

Career Development Guide for Scientists and Engineers



This guide is designed to provide Air Force scientists, engineers, commanders, supervisors, and mentors with an understanding of established, desired, and required education, training, experience, and attributes for Scientist & Engineering (S&E) careers. Its intent is to set a mutual understanding of career expectations between Air Force leadership and the S&E workforce. This guide is not a guarantee of success, but a roadmap to assist officers, civilians, supervisors, and mentors in realistically evaluating possible career paths and the expectations associated with the choices made. One should note there are many elements of professional development: skills, competencies, values, culture, professional education, leadership, mentoring, and promotion potential. No one specific career path or skill will ensure achievement of higher ranks. It is the sum of these skills, talents, competencies, and personal abilities and how they are used throughout a career that determines ultimate success.

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FOREWORD

At CORONA Fall 2002 we adopted a new vision for how we work with our most important resource—you. We call it Force Development and it applies equally to all of us, military and civilian, across all specialties in our Air Force. Force Development enables us to focus on each individual by emphasizing our common airman culture while offering a variety of choices that respect the distinctive elements of our Scientist and Engineer career field.

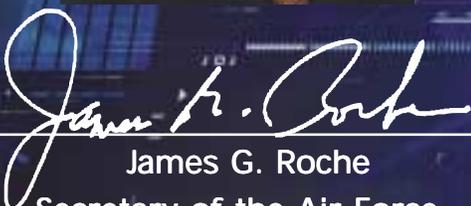
"We intend to develop leaders who motivate teams, mentor subordinates, and train successors."

The Scientist and Engineer career field is leading this effort. The document that follows debuts two tools for S&E development that embody our Force Development construct, a Scientist and Engineer Career Development Guide and a Scientist and Engineer Mentoring Website. We intend for commanders, supervisors, mentors and the Scientist and Engineer community to use these tools to establish and maintain career expectations for individual Scientist and Engineer career development. Use these tools wisely. The Air Force requires highly developed Scientists and Engineers to meet the 21st century challenges of overwhelming technological leadership and the ability to respond quickly to the demands of our rapidly changing world.




John P. Jumper
General, USAF Chief of Staff




James G. Roche
Secretary of the Air Force

I. INTRODUCTION

Scientist & Engineer (S&E) career development is centered on five S&E mission areas and associated functions identified in the:

Concept of Operations for Scientists and Engineers

(available at <http://www.safaq.hq.af.mil/aqre/se/>)

These five mission areas represent the highest level of S&E involvement within the USAF mission. They are the following:

- Contribute to timely fielding of capabilities in response to current and future threats
- Ensure weapon systems are sustainable
- Respond rapidly to time-critical requirements
- Avoid technological surprise
- Create opportunities for Revolutions in Military Affairs enabled by new technologies.

The four S&E workforce functions, shown in Figure 1, that enable the mission areas to provide technological dominance are as follows:

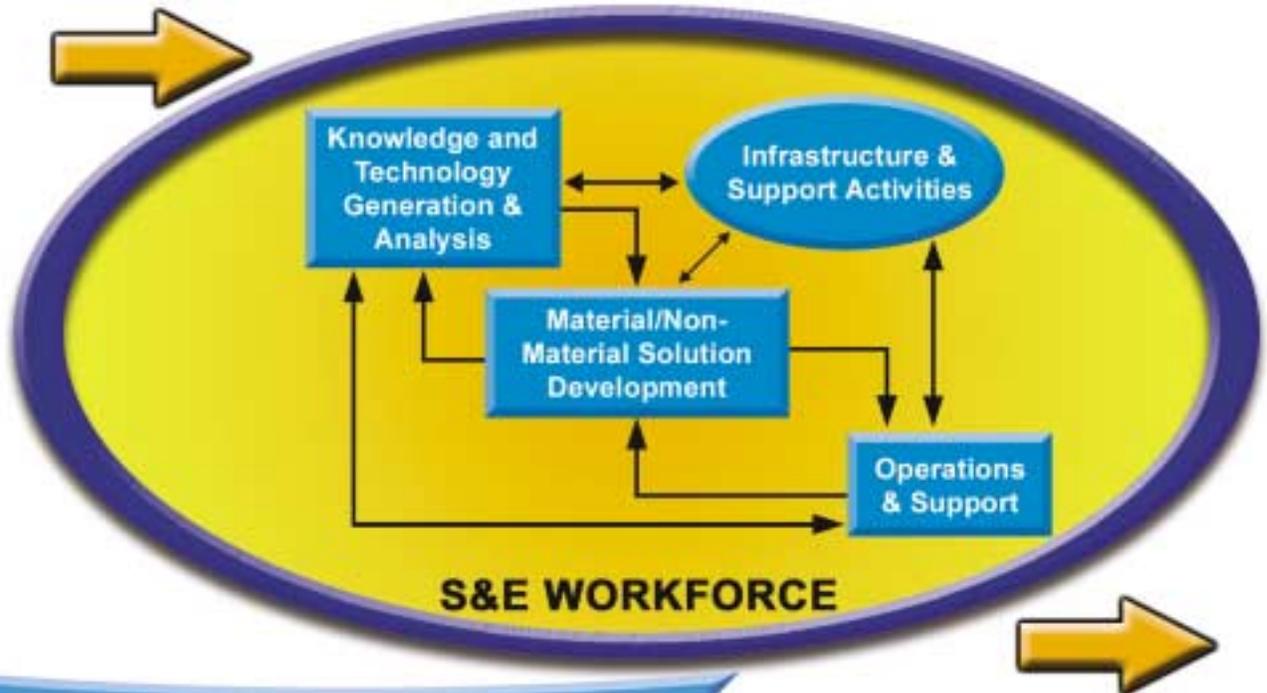
- Knowledge and Technology Generation & Analysis
- Infrastructure and Support Activities
- Material/Non-Material Solution Development
- Operations and Support

"...Whether you look to the heavens and see our vast array of space systems, or the power of information technology that is driving our ability to project power at great distances and to great effect, you will see increasingly intricate and elegant networks of systems. These networks require systems architects and engineers that are ever more conversant with those technologies, if – again — we are to shape our future and not be shaped by it.... new challenges are fueling our search for new leaders.... We must have scientists and technologists who are so sensitized that they can recognize opportunities and problems and so motivated that they want to solve them. As Secretary of the Air Force, I can assure you that our Air Force is headed in that direction..."

—James G. Roche, Secretary of the Air Force, Illinois Institute of Technology, Chicago, May 18, 2002

Figure 1: S&E Workforce Functions

Exploitation of Knowledge & Avoiding Technology Surprise



Technologists who understand operations . . . and operators who understand technology

Technological Dominance

The 21st century national security environment will demand more from the people who carry out the mission of the Department of Defense. The workforce must be empowered to meet tomorrow's national security demands, and must accept greater responsibility for decision-making in a more varied environment. To this end, the Air Force workforce needs to be highly skilled, multifunctional, and able to use and adapt to new Information Age technologies. It also needs to be flexible enough to adapt to the change and uncertainty that will dominate the future security environment. To accomplish the mission, we must have the right number of people, motivated, and trained with the right skills.

