Bright Horizons 2.0
the Air Force STEM Workforce Strategy

Innovation begins with inspiration...

“With the pace of technological innovation today, we can’t afford to stand still for a year or two years or three years. We’ve got to seize every opportunity we have to stay ahead. And we can’t let other countries win the race for ideas and technology of the future.”

President Obama, 30 April 2013
A Message from SECAF

Bright Horizons 2.0 is the second generation Air Force Science, Technology, Engineering, and Math workforce strategy. The Air Force vision statement, “The World’s Greatest Air Force - Powered by Airmen, Fueled by Innovation”, inspires us to continue bringing world class technology to the warfighter. We do this through each of you, our Airmen – officers, enlisted, and civilians, active, Guard and Reserve. The strategy identifies our dynamic workforce requirements, ensures our institutional competencies acknowledge the value in leveraging technology skills, and looks across America to attract the best and the brightest to join us. And we continuously exploit opportunities to apply emerging technologies in what we do, at every level of the Air Force.

Competition for highly qualified, technical talent will continue to intensify. We vie for gifted aptitude in a very competitive local, global, and specific skills market. By 2018 the demand for technical talent will outpace degree production by over one million jobs in the United States. There will continue to be a daily challenge to maintain technical skills as the pace of technology rapidly increases.

There are two ways you can make an individual contribution to help ensure we can thrive as a community. The first is to seize every window of opportunity to improve your individual technical skills through training and education. The second is to maintain and mentor our greatest advantages – our Airmen. We have men and women whose backgrounds reflect various regional and national origins, ethnicities, languages, cultures and life experiences. Our Air Force is a cohesive and united team working together to provide the best options for deterrence, rapid action and enduring airpower presence for our Nation. Furthermore, our diversity gives us the ability to develop innovative solutions for today and tomorrow. Our different backgrounds, rich variety of life, and social experiences intersect and generate creativity – so embrace it!

Bright Horizons 2.0 promotes active management of our innovative workforce by fostering technological superiority. Our future is shaped by each of us building on our unique capabilities, and nurturing the development of our highly-skilled Airmen to continue to be the ready and agile fighting force that the Air Force, the joint force commanders and the Nation require.

Deborah Lee James
Secretary of the Air Force
A Message from CSAF

The United States Air Force operates with global preeminence across all warfighting domains through innovation – whether in air, space, or cyberspace. We do this with world class, technical talent. As globalization and the pace of technology continue, our demand for this talent will continue to grow.

Resource constraints, be it budgetary or workforce numbers, give us no time to pause and take stock. We must embrace the culture of technical innovation, our historical hallmark, and go even further and faster.

Each Airman has a role to play in being tech-savvy. I encourage you to incorporate technical education and training into your career development. Within our budget limits, this can include updating skills, education classes, on-the-job training, or self-improvement activities.

The Air Force inspires thousands of students and teachers by conducting hundreds of Science, Technology, Engineering, and Math (STEM) outreach engagements each year. We also leverage local, state, and Federal events, such as science fairs and tutoring students in various academic disciplines to include science and math. We encourage all Airmen, military and civilian, to mentor and champion the next generation to pursue their interests in STEM. Our youth will be the Airmen of tomorrow and they will keep us on the leading edge of aerospace advancements.

I encourage Airmen at all levels to embrace the innovation culture, participate in education and training endeavors, and continue to be Air Force “STEM ambassadors” in your communities.

MARK A. WELSH III
General, USAF
Chief of Staff
Foreword

“Any air force which does not keep its doctrines ahead of its equipment, and its vision far into the future, can only delude the nation into a false sense of security.”

(General Henry “Hap” Arnold, 1945)

“Today’s Airmen play a pivotal role in the constant pursuit of better ways to defend the Nation. Since the airplane was employed over the battlefields of World War I, Airmen have stood for and pioneered new and innovative ways to shape the fight and reinvent the battle itself. While pre-Kitty Hawk warriors relied on breaking through fortified lines on the ground, Airmen have always sought to go over, not through, those fortifications to achieve victory. This spirit of innovation, seeing problems from an alternative, multi-dimensional perspective, is in our Service history, in our culture, and in every Airmen – Active, Guard, Reserve and Civilian – regardless of his or her specialty or role.”

