

***Template/Instructions***

**TECHNOLOGY TRANSITION PLAN (TTP)**

For

**(Topic Number: Project Title)**

**a Navy Small Business Technology Transfer (STTR) Project**

**(Option Funding Requirement)**

*Updated Month, Day, Year*

* This Technology Transition Plan (TTP) documents the fiscal and transition commitments of participants to develop, deliver, and integrate a technology/product into an acquisition program.
* The sections identified in this template should be considered for inclusion in the TTP to support a gated transition process (not all elements are appropriate for every agreement).
* TTPs must be reviewed (at least) annually with each of the key partners to measure technical progress, reconfirm need and future direction, and determine if the effort should continue.
* TTP content must align with a final STTR option proposal. Please use data from the Navy SBIR PM Database or prior transition documents (where approved); for assistance, contact the appropriate SYSCOM STTR TPOC and/or Program Office.

**Firm Information:**

<Firm Name>

<Firm Address>

PI: <Name, Phone #, Email>

Corporate Official: <Name, Phone #, Email>

Have you entered into a Cost type contract with the Government? <Y/N>

If Y, did it include a DCAA Audit? <Y/N>

If Y, provide contact information:

**Project Information:**

Phase II Sponsor:

Phase II Contract #:

Phase II TPOC: <Name, Phone #, Email>

Phase II Acquisition Sponsor (if known):

1. **OVERVIEW**
2. **Business Case** *(one to two brief paragraphs)*

This section should document the technology to be transitioned and the benefits to the Navy. In addition, please provide a brief summary of how STTR option funding will allow this to happen.

Description of proposed technology

Potential benefits of proposed technology

Summary of STTR-funded work to-date

Summary of proposed STTR-funded work

Potential issues and risks (e.g., cost, schedule, technical, manufacturability)

*Example:*

The purpose of this agreement is to advance the state of the art of wide band radio frequency technology and reduce system costs to the point at which deployment on board ship is cost effective. STTR option funding will be used to dramatically reduce the system cost by increasing the number of filters that can be cooled per cryocooler unit. The funding will also be used to automate the system tuning feature, which should increase system response time and reduce manpower requirements, and validate the technology in shipboard demonstration planned for 2Q2015.

1. **Operational Need** (*one to two brief paragraphs)*

This section should document the problem to be addressed including how this high priority need was determined.

Navy-defined needs being addressed and the quantified operation gaps

Approach currently used by the Navy to address this need

Description of the benefits your technology has over other approaches

*Example:*

Current shipboard operational systems prevent detection/reception of some UHF signals. Existing filtering technology degrades signals and/or otherwise affects the noise signature. The proposed technology provides superior filtering capability especially in signal ranges of interest in the global war on terrorism. The operational need was identified by PMW-180 during SSEE, Increment E installation and the requirement is documented in the SSEE, Increment F, CDD Number 675-71-05, dated 11 October 2005.

1. **Target Acquisition Program**(*one to two brief paragraphs)*

This section should identify the Program of Record and its key POCs, current phase, next milestone date, and insertion date. Include:

*Example:*

PoR: Name (e.g. Ship Signal Exploitation Equipment).

Program Manager: Name, email, phone.

PoR TPOC POC: Name, email, phone.

Current Phase of Life Cycle from Defense Acquisition System: (e.g., Tech Development Stage).

Date of Next Milestone: (e.g., Milestone B, scheduled Mar 2016).

Insertion Date: (Date this STTR technology will be inserted into platform/fielded system).

Types of tests/demonstrations required before the technology will be approved for use on these platforms/programs.

1. **PROJECT INFORMATION**
2. **Integration Strategy**

In subsections below, summarize the current state of development of the subject technology, future development required for transition, and the integration process that will ensure successful transition.

1. ***Current State of Proposed Technology Solution***  *(one sentence)*

Summarize the current state of development of the subject technology; including a Technology Readiness Level (TRL) estimate and justification for this estimate *(see Appendix A*).

1. ***Technology Integration Process and Funding*** *(several paragraphs plus Appendix B -Excel chart)*

In this section summarize:

* Major tasks to be performed
* Objective of each task
* Total funds required for the task(s)
* Task(s) start and end date
* Exit criteria (or other criteria) used to verify task completion
* Indication if any future funding or other tasks is dependent on successful completion of the task (Note: This section should be used as basis for contract SOW/deliverables)

Describe the approach that you will take to obtain (non-SBIR/STTR) funding to move your technology through subsequent TRLs and to achieve technology insertion. Potential items for discussion include:

* 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

In Appendix B, detail the key tasks to transition and integrate the technology/product into the acquisition program along with their TRL levels. Identify funding sources for the STTR project (including match and complimentary project effort) and post-STTR efforts related to transition to LRIP/Production.

1. **Risks** *(one paragraph per subsection)*

In subsections below, briefly describe the assessment of project risk in four categories cited below. Describe efforts that were/will be conducted to mitigate these, e.g., a Risk Mitigation Plan.

***2.1 Technical Risk is LOW / MEDIUM / HIGH***

Briefly discuss reason for ranking. Technical risk is an estimate of the potential that the proposed technology will not meet the necessary performance specifications (cite exit criteria), or is deficient in some other essential parameter (e.g., weight, volume, power consumption, reliability, maintainability, etc.).