"In Afghanistan, the Air Force has experimented with new ways to employ existing systems, such as directly linking soldiers on the ground – and at times on horseback – with long-range aircraft so as to provide close air support from 38,000 feet overhead; or unmanned vehicles assisting targeting of forces for naval attack aircraft and special forces gunships. The innovation that comes from our ability to field "work-in-progress" systems and concepts is really the heritage of the U.S. Air Force. We are led by, supported by, and filled with innovators who embrace change and aggressively pursue transformation and continuous process improvement. I challenge you to become innovators and leaders in this technological age."

—James G. Roche, Secretary of the Air Force, Illinois Institute of Technology, Chicago, May 18, 2002

II. PURPOSE

This guide provides general information on career development for civilian and military personnel in science and engineering positions. This reference guide is designed to assist S&Es, commanders, mentors, and supervisors in career planning. Where possible, this guide should be used in combination with the S&E CONOPS during feedback and mentoring sessions to tie each S&E's daily work and career goals to the mission areas and functions in the CONOPS. To further assist in career planning and development, information in these documents should also be used in conjunction with management guides provided by the Air Force and major commands (MAJCOMS), such as:

- a. Professional Development (military), AFI 36-2302
- b. Officer Professional Development Guide, AFPAM 36-2630
- c. AF Mentoring, AFI 36-3401
- d. AF Civilian Career Planning, AFMAN 36-606, Vol 2.

III. FORCE DEVELOPMENT AND PROFESSIONAL DEVELOPMENT OVERVIEW

Force Development

Force Development, the Air Force's human resources strategy, was initiated to meet the increasing demand for developing and sustaining our Total Force. Force development also ensures we have a corps of senior leaders who can shape the vision, mission, and ideas for most effectively employing our military capabilities to meet national security interests. Under this construct, investment in and development of all career fields and ranks will be more deliberate. The Force Development concept recognizes the continued need for a deep perspective in functional areas, but at the same time offers the means to achieve the wider perspective we also need within our leadership team. Force Development provides for coordinated and complementary career utilization and development from a single Air Force perspective. It enables the Air Force to optimize the inherent strengths of each talent pool for building a Total Force that will meet current and future institutional requirements.



For the military this means that development will be more tailored to each individual's career path; more breadth of experience for our future senior leaders, and more relevant and focused education and training for our specialists. In this way the Air Force is focusing its developmental capital in a way that is tailored to the individual, which places an increased value on those officers who follow a specialist career path. This is a distinctive shift from the past paradigm that encouraged every single officer to strive to become a senior officer.

For our civilians we will continue to provide and encourage the development of deep technical expertise for most, but for those interested in, and capable of, more senior leadership, development will consist of a wider variety of experiences and training. In all cases, this development will be guided by Air Force requirements.

The Force Development concept provides the overarching philosophy that ensures all development of scientists and engineers is made with long-range Air Force requirements and the goals of each member in mind. With this, development of the Total Force will be based on a series of experiences and challenges, combined with education and training opportunities that better enable each individual to grow and succeed professionally as well as meet Air Force needs.

"...We adopted a new vision for how we work with the most important resource we have, all of you. As we transformed our Cold War structure into an Air and Space Expeditionary Force, it follows that we transition the way we train, educate, promote, and assign our Total Force. We call it Force Development and it applies equally to all of us — active duty officer and enlisted, reserve components and civilians — across all specialties in our Air Force..."

—General John P. Jumper, Chief of Staff of the Air Force, CHIEF's Sight Picture, November 6, 2002



Professional Development

One of the fundamental requirements for a successful S&E career is technical expertise, or the combination of specialized technical knowledge and skill. Specialized technical knowledge is gained through education and training while skill is gained through proficiency in the application of this knowledge.

When using this guide, you should keep in mind how to best develop your technical expertise for use by the Air Force in the challenges that lie ahead. You should realistically review your strengths, weaknesses, short-and long-range goals, organizational needs, job, training, and promotion opportunities when developing your career plan. Military and civilian personnel should realize that the development of technical skill (application of technical knowledge) might require career mobility (functional, organization, and/or geographical). Well-developed technical expertise is one of many ways to enhance promotion opportunity and career progression. Therefore, scientists and engineers are expected to continue the expansion of

core knowledge through advanced education and professional training. In addition, you should seek diverse and challenging assignments allowing you to develop your skill and apply your education, training, and acquired experiences to broader Air Force problems.



Depth

Depth is gained through work that enhances career-specific [AF Specialty Code (AFSC) or occupational series] professional competence and develops technical leadership skill for the S&E. The time to build depth for military is during the Company Grade Officer (CGO) years or for civilian during the GS-7 to GS-12 years (or workforce project demonstration equivalent). Advanced technical knowledge is a cornerstone of professional development for both military and civilian S&Es. This will be combined with professional military education for all officers and some civilians. This combination of technical knowledge and professional military education allows the scientist or engineer to better contribute to advancing the Air Force mission.

Professional development also involves gaining necessary experience to improve skill, performance, and leadership potential. Tours in labs to develop advanced technologies, test centers to evaluate systems' performance, logistics centers to sustain our hardware inventory, program offices to acquire weapon systems, and operations support to provide technical assistance to operational units are all valuable assignments for you, as a military or civilian S&E, as you develop depth and skills for future advancement. For military S&Es, an operational assignment early in a career is extremely valuable. It provides a



firsthand opportunity to develop as a “technologist who understands operations” and fosters a bold link between the S&E and operational missions, as defined in the S&E CONOPS.

In building depth, multiple assignments and perspectives that span multiple organizations, product lines, mission areas, and product lifecycle can add considerable value as military officers are asked to bring fresh thinking and breadth of experience to the Air Force S&E mission. The traditional career path pyramid provides an overview of the vast number of excellent assignments available to officers to build depth during their first three assignments.

Civilian S&Es will still primarily provide technical depth, continuity, Air Force corporate technical knowledge, and the primary interface with industry. Multiple assignments in labs, system program offices (SPOs), logistics centers, test center, headquarters assignments, etc., are examples of fulfilling this requirement.



Breadth

You can broaden your professional development as you acquire expertise (knowledge and skill) in more varied Air Force and DoD environments (operational, staff, joint, special duty). This breadth of development will assist you in developing overarching Air Force and joint leadership capability to best direct and transform Air Force and S&E mission areas. The time to broaden your development for the military S&E is during the field grade officer (FGO) years and, for civilians, the GS-13 to GS-14 (or workforce project demonstration equivalent) span.

