BY ORDER OF THE COMMANDER
AIR FORCE MATERIEL COMMAND

AFMC INSTRUCTION 61-102

30 MAY 2006

Scientific/Research and Development

ADVANCED TECHNOLOGY DEMONSTRATION TECHNOLOGY TRANSITION PLANNING

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This Air Force Materiel Command (AFMC) Instruction (AFMCI) implements Air Force Policy Directive (AFPD) 61-1, *Management of Science and Technology* and Air Force Instruction (AFI) 61-101, *Applied Technology Council.* This instruction outlines policy and organizational responsibilities for the management and transitioning of Advanced Technology Demonstrations (ATDs) by AFMC organizations and must be used in conjunction with AFI 61-101, *Applied Technology Council*. AFMC organizations may supplement this instruction. All supplements to this instruction will be coordinated with HQ AFMC/A5S before publication.

This instruction is applicable to *all* ATDs/Applied Technology Councils (ATC). For Air Force Space Command (AFSPC) ATDs/ATC, reference AFSPC Instruction 61-102 for Transition Agent roles and responsibilities. In the case of co-commissioned ATDs, where AFSPC ATC shares the transition funding responsibility with another ATC, AFMC will seek to collaborate with AFSPC to set up a process that is applicable to both Commands. This AFMCI may serve as a starting point for this process.

This AFMCI is not the process used for Special Programs (SP) Technology Transition and Management. Special Programs will use the Special Program Review Group (SPRG) process as outlined in the AFMC Special Program Management Guide (SPMG). Questions from AFMC SP units should be referred to HQ AFMC/A5J.

Send comments and suggested improvements through channels to HQ AFMC/A5S, 4375 Chidlaw Road, Wright-Patterson AFB, OH 45433-5006.

SUMMARY OF CHANGES

This major revision incorporates instructions from AFI 61-101, *Applied Technology Council*, on the construct, roles and responsibilities, and conduct of the ATC. It also provides additional instructions on ATD planning, execution, review, and reporting activities. Key changes include requiring an ATD Integrated Product Team (IPT) construct for the development, transition, acquisition, and implementation of ATDs; requiring the use of Manufacturing Readiness Level (MRL) to assess ATD manufacturing readiness;

deleting ATD Category 3 (***NOTE:*** *Existing Category 3 ATDs (ATDs without MAJCOM/Agency support) will be decommissioned or changed to another category at the next ATC*); and requiring the use of a new Technology Transition Plan (TTP) document template with mandatory elements. (***NOTE:*** *TTPs of ongoing, commissioned ATDs will be reviewed yearly for accuracy prior to an ATC meeting. If there are major program changes, these TTPs will be revised to comply with the new document template and re-signed, as required.*)

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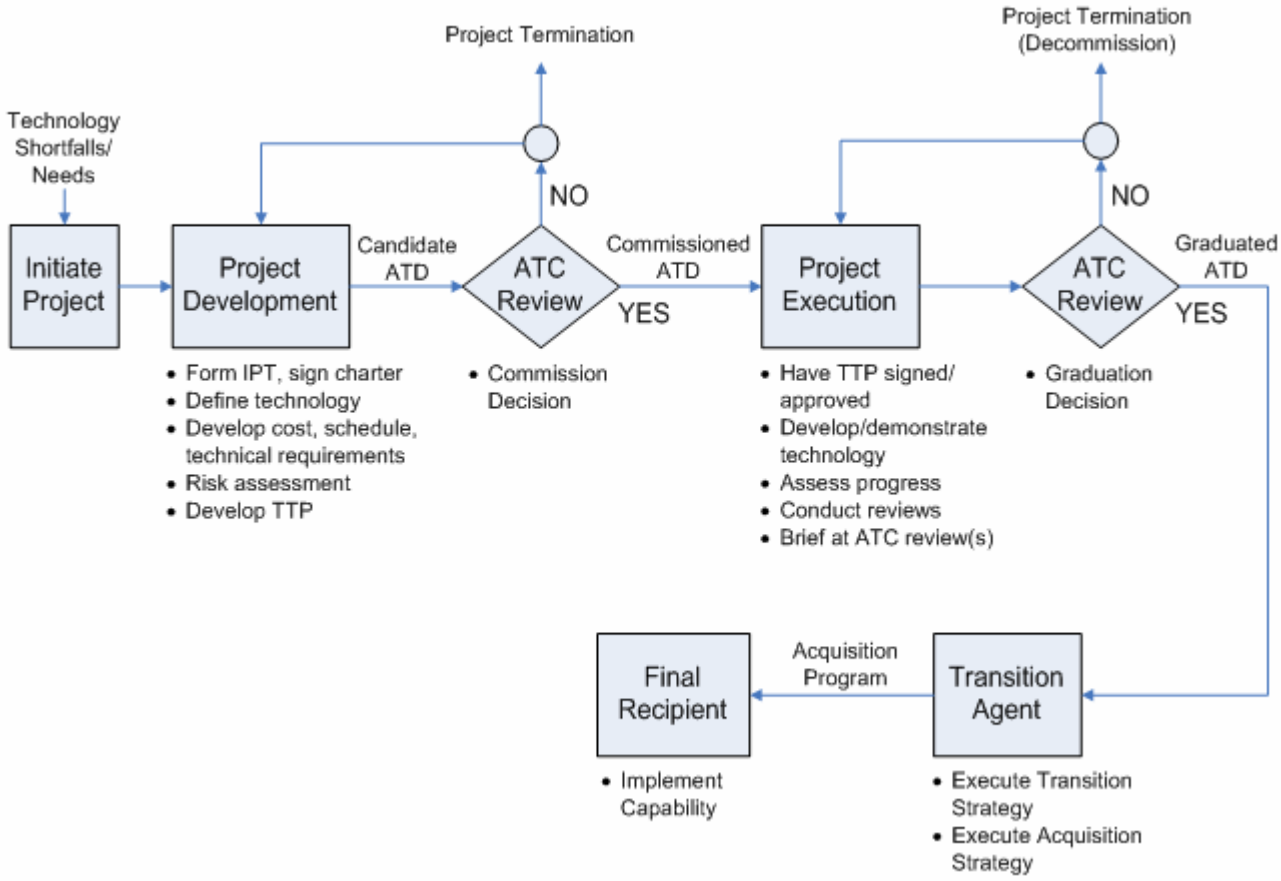
Chapter 1

