COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

This is the first publication of this instruction. It implements portions of DoD Instruction 5000.2, National Security Space Acquisition Policy 03-01, and Air Force Policy Directive 61-1, *Management of Science and Technology*. It provides instructions for implementing the Applied Technology Council process. Send comments and suggested improvements through channels to SAF/AQRT, 1060 Air Force Pentagon, Washington, DC 20330-1060. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with AFMAN 37-123, *Management of Records* and disposed of in accordance with the *Air Force Records Disposition Schedule (RDS)* located at **https://webrims.amc.af.mil/**

1. Introduction.

This Air Force Instruction (AFI) provides additional acquisition transition guidance, specifically on and for Air Force Applied Technology Councils (ATC). ATCs provide senior-level forums to facilitate technology transition from the Air Force Research Laboratory (AFRL) and possible research partners into advanced systems development, fielded systems, and sustainment of fielded systems. The DoD Instruction 5000.2 and DoD *Manager's Guide to Technology Transition in an Evolutionary Acquisition Environment* list transition activities such as Advanced Technology <u>Demonstrations</u> (ATD), Advanced Concept Technology Demonstrations (ACTD), and Joint Warfighting Exercises. While these are primary transition activities, other transition paths exist. The activities of the ATC also provide Air Force Major Command (MAJCOM) customer focus for Advanced Technology <u>Development</u> efforts, specifically ATDs and Candidate ATDs. These efforts at AFRL are based on warfighter needs that will improve future warfighting capabilities of the Air Force. ATCs do not address Special Program efforts and are not directly responsible for ACTDs, Joint Warfighting Exercises, Air Force Battlelab Initiatives, and other transition paths beyond ATDs. *NOTE*: The acronym "ATD" can be used for both Advanced Technology <u>Demonstration</u> and Advanced Technology <u>Development</u>. For this AFI, ATD will apply to a Demonstration.

2. Applicability. This instruction applies to Air Force MAJCOMs, Agencies, and components, except Air Reserve Component and other individual reservists administered by HQ Air Force Personnel Center.

3. Applied Technology Council Objectives, Sponsors, Meetings, Participants, and Duties.

   3.1. **Objectives.** The objectives of Applied Technology Councils are to:

   3.1.1. Enhance senior Air Force leadership's visibility of, and commitment to, the commissioning and execution of ATDs and provide senior officer insight.

   3.1.2. Facilitate timely technology transition into new system acquisitions, fielded systems, modifications or upgrades, and maintenance or sustainment systems.

   3.1.3. Build greater understanding among acquisition organizations and other MAJCOMs or Agencies regarding technology development and candidate ATDs.

   3.1.4. Coordinate Advanced Technology <u>Development</u> (Budget Category 6.3) program investments and transition activities, specifically ATDs and Candidate ATDs, as appropriate, across Air Force Materiel Command (AFMC) and Air Force Space Command (AFSPC) organizations and other MAJCOMs and Agencies.

   3.2. **Sponsor and Meetings.**

   3.2.1. There are seven MAJCOMs or Agency sponsors for ATCs: Air Combat Command (ACC); Air Education and Training Command (AETC); AFMC; AFSPC; Air Force Special Operations Command (AFSOC); Air Mobility Command (AMC); and Air Force Command and Control and Intelligence, Surveillance and Reconnaissance Center (AFC2ISR).

   3.2.2. Typically, each sponsor conducts at least one ATC per year. Additional ATCs or reviews may be conducted as necessary.

   3.3. **Applied Technology Council Participants.** ATCs will consist of senior leaders from MAJCOMs or Agencies, appropriate acquisition center, and AFRL to oversee and participate in this process. ATC membership will include:

   3.3.1. Chair: Headquarters AFMC Vice Commander for AFMC ATC, the Headquarters AFSPC Vice Commander for AFSPC ATC, and the AFMC Lead Enterprise Commander (e.g.; Product, Logistics, or Test Center Commander receiving the majority of the resulting technologies from ATDs or candidate ATDs for consideration by that specific ATC) for other MAJCOM ATCs.

   3.3.2. Primary Members: MAJCOM Vice Commanders, Agency Commanders, AFRL Commander, and Air Force Acquisition Product and Logistics Center Commanders (as appropriate), or designated representative.

   3.3.3. Secretariat: Designated by Lead Enterprise Commander.

   3.3.4. Other Participants: AETC will be invited. Other senior-level stakeholder or advisory representatives may be included, at the discretion of the ATC Chair.