Air Force career paths have typically guided scientists and engineers through the acquisition management track and acquisition corps membership. This is not expected to change, as the number of opportunities for advanced leadership is greater in the program office environment. However, there are additional opportunities to obtain breadth as an FGO, such as the many staff and operations support area (16XX AFSC) assignment opportunities. In addition, completing a tour as a Squadron Commander or Detachment Commander is an outstanding professional development step and some opportunities for command exist in 61, 62 and 63 AFSCs. Additional opportunities exist in Space & Missile (13S), Intelligence (14N), Maintenance

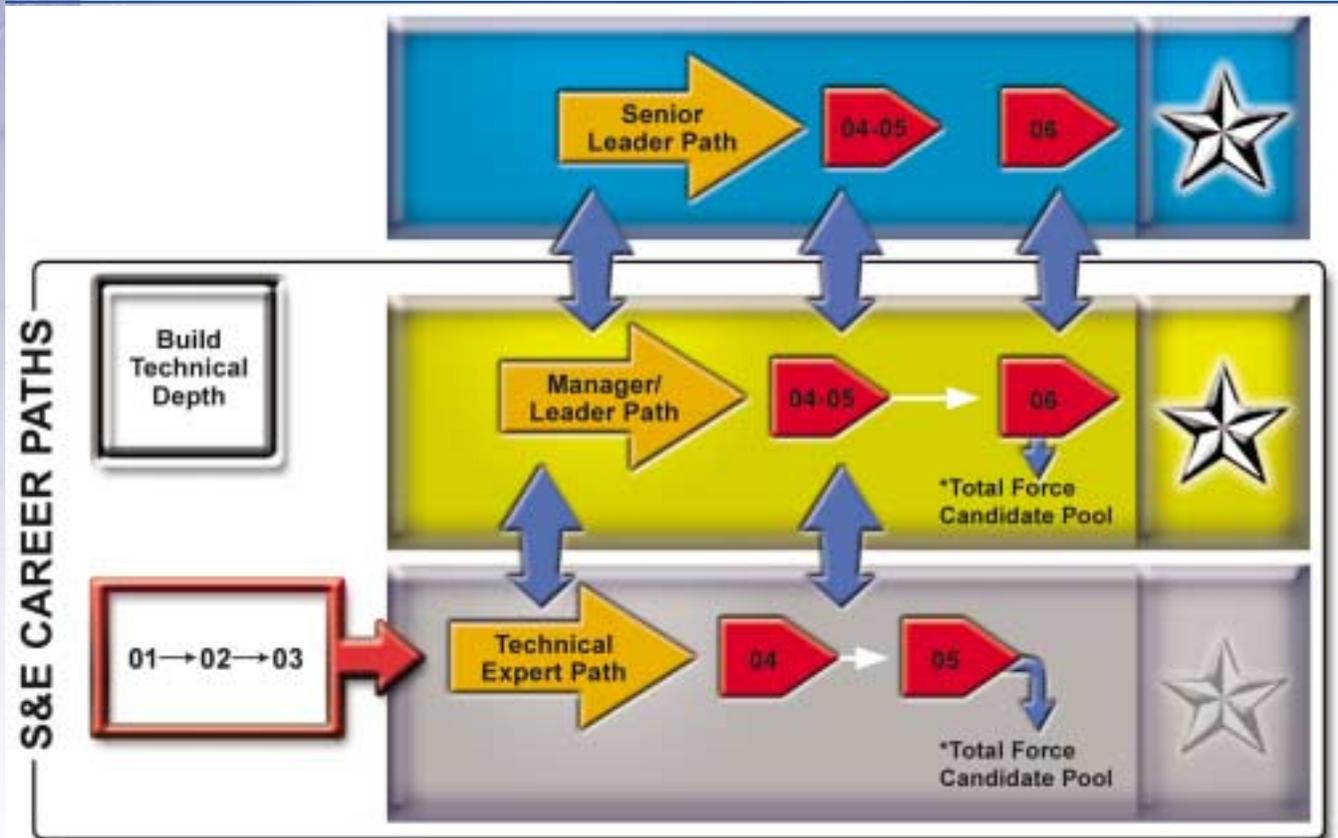


(21X), Civil Engineering (32E), Communications (33S), Services (34), Mission Support (36), Contracting (64), Finance (65), Recruiting (83), and ROTC PAS (91) AFSCs. Be aware that if you apply for a Squadron Commander position, appropriate experience in the respective AFSC may be a requirement.

As noted above, civilian S&Es will still primarily provide technical depth, continuity, Air Force corporate technical knowledge, and the primary interface with industry. Civilians desiring to be competitive for senior leadership positions and grades should seek career-broadening opportunities, such as assignments within MAJCOM headquarters, Air Staff, and the Office of the Secretary of Defense (OSD). Force Development initiatives are also being developed to help the Air Force meet future mission requirements in a rapidly changing world. S&Es should consider these opportunities and work with supervisors, commanders, and mentors in planning career development.



Figure 2: Building Military S&E Expertise



*Providing an option to move military service to civil service, reserve, guard, or DoD contractor, allows us to retain critical skills

IV. AIR FORCE S&E CAREER PATHS (MILITARY AND CIVILIAN)

Requests from the field led S&E leadership to define three career paths and associated expectations from each path for both officers and civilians. The paths are: **Technical Expert**, **Manager/Leader**, and **Senior Leader**, and are shown in Figures 2 and 3. Matrices describing attributes for each of these paths are provided as appendices. S&Es in all of the career paths are important in order to secure battlefield dominance, and the matter of which path an individual should pursue must be based on personal goals, commitment, and capabilities. It also needs to be restated that there is no “magical pathway” or “golden path” to success or an exceptional career. Focus needs to be on growth in responsibility and satisfactory progression through any of the career paths. The foundation for an exceptional S&E career is a solid technical grounding in scientific and engineering principles and practices. This foundation is generally attained by applying one’s academic education and specialized training to expand a field of knowledge and/or design, to develop, test, produce, operate, and sustain advanced weapon systems or processes.

Air Force Military Career Paths

The Military Technical Expert Path

A military officer at the senior CGO to junior FGO level may choose the Technical Expert Path, which focuses primarily on obtaining depth of expertise. The Technical Expert does not desire to career broaden and generally does not hold supervisory positions. However, these officers are still expected to have a clear understanding of the successful application of aerospace power. They obtain an advanced degree or additional certifications during the course of a career. A successful career Technical Expert would generally expect to retire as a Major or Lt Colonel and possibly move on to a related civil service, reserve component, contractor, or industry occupation.

The Military Manager/Leader Path

A Manager/Leader career path would lead to more involvement in management and supervision. These officers hold jobs as group managers, major project team leads, or as supervisors of several project teams. The officer may be recognized as an expert in one AF specialty but have experience in other specialties. These officers are still expected to have a clear understanding of the successful application of aerospace power, and may have command experience and multiple AFSC competencies. These officers may cross into other specialties, taking experience to the new specialty and learning new skills and approaches to become more holistically oriented leaders. As Manager/Leaders progress, they may achieve the rank of Lt Col or Colonel depending on past performance, future potential, and the level and scope

of supervisory and management positions. The skills and abilities acquired over the course of a career would make the Manager/Leader a prime candidate for a career in civil service, reserve component, or contractor position upon retirement.



The Military Senior Leader Path

Our aerospace operations require leaders with an increased scope of knowledge and experience beyond that of an initial specialty. They must have a fuller understanding of the development, support, employment, and sustainment of aerospace power—and must be able to articulate to the American public and its representatives the extraordinary capabilities of modern aerospace power. Preparing officers to lead and command effective, mission-oriented units must be a deliberate process developing both competence and credibility in the mission area assigned and an appropriate passion for the responsibility of leadership and command.