INTRODUCTION AND OVERVIEW

1.1. Purpose of ATDs and ATC. The primary mission of the Air Force Research Laboratory (AFRL) is leading the discovery, development, and integration of affordable warfighting technologies for our air and space forces. It develops and matures technology options for transition into Air Force weapon and support systems. AFRL conducts ATDs and Critical Experiments through Advanced Technology Development Programs (Budget Category 6.3). (***NOTE:*** The acronym "ATD" can be used for both Advanced Technology Demonstration and Advanced Technology Development. For this AFMCI, ATD will apply to a Demonstration.) ATDs seek to demonstrate the maturity and effectiveness of technologies for enhancing operational capabilities or cost effectiveness. The products of ATDs are technology options, each with well-understood benefits and risks, which the Transition Agent can further develop, integrate, test, and acquire for the Final Recipient. The end product is a weapon system, support or infrastructure application that supports the needs of the warfighter. Successful technology demonstrations by AFRL and the transition of those technologies to the Transition Agents and ultimately the Final Recipients are critical to the success of ATDs. Since 1999, the ATC process has served as the impetus to make transition successful. The ATC provides senior leadership attention and the forum to ensure that appropriate organizations associated with ATDs are brought together to formally commit resources to transition the technologies. **Figure 1.1.** illustrates the notional key events of the ATD and ATC processes.

Figure 1.1. Notional ATD and ATC Key Events.



1.2. Shortfalls/Needs. Each MAJCOM/Agency, as the Final Recipient, has its own process to identify, collect, validate, and prioritize Science &Technology (S&T) shortfalls/needs. These shortfalls/needs are provided to AFRL, as the technology provider, to develop technology solutions. AFRL may also identify shortfalls/needs internally based on their knowledge of user requirements and from participating in the AF Capability-Based Planning process. This is also referred to as "technology push." AFRL will reference the Capabilities Review and Risk Assessment (CRRA), Capability Objective (CO), Master Capabilities Library (MCL), and other requirements documents as primary sources to assist in the formulation of potential solutions to satisfy the shortfalls/needs. The other requirements documents can include but are not limited to MAJCOM's strategic planning documents, Initial Capability Documents (ICDs), Capability Development Documents (CDDs), etc.

1.3. Project Initiation. AFRL uses an AFMC command-approved S&T Investment Strategy process to identify and prioritize technology solutions that can potentially satisfy shortfalls/needs. AFRL identifies and consults with the Transition Agents and the Final Recipients to determine if the proposed technology solutions should be considered for ATDs and expected results will likely satisfy their shortfalls/needs. Typically, ATDs have Technology Readiness Levels (TRLs) of 4, 5, or 6 and are expected to transition to the acquisition process within the Future Years Defense Plan (FYDP). Candidate ATDs are normally Budget 6.3 funded projects, although some can be Budget 6.2, Budget 7.8 (Manufacturing Technology (ManTech)), or others.

1.4. Project Development. AFRL and the Transition Agent charter an ATD IPT for the planning, execution, transition, acquisition, and implementation of each candidate ATD. The IPT is co-chaired by the AFRL lead and the Transition Agent lead, and possibly the Final Recipient. As a minimum, the ATD IPT consists of members from AFRL, the Transition Agent, and the Final Recipient. The ATD IPT also includes member(s) from HQ AFMC/A4, Logistics and Sustainment, when an Air Logistics Center (ALC) or Aircraft Maintenance and Regeneration Center (AMARC) is the Final Recipient. Prior to ATC review of a candidate ATD, the ATD IPT supports the development of ATD and acquisition program costs, schedules, and technical requirements, which are summarized in an S&T Quad and Transition chart (described further in paragraph **1.5.**). Preliminary risk assessment and the Technology Transition Plan (TTP) are developed. The ATD IPT consults with and/or obtains input from other functional stakeholders as required to document project information including S&T development, S&T Key Performance Parameters (KPPs), acquisition/transition strategies, and the commitment of resources. Although a *signed* TTP is not required at the commissioning ATC, having a TTP early in project development is highly encouraged to ensure early communication and to document planning/resource commitments from all stakeholders.

1.5. ATC Review. AFI 61-101 defines the conduct of ATC reviews. The ATC commissions new ATDs and reviews existing ATDs to continue, re-categorize, decommission, or graduate, as appropriate.

1.5.1. ATC Decision Support Package. Assessment of the ATD transition and implementation planning is the root of an ATC review. An ATD review consists of a formal briefing containing three charts. **Attachment 2** provides examples of these charts.

- S&T Quad Chart (provided by AFRL) - AFRL's quad chart documents the S&T funding and depicts the technology concept with its investment schedule and Technology Availability Date (TAD), description, technologies to transition, and benefits to the warfighter using succinct overview terminology.

- Transition Chart (provided by Transition Agent) - The transition chart (also known as the transition fishbone chart) continues the investment schedule starting with the TAD. The chart documents a schedule for both required and available funding for each candidate acquisition program incorporating the ATD technology, identifies the lead and other participating Transition Agents, key program milestones, and highlights any transition issues that the ATC needs to be aware of. The Final Recipient's comments may also be included at the bottom of this chart along with previous and/or recommended ATD category ratings.

- Implementation Chart (provided by Final Recipient) - The implementation chart (also known as the implementation fishbone) is used when AFMC is the Final Recipient of the technology. Its use is optional for other Final Recipients. The implementation chart includes tasks for the implementation of the technology by the Final Recipient with associated funding and resources for the duration of the implementation activities. Each ATD may have more than one Final Recipient. Each Final Recipient presents their implementation chart. These charts also list any implementation issues and products to be delivered.

1.5.2. ATC Decision Memorandum. This document, when signed by the ATC Principals, becomes the authority to commission new ATDs, graduate, or de-commission existing ATDs. It formally documents the category, priority ranking, and resource commitment of the stakeholders for each commissioned ATD.

1.6. Project Execution and Reporting.

1.6.1. Technology Transition Plan. Each ATD IPT is required to have a signed TTP not later than 6 months after an ATD is commissioned. The TTP will be reviewed by the ATD IPT annually before an ATC review or more often, as deemed necessary. The TTP will be updated/re-signed, as necessary, until the ATD is either decommissioned or graduated. Re-sign the TTP if there are major changes, as deemed by the ATD IPT. The required format and content are shown in **Attachment 3**.