   3.4. **Applied Technology Councils** will:

   3.4.1. Meet on ATD issues using the Decision Support Packages to guide their activities.

   3.4.2. Review status of existing ATD programs and re-categorize, graduate, or decommission ATDs, as necessary.

3.4.3. Review candidate ATDs (including their acquisition funding streams, available or planned, for technology insertion, transition, or implementation) and, when all of the ATC principals agree, commission ATD programs and assign a category.

3.4.4. Review graduated ATDs to determine status of technology transition planning.

3.4.5. Consider opportunities for adoption of mature technologies developed through the ATD process into Advanced Concept Technology Demonstrations, Battlelab Initiatives, and other transition paths. *NOTE*: Air Force guidance on ACTDs and Battlelabs Initiatives is provided in AFIs 10-2302 and 10-2303, respectively.

3.4.6. Address current or future technology needs related to the resolution of issues and common solutions affecting acquisition centers and Major Commands.

3.4.7. Provide guidance to AFRL on future technology development and potential ATDs based on customer, program office, warfighter, and Air Force needs.

3.4.8. Sign (Chair and primary members) a Decision Memorandum at the end of each ATC meeting.

3.5. **Applied Technology Council Chair** will:

3.5.1. Lead the ATC meeting.

3.5.2. Publish coordinated minutes, no later than 30 days after the ATC review, that summarize discussions, outline any action items, and include the Decision Memorandum on ATD programs. Published minutes will be provided to all ATC members (participating in that specific ATC) and SAF/AQR.

3.6. **Applied Technology Council Secretariat** will:

3.6.1. Consolidate the Decision Support Packages and obtain active action items from the previous ATC for the Council's consideration.

3.6.2. Generate the draft Decision Memorandum for the ATC.

3.6.3. Generate draft minutes including recommendations and action items, obtain appropriate coordination from the ATC Primary Members, and then submit them to the ATC Chair for approval.

3.6.4. Process and staff reclamas for ATD category ranking that cannot wait until the next ATC meeting.

4. Organizational Responsibilities.

4.1. The Secretary of the Air Force and the Chief of Staff of the Air Force will conduct a top-level review of ATD activities as part of the Science and Technology (S&T) portfolio review.

4.2. The Under Secretary of the Air Force (as DoD Executive Agent for Space (SAF/US)) will review the status of space related ATDs.

4.3. The Assistant Secretary of the Air Force for Acquisition (SAF/AQ) will:

4.3.1. Review the status of each ATD as part of the S&T portfolio review.

4.3.2. Serve as the focal point to forward ATC activities and the status of each ATD to the Secretary of the Air Force, Chief of Staff of the Air Force, and other Headquarters Air Force elements.

4.4. The Deputy Assistant Secretary of the Air Force for Science, Technology and Engineering (SAF/AQR) will:

4.4.1. Conduct annual reviews of ATC activities and the status of each ATD to allow advocacy and defense of Air Force S&T within the Department of Defense and Congress.

4.4.2. Serve as the focal point to forward ATC activities and the status of each ATD to SAF/AQ and SAF/US (through the SAF/US staff for Space Programs), as appropriate.

4.4.3. Provide periodic updates of outstanding ATD issues raised by the Air Force and the Office of the Secretary of Defense.

4.5. Major Commands or Agencies Sponsoring ATCs will:

4.5.1. Identify desired MAJCOM or Agency approved capability and sustainment needs requiring S&T development that will help define future candidate ATDs.

4.5.2. Establish, develop, or identify formal requirements to support programming of transition funds.

4.5.3. Identify available technology transition acquisition funds or funding intent for candidate ATDs and commissioned ATDs.

4.5.4. Identify ATD priorities and recommended categories.

4.5.5. Provide ATC members, as applicable.

4.5.6. Participate in chartered Integrated Product Teams (IPT) to develop Technology Transition Plans (TTP), as appropriate.

4.6. Air Force Materiel Command and Air Force Space Command (for Space ATDs), for all applicable ATCs, will:

4.6.1. Prepare, directly or through the AFMC Lead Enterprise or AFSPC Product Center:

4.6.1.1. Technology transition schedules for development of acquisition programs that receive technology from commissioned ATDs and candidate ATDs.

4.6.1.2. Develop funding profiles, available or planned, for candidate ATD technology insertion, transition, or implementation.

4.6.1.3. Document the requirements and exit criteria for each ATD in a signed TTP or equivalent.

4.6.1.4. Prepare Decision Support Packages for ATC reviews in coordination with AFRL. These packages should have appropriate information about candidate ATDs and the status of each commissioned ATD, including their corresponding TTP or equivalent.

