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(Patrick R. Phelps)

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This instruction provides roles and responsibilities for management of Air Force Science & Technology (S&T) and addresses S&T planning, governance, and execution. It applies to all Air Force organizations excluding Pacific Air Forces, United States Air Forces in Europe, Air Force Reserve Command, and Air National Guard. This instruction implements Air Force Policy Directive (AFPD) 61-1, *Management of Science and Technology*. Supplements to this instruction must be coordinated through the Deputy Assistant Secretary of the Air Force, Science, Technology and Engineering (SAF/AQR). Send all recommendations for changes or comments to SAF/AQR, via email to **SAFAQR.workflow@pentagon.af.mil** (SAF/AQR Workflow) or to 1060 Air Force Pentagon, Washington, DC 20330-1060, through appropriate channels using AF Form 847, *Recommendation for Change of Publication*. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule located in the Air Force Records Information Management System.

(AFSPC) This supplement implements and extends AFI 61-101, *Management of Science and Technology*. This supplement is applicable to all Air Force Space Command (AFSPC) subordinate units including Numbered Air Forces (NAFs), Headquarters (HQ) AFSPC Directorates, Space and Missile Systems Center (SMC), Air Force Network Integration Center (AFNIC) and Air Force Spectrum Management Office (AFSMO). This publication may be supplemented at any level, but all direct supplements must be routed to the Office of Primary Responsibility (OPR) of this publication for coordination prior to certification and approval. This publication does not apply to the Air National Guard (ANG) and the Air Force Reserve Command (AFRC) and their units. It provides additional guidance to all Air Force Space Command organizations involved with the Science and Technology (S&T) process. Refer recommended changes and questions about this publication to the OPR using Air Force (AF) Form 847, *Recommendation for Change of Publication;* route AF Forms 847 from the field through the appropriate functional's chain of command. Subordinate units may develop implementing or supplementing publications. Subordinate units must forward implementing or supplementing publications to the OPR for review prior to publication. Request for waivers must be submitted through chain of command to the OPR listed above for consideration and approval. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). See Attachment 1 for a glossary of references and supporting information.

SUMMARY OF CHANGES

This publication is updated to document roles and responsibilities for Air Force S&T planning, governance, Capability Collaboration Teams (CCT), Flagship Capability Concepts (FCC), Joint Capability Technology Demonstrations (JCTD), and S&T-related Memorandums of Agreement (MOA) or Memorandums of Understanding (MOU) that were not addressed in the previous AFI. It also reflects changes in guidance and procedures dealing with Applied Technology Councils (ATC) and Advanced Technology Demonstrations (ATD). This is a major revision to AFI 61-101 and must be reviewed in its entirety.

Chapter 1

AIR FORCE S&T MANAGEMENT

1.1. Overview. This instruction establishes guidance and procedures for planning, governance, and execution of the Air Force S&T Program. The Air Force S&T Program consists of Basic Research, Applied Research, and Advanced Technology Development (research, development, test and evaluation [RDT&E] budget activity categories 6.1, 6.2, and 6.3, respectively). The S&T Program must be responsive to Air Force capability needs while guarding against technological surprise. It includes in-house laboratory and contracted activities to produce both evolutionary and revolutionary technology-enabled opportunities.

1.1.1. The Air Force plans and executes its S&T Program in accordance with the approved Air Force S&T Strategy and the associated Air Force S&T Plan as influenced by both external and internal "drivers" [contact SAF/AQR for access to the latest versions of these documents]. S&T drivers may include the National Military Strategy (NMS), the Quadrennial Defense Review (QDR), Department of Defense (DoD) Guidance, Operating Concepts, wargames and exercises, long-term visionary reports and guidance and planning documents associated with the Air Force Strategic Planning System (AFSPS). Furthermore, the Air Force strives to maintain an appropriately balanced investment portfolio across basic research, applied research, and advanced technology development.

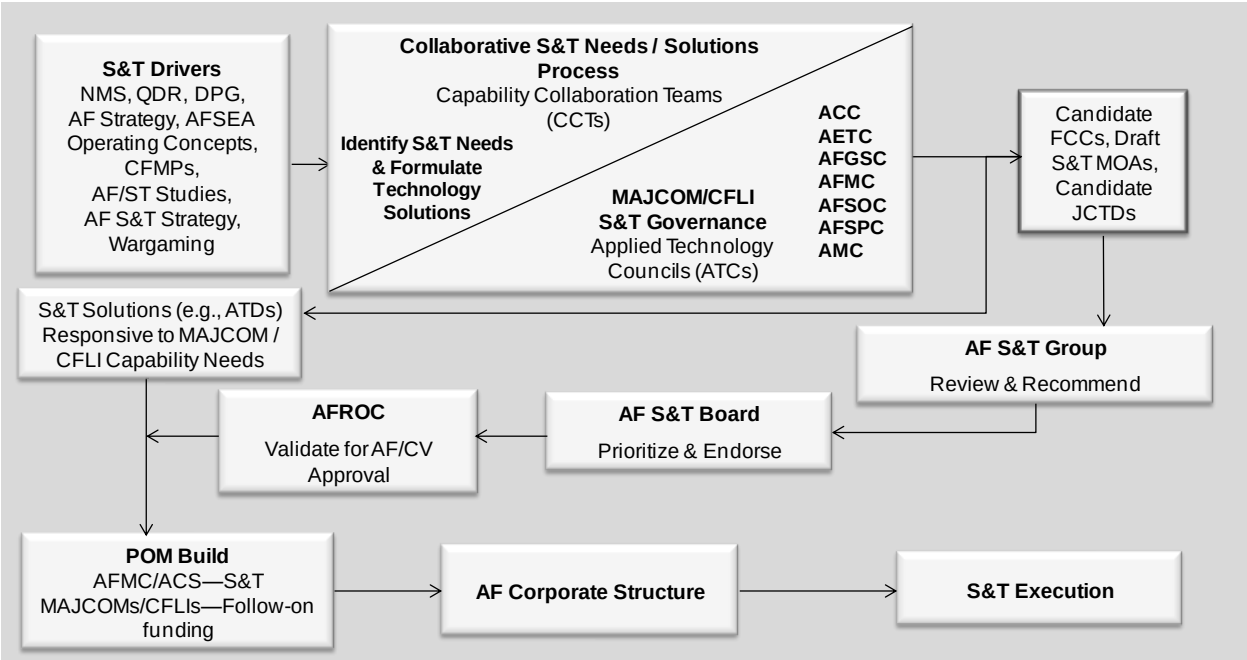
1.1.2. Core Function Lead Integrators (CFLI) inform Air Force S&T investment through their Core Function Master Plan(s) (CFMP). CFLIs for each Air Force Service Core Function (SCF) produce a CFMP in collaboration with key stakeholders across the Air Force, including Headquarters Air Force (HAF) functionals and the Major Commands (MAJCOM). As part of the CFMP process, CFLIs identify key risk areas associated with their plan and may establish CCTs to evaluate materiel aspects of associated capability needs and to better vector capability development. The CFMPs align SCF strategy, operating concepts, and capability development, to include S&T specifically focused toward their SCF, to provide 20 to 30-year constructs for enhancing Global Vigilance, Global Reach, and Global Power across the range of military operations (AF/A8 responsible for Air Force strategy and SCF policy matters).

