

**BY ORDER OF THE COMMANDER
AIR FORCE NUCLEAR WEAPONS
CENTER**

**AIR FORCE NUCLEAR WEAPONS CENTER
INSTRUCTION 61-101**

10 JULY 2014



Scientific Research and Development

**TECHNOLOGY RESOURCING AND
DEVELOPMENT (TRAD) PROCESS**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This Instruction implements Air Force Instruction (AFI) 61-101, *Management of Science and Technology*, 14 Mar 2013 and Air Force Materiel Command Instruction (AFMCI) 61-101, *Small Business Innovative Research (SBIR) Program and Small Business Technology Transfer (STTR) Program*, 14 Jul 2000. This instruction establishes the processes and procedures for identification and prioritization of Air Force Nuclear Weapons Center (AFNWC) technology needs for submission into Air Force (AF) Science and Technology (S&T) funding programs and for collaboration with Major Commands (MAJCOMs) on requirements maturation. This instruction applies to all AFNWC military and civilian members managing processes or projects with capability gaps requiring new technology, overseeing technology development, or implementing the resulting solutions. This instruction applies to all AFNWC organizations and programs with the exception of the 377th Air Base Wing. This publication does not apply to Air Force Reserve Command (AFRC) Units or Air National Guard (ANG) Units. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Form 847s from the field through the appropriate chain of command. This publication may not be further supplemented or further implemented/extended. Requests for waivers must be submitted to the OPR listed above for consideration and approval.

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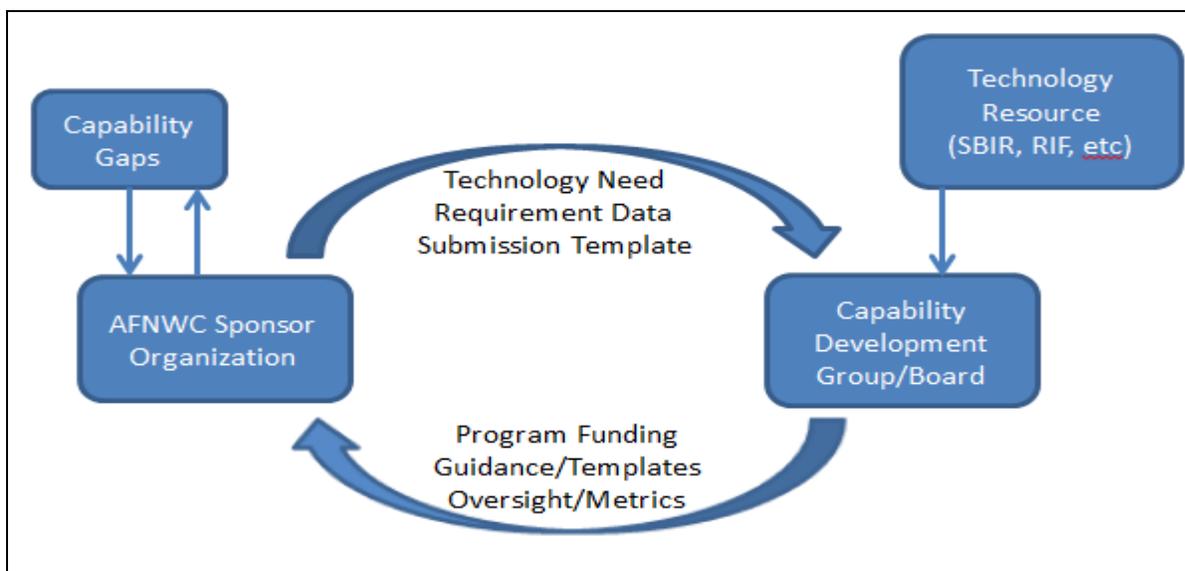
1. Purpose: The technology resourcing and development (TRAD) process provides the method AFNWC will use to identify and prioritize its technology needs (TNs) which will then be used by AFNWC to give a single, consolidated position on technology resourcing and development for such things as, but not limited to MAJCOM Service Core Function (SCF) Capability Collaboration Team (CCT) TN identification/prioritization activities, discussions with industry and academia, and Air Force Research Laboratory (AFRL) interchanges. Valid technology solutions are to be implemented by the sponsoring organization. The sponsor will champion implementing the technology into an AFNWC mission in a cost effective manner with managed risk. While this process is primarily focused on the mission executed by AFNWC organizations, it will also be an avenue for other organizations that have new technical requirements that impact processes related to the AFNWC mission, e.g., National Nuclear Security Administration (NNSA) Laboratories.

1.1. **Vision:** This process will provide a recognized, strategic methodology incorporating a systems engineering approach to identify, track, resource, and develop technology solutions to meet identified capability gaps and technology needs within the nuclear enterprise.

1.2. **Process Description:** The TRAD process for AFNWC is shown in Figure 1.1. below. This process provides the methods AFNWC will use when a MAJCOM has capability gaps that may require a new technology development/insertion as a means to close that particular capability gap. A capability gap occurs when a MAJCOM or AFNWC supporting organization identifies requirements that cannot be satisfied with current or projected capability solutions. The capability gap may require further technical actions to obtain a solution. Capability gaps are identified in a top-down manner by both AFNWC program offices as well as other functional Directorate to identify future technology gaps in the mission. Gaps can also be identified in a bottom-up approach by units executing the current

mission and in response to new technology developments by outside entities. As defined in the Joint Capabilities Integration Development System (JCIDS) Process, the solution space for a given gap should consider solutions involving any combination of Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities (DOTMLPF). While gap sponsors should be considering solutions across DOTMLPF, this instruction applies to organizations requiring a materiel solution. Analysis of these capability gaps will result in some needs being candidates for gap closure by new technology development/insertion. Paragraph 2. describes the roles and responsibilities of each of the AFNWC participating organizations. Paragraph 3. describes the process of maturing an individual TN and the reporting/metric mechanisms to ensure the process is transparent, repeatable and effective.

