NSRP | National Shipbuilding Research Program

Technology Transfer and Implementation Guide

MISSION

- Manage and focus national shipbuilding and ship repair research and development funding on technologies and processes that will reduce the total ownership cost of ships for the U.S. Navy, other national security customers and the commercial sector and develop and leverage best commercial and naval practices to improve the efficiency of the U.S. shipbuilding and ship repair industry.

- Provide a collaborative framework to improve shipbuilding-related technical and business processes.

CONTENTS

1.0 INTRODUCTION 3

2.0 FORMAT 3

2.1 PROJECT OVERVIEW 4

2.2 INDUSTRY AND NAVY BENEFITS 4

2.3 STAKEHOLDER ENGAGEMENT 4

2.4 TECHNOLOGY TRANSFER STRATEGY 5

2.5 DELIVERABLE CATEGORIZATION AND DISTRIBUTION 5

2.7 PUBLISHING PROJECT RESULTS 6

2.8 IMPLEMENTATION STRATEGY 6

2.8.1 RETURN ON INVESTMENT (ROI) 6

2.8.2 IMPLEMENTATION AVENUES 7

3.0 NSRP IMPLEMENTATION METRICS 8

ATTACHMENT 1 MODEL OF MARKING OF NSRP PROJECT DELIVERABLES 9

DATA RIGHTS MARKING OF NSRP PROJECT DELIVERABLES 10

DATA CATEGORIES 10

ALLOCATION OF PRINCIPAL RIGHTS 11

MARKING OF DATA 12

ATTACHMENT 2 TECHNOLOGY TRANSFER AND IMPLEMENTATION PLAN CHECKLIST 13

1.0 INTRODUCTION

This guide has been created to assist proposers with developing a well-defined Technology Transfer and Implementation Plan (TTIP), which is a prerequisite to contract award.

Panel Projects - Although formal, standalone Technology Transfer and Implementation Plans are not required, Panel Project teams must include a clear outline of how the technology or process being developed will be disseminated across the industry and positioned for implementation.

The objective of the TTIP is to document the criteria the project team will use to successfully:

- disseminate project information during the project lifecycle;
- facilitate adoption of the technologies and/or processes developed under the project across the industry;
- describe methods to engage industry and government stakeholders; and
- transition the final project results to the U.S. shipbuilding industry

The TTIP must be submitted for approval ***prior*** to final contract award *(see diagram below)*.

2.0 FORMAT

For proper consideration, the TTIP must contain the following elements:

1. Project Name, Lead Organization, Team Members Names and Roles
2. Project Overview
3. Industry/Navy Benefits
4. Stakeholder Engagement
5. Technology Transfer Strategy
6. Deliverable Categorization and Distribution
7. Publishing Project Results
8. Implementation Strategy

Please refer to Attachment 2 – TTIP Checklist – to ensure all relevant information is included prior to submission.

Include project name (with NSRP Technology Investment Agreement Number), project participants (organization) and their respective roles.

(Example)
TIA No. 20XX-123
Project Name

Organization	Role
Shipyard A	Technical Manager
Software Vendor A	Technical Support
University A	Subject Matter Expert/Lab Facilities
Consultant A	Technical Support

2.1 PROJECT OVERVIEW

A brief (100 words or less) overview of the project objectives and technology transition objectives, including the project's target audience, project results that are suitable for implementation, and circumstances that would yield successful implementation.

2.2 INDUSTRY AND NAVY BENEFITS

Summary of the benefits of implementing the proposed technology /process for both the shipbuilding industry and Navy (addressing design, construction and in-service communities as applicable). Key points to consider:

- Breadth of applicability to the shipbuilding industry
- Level and nature of benefit to the Navy and industry
- Potential for lead-time and cycle reduction
- Life of the product/technology in the marketplace (years)
- Synergy with other operations, businesses, research and programs.

