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Scientific Research and Development

**MANAGEMENT OF SCIENCE AND
TECHNOLOGY**

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This directive establishes policies for managing and executing the Air Force Science and Technology (AF S&T) program. The Air Force is committed to a strong S&T program that will enable a fully integrated aerospace force to meet the challenges of the 21st Century. This S&T program lays the technological foundation for the current and future Air Force to assure America's security through global vigilance, reach, and power.

SUMMARY OF REVISIONS

This entire Policy Directive was rewritten to update Air Force policy concerning the roles and responsibilities of all Air Force organizations directly involved in the management of science and technology (S&T). Changes include the establishment of periodic S&T Summits, coordination and support for S&T Programs at Air Force Materiel Command (AFMC), the addition of the roles of Under Secretary of the Air Force (USECAF) and the Commander, Air Force Space Command (AFSPC) in the space aspects of the Air Force S&T programs (AF Space S&T), and alignment of budget requirements with the Air Force resource allocation process.

1. The Air Force will manage AF S&T as an integrated set of programs that invest in the future while strengthening current capabilities. The AF S&T program will carefully balance the investment portfolio in basic research, applied research and advanced technology development to produce both evolutionary and revolutionary increases in capability. These S&T efforts can be initiated in the absence of a validated user requirement or programmed funding for formal acquisition.

2. The Air Force will structure the AF S&T program so it responds to a broad range of future Air Force needs, from near-term to far-term warfighting capabilities.

2.1. The Air Force will pursue its S&T efforts in the Air Force Research Laboratory (AFRL) and through S&T contractual, grant, intramural, and other programs. This balanced approach will maintain and provide strong research capabilities in areas critical to the Air Force's military missions, expertise in technologies relevant to the Air Force, facilitation of technology transition, support of a viable industrial base, and technical support to fielded systems.

2.2. The Air Force will cooperatively plan and execute its S&T program by actively participating with the Office of the Secretary of Defense (OSD), other services, Department of Defense (DoD) agencies and other government agencies. In addition, the Air Force will aggressively leverage national and international programs in technology development and will actively investigate opportunities for dual-use technology development.

2.3. The Air Force will consider criteria that include affordability, performance, sustainability, environmental quality, reliability and maintainability in developing and executing its S&T program.

3. The Air Force will ensure that funds provided for any AF S&T Program Element (PE) will be used for S&T efforts consistent with the approved Congressional Descriptive Summary and subsequent formal reprogramming.

4. This directive establishes AF S&T responsibilities and authorities as specified below.

4.1. The Secretary of the Air Force (SECAF) and the Chief of Staff of the Air Force (CSAF) shall:

4.1.1. Provide top-level policy direction and investment guidance relating to the AF S&T program.

4.1.2. Set the AF S&T funding top line.

4.1.3. Provide oversight to the AF S&T program.

4.1.4. Set AF S&T overall priorities and endorse planning/budgeting for transition into new or existing systems.

4.1.5. Review progress towards the AF S&T program's identified priorities.

4.1.6. Sponsor periodic AF S&T Summits to focus attention on the S&T investment strategy and progress toward critical goals.

4.2. The Chief Scientist of the Air Force (AF/ST) shall:

4.2.1. Provide independent, timely advice on current and future Air Force technological capabilities to Air Force senior leaders.

4.2.2. Serve as chief scientific advisor to the CSAF, SECAF, USECAF and other Air Force leaders.

4.2.3. Serve as an *ex officio* member of the Scientific Advisory Board Executive Committee and the AFRL Research Council.

4.3. The Under Secretary of the Air Force (USECAF) shall:

4.3.1. Provide overall policy, guidance and oversight of the AF S&T program for all Program Elements that are Space unique (AF Space S&T) for incorporation by the Assistant Secretary of the Air Force for Acquisition (SAF/AQ) into the AF S&T program.

4.3.2. Provide coordinated goals, objectives, priorities and investment guidance relating to the AF Space S&T program for incorporation by SAF/AQ into the AF S&T program.

4.3.3. Coordinate with SAF/AQ in those situations when recommended adjustments to the AF Space S&T program affect the broader S&T portfolio.