“Recruiting and developing high-quality, innovative Airmen who leverage technology to rethink military operations to achieve strategic objectives will remain a fundamental tenet of the United States Air Force. Only through the efforts of Airmen who have led the way in integrating military capabilities across air, space, and cyberspace – even as their numbers have become significantly smaller – has our Nation maintained its airpower advantage.”

“Globalization and the pace of technology advances are accelerating. Airmen work with advanced technology every day, and developing innovative and technically-savvy Airmen to continue to operate on the cutting edge is the lifeblood of our Service. The Air Force’s ability to leverage and field crucial technologies is dependent on America’s aerospace research and development infrastructure – a national asset that must be protected to ensure future U. S. advantages in technology, commercial aviation, and space. Accordingly, we are protecting science and technology funding as a share of our total resources. To ensure that Airmen increase their technical acumen, we are strategically managing our science, technology, engineering, and math (STEM) workforce and conducting outreach activities to recruit and train an adequate and diverse STEM talent pool to develop, operate, and maintain our technical advantage.”

Excerpts from USAF Posture Statement, 2013
Alignment

STEM workforce challenges require careful integration of Air Force STEM policy and practices with existing higher level guidance and direction. Bright Horizons 2.0 was developed to maintain alignment with Air Force doctrine and priorities: Air Force Strategy, Strategic Master Plan, Global Horizons, Air Force S&T Strategy, Acquisition Workforce Strategic Plan, and the Manpower, Personnel & Services Transformation Roadmap. Bright Horizons 2.0 was also developed to align with Department of Defense directives to include Defense Planning Guidance, the Quadrennial Defense Review; Unified Legislative Budgeting; Acquisition, Technology and Logistics Human Capital Strategic Plan, DOD’s Research and Development Imperatives, and OSD’s FY 2013-2018 Strategic Workforce Plan.

Foundational Principles

“Leveraging the fight, creating the edge.”

The capabilities developed, sustained, and enabled by our STEM workforce provide tremendous leverage for the warfighter and create the edge necessary to Fly, Fight and Win. Technology has brought more capability to the fight with a single sortie; manned or remotely piloted. The Air Force STEM workforce allows us to maintain a winning edge.

The mission of the United States Air Force is to fly, fight and win... in air, space, and cyberspace. The guiding statement of Bright Horizons 2.0 is to: Foster an Air Force culture that leverages Science, Technology, Engineering, and Mathematics (STEM) and through innovation, translates technology into Global Vigilance, Global Reach, and Global Power.
Why Strategic STEM Workforce Management?

It is critical we meet Air Force requirements in the face of escalating resource demands. Well-designed workforce management strategies will create and maintain a competitive edge in recruiting and retaining qualified personnel for all Air Force technological needs—present and future. Corporate strategies enhance value to the customer, and purposeful workforce management operationalizes business strategies. Bright Horizons 2.0 is the deliberate, transparent, and analytical construct to address human capital problems. Key benefits of a common framework are:

- The military and civilian workforce is more effectively utilized.
- Skilled and experienced replacements are available to fill the most crucial vacancies.
- STEM personnel and competencies are kept adaptable.
- Realistic staffing projections drive better budget decisions.
- Recruitment is more efficient and effective (less redundant use of resources).
- Smarter investments in training, development, career counseling, and career path decisions.
- Transparent, innovative processes across mission areas.
STEM Workforce

Our standing as the greatest Air Force in the world is not a given. There are four key workforce challenges we need to confront: an aging workforce, declining “homegrown” talent from our educational system, worldwide competition for S&E talent, and decreased attraction to STEM careers. (“Rising Above the Gathering Storm,” The National Academies, 2005, 2009, 2010) It is imperative we address these challenges and ensure the continued success of our Air Force and security for our Nation.

Our STEM personnel enjoy solving technological problems and thrive in a nurturing environment of complex work, especially when their contributions are recognized. They rely on lifelong learning opportunities realizing that growth comes with taking on greater responsibilities and the acceptance of accountability.

The Air Force promotes diversity and inclusion in the STEM workforce by:

- Fostering an inclusive environment for the benefit of all.
- Aligning strategic outreach efforts to attract a broad talent pool.
- Recruiting from all segments of society.
- Developing and mentoring individuals.
- Examining attrition factors for under-represented groups.