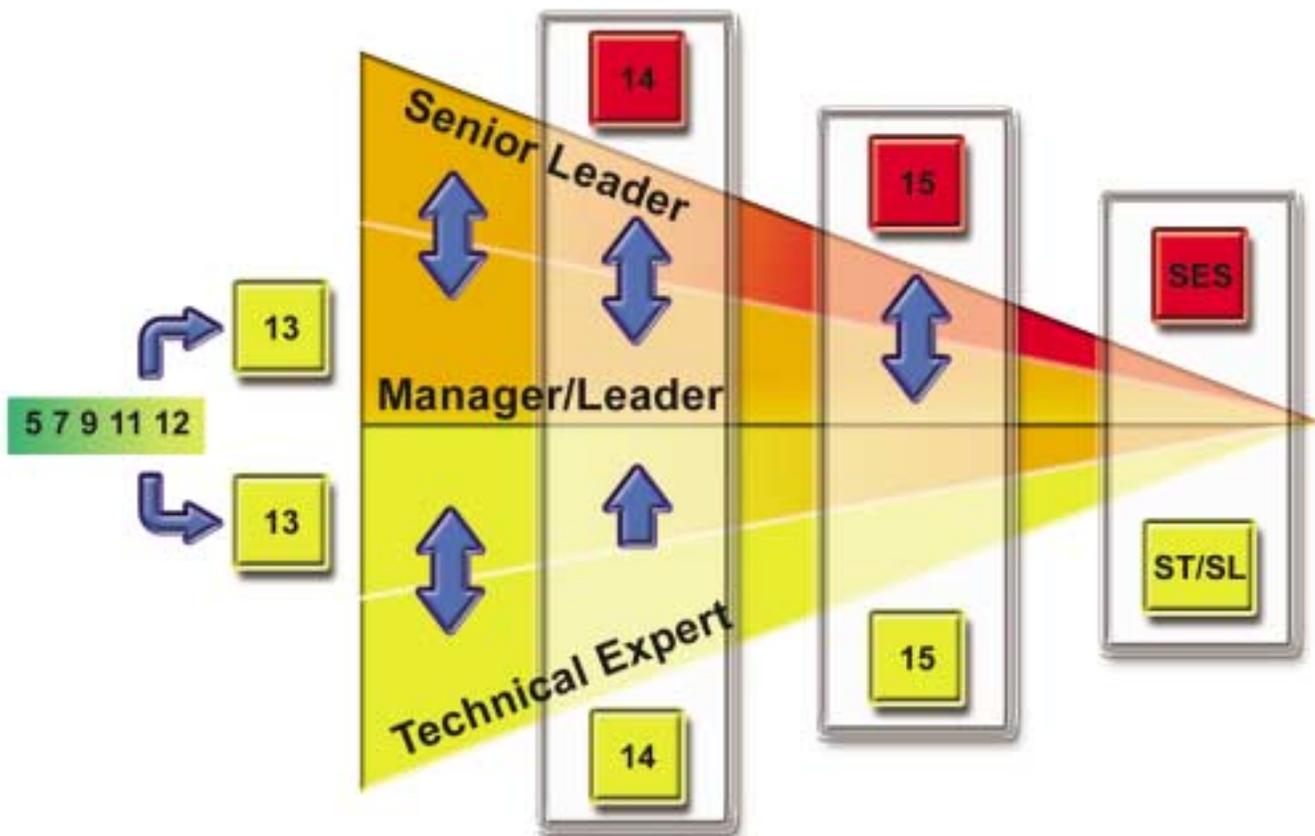
The development of the Senior Leader will result in a well-seasoned, broadly educated officer with a balance of depth and breadth and a wide range of leadership experience and skills. The Senior Leader will have command experience, multiple competencies, and a clear understanding of the successful application of aerospace power. Senior Leaders' career paths will range between other specialties, taking experience to the new specialty and learning new skills and approaches to become more holistically oriented leaders. Career broadening experience will provide skills to orchestrate the efforts of all specialties and specialists to win wars.

"Leadership is a complex process by which a person influences others to accomplish a mission, task, or objective and directs the organization in a way that makes it more cohesive and coherent. A person carries out this process by applying her leadership attributes (belief, values, ethics, character, knowledge, and skills). The best leaders are continually developing through a never-ending process of self-study, education, training, and experience."

— Taken from Don Clark's *Big Dog's Leadership Page*, found at <http://www.nwlink.com/~donclark/leader/leader.html>



Figure 3: Building Civilian S&E Expertise



Air Force Civilian Career Paths

AF Civilian Career Paths for Technical Expert, Manager/Leader, and Senior Leader follow the same concepts as the military paths. The differences are reflected in the civilian S&Es' ability to migrate between specialties at any point throughout the timeline. Civilians can enter the AF S&E career field at different grade levels, depending on previous experience, so the timeline for movement along the paths may vary. The phase for building technical depth may last up to 10 years. Civilians often provide organizational or functional continuity, since they are not required to move as often as military S&Es.

The Civilian Technical Expert Path

Civilians may opt to continue on the Technical Expert Path, leading to increased in-depth, technical experience. A few civilians on the Technical Expert path peak at the GS-14 or GS-15 grade level (or workforce project demonstration equivalent); even fewer make it to the Senior Level (SL) or Scientific and Professional (ST) level.

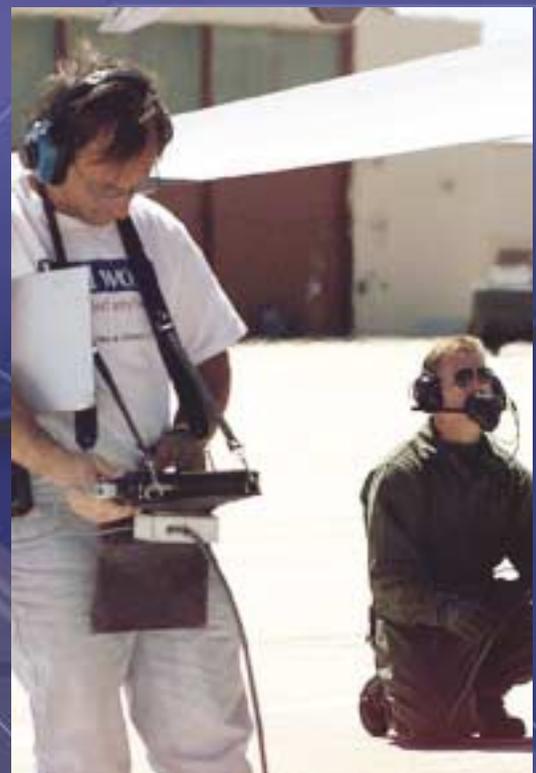


Unlike the Senior Leaders and Manager/Leaders, the Technical Expert aspires to become an expert in a selected field, recognized at the national or international level. As such, this path allows for pursuit of further technical expertise rather than broadening into management. While the goal is eventually to be recognized as an expert, progression through the ranks also allows the Technical Expert to grow. By maintaining technical expertise, the civilian Technical Expert is able to develop and maintain relationships with the communities using that technology, assuring mission requirements are met. Technical Experts tend to strive toward more technical assignments, PhDs, and technical training over management and leadership assignments.