1.1.2.1. **(Added-AFSPC)** HQ AFSPC executes S&T planning in parallel with many other future capability planning efforts, such as AFSPC Integrated Planning Process, Air Force Research Laboratory's (AFRL) technology maturation efforts, development planning analyses, future architecture planning, capability-based assessments analysis of alternatives, and requirements developed through the Joint Capabilities Integration and Development System (JCIDS) process. Some of these future capability efforts are conducted within AFSPC and some are conducted externally. The Space and Cyberspace Core Function Lead Integrator (CFLI) ensures all Command-driven and Command-sponsored future capability planning efforts are fully coordinated and integrated when applicable. The CFLI may use the Core Function Master Plan (CFMP) to document the synchronization and dependencies of each of these efforts with each other in the Capability Development and S&T Roadmaps.

1.1.3. The Air Force S&T planning process provides a framework for the operational, acquisition, and S&T communities to work together in order to understand Air Force capability needs, identify associated technology needs and potential solutions, and then develop technology options for acquisition and operational community consideration. An input to this process may be capability needs identified through Capabilities-Based Assessments (CBA) or other capability planning analyses (refer to AFI 10-601, *Operational Capability Requirements Development* for more information on CBAs). A wide range of technology solution providers should be considered throughout Air Force S&T planning activities as necessary (e.g., Air Force Research Laboratory [AFRL], Army Research Laboratory, Naval Research Laboratory, Defense Advanced Research Projects Agency [DARPA], National Aeronautics and Space Administration [NASA], academia, industry, and appropriate foreign sources).

1.1.4. The Air Force S&T planning framework is depicted in **Figure 1.1** It reflects how S&T planning and governance fit within the larger DoD and Service planning, programming, and governance constructs. The box at the center top represents the technology needs and solutions identification process which encompass a range of collaborative activities. Collaboration among the MAJCOMs/CFLIs, acquisition centers, Program Executive Officers (PEO), and the Technology Executive Officer (TEO) is essential to (1) ensure S&T stakeholders understand Air Force capability needs and associated technology needs in order to develop potential technology solutions addressing those needs, and (2) to inform Air Force senior leaders, MAJCOMs, and the acquisition community of technology opportunities and the art of the possible.

Figure 1.1. Air Force S&T Planning Framework.



1.1.5. Once technology needs are understood and potential solutions identified, S&T governance reviews, integrates, prioritizes, endorses, and commissions S&T efforts as appropriate. The ATCs provide a forum to review a wide range of S&T matters. At a

minimum, ATCs review and approve ATDs, recommend candidate FCCs for consideration by the Air Force S&T Group and Board, and review the S&T portfolio supporting each respective SCF. The Air Force S&T Group and Board are embedded within the S&T planning framework and are responsible for assessing and integrating Air Force technology needs, vetting and prioritizing candidate FCCs, and deliberating on other S&T matters as required. The Air Force S&T Group is an O-6 level body that makes recommendations to the Air Force S&T Board with respect to issues brought before the Group for consideration. Significant S&T programs endorsed by the Air Force S&T Board (e.g., FCCs, JCTDs, HAF-level S&T-related MOAs and MOUs) are validated by the Air Force Requirements Oversight Council (AFROC).

1.1.6. To execute the S&T component of commissioned ATDs, JCTDs, and FCCs, the TEO assigns an S&T program manager and is responsible for resourcing the S&T effort; the sponsoring MAJCOMs conduct necessary Joint Capabilities Integration and Development System activities and prepare related documentation and plan and program appropriate resources for follow-on acquisition activities; and the Centers conduct associated development planning (DP) and pre-acquisition planning as required. Periodic updates are provided to the ATCs, Air Force S&T Group, Board, and AFROC as necessary.

1.2. Roles and Responsibilities.

1.2.1. **Assistant Secretary of the Air Force, Acquisition (SAF/AQ):**

1.2.1.1. Appoints the AFRL Commander as the TEO.

1.2.1.2. Serves as the Air Force focal point for scientific and engineering integrity for the Secretary of the Air Force, Chief of Staff of the Air Force, and other HAF elements.

1.2.2. Science**, Technology and Engineering Directorate (SAF/AQR):**

1.2.2.1. Serves as the Air Force S&T Executive to represent, advocate, and defend the Air Force S&T Program to the Office of the Secretary of Defense (OSD), the other Services, and Congress.

1.2.2.2. Serves as the SAF/AQ primary interface to the TEO.

1.2.2.3. Serves as the Air Force focal point for information requests about the Air Force S&T Program and requests for representation or participation by S&T subject matter experts.

1.2.2.4. Develops the Air Force S&T Strategy, in coordination with the TEO, to identify Air Force-level tenets and priorities for the S&T Program.

1.2.2.5. Issues S&T planning and programming guidance to the TEO and Headquarters Air Force Materiel Command (AFMC) consistent with Air Force corporate constraints, priorities, and intent.

1.2.2.6. In coordination with SAF/FMB develops S&T budgeting guidance for execution, including Budget Activity Code and Program Element Code details, consistent with Air Force corporate constraints, priorities and intent for Program Authorization issuance to TEO and Headquarters AFMC.

1.2.2.7. Initiates reprogramming actions consistent with Air Force Corporate Structure S&T planning, programming, and budgeting guidance.

1.2.2.8. Represents and supports the Air Force S&T Program in Air Force corporate processes.

1.2.2.9. Co-chairs the Air Force S&T Group and Board.

1.2.2.9.1. Provides Secretariat functions for the Air Force S&T Group and Board.

1.2.2.9.2. Tracks status and maintains history of commissioned FCCs and Air Force-level S&T-related MOAs and MOUs.

1.2.2.10. Participates in MAJCOM ATC deliberations and serves as focal point to other HAF elements for ATC activities.

1.2.2.11. Conducts annual reviews of the S&T portfolio to include ATDs, FCCs, JCTDs (as appropriate), in-house research efforts, and S&T-related Air Force level MOAs and MOUs.

1.2.2.12. Serves as focal point for the status and activities of ATDs, FCCs, and JCTDs (as appropriate) to the Secretary of the Air Force, Chief of Staff of the Air Force, and other HAF elements.

1.2.2.13. Provides oversight and guidance for the management and execution of Air Force reviews of contractor Independent Research and Development (IR&D).

1.2.2.14. Integrates Special Access Program (SAP) RDT&E and non-SAP RDT&E, S&T planning activities and strategy, and directs advanced technology development programs and monitors new technologies in coordination with SAF/AQL.

1.2.2.15. Coordinates with SAF/AQ Capability Directorates to facilitate transition of significant S&T programs or projects (e.g., ATDs, FCCs, and JCTDs) to the appropriate follow-on acquisition or sustainment activity.

1.2.3. **Acquisition Integration Directorate (SAF/AQX).** Participates in Air Force S&T Group and Board deliberations.

1.2.4. **Directorate of Special Programs (SAF/AQL).** Directs SAP advanced technology development programs and monitors new technologies, which may satisfy operational requirements or capitalize on technology opportunities, in coordination with SAF/AQR.

1.2.5. **Directorate of Operational Capability Requirements (AF/A5R):**

1.2.5.1. As AFROC Chair, ensures significant S&T efforts are considered by the AFROC for validation.

1.2.5.2. Participates in Air Force S&T Group and Board deliberations.

1.2.5.2.1. Assesses linkage between S&T initiatives and required capability to inform Air Force S&T Group and Board deliberations.

1.2.6. **Directorate of Strategic Planning (AF/A8X):**

1.2.6.1. Participates in Air Force S&T Group and Board deliberations.

1.2.6.2. Incorporates appropriate S&T concepts into Air Force Strategic Plans with special emphasis on long-range strategic planning as an input to Air Force programming.