Figure 1. Technology Resourcing and Development (TRAD) Process



1.2.1. The Intelligence, Program Development & Integration Directorate (AFNWC/XZ) will lead the TRAD process within AFNWC and act as the primary interface between AFNWC and external agencies to include the Air Force Core Function Leads (CFLs), Air Force Life Cycle Management Center (AFLCMC) and AFRL. TRAD is a subset of the overall AFNWC Capability Development (CaDe) process. AFNWC/XZ will organize the AFNWC Directorates into a Team/Group/Board structure to identify, prioritize and submit TNs to the appropriate resource. Each Directorate will be asked to designate an Action Officer (AO) team member to participate in the TRAD Team activities throughout the year, as well as, a GS-15/O-6 to participate in the AFNWC Group/Board processes for approval of AFNWC technology needs. The Group and the Board are composed of representatives from all affected AFNWC Directorates and the Air Force Program Executive Officer for Strategic Systems (AFPEO/SS), and chaired by AFNWC/XZ and the AFNWC Commander (AFNWC/CC), respectively.

1.2.2. The basis for the TRAD process will be an annual call for TNs replacing the current call for each individual resource. AFNWC/XZ, through this Instruction, and via formal tasker will solicit TNs from AFNWC Directorates. In turn, the Directorates will submit their identified and prioritized TNs in the template format shown in [Attachment](#)

2. The intent is for this annual data call to be the single TN query, with the ability to input out-of-cycle TNs as they arise.

2. Roles and Responsibilities.

2.1. Commander, Air Force Nuclear Weapons Center (AFNWC/CC) (or designee) will:

2.1.1. Chair the AFNWC Board process and approve AFNWC TNs submitted by the AFNWC Group to the Board.

2.1.2. Advocate AFNWC TNs to AF senior leadership, as required.

2.2. Air Force Program Executive Officer for Strategic Systems (AFPEO/SS) is invited to:

2.2.1. Participate in the AFNWC Board process.

2.2.2. Appoint an AO to act as a TRAD and CaDe point of contact and participate in the AFNWC-level TRAD identification, analysis and matching process.

2.2.3. Participate in the AFNWC Group/Board processes by providing an O-6/GS-15 representative.

2.3. Intelligence, Program Development & Integration Directorate (AFNWC/XZ) will:

2.3.1. Act as the AFNWC lead Directorate for the TRAD and CaDe processes (except as noted in Paragraph 2.4.10 – Sustainment Technology Process (STP) is AFNWC Engineering and Technical Management Directorate (AFNWC/EN) lead).

2.3.2. Organize, schedule and facilitate the Team, Group and Board processes for all TRAD and CaDe required activities, including schedule coordination with Directorate and senior leadership. Chair the Group meetings.

2.3.3. Lead the TN analysis, matching and development processes to meet the input schedules required by each identified funding source.

2.3.4. Maintain the AFNWC Center Master Lists (CML).

2.3.5. Develop, maintain and report on timeliness and quality metrics for the TRAD process.

2.3.6. Provide timely feedback to AFNWC Directorates on the status of their TNs – where the TNs fall on the CML, when the TNs were submitted for resource calls and where the TNs matched to resources.

2.3.7. Provide AFNWC membership with expected manpower and schedule requirements to support TRAD technology need and project evaluation activities.

2.4. Other AFNWC Directorates (includes, but not limited to, AFNWC/EN, Logistics Directorate (AFNWC/LG), the Nuclear Capabilities Directorate (AFNWC/NC) and the Intercontinental Ballistic Missile Directorate (AFNWC/NI) will:

2.4.1. Appoint a Directorate AO to act as a TRAD and CaDe point of contact and participate in the AFNWC-level TRAD identification, analysis and matching process.

2.4.2. Establish a process to identify and prioritize TNs within each Directorate.

2.4.3. Submit Directorate TNs and associated project leads in the AFNWC/XZ-provided template format to meet the annual data calls. Submit out-of-cycle TNs, as required, using the same Directorate identification and prioritization process.

2.4.4. Participate in the AFNWC Group/Board processes by providing an O-6/GS-15 representative.

2.4.5. Provide subject matter experts (SMEs), on an as needed basis as Directorate resources allow. SME support will be required throughout the year to support various CFL CCT activities in developing and prioritizing capability gaps for their Core Function Support Plans (CFSPs). SME support will also be required to evaluate proposals relative to AFNWC TNs as part of getting TN projects on contract, as required. This support may require significant support for short periods of time (days/week). SME taskings should be made through the appropriate Directorate leadership.

2.4.6. Approve and sign a Letter of Commitment for each TN proposed for analysis, matching to funding sources and prioritization.

2.4.7. Manage TNs successfully matched and funded. This may include assigning a program manager, engineer or other functional support depending on the nature of the project.

2.4.8. Develop a technology transition plan for successfully funded TNs to explain how the TN will be developed such that it can be transitioned into a user required program. This plan should discuss technology readiness level improvements, inclusion in program sustainment plans and the budget submissions to achieve the transition.

2.4.9. Provide status on Directorate managed TN projects to the AFNWC Group/Board process, on a quarterly basis, or as directed by AFNWC/XZ. This status should include cost, schedule and technical performance of the TN project.