The Civilian Manager/Leader Path

Those who select the Manager/Leader Path will concentrate on both technical expertise and technical management responsibilities. The scientist or engineer will be recognized as a technical expert in at least one discipline, but will also accrue management experience through supervisory positions. If you choose this path, you may serve as a project engineer, team leader, or may supervise several project teams. Progression on this path, with its blend of technical expertise and management skills, can lead to Senior Executive Service (SES) level positions, although the preponderance of those on the path will peak at the GS-14 or GS-15 grade level (or workforce project demonstration equivalent).

Early in an S&E's career, the attributes of the Manager/Leader and Senior Leader (described below) are very similar. Those in either group have high performance appraisals, first line supervisory experience, appropriate acquisition professional development program (APDP) level 2 certification and Professional Military Education (PME) through intermediate service



school (ISS). In addition, both have excellent communication skills and are able to articulate extremely technical issues to diverse groups. The career paths do not really accrue distinction until around the grade of GS-14 (or workforce project demonstration equivalent).

In contrast, as the Manager/Leader moves past the GS-14 level (or workforce project demonstration equivalent), assignments tend to remain in technical development and technical management, as refinement and development of the specialty continues. Manager/Leaders have advanced degrees, lead organizations and people, and have completed the appropriate PME. The Manager/Leader does not have the level of specialization of a Technical Expert but still retains the technical experience and background, which makes them much more than a generalist.

The Civilian Senior Leader Path

The Senior Leader Path is for S&Es who choose to balance technical depth with breadth of alternate functional experience. Through communications and interactions with other career fields, organizational disciplines and AF operations, the Senior Leader becomes more of a strategist than a technical expert. Technical grounding, management experience, and leadership skills allow Senior Leaders to make the critical decisions that define organizational vision and focus. Their responsibility lies in defining what an organization does, how it operates and how it positions itself for the future. Broadening assignments provide the "big-picture" view, equipping these leaders with a variety of experiences to progress as high

as the SES level. The civilian Senior Leader is nurtured through Civilian Leadership Development and Civilian Competitive Development Programs, as well as the Executive Resources Board.



Like the civilian Manager/Leader, as Senior Leaders progress past GS-14 (or workforce project demonstration equivalent), they have further refined and expanded their skills and competencies. They are able to lead people and to lead change within their organizations, and have held second level supervisory positions. In addition, they have completed Senior Service School and have a technical as well as a business Master's degree. As they progress, their assignments lead to career-broadening opportunities, such as Program Management or Strategic Planning and continue to broaden beyond technical expert and excel in all jobs.

V. OTHER DEVELOPMENT TOPICS

Leadership

The S&E functional community is exploring ways to provide more supervisory leadership opportunities for the military S&Es, such as migration into other core specialties (logistics, maintenance, operations, and space). It is also reassessing Command and O-6 directorate-level billets to determine how to expand senior officer opportunities for S&Es. We believe greater opportunity for career success and a clearer picture on how to achieve that success will translate into a greater commitment from the officer corps.



Mentoring

Mentors are an important link in the professional development process. The Air Force has established a mentoring program for military and civilians (see reference AFPD 36-34, *Air Force Mentoring Program*). The Air Force leadership is committed to providing mentoring resources tailored to the S&E workforce. The purpose is to provide commanders, supervisors, mentors and S&Es information on mentoring and to promote career development. It is a resource toolbox for mentoring and career counseling via the web at <http://www.safaq.hq.af.mil/aqre/mentoring>.

Promotions

One of the objectives of professional development is to ensure individuals are qualified to advance in grade and responsibility. The Air Force must continue to cultivate a promotion system that will select those who best meet the challenges of the future. Thus, selection boards look at an individual's future potential, performance, leadership ability, achievements, professional development, and depth/breadth of experience. Whether you are military or civilian, there are educational and professional requirements that must be met in order to be promoted. To be competitive for the highest ranks, you should strive for assignments that provide the depth and breadth for the mission and seek positions with increasingly higher levels of responsibility. Recognize that promotion opportunities are limited for those who limit themselves in their career.

Education & Training

Today's Air Force is a highly technical force with a complex mix of specialties across a wide range of core and secondary missions. As such, the Air Force education and training program continues to evolve to meet



changing education requirements. A variety of education and training opportunities is available to all Air Force civilian and military personnel. Check with your local education office for course availability.

Scientists and engineers have some special educational circumstances to consider when planning their careers. First and foremost, advanced formal academic education beyond a Bachelor's degree is important for progression within a technical specialty. Early in a career, advanced degrees compatible with an individual's technical discipline enhance that individual's value to the Air Force and increase the likelihood of achieving positions with greater technical, management, and leadership potential. Later in a career, advanced degrees in disciplines related to management or administration may enhance value in the Manager/Leader or Senior Leader career paths. Along with advanced degrees, other paths for advanced technical education are available. Many colleges, universities and government academic institutions offer short courses focused on specific technical specialties. These courses provide S&E's the avenue to stay current with new and emerging technologies. Check with your local education office for course availability and tuition assistance options.

In addition, PME at the appropriate times during your career is an important career development element for military and civilian members,



especially for scientists and engineers who want to pursue assignments beyond the specialty. Opportunities for in-residence PME are limited, but courses are available through correspondence seminar and other Services at installations worldwide.

For scientists and engineers who want to transition into the acquisition career family, certification as acquisition professionals may be a prerequisite. Various programs, such as courses offered via the Air Force Institute of Technology and Defense Acquisition University (DAU), can assist military and civilian scientists and engineers who want to reach their educational goals.

VI. MILITARY AND CIVILIAN MATRICES

There is no single career model that is guaranteed to take you to where you want to go in your Air Force S&E career. Nor can we provide a checklist that, if you complete it, will position you at your ultimate career goal. Rather, there are different roads you can take and choices you can make as you progress through your S&E career. The following matrices are not intended to be all-inclusive, but to provide concrete examples of career paths and the steps you should take as you travel along them. These are intended to help you gain the necessary training, education, certification, skills, and other qualifications you need when you need them. Some are fixed—certain types of degrees and certifications, as well as a certain level of education, are simply mandatory to meet the Air Force mission and to become sufficiently

expert in your field. Others are optional, and suggest ways that you can broaden your experience and deepen your expertise. But even when a degree is mandatory, there is still space for you to make choices that you feel will enhance your experience and maintain your interest.



MILITARY MATRIX

TRAINING & CERTIFICATION TRAINING

Lieutenants

- Attend mission area orientations relating to the unit, wing, command, AF
- Begin taking Acquisition fundamentals courses

Lieutenant to Captain

- Level II certification in one specialty and/or Level I certification in multiple Acquisition fields
- Additional Tech Specialty training relating to current job
- Learn basics of financial management and contracting

Technical Expert Path

- Continue to pursue Acquisition Professional Development Program (APDP) Certification
- Appropriate APDP certification

Manager/Leader Path

- Appropriate APDP Certification
- DSMC Program Management course if appropriate

Senior Leader Path

- Appropriate APDP Certification
- DSMC Program Management course if appropriate
- APDP Level III (if appropriate) such as T&E, SPRDE, Program Management

EDUCATION AND PME

Lieutenants

- Aerospace Basic Course
- Lieutenant Professional Development Program during first year – desired
- Develop individual long range training and education plan
- Become familiar with advanced educational programs through education office (e.g., AFIT, Fellows, Rand, Education with Industry/Labs, Test Pilot School, S&E Exchange Program)