2.3 STAKEHOLDER ENGAGEMENT

Outline of the approach the project team will utilize for engagement with both Navy and industry stakeholders regarding technology transfer and implementation of the project, including:

- The approach already employed and/or planned for communicating with Navy stakeholders (e.g., Program Executive Office, platform program manager, technical warrant holder), from project initiation through implementation;
- Engagement already accomplished and/or planned with U.S. shipyards, including any evidence of intent to implement results of a successful project; and
- Activities to facilitate likelihood of implementation across the segments of the industry – design, construction and in-service support.

2.4 TECHNOLOGY TRANSFER STRATEGY

Description and preliminary schedule of the technology transfer events during project execution:

- Technology transfer and implementation activities ***(what)***
- Which member(s) of the project team will be responsible for each activity ***(who)***
- Approximate dates associated with these activities ***(when)***

(Example)

Event	*Team Member*	*Audience*	*Date*
Panel Meeting	Team Member A	Industry & Navy	September 201X
Industry Conference	Team Member A/B	Industry & Navy	December 201X
Prototype Demonstration	Project Team	Shipyard A	March 201X
Industry Workshop	Project Team	Industry & Navy	June 201X

Project teams are encouraged to utilize NSRP Panel Meetings for project briefings and demonstrations.

Such events may include, *but are not limited to:*

- Workshops sponsored by the project team for the sole purpose of sharing project results
- Ship Production Panel Meetings and/or workshops/mini-symposia sponsored by those panels
- Professional society symposia, conferences, and meetings (e.g., ShipTech, Ship Production Symposium, SNAME meetings, ASNE meetings)
- Lectures or presentations at universities, research laboratories, company meetings, and/or government-sponsored forums
- On-site demonstrations
- Web-based training courses
- If project material is to be utilized in education and training programs, indicate how the course material will be developed from the project technical deliverables, and how (and to whom) it will be distributed

2.5 DELIVERABLE CATEGORIZATION AND DISTRIBUTION

One of the goals of NSRP is the sharing of project results to the maximum extent practicable to the U.S. shipbuilding industry.

This section should include those deliverables or deliverable categories (e.g., reports, software, drawings, analyses, briefings, demonstrations, etc.—but not quarterly reports) that will be disseminated outside the project team, and their intended distribution.
Attachment 1 – Distribution of Project Deliverables - includes guidelines for distribution of deliverables

2.7 PUBLISHING PROJECT RESULTS

This section should include the project team's plans to publish project accomplishments and results (both interim and final) via the NSRP Program website and/or industry journals and trade publications, throughout the period of performance.

2.8 IMPLEMENTATION STRATEGY

2.8.1 RETURN ON INVESTMENT (ROI)

As a way of making the case for implementation of successful project results, the TTIP shall include well-defined, quantified metrics from which an ROI can be calculated. As described in this section, the plan shall include project costs (both program funds and cost share, listed separately), estimated implementation cost, and predicted cost reductions to be realized through implementation of successful project results. Note that "cost reduction" includes both actual savings and cost avoidance, both immediate and future.

Predicted cost reductions are to be expressed in dollars, and should be based on well-defined metrics -- including those cited in the project proposal -- that will demonstrate a quantifiable ROI. Where exact numbers are not available the project team should derive reasonable estimates by making—and explaining—assumptions based on past experience and/or comparisons to similar innovations/processes. If applicable, generic data may be used in lieu of actual information considered to be company-proprietary.