1.6.2. Technology Protection and Anti-Tamper (AT). Technologies planned for transition that involve Critical Program Information (CPI) and/or critical Defense Science and Technology Information (DS&TI) must have a Technology Protection Plan (TPP). The TPP shall be provided to the Transition Agent in advance of the ATD transition. If the CPI and/or DS&TI have AT applications, the approved AT plan shall also be provided to the Transition Agent as a classified annex to the TPP. Involving the Transition Agent, or a designated representative, in the development of the TPP should enable TPP-prescribed countermeasures to be in place at the time of technology transition. TPPs are required for technologies with CPI and/or DS&TI in accordance with AFPD 63-17, *Technology and Acquisition Systems Security Program Protection*. AT guidance is available in the *Defense Acquisition Guidebook.*

1.6.3. Conduct. During ATD execution, the AFRL, as an ATD IPT co-chair, leads the development program while keeping the IPT abreast of the ongoing technology development effort. AFRL leadership will conduct periodic management and technical reviews in a collaborative environment with the ATD IPT members and their leadership, as required. Significant changes that affect the content of the ATC-approved charts (ATC Decision Support Package from section **1.5.1.**) for ATD development, transition, and implementation (e.g. planned technology capability, technology availability date, resource commitment) will be coordinated with the appropriate stakeholders including HQ AFMC/A2/5 as soon as possible and preferably prior to execution. These changes will be addressed at the next ATC review.

1.6.4. ATD Final Reporting. Once the ATD development effort is nearing completion, Final Reporting begins. The ATD IPT delivers a final technical report to document results of the development effort. A briefing will also be provided at the next ATC review for an ATD graduation decision.

1.7. Transition, Acquisition, and Implementation Activities. After ATD graduation, the Transition Agent accepts the technology and leads the execution of transition and acquisition strategies to further develop, integrate, and acquire the capability. During this time, the ATD IPT continues to support the technology effort until completion which is normally the First Production Article Available (FPAA) date and/or when the Final Recipient successfully implements the capability for their use. The ATD IPT may disband when the co-leads agree the ATD IPT is no longer needed (e.g. graduated ATD not being transitioned to an acquisition program, resource/manpower limitation, etc.). The ATD IPT will formally document the dissolution.

Chapter 2

ORGANIZATIONAL ROLES AND RESPONSIBILITIES

2.1. HQ AFMC/A2/5 (Intelligence and Requirements).

2.1.1. Serves as the AFMC focal point for the ATC and ATD processes.

2.1.2. Serves as the AFMC focal point to validate and prioritize AFMC S&T infrastructure shortfalls/needs and obtain AFMC approval via the AFMC Corporate process.

2.1.3. Develops and prepares applicable AFMC instructions and guidance to support ATC and ATD activities.

2.1.4. Reviews, staffs, coordinates with applicable HQ AFMC organizations, and signs TTPs of *all* commissioned ATDs.

2.1.5. Participates in applicable ATC planning to include agenda, action item review and tracking, and special interest item development.

2.1.6. Develops, maintains, and tracks AFMC-level metrics for technology transition.

2.2. AFRL.

2.2.1. Develops and implements an AFMC command-approved S&T Investment Strategy that is consistent with the AF Capability-Based Planning Process to identify, prioritize, and fund technology projects to satisfy the AF capability shortfalls/needs.

2.2.2. Allocates resources to identify, propose, develop, and mature ATDs.

2.2.3. Participates in the ATC review process.

2.2.4. Provides support after ATD graduation, as required, to assist with the transition, follow-on development, integration, acquisition, and implementation of the technology.

2.2.5. Leads the development of MRL definitions and process to assess manufacturing readiness for applicable AFRL ATD programs. Institutes its use in phases with eventual application to all applicable commissioned ATDs.

2.2.6. In collaboration with the Transition Agent and other ATD IPT members, administers and maintains an Internet-accessible database of commissioned and completed ATDs, a record of TTPs, and other related documentation. Ensures review documents (e.g. briefing slides, decision documents, etc.) are uploaded within 30 days after formal ATD management/technical reviews and ATC documents are uploaded not later than 30 days after ATC approval.

2.2.7. Appoints ATD IPT team members from within AFRL. Jointly with the Transition Agent, approves the ATD IPT charter.

2.2.8. Co-chairs the ATD IPT. Participates in ATD planning, execution, reporting, transition, acquisition, and implementation activities, as required.

2.3. Product/Logistics/Test Centers and AMARC, as required.

2.3.1. Executes follow-on development and acquisition of ATD technology beyond Budget 6.3 (with the exception of 7.8 funding).

2.3.2. Allocates resources and/or develops funding profiles to transition, acquire, and implement ATD technologies to satisfy shortfalls/needs.

2.3.3. Plans, advocates, and obtains Final Recipient's coordination and status for the programming of funds for the transition efforts.

2.3.4. Leads and participates in the ATC review process.

2.3.5. Develops and executes acquisition plans to further develop, integrate, acquire, and deliver ATD technologies to the Final Recipient.

2.3.6. Appoints ATD IPT team members from within Centers. Jointly with AFRL, approves the ATD IPT charter.

2.3.7. Co-chairs the ATD IPT. Participates in ATD planning, reporting, transition, acquisition, and implementation activities, as required.

2.4. ATD IPT.

2.4.1. Supports the planning, execution, reporting, transition, acquisition, and implementation of ATD technologies.

2.4.2. Participates in reviews and assessments of ATD program status.

2.4.3. Notifies and coordinates significant program changes with appropriate stakeholders and HQ AFMC/A2/5 (see section **1.6.3.**).

2.4.4. Maintains configuration control of program documentation, including but not limited to TTPs, ATD IPT charters, meeting minutes.

2.4.5. AFRL Co-Chair and AFRL IPT Members. Responsibilities include but are not limited to:

2.4.5.1. Defines and coordinates the S&T KPPs.

2.4.5.2. Coordinates the Transition Agent's acquisition plan and ensures its compatibility with ATD development planning.

2.4.5.3. Writes, reviews, and revises AFRL's portions, and coordinates TTP. Facilitates coordination by obtaining signatures on the TTP through the appropriate offices in AFRL.

2.4.5.4. Communicates technology progress and issues through the appropriate channels within AFRL.

2.4.5.5. Assists with determination and reporting of the TRL/MRL and the risk management plan for the acquisition effort.