2.4.10. AFNWC/EN is the AFNWC POC for the STP program as directed by AFMC. AFNWC/EN will coordinate with AFNWC/XZ to review submitted TNs eligible for STP consideration. AFNWC/EN will be responsible for the final STP submittal while considering the AFNWC CML priorities and informing the AFNWC Team, Group and Board structures.

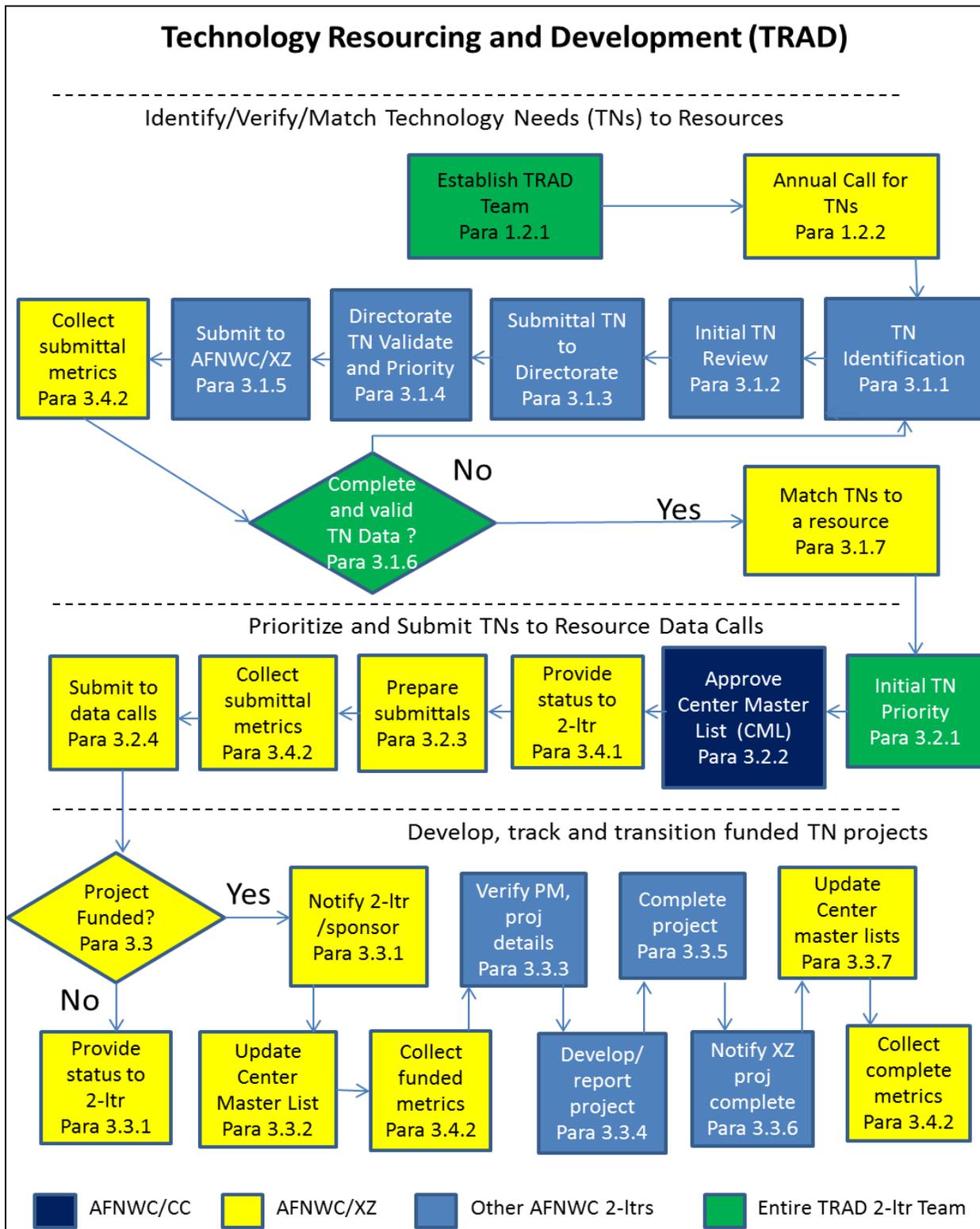
2.5. AFNWC Plans and Programs Directorate will: Participate in the TRAD and CaDe processes to ensure visibility into programs that may require inclusion into Program Objective Memorandum (POM) consideration/preparation for eventual transition.

3. Process Activities. This section defines the method for developing a material solution to meet a unique technical need within AFNWC including: (1) identify, verify and match the need to possible resource providers, (2) prioritize and submit the needs to individual resource calls throughout the year through the use of a CML and (3) develop, track progress and transition technology need projects to an AFNWC program of record. Table 3.1. provides a schedule for the process. Figure 3.1. AFNWC TRAD Process depicts the technology need process flow.

Table 1. CML Schedule

Task	Reference	Time Frame
Yearly Data Call	Para 3.1.1.	Early September
Directorates Submit TNs to AFNWC/XZ	Para 3.1.4.	Mid-October
CaDe Group Validates/Prioritizes	Para 3.2.2.	Early November
CML to Group for Review	Para 3.2.2.	Mid-November
CML Approved by AFNWC/CC	Para 3.2.2.	December

Figure 2. AFNWC Technology Resourcing and Development (TRAD) Process



3.1. **Identify, Verify and Match Technology Needs to Resources:** A TN is identified when a new technology materiel solution is required to close a capability gap within

AFNWC. **NOTE:** the need date for the materiel solution should not be within two years of TN submission due to the amount of lead time needed for technology development. For the purpose of this instruction, the AFNWC organization responsible for executing a portion of the mission with an identified capability gap is identified as the sponsoring Directorate.