The following **example** provides guidance on cost and cost reduction information from which ROI can be calculated:

Project Cost – [*Name of Project*]	
Program Funding	$1,000,000
Cost Share	$1,000,000
Public-Sector Participant-Provided Funding	$0
TOTAL PROJECT COST	**$2,000,000**

Implementation Cost Estimate– [*Labor, Materials, Training, etc.*]	
Project Team Shipyards (per yard)	$10,000
Other Shipyards (per yard)	$100,000

Cost Reduction Forecast* [*Savings & Cost Avoidance, Immediate & Future)*		
Cost Category	**As-Is Baseline**	**Post-Implementation**
Labor		
• 30% reduced welding hours per platform	$10,000,000	$7,000,000
• 75% reduced re-work hours per platform	$4,000,000	$1,000,000
Materials		
• 20% reduced welding consumables	$1,000,000	$800,000
• 5% reduced steel plate	$100,000,000	$95,000,000
TOTALS	$115,000,000	$103,800,000
TOTAL COST REDUCTION	**$11,200,000**	

*Where applicable, and depending on the nature of the project, specify unit and time period—e.g., one-time reduction; reduction per hull, per shipboard space; per year, per month; etc.

2.8.2 IMPLEMENTATION AVENUES

This section should include specific steps to ensure successful implementation of the final product developed during the project lifecycle:

- **Identify** those **results** that would be suitable for implementation
- Describe **optimal scenarios** that would yield successful implementation, taking into account the differences between the design, construction and in-service segments of the industry

- **Identify shipyards** that will support implementation of the proposed technologies and/or processes and provide evidence of industry support for implementation
- Address potential **commercial applications** (and estimated commercialization costs) for the proposed technology and/or processes
- Include **training materials** that will lead shipyard workers to easily adapt to the new technology

Activities may include:

- **Coaching/mentoring** support services using budgeted project resources (within specified limits)
- **Consulting** services by key personnel
- Team members' facilities for observation of **demos, pilot programs**, and/or "production" implementations of the technologies developed in the project
- Developing web-based **training** sessions

Project Result	Implementation Activity/Activities	Shipyard(s)	Commercial Applications	Training Materials
Shipbuilding Tool A	Demonstration and support upon project completion	Shipyard A Shipyard B	Yes	Yes -- online

3.0 NSRP IMPLEMENTATION METRICS

To facilitate the dissemination of completed project implementations to industry and Navy stakeholders, the Program uses the NSRP Implementation Matrix.

In order to ensure that the information contained in this comprehensive matrix is current, it is expected that once projects are completed and the technology has transitioned to industry, the project team and/or appropriate Major Initiative Team Leaders will provide relevant information on implementation activities to the Program Administrator on a periodic basis.

ATTACHMENT 1 MODEL OF MARKING OF NSRP PROJECT DELIVERABLES

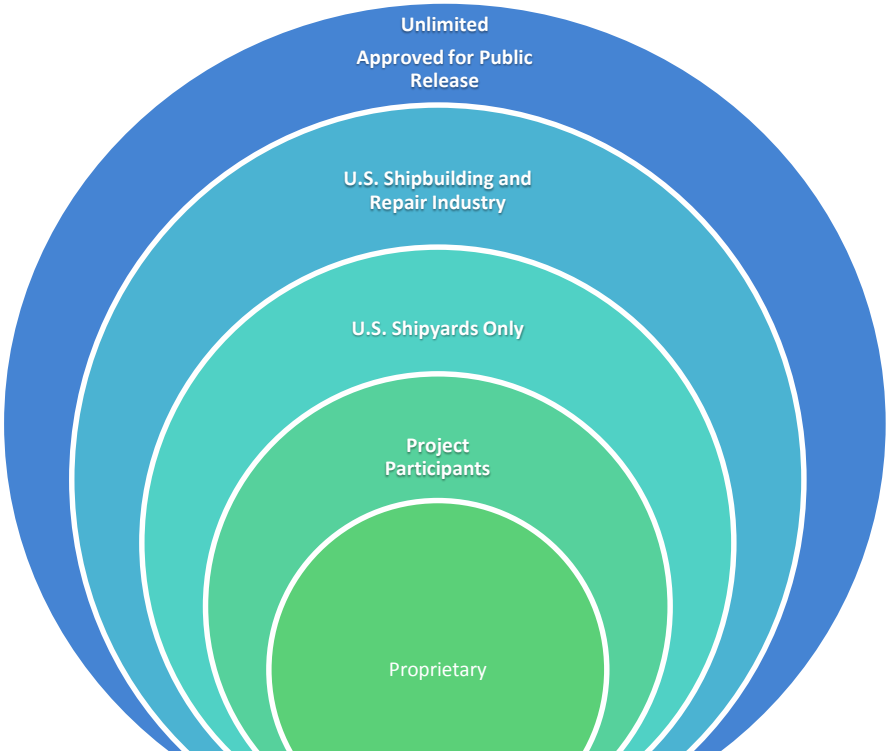
Each project deliverable must be marked with a distribution statement AND a data category as outlined below.