2.4.5.6. Update the Internet database with ATD and associated program documents.

2.4.6. Transition Agent Co-Chair and Transition Agent IPT Members. Responsibilities include but are not limited to:

2.4.6.1. Assists in defining and coordinating the S&T KPPs.

2.4.6.2. Coordinates with AFRL on ATD development planning and ensures its compatibility with the acquisition plan.

2.4.6.3. Provides the overall lead for development of the TTP, unless otherwise designated by the ATD IPT. Writes, reviews, and revises Transition Agent's portions, and coordinates TTP. Facilitates coordination by obtaining signatures on the TTP through the appropriate Transition Agent offices.

2.4.6.4. Communicates the technological advancements of the ATD development effort throughout the enterprise, as appropriate.

2.4.6.5. Assists with determination and reporting of the TRL/MRL and the risk management plan for the acquisition effort.

2.4.6.6. Provides ATD and associated program documentation to AFRL co-lead for the timely update of the Internet database.

2.4.6.7. Develops functional strategies to ensure the development of a mature, supportable system following transition of an ATD from AFRL. Functional strategies should include but are not limited to consideration of technical, business/contract, financial, logistics, test and evaluation, manufacturing, Quality Assurance, and intelligence strategies.

2.4.7. Final Recipient. Responsibilities include but are not limited to: (***NOTE:*** *In some cases, the Final Recipient is a MAJCOM/Agency that is non-AFMC. As such, this AFMCI does not direct the Final Recipient's responsibilities. Items listed below are 1) established responsibilities and/or 2*) *identified in higher level instructions: AFI 61-101 and others.)*

2.4.7.1. Provides capability requirements and acquisition KPPs via Initial Capability Document (ICD), Capability Development Document (CCD), or other documentation.

2.4.7.2. Assists in defining anticipated capability requirements and/or acquisition KPPs if actual requirements document does not currently exist .

2.4.7.3. Supports the programming of transition funding.

2.4.7.4. Assists with reviewing, revising, coordinating, and obtaining signatures on the TTP through the appropriate MAJCOM/Agency offices.

2.4.8. Support Team. Members from AFRL technical directorates and other organizations' functional areas (including but not limited to acquisition, environmental safety and occupational health (ESOH), contracting, financial, logistics, test and evaluation, intelligence, and industry) provide guidance and assistance, as required.

JOHNNY A. WEIDA, Brigadier General, USAF
Director

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

Air Force Instruction 14-111, *Intelligence in Force Modernization,* 10 January 2005

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

Air Force Instruction 61-101, *Applied Technology Council,* 9 May 2005

Air Force Policy Directive 63-17, *Technology and Acquisition Systems Security Program Protection,* 26 November 2001

DoD *Manager's Guide to Technology Transition in an Evolutionary Acquisition Environment*,

June 2005 (**http://www.dau.mil/pubs/pdf/Managers_Guide.pdf**)

Abbreviations and Acronyms

AFDPO—Air Force Departmental Publishing Office

AFI—Air Force Instruction

AFMC—Air Force Materiel Command

AFMCI—Air Force Materiel Command Instruction

AFPD—Air Force Policy Directive

AFRL—Air Force Research Laboratory

AFSPC—Air Force Space Command

ALC—Air Logistics Center

AMARC—Aerospace Maintenance and Regeneration Center

ATC—Applied Technology Council

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

ATDP—Advanced Technology Demonstration Program

CDD—Capability Development Document

CO—Capability Objective

CPI—Critical Program Information

CRRA—Capabilities Review and Risk Assessment

DS&TI—Defense Science and Technology Information

FPAA—First Production Article Available

FYDP—Future Years Defense Plan

ICD—Initial Capability Document

IPT—Integrated Product Team

KPP—Key Performance Parameter

MAJCOM—Major Command

ManTech—Manufacturing Technology

MCL—Master Capabilities Library

MRL—Manufacturing Readiness Level

POM—Program Objective Memorandum

QRF—Quick Reaction Fund

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

SBIR—Small Business Innovation Research

SP—Special Programs

SPMG—Special Program Management Guide

SPRG—Special Program Review Group

TAD—Technology Availability Date

TRL—Technology Readiness Level

TPP—Technology Protection Plan

TTI—Technology Transition Initiative

TTP—Technology Transition Plan

WRAP—Warfighter Rapid Acquisition Program

WWW—World Wide Web

Terms

—AFI 61-101, *Applied Technology Council*, lists key terms of the ATD and ATC processes. Other relevant terms are listed here.

End User—The MAJCOM/Agency that typically identifies a capability need, programs funds for, and will use the technology capability. End User is also referred to as the Final Recipient.

Final Recipient—The MAJCOM/Agency that typically identifies a capability need, programs funds for, and will use the technology capability. Final Recipient is also referred to as the End User.

Manufacturing Readiness Level (MRL)—MRL provides a measure to assess the maturity and risks of a technology's manufacturing processes. It is designed to address manufacturing risk mitigation to enable rapid and affordable transition to weapon system programs.

Stakeholder—An individual or organization that stands to gain or lose from the success or failure of a program. For an ATD program, this can include AFRL, Transition Agent, Final Recipient, and other supporting offices such as logistics, contract, financial, intelligence, and test and evaluation.

Technology Availability Date (TAD)—The date(s) when the ATD Final Report and other deliverables are available from AFRL.

Technology Readiness Levels (TRL)—A measure of technology maturity along a scale of one to nine. Descriptions are detailed in the DoD *Manager's Guide to Technology Transition in an Evolutionary Acquisition Environment,* June 2005. (**http://www.dau.mil/pubs/pdf/Managers_Guide.pdf**)

Transition Agent—The activity that assumes program management responsibility for the technology/ capability transitioned from AFRL. Transition Agent develops and implements acquisition plans to further mature, acquire, and deliver transitioned technologies to the Final Recipient. The Transition agent is also referred to as the "Initial Recipient" of the technology/capability.