3.1.1. **TN Identification.** Once a year AFNWC/XZ will provide a data call tasker to the Directorates reminding them to submit TNs for inclusion in the CML. Each Directorate will fill out the “short” version of the TN template to allow Directorate technical leadership to determine which TNs should be submitted to the AFNWC Team/Group/Board process. TNs submitted at any other time will be prioritized and matched to funding sources as described in Paragraph

3.1.2. TNs are submitted by going to an AFNWC/XZ SharePoint site and filling out the “TN Proposal Form.” The specific Sharepoint address will be provided in the annual tasker. A description of the fields in the TN form is in [Attachment 2](#).

3.1.3. **Initial TN Review.** Directorate AOs will review TNs from their Directorate to ensure the TN is appropriate for the process. If the TN is appropriate, the submitter will be directed to complete the full submission. Otherwise, the AO will provide feedback as to why the proposal was not appropriate for the process.

3.1.4. **Submit TN to Directorate.** Once the Directorate AO has deemed the TN to be appropriate for the process, the submitter will submit the topic using the “TN Submittal Form” also found on the AFNWC/XZ Sharepoint site mentioned in paragraph 3.1.1. The submission form provides enough information for the Directorates to validate/prioritize the TN. This additional detail is also required to submit the proposed TN to available resources throughout the yearly technology cycle. This fully completed TN submission will be used for Directorate prioritization and AFNWC Team/Group/Board validation/prioritization.

3.1.5. **Directorate TN Validation and Prioritization.** Each Directorate will develop a process for validation of the TN and a prioritization of all TNs. At a minimum the process shall review the Directorate’s new submissions for completeness, validate the TN meets a Directorate technology gap, and provide a 1-n prioritization of all Directorate TNs.

3.1.6. **Submit TNs to AFNWC/XZ.** Directorates shall submit a topic submission for each TN to AFNWC/XZ in response to the formal data call tasker. Directorates are also allowed to submit TNs more frequently, i.e., out of cycle, however out of cycle TNs may take longer to validate, prioritize and incorporate into the CML. Each Directorate is also required to provide a Sponsor Agreement at [Attachment 3](#) for each TN stating they will be responsible for the long term management of any TN projects funded as a result of matching the TN to a viable project to satisfy the TN, and will identify a project officer by name.

3.1.7. **Verify Documented TNs are Complete and Valid.** AFNWC/XZ will then assemble the Directorate Team members to review all the TNs submitted during the annual call to verify each TN is complete (contains all the required template information) and valid (meets the selection criteria for resource matching as shown in [Attachment 4](#)). Any submitted TNs that are not complete or do not meet the selection criteria will be

returned to the submitting Directorate with feedback on what needs to be remedied for the TN to be considered in the AFNWC process.

3.1.8. Match TNs to the Appropriate Resource(s). AFNWC/XZ will then match each TN to all prospective resources utilizing the selection criteria for each resource.

3.2. Prioritize, Approve and Submit TNs. The purpose of this activity is to integrate Directorate TNs into a single CML representing the technology needs of the AFNWC. Additionally, the Team/Group/Board will produce a priority list for each resource based on the CML and which TNs are competing for each resource. Prior to the SCF CFSP writing conferences, the CML will be produced as an approved list to provide CCT members guidance on the center's priorities.

3.2.1. Initial TN Prioritization. AFNWC/XZ will assemble the CaDe Team and use the selection criteria to draft the 1-n CML. The output of this step of the process will be reviewed by the CaDe Group in preparation for presentation to the Board for approval. The Team will also generate a resource priority list for each of the available resources based on the CML to be considered by the Group. Prior to each CaDe Group quarterly meeting, the CaDe Team will meet to prioritize any new TNs with the existing TNs for each upcoming resource call using the selection criteria as a guide. The initial prioritization by the Team will serve as the recommended prioritization to be coordinated with the CaDe Group. The Board will adjudicate any out of cycle priority issues if they cannot be resolved by the Group.

3.2.2. Approve Overall CML. AFNWC/XZ will organize the Group and Board meetings to review the candidate TNs. As part of the CaDe Group meeting, the Group will validate new technology needs and provide a 1-n prioritization of all TNs (new and old). This prioritization will be used as an initial priority for individual resource calls, and the prioritization will be the basis of the CML produced the first quarter of the fiscal year. The Group will also provide the resource specific priority lists along with the CML for Board consideration. The AFNWC/CC, or his/her designee, will approve the CML and other resource specific priority lists. The CML and resource specific priority lists will serve as the established AFNWC position (point of reference) for portraying the center's tech needs to external agencies. Specifically, AFNWC/XZ will provide the CML to the SCF CCT for insuring center tech needs are appropriately captured by SCF tech need identification and prioritization.

3.2.3. Prepare TN Submittals. AFNWC/XZ will prepare TN submittals based on previous resource matching and coordination with the CaDe Group and the applicable SCF CCT. The submission list will be based on the SCF CCT TN prioritization and the specific needs of the resource call (i.e., number of topics allowed, etc.). Any CFL-generated and out-of-cycle AFNWC-generated TNs will be highlighted for the Group.

3.2.4. Submit TNs for Each Resource Call. As individual resource calls are tasked to the AFNWC, AFNWC/XZ will submit the list of approved TNs as the AFNWC submission. A short synopsis of each resource and its characteristics is shown in [Attachment 5](#).