- 4.3.4. Serve as the advisor for policy and programmatic AF Space S&T matters to the SECAF, the CSAF, OSD, and Congress.
 - 4.3.5. Approve the Space-unique parts of the AF S&T Plan.
 - 4.3.6. Conduct periodic reviews and assessments of the AF Space S&T program to evaluate level of investment, strategic goals, objectives and priorities, maturation of technologies and transition into new or existing space systems, and integration of AF Space S&T efforts with other DoD Components and intelligence community space Research, Development, Test and Evaluation activities.
 - 4.3.7. Coordinate the efforts of the AF Space S&T program with other DoD Components Space S&T programs to eliminate duplication of effort and ensure that resources are used to achieve maximum effect.
 - 4.3.8. Develop and recommend policies and programs that improve, streamline and strengthen AF Space S&T programs, and exploit the cost-reduction potential of accessing innovative or commercially developed technologies.
 - 4.3.9. Establish policies to ensure and maintain a highly qualified AF S&T Space workforce through Professional Military Education and graduate educational opportunities.
- 4.4. The Assistant Secretary of the Air Force for Acquisition (SAF/AQ) shall:
- 4.4.1. Provide overall policy, guidance and oversight of the AF S&T program.
 - 4.4.2. Provide coordinated goals, objectives, priorities and investment guidance relating to the AF S&T program.
 - 4.4.3. Coordinate with the Under Secretary of the Air Force (USECAF) in those situations when adjustments to the AF S&T program affect the AF Space S&T portfolio.
 - 4.4.4. Serve as the advisor for policy and programmatic AF S&T matters to the SECAF, the CSAF, OSD, and Congress.
 - 4.4.5. Approve the AF S&T Plan.
 - 4.4.6. Conduct periodic reviews and assessments of the AF S&T program to evaluate level of investment, strategic goals, objectives and priorities, maturation of technologies and transition into new or existing systems, and integration of AF S&T efforts with other DoD Components and intelligence community Research, Development, Test and Evaluation activities.
 - 4.4.7. Coordinate the efforts of the AF S&T program with other DoD Components S&T programs to eliminate duplication of effort and ensure that resources are used to achieve maximum effect. These actions will be conducted through the existing Defense S&T Reliance and DoD Technology Area Review and Assessment (TARA) processes in coordination with USECAF.
 - 4.4.8. Establish policies to ensure and maintain a highly qualified AF S&T workforce through Professional Military Education and graduate educational opportunities.
- 4.5. The Commander, Air Force Materiel Command (AFMC), shall:
- 4.5.1. Provide facilities, equipment and trained personnel at the Headquarters AFMC and the AFRL necessary to conduct the AF S&T program.

- 4.5.2. Foster the transition of technology into the development of new systems or improvements of existing systems.
- 4.5.3. Advocate and support AF S&T funding commensurate with identified Air Force needs to Air Force senior leadership, OSD, Congress, other Air Force commands and local communities.
- 4.5.4. Collect technology needs from Air Force major commands and provide investment strategies for the AF S&T program, to include a balanced mix of near- and mid-term objectives and long-term challenges that support the overall Air Force mission.
- 4.5.5. In coordination with the other operating commands, identify requirements and priorities. Ensure successful management and execution of a comprehensive AF S&T program that effectively supports the overall Air Force program and ensures that S&T resources are applied to the highest priority Air Force technology needs.
- 4.5.6. In coordination with operating commands, provide appropriate guidance to AFRL for the AF S&T program, consistent with the guidance from SAF/AQ, USECAF, CSAF, and SECAF.
- 4.5.7. In coordination with the Commander, AFSPC, provide information and recommendations on AF S&T priorities, programs, and funding to USECAF and SAF/AQ.
- 4.6. The Commander, Air Force Space Command (AFSPC), shall:
- 4.6.1. Provide facilities, equipment and trained personnel at AFSPC necessary to support the AF Space S&T program.
- 4.6.2. Foster the transition of technology into the development of new Space systems or improvements of existing Space systems.
- 4.6.3. Advocate and support AF Space S&T funding commensurate with identified Air Force needs to Air Force senior leadership, OSD, Congress, other Air Force commands and local communities.
- 4.6.4. Collect Space technology needs from Air Force major commands and provide investment strategies for the AF Space S&T program, to include a balanced mix of near- and mid-term objectives and long-term challenges that support the overall Air Force mission.
- 4.6.5. In coordination with the other operating commands, identify concepts, requirements, and priorities for Space research to enable future AF capabilities. Provide these requirements, concepts, and priorities to AFRL and USECAF.
- 4.6.6. Provide requirements and recommended program guidance and direction for the AF Space S&T program to the Commander, AFRL, for incorporation into the S&T portion of the Program Objective Memorandum submitted through AFMC in the Air Force resource allocation process.
- 4.6.7. In coordination with the Commander, AFMC, provide information and recommendations on AF Space S&T priorities, programs, and funding to USECAF.
- 4.7. The Deputy Assistant Secretary of the Air Force for Science, Technology and Engineering (SAF/AQR) shall:
- 4.7.1. Provide policy and program guidance for the AF S&T program consistent with congressional, Air Force and OSD guidance and joint warfighter S&T plans and needs.