1.2.6.3. Ensures CFLIs incorporate S&T planning information into CFMPs.

1.2.7. **Directorate of Programs (AF/A8P):**

1.2.7.1. Participates in Air Force S&T Group and Board deliberations.

1.2.7.2. Ensures linkages between priority Air Force S&T efforts (i.e., FCCs) and follow-on transition and acquisition efforts are understood and considered during Air Force resource allocation decisions.

1.2.8. **Major Commands (Air Combat Command [ACC] , Air Education and Training Command [AETC], Air Force Global Strike Command [AFGSC], AFMC, Air Force Special Operations Command [AFSOC], Air Force Space Command [AFSPC], Air Mobility Command [AMC]):**

1.2.8.1. Participate in Air Force S&T Group and Board deliberations.

1.2.8.1. **(AFSPC)** HQ AFSPC/A5 shall represent AFSPC in Air Force S&T Group and Board deliberations. (T-2)

1.2.8.2. Provide prioritized capability needs that require materiel solutions and may require S&T investment to AFMC or AFSPC as appropriate.

1.2.8.2. **(AFSPC)** HQ AFSPC/A5X shall be the OPR for providing guidance to include managing the process to prioritize needs in the AFSPC S&T Corporate Process and shall establish a continuing interface between HQ AFSPC, Air Force Materiel Command (AFMC) (AFLCMC and AFRL), SMC, AFNIC, AFSMO and the NAFs for S&T needs definition and prioritization. (T-2)

1.2.8.3. Establishes CCTs to derive technology needs from MAJCOM/CFLI-documented capability needs and to formulate and recommend S&T solutions that address those needs.

1.2.8.4. Chair annual ATCs, as appropriate, which include representation by the TEO, PEOs, acquisition centers, SAF/AQR, and appropriate MAJCOM/CFLI, to vet technology needs and solutions and ensure progress in commissioned/graduated S&T initiatives.

1.2.8.4. **(AFSPC)** HQ AFSPC/A5X shall serve as the Secretariat for the Space and Cyberspace Applied Technology Council (ATC) and the HQ AFSPC S&T Corporate Process for Space and Cyberspace. (T-2)

1.2.8.5. Notify SAF/AQR of MAJCOM involvement in JCTDs.

1.2.8.6. Notify SAF/AQR of all current and proposed MOAs or MOUs for S&T-related projects or activities.

1.2.8.7. Participate in technology transition planning Integrated Product Teams (IPT) as appropriate.

1.2.8.7. **(AFSPC)** HQ AFSPC Capability Collaboration Teams (CCTs) shall act as technology transition planning Integrated Planning Teams (IPTs) and shall include members from HQ AFSPC/A3 and HQ AFSPC/A6 when acting in that role. (T-2)

1.2.9. **AFMC, in addition to MAJCOM responsibilities (**see **paragraph 1.2.8** above**):**

1.2.9.1. Plans and programs the Air Force S&T Program.

1.2.9.2. Collects and consolidates MAJCOM/CFLI-provided capability needs.

1.2.9.3. As appropriate, ensures Air Force Life Cycle Management Center and Air Force Nuclear Weapon Center participation in CCTs to derive technology needs from MAJCOM/CFLI-documented capability needs and to formulate and recommend S&T solutions that address those needs.

1.2.9.4. Reports to MAJCOMs/CFLIs on how the proposed S&T Program addresses MAJCOM/CFLI-documented needs.

1.2.9.5. As appropriate, assigns an AFMC lead Center for commissioned ATDs, FCCs, or JCTDs.

1.2.9.5.1. Ensures establishment of an IPT for each commissioned ATD, FCC, or JCTD and leads transition planning, culminating in the generation of a Technology Transition Plan (TTP).

1.2.9.5.2. Coordinates approval of the TTP (or similar document) for each commissioned FCC or ATD and any subsequent revisions.

1.2.9.6. Tracks status and maintains history of commissioned ATDs.

1.2.10. **AFSPC, in addition to MAJCOM responsibilities (**see **paragraph 1.2.8** above**):**

1.2.10.1. Collects and consolidates MAJCOM/CFLI-provided Space and Cyberspace-related capability needs.

1.2.10.2. As appropriate, ensures Space and Missile Systems Center participation in CCTs to derive technology needs from MAJCOM/CFLI-documented capability needs and to formulate and recommend S&T solutions that address those needs.

1.2.10.3. As appropriate, assigns the Space and Missile Systems Center as lead Center for commissioned ATDs, FCCs, or JCTDs.

1.2.10.3.1. Ensures establishment of an IPT for each commissioned ATD, FCC, or JCTD and leads transition planning, culminating in the generation of a TTP.

1.2.10.3.2. Coordinates the approval of the TTP (or similar document) for each commissioned FCC or ATD and any subsequent revisions.

1.2.10.4. **(Added-AFSPC)** Commander Air Force Space Command, AFSPC/CC. As CFLI, approves release of the Space Superiority and Cyberspace Superiority CFMPs which include the authoritative guidance for space and cyberspace S&T needs to the Air Force and the S&T community. Additional guidance may be provided as approved by AFSPC/CC.

1.2.10.5. **(Added-AFSPC)** Vice Commander Air Force Space Command, AFSPC/CV:

1.2.10.5.1. **(Added-AFSPC)** Chairs the AFSPC ATC.

1.2.10.5.2. **(Added-AFSPC)** Notifies SAF/AQR of any Joint Capability Technology Demonstration (JCTD) in which an AFSPC organization will participate.

1.2.10.6. **(Added-AFSPC)** The Director of Intelligence, HQ AFSPC/A2:

1.2.10.6.1. **(Added-AFSPC)** Participates in the AFSPC S&T Corporate Process including CCTs for all Intelligence, Surveillance and Reconnaissance related issues. (T-2)

1.2.10.6.2. **(Added-AFSPC)** Coordinates with HQ AFSPC/A4/7 to provides threat and vulnerability context for capability and S&T needs development. (T-2)

1.2.10.6.3. **(Added-AFSPC)** Represents AFSPC S&T needs in threat working group forums. (T-2)

1.2.10.7. **(Added-AFSPC)** Director of Air, Space and Cyberspace Operations, HQ AFSPC/A3:

1.2.10.7.1. **(Added-AFSPC)** Participates in AFSPC S&T Corporate Process, CCTs, and technology transition IPTs as necessary. (T-2)

1.2.10.7.2. **(Added-AFSPC)** Supports the development and execution of Technology Transition Plans (TTPs) for each space or cyberspace Advanced Technology Demonstration (ATD) and Flagship Capability Concept (FCC). (T-2)

1.2.10.7.3. **(Added-AFSPC)** Advocates for funding to transition S&T into space and cyberspace systems and programs. (T-2)

1.2.10.7.4. **(Added-AFSPC)** Approves changes in Concept of Operations (CONOPs) and TTPs to bound and define S&T needs development or accommodate technology insertion. (T-2)

1.2.10.7.5. **(Added-AFSPC)** Consider the need for classification and/or protection of information during the S&T phase. (T-2)

1.2.10.8. **(Added-AFSPC)** Director of Requirements, HQ AFSPC/A5:

1.2.10.8.1. **(Added-AFSPC)** Represents AFSPC in Air Force S&T Group and Board deliberations. (T-2)

1.2.10.8.2. **(Added-AFSPC)** Manages the AFSPC S&T guidance development as part of the AFSPC S&T Corporate Process. (T-2)