3.3. Develop, track and transition funded TN Projects: AFNWC/XZ will be the AFNWC notification Point of Contact (POC) for all TNs matched to a resource – funding, personnel, or other resource.

3.3.1. Notification. If TNs are matched, AFNWC/XZ will notify the affected Directorate sponsor of this TN project for further action. If a match does not occur for a particular resource, AFNWC/XZ will also notify the affected Directorate and provide whatever feedback is available as to why the TN was not funded by a potential resource – not prioritized high enough at MAJCOM, or other reason. The TN will remain on the CML to compete in other resource matches as the year progresses, and can be modified or removed by the sponsoring Directorate in the subsequent annual TN call.

3.3.2. Update CML. When TNs are matched to a resourced project or completed, AFNWC/XZ will also update the TN database identifying this TN project as being successfully matched or completed. Changes will be included in the CML during the next revision cycle.

3.3.3. Project Management. Once a sponsoring Directorate is notified that one of their TNs has been matched to a resource, that Directorate must assume project management responsibilities for ensuring the effort is placed on contract, as required. The sponsoring Directorate will initiate coordination of financial and acquisition support requirements upon successful resource matching of their TN's to ensure timely financial and acquisition planning. Involvement from the submitting Directorate is imperative to ensure the highest quality results from TN solutions.

3.3.4. Project Periodic Reporting. The sponsoring Directorate should be prepared to brief the cost, schedule and performance status of their TN projects during quarterly AFNWC Team/Group/Board meetings. AFNWC/XZ will provide a short slide format for this purpose. This reporting will continue on a quarterly basis until the effort is complete or has transitioned to a program of record.

3.3.5. Project Completion and Transition. For the purposes of the TRAD process as defined in this instruction, the project shall be considered complete when the period of performance has ended and/or the resources have been exhausted. While some of the methods identified in CaDe, Rapid Innovation Fund (RIF) and Demonstration/Validation (DEM/VAL) are associated with technology transition, full technology transfer to a program of record is outside of the scope and metrics associated with this TRAD Instruction.

3.3.6. Completion Notification. The sponsoring Directorate shall provide written notification when their TN project is complete with an effective date to AFNWC/XZ. This notification should also include the future planned activity, like transition to a program of record, and contact information for a Directorate point of contact if questions arise. Completion notification will be briefed to the AFNWC Group/Board.

3.3.7. Update CML. AFNWC/XZ will update the CML to show completion of any projects.

3.4. Provide TN/Project Status and Collect/Report Metrics: As the lead Directorate for the TRAD process, AFNWC/XZ must provide feedback on the status of all TNs, the matching and approval process, and the results of the submittal process. Additionally

AFNWC/XZ will collect metrics to determine how the AFNWC process is able to attain resources for TN projects.

3.4.1. Status Reporting. AFNWC/XZ will provide a status report to AFNWC Directorates at various points within the TRAD process flow as shown previously in Figure 2.1. Status will be provided when the CML is approved at the conclusion of the matching and prioritization portions of the TRAD process. Status will also be provided when the results of each resource matching cycle has been completed. Lastly, AFNWC/XZ will provide an updated CML whenever the CML is changed as a result of annual data calls, resource matches, or project completions. AFNWC/XZ will notify the Financial Management Directorate (AFNWC/FM), the Contracting Directorate (AFNWC/PZ) and the Small Business Office (AFNWC/SB) of the approved CML.

3.4.2. Metrics. AFNWC/XZ will collect and report the following metrics to the Directorates and Team/Group/Board membership to include, but not necessarily be limited to the following:

3.4.2.1. The number of TN submittals for each annual call and the number and percentage change from one year to the next for both the Directorates and the AFNWC overall.

3.4.2.2. The number and percentage of TN submittals approved and the number and percentage change from one year to the next for both the Directorates and the AFNWC overall.

3.4.2.3. The number and percentage of resourced TN projects and the number and percentage change from one year to the next for both the Directorates and the AFNWC overall.

3.4.2.4. The number and percentage of completed TN projects and the number and percentage change from one year to the next for both the Directorates and the AFNWC overall.

3.4.2.5. The number and percentage of short term (under 5 yrs), medium term (5-10 yrs) and long term (over 10 yrs) technical needs by Directorate and the AFNWC overall.

SANDRA E. FINAN, Major General, USAF
Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFI61-101, Management of Science and Technology, 14 Mar 2013

AFMAN33-363, Management of Records, 01 Mar 2008

AFMCI61-101, Small Business Innovative Research (SBIR) Program and Small Business Technology Transfer (STTR) Program, 14 Jul 2000

Prescribed Forms

There are no forms prescribed by this publication

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*

Acronyms and Abbreviations

AF—Air Force

AFI—Air Force Instruction

AFLCMC—Air Force Life Cycle Management Center

AFMAN—Air Force Manual

AFMCI—Air Force Materiel Command Instruction

AFNWC—Air Force Nuclear Weapons Center

AFNWC/CC—Commander

AFNWC/EN—Engineering and Technical Management Directorate

AFNWC/FM—Financial Management Directorate

AFNWC/LG—Logistics Directorate

AFNWC/NC—Nuclear Capabilities Directorate

AFNWC/NI—Intercontinental Ballistic Missile Directorate

AFNWC/PZ—Contracting Directorate

AFNWC/XP—Plans and Programs Directorate

AFNWC/SB—Small Business Office

AFNWC/XZ—Intelligence, Program Development & Integration Directorate

AFPEO/SS—Air Force Program Element Officer for Strategic Systems

AFRC—Air Force Reserve Command

AFRL—Air Force Research Laboratory

AFRIMS—Air Force Records Information Management System

AFSPS—Air Force Strategic Planning System

ANG—Air National Guard

AO—Action Officer

CaDe—Capability Development

CCT—Capability Collaboration Team

CFL—Core Function Lead

CFLI—Core Function Lead Integrator

CFSP—Core Function Support Plan

CML—Center Master List

CSAF—Chief of Staff of the Air Force

DEM/VAL—Demonstration/Validation

DOTMLPF—Doctrine, Organization, Training, materiel, Leadership and Education, Personnel and Facilities