4.6.2. Recommend initial ATD category or revised ATD category to the ATC for consideration and approval.

4.6.3. Identify Program Office and test organization to support approved ATDs as required.

4.6.4. Coordinate the approval of an initial TTP for a commissioned ATD and any subsequent TTP revisions.

4.7. The Air Force Research Laboratory will:

4.7.1. Maintain a database of commissioned ATDs and a record of TTPs or equivalents, completed technology transitions, and procedures. Make the database available to all ATC members.

4.7.2. Identify CEs and other technologies that may be considered for candidate ATDs. Candidate ATDs should be focused on future Air Force capability and sustainment needs.

4.7.3. Provide information to AFMC Lead Enterprise or AFSPC Product Center for Decision Support Packages. Specifically, AFRL must determine for each ATD whether:

4.7.3.1. an IPT has been established,

4.7.3.2. the IPT has a charter to identify roles and responsibilities,

4.7.3.3. the IPT is documenting issues and action items,

4.7.3.4. an agreement on technology readiness levels and exit criteria has been established with technology recipients, and

4.7.3.5. a TTP or equivalent has been approved or an existing TTP or equivalent has been reviewed and revised if appropriate for each target system to which the technology will be transitioned.

4.7.4. Maintain a record of previous ATC meetings and action items.

4.7.5. Provide ATC members.

4.7.6. Conduct periodic reviews and assessments of ATDs and ATC decisions as they apply to the Air Force S&T investment.

MICHAEL L. DOMINGUEZ
Acting Secretary of the Air Force

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

DoD Instruction 5000.2, *Operation of the Defense Acquisition System,* 12 May 2003

DoD *Manager's Guide to Technology Transition in an Evolutionary Acquisition Environment*, 31 Jan 2003 (**http://www.acq.osd.mil/dpap/Docs/AQ201S1v10Complete.pdf**)

DoD 7000.14R, *Department of Defense Financial Management Regulation,* 25 Oct 2004

National Security Space Acquisition Policy 03-01, *Guidance for DoD Space System Acquisition Process*, 27 Dec 2004

Defense Director, Defense Research & Engineering, *Joint Warfighting Science and Technology Plan*, February 2003

Air Force Policy Directive 61-1, *Management of Science and Technology,* 13 June 2003

Air Force Policy Directive 90-11, *Planning System,* 27 Oct 2000

Air Force Instruction 10-2302, *Advanced Concept Technology Demonstration (ACTD)*, draft

Air Force Instruction 10-2303, *BATTLELABS*, 18 Nov 2003

Air Force Manual 37-123, *Management of Records*, 31 Aug 1994

Abbreviations and Acronyms

ACTD—Advanced Concept Technology Demonstration

AETC—Air Education and Training Command

AFI—Air Force Instruction

ATC—Applied Technology Council

ATD—Advanced Technology Demonstration, *NOTE*: This acronym can also be used for Advanced Technology <u>Development.</u> For this instruction, ATD will apply to a Demonstration, to reduce confusion.

AFMC—Air Force Materiel Command

AFRL—Air Force Research Laboratory

AFSPC—Air Force Space Command

CE—Critical Experiments

FYDP—Future Years Defense Plan

IPT—Integrated Product Team

MAJCOM—Major Command

POM—Program Objective Memorandum

S&T—Science and Technology

SAF/AQ—Assistant Secretary of the Air Force for Acquisition

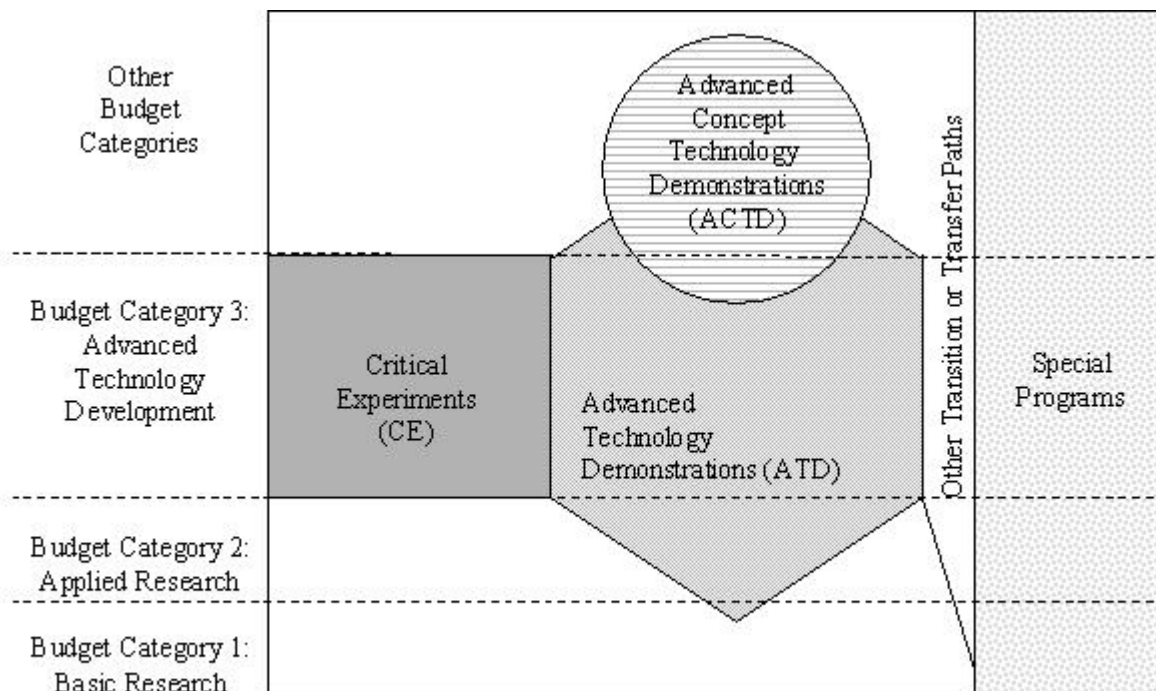**SAF/AQR**—Deputy Assistant Secretary of the Air Force for Science, Technology and Engineering

