quad chart appropriate for public release. The Navy Tap website has a Quad Chart creation kit at: <http://www.dawnbreaker.com/quad>

5-10 Page Narrative:

1. **Product/Technology Description** (one to two pages) – Briefly describe the proposed Phase II project and objectives and the product or service expected to result from a Phase II effort. Include:
 - Summary of Phase I work/results
 - Potential benefits of proposed technology
 - Potential issues and risks (cost, schedule, technical, manufacturability, etc.)
 - Summary of proposed Phase II work
2. **DoD Customer Identification and Need** (one to two pages) – Identify the customer and the requirements for this technology. Address the following questions:
 - Who is the Navy customer(s) for this project? Provide specific Navy/DoD platforms or programs and include points of contact if you have them.
 - What are the Navy-defined needs being addressed and the quantified operational gaps?
 - What approach does the Navy currently use to address this need and what benefit does your technology have over other approaches?
 - What types of tests and demonstrations will be required before the technology will be approved for use on these platforms or programs?
3. **Technology Insertion Strategy and Partnering** (one to two pages) – Describe the resources required for transitioning the technology into the DoD and where you think the resources will come from. Include the financial, personnel, and facility requirements to manufacture and test the product/technology prototype and the requirements to achieve full-scale production. Describe the approach that you will take to obtain (non SBIR/STTR) funding to move your technology through

subsequent Technology Readiness Levels (TRL) (see figure (1)) and to achieve technology insertion. Indicate the role you would ideally like to play in the transition of this technology to the fleet. Take a realistic look at whether or not the new product fits within the company product line and experience. Address the following questions:

- How much money will you need to bring the technology to market, and how will you raise that money?
 - How much will the product/technology cost to manufacture?
 - Do you have the capability to implement a plan that will not only complete the development and testing of the product, but also addresses the full scale manufacturing and distribution of the product?
 - Will you manufacture the product or technology, license it, partner with another company or subcontract the work?
 - If you partner with another company—who, how, and when will the partners participate in this effort? Indicate if you have had previous experience with these potential partners.
 - Clarify why the approach selected will be beneficial to the Navy and/or prime contractor.
4. **Business Analysis/Marketing** (one to two pages) – Briefly describe marketing tasks to be performed and milestones scheduled during the Phase II performance period.
- **DoD Applications** – Identify key DoD components who have been and/or will be informed of progress in these efforts. Address the following questions:
 - What is the first product, platform or system that this technology will go into?
 - What is your estimate of the market size?
 - Does your company contain marketing expertise and, if not, how do you intend to bring that expertise into the company?
 - Who are your competitors, and what is your price and/or quality advantage over your competitors?
 - **Non-DoD applications** – Identifying potential sales to the private sector would help offset the initial research and development costs and required investment in plant and equipment, materials and other items necessary to produce the product. Without these additional production quantities, the volume required by the sponsor may not be large enough and/or the program long enough to allow the small business to manufacture it economically. Small quantities may have to be priced out of the reach of the government sponsor if there is no private sector market for the product.
5. **Intellectual Property Strategy** (half to one page) – Describe your approach for protecting the intellectual property developed during Phase II, including protection of SBIR/STTR data rights. Include (if appropriate) patent, copyright, trademark and trade secret protection. Cite name of counsel.
6. **Company History** (half to one page) – Provide a brief overview of your company’s history, core competencies, and experience with commercialization and/or transition of technology to DoD. Indicate the number of employees in your firm, their skill base, and your organizational structure. If partnering is not anticipated, indicate why your company would be a credible supplier to the Navy. Describe your experience to date with being a supplier of products/services to any market and as appropriate, indicate the cumulative revenues that have resulted from product sales.

Attachments — Attach letters of endorsement from within the DoD or private sector which discuss the direct benefit of the technology to them and/or their intent of follow-on funding either during Phase II or under a Phase III award. Letters of endorsement are strongly encouraged and provide validation of interest by others. If any matching dollars will be applied to the Phase II effort, please provide information from those parties.

Technology Readiness Level (TRL)	Description
1 Basic principles observed and reported	Lowest Level of Technology Readiness. Scientific research begins to be translated into applied research and development. Examples might include paper studies of a technology's basic properties.
2 Technology concept and/or application formulation	Invention begins. Once basic principles are observed, practical applications can be invented. Applications are speculative and there is no proof on detailed analysis to support the assumptions. Examples include components that are not yet integrated or representative.
3 Analytical and experimental critical functions and/or characteristic proof of concept	Active research and development is initiated. This includes analytical studies and laboratory studies to physically validate analytical predictions of separate elements of the technology. Examples include components that are not yet integrated or representative.
4 Component and/or breadboard validation in laboratory environment	Basic technological components are integrated to establish that they will work together. This is relatively "low fidelity" compared to the eventual system. Examples include integration of "ad hoc" hardware in the laboratory.
5 Component and/or breadboard validation in relevant environment	Fidelity of breadboard technology increases significantly. The basic technological components are integrated with reasonably realistic supporting elements so that it can be tested in a simulated environment. Examples include "high fidelity" laboratory integrations of components.
6 System/subsystem model or prototype demonstration in a relevant environment	Representative model or prototype system, which is well beyond that of TRL 5, is tested in a relevant environment. Represents a major step up in technology's demonstrated readiness. Examples include testing a prototype in a high fidelity laboratory environment, or in a simulated operation environment.
7 System prototype demonstration in an operational environment	Prototype near, or at, planned operational system. Represents a major step up from TRL 6, requiring demonstration of an actual system prototype in an operational environment, such as an aircraft, vehicle, or space. Examples include testing the prototype in a test bed aircraft.
8 Actual system completed and "flight qualified" through test and demonstration	Technology has been proven to work in its final form and under expected conditions. In almost all cases, TRL represents the end of true system development. Examples include developmental test and evaluation of the system in its intended weapon system to determine if it meets design specifications.
9 Actual system "flight proven" through successful mission operations	Actual application of the technology in its final form and under mission conditions, such as those encountered in operational test and evaluation. In almost all cases, this is the end of the last "bug fixing" aspects of system development. Examples include using the system under operation mission conditions.

Figure 1. Navy Technical Readiness Levels