1.2.10.8.3. **(Added-AFSPC)** Provides Action Officers to lead each Space and Cyberspace CCT to support development of S&T needs and solutions. (T-2)

1.2.10.8.4. **(Added-AFSPC)** Notifies SAF/AQR of any S&T Memorandums of Agreement (MOAs) or Memorandums of Understanding (MOUs) internal to the Air Force. MOAs and MOUs with agencies external to the Air Force will be processed in accordance with paragraph 2.5. Any AFSPC offices desiring to establish an S&T MOA or MOU within the Air Force or with external agencies will coordinate with HQ AFSPC/A5 prior to making any formal commitments. (T-2)

1.2.10.8.5. **(Added-AFSPC)** Supports the development and execution of TTPs for space and cyberspace ATDs and FCCs in order to ensure successful transition of S&T solutions into new or existing programs. (T-2)

1.2.10.8.6. **(Added-AFSPC)** Participates in applicable technology transition planning IPTs. (T-2)

1.2.10.8.7. **(Added-AFSPC)** Advocates for funding to transition S&T into space and cyberspace programs. (T-2)

1.2.10.8.8. **(Added-AFSPC)** Maintains configuration control of the AFSPC Space and Cyberspace S&T Needs Database on behalf of the S&T community. (T-2)

1.2.10.8.9. **(Added-AFSPC)** Leads AFSPC Development Planning (DP) activities. (T-2)

1.2.10.8.10. **(Added-AFSPC)** Leads prioritization/ranking of all space and cyberspace DP effort annually, prior to the fall Air Force DP Working Group (DPWG). (T-2)

1.2.10.8.11. **(Added-AFSPC)** Co-chairs the DP Board with AFMC/A2/5. (T-2)

1.2.10.8.12. **(Added-AFSPC)** Co-chairs the DP Working Group with AFLCMC/XZ. (T-2)

1.2.10.9. **(Added-AFSPC)** The Director for Logistics, Installations and Mission Support, HQ AFSPC/A4/7.

1.2.10.9.1. **(Added-AFSPC)** Participates in AFSPC S&T Corporate Process as necessary, including technology transition IPTs and CCTs. (T-2)

1.2.10.9.2. **(Added-AFSPC)** Supports the development and execution of TTPs for each space or cyberspace ATD and FCC. (T-2)

1.2.10.9.3. **(Added-AFSPC)** Coordinates with HQ AFSPC/A2 to provides threat and vulnerability context for capability and S&T needs development. (T-2)

1.2.10.10. **(Added-AFSPC)** Director of Communications and Information, HQ AFSPC/A6:

1.2.10.10.1. **(Added-AFSPC)** Participates in AFSPC S&T Corporate Process as necessary, including technology transition IPTs and CCTs. (T-2)

1.2.10.10.2. **(Added-AFSPC)** Supports the development and execution of TTPs for each space or cyberspace ATD and FCC. (T-2)

1.2.10.11. **(Added-AFSPC)** Director for Plans and Programs, HQ AFSPC/A8/9.

1.2.10.11.1. **(Added-AFSPC)** Supports the review of capability development and S&T roadmaps to ensure S&T availability dates, program objectives, and planned costs are aligned with the Integrated Planning Process (IPP). (T-2)

1.2.10.11.2. **(Added-AFSPC)** Participates in CCTs to ensure S&T planning information is incorporated into the Space and Cyberspace Superiority CFMPs. (T-2)

1.2.10.12. **(Added-AFSPC)** Office of the AFSPC Chief Scientist, HQ AFSPC/ST. Participates in the AFSPC S&T Corporate Process as necessary. (T-2)

1.2.10.13. **(Added-AFSPC)** Commander Space and Missile Systems Center, SMC/CC.

1.2.10.13.1. **(Added-AFSPC)** Manages the execution of AFSPC space development planning, maintains development plans for major programs and mission areas, and oversees implementation of AFSPC/CC guidance and direction on space-related S&T and technology transition investments. (T-2)

1.2.10.13.2. **(Added-AFSPC)** Communicates technology needs to HQ AFSPC/A5, regarding programmed and planned systems for which SMC is responsible. (T-2)

1.2.10.13.3. **(Added-AFSPC)** Supports the Space and Cyberspace ATC. (T-2)

1.2.10.13.4. **(Added-AFSPC)** Supports technology transition IPTs and the drafting of TTPs for ATDs and FCCs to facilitate timely technology transitions into SMC programs. (T-2)

1.2.10.13.5. **(Added-AFSPC)** Articulates needed technologies and generates technology roadmaps in coordination with AFSPC and AFRL through the Program Executive Officer (PEO)/Technology Executive Officer (TEO) review process. (T-2)

1.2.10.13.6. **(Added-AFSPC)** Provide space development planning studies and analysis results. (T-2)

1.2.10.14. **(Added-AFSPC)** Commander Air Force Network Integration Center, AFNIC/CC.

1.2.10.14.1. **(Added-AFSPC)** Communicates technology needs to HQ AFSPC/A5, regarding programmed and planned cyberspace systems for which AFSPC is responsible. (T-2)

1.2.10.14.2. **(Added-AFSPC)** Supports ATCs. (T-2)

1.2.10.14.3. **(Added-AFSPC)** Supports technology transition IPTs and the drafting of TTPs. (T-2)

1.2.10.15. **(Added-AFSPC)** Numbered Air Force (14AF and 24AF). Participate in the AFSPC S&T Corporate Process including CCTs and technology transition IPTs. (T-2)

1.2.11. **The Technology Executive Officer (TEO):**

1.2.11.1. Plans and executes the Air Force S&T Program in accordance with guidance provided by SAF/AQ.

1.2.11.2. Develops Air Force S&T Plan, in coordination with SAF/AQR, to implement the Air Force S&T Strategy.

1.2.11.3. Participates in Acquisition Executive forums and supports the annual review of the S&T portfolio by SAF/AQ.

1.2.11.4. Ensures AFRL participation in CCTs to derive technology needs from MAJCOM/CFLI-documented capability needs and to formulate and recommend S&T solutions that address those needs.

1.2.11.5. Ensures AFRL participation and support of Center-led technology transition planning IPTs.

1.2.11.6. Directs, administers, and controls activities for Air Force S&T relating to patents, inventions, trademarks, copyrights, royalty payments, and matters connected therewith.

1.2.11.7. Provides guidance to AFRL personnel on scientific and engineering integrity and educates AFRL scientists, engineers, and their supervisors on their duties, rights, and protections with respect to scientific and engineering integrity.

1.2.11.8. Ensures safeguards and processes are in place to protect critical program information.

1.2.11.9. Co-chairs the Air Force S&T Group and Board.

1.2.11.10. Notifies SAF/AQR of AFRL involvement in all JCTDs.

1.2.11.11. Manages and executes Air Force reviews of contractor IR&D activities.

1.2.12. **Program Executive Officers (PEO):**

1.2.12.1. Ensures program office participation in CCTs, as appropriate, to derive technology needs from MAJCOM/CFLI-documented capability needs and to formulate and recommend S&T solutions that address those needs.