SAF/US—Under Secretary of the Air Force

TTP—Technology Transition Plan

Terms

Air Force Science and Technology Program—This program contains all Basic Research (Research Category 6.1 - Budget Category 1), Applied Research (Research Category 6.2 - Budget Category 2), and Advanced Technology Development (Research Category 6.3 - Budget Category 3) efforts that are executed by the Air Force Research Laboratory. Research and Budget Categories are defined in the *Department of Defense Financial Management Regulation*. **Figure A1.1.** shows possible technology transition paths against the Budget/Research Categories.

Figure A1.1. Budget Categories and Technology Transition Paths

Advanced Concept Technology Demonstrations (ACTD)

Other Budget Categories

Budget Category 3: Advanced Technology Development

Critical Experiments (CE)

Advanced Technology Demonstrations (ATD)

Budget Category 2: Applied Research

Budget Category 1: Basic Research

Other Transition or Transfer Paths

Special Programs

NOTE. Some ATD and ACTD efforts are mutually supportive.

Advanced Concept Technology Demonstration—Deputy Under Secretary of Defense (Advanced Technology) (DUSD/ AS&C) has the oversight responsibility for ACTDs.

> **Definition**—DUSD/AS&C defines an ACTD (**http://www.acq.osd.mil/actd**) as joint effort by the acquisition and operational (warfighter) communities within the DoD. The process has a close tie to the Joint Vision 2020 initiative and new capabilities are pursued within each of the operational concepts of dominant maneuver, precision engagement, focused logistics, full dimensional protection and information superiority. The emphasis in ACTDs is on near-term responses to validated joint military needs. The responses are typically technology based and usually include new operational concepts and, occasionally, new organizational structure. These responses must be affordable,

interoperable, sustainable, and capable of being evolved as the technologies and threats change.

Additional Concepts—Unlike ATDs, ACTDs begin with mature or nearly mature technology and focus on the question of the Military Utility of a proposed capability. At nominally less than 2-3 years, an ACTD has insufficient or limited time for technology development activities. As such, an ACTD normally does not include Basic Research or Applied Research (Budget Categories 1 and 2). Furthermore, the technologies must have been successfully demonstrated at the subsystem or component level and at the required performance level prior to the start of the ACTD.

Advanced Technology Demonstration—Figure A1.1. provides a graphical presentation of ATDs mapped against budget categories.

Definition—As outlined in *The Joint Warfighting Science and Technology Plan*, Service and agency ATDs seek to demonstrate the maturity and potential of advanced technologies for enhanced military operational capability or cost-effectiveness. Further, the *Plan* indicates ATDs are normally characterized by four parameters: *(1) Large scale, both in resources and complexity*; *(2) Operator/ user involvement from planning to final documentation; (3) Established cost, schedule, and performance metrics; and (4) A clearly defined transition target. NOTE*: The Air Force refers to performance metrics as measures. Additionally, the Air Force also considers smaller scale activities for ATDs. All Air Force ATDs must integrate and demonstrate a set of technology components and include exit criteria.