IAW—In Accordance With

JCIDS—Joint Capabilities Integration Development System

MAJCOMs—Major Commands

NNSA—National Nuclear Security Administration

OPR—Office of Primary Responsibility

POC—Point of Contact

POM—Program Objective Memorandum

RDS—Records Disposition Schedule

RIF—Rapid Innovation Fund

SBIR—Small Business Innovative Research

S&T—Science and Technology

SCF—Service Core Function

SECAF—Secretary of the Air Force

SME—Subject Matter Expert

STP—Sustainment Technology Process

STTR—Small Business Technology Transfer

TN—Technology Need

TRAD—Technology Resourcing and Development

Terms

Capability Collaboration Team— Established by CFLIs and comprised of subject matter experts from MAJCOM/CFLIs, Centers, and AFRL. CCTs work collaboratively to fully understand MAJCOM/CFLI-documented capability needs that may require a materiel solution and determine if S&T is required for any associated technology needs. The CCTs also collaboratively formulate potential S&T solutions (e.g., technology development, risk reduction, or maturation projects) to address the S&T needs previously identified. Once established, CFLIs may utilize CCTs to identify materiel concepts and produce capability development roadmaps outlining the timeframe for requirements development, Developmental Planning, S&T, and acquisition activities.

Capability Development— novel approach to the identification, prioritization, validation of current and future CFLI-MAJCOM capability gaps through the integration of multiple standardized processes (e.g., SBIR, Industry Research & Development (IR&D), CFLI Applied Technology Council (ATC), RIF, CFSPs, CCTs, AF S&T process, DP).

Center Master List— AFNWC prioritized list of technology needs based on AFNWC Directorate inputs and CCT activities. The CML is coordinated through the CaDe team, Group, Board process and approved by the AFNWC/CC for use as the single AFNWC priority position for technology needs.

Core Function Lead/Core Function Lead Integrator— SECAF/CSAF-designated leader/MAJCOM who serves as the principal integrators for their assigned SCFs and the corresponding Air Force CFMPs. CFLIs guide SCF process and SCF-related appropriation priorities by orchestrating the development of SCF in collaboration with key stakeholders across the Air Force, including MAJCOMs, the Air Reserve Components, and functional authorities.

Core Function Support Plan— Developed by CFLIs, in collaboration with all key stakeholders across the Air Force, including MAJCOMs, the Air Reserve Components, and functional authorities, CFMPs align strategy, operating concepts, and capability development by SCF, to provide 30-year constructs for enhancing Global Vigilance, Global Reach, and Global Power across the range of military operations.

Service Core Function— SCFs delineate the appropriate and assigned core duties, missions, and tasks of the Air Force as an organization, responsibility for each of which is assigned to a CFLI. SCFs express the ways in which the Air Force is particularly and appropriately suited to contribute to national security. SCFs are an integral aspect of the Air Force Strategic Planning System (AFSPS), and provide the framework for Air Force organizing, training, and equipping efforts.

Technology Resourcing and Development— the AFNWC process to identify and resource technology needs. TRAD identified technology needs are vetted through the CaDe Team, Group, Board process to prioritize and garner AFNWC/CC approval. Led by AFNWC/XZ, TRAD ensures technology needs are identified, approved and coordinated with CFLI CCT activities.

Attachment 2

TECHNOLOGY NEED FORM DESCRIPTION

Table A2.1. Technology Need Form Description

Short Name	Description	Limitations	Process Feeder
Project Title	The project title should describe the main idea/need behind the topic submission	10 words	All
Topic ACAT Level	Provide the ACAT Level of the program the need will feed. If not directly linked to a program choose an ACAT level for a related program it could support.	Level I, Level II, Level III	SBIR
ACAT Program	Provide the name of the program for which an ACAT level was provide.	For a listing of Level II, III ACAT Programs, see " https://www.my.af.mil/smart/SMART_APP/Workspace.aspx "	SBIR
Linkage to SCF CFSP	Identify (if applicable) to a CFSP technology need. If not applicable to a current CFSP tech need, describe why the technology need should be placed into a SCF CFSP.		
Submitter Info	Organization Name Phone Email Address		All
Category		Unassigned, Basic Research, Applied Research, Advanced Technology/ Development, Demonstration /	SBIR