Lieutenant to Captain

- MS degree or further technical education
- Begin SOS by correspondence/residence
- Begin planning for a PhD program if appropriate
- Consider professional society affiliation and involvement
- Read technical journals to keep abreast of technology

Technical Expert Path

- MS in technical specialty from an accredited school/university
- PhD in technical specialty
- PME by either correspondence or residence
- Education with industry assignment
- Continuing education

Manager/Leader Path

- Leadership training (local, on-base leader seminars, read management books, etc.)
- MS in technical specialty from an accredited school/university
- MBA (in addition to MS in technical specialty) or PhD
- PME by correspondence or residence
- Continuing education

Senior Leader Path

- MS in technical specialty from an accredited school/university
- SOS in-residence (DG is a quality indicator)
- ISS/SSS (one or both in residence)
- Second Master's (political/military or leadership/management or PhD)
- Continuing education to maintain technical currency
- School of Advanced Aerospace Studies (SAAS) attendance
- Quality Indicators: SAAS, DG, and non-AF PME schools/programs (e.g., NDU, RAND Fellowship, etc) and selection for Executive Development programs (e.g., Harvard, Carnegie Mellon)

MILITARY MATRIX

JOB SKILLS

Lieutenants

- Understand importance of current organization, command, and how it fits into the AF mission
- Be willing to learn and work hard
- Basic engineering, scientific, and analytical abilities
- Able to handle small scientific/engineering problems with little supervision
- Mastery of entry level skills in your specialty and mission areas
- Able to produce clear technical writing

Lieutenant to Captain

- Be familiar with Programming, Planning and Budgeting System (PPBS) process
- Solid project officer skills—such as contracting, budgeting
- Demonstrate progression in technical specialty
- Demonstrate technical excellence in at least one job
- Solid followership skills, ability to help leadership decide courses of action
- Ability to plan and execute tasks
- Skill in interpersonal relations
- Ability to perform in group dynamics
- Ability to manage time and resources
- Ability to assimilate data

Technical Expert Path

- Officer required to know how function of organization fits within framework of AF activities
- Should be on track to becoming a recognized expert in one or two specialty areas
- Officer should be competent in engineering discipline with ability to direct large scale programs
- Ability to present analysis/eng project results for leadership to understand
- Scope of projects should show steady expansion in responsibility
- Skill in allocating resources, controlling costs, and maximizing return on investment
- Ability to make risk assessments and make decisions
- Ability to perform technical program planning, direction and execution
- Knowledge of the acquisition process
- Knowledge of AF philosophy, goals and doctrine

Manager/Leader Path

- Skill in representing organizational policies, goals, and needs to external organizations
- Solid understanding of the acquisition process and how technology can be effectively blended with operational requirements
- Understand how function of organization fits within frame work of AF activities
- Ability to work budgeting, contracting, and personnel issues
- Competent in engineering discipline with ability to direct large scale programs to completion
- Ability to present analysis/ engineering project results to leadership
- Scope of projects should show steady increase in responsibility
- Acquire skills in another career field (e.g. 63XX) and/or broaden into an operational AFSC (space ops, logistics, maintenance, intelligence)
- Ability to organize and lead multifunctional efforts effectively
- Skill in managing an organization
- Ability to establish organizational goals, priorities, and investment strategies
- Ability to apply a comprehensive understanding of national international policy and objectives
- Understanding of civilian personnel system and PPBS
- Basic experience with staff officer responsibilities
- Ability to use new technology to enhance decision-making

Senior Leader Path

- Demonstrated exceptional ability across more than one specialty—has breadth/depth (e.g., proficient in acquisition and logistics as well as an additional operational competency)
- Possesses superior leadership skills in managing military, civilians, and contractors
- Ability to develop and implement an organizational vision that integrates key national, DoD, and organizational goals, priorities, values, and other factors
- Handles multiple tasks simultaneously
- Understanding of civilian personnel system and PPBS
- Basic experience with staff officer responsibilities
- Excelled in important, high visibility tasks
- Understands AF doctrine, operational application, and requirements
- Ability to design and implement strategies that maximize employee potential and foster high ethical standards on meeting the organization's vision, mission and goals
- Ability to acquire and administer human, financial, material, and information resources in a manner that instills public trust and accomplishes the organization's mission
- Ability to use new technology to enhance decision-making

MILITARY MATRIX

OVERARCHING COMPETENCIES AND QUALITIES

Lieutenants

- Knowledge of the AF
- Basic technical competence in current job
- Strong technical competence and communication skills to include writing and speaking
- Basic action officer/staffing skills
- Self-starting: identify tasks to assist with
- Understand the importance of outstanding performance in all you do
- Volunteer to work on an IPT to develop new skills

Lieutenant to Captain

- Ability to solve complex problems independently
- Make being a mentor to younger officers a top priority
- Technical competence in field demonstrated in outstanding job performance
- Demonstrate people management and leadership skills

Technical Expert Path

- Expert technical knowledge
- Team leadership
- Ability to communicate effectively
- Should be on track to becoming a recognized expert in one or two specialty areas
- Understand the roles and responsibilities of 61/62s in multiple centers/MAJCOMS
- Published in technical journals and symposia
- Basic supervisory skills
- Applied officership/core values
- Recognized as a mentor
- Beginning to show a combination of breadth and technical depth. Depth is more important for specialists, but progression to senior positions will require a demonstrated ability to serve in other areas and to use the knowledge gained
- Experience teaching in academic discipline or other area
- Knowledge of career development
- Achieves significant technical contributions leading to honors and awards
- Ability to recognize new and expanded concepts in science and engineering that result in patents and publications
- Maintains and fosters professional competency through active participation in university research programs

Manager/Leader Path

- Recognized ability to lead (individuals and teams)
- Should be on track to becoming a recognized expert in one or two specialty areas
- Demonstrated vision (ability to identify a need, and derive and implement a solution)
- Understand the roles and responsibilities of 61/62s in multiple centers/MAJCOMS
- General supervisory skills
- Applied officership/core values
- Budgeting and contracting experience
- Understand personnel management, both civilian and military
- Excellent written and spoken communication skills
- Recognized as a mentor
- Highly desirable:
 - Published in a technical journal and symposia
 - Awards from either professional societies or multiple organizations
- Achieves significant technical contributions leading to honors and awards
- Ability to recognize new and expanded concepts in science and engineering that result in patents and publications
- Maintains and fosters professional competency through active participation in university research programs

Senior Leader Path

- Recognized leader with impeccable credentials
- Excellent written and spoken communication skills
- Ability to solve ambiguous technical problems
- Understanding of broad AF mission Quality indicators: SOS DG/CGOQ/CGOY, tech and professional awards/recognition, top stratification in OPRs
- Ability to develop new officers
- In-depth knowledge of AF doctrine, air and space operations, strategic and operational issues (including political/military)
- Knowledge and experience outside primary specialty
- Demonstrated exceptional ability to lead and develop subordinates (military/civilian)
- Recognized mentor for junior personnel
- Strategic thinker
- Exceptional speaker
- Visionary tactical leader
- Achieves significant technical contributions leading to honors and awards
- Ability to recognize new and expanded concepts in science and engineering that result in patents and publications
- Ability to serve professional technical organizations through participation as a member, advisor, or chairperson of national/international committee in professional societies
- Maintains and fosters professional competency through active participation in university research programs