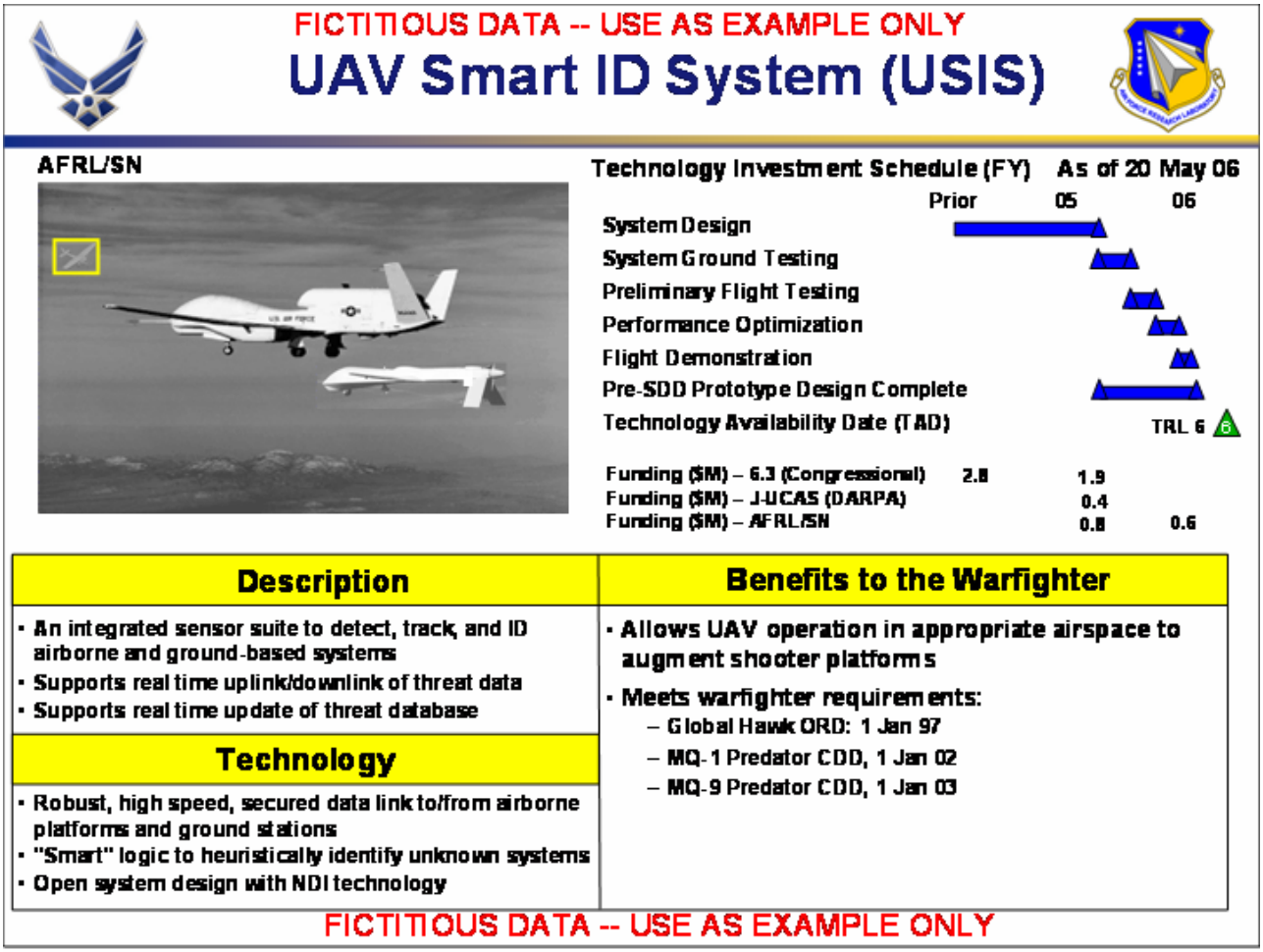
Attachment 2

ATC DECISION SUPPORT PACKAGE

Chart Examples

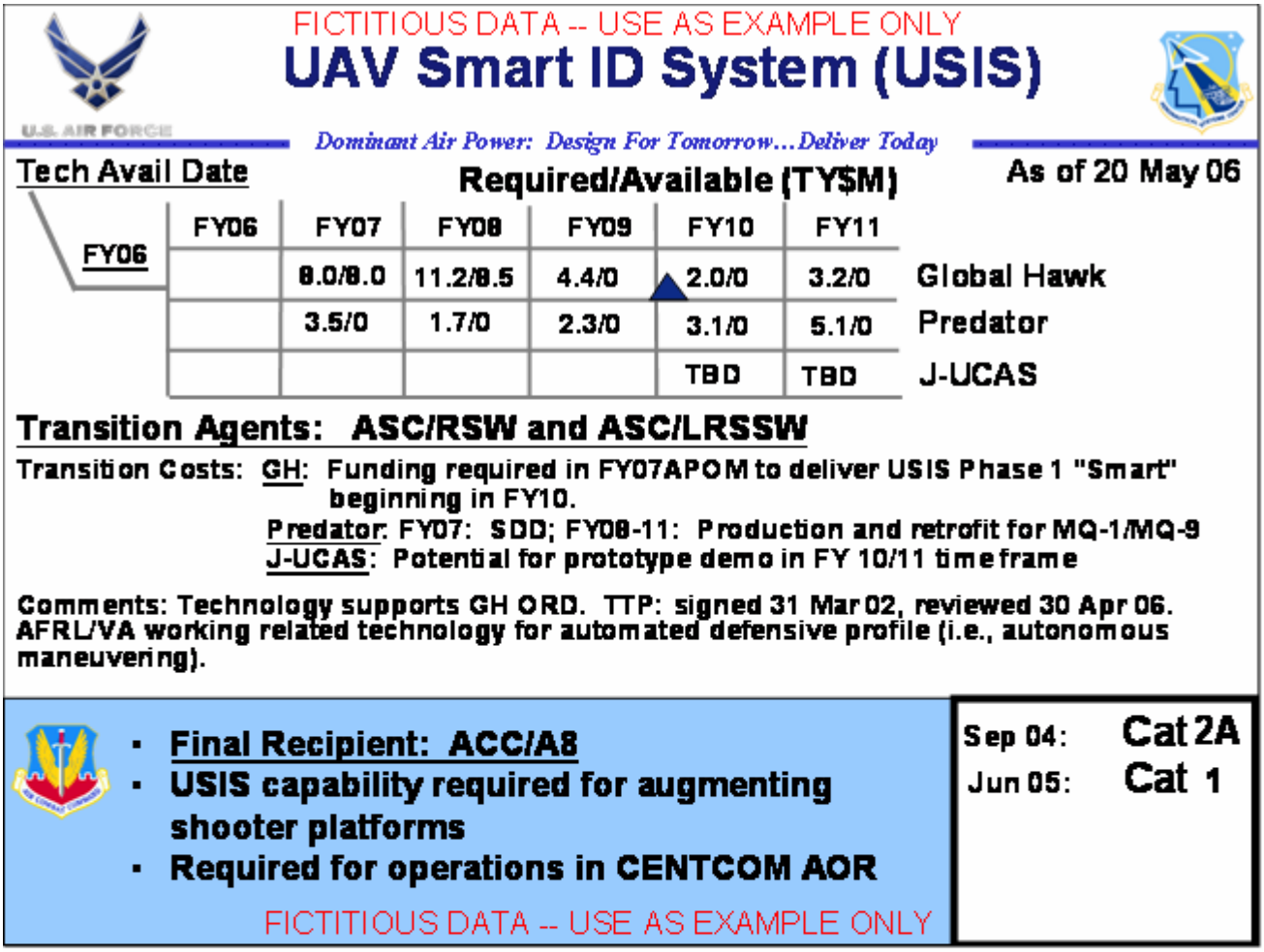
A2.1. S&T Quad Chart.