Additional Concepts—ATDs are normally a subset of the Advanced Technology Development (Budget Category 3) programs; however, some unique ATDs can be funded or supported by other budget categories. For Air Force Science and Technology, all ATDs must be commissioned by an ATC and are programs containing an integrated set of technologies that may enable superior warfighting capabilities. An ATD objective is to demonstrate those technologies in a relevant environment. Successful S&T completion of an ATD program would sufficiently mature one or more technologies for possible transition into an advanced system development, a newly fielded system, a fielded system modification or upgrade, or a field or depot maintenance process by the end of the Future Years Defense Plan (FYDP).

Advanced Technology Demonstration Categories—The Air Force categories for commissioned ATDs are:

Category 1—MAJCOM or Agency supports and has programmed required funding for transition within the FYDP

Category 2A—MAJCOM or Agency supports and is committed to identify transition funding in the next Program Objective Memorandum (POM) cycle or Amended POM

Category 2B—MAJCOM or Agency supports but is not currently able to program for transition funding

Advanced Technology Development—*NOTE*: Different than Advanced Technology Demonstration defined earlier.

Definition—The Department of Defense Financial Management Regulation Volume 2b, Chapter 5, describes Budget Category 3 as an activity that "*includes development of subsystems and components and efforts to integrate subsystems and components into system prototypes for field experiments and/ or tests in a simulated environment. It includes concept and technology demonstrations of components and subsystems or system models. The models may be form, fit and function prototypes*

or scaled models that serve the same demonstration purpose. The results of this type of effort are proof of technological feasibility and assessment of subsystem and component operability and producibility rather than the development of hardware for service use. Projects in this category have a direct relevance to identified military needs. Advanced Technology Development demonstrates the general military utility or cost reduction potential of technology when applied to different types of military equipment or techniques. Program elements in this category involve pre-Milestone B efforts, such as system concept demonstration, joint and Service-specific experiments or Technology Demonstrations and generally have Technology Readiness Levels of 4, 5, or 6. Projects in this category do not necessarily lead to subsequent development or procurement phases, but should have the goal of moving out of Science and Technology and into the acquisition process within the future years defense program. Upon successful completion of projects that have military utility, the technology should be available for transition."

Additional Concepts—Projects in Budget Category 3 do not necessarily lead to subsequent development or procurement phases. Within the Air Force, there are two primary components of Advanced Technology <u>Development</u> research efforts, Advanced Technology <u>Demonstrations</u> (ATDs) and Critical Experiments (CEs). CEs can become ATDs through the ATC evaluation process and commissioning process (defined below).

Candidate ATD—A technology program proposed to an ATC as a possible ATD. This program could be a CE, a set of CEs that can be integrated, or other budget category technology efforts, which contain a set of technologies that may enable superior warfighting capabilities and sustainment. The candidate ATD must be supported by at least one MAJCOM or Agency. If approved, the candidate becomes an ATD with a category as specified above.

Critical Experiment—An effort that is a subset of Advanced Technology Development efforts (Research Category 6.3) that could advance a concept or technology beyond the Applied Research phase into component testing in a relevant environment. It can be a simulation or the initial phase of a technology demonstration and can include concept studies. **Figure A1.1.** provides a graphical presentation of CEs mapped against budget categories.

Decision Memorandum—A memorandum that captures the actions of the ATC to include the commissioning and re-categorization of ATD programs, minutes, action items, and etc.

Decision Support Package—An ATC decision support package is developed for each currently commissioned ATD and candidate ATD. It includes the program objectives, schedule, and funding to complete the ATD, as well as a preliminary acquisition transition plan.

Decommissioned ATD—An ATD whose scope has been reduced to that of a Critical Experiment or one that has been concluded due to inability to achieve sufficient maturity in the desired technologies or no longer meets warfighter needs.

Graduated ATD—Any ATD that has sufficiently matured the desired technologies to allow transition to a development or acquisition (new, modification, or upgrade) program.

Integrated Product Team (IPT)—Cross-functional and multidisciplinary teams that are used in S&T and acquisition programs to address program management and technical issues. At a minimum, an IPT will consist of AFRL, the appropriate Product, Logistics, or Test Center, the initial technology recipient (MAJCOM or Agency), and the final recipient.

Technology Readiness Level—A measure of a technology's state. Specifics are outlined in DoD

Manager's Guide to Technology Transition in an Evolutionary Acquisition Environment.

Technology Transition Plan (TTP)—A plan that documents the specific tasks and achievements required to demonstrate that the risk associated with a technology transition is within acceptable bounds. A TTP is an agreement between AFRL, the operational MAJCOM or Agency, and the appropriate Product, Test, or Air Logistics Center. A TTP is required for all commissioned ATDs. The IPT will draft the TTP and the appropriate MAJCOM will coordinate its approval. A separate TTP must be prepared for each target system to which the technology will be transitioned.