MILITARY MATRIX

POSSIBLE JOB OPPORTUNITIES

Lieutenant to Captain

- Seek opportunities to demonstrate leadership skills
 - Lead scientist/engineer on a project
 - USAFA, ROTC, OTS instructor
- One of your first two jobs should be technically oriented
- Operational experience desired by third assignment
- Should have moved (PCS or PCA) at least once by 4 year point
- Executive Officer assignments provide AF "big picture"
- Volunteer for deployment
- One tour in "warfighting" MAJCOM (6X or non-6X)
- Career broadening opportunities
 - Acquisition and Logistics Experience Exchange Tour (ALEET) (2nd or 3rd tour)
 - OpTech Immersion Program
 - Space and Acquisition Exchange Program
- Company grade leadership roles
- Build depth but seek diversity—various functions and organizational levels

Technical Expert Path

- Science/engineering project oversight
- Instructor at USAFA or other institution
- Company grade leadership roles
- Build depth but seek diversity—various functions and organizational levels
- At least one Lab/SPO tour
- Leadership position directing other technical personnel
- At least one tour in AFMC
- Foreign Tech Exchange assignment

Manager/Leader Path

- At least 2 tours that strengthen tech proficiency in a specific specialty. Can/should be in 2 different areas of the S&E workforce functions
- Assignment in another specialty (log, maint, comm, space ops) or an ops, exec, staff officer, MS in residence, teaching, or other broadening
- Special Duty Assignments
 - Instructor—ACSC, AWC, ROTC PAS, USAFA, AFIT
 - Ops Support (foreign, Ops Staff Officer, Intl Politico-Mil Affairs, Planning and Programming)
 - IG, Aide de Camp, Protocol, Exec Officer, Command and Control
 - White House Fellowship
 - Olmsted Scholarship
- Develop a broad understanding of AF, while you gain technical depth
- Gain breadth by serving in multiple functional areas
- Serve outside the AFSC in an ops tour, MAJCOM staff tour, or technical teaching assignment
- Advantageous to keep 2 of the first 3 or 4 assignments in same functional area to avoid breadth without depth
- Operational assignment
- Lab or SPO tour
- Foreign Tech Exchange assignment
- Supervise tech/non-tech personnel
- Joint Duty Tour (6X/ non-6X) unified commands, JCS, JWAC, OSD, etc.
- Air Staff, SAF/AQ, MAJCOM HQ
- Leadership— IPT Lead, Br Div Chief, Ops Officer, Sq/CC

Senior Leader Path

- At least two technical jobs in which the officer excels, plus one or two other "special" jobs:
 - AF Intern, Aide, Ex Officer, Commander's Action Group, Ops tour, deployed experience
- Most important is to excel in job with increasing responsibilities (e.g., branch chief)
- Command—SQ and Group CC—excellence demonstrated in both
- Joint assignment highly desired
- White House or other highly competitive Fellowship tour
- Critical Acquisition position experience
- Lab or SPO leadership position
- Political-Military assignment
- Instructor duty, Professor
- Air Staff tour
- Program manager/IPT lead (if acquisition)
- Senior intelligence leadership positions at National level—e.g., NIMA, NRO, NSA, CIA, DIA
- Foreign Tech Exchange assignment

MILITARY MATRIX

OTHER RECOMMENDATIONS

Lieutenant to Captain

- Seek a mentor
- Ask for feedback on your performance; insist supervisor provide it with quality and timeliness (first session at 30-60 days; second 150-180 days)
- Participate in Company Grade Officer's Council
- Gain experience by volunteering for additional duties
- Join S&E professional organizations and participate
- Visit AFPC homepage and review the Spread the Word briefing
- Visit and read items on the AQRE S&E Web page at <http://www.safaq.hq.af.mil/aqre/se>
- Subscribe to the S&E Newsletter at SAF.S&E@pentagon.af.mil
- Understand your officer evaluation and assignment systems; not just promotion system
- Participate in community service/volunteer programs
- Consider the AF Intern Program
- Continue to develop communication skills (Toastmasters)
- Only 3 tours before the Major's Board—make the most of them
- Consider a thesis program while pursuing a MS degree. This will aid in selection for PhD program if you so desire

Technical Expert Path

- May be cases in which you need to achieve APDP certification in more than one speciality, but more than two is an exception and not considered a "plus"
- Consider obtaining advanced education through available education programs such as (AFIT, Fellows, Rand, EWI, TPS, EWL...)
- Consider a thesis program while pursuing a MS degree. This will aid in selection for PhD program if you so desire
- Active in professional societies (IEEE, AIAA, etc)

Manager/Leader Path

- Active in professional societies (IEEE, AIAA, etc)
- See comments in Lieutenant to Captain and Specialist Path
- Quality indicators: early promotion, PME in residence with distinction, selected for challenging high visibility positions.

Senior Leader Path

- Advantageous that formal education be complete or nearing completion
 - Preferable not to be working on PhD for 3 years prior to O-5 board
 - Preferable to apply for PME by correspondence rather than wait to be selected for in-residence
- Other quality indicators: early promotion, PME-in-residence with distinction, selected for challenging high visibility positions.
- Active in professional societies (IEEE, AIAA, etc)

CIVILIAN MATRIX

TRAINING AND EDUCATION

GS-7-12

- Attend mission area orientations relating to the unit, wing, command, AF
- If in an acquisition coded position, begin taking acquisition fundamentals courses
- Obtain additional technical specialty training relating to current job
- Learn basics of financial management & contracting
- Develop long range training and education plan
- Become familiar with advanced educational programs through education office (e.g., AFIT, Fellows, Rand, EWI, EWL)
- MS degree is desirable or further technical education
- Begin considering PhD program if appropriate
- Professional society affiliation and involvement
- Read technical journals to keep abreast of technology

Technical Expert Path

- Technical MS
- Technical PhD
- Acquisition Professional Development Program (APDP) (optional)
- Other professional certifications
- Recognized "fellow"
- Professional Military Education (PME) (optional)
- Education with industry assignment (EWI) (optional)

Manager/Leader Path

- Leadership development class
- Office of Personnel Management (OPM) management development courses
- Executive development
- Leadership training (local, on-base leader seminars, read management books, etc.)
- MS in technical specialty
- MBA (in addition to MS in technical specialty) or PhD
- APDP
- Defense Systems Management College (DSMC) program management course
- PME
- Education with industry assignment

Senior Leader Path

- Technical MS
- Business Master's
- PME
- Fellowship
- Education with industry
- OPM executive development programs
- DSMC program management course
- Executive development programs (e.g., Harvard, Carnegie-Mellon)
- APDP certification in SPRDE, PM, and/or T&E

CIVILIAN MATRIX

JOB SKILLS

GS-7-12

- Understand importance of organization and how it fits into the AF mission
- Be willing to learn and work hard
- Able to handle small scientific/engineering problems with little supervision
- Mastery of entry level skills in specialty and mission areas
- Able to produce clear technical writing
- Be familiar with POM process
- Demonstrate progression on technical specialty
- Demonstrate technical excellence in at least one job
- Solid followership skills
- Ability to help leadership decide courses of action