		Validation	
DoD Key Tech		Air Platforms, Battlespace Environments, Biomedical, Chemical/Biological Defense, Electronics and Electronic Warfare, Ground and Sea Vehicles, Human Systems, Information Systems Technology, Materials / Processes, Nuclear Technology, Sensors, Space Platforms, Unassigned, Weapons	SBIR
Is this topic considered a Manufacturing topic?	Please consider, when appropriate, to include a manufacturing component in the topic description, as stated in Executive Order 13329. Please select YES if your topic has a manufacturing component in the topic description. Manufacturing topics are reported annually to Congress.	Yes/No	SBIR
Is this topic considered an Energy topic?	Section 1203 (e) of the Energy Independence and Security Act of 2007 maintains that Federal departments and agencies give high priority to small businesses that participate in or conduct energy efficiency or renewable energy system R&D projects and report them annually to Congress. Please select YES if your topic has an energy efficiency or renewable energy component in the topic description.	Yes/No	SBIR
Identify MAJCOM that would benefit from a			SBIR CaDe

successful technology development and transition.			
Identify the primary Service Core Function for this topic:	Please select the Service Core Function associated with this topic. All AF SBIR/STTR topics must contribute, in some manner, to one of the 12 Service Core Function areas. Select the one that will likely realize the most significant benefits from the technology. Relevance to the Service Core Function and acquisition or sustainment program tech needs is preferred and fosters tech transition.	Agile Combat Support, Air Superiority, Building Partnerships, Command & Control, Cyberspace Superiority, Global Integrated ISR, Global Precision Attack, Nuclear Deterrence Operations, Personnel Recovery, Rapid Global Mobility, Space Superiority, Special Operations	SBIR CaDe
Objective	The "Objective" statement should clearly state the desired outcome of a successful technology development effort to TRL 6.	50 words / 250 characters	SBIR
Description	<ul style="list-style-type: none"> - Describe the capability deficiency, problem, or technical challenge so a stranger to the Air Force environment will understand it. - State the parameters within which any technology solution must operate. - State the type of technology you believe 	350 – 550 words	SBIR

	<p>should be explored (material, sensor, process, etc.).</p> <ul style="list-style-type: none"> - Would government furnished information/equipment be required to address the topic? - Clearly state expectations, in quantifiable terms, for solving the technology need. <p>NOTE: Do not mention specific weapon systems when describing the proposed topic. Instead, use something like, "next generation fighters," emerging countermeasures," or some other suitable, non-specific description.</p>		
Phase I	Clearly state expected deliverables from the Phase I effort. It helps to start deliverable statements with verbs, such as 'evaluate', 'assess', 'generate'.	400 characters	SBIR
Phase II	Clearly state expected deliverables from the Phase II effort. It helps to start deliverable statements with verbs, such as 'build', 'test', and 'integrate'.	500 characters (approximately 150 words)	SBIR
Phase III	Each SBIR topic MUST include a description of one or more potential Phase III military or commercial	In less than 300 characters (75 words)	SBIR

	<p>application(s).</p> <p>Note: The AF SBIR/STTR Program acknowledges that topic authors are usually not experts in the commercial marketplace and that this paragraph on Phase III applications may represent no more than the opinion of the topic author. Any thoughtful and reasonable mention of possible Phase III applications will satisfy this requirement.</p>		
References:	List at least two (2) but no more than five (5) distribution A (releasable to the public) references.	Distro A, Unclassified Minimum 2, Max 5	SBIR
Limited Distribution References	References that point to technology need or provide additional details beyond distribution A.	Any reference.	CaDe
Keywords	3-5 words describing need.		SBIR
Technology Readiness Levels	Standard DoD Technology Readiness Level for the current technology for the submitted topic.		CaDe
Capability Development Roadmap	Provide a capability development roadmap if available, otherwise contact AFNWC/XZ for further guidance.		CaDe ML
Technology Need Date	Provide date when will the technology be needed. To be used to determine method of		CaDe ML

	addressing need.		
Joint Service Commonality	Is the topic being addressed by other Services? If yes, describe how the need is being addressed by the other service. Provide technical POC for other service in "Technical POC" field.		
Technical POC	(Optional) Are there individuals outside of the center (AFRL Directorate, AFOSR, AFTC, AFSC, etc.) who should be involved?		
RIF Applicability	Select the appropriate focus areas for the submitted topic. If topic does not fall within a focus area select Not Applicable. To be used for applicability for RIF.		RIF
Project Lead	Provide a POC for who will manage day to day execution of effort.		All
Criticality	What is the impact if unresolved? This type of information will help with prioritization.		All

Attachment 3**LETTER OF COMMITMENT**

A3.1. General Instructions. The sponsor will submit a letter of intent stating their organization will plan for implementation funding, will provide necessary infrastructure, training, etc., to implement the technical solution, if it is successfully developed. The sponsor will prepare the letter in MSWord (Times New Roman, 12 pt font) using a simple format shown in Figure A3.1.

Figure A3.1. Sample Letter of Commitment

Title of Technology Need Letter of Commitment	
<p>This letter identifies a commitment by the sponsoring AFNWC Directorate to adequately plan for project management and transition planning of the solution to the technology need should it prove successful.</p>	
<p>All parties make this commitment within the restraints imposed by mission requirements, funding and other resource availability, system schedules and other factors beyond their control. Therefore, this is not a binding funding commitment.</p>	
<p>Our Directorate action officer for this project is Capt John Smith, AFNWC/EN, 846-1234.</p>	
Sponsoring Directorate Chief	Date
_____	_____

Attachment 4

TECHNOLOGY NEED PRIORITIZATION CRITERIA

A4.1. Below are tables of what criteria will be used to score each TN. A higher score will correspond to a higher priority in both the CML and the appropriate resource list (weighted criteria based on the resource funding priorities). These scoring criteria will be used by the CaDe Team for the initial priority to be presented to the CaDe Group and Board. At that point, professional judgment, enterprise needs, and commander's input will also be used to consider which TNs will be prioritized highest.