Air Force expectations of STEM personnel are:

- Hone technical skills through advanced degrees and continuing education.
- Seek challenging tasks and accept accountability.
- Broaden career experiences at the appropriate times.
- Seek opportunities to collaborate.
- Attract tech-savvy peers to Air Force careers.
Bright Horizons 2.0 Focus Areas

• Advancement of STEM disciplines as an Air Force Institutional Competency.¹
• Establish rigorous STEM-related manpower requirements across the Air Force.
• Dynamic force management practices to sustain a workforce at the right grade levels, at the right time, and at the appropriate locations.
• Active use of the Air Force’s Continuum of Learning.
• Pursuit of strategic partnerships and outreach activities with schools, universities, sister services, professional associations, other agencies, and international partners.
• Adopt measurements to drive business behaviors across the Air Force consistent with the vision and goals of Bright Horizons 2.0.

Desired End State

• Workforce of talented professionals with the right education, training, and experience.
• Workforce that leverages technology under Air Force doctrine.
• STEM personnel with the requisite skills to develop, operate, and sustain the highly technological Air Force of the future.
• Strategically-guided workforce management processes to ensure the workforce is adequately sustained at all levels throughout the Air Force.
• Career paths leading to the development of scientific and technological leaders.
• Mentoring that prepares the workforce required to sustain the Air Force heritage of technological superiority in an increasingly contested world.
• Workforce management that cuts across multiple career fields and functional communities.
• STEM requirements and resources addressed as a strategic asset.

¹AFMAN 36-2647, Institutional Competencies and Management, 25 Mar 2014
Governance Structure
Science, Technology, Engineering, and Mathematics Advisory Council (STEMAC)

The STEMAC is the Air Force’s senior STEM matters advisory group. It serves as the primary advisor to the AF Chief of Staff (AF/CC) and the Secretary of the Air Force (SECAF) on integration of STEM human capital issues. The STEMAC is chaired by the Assistant Secretary of the Air Force for Acquisition (SAF/AQ) and composed of representatives from key STEM functional areas and communities. Members are appointed by AF/CC, and by SAF/AQ as required. Members perform three key roles:

1. Advance the Air Force STEM strategy (Bright Horizons 2.0), to include all initiatives and goals, for SAF/AQ, CSAF, and SECAF approval.

2. Ensure their organizations are executing the Air Force STEM vision, goals, and strategy. Oversee performance of all STEM activities and assume lead responsibility for goals and initiatives assigned to them.

3. Continue to keep abreast of issues affecting the AF STEM community and ensure those issues are addressed in the appropriate forum.

STEMAC reviews progress on goals, initiatives, related metrics, and associated milestones supporting Bright Horizons 2.0 on a semi-annual basis. The STEMAC provides feedback to the Goal Champions and Initiative Owners (roles described below)

SAF/AQ Roles and Responsibilities

- Serves as the lead organization for Bright Horizons 2.0.
- Establishes strategic partnerships with other STEM functional leaders to establish appropriate goals and initiatives.
- Serves as the final Air Force decision authority for issues not covered in the Air Force Board structure.
- Advocates for resources, policy changes, and legislative initiatives in support of Bright Horizons 2.0 strategic themes and objectives.
- Introduces public and private sector best practices to increase Air Force capabilities and improve efficiencies.
- Partners with STEM functional managers to develop the STEM agenda.
- Sponsors and advocates strategic partnerships with outside organizations such as OSD, sister Services, and other interested federal agencies such as the Department of Education, National Science Foundation, Smithsonian Institute, as well as private industry.

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SAF/AQR Roles and Responsibilities

- Serves as the designated office for the day-to-day management of Bright Horizons 2.0.
- Responsible for developing STEM strategic concepts, principles, plans, integrating elements of the strategy, facilitating implementation, and executing specific programs to support STEM themes and objectives.
- Works in partnership with the corresponding AF STEM Career Field Managers and AFPC Development Teams.
- Organizes meetings and presentations supporting STEM workforce issues.
- Monitors and administers processes for reviewing and updating the AF STEM strategy.
- Leads the continued development of the AF STEM strategy to ensure alignment with the Air Force Strategic Plan (AFSP).