Key terms to remember when marking deliverables for distribution:

- **U.S. shipbuilding and repair industry** - includes commercial and government shipyards, suppliers, subcontractors, designers, and government agencies of the U.S.
- **U.S. shipyards** – includes U.S. commercial and government shipyards.
- **NSRP Program Representatives*** - includes the SCRA Applied R&D NSRP Program Office, the Program Technical Representative (PTR), and the Navy's NSRP Program Office.

Distribution Designation	**Approved Distribution Statement (to be included on all deliverable documents)**
Unlimited/Approved for Public Release: includes anyone in the public domain (including foreign)	*Approved for public release; distribution is unlimited*
U. S. Shipbuilding and Repair Industry: includes U.S. commercial and government shipyards, suppliers, subcontractors, designers, and government agencies.	*Distribution authorized to the U.S. shipbuilding and repair industry and NSRP ASE Program representatives.*
U.S. shipyards: includes U. S. shipyards only	*Distribution authorized to U.S. shipyards and NSRP ASE Program representatives.*
Project participants: includes project participants only; intended for use during the life of the project -- on interim reports, partial project results and other information not suitable for publishing.	*Distribution authorized to project participants and NSRP ASE Program representatives.*
Proprietary: includes the proprietor organization only; if deliverables are proprietary or if there are other considerations that could restrict distribution, justification for the restriction is required.	*This document contains proprietary data that shall not be disclosed outside the appropriate NSRP ASE Program representatives.*

** All deliverables, notwithstanding the limitations described below, are made available to NSRP Program Representatives, as defined above.*



Project Deliverables Distribution Designations

DATA RIGHTS MARKING OF NSRP PROJECT DELIVERABLES

Each deliverable must also be marked with the appropriate data rights statement as required in Article IX, Section D of the Technology Investment Agreement as indicated below:

DATA CATEGORIES

CATEGORY A

Category A is Recipient or Project Participant data developed and paid for totally by private funds, and is Data to which the Recipient or Project Participant retains all rights. Category A Data shall include, but not be limited to:

a) the computer software, and any designs or other material provided by Recipient or Project Participant which was not developed in the performance of work under this Agreement, for which the Recipient or Project Participant retains all rights.
b) any initial technical, marketing, or financial Data provided at the onset of the project by any of the Recipient or Project Participants. Such information shall be marked “Category A” pursuant to the Proprietary Information Exchange Agreement (Attachment 4 of the Technology Investment Agreement).
c) client lists, except that any surveys of potential customers may be converted to Category B Data if the identification of parties may be efficiently removed.

Category A Data shall not include Collaboration Intellectual Property.

CATEGORY B

Category B is Recipient or Project Participant data developed with mixed funding, i.e. data developed partially with costs from the Recipient or Project Participants that was not charged to a Government contract and includes data developed partially with Government funding.

FREEDOM OF INFORMATION ACT AND TRADE SECRETARY ACT

The Parties to this Agreement understand and agree that the Recipient or Project Participants shall stamp all documents in accordance with this Article and that the Freedom of Information Act and Trade Secrets Act apply to Data.