Technical Expert Path

- Basic communication skills: verbal, written (technical and non-technical)
- Technical competency/mastery
- Mentoring/training
- Ability to technically review others work
- Attuned to organizational and national politics
- Author on journal articles
- Ability to present technical project results for leadership to understand
- Know how organization fits within framework of AF activities
- Direct large-scale projects

Manager/Leader Path

- Demonstrated technical competency/mastery
- Good verbal and written communication skills, both technical and non-technical
- High performance evaluations
- Additional technical functional/occupational experience (breadth)
- Management at multi-organizational level or location
- Mentoring/counseling
- Problem solving ability
- Demonstrated ability to lead a technical project
- Leadership: military, civilian, contractor
- Demonstrated ability to apply technical competence to ambiguous real world AF systems
- Application of financial practices, POM submissions and contracting
- Ability to manage multiple complex tasks simultaneously
- Supervisory experience

Senior Leader Path

- Program management
- Project planning
- Strategic planning
- Project leadership
- Strategic thinker
- Presentation skills
- Excellent verbal and written communication skills, both technical and non-technical
- Functional, geographical, occupational series, and organizational diversity
- Multi-functional: ability to handle varied responsibilities
- Familiarity with the military system
- Ability to think and act independently
- Demonstrated mentoring and counseling ability
- Ability to work budgeting, contracting, and personnel issues
- Problem solving ability
- Leadership: military, civilian, contractor
- Demonstrated excellent job performance
- Good understanding of PPBS
- Supervisory experience
- Visionary

CIVILIAN MATRIX

POSSIBLE JOB OPPORTUNITIES

GS-7-12

- Look for opportunities that allow you to demonstrate leadership skills (lead scientist/engineer on a project)

Technical Expert Path

- Adjunct professor
- Team leader experience
- Science/engineering project oversight
- Technical depth (Lab, ALC, SPO, Test Center, NAIC)
- Technical instructor
- Conduct AF continuation training in technical area of expertise
- At least one Lab/SPO/ALC tour

Manager/Leader Path

- Multiple first line supervision
- Second level supervisory experience
- At least one Lab/SPO/ALC tour
- Jobs at various organizational levels: Sq, Wg, Ctr, MAJCOM, Air Staff, Joint)
- Job progression must show significantly increasing levels of responsibility

Senior Leader Path

- Supervisor: 1st and 2nd level
- Branch or section lead
- Division chief
- Program manager/IPT lead
- AF intern program
- Career broadening (local and command level)
- Jobs at various organizational levels: (e.g. Sq, Wg, MAJCOM, Air Staff)
- Liaison between technical and non technical communities in AF or DoD
- Significant leadership assignment
- White House or other highly competitive fellowship
- Demonstrated mobility
- NRO or NSA

OTHER RECOMMENDATIONS

GS-7-12

- Seek a mentor
- Ask for feedback on your performance, insist supervisor provide it with quality and timeliness (first session at 30-60 days; second 150-180 days)
- Join S&E professional organizations and participate
- Visit AFPC homepage and review the "spread the word" briefing
- Visit and read items on the AQRE S&E Web page at <http://www.safaq.hq.af.mil/aqre/se>
- Subscribe to the S&E Newsletter at SAF.S&E@pentagon.af.mil
- Participate in community service/volunteer programs
- May want to join Toastmasters to hone communication skills

Technical Expert Path

- Consider a thesis program while pursuing a MS degree. This will aid in selection for PhD program if you so desire

Manager/Leader Path

- N/A

Senior Leader Path

- N/A

ADDITIONAL CAREER DEVELOPMENT INFORMATION

The web sites listed below are provided as an additional resource for information to assist in your career development and planning.

General Information

S&E Newsletter Web Page: <http://www.safaq.hq.af.mil/aqre/se/>

62E Career Field News Page: <http://afas.afpc.randolph.af.mil/acquis/62/62frame.htm>

SES Page: <http://www.dp.hq.af.mil/dps/>.

Colonels' Page: <http://www.dp.hq.af.mil/afslmo/afslmocom/>

APDP Career Guide: http://www.safaq.hq.af.mil/acq_workf/career_training/apdp/

AFSLMO Home Page: <http://www.dp.hq.af.mil/afslmo/index.htm>

Officer

AFPC Assignments Page: <http://www.afpc.randolph.af.mil/>. Click on officer assignments.

AFPC Mentoring Page: <http://afas.afpc.randolph.af.mil/afas/afas-main1.htm> Must login to AMS.

Officer Career Path Guide: <http://afas.afpc.randolph.af.mil/afas/afas-main1.htm>.

AFPC Officer Career Broadening Web Page: <http://afas.afpc.randolph.af.mil/careerbroad/career-broad.htm>.

Officer Assignment Team Page: <http://afas.afpc.randolph.af.mil/dpas/>.

AQ Officer Web Page: <http://afas.afpc.randolph.af.mil/Acquis/Acquis.htm>.

www.afit.edu or & www.usafa.af.mil/flash/index.html

Education with Industry: <http://ci.afit.edu/CIG/CIGH/cigh.html>

Test Pilot School: www.edwards.af.mil/tps

Logistics Career Broadening: <https://www.afmc-mil.wpafb.af.mil/HQ-AFMC/LG/lgx/lcbp/lcbp3.htm>

Air Force Intern Program: <http://afas.afpc.randolph.af.mil/pme/>.

Space and Acquisition Exchange Program: <http://afas.afpc.randolph.af.mil/acquis/saep.htm>

Civilian

Leadership Development Marketing Briefing: <http://www.dp.hq.af.mil/dps/afclp.htm>

Defense Leadership and Management Program (DLAMP): <http://www.afpc.randolph.af.mil/cp/DLAMP/default.htm>.

Civilian Competitive Development Program (CCDP): <http://www.afpc.randolph.af.mil/cp/CCDP/default.htm>

Civilian Career Development Homepage: <http://www.afpc.randolph.af.mil/cp/>

AF Career Broadening Program: <http://www.afpc.randolph.af.mil/cp/CB/Default.htm>.

Civilian Mentoring Web Page: <http://www.afpc.randolph.af.mil/cp/CB/mentor.htm>.

AFMC Workforce Management Division: <https://www.afmc-mil.wpafb.af.mil/HQ-AFMC/DR/drw/index.htm>

Civilian Career Management Directorate: <http://www.afpc.randolph.af.mil/cp/toc-cp.htm>

SECP Home Page: <http://www.afpc.randolph.af.mil/cp/secp/default.htm>

Planning your career: <http://www.afpc.randolph.af.mil/cp/secp/personal.htm>





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"Whatever be your pursuits, be not satisfied with the character of being barely respectable. Let no attainment, short of eminence, content you. If you, yourselves, respect not your talents, you must not expect them to be respected by others. If you distrust your own understandings, and once persuade yourselves that you can accomplish but little; it is certain that you will accomplish but very little. Unless you aim at distinction, be assured you will never attain it. No limits are prescribed to the efforts of the understanding; and it is difficult to name the bounds, which genius and application may not surpass. Few men have ever accomplished more than they expected; and few have failed of the object, which they were determined to accomplish."

—Henry Davis, President, Middlebury College, 1809