1.2.12.2. Ensures appropriate acquisition program participation in FCC and ATD IPTs.

Chapter 2

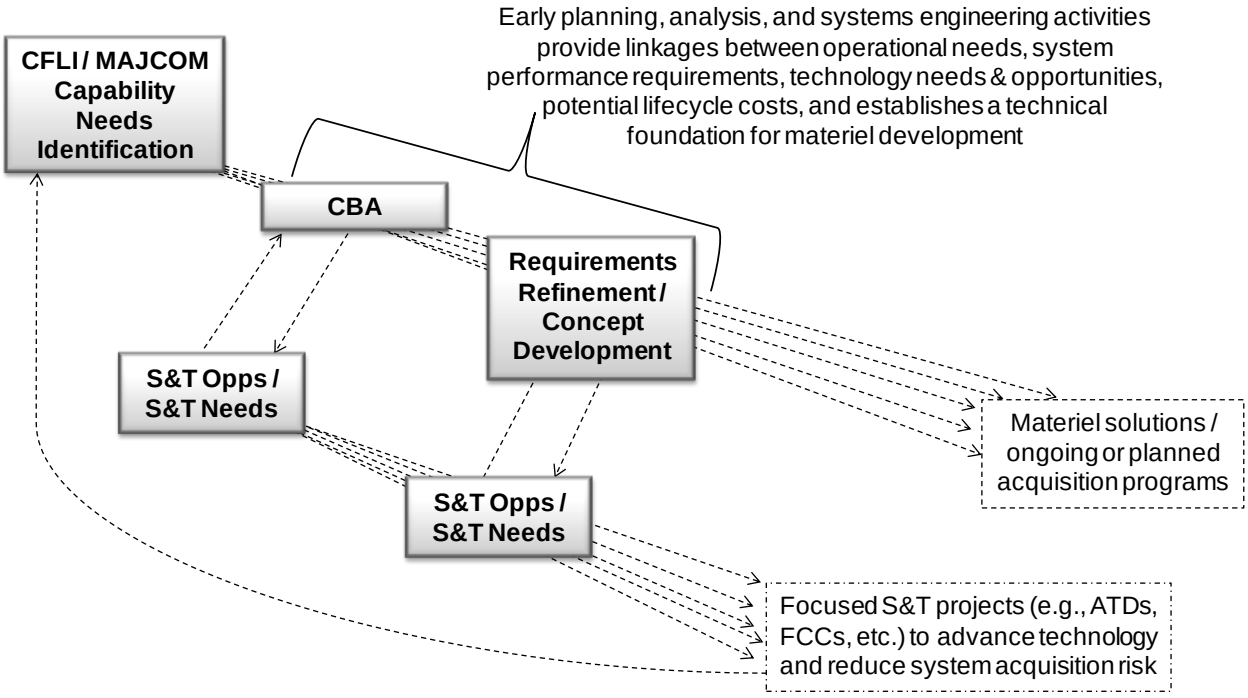
AIR FORCE S&T PLANNING

2.1. Air Force S&T Planning. The Air Force will plan its S&T Program in accordance with the approved Air Force S&T Strategy and guidance and planning documents associated with the AFSPS (reference AFPD 90-11). The foundation of the S&T planning process is an agreed-upon set of maintained S&T core competencies balanced with an investment portfolio of basic research, applied research, and advanced technology development that produce both evolutionary and revolutionary technologies. During Air Force S&T planning, near-, mid-, and far-term warfighter capability needs, affordability, performance, competitive incentives, sustainability, industrial base, and energy use are considered. Air Force S&T funds may be applied in the absence of a validated user requirement or programmed funding for formal acquisition.

2.2. Capability Collaboration Team Technology Needs Identification. The CBA forms the analytic basis for how capability needs are identified and is an integral part of the capabilities planning process. For documented MAJCOM/CFLI capability needs that require materiel solutions, CFLIs will establish CCTs to determine if S&T is required to address any associated technology needs. The CCTs will include subject matter expert representatives from the MAJCOM/CFLI, appropriate Center and/or PEO, AFRL, and other stakeholders as appropriate. The output of the CCTs is a set of vetted technology needs required for ongoing or prospective materiel solutions supporting documented capability needs. Technology needs resulting from this process may be documented and prioritized by CFLIs in their CFMPs.

2.2.1. **(Added-AFSPC)** Space and cyberspace CCTs shall document their S&T needs in the appropriate AFSPC Space or Cyberspace S&T Needs Database. These databases document CCT decisions regarding space and cyberspace S&T needs and potential solutions identified by the CCTs. They are the source for S&T guidance in the Space Superiority and Cyberspace Superiority CFMPs. HQ AFSPC/A5X or its designee shall maintain configuration control of these databases on behalf of the S&T community. These Space and Cyberspace Needs Databases are accessible on SIPRNET at **http://www.intelink.sgov.gov/wiki/AFSPC_Science_and_Technology_Development_Planning**

Figure 2.1. Role of S&T within Capability Development Process.



2.2.2. **(Added-AFSPC)** S&T solution providers may propose non-traditional or innovative ideas not tied directly to currently documented S&T needs, sometimes referred to as "technology push". These ideas will be vetted by space and cyberspace CCTs early in the needs identification process to ensure appropriate linkage to and evaluation by the operational, requirements and acquisition communities. S&T needs may then be added, as appropriate, to the AFSPC Space or Cyberspace S&T Needs Database.

2.3. Capability Collaboration Team Technology Solutions Formulation. Following technology needs collaboration, CCTs will continue to identify potential technology solutions that address the identified technology needs. Recommended technology solutions resulting from this process may become S&T projects that AFRL initiates and executes through internal planning processes or may be proposed as candidate ATDs, FCCs, or JCTDs which require approval by their respective governing bodies. Furthermore, technology solutions may necessitate a collaborative development activity with another Service or United States Government organization requiring an MOA or MOU. International partners should be considered when potential technology solutions are investigated in order to access foreign expertise, funding, and strengthen S&T cooperation. As shown in **Figure 2.1**, S&T activities will inform capability planning and foster related technology maturation efforts to reduce system acquisition risks. Technology needs identification and technology solutions formulation processes also inform Air Force S&T governance, the AFSPS, and the Air Force planning, programming, and budgeting processes.

2.4. Technology Transition Plans (TTP). Stakeholder organizations participate in technology transition planning once an S&T solution is deemed necessary to support a MAJCOM/CFLI capability need and associated Center technology need. For solutions that may become ATDs or FCCs, formation of an IPT is necessary for transition planning to include development and execution of the TTP. The IPT membership can be drawn from the existing CCTs as appropriate

and at a minimum, should include the MAJCOM/CFLI, Lead Center and/or PEO, and laboratory. AFMC and AFSPC, as appropriate, will ensure the establishment of transition planning IPTs and completion of the associated TTPs once commissioned.

2.4.1. TTPs document roles and responsibilities of organizational participants in S&T programs.

2.4.2. TTPs for ATDs and FCCs must include the elements listed below in **Table 2.1**.

Table 2.1. Required Elements for Technology Transition Plans.

Description of Air Force capability and technology need the S&T program will address
Description of S&T program, objectives, and schedule
Identification of resources required (funding, manpower, etc.) to execute the S&T program
Description of plan to transition the technology and associated acquisition or sustainment strategy
Estimation of resources required for follow-on transition, acquisition, or sustainment activities
Enumeration of organizational roles and responsibilities
Signature Page (with signatories from the appropriate MAJCOM/CFLI, Center or PEO, and laboratory)

2.4.3. **(Added-AFSPC)** The CCT lead will ensure development of a Technology Transition Plan (TTP) for every S&T solution identified for transition into a new or existing AFSPC system or program. The level of detail for each TTP will depend on the maturity and scope of the S&T solution as well as the type of solution. For initial planning, and for some types of transitions, an annotation in the S&T Needs Database may constitute an adequate TTP. An example of this would be where a solution developed is provided to a contractor who may, or may not, include it in a program of record. The AFSPC TTP template is available on Non-classified Internet Protocol (IP) Router Network (NIPRNET) at **https://eis.af.mil/cs/afspcst/default.aspx** on Secure Internet Protocol (IP) Router Network (SIPRNET) at **http://www.intelink.sgov.gov/wiki/AFSPC_Science_and_Technology_Development_Planning**.