ALLOCATION OF PRINCIPAL RIGHTS

1. The Government shall have no rights to Category A Data.

2. The Government shall normally have immediate Government Purpose Rights to Category B Data upon project or Agreement completion (whichever is earlier). In unusual circumstances, the Recipient may request a delay of Government Purpose rights for a period not to exceed 5 years from project or Agreement completion (whichever is earlier). Such requests shall be submitted to the Program Administrator for approval and will only be made in those cases where the Recipient has validated the unique requirement through the formal voting procedures of the Executive Control Board of the NSRP.

3. Data that will be delivered, furnished, or otherwise provided to the Government under this Agreement, in which the Government has previously obtained rights shall be delivered, furnished, or provided with the pre-existing rights, unless the parties have agreed otherwise, or any restrictions on the Government's rights to use, modify, reproduce, release, perform, display, or disclose the data have expired or no longer apply.

4. The Recipient may prepare a supplemental list of Category A and B Data items which should include all of their Project Participants' Category A and B Data, for incorporation into this Agreement within a reasonable period not longer than twelve months, following award of this Agreement. Following mutual agreement of the Parties on the supplemental list of Category A and B Data, the Program Administrator's Director of Contracts will incorporate the list into this Agreement by written notification. This list may be amended from time to time as deemed necessary.

MARKING OF DATA

Category A and B Data delivered to the Government shall be marked either Limited or Government Purpose rights, as appropriate in accordance with the marking procedures of DFARS 252.227-7013(f). It is not anticipated that any Category A Data will be delivered to the Government under this Agreement. The Government and the NSRP ASE Program shall have unlimited rights for all unmarked Data.

ITAR/EAR: For information restricted under the International Traffic in Arms Regulations or the Export Administration Regulations, a warning such as the following should be used:

> *WARNING: This document contains technical data whose export is restricted by the Arms Export Control Act (Title 22, U.S.C., Sec. 2751, et. seq.) or the Export Administration Act of 1979, as amended (Title 50, U.S.C., App. 2401 et. seq.). Violations of these export laws are subject to severe criminal penalties. Disseminate in accordance with provisions of DOD Directive 5230.25.*

Refer to the distribution matrix below to identify distribution groups:

Distribution	SCRA Applied R&D NSRP Program Office	PTR	Navy NSRP Program Office	Executive Control Board	U.S. Ship-yards	Other Relevant U.S. Industry Reps	Anyone (including foreign)
Unlimited	x	x	x	x	x	x	x
U.S. Shipbuilding and Repair Industry	x	x	x	x	x	x	
U.S. Shipyards	x	x	x	x	x		
Project Participants	x	x	x				
Proprietary	x	x	x				

ATTACHMENT 2 TECHNOLOGY TRANSFER AND IMPLEMENTATION PLAN CHECKLIST

Technology Transfer – has the project team:	**Yes**	**N/A**
Provided an overview of the technology transfer and implementation plan?	☐	☐
Established the target audience?	☐	☐
Identified project benefits to and support from Navy and industry?	☐	☐
Identified technology transfer activities and preliminary schedule?	☐	☐
Included major deliverables and intended distribution?	☐	☐
Provided methods for publishing and disseminating project results?	☐	☐
Implementation – has the project team:	**Yes**	**N/A**
Included ROI metrics	☐	☐
Identified the major results of the project that are suitable for implementation?	☐	☐
Provided an implementation strategy that includes specific transition events?	☐	☐
Focused on the target organizations that will most likely use the proposed technologies and/or processes?	☐	☐
Focused on the target industry segments that will most likely use the proposed technologies and/or processes?	☐	☐
Reported any support for the proposed R&D effort, as well as any stated intent to implement successful project results, received from government or industry stakeholders?	☐	☐
Addressed potential commercial applications (and estimated commercialization costs) for the proposed technology and/or processes? (If applicable)	☐	☐
Included training materials or processes to assist with the adoption of new technology? (If applicable)	☐	☐
Agreed to respond to periodic requests for updates to the NSRP Implementation Matrix after project completion?	☐	☐