Deputy Chief of Staff, Manpower, Personnel & Services (AF/A1) Roles and Responsibilities

- Responsible for providing assistance and guidance to SAF/AQ in managing AF STEM resources.
- Ensures Bright Horizons 2.0 is consistent with broader Air Force plans, policies, directives, and processes concerning AF human capital management including diversity.
- Appoints a senior level STEMAC representative to advise on AF personnel policies.

Goal Champions’ Roles and Responsibilities

Goal Champions are General Officers or Senior Executive Service members with responsibility to:

- Develop initiatives to achieve strategic goals (addressed under Goals section).
- Develop specific metrics for their assigned goal area focusing on outcomes, not outputs.
- Appoint initiative owners.
- Coordinate with cross-functional OPRs to ensure objectives and initiatives represent a broad-spectrum, enterprise context.
- Provide updates on initiatives as requested by SAF/AQ.

Initiative Owners’ Roles and Responsibilities

Initiative Owners (IO) are at the Colonel or civilian equivalent level. They manage efforts with shorter duration than strategic goals, and will:

- Develop, maintain, and track key milestones and metrics associated with initiative completion.
- Appoint action officers for each initiative.
- Provide periodic updates to their respective Goal Champions.
- Recommend changes to Bright Horizons 2.0.
- Share innovative STEM practices with other IO’s.
Strategic Goals

Goal One: Planning and Requirements
Facilitate utilization of STEM related manpower requirements across the Air Force. Provide appropriate language in Air Force policy planning documents to facilitate development of STEM workforce needs and highlight their importance to the Air Force mission.

Goal One Champion: SAF/AQH

Goal Two: Force Management
Appropriately apply force management practices to build and maintain a highly competent, diversified, and agile force at the right grade levels, at the right time, and the appropriate locations.

Goal Two Champion: AF/A1P

Goal Three: Continuum of Learning (COL)
Actively use the Air Force’s Continuum of Learning to promote a STEM workforce that is scientifically, technologically, and mathematically strong.

Goal Three Champion: AF/A1D

Goal Four: Outreach
Increase the local STEM talent pool by exposing as many students and influencers as possible, including those underrepresented in STEM, to Air Force STEM expertise, technical facilities/equipment and STEM concepts through various local STEM outreach activities. Leverage research work assignments, fellowships, and university grants.

Goal Four Champion: AFRL/CA
Conclusion

The Air Force STEM workforce has proven its value countless times by providing and employing a continuous stream of technical capabilities that propelled the US Air Force to the forefront of air power globally. We have done this through our people, in and out of uniform. Leveraging technology is an institutional competency and science and math are part of our “DNA.” The pace and breadth of technical development worldwide continues to increase. Therefore, we must continue to acquire and develop the institutional competencies necessary to meet our future challenges. Much has been done; much still remains. In answer to President Obama’s STEM goals and with the support of Department of Defense leadership, we will actively engage with our partners across government to support STEM workforce development. President Kennedy said in his 1961 inaugural address “…the torch has been passed to a new generation of Americans…” 50 years later, the torch is being passed once again. We accept the challenge and confidently lift off towards our “Bright Horizons 2.0.”

The world’s greatest Air Force- powered by Airmen, fueled by innovation!

Appendix A. Goals & Initiatives:

The current Goal Champions, Initiative Owners, and a detailed listing of the current initiatives that underpin each of the Goal Areas in Bright Horizons 2.0 are maintained by SAF/AQH and are distributed separately. Copies can be obtained by contacting SAF/AQR, 1060 Air Force Pentagon, Washington D. C. 20330-1060; Phone 571-256-0294.

Appendix B. STEM Workforce Terminology:

STEM Workforce - The total assigned military/civilian personnel with a qualifying STEM degree at the undergraduate/graduate level and are presently serving in a technical degree required position.

STEM Degreed - The total assigned military/civilian personnel with a qualifying STEM degree at the undergraduate/graduate level to include those who are not presently serving in a technical degree required position.

Interpretive Note: We typically find STEM assigned Airmen in organizations that perform analysis, research, test, sustainment, program management to include nuclear, cyber, or space related missions. STEM assigned Airmen are also found in higher headquarters, the Reserves, and Air Force support functions such as communications/computer, civil engineering, and weather. It is not meant, at this time, to address medical personnel, civilian technicians, enlisted personnel, or contractors. This definition can be expanded when we further mature the idea of AF STEM.
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