2.5. Memorandum of Agreement/Memorandum of Understanding. The Air Force will periodically enter into formal agreements with other Services and outside agencies (e.g., DARPA, NASA) to execute S&T projects, conduct demonstrations, or to mature technologies with the intent to transition to an acquisition or sustainment program. For the purpose of this instruction, these are referred to as "S&T-related MOAs/MOUs." Air Force-level MOAs and MOUs are those MOAs/MOUs requiring HAF-level signature and should be used to document the commitments and obligations of each organization for an S&T project, both during and after completion of the S&T activity.

2.5.1. S&T-related MOAs or MOUs that require HAF signature must be reviewed and endorsed by the Air Force S&T Group and Board (reference Chapter 3 of this instruction)

before submission to the AFROC for validation. Due to rapid timelines associated with MOAs/MOUs, coordination and approval of documents may occur electronically.

2.5.2. All Air Force S&T-related MOAs or MOUs with other Services and non-Air Force government agencies or organizations must include the elements listed in **Table 2.2** in addition to complying with the requirements of DOD Instruction 4000.19, *Interservice and Intragovernmental Support Agreements*, 9 August 1995.

Table 2.2. Required Elements for S&T-related MOA and MOU.

Description of Air Force capability need or technology challenge the S&T project will address
Description of S&T project, objectives, and schedule
Identification of resources required (funding, manpower, etc.) to execute the S&T project
Description of plan to transition the technology and associated acquisition or sustainment strategy
Estimation of resources required for follow-on transition, acquisition, or sustainment activities
Enumeration of Air Force and external organization roles and responsibilities
Signature page with notation on effective dates and/or duration of the agreement

2.6. Development Planning. DP encompasses the engineering analysis and technical planning activities that provide the foundation for informed investment decisions on the fundamental path a materiel development will follow to effectively and affordably meet operational needs. The relationship between activities supporting both DP and S&T planning are described below:

2.6.1. Air Force S&T planning activities must support, and take into consideration information resulting from, Air Force DP efforts. S&T communities will identify technology maturity as well as technology opportunities (e.g., the art of the possible) to inform the development and consideration of candidate concepts.

2.6.2. AFMC or AFSPC, as appropriate, will conduct the necessary DP to assist transition of ATDs, FCCs, and Air Force-led JCTDs into acquisition programs. DP communities will identify technology needs, technical risk areas, intelligence sensitivity and supportability issues (per AFI 14-111), and reliability, availability, maintainability, supportability and data rights requirements of candidate concepts to inform S&T planning.

2.6.2.1. **(Added-AFSPC)** HQ AFSPC/A5X will lead AFSPC DP activities including monitoring status and funding of approved AFSPC DP efforts in accordance with the process outlined below:

2.6.2.1.1. **(Added-AFSPC)** Capability development work reflected in the CFMP should inform DP effort requests. The status of the capability gap and the timeline to satisfy the gap will drive the type and timing of DP work required. A DP request template is completed and submitted to HQ AFSPC/A5X along with an enabling concept for the desired capability. The request will be completed using the AFMC/AFSPC DP Request template available on SIPRNET at

http://www.intelink.sgov.gov/wiki/AFSPC_Science_and_Technology_Development_Planning. Once reviewed and signed, the completed DP request is forwarded to the applicable product center. Space Superiority capability DP Requests are forwarded to SMC/XR (SMC/AD after 1 October 2013). Cyberspace Superiority capability DP Requests are forwarded to AFLCMC/XZ with a copy to applicable AFLCMC organization (AFLCMC/XZC for cyberspace).

2.6.2.1.2. **(Added-AFSPC)** The product center compiles additional data regarding the DP effort including: cost, schedule and deliverable DP products that will be provided back to requestor (to include Concept Characterization and Technical Description (CCTDs)) based on the MAJCOM provided DP Request. The product center returns a completed DP Proposal to HQ AFSPC/A5 within 45 days of DP request. (T-2)

2.6.2.1.3. **(Added-AFSPC)** HQ AFSPC/A5 will lead prioritization/ranking of all space and cyberspace DP effort annually, prior to the fall Air Force DP Working Group (DPWG). (T-2)

2.6.2.1.4. **(Added-AFSPC)** Air Force DPWG is co-chaired by HQ AFSPC/A5X and AFLCMC/XZ. The Air Force DPWG develops a prioritized list of DP proposals along with recommended allocation of available Requirements, Analysis and Maturation (RAM) Program Element (PE) funds; balancing the ability to support the Air Force's strategic objectives against available resources. Air Force DPWG recommendations are forwarded to the DP Board for final approval. HQ AFSPC/A5 and HQ AFMC/A2/5 co-chair the Air Force DP Board and will review and approve the final prioritization of DP efforts across the Air Force. Most current copy of Air Force Development Planning Charter can be found at SIPRNET at **http://www.intelink.sgov.gov/wiki/AFSPC_Science_and_Technology_Development_Planning**

Chapter 3

AIR FORCE S&T GOVERNANCE

3.1. Air Force S&T Governance. Governance is necessary to strengthen alignment of S&T focus areas to Air Force-wide capability needs and to provide greater visibility and accountability within the Air Force S&T portfolio. HAF, MAJCOMs, Centers, and AFRL participate in Air Force S&T governance. Governance for S&T planning resides at the MAJCOM and HAF levels.

3.1. (AFSPC)Air Force S&T Governance. AFSPC shall conduct an S&T Corporate Process. HQ AFSPC/A5X shall chair the AFSPC S&T Group. HQ AFSPC/A5 shall chair the AFSPC S&T Board, and AFSPC/CV shall chair the Space and Cyberspace ATC. (T-2)

3.2. Applied Technology Councils (ATC). ATCs are S&T governance bodies organized by SCF. The S&T content and related agenda topics considered at ATCs must correspond to each MAJCOM/CFLI's Program Objective Memorandum (POM) responsibilities.

3.2.1. **Organization.** ATC membership is dictated by the unique set of missions that fall within each SCF. At a minimum, each ATC must include the MAJCOM/CV (as CFLI representative), the appropriate AFMC and AFSPC Center commanders, and SAF/AQR, or their designated representatives. AETC will be invited to all ATCs to ensure education and training considerations are addressed. ATCs are chaired by the respective MAJCOM/CV. AFMC or AFSPC, as appropriate, will define and assign secretariat functions for each ATC.

3.2.2. **ATCs will:**

3.2.2.1. Be held annually, as necessary, and be completed within an appropriate timeframe to support the Air Force S&T Group and Board fall cycle. If required, ATCs may be conducted out-of-cycle to address urgent S&T-related matters.

3.2.2.2. Ensure proposed S&T solutions are aligned with SCF capability needs and related CFMP priorities.

3.2.2.3. Endorse candidate FCCs for consideration by the Air Force S&T Group and Board.

3.2.2.4. Review, prioritize, and commission candidate ATDs.

3.2.2.5. Review status of existing ATDs to ensure organizational responsibilities are being conducted in accordance with the signed TTP and continue, decommission, and graduate ATDs as appropriate. ATDs will graduate when S&T objectives defined in the TTP are met as determined by the ATC. As appropriate, ATCs will track status of graduated ATDs.