Table A4.1. Center Master List (CML), AF Science and Technology (S&T), Rapid Innovation Fund (RIF) and Independent Research and Development (IR&D)

Criteria	Possible Answer	Score
Alignment with CFLI CFSP gap(s)	No, Yes, Yes addressed in more than one CFSP	No (1 pt), Yes 3 pts), Yes, more than one CFSP (5 pts)
CFLI CFSP Gap Priority	Bottom third, middle third, top third	Bottom third (1 pt), middle third (3 pts), top third (5 pts)
AFNWC Directorate Priority	Bottom half, top half	Bottom half (1 pt), top half (3 pts)
Technology Readiness Level	1-2, 3-4, 5+	1-2 (1 pt), 3-4 (3 pts), 5+ (5 pts)
Tied to Program of Record	No, Yes (future program), Yes (current program)	No (1 pt), Yes (future program) (3 pts), Yes (current program) (5 pts)
Small Business Applicable	No, Yes	No (1 pt), Yes (3 pts)
Possible Totals		Minimum (7 pts), Maximum (31 pts)

Table A4.2. Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR)

Criteria	Possible Answer	Score
Alignment with CFLI CFSP gap(s) (Weight 1.0)	No, Yes, Yes addressed in more than one CFSP	No (1 pt), Yes 3 (pts), Yes, more than one CFSP (5 pts)
CFLI CFSP Gap Priority (Weight 1.0)	Bottom third, middle third, top third	Bottom third (1 pt), middle third (3 pts), top third (5 pts)
AFNWC Directorate Priority (Weight 1.0)	Bottom half, top half	Bottom half (1 pt), top half (3 pts)
Tied to Program of Record (Weight 1.25)	No, Yes (future program), Yes (current program)	No (1 pt), Yes (future program) (3 pts), Yes (current program) (5 pts)
Dual Use Applicability (Weight 2.0)	Well defined through no potential	(5 pts) Well defined, clear commercial applications that would require no additional study to implement. (4 pts) High potential for commercial applications but would require some additional effort and/or resources. (3 pts) Moderate potential for commercial applications but would require substantial effort and/or resources. (2 pts) Low potential for commercial applications and would require significant effort and/or resources. (1 pt) No potential for commercial applications.
Ability to be completed by small business (Weight 1.75)	Easily through difficult	(5 pts) Completed easily by a small business. (4 pts) Slightly difficult for small business to complete. (3 pts) Moderately difficult for small business to complete. (2 pts) Very difficult for small business to complete. (1 pt) Cannot be completed by a small business

Military Utility (Weight 1.25)	Definite through low potential	(5 pts) Definite applicability in other military branches and AF beyond the requesting AF entity. (4 pts) High potential for applicability in other military branches and AF beyond the requesting AF entity. (3 pts) Moderate potential for applicability in other military branches and AF beyond the requesting AF entity. (2 pts) Low potential for applicability in other military branches and AF beyond the requesting AF entity. (1 pt) Has not potential for applicability in other military branches and AF beyond the requesting AF entity.
Ability to be complete within SBIR budget (Weight 1.5)	Easily through cannot be completed within budget	(5 pts) Effort can easily be accomplished with budget provided by SBIR funding. (4 pts) Effort will be slightly difficult to complete without outside funding or need for enhancement. (3 pts) Effort will be Moderately difficult to complete without outside funding or need for enhancement. (2 pts) Effort will be Very difficult to complete without outside funding or need for enhancement. (1 pt) Effort cannot be completed without additional outside funding or need for enhancement/extension.
Possible Totals		Minimum (10.75 pts), Maximum (51.75 pts)

Attachment 5**TRAD RESOURCE DESCRIPTIONS****A5.1. The current funding source pool includes:**

A5.1.1. AF S&T – Nuclear Deterrent Operations (NDO) and other Core Functions.

A5.1.2. Small Business Innovative Research (SBIR).

A5.1.2.1. Stimulates technological innovation within small business.

A5.1.2.2. Uses small business to meet Federal R&D needs.

A5.1.2.3. Fosters participation by minority and disadvantaged firms in technological innovation.

A5.1.2.4. Process.

A5.1.2.4.1. Phase I - \$150K / 9 months.

A5.1.2.4.2. Phase II - \$750K / 2 years.

A5.1.2.4.3. Phase II - Commercialization service/industry funded.

A5.1.3. Industry Research and Development (IR&D).

A5.1.3.1. Encourages industry to explore new technologies with potential application to DoD systems.

A5.1.3.2. IR&D projects are not performed under contract, but are performed to leverage existing industry efforts.

A5.1.3.3. Allows contractors to claim a portion of their development costs as part of overhead in “cost plus” contracts.

A5.1.4. Rapid Innovation Funding (RIF).

A5.1.4.1. Facilitates rapid insertion of innovative technologies into military systems/programs that meet critical national security needs.

A5.1.4.2. Resolves operational challenges or critical national security needs characterized by the defense component requirements.

A5.1.4.3. Primarily for validation and transition of technologies developed by small businesses (including IR&D and SBIR).

A5.1.4.4. Administered by the Office of the Secretary of Defense (OSD) Assistant Secretary of Defense for Research and Engineering (ASD R&E) and Office of Small Business Programs (OSBP).

A5.1.5. Sustainment Technology Process (STP).

A5.1.5.1. AFMC/A4 managed program.

A5.1.5.2. “Depot-centric” technology solutions.

A5.1.5.3. Adapt commercial off-the-shelf products (TRLs > 6) for short to mid-term mitigation solutions.

A5.1.5.4. Develop S&T candidates (TRLs < 6) areas for long-term root cause solution candidates to feed into the AFMC Applied Technology Council.