Figure A2.1. Example of AFRL's S&T Quad Chart



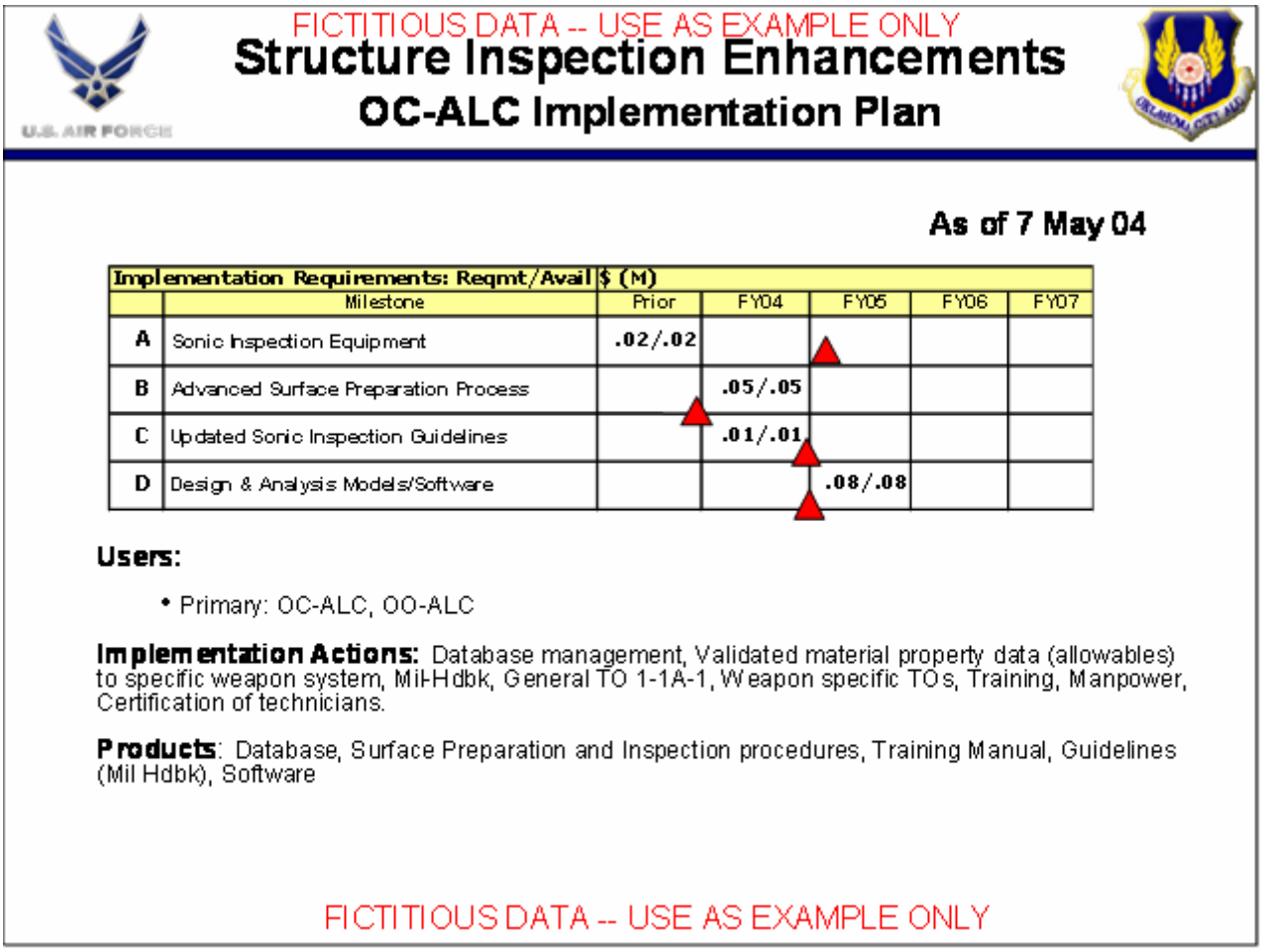
A2.2. Transition Chart (Transition Fishbone).

Figure A2.2. Example of Transition Agent's Transition Chart



A2.3. Implementation Chart (Implementation Fishbone).

Figure A2.3. Example of Final Recipient's Implementation Chart



Attachment 3

TECHNOLOGY TRANSITION PLAN (TTP) TEMPLATE

In order to standardize TTPs across the different organizations, this template is provided to facilitate the writing of TTPs in accordance with AFMCI 61-102. **For commissioned ATDs, the basic content and format are *mandatory*.** Section 2, the AFRL portion of this template, is based on the standardized Investment Strategy Sheets and the Program Baseline Review format. The suggested length for Sections 1-4 is 10-15 pages total, not including appendices or attachments. Appendices referenced within this template refer to appendices created for the TTP document. Additional appendices may be added as needed by the ATD IPT. **The italicized notes are used as guidance during the development of TTPs and should be deleted in the final versions**.

Other transition efforts such as Candidate ATDs, AFRL Critical Experiments/6.2/6.3 programs, and others may use this format as is or modified as appropriate to suit particular program scopes.

(Title Page)

"Program Title"

Advanced Technology Demonstration (ATD)

Technology Transition Plan (TTP)

"Date (Day Month Year)"

Distribution Statement (*Insert the appropriate distribution statement in a box at the bottom of each page. For programs containing Critical Program Information (CPI) or Critical Program Resources (CPR), a separate Technology Protection Plan or Program Protection Plan will be required in accordance with AFPD 63-17, Technology and Acquisition Systems Security Program Protection.*)

(ATC History and Content Page)

"Program Title" ATD TTP			
AFRL Directorate:			
Commissioned:			
Expected Graduation Date:			
Status: *(In-progress or graduated)*			
As-Of-Date:			
Applied Technology Council (s): *(If Co-Commissioned, may have more than one list of Category rankings below)*			
(MAJCOM #1 Name) **ATC**		*(MAJCOM #2 Name)* **ATC**	
Date	Category	Date	Category

Table of Contents:

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ATD IPT and Other Coordination Signature Page

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2.0. S&T Development & Execution Plan

3.0. (Acquisition Program Office) Acquisition Strategy

4.0. Transition Bridge Strategy

APPENDICES - *(as needed)*

Appendix 1: Participants and IPT Member Contact Information

Appendix 2: Risk Analysis (S&T Risk Chart)

Appendix 3: Exit Criteria (S&T KPP Chart)

Appendix 4: Acquisition Program KPPs

Appendix 5: Acquisition Program Acquisition Plan or Roadmap

Appendix 6: ATC Fishbone Chart

Appendix 7: *(Other topics as needed)*

*Note: If appendices are classified -- identify a Secret Internet Protocol Router Network (SIPRNET) address to request copies.

Leadership Commitment

This TTP identifies a commitment by AFRL, the Transition Agent(s), and/or the Final Recipient(s) to develop the technology and acquisition strategy, and pending funding and direction, execute the transition strategy described in the TTP. 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, these are not binding funding commitments.

AFRL/TD Director _____ Date _____

Acquisition Representative, Director _____ Date _____

(Transition Agent)

User Representative, Director _____ Date _____

(Final Recipient)

Core ATD Integrated Product Team (IPT) Signatures

The ATD IPT agrees on the content of this TTP, which is a mutual understanding between AFRL, the Transition Agent(s), and/or Final Recipient(s). The TTP documents the tasks that must be successfully completed prior to technology acceptance and transition. The IPT will review the TTP at least annually. Updated versions of the TTP will be coordinated and signed, as necessary, to reflect accurate program plan.

AFRL Program Manager _____ Date _____

Acquisition Representative _____ Date _____

(Transition Agent)

User Representative _____ Date _____

(Final Recipient)

Other Coordination Signatures

Coordinate the TTP and obtain signatures from other organization(s), as required.

TTP coordination with HQ AFMC/A2/5, Intelligence and Requirements, is mandatory for commissioned ATDs. Coordinate with HQ AFMC/A2/5 when all other required signatures are complete but prior to Final Recipient Leadership signature.

HQ AFMC/A2/5 _____ Date _____

"Program Title"

Advanced Technology Demonstration (ATD)

Technology Transition Plan (TTP)

"Date (Day Month Year)"

1.0. Summary of Major Changes

(*Not all TTPs are new; some are a combination of several TTPs, and others are annual updates. This section identifies to the reader what major changes were made to the document. Document the major changes in paragraph listing format.*)

2.0. S&T Development & Execution Plan

2.1. Technology Participants. (Reference Appendix 1 for participants and IPT contact information)

- AFRL Directorate(s). (*Indicate the directorate. In the case of a program involving more than one directorate, indicate the directorates and their relationship to the program and each other.*)

- Transition Agent(s). (*The office that assumes acquisition program management responsibility for the technology/capability from AFRL.*)

- Final Recipient(s). (*Indicate the primary Final Recipient and secondary Final Recipient(s), if applicable. The Final Recipient is the MAJCOM/Agency who develops formal requirements and programs funding for acquisition of the technology you are developing.*)

2.2. Technology Availability Date(s). (*Indicate, in sentence form, the FY & Quarter that the final tech report and other deliverables are available.*)

2.3. Program Objective. (*Identify what the research effort will develop and demonstrate. Describe advancements in state-of-the art and limits of current technology.*)

2.4. Applicable Systems/Target Acquisition Programs. (*Brief statement or list of weapon system(s).*)

2.5. Approach. (*Include both technical approach and a description of S&T program execution plan including key milestones and status of previous work that have impact on activities needed for a successful transition. This plan description may be supplemented with an S&T program plan chart attached as an appendix to the TTP.*)

2.6. Products/Payoff. (*Product: Describe the S&T program and what the ATD system consists of and expected deliverable(s) to the Final Recipient. Describe components of the ATD system and relationship with the target acquisition program. Payoff: describe the potential enhanced operational capability to the Final Recipient provided by this technology development program. Put in terms that an action officer or operator at a MAJCOM/Agency can understand as far as what it will do on the platform/system and include reasons why it would be considered an affordable approach.*)

2.7. Associated Efforts/Programs. (*Identify other supporting research efforts and/or programs required for transition of this technology. Also, describe related DoD and other programs (industry, national laboratories, other countries' efforts) that may support acquisition and transition planning. Often the final demonstration is made up of multiple contractual awards and in some cases, other necessary parallel efforts (6.2 and 6.3 critical experiment efforts/programs) required to prepare for the final demonstration. Refer to the S&T program plan chart (roadmap) if associated efforts are included.*)

2.8. Deliverables. (*Identify any type of hardware, software, or types of data that will be furnished to the Transition Agent and/or the Final Recipient. Be sure to consider data rights and proprietary rights associated with each deliverable that would restrict unlimited usage.*)

2.9. Technology Not Addressed or Delivered via this ATD. (*This section addresses expectation management - Describe what performance characteristics/capabilities will not be provided by the AFRL ATD but may be expected. Typically, technologies not delivered via the ATD are activities the Transition Agent and/or Final Recipient may want to address during the System Development and Demonstration phase of acquisition). For example: Additional processing and exact Form, Fit, and Function of the ATD prototype are not typically addressed in ATDs. This information is to help identify and clarify any possible false assumptions of technology transition that may exist. This area may also be used by the ATD lead to identify other areas the Transition Agent and Final Recipient should consider for follow-on production and implementation planning.*)

2.10. Risk Analysis. (*S&T Cost, Schedule, and Performance Risk may be included here or as an attachment in Appendix 2. Additional risk reduction activities should be listed here or in the same appendix along with appropriate offices of primary responsibilities (OPRs).*)

2.11. Exit Criteria. (*S&T KPP charts may be included here or as an attachment in Appendix 3. The content of these KPP charts must be mutually agreed upon by the chartered ATD IPT. Other types of exit criteria could be added if the ATD IPT agrees.*)