3.2.2.6. Submit proposed HAF-level agreements with other Services and/or outside agencies (i.e., MOA or MOU) for execution of an S&T-related project to the Air Force S&T Group and Board for review and endorsement.

3.2.2.7. Review the S&T portfolio to include all ATDs, JCTDs, FCCs, S&T-related MOAs and MOUs, and other S&T projects and issues as necessary, applicable to capability needs aligned by Service Core Function.

3.2.2.8. Provide documentation of ATC decisions to organizations represented on Air Force S&T Group and Board, within 30 days following each ATC.

3.2.3. **Advanced Technology Demonstrations (ATD).** ATDs are planned in collaboration with the operator/user and contain a clearly defined transition target. All ATDs must:

3.2.3.1. Be commissioned by an ATC.

3.2.3.2. Have a TTP that will be signed by the MAJCOM, the appropriate Center or PEO, and AFRL/CC. ATDs without a signed TTP will be decommissioned at the subsequent ATC review.

3.2.3.3. Complete S&T content within the following POM Future Years Defense Program (FYDP).

3.2.4. **Flagship Capability Concepts (FCC).** All FCCs must:

3.2.4.1. Receive the endorsement of an ATC or, if an ATC is not held, from the respective MAJCOM/CV (as CFLI representative); be reviewed and prioritized by the Air Force S&T Group and Board; and validated by the AFROC, as documented in an AFROC Memorandum, before commissioning.

3.2.4.2. Have a TTP that will be signed by the MAJCOM, the appropriate Center or PEO, and AFRL/CC. FCCs without a signed TTP will be decommissioned at the subsequent Air Force S&T Board review.

3.2.4.3. Complete S&T content within the following POM FYDP.

3.2.5. **Joint Capability Technology Demonstrations (JCTD).** JCTDs are approved and governed at the OSD level. Candidate JCTDs will be reviewed and nominated by the appropriate CFLI(s), by the Air Force S&T Group and Board as determined by SAF/AQR, and sent to the AFROC for validation upon recommendation by the Air Force S&T Board.

3.2.5.1. **(Added-AFSPC)** AFSPC/CV must approve AFSPC participation in any JCTD.

3.2.5.2. **(Added-AFSPC)** HQ AFSPC/A5X is the Major Command (MAJCOM) lead for the JCTD coordination process. (T-2)

3.2.5.3. **(Added-AFSPC)** JCTDs will be conducted in accordance with Office of the Secretary of Defense (OSD) guidance. Reference **http://www.acq.osd.mil/rfd**.

3.2.5.4. **(Added-AFSPC)** Currently, any JCTD submitted for consideration shall include a Combatant Command sponsor as well as identify the intent of the JCTD (operational problem to be addressed), associated key technologies, as well as cost and schedule. To compete for JCTD funds, the project must have the ability to provide a sustainment funding line, if required.

3.3. Air Force S&T Group and Board. The purpose of the Air Force S&T Group and Board is to ensure S&T efforts are properly aligned with Air Force needs to facilitate transition and ultimate deployment to the Air Force operational community. This will be accomplished by assessing and integrating Air Force technology needs, reviewing and endorsing FCCs, vetting S&T-related MOAs and MOUs, reviewing and endorsing candidate JCTDs, and maintaining cognizance of MAJCOM-sponsored ATDs.

3.3.1. **Organization**. The Air Force S&T Group is an O-6-level body and the Air Force S&T Board is at the 1- and 2-star level. Membership for both includes SAF/AQR (co-chair), AFRL (co-chair), AF/A5R, AF/A8P, AF/A8X, SAF/AQX, ACC, AETC, AFGSC, AFMC, AFSPC, AFSOC, AMC, Air Force Life Cycle Management Center, Air Force Nuclear Weapons Center, and the Space and Missile Systems Center. The Air Force Intelligence Surveillance and Reconnaissance Agency (AFISRA) will participate in an advisory capacity at the Group and Board level; the MAJCOM Chief Scientists (or equivalent) will serve as advisors to the Air Force S&T Board; and the Air Force Chief Scientist (AF/ST) Military Assistant will serve as an advisor to the Air Force S&T Group.

3.3.2. **The Air Force S&T Group.** Makes recommendations to the Air Force S&T Board with respect to issues brought before the Group for consideration.

3.3.3. **The Air Force S&T Board will:**

3.3.3.1. Integrate and align Air Force S&T priorities in accordance with Air Force strategic priorities.

3.3.3.2. Review, prioritize, and endorse candidate FCCs and submit endorsed FCCs to the AFROC for validation.

3.3.3.3. Review status of existing FCCs to ensure organizational responsibilities are being conducted in accordance with the signed TTP and recommend continuation, decommissioning, or graduation as necessary.

3.3.3.4. Ensure linkage between S&T efforts and DP activities as necessary.

3.3.3.5. Review proposed S&T-related MOAs and MOUs prior to submission to the AFROC for validation.

3.3.3.6. Review and endorse candidate JCTDs prior to submission to the AFROC for validation.

3.3.3.7. Periodically review status of ongoing ATDs and S&T projects related to HAF-level MOAs/MOUs and other S&T issues as required.

CHARLES R. DAVIS, Lt Gen, USAF
Military Deputy
Assistant Secretary of the Air Force (Acquisition)

(AFSPC)

MARTIN WHELAN, Maj Gen, USAF
Director of Requirements

Attachment 1

GLOSSARY OF REFERENCES AND OTHER SUPPORTING INFORMATION

References

(Added-AFSPC) AFI33-360, Publications and Forms Management, 25 September 2013

AFPD 16-5, *Planning, Programming, Budgeting and Execution Processes*, 27 September 2010

AFPD 63-1/20-1, *Integrated Life Cycle Management,* 3 July 2012

AFPD 61-1, *Management of Science and Technology,* 18 August 2011

(Added-AFSPC) AFI61-101, Management of Science and Technology, 14 March 2013

AFPD 90-11, *Strategic Planning System,* 26 March 2009

AFI 63-101, *Acquisition and Sustainment Life Cycle Management,* 8 April 2009

AFI 10-601, *Operational Capability Requirements Development,* 12 July 2010

AFI 14-111, *Intelligence Support to the Acquisition Life-Cycle*, 18 May 2012

AFMAN 33-363, *Management of Records,* 1 March 2008

AFDD 1-02, *Air Force Glossary*, 11 January 2007

DoDI 3100.08, *The Technical Cooperation Program*, 7 August 2012

DoDI 3200.20, *Scientific and Engineering Integrity*, 26 July 2012

DoDI 5134.16, *Deputy Assistant Secretary of Defense for Systems Engineering (DASD(SE))*, 19 August 2011

DoDI 4000.19, *Interservice and Intragovernmental Support Agreements*, 9 August 1995

CJCSI 3170.01, *Joint Capabilities Integration and Development System*, 10 January 2012

Joint Publication (JP) 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 8 November 2010