***2.2 Schedule Risk is LOW / MEDIUM / HIGH***

Briefly discuss reason for ranking. Schedule risk is an estimate of the potential for the effort to not meet scheduled deadlines.

***2.3 Cost Risk is LOW / MEDIUM / HIGH***

Briefly discuss reason for ranking. Cost risk is an estimate of the potential for the proposed effort to fail to meet target costs either for development, acquisition, or operations and maintenance.

* 1. ***Business Risk is LOW / MEDIUM / HIGH***

Briefly discuss reason for ranking. Business risk is an estimate of the potential for the failure of the supplier of the proposed technology to either produce the product in a timely manner or in adequate quantity, or to be able to provide support for the product throughout the intended operational lifetime.

1. **Seminal Transition Event** *(one paragraph)*

Briefly describe the *Seminal Transition Event* (STE) that will constitute a definitive end point in this proposed technology transition initiative, providing a capability delivery date (Note that in most cases the STE will be defined when the technology in question moves into acquisition). Include a timeframe for the event (Q1 20XX, etc.). Cite the specific transition (exit) criteria that must be met prior to transition (e.g. TRL, certifications, size, weight etc.). The STE may be planned beyond the Phase II option.

1. **TTP APPROVAL**

The Program Officer should email the completed TTP to the STTR Program Manager stating, “I have read and agree with the content of this Technology Transition Plan.”

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| **Technology Readiness Level** | **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 formulated. | Invention begins. Once basic principles are observed, practical applications can be invented. Applications are speculative and there may be no proof or detailed analysis to support the assumptions. Examples are limited to analytic studies. |
| 3. Analytical and experimental critical function 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 it can be tested in a simulated environment. Examples include “high fidelity” laboratory integration 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 a technology’s demonstrated readiness. Examples include testing a prototype in a high-fidelity laboratory environment or in simulated operational 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 qualified through test and demonstration. | Technology has been proven to work in its final form and under expected conditions. In almost all cases, this 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 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. Examples include using the system under operational mission conditions. |

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| **Technology Integration Process** | **Year 1** | | | | **Year 2** | | | | **Year 3** | | | | **Year 4** | | | | **Year 5** | | | |  |  |  |
| **Q1** | **Q2** | **Q3** | **Q4** | **Q1** | **Q2** | **Q3** | **Q4** | **Q1** | **Q2** | **Q3** | **Q4** | **Q1** | **Q2** | **Q3** | **Q4** | **Q1** | **Q2** | **Q3** | **Q4** | **TRL-In** | **TRL-Out** | **Total Cost** |
| **Transition Effort** |  | | | | | | | | | | | | | | | | | | | | | | |
| Harden Design |  | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 4 | 4 | 150k |
| Build Prototype |  |  |  | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 4 | 5 | 600k |
| Environmental Testing |  |  |  |  |  | | |  |  |  |  |  |  |  |  |  |  |  |  |  | 5 | 5 | 200k |
| System Test |  |  |  |  |  |  | | |  |  |  |  |  |  |  |  |  |  |  |  | 5 | 6 | 250k |
| **Integration** |  | | | | | | | | | | | | | | | | | | | | | | |
| Field Test |  |  |  |  |  |  |  | | |  |  |  |  |  |  |  |  |  |  |  | 6 | 7 | 300k |
| Mfg Cost Reduction |  |  |  |  |  |  | | | | | | |  |  |  |  |  |  |  |  | 6 | 7 | 1.5M |
| Sea Trials |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 7 | 8 | 750k |
| **Production** |  | | | | | | | | | | | | | | | | | | | | | | |
| LRIP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 8 | 9 | 10.0M |
| Full Rate |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 90.0M |
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| **Funding Profile** | **Year 1** | | | | **Year 2** | | | | **Year 3** | | | | **Year 4** | | | | **Year 5** | | | | **Total Amount** | |  |
| **STTR Effort:** |  | | | | | | | | | | | | | | | | | | | | | |  |
| STTR Program | 250k | | | |  | | | |  | | | |  | | | |  | | | | $250,000 | |  |
| Small Business (Self) | 100k | | | |  | | | |  | | | |  | | | |  | | | | $100,000 | |  |
| Prime/Sys Integrator |  | | | | 750k | | | |  | | | |  | | | |  | | | | $750,000 | |  |
| Gov't Non SBIR Source: PEO Ships PE: 0604xxx |  | | | |  | | | | 750k | | | |  | | | |  | | | | $750,000 | |  |
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| In-Kind Source: Test Samples Item: NSWC CD | 150k | | | |  | | | |  | | | |  | | | |  | | | | $150,000 | |  |
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| **Post-STTR Option:** |  | | | | | | | | | | | | | | | | | | | | | |  |
| Transition/Insertion Source: PMS501 PE: 0605xxx |  | | | |  | | | | 750k | | | |  | | | |  | | | | $750,000 | |  |
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| Production Source: PE: |  | | | |  | | | | 3.0M | | | | 7.0M | | | | 90.0M | | | | $100,000,000 | |  |
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1. **ADDENDUM** *(May include other information that describes the transition process.)*