2.12. Major Milestone List. (*Use AFRL Program Baseline Chart(s) or list FY & quarter, then the name of the milestone. Can also be presented in a schedule fashion (e.g. Gantt chart).*)

2.13. Readiness Levels

- Initial S&T Program TRL and MRL. (*Provide explanation/justification for this level and an "As of Date."*)

- Projected Final S&T Program TRL and MRL. (*Provide justification for stopping at agreed level.*)

2.14. AFRL and Leveraged Programming. (*AFRL and non-AFRL funding lines. For AFRL funding, use burdened funding that contains S&T overhead and label accordingly. If applicable, include Small Business Innovation Research (SBIR) initiatives that are sponsored by the customer. Funding information may be placed in table format.*)

2.15. Technology Protection Plan/Security. (*If appropriate, reference applicable technology protection plan or security classification guide.*)

3.0. (Acquisition Program Office) Acquisition Strategy (*Proposed strategy should be a conceptual, top-level view. As the technology matures and acquisition funding becomes available, the strategy should become more complete.*)

3.1. Target Acquisition Program(s). (*These are the acquisition program(s) or Program(s) of Record (PORs) where the technology is headed. This paragraph describes the acquisition program. If the technology/capability is to transition to an Advanced Concept Technology Demonstration (ACTD) or a Joint Concept Technology Demonstration (JCTD), then that information must be indicated in this paragraph. Provide a brief description of the acquisition program to receive the technology/capability. Include the following:*

- *Major program objectives*

- *Current phases of the acquisition life cycle*

- *Actual or estimated acquisition KPPs of the targeted acquisition program, listed in an appendix and referred to in this paragraph (only KPPs applicable to the technologies being transitioned)*

- *Technology needs (the technology risk issues that require S&T demonstration before an acceptable risk acquisition program can begin)*

- *Projected initial operational capability (IOC) and/or First Production Article Availability (FPAA) date(s)*)

3.2. Transition Agent Program Manager and Stakeholders. (*Identify all stakeholders (including a "prime contractor" if it exists), suppliers, and customers involved in transition of this technology to an acquisition program. Include contact information.*)

3.3. Capability/Requirements Documents. (*Identify specific related ICDs/CDDs, etc. Specify anticipated requirements if the actual requirements document does not currently exist.*)

3.4. Project Need Date(s) for the Technology(ies). (*Specific FY quarter needing specific technology deliverables, including S&T program test results. Add an acquisition plan or roadmap, as an appendix, showing the required S&T technology availability date(s) and which acquisition spirals and blocks the technology transitions to.*)

3.5. Strategic & Tactical Issues. (*Identify conceptually any of these issues for the acquisition program. Address the need for any plans to mitigate issues, such as requirements vs. constraints, operational environment, technology insertion, interoperability, etc.*)

3.6. Functional Strategies. (*Describe the functional strategies below that may apply and that are needed to integrate the technology into the overall acquisition program. Portions of this section may be combined as needed to present a coherent functional strategy.*)

3.6.1. Technical Strategy.

- *Technology issues*

- *Integration issues*

- *Test and evaluation concept - As ATDs become an increasingly utilized method for prompt fielding of leading edge technology to the Warfighter, fast-track test and evaluation is vital. Weapons systems that pose a potential hazard or have sustainment issues to allied forces require that agile T&E methodologies be developed to serve the broad and critical interest of the Warfighter*

- Environmental, Safety, and Occupational Health concept and issues

3.6.2. Business/Contract Strategy.

- *Additional details on overall acquisition strategy*

- *Program schedule/milestones*

- *Competitive vs. sole source*

- *Industry considerations*

- *Rough Order of Magnitude (ROM) of total ownership cost and the impacts*

3.6.3. Financial Strategy. (*Identify estimated required and programmed acquisition funding. The ATC "fishbone" chart may be an appendix and referred to for purposes of explanation. Information should be included here if the acquisition is in an approved POM or in the President's Budget, and program element information is available. Include strategy to secure funding from non-AF sources (e.g. Technology Transition Initiative (TTI), Quick Reaction Funds (QRF), and AF Warfighter Rapid Acquisition Program (WRAP)*)

3.6.4. Logistics Strategy.

- *Design Interface*
- *Maintenance Planning*
- *Computer Resources Support*
- *Manpower & Personnel*
- *Supply Support*
- *Support Equipment*
- *Technical Data*
- *Facilities*
- *Training and Training Support*
- *Packaging Handling Storage & Transportation*

3.6.5. Manufacturing/QA Strategy.

- *Lean manufacturing and manufacturing development initiatives*
- *Industrial-base capabilities*

3.6.6. Intelligence Strategy. (*All intelligence analysis should be done in conjunction with the local intelligence office. Determine if a threat is driving the development, and, if so, that the threat analysis is current. Indicate whether any intelligence supportability analysis has been completed and documented in accordance with AFI 14-111, Intelligence in Force Modernization, and the AFMC supplement. Identify any current intelligence shortfalls impacting time, cost, performance, or any other risk to the target program, as well as any intelligence-related costs that can be assessed. Indicate whether any intelligence requirements have been developed and submitted at this time. The fidelity of this section may vary depending upon the maturity of the technology being transitioned and the existing requirements of the system receiving the new technology.*)

4.0. Transition Bridge Strategy (*Suggested length is one page. Describe the plan for integrating the AFRL ATD development program with the target acquisition program acquisition strategy so that it maximizes the potential for a successful transition. A number of times in the past, the laboratory program has reached conclusion without the acquisition program picking up the technology. These failures to transition may possibly occur because the acquisition program's prime contractor lacked a business strategy enabling the acceptance of the laboratory's contractor technology to be included in the acquisition program. Upfront planning is essential to maximize the potential for transition of the laboratory technology into target acquisition programs. Approaches to ensuring a successful transition bridge may include establishing associate contractor agreements, awarding multiple laboratory contracts to enhance the probability of the S&T contractor becoming a subcontractor to the acquisition prime contractor, or*

implementing an S&T development approach that includes prime contractor subcontracting to the best (competition) S&T contractor for developing the S&T technology. Another common issue is lack of funding during the time gap after ATD graduation and prior to the availability of funds from the POM process. A possible strategy to overcome this funding gap is to compete for other sources of funding such as OSD-sponsored TTI, QRF, and AF WRAP.)