- 4.7.2. Serve as the principal advisor for policy and programmatic AF S&T matters to the USECAF and SAF/AQ.
 - 4.7.3. Provide the PE Monitors for the AF S&T program and other selected research and development programs.
 - 4.7.4. Provide guidance on budget allocation by PE, and prepare and submit justification to Congress.
 - 4.7.5. Advocate and defend the AF S&T program within the Air Force, OSD and Congress, in close coordination with the Commanders of AFMC, AFSPC and AFRL.
 - 4.7.6. Facilitate progression of the AF S&T program through the Air Force corporate process.
 - 4.7.7. Serve as the principal Air Force representative on S&T matters at the S&T Service Executive level to OSD, Congress and the other services and agencies.
- 4.8. The Commander, AFRL, designated as the Air Force Technology Executive Officer, shall:
- 4.8.1. Plan, implement and execute the AF S&T program.
 - 4.8.2. Execute the AF S&T program in coordination with the S&T programs conducted by other organizations of the DoD and other government agencies.
 - 4.8.3. Develop and execute investment strategies for the AF S&T program in response to guidance from Congress, OSD, the SECAF, the CSAF, the USECAF and in support of the needs of Air Force customers and users.
 - 4.8.4. Prepare AF S&T budget requirements for submittal in accordance with the Air Force corporate resource allocation process.
 - 4.8.5. Prepare the AF S&T Plan.
 - 4.8.6. Foster the transition of technology into the development of new systems, improvements of existing systems, and improvements in Depot (Air Logistics Centers) level processes. Use the Applied Technology Council process and transitions directly to industry to rapidly improve capabilities for the warfighter.
 - 4.8.7. Serve as the principal technical advisor on AF S&T matters to the SECAF, the CSAF, and USECAF.
 - 4.8.8. Serve as the principal Air Force technical representative on AF S&T matters to other government S&T organizations, academic, scientific, and corporate agencies.
 - 4.8.9. Direct, administer, and control activities for AF S&T relating to patents, inventions, trademarks, copyrights, royalty payments, and matters connected therewith.
 - 4.8.10. Provide and maintain laboratory infrastructure and conduct and maintain security and operational programs for AFRL subject to the authority, direction and control of the Commander, AFMC.
 - 4.8.11. Employ Operational Risk Management to systematically evaluate possible courses of action, identify risks and benefits, and determine the best course of action for planning and executing AF S&T program.

5. This policy directive implements the national S&T policy, applicable portions of Deputy Secretary of Defense Memorandum, "Defense Acquisition," October 30, 2002 (also known as the DoD 5000 Interim Guidance), DoD Directive 5134.5, *Defense Technology Board*, October 28, 1992, and DoD Directive 5100.89, *DoD Executive Agent for Space*, (Draft).
6. Related documents: see references in the attachment.

JAMES G. ROCHE
Secretary of the Air Force

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

Air Force Instruction 61-101, *Planning for the Applied Technology Council Process (DRAFT)*

Air Force Instruction 61-105, *Planning, Programming, and Budgeting for Science and Technology (DRAFT)*

Air Force Pamphlet 38-102, *Headquarters United States Air Force Organization and Functions (Chart-book)*

Air Force Policy Directive 90-9, *Operational Risk Management*

Air Force Instruction 90-901, *Operational Risk Management*

Air Force Policy Directive 36-23, *Military Education*

Air Force Policy Directive 36-4, *Air Force Civilian Training and Education*

Abbreviations and Acronyms

AFMC—Air Force Materiel Command

AFRL—Air Force Research Laboratory

AF S&T—Air Force Science and Technology

AF Space S&T—Space aspects of the AF S&T

AFSPC—Air Force Space Command

CSAF—Chief of Staff of the Air Force

DoD—Department of Defense

OSD—Office of the Secretary of Defense

PE—Program Element

S&T—Science and Technology

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

SAF/AQR—Deputy Assistant Secretary of the Air Force (Science, Technology & Engineering)

SECAF—Secretary of the Air Force

USECAF—Under Secretary of the Air Force

Terms

Basic Research —is the scientific study and experimentation directed toward increasing knowledge and understanding in the fields of physical, engineering, environmental, and life sciences.

Applied Research —translates promising basic research into solutions for broadly defined military needs, short of major development projects.

Advanced Technology Development —is conducted on technologies that have matured past applied research and to demonstrate performance improvements, increased sustainment abilities, or cost reduction potential of militarily relevant technologies.

The Air Force **Science and Technology** Program contains all basic and applied research efforts, and advanced technology development efforts that are executed by AFRL.