Adopted Forms

AF Form 847, *Recommendation for Change of Publication,* 22 September 2009

Abbreviations and Acronyms

ACC—Air Combat Command

AETC—Air Education and Training Command

AFGSC—Air Force Global Strike Command

AFI—Air Force Instruction

AFISRA—Air Force Intelligence Surveillance and Reconnaissance Agency

(Added-AFSPC) AFLCMC—Air Force Lifecycle Management Center

AFMAN—Air Force Manual

AFMC—Air Force Materiel Command

(Added-AFSPC) AFNIC—Air Force Network Integration Center

AFPD—Air Force Policy Directive

AFROC—Air Force Requirements Oversight Council

AFRL—Air Force Research Laboratory

(Added-AFSPC) AFSMO—Air Force Spectrum Management Office

AFSOC—Air Force Special Operations Command

AFSPC—Air Force Space Command

AFSPS—Air Force Strategic Planning System

AMC—Air Mobility Command

ATC—Applied Technology Council

ATD—Advanced Technology Demonstration

CBA—Capabilities-Based Assessment

CCT—Capability Collaboration Team

(Added-AFSPC) CCTD—Concept Characterization and Technical Description

CFLI—Core Function Lead Integrator

CFMP—Core Function Master Plan

(Added-AFSPC) CONOP—Concept of Operations

DARPA—Defense Advanced Research Projects Agency

DoD—Department of Defense

DP—Development Planning

FCC—Flagship Capability Concept

FYDP—Future Years Defense Program

HAF—Headquarters Air Force

(Added-AFSPC) HQ—Headquarters

(Added-AFSPC) IP—Internet Protocol

(Added-AFSPC) IPP—Integrated Planning Process

IPT—Integrated Product Team

IR&D—Independent Research and Development

JCTD—Joint Capability Technology Demonstration

MAJCOM—Major Command

MOA—Memorandum of Agreement

MOU—Memorandum of Understanding

(Added-AFSPC) NAF—Numbered Air Force

NASA—National Aeronautics and Space Administration

(Added-AFSPC) NIPRNET—Non-classified Internet Protocol Router Network

NMS—National Military Strategy

OSD—Office of the Secretary of Defense

(Added-AFSPC) PE—Program Element

PEO—Program Executive Officer

POM—Program Objective Memorandum

PPBE—Planning, Programming, Budgeting, and Execution

QDR—Quadrennial Defense Review

(Added-AFSPC) RAM—Requirements, Analysis and Maturation

RDT&E—Research, Development, Test & Evaluation

S&T—Science and Technology

(AFSPC) S&T—Science and Technology

SCF—Service Core Function

SAP—Special Access Program

(Added-AFSPC) SIPRNET—Secure Internet Protocol Router Network

(Added-AFSPC) SMC—Space and Missile Systems Center

TEO—Technology Executive Officer

TTP—Technology Transition Plan

(Added-AFSPC) USECAF—Undersecretary of the Air Force

Terms

NOTE—This glossary helps readers understand the terms in this publication. It is not intended to include all pertinent terms. Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 8 November 2010, and Air Force Doctrine Document 1-2, *Air Force Glossary*, 11 January 2007, contain standard terms and definitions for Department of Defense and Air Force use.

Advanced Technology Demonstration (ATD)—A demonstration of the maturity and potential of advanced technologies for enhanced military operational capability or cost effectiveness. In the Air Force, ATDs are commissioned by an Applied Technology Council with scope, objectives, and organizational responsibilities defined in a Technology Transition Plan.

Advanced Technology Development—Research efforts that have moved beyond Applied Research and into the development and integration of hardware for field experiments and tests. Also referred to as "6.3" or RDT&E Budget Activity Code 3.

Applied Research—Systemic study to gain knowledge or understanding necessary to determine the means by which a recognized and specific need may be met. Also referred to as "6.2" or RDT&E Budget Activity Code 2.

Applied Technology Council (ATC)—S&T governance body organized by Service Core Function.

Basic Research—Systemic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific application towards processes or products in mind. It includes all scientific study and experimentation directed toward increasing fundamental knowledge and understanding in those fields of the physical, engineering, environmental, and life sciences related to long-term national security needs. It is farsighted high payoff research that provides the basis for technological progress. Also referred to as "6.1" or RDT&E Budget Activity Code 1.

Budget Activity—A broad category of activity contained within a specific appropriation.

Capabilities-Based Assessment (CBA)—The CBA is the Joint Capabilities Integration and Development System analysis process. It answers several key questions for the validation authority prior to their approval: define the mission; identify capabilities required; determine the attributes/standards of the capabilities; identify gaps/shortfalls; assess operational risk associated with the gaps/shortfalls; prioritize the gaps/shortfalls; identify and assess potential non-materiel solutions; provide recommendations for addressing the gaps/shortfalls.

Capability Collaboration Team (CCT)—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, DP, S&T, and acquisition activities.

Capability Gap—The inability to execute a specified course of action. The gap may be the result of no existing capability, lack of proficiency or sufficiency in an existing capability solution, or the need to replace an existing capability solution to prevent a future gap (CJCSI 3170.01H, 10 January 2012).

Capability Need (or Need)—see "Capability Requirement"

Capability Requirement (or Requirement)—A capability required to meet an organization's roles, functions, and missions in current or future operations. To the greatest extent possible, capability requirements are described in relation to tasks, standards, and conditions in accordance with the Universal Joint Task List or equivalent DoD Component Task List. If a capability requirement is not satisfied by a capability solution, there is also an associated capability gap which carries a certain amount of risk until eliminated. A requirement is considered to be 'draft' or 'proposed' until validated by the appropriate authority (CJCSI 3170.01H, 10 January 2012).

Core Function Lead Integrator (CFLI)—SECAF/CSAF-designated leader 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 Master Plan (CFMP)—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.

Development Planning (DP)—Encompasses the engineering analysis and technical planning activities that provide the foundation for informed investment decisions on the fundamental path a material development will follow to effectively and affordably meet operational needs (DoDI 5134.16, 19 August 2011).

Flagship Capability Concept (FCC)—Similar to an ATD, an FCC is a demonstration of the maturity and potential of advanced technologies for enhanced military operational capability or cost effectiveness. FCCs are commissioned by the AFROC with scope, objectives, and organizational responsibilities defined in a Technology Transition Plan.

Integrated Product Team (IPT)—A multidisciplinary group of people who are collectively responsible for delivering a defined product or process.

Joint Capability Technology Demonstrations (JCTD)—An OSD approved program that seeks to rapidly and collaboratively demonstrate, assess, and transition solutions to address Combatant Commanders', Joint, Interagency, and Coalition problems.

Materiel Solution—A new item (including ships, tanks, self-propelled weapons, aircraft, etc., and related spares, repair parts, and support equipment, but excluding real property, installations, and utilities) developed or purchased to satisfy one or more capability requirements (or needs) and reduce or eliminate one or more capability gaps (CJCSI 3170.01H, 10 January 2012).

Science and Technology (S&T)—Includes Basic Research, Applied Research, and Advanced Technology Development.

Science & Technology Group and Board—S&T governance body comprised of HAF and MAJCOM representation.

Service Core Function (SCF)—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 AFSPS, and provide the framework for Air Force organizing, training, and equipping efforts.

Technology Executive Officer (TEO)—The individual dedicated to executive management and supervision of the Air Force S&T portfolio, analogous to a Program Executive Officer. The TEO shall be appointed and assigned by, and is accountable to, the Air Force Service Acquisition Executive.

Technology Need—Technology that is unavailable, but potentially attainable, and determined necessary for ongoing or prospective materiel solution(s) that support a capability need(s).

Technology Solution—Technology project or program, either ongoing or proposed, that address a technology need(s).

Technology Transition—Process of inserting critical technology into military systems to provide effective weapons and support system needed by the warfighter to carry out assigned missions.

Technology Transition Plan (TTP)—Defines scope, objectives, and organizational roles and responsibilities for an S&T project or program (e.g